



# Thermostats & Hygrostats

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(Continued on next page)

## Ordering & Information

Siemens offers a wide variety of pneumatic thermostats, hygrostats, and low and line voltage electric thermostats for both common and specialized applications.

### To lookup products and accessories:

1. Locate the appropriate application using the table of contents.
2. Find the desired product and page number.
3. Reference any accessories or service kits quickly in the colored pages at the back of the section.

For competitive replacements, Retroline® product are referenced by application and product.

Indexes are located at the front of the catalog organized alphabetically by application or product, or alpha-numerically by part number.



### For more information:

For technical or installation instructions and locations, visit the web site at: [www.sbt.siemens.com/hvp/components](http://www.sbt.siemens.com/hvp/components).

For further assistance, please contact a Siemens Building Technologies representative at: **1.888.593.7876**.

# Thermostats & Hygrostats

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# Overview

## Powerstar Room Thermostats

Proven to provide fast response and highly accurate temperature control, Powerstar Pneumatic Room Thermostats are designed to control heating and/or cooling by operating a variety of pneumatic devices such as valves or damper actuators.

Powerstar thermostats are factory-calibrated to control pneumatic devices over a 3 to 15 psi (103 to 207 kPa) range.

Powerstar pneumatic room thermostats are available for the following applications:

- Single Temperature
- Day/Night
- Day/Night/Vent
- Heating/Cooling
- Free Energy Band
- Free Energy Band with Hesitation

Covers are available with concealed or exposed set point adjustment, room temperature indication, and set point indicator.



### Selection Guide


Air Supply	Applications	Control Outputs	Control Set Points	Control Actions	Air Output Capacity		Model
					Low (1-pipe)	High (2-pipe)	
15 to 30 psi (103 to 207 kPa)	• Heat or Cool	Single	Single	Direct/Reverse	•	•	<b>192 S</b>
Cool 18 psi (124 kPa) Heat 25 psi (172 kPa)	• Heat and Cool (auto changeover) • Factory-calibrated (194 HC) for Honeywell or Johnson retrofit	Single	Dual (Heat/Cool)	Direct/Direct Reverse/Reverse Direct/Reverse Reverse/Direct		• • • •	<b>192 HC 194 HC</b>
Day 18 psi (124 kPa) Night 25 psi (172 kPa)	• Day and Night (auto changeover) • Factory-calibrated (194 DN) for Honeywell or Johnson retrofit • R2 vent ("0") day, full supply night (DNV only, 3-pipe) • Night override selector switch	Single	Dual (Day/Night)	Direct/Direct Reverse/Reverse		•	<b>192 DN 194 DN</b>
Day 18 psi (124 kPa) Night 25 psi (172 kPa)	• Day and Night (auto changeover) • Factory-calibrated (194 DN for Honeywell or Johnson retrofit) • R2 vent ("0") day, full supply night (DNV only, 3-pipes) • Night override selector switch	Dual	Dual (Day/Night with Vent)	None	•	•	<b>192 DNV 194 DNV</b>
15 to 30 psi (103 to 207 kPa)	• Heat and Cool • Sequence-controlled devices with two control lines (same or different range)	Dual	Dual (Heat/Cool)	Direct/Direct Reverse/Reverse Direct/Reverse Reverse/Direct	• • • •	• • • •	<b>193 HC Free Energy Band</b>
15 to 30 psi (103 to 207 kPa)	• Heat and Cool • Sequence-controlled devices with one control line (different spring ranges)	Single	Dual (Heat/Cool)	Direct/Direct		•	<b>193 HC Free Energy Band (Hesitation)</b>

**TECH TIPS**

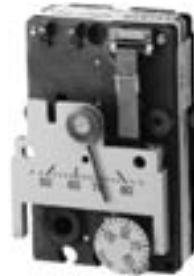
**Visit us on the web at:**  
**[www.sbt.siemens.com/hvp/components](http://www.sbt.siemens.com/hvp/components)**

**You can:**

- search for products by part number or description.
- link directly to the product information from the index.
- print out product information for submittals.
- link to technical documentation.
- locate a distributor near you.



## Powerstar Single Set Point Pneumatic Room Thermostat



192 S Thermostat chassis.



Typical wall plate and screws.

### Description

Providing proportional single output, single set point, 1-pipe for low air capacity or 2-pipe for high air capacity pneumatic room temperature control, the 192 S Powerstar Single Set Point Pneumatic Room Thermostat is the most economical model. Refer to the Retroline® Retrostats to replace competitive models.

### Applications

Designed for heating and cooling applications for control of pneumatic valves and damper actuators. The 192 S Powerstar Single Set Point Pneumatic Room Thermostat is excellent for commercial and institutional facilities.

#### Recommendation

**1-pipe:** Use when limited output air capacity is required to operate a single valve and/or actuator; requires external restrictor, 20 scim (5.4 ml/s) air supply.

**2-pipe:** Use for high output capacity for control of multiple valves and actuators, used with or without high/low limiting controls.

