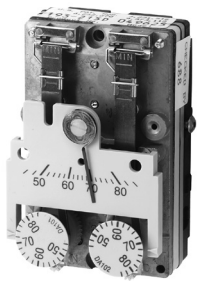


Powerstar Free Energy Band Heating/Cooling Pneumatic Room Thermostats



193 HC Thermostat chassis.



Typical wall plate and screws.



193 HC Thermostat with plastic cover. Chassis wall plate with easy maintenance plug-in adapters shown (optional).

Description

Providing proportional, dual output, dual setpoint, 2-pipe (dual 1-pipe low air capacity) or 3-pipe (dual 2-pipe high air capacity) pneumatic room temperature control, the 193 HC Powerstar Free Energy Band Pneumatic Room Thermostat creates a deadband so that no heating or cooling occurs during the Free Energy Band.

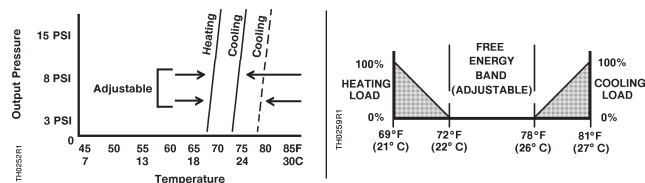
Features

- Dual setpoint dials available in Fahrenheit or Celsius scales
- Integral, field adjustable limit stops
- Sensitive bimetal responds to temperature changes
- Adjustable Free Energy Band
- Test port for fast check of output pressure without removing the cover
- Wall mounting plates for connection to a variety of rough-in terminal boxes included
- Field replaceable thermometer, setpoint dials, restrictors and filters
- Competitive adapter mounting kits available

Options

- Fixed limit stops to meet government specifications
- Quick-connect air connections for ease of installation and service
- Large, 1/2" setpoint knob for convalescent homes

Input/Output Characteristics



Applications

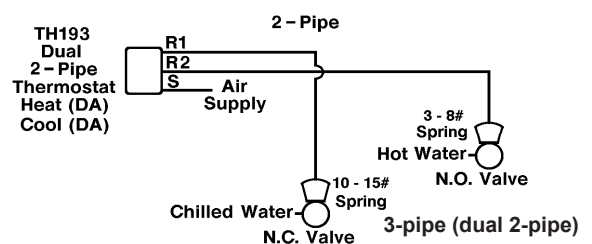
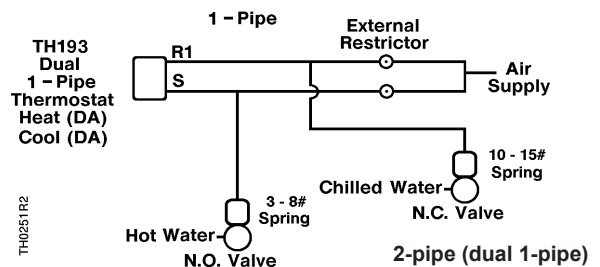
Designed for buildings with early morning heat requirements and mid-morning to afternoon cooling requirements, the Powerstar Free Energy Band Pneumatic Room Thermostat two temperature thermostat controls valves, damper actuators and mechanical heating and cooling equipment. Providing energy management and occupant comfort, the thermostat automatically reduces heating load and increases cooling load.

Recommendation

2-pipe (dual 1-pipe): Use when a limited air capacity is required to operate a single valve and/or actuator.

3-pipe (dual 2-pipe): Use for multiple valves and actuators with or without high/low limiting controls which require higher air capacities.

Application Drawings



193 HC Thermostat Specifications








For complete conversion kits, refer to the Retroline® Retrostats starting on page F-15.

