

Two-Position Multi-Stage Automatic Changeover Electric Room Thermostats General Instructions

APPLICATION

For low voltage on-off control applications needing automatic or manual changeover of two stages heating and two stages cooling.

SPECIFICATIONS

Setpoint Dial Range:

Heating, 50 to 85°F (10 to 29.5°C)

Cooling, 55 to 90°F (13 to 35°C)

Differential Staging: Between first stage ON and second stage ON (for heat or cool) is always 1°F (0.6°C).

Environment:

Ambient Temperature Limits,

Shipping -40 to 140°F (-40 to 60°C).

Operating 35 to 140°F (0 to 60°C).

Humidity, 5 to 95% R.H., non-condensing.

Locations, NEMA Type 1 indoor only.

Anticipation (each stage):

Heating, Adj., 0.15 to 1.0A.

Cooling, Fixed, 0 to 1.5A.

Electrical Ratings:

Manual Switches, 2.5A max. at 24 Vac.

Mercurcy Switches,

Heating 1.0A max. at 24 Vac.

Cooling 1.5A max. at 24 Vac.

Sensing Element: Separate spiral bimetals.

Minimum Interlock: Difference between heating and cooling; factory set for 3°F or 1.6°C nominal.

Connections: Coded screw terminals.

Construction: Beige plastic.

Mounting: Directly on wall or on 2 x 4 horizontal box.

Dimensions: 3-3/32" high x 4-3/4" wide x 2" deep (79 mm x 121 mm x 51 mm).

Cover Slide Switches:

Fan, ON-AUTO.

System, HEAT-OFF-COOL-AUTO.

ACCESSORIES

AT-1163	Wire guard
AT-1165	Plastic guard

PRE-INSTALLATION

Inspection

Visually inspect the carton for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the carton and visually inspect the device for obvious defects. Return damaged or defective products.

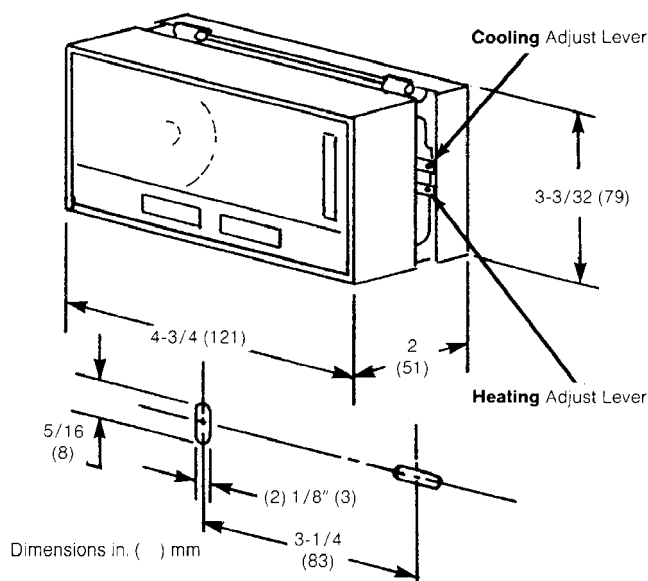
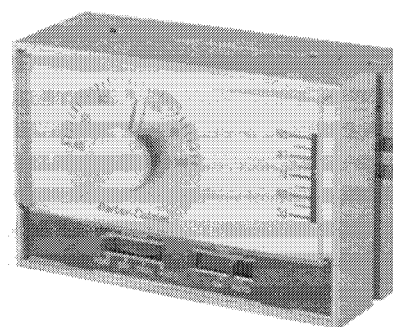


Figure-1 Thermostat Mounting Dimensions.

Required Installation Items

- Wiring diagrams
- Tools (not provided):
Volt-ohm meter
Appropriate screwdriver for mounting screws and terminal connections
- Appropriate accessories
- Mounting screws, two (2) provided for securing to a 2 x 4 horizontal box or directly to wall

INSTALLATION

Caution:

1. Installer must be a qualified, experienced technician.
 2. Make all connections in accordance with the wiring diagrams and in accordance with national and local electrical codes. Class I wiring is required unless all circuits to contacts are powered from a class II source. Use copper conductors only.
 3. Do not exceed ratings of the device.
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Mounting

Thermostats require upright mounting on a properly flat vertical surface. Locate the thermostat where it will be exposed to unrestricted circulation of air which represents the average temperature of the controlled space. A built-in level-bubble is also provided.