# features

- Single set point dial available in Fahrenheit or Celsius scales
- Available in direct or reverse acting models
- Sensitive bimetal responds to temperature changes
- Integral, field adjustable limit stops
- Wall mounting plate for connection to a variety of rough-in terminal boxes included
- Large volume air capacity relay in 2-pipe models only
- Test port for fast check of output pressure without removing the cover
- Field replaceable thermometer, set point dial, restrictor and filters for decreased maintenance cost

#### Options

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

### Application Drawings

Dotted lines are alternative control schemes.

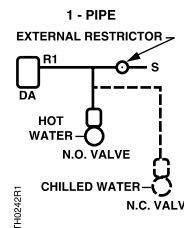


DIAGRAM 1.

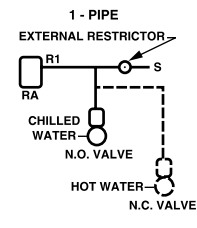


DIAGRAM 2.

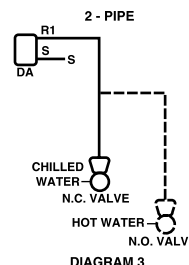


DIAGRAM 3.

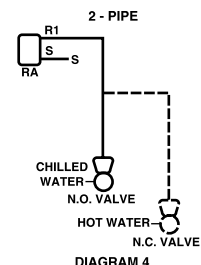


DIAGRAM 4.

# Specifications/Product Ordering

For complete conversion kits, refer to the Retroline® Retrostats starting on page A-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 psig ±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 psig/°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**

Recommended ..... 25 psig (172 kPa)  
Maximum ..... 30 psig (207 kPa)

**Nominal Air Consumption for Air Compressor Sizing**

1-pipe ..... 25 scim (6.8 ml/s)  
2-pipe ..... 20 scim (5.5 ml/s)

**Nominal Air Capacity for Air Main Sizing**

1-pipe ..... 25 scim (6.8 ml/s)  
2-pipe ..... 20 scim (5.5 ml/s)

**Nominal Chassis Air Capacity**

1-pipe Supply ..... 25 scim (6.8 ml/s)  
2-pipe Supply ..... 230 scim (63 ml/s)  
1-pipe Exhaust ..... 30 scim (8 ml/s)  
2-pipe Exhaust ..... 150 scim (41 ml/s)

**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 (with cover)**

Thermostat Chassis and Wall Plate ..... 0.53 lb. (0.24 kg)  
Plastic Cover/Metal Cover ..... 0.07 lb. (0.04 kg)/0.27 lb. (0.12 kg)

192 S	Model #	Thermostat Chassis Type			Thermostat Chassis & Wall Plate		
		Output	Set Point	Air Output Capacity	Thermometer & Set Point Scales	Control Action	
						Direct	Reverse
192 S 1-pipe	Single	Single (Heat or Cool)	Low (No Relay)	°F °C	<b>192-200</b> <b>192-220</b>	<b>192-201</b> <b>192-221</b>	
192 S 2-pipe	Single	Single (Heat or Cool)	High (Integral Relay)	°F °C	<b>192-202</b> <b>192-222</b>	<b>192-203</b> <b>192-223</b>	
Thermostat Covers		Thermostat Covers Sold Separately	Cover Description	Plastic	Metal	Chassis Options	
			<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>No logo</li> </ul>	<b>192-257</b>	<b>192-357</b>	<b>Code</b> <b>Description</b> (add suffix to Part No.) <b>K</b> Chassis with 1/2" (13 mm) diameter set point adjustment knob for convalescent facilities. For Horizontal Cover, refer to the Accessories and Service Kits section.	
			<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>With logo</li> </ul>	<b>192-256</b>	<b>192-356</b>		
			<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer exposed</li> </ul>	<b>192-254</b>	<b>192-354</b>	<b>Cover Options</b> <b>PLASTIC COLORS</b> <b>Code</b> <b>Color</b> (add suffix to Part No.) <b>None</b> Desert Beige (standard) <b>W</b> White <b>METAL COLORS</b> <b>Code</b> <b>Color</b> (add suffix to part No.) <b>A</b> #1 Silver <b>B</b> #5 Satin Chrome <b>C</b> #7 Light Statuary Bronze <b>D</b> #10 Special Bronze <b>E</b> Brushed Electroplated Satin Chrome <b>F</b> Sierra Gold <b>G</b> Brushed Aluminum <b>H</b> White For Color Chip Samples, order <b>152-178P10</b> .	
			<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> <li>Use with 1/2" set point knob option</li> </ul>	<b>192-265</b>	<b>192-365</b>		
			<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> <li>Use with 1/2" set point knob option</li> </ul>	<b>192-266</b>	<b>192-366</b>		
			<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> </ul>	<b>192-250</b>	<b>192-350</b>		
			<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> </ul>	<b>192-252</b>	<b>192-352</b>		

**Ordering Notes**

- "Exposed features" are indicated in green on corresponding illustration.
- For **194** refer to Powerstar Retroline section.

# 192 HC

## Powerstar Heating/Cooling Pneumatic Room Thermostats



192 HC Thermostat chassis.



Typical wall plate and screws.



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

### Description

Providing proportional single output, dual set point with 2-pipe for high air capacity pneumatic room temperature control, the 192 HC Powerstar Heating/Cooling Pneumatic Room Thermostat provides two thermostats under one cover; one side for heating and the other for cooling. Switchover is accomplished by changing the air pressure to the thermostat.