- Scale; Range**
 Major (minor) Divisions..... 45 to 85°F, 10(2)°F (7 to 30°C, 5(1)°C)
- Factory Calibration** 72°F, 7.5 psi ±0.3
 (22°C, 52 kPa @ 1.8)
- Sensitivity Adjustment Range** 1 to 4 psi/°F (12 to 50 kPa/°C)
- Factory Setting** 2.5 psi/°F (31 kPa/°C)
- Limit Stop**
 Field Adjustment Range 45/85°F (7/30°C)
 Fixed Limit Stop Range 55/75°F (13/24°C)
- Temperature**
 Storage -10 to +140°F (-23 to +60°C)
 Ambient Operating 40 to 140°F (4 to 60°C)
- Accuracy at Factory**
 Calibration ±2°F (±1.1°C)
 Response 0.1°F (0.06°C)
- Supply Air Pressure**
 Two Pressure (recommended) 25 psi (172 kPa)
 Maximum 30 psi (207 kPa)

- Nominal Air Consumption for Air Compressor Sizing**
 1-pipe 50 scim (14 ml/s)
 2-pipe 40 scim (11 ml/s)
- Nominal Air Capacity for Air Main Sizing**
 1-pipe 50 scim (14 ml/s)
 2-pipe 40 scim (11 ml/s)
- Nominal Chassis Air Capacity**
 1-pipe Supply 25 scim (6.8 ml/s) per side
 2-pipe Supply 230 scim (63 ml/s) per side
 1-pipe Exhaust 30 scim (8 ml/s) per side
 2-pipe Exhaust 150 scim (41 ml/s) per side
- Air Connections** 5/32" (4 mm) OD tubing
- Dimensions (with cover)** 2.16" W x 3.34" H x 1.59" D
 (55 mm W x 85 mm H x 40 mm D)
- Shipping Weights**
 Thermostat Chassis and Wall Plate 0.53 lb. (0.24 kg)
 Plastic Cover 0.07 lb. (0.04 kg)
 Metal Cover (dual) 0.27 lb. (0.12 kg)

193 HC Thermostat Product Ordering

Model #	Thermostat Chassis Type				Thermostat Chassis & Wall Plate	
	Output	Setpoint	Air Output Capacity	Thermometer & Setpoint Scales	Control Action	
					Heat Direct	Heat Reverse
193 HC 1-pipe	Single	Dual (Heat and Cool)	Low (No Relay)	°F °F	193-211 Cool (DA) 193-212 Cool (RA)	193-213 Cool (DA) 193-214 Cool (RA)
193 HC 2-pipe		Dual (Heat and Cool)	High (Integral Relay)	°F °F °C	193-215 Cool (DA) 193-216 Cool (RA) 193-235 Cool (DA)	193-217 Cool (DA) 193-218 Cool (RA) —

Thermostat Covers (Sold Separately)	Plastic Part No.		Metal Part No.
	Desert Beige	White	
 <ul style="list-style-type: none"> • Adjustment setpoint concealed • Indicator setpoint concealed • Chassis thermometer concealed • No logo 	192-257	192-257W	192-357
 <ul style="list-style-type: none"> • Adjustment setpoint concealed • Indicator setpoint concealed • Chassis thermometer concealed • With logo 	192-256	192-256W	192-356
 <ul style="list-style-type: none"> • Adjustment setpoint concealed • Indicator setpoint concealed • Chassis thermometer exposed 	192-254	192-254W	192-354
 <ul style="list-style-type: none"> • Adjustment setpoint key • Indicator setpoint exposed • Chassis thermometer concealed 	192-267	192-267W	192-367
 <ul style="list-style-type: none"> • Adjustment setpoint key • Indicator setpoint exposed • Chassis thermometer exposed • Use with 1/2" setpoint knob option 	192-268	—	192-368
 <ul style="list-style-type: none"> • Adjustment setpoint exposed • Indicator setpoint exposed • Chassis thermometer concealed • Use with 1/2" setpoint knob option 	192-258	—	—
 <ul style="list-style-type: none"> • Adjustment setpoint exposed • Indicator setpoint exposed • Chassis thermometer concealed 	192-260	192-260W	—

Note: • "Exposed features" are indicated in red on corresponding illustration.
 • Universal Cover sold on page F-92.

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Pneumatics