Caution:

Do not locate the thermostat near sources of heat or cold, such as lamps, motors, sunlight or concealed ducts or pipes, or where there is a danger of electrocution (i.e., shower rooms).

The thermostat is designed for service in any normally encountered human environment. Avoid locations where excessive vibration, moisture, corrosive fumes or vapors are present.

NEMA Type 1 covers are intended for indoor use primarily to provide a degree of protection against contact with enclosed equipment.

Procedure

1. Remove cover from thermostat by pulling straight outward. Remove packing and shipping pads for mercury switches.
 2. Grasp bronze tab (Figure 2). Lift upward to raise hinged cover (Figure 3) until bronze clip is exposed which will keep hinged cover in raised position.
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Note: If cooling (C) temperature adjust lever is at it's highest setting, the hinged cover will not raise far enough.

3. Pull thermostat wires through opening in center of thermostat. (When mounting direct to wall, be sure hole in wall is large enough to enable excess wire to be pushed back through it.) With two screws provided, attach thermostat to wall or switch box (Figure 3). Do not tighten screws securely until after wiring has been completed.
4. Fasten wires beneath proper terminal screws. Then push excess wire into wall or switch box and plug up holes to prevent drafts from affecting thermostat operation.
5. Using built-in level bubble (Figure 3), level thermostat and tighten mounting screws securely.
6. Lower hinged cover until bronze tab snaps in place.
7. Set adjustable heat anticipator(s) to proper setting. Then snap on thermostat cover and set temperature adjust levers at desired settings. Levers are marked C (cooling) and H (heating).

HEATING ANTICIPATION

Heating stages are supplied with an adjustable heat anticipator to assure a uniform temperature (Figure 2). Set heat anticipator to match current rating of the primary control. Anticipator may be adjusted for current ratings from 0.15 to 1.0 Amp.

Caution: The adjustable heater (heat anticipator) WILL BURN OUT if 25V is applied directly to thermostat by shorting out the primary control during testing or by incorrect wiring.

Additional adjustments (when required)

If heat anticipator has been set to match the current rating of the primary control and heating cycles are still too long or short, proceed as follows:

Heating Cycles too long: Set heat anticipator to slightly lower dial setting (1/2 division).

Heating Cycles too short: Set heat anticipator to slightly higher dial setting (1/2 division).

COOLING ANTICIPATION

Cooling stages are equipped with fixed cooling anticipator (Figure 2) for use on current draws from 0 to 1.5 Amp.

Caution: On electric heat systems, a heat dissipation thermostat must be provided to ensure fan operation until a safe temperature of the electric heating coil is reached to prevent possible coil damage when the room thermostat turns off the heat.

CHECKOUT

After installing a thermostat, make an initial check of the switching action. Verify the switch action by watching the switch contacts or by using a voltmeter between the proper sides of the switch.

MAINTENANCE

Regular maintenance of the total system is recommended to assure sustained optimum performance.

Open areas at bottom and around base of thermostat should be kept clean and free from obstructions to allow proper flow of air.

REPAIR

If the thermostat is not found to be operating correctly, it should be replaced. Do not field repair. If the device is operating correctly, check the wiring and other devices in the system.

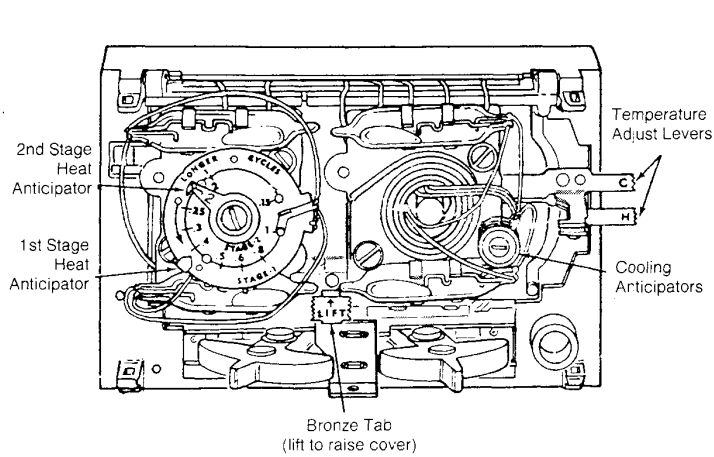


Figure-2 Thermostat (cover removed).