### Applications

Designed for temperature control of heating and cooling applications, the 192 HC Powerstar Heating/Cooling Pneumatic Room Thermostat controls valves and damper actuators in cooling equipment. Providing energy management and occupant comfort, the thermostat automatically adjusts to seasonal changes from heating set point to cooling set point in commercial and institutional facilities.

### Recommendation

For control of multiple valves and actuators, use with or without high/low limiting controls.

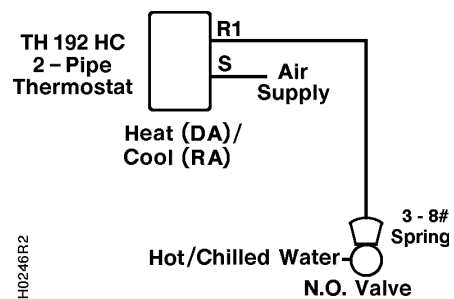
# features

- Dual set point dial available in Fahrenheit or Celsius scales
- Available in direct or reverse acting models
- Sensitive bimetal responds to temperature changes
- Integral, field adjustable limit stops
- Adjustable changeover pressure
- Large volume air capacity relay
- Wall mounting plates provides connection to a variety of rough-in terminal boxes
- Test port for fast check of output pressure without removing the cover
- Field replaceable thermometer, set point dials, restrictor and filters

### Options

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

### Application Drawing



# Specifications/Product Ordering

For complete conversion kits, refer to the Retroline® Retrostats starting on page A-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 psig ± 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 psig/°F (31 kPa/°C)

### Limit Stop

Field Adjustment Range ..... 45/85°F (7/30°C)

Fixed Limit Stop Range ..... 55/75°F (3/24°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) Cooling/Heating ..... 18 psig (124kPa)/  
(124 kPa)/25 psig (172 kPa)

### Supply Air Pressure

Two Pressure (Range)

Cooling ..... 15 to 19 psig (103 to 131 kPa)

Heating ..... 23 to 30 psig (159 to 207 kPa)

Two Pressure, Honeywell Competitive Model

Cooling/Heating ..... 13 psig (90 kPa)/18 psig (124 kPa)

Two Pressure, Johnson Competitive Model<sup>1</sup>

Cooling/Heating ..... 15 psig (103 kPa)/20 psig (138 kPa)

**Nominal Air Consum. for Air Compressor Sizing** ..... 25 scim (6.8 ml/s)

**Nominal Air Capacity for Air Main Sizing** ..... 40 scim (11 ml/s)

### Nominal Air Capacity

Supply/Chassis Exhaust ..... 150 scim (41 ml/s)/150 scim (41 ml/s)

**Air Connections** ..... 5/32" (4 mm) OD tube

**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 (single/dual) ..... 0.27 lb. (0.12 kg)/0.7 lb. (0.3 kg)

1. Some Johnson Control □

For this application, the heating and cooling actions must be reversed. If exposed set point is required, order special cover, **192-773**.

192 HC	Model #	Thermostat Chassis Type			Thermostat Chassis & Wall Plate	
	Output	Set Point	Air Output Capacity	Thermometer & Set Point Scales	Control Action	
					Heat Direct	Heat Reverse
192 HC 2-pipe	Single	Dual (Heat and Cool)	High (Integral Relay)	°F	192-207 Cool (DA)	192-209 Cool (DA)
				°F	192-208 Cool (RA)	192-210 Cool (RA)
				°C	192-227 Cool (DA)	192-229 Cool (DA)
				°C	192-228 Cool (RA)	192-230 Cool (RA)
Thermostat Covers	Thermostat Covers Sold Separately	Cover Description	Plastic	Metal	Chassis Options	
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>No logo</li> </ul>	192-257	192-357	<b>Code</b>	<b>Description (add suffix to Part No.)</b>
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>With logo</li> </ul>	192-256	192-356	<b>K</b>	Chassis with 1/2" (13 mm) diameter set point adjustment knob for convalescent facilities.
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer exposed</li> </ul>	192-254	192-354	For Horizontal Cover, refer to the Accessories and Service Kits section.	
		<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> </ul>	192-267	192-367	<b>PLASTIC COLORS</b>	
		<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> <li>Use with 1/2" set point knob option</li> </ul>	192-268	192-368	<b>Code</b>	<b>Color (add suffix to part No.)</b>
		<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> <li>Use with 1/2" set point knob option</li> </ul>	192-258	192-358	<b>A</b>	#1 Silver
		<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> </ul>	192-260	192-360	<b>B</b>	#5 Satin Chrome
					<b>C</b>	#7 Light Statuary Bronze
					<b>D</b>	#10 Special Bronze
					<b>E</b>	Brushed Electroplated Satin Chrome
					<b>F</b>	Sierra Gold
					<b>G</b>	Brushed Aluminum
					<b>H</b>	White
					For Color Chip Samples, order <b>152-178P10</b> .	

**Ordering Note** "Exposed features" are indicated in green on corresponding illustration.



# 192 DN/DNV

## Powerstar Day/Night/Vent Pneumatic Room Thermostats



192 DN Thermostat chassis.

Typical wall plate and screws.



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

### Description

Providing proportional dual set point, 2-pipe or 3-pipe high air capacity pneumatic room temperature control, the 192 DN or DNV Powerstar Pneumatic Room Thermostat automatically resets the room temperature set point during unoccupied hours by changing the air pressure to the thermostat. A manual override feature allows occupants to switch to day mode. The override returns to night mode the following night.

- Dual set point dial available in Fahrenheit or Celsius scales
- Available in direct or reverse acting models
- Sensitive bimetal responds to temperature changes
- Manual override selector for off-hour occupant comfort
- Adjustable changeover pressure
- Large volume air capacity relay
- Integral, field adjustable limit stops
- Wall mounting plate for connection to a variety of rough-in terminal boxes included
- Test port for fast check of output pressure without removing the cover
- Field replaceable thermometer, set point dial, restrictor and filters

#### Options

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

### Applications

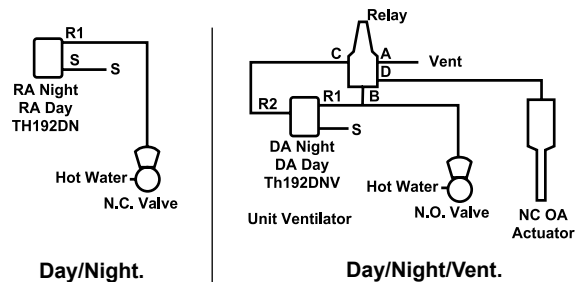
The 192 DN and DNV Powerstar Pneumatic Room Thermostat controls valves and damper actuators in cooling equipment, automatically performing setback changes from day to night. The 192 DNV also performs a purge sequence at night to bring in "vent" outside air to cool the building. A manual override selector switch allows individual room or zone "day" control locally during the night cycle.

During the night control cycle, the 192 DNV models provide a separate output signal (full air supply) allowing ventilation control. Periodic resetting to the "night" control mode during evening or weekend periods using time clocks ensures optimal energy management.

#### Recommendation

Use 192 DN or DNV for multiple valves and actuators, with or without high/low limiting controls.

#### Application Drawings



Chassis Port R2 Pressure	Operation Mode (Air Supply)	Switching Relay Connection
Full Air Supply	Night (S=25 psig)	A-D
0 psig	Night Occupied	B-D
0 psig	Day (S=18 psig)	B-D

features

# Specifications/Product Ordering

**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 psig  
 (22°C, 31 kPa)

**Sensitivity Adjustment Range** ..... 1 to 4 psi/°F (12 to 50 kPa/°C)

**Factory Setting** ..... 2.5 psig/°F (31 kPa/°C)

**Limit Stop**  
 Field Adjustment Range ..... 45/85°F (7/30°C)  
 Fixed Limit Stop Range ..... 55/75°F (3/24°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  
 Day (recommended) ..... 18 psig (124 kPa)  
 Night (recommended) ..... 25 psig (172 kPa)  
 Vent-Day/Night ..... 0 psig (0 kPa)/25 psig (172 kPa)  
 Two Pressure  
 Day (range) ..... 15 to 19 psig (103 to 131 kPa)  
 Night (range) ..... 23 to 30 psig (159 to 207 kPa)



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

Two Pressure (Honeywell Competitive Model)  
 Day/Night ..... 13 psig (90 kPa)/18 psig (124 kPa)  
 Two Pressure (Johnson Controls Competitive Model)  
 Day/Night ..... 15 psig (103 kPa)/20 psig (138 kPa)

**Nominal Air Consumption for Air Compressor Sizing** ..... 25 scim (6.8 ml/s)



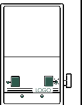


**Nominal Air Capacity for Air Main Sizing** ..... 40 scim (11 ml/s)

**Nominal Chassis Air Capacity**  
 Supply ..... 230 scim (63 ml/s)  
 Exhaust ..... 150 scim (41 ml/s)

**Air Connections** ..... 5/32" (4 mm) OD tube

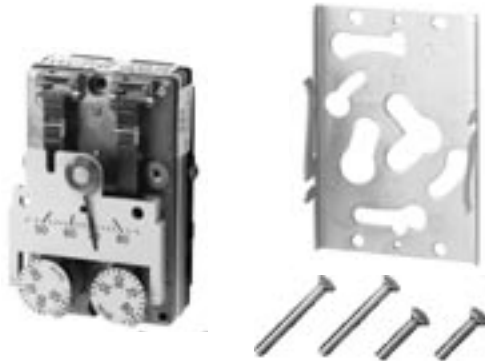
**Dimensions (with cover)**  
 192 DN ..... 2.16" W x 3.34" H x 1.59" D  
 (55 mm W x 85 mm H x 40 mm D)  
 192 DNV ..... 2.5" W x 3.34" H x 1.59" D  
 (64 mm W x 85 mm H x 40 mm D)