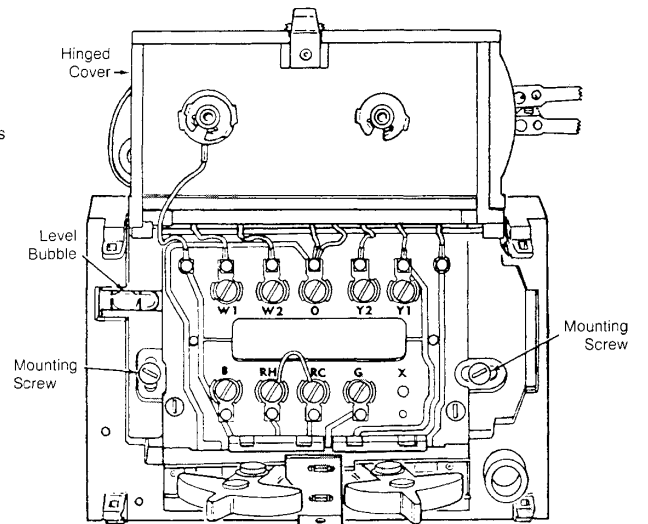
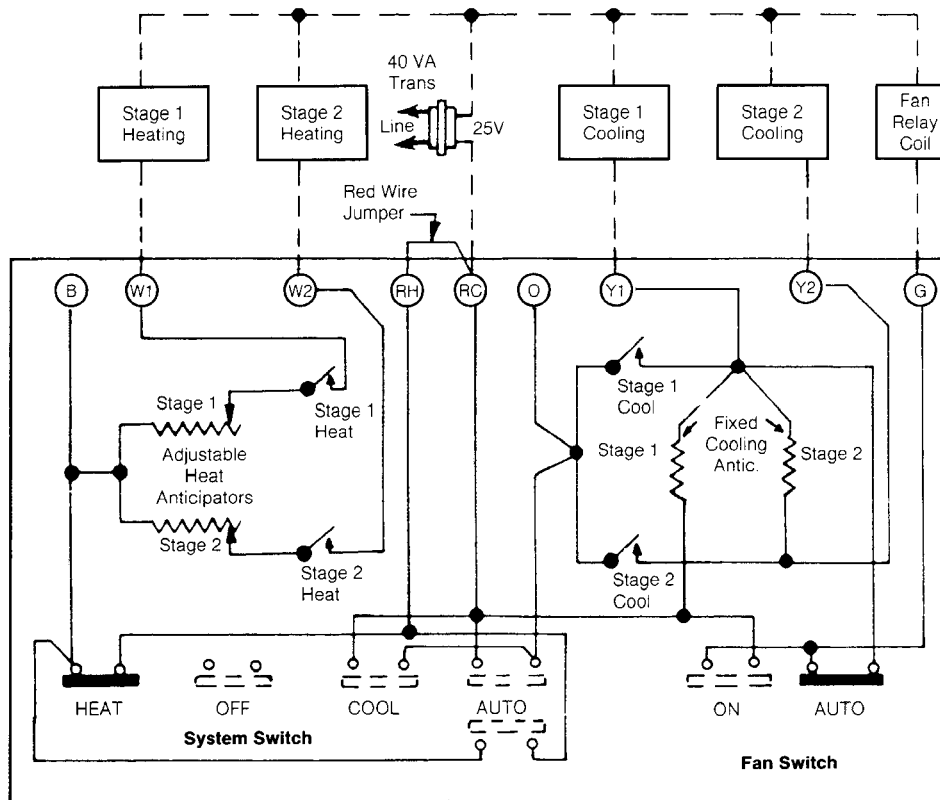


Figure-3 Hinged Cover in Raised Position.

Wiring



Operation of Bar Contacts:

- Circuit Made
- Circuit Broken

Low Voltage Wiring:

- Internal
- External

NOTE

Diagram shown is for a typical system. Always refer to specific wiring instructions provided by the controlled device equipment manufacturer.

Figure-4 Typical System Diagram.

Table-1 TERMINAL IDENTIFICATION.

Fan	Power Supply		Heating		Cooling		Auxiliary	
	Heat	Cool	Stage 1	Stage 2	Stage 1	Stage 2	*	**
G	RH	RC	W1	W2	Y1	Y2	B	O

* Terminal B permits extra load to be energized in either HEAT or AUTO position.

** Terminal O permits extra load to be energized in either COOL or AUTO position.

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