**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)

Model #	Thermostat Chassis Type				Thermostat Chassis & Wall Plate		
	Output	Set Point	Air Output Capacity	Thermometer & Set Point Scales	Control Action		
192 DN	Single	Dual (Day and Night)	High (Integral Relay)	°F	D (DA)/ N (DA)	D (RA)/ N (RA)	D(DA)/ N (DA) <small>(with Night Vent)</small>
192 DNV 3-pipe				°C	192-204	192-205	192-206
<b>Thermostat Covers Sold Separately</b> <b>Cover Description</b>  • Adjustment set point concealed • Indicator set point concealed • Chassis thermometer concealed <b>Plastic</b> <b>Metal</b>					<b>Chassis Options</b> <b>Code</b>   <b>Description</b> (add suffix to Part No.) K   Chassis with 1/2" (13 mm) diameter set point adjustment knob for convalescent facilities.		
 • Adjustment set point concealed • Indicator set point concealed • Chassis thermometer exposed <b>192-264</b> <b>192-364</b>					<b>Cover Options</b> <b>PLASTIC COLORS</b> <b>Code</b>   <b>Color</b> (add suffix to Part No.) None   Desert Beige (standard) W   White <b>METAL COLORS</b> <b>Code</b>   <b>Color</b> (add suffix to part No.) A   #1 Silver B   #5 Satin Chrome C   #7 Light Statuary Bronze D   #10 Special Bronze E   Brushed Electroplated Satin Chrome F   Sierra Gold G   Brushed Aluminum H   White		
 • Adjustment set point key • Indicator set point exposed • Chassis thermometer concealed • Use with 1/2" set point knob option <b>192-269</b> <b>192-369</b>					<b>Color</b>		
 • Adjustment set point key • Indicator set point exposed • Chassis thermometer exposed • Use with 1/2" set point knob option <b>192-270</b> <b>192-370</b>							
 • Adjustment set point key (night) exposed (day) • Indicator set point exposed • Chassis thermometer exposed <b>192-271</b> <b>192-371</b>							
<b>Ordering Notes</b> • DNV 3-pipe model provides full air supply on R2 vent port during night control cycle. • "Exposed features" are indicated in green on corresponding illustration. • For 194 refer to Powerstar Retroline section.							

# 193 HC

## 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 set point, 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.

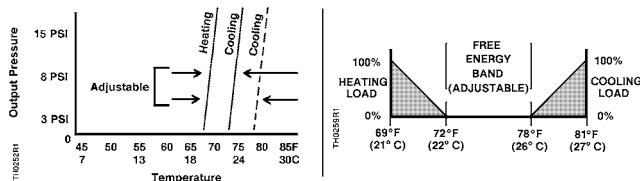
- Dual set point dials available in Fahrenheit or Celsius scales
- Integral, field adjustable limit stops
- Sensitive bimetal responds to temperature changes
- Adjustable Free Energy Band
- Test port for fast check of output pressure without removing the cover
- Wall mounting plates for connection to a variety of rough-in terminal boxes included
- Field replaceable thermometer, set point 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" set point knob for convalescent homes

# features

### Input/Output Characteristics



### Applications

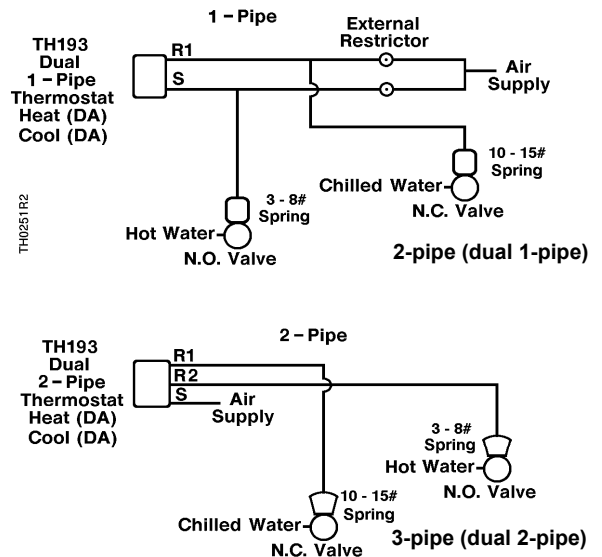
Designed for buildings with early morning heat requirements and mid-morning to afternoon cooling requirements, the Powerstar Free Energy Band Pneumatic Room Thermostat two temperature thermostat controls valves, damper actuators and mechanical heating and cooling equipment. Providing energy management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



# Specifications/Product Ordering

For complete conversion kits, refer to the Retroline® Retrostats starting on page A-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 psig ±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 psig/°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 psig (172 kPa)

Maximum ..... 30 psig (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	Model #	Thermostat Chassis Type				Thermostat Chassis & Wall Plate	
		Output	Set Point	Air Output Capacity	Thermometer & Set Point Scales	Control Action	
						Heat Direct	Heat Reverse
193 HC 1-pipe	Dual (1-pipe)	Dual (Heat and Cool)	Low (No Relay)	°F °F °C °C	193-211 Cool (DA) 193-212 Cool (RA) 193-231 Cool (DA) 193-232 Cool (RA)	193-213 Cool (DA) 193-214 Cool (RA) 193-233 Cool (DA) 193-234 Cool (RA)	
193 HC 2-pipe	Dual (2-pipe)	Dual (Heat and Cool)	High (Integral Relay)	°F °F °C °C	193-215 Cool (DA) 193-216 Cool (RA) 193-235 Cool (DA) 193-236 Cool (RA)	193-217 Cool (DA) 193-218 Cool (RA) 193-237 Cool (DA) 193-238 Cool (RA)	
Thermostat Covers Sold Separately		Cover Description	Plastic	Metal	Chassis Options		
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>No logo</li> </ul>	192-257	192-357	<b>Code</b> <b>Description</b> (add suffix to Part No.) K Chassis with 1/2" (13 mm) diameter set point adjustment knob for convalescent facilities. For Horizontal Cover, refer to the Accessories and Service Kits section.	Options	
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>With logo</li> </ul>	192-256	192-356			
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer exposed</li> </ul>	192-254	192-354	<b>Cover Options</b> <b>PLASTIC COLORS</b> <b>Code</b> <b>Color</b> (add suffix to Part No.) None Desert Beige (standard) W White <b>METAL COLORS</b> <b>Code</b> <b>Color</b> (add suffix to part No.) A #1 Silver B #5 Satin Chrome C #7 Light Statuary Bronze D #10 Special Bronze E Brushed Electroplated Satin Chrome F Sierra Gold G Brushed Aluminum H White For Color Chip Samples, order 152-178P10.	Color	
		<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> </ul>	192-267	192-367			
		<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> <li>Use with 1/2" set point knob option</li> </ul>	192-268	192-368			
		<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> <li>Use with 1/2" set point knob option</li> </ul>	192-258	192-358			
		<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> </ul>	192-260	192-360			

**Ordering Note** "Exposed features" are indicated in green on corresponding illustration.

# 193 HC

## Powerstar (Hesitation) 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, single output, dual set point, 2-pipe pneumatic room temperature control, the 193 HC Powerstar (Hesitation) Free Energy Band Heating/Cooling Pneumatic Room Thermostat is designed to sequence a heating device or a cooling device.

The hesitation feature keeps the output pressure constant through a 6°F (10.8°C) range (typical), causing a dead-band.

### Applications

The 193 HC Powerstar (Hesitation) Free Energy Band Heating/Cooling Pneumatic Room Thermostat is an excellent choice for saving energy by sequencing heating and cooling valves. In most heat/cool pneumatic applications, a 3 to 8 psig (21 to 55 kPa) heating valve and a 10 to 14 psig (69 to 103 kPa) cooling valve is used. By design, this provides a 2 psi (14 kPa) deadband where no heating or cooling is occurring. The hesitation feature allows you to change the deadband range to a 3, 4 or 5 psi (21, 28, or 34 kPa) range to save energy. Refer to the Input/Output chart below for more information.

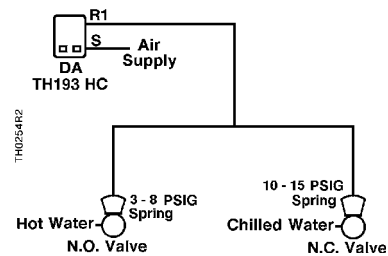
# features

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

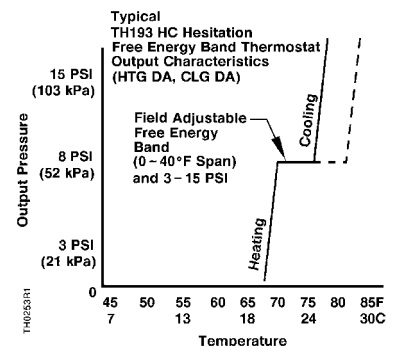
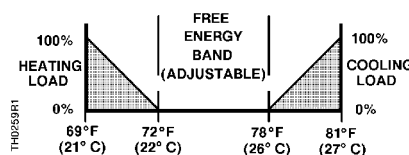
#### Options

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

#### Application Drawing



#### Input/Output Characteristics



# Specifications/Product Ordering



### Scale; Range

Major (minor) Divisions ..... 45 to 85°F, 10(2)°F/  
(7 to 30°C, 5(1)°C)

### Factory Calibration

“FEB” Output Pressure ..... 7.5 psi (52 kPa)  
Temperature ..... 72°F (22°C)  
Sensitivity ..... 2.5 psi/°F (31 kPa/°C)

### Sensitivity Adjustment Range

1 to 4 psi/°F  
(12 to 50 kPa/°C)

### Limit Stop, Field Adjustment 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

Recommended ..... 25 psig (172 kPa)  
Maximum ..... 30 psig (207 kPa)

### Free Energy Band

Output Pressure Adjustment ..... 1 to 15 psig (7 to 103 kPa)  
Range ..... 0 to 40°F (0 to 20°C)

### Nominal Air Capacity for Compressor Sizing

40 scim (11 ml/s)

### Nominal Air Capacity for Air Main Sizing

40 scim (11 ml/s)

### Nominal Chassis Air Capacity

Supply ..... 150 scim (41 ml/s)  
Exhaust ..... 150 scim (41 ml/s)  
Supply/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	Model #	Thermostat Chassis Type				Thermostat Chassis & Wall Plate	
		Output	Set Point	Air Output Capacity	Thermometer & Set Point Scales	Control Action	
	193 HC Hesitation	Single	Dual (Heat and Cool)	High (Integral Relay)	°F °C	Heat (DA/ Cool (DA)) <b>193-219</b>	Heat (RA/ Cool (RA)) <b>193-220</b> <b>193-239</b> <b>193-240</b>
Thermostat Covers	<i>Thermostat Covers Sold Separately</i>		<b>Cover Description</b>	<b>Plastic</b>	<b>Metal</b>	<b>Chassis Options</b>	
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>No logo</li> </ul>		<b>192-257</b>	<b>192-357</b>	<b>Code</b>	<b>Description</b> (add suffix to Part No.)
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer concealed</li> <li>Logo</li> </ul>		<b>192-256</b>	<b>192-356</b>	<b>K</b>	Chassis with 1/2" (13 mm) diameter set point adjustment knob for convalescent facilities.
		<ul style="list-style-type: none"> <li>Adjustment set point concealed</li> <li>Indicator set point concealed</li> <li>Chassis thermometer exposed</li> </ul>		<b>192-254</b>	<b>192-354</b>	For Horizontal Cover, refer to the Accessories and Service Kits section.	
		<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> <li>Use with 1/2" set point knob option</li> </ul>		<b>192-267</b>	<b>192-367</b>	<b>PLASTIC COLORS</b>	
		<ul style="list-style-type: none"> <li>Adjustment set point key</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> <li>Use with 1/2" set point knob option</li> </ul>		<b>192-268</b>	<b>192-368</b>	<b>Code</b>	<b>Color</b> (add suffix to Part No.)
		<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer concealed</li> </ul>		<b>192-258</b>	<b>192-358</b>	<b>None</b>	Desert Beige (standard)
		<ul style="list-style-type: none"> <li>Adjustment set point exposed</li> <li>Indicator set point exposed</li> <li>Chassis thermometer exposed</li> </ul>		<b>192-260</b>	<b>192-360</b>	<b>W</b>	White
						<b>METAL COLORS</b>	
						<b>Code</b>	<b>Color</b> (add suffix to part No.)
						<b>A</b>	#1 Silver
						<b>B</b>	#5 Satin Chrome
						<b>C</b>	#7 Light Statuary Bronze
						<b>D</b>	#10 Special Bronze
						<b>E</b>	Brushed Electroplated Satin Chrome
						<b>F</b>	Sierra Gold
						<b>G</b>	Brushed Aluminum
						<b>H</b>	White
						For Color Chip Samples, order <b>152-178P10</b> .	

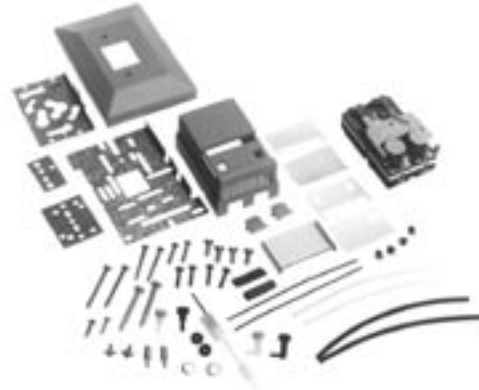
### Ordering Note

- “Exposed features” are indicated in **green** on corresponding illustration.

## Powerstar **RETROLINE**<sup>®</sup> Retrostat Pneumatic Room Thermostats

### **RETROLINE**<sup>®</sup> easily replaces:

- Barber-Colman (Siebe)
- Johnson Controls
- Honeywell
- Robertshaw (Siebe)



192 Dual Set point Pneumatic Room Thermostat Kit.

### Description

The Powerstar Retroline Retrostat Pneumatic Room Thermostat converts most existing pneumatic room thermostats to a Powerstar 192 direct or reverse acting, 2-pipe, single or dual set point unit.

Day/Night or Heat/Cool Retrostat is factory-calibrated to match the appropriate changeover pressure of the competitive thermostat.

### Applications

Retroline Retrostat kits are available for most 2-pipe applications in direct and reverse acting models, including:

- Single Temperature
- Day/Night
- Heat/Cool

Refer to the Powerstar products to select the appropriate application.

# features

- Complete kit including Retrostat cover kit with exposed or concealed set point adjustment
- Set point dials available in Fahrenheit or Celsius scales
- Factory-calibrated for accuracy
- All installation hardware and calibration wrench provided.
- Fits into large format wall openings, using "goof plate," which is included.
- Integral, field adjustable limit stops
- Test port for fast check of output pressure without removing the cover
- Field replaceable thermometer, set point dial(s), restrictor(s), and filter(s)

#### Options

- Quick-connect air connections for ease of installation and service
- Large, 1/2" set point knob for convalescent homes

# Specifications/Product Ordering

	Description	Thermometer & Set Point Scales	Control Action			
			Direct	Reverse		
Single Set Point	Single Temperature	°F	<b>192-840</b>	<b>192-841</b>		
	Single Temperature	°C	<b>192-850</b>	<b>192-851</b>		
<i>Kits include covers. If a different cover is required, refer to the Accessories and Service Kit section.</i>						
Dual Set Point	Action/Changeover Pressure		Manufacturer	Thermometer & Set Point Scales	Kit Part No.	Day/Night
	<b>Day (DA) 13 psi (90 kPa)/Night (DA) 18 psi (124 kPa)</b>		Honeywell	°F	<b>194-3042</b>	
	<b>Day (DA) 13 psi (90 kPa)/Night (DA) 18 psi (124 kPa)</b>		Honeywell	°C	<b>194-3142</b>	
	<b>Day (DA) 15 psi (103 kPa)/Night (DA) 20 psi (138 kPa)</b>		Johnson/B-C	°F	<b>194-3043</b>	
	<b>Day (DA) 15 psi (103 kPa)/Night (DA) 20 psi (138 kPa)</b>		Johnson/B-C	°C	<b>194-3143</b>	
	<b>Day (DA) 18 psi (124 kPa)/Night (DA) 25 psi (172 kPa)</b>		Siemens	°F	<b>192-3044</b>	
	<b>Day (DA) 18 psi (124 kPa)/Night (DA) 25 psi (172 kPa)</b>		Siemens	°C	<b>192-3144</b>	
	<b>Day (RA) 13 psi (90 kPa)/Night (RA) 18 psi (124 kPa)</b>		Honeywell	°F	<b>194-3052</b>	
	<b>Day (RA) 15 psi (103 kPa)/Night (RA) 20 psi (138 kPa)</b>		Johnson/B-C	°F	<b>194-3053</b>	
	<b>Day (RA) 18 psi (124 kPa)/Night (RA) 25 psi (172 kPa)</b>		Siemens	°F	<b>192-3054</b>	
	<b>Day (RA) 18 psi (124 kPa)/Night (RA) 25 psi (172 kPa)</b>		Siemens	°C	<b>192-3154</b>	
	<b>Heat (DA) 18 psi (124 kPa)/Cool (RA) 13 psi (90 kPa)</b>		Honeywell	°F	<b>194-3082</b>	Heat/Cool
	<b>Heat (DA) 20 psi (138 kPa)/Cool (RA) 15 psi (103 kPa)</b>		Johnson/B-C	°F	<b>194-3083</b>	
	<b>Heat (DA) 25 psi (172 kPa)/Cool (RA) 18 psi (124 kPa)</b>		Siemens	°F	<b>192-3084</b>	
<b>Heat (DA) 25 psi (172 kPa)/Cool (RA) 18 psi (124 kPa)</b>		Siemens	°C	<b>192-3184</b>		

**Ordering Notes**

- For detailed specifications on Day/Night, refer to 192 DN or DNV.
- For detailed specifications on Heat/Cool, refer to 193 HC.
- The changeover pressures for RobertShaw thermostats are 16 psi Day/25 psi Night.
- All kits include covers.

Cover Options	
PLASTIC COLORS	
Code	Color (add suffix to Part No.)
None	Desert Beige (standard)
W	White
K	Chassis with 1/2" (13 mm) diameter set point adjustment knob for convalescent facilities.





RETROLINE®	Thermostats	Manufacturer Part Number	Control Action/Temperature Scale	Retroline Part No.	
				Kit	Replace. Chassis
		T-4002-201 <sup>1</sup>	Single Temperature, Direct Acting	192-840	192-202
		T-4002-202 <sup>1</sup>	Single Temperature, Reverse Acting	192-841	192-203
		T-4002-203	Single Temperature, Direct Acting	192-840	192-202
		T-4002-204	Single Temperature, Reverse Acting	192-841	192-203
		T-4506-201 <sup>1</sup>	Day (DA) 15 psi (103 kPa) changeover/Night (DA) 20 psi (138 kPa)	194-3043	194-2043
		T-4506-202	Day (DA) 15 psi (103 kPa) changeover/Night (DA) 20 psi (138 kPa)	194-3043	194-2043
		T-4506-203 <sup>1,2</sup>	Day (DA) 15 psi (103 kPa) changeover/Night (DA) 20 psi (138 kPa)	194-3043	194-2043
		T-4506-204 <sup>2</sup>	Day (DA) 15 psi (103 kPa) changeover/Night (DA) 20 psi (138 kPa)	194-3043	194-2043
		T-4506-209 <sup>1</sup>	Day (RA) 15 psi (103 kPa) changeover/Night (RA) 20 psi (138 kPa)	194-3053	194-2053
		T-4506-217 <sup>1,2</sup>	Day (RA) 15 psi (103 kPa) changeover/Night (RA) 20 psi (138 kPa)	194-3053	194-2053
		T-4756-205 <sup>1</sup>	Heat (DA) 20 psi (138 kPa) changeover/Cool (RA) 15 psi (103 kPa)	194-3083	194-2083
		T-4756-206	Heat (DA) 20 psi (138 kPa) changeover/Cool (RA) 15 psi (103 kPa)	194-3083	194-2083
		TP970A1002	Single Temperature, Direct Acting	192-840	192-202
		TP970A1012	Single Temperature, Direct Acting	192-840	192-202
		TP970A1035	Single Temperature, Direct Acting	192-840	192-202
		TP970A1038	Single Temperature, Direct Acting	192-840	192-202
		TP970A1053	Single Temperature, Direct Acting	192-840	192-202
		TP970A1061	Single Temperature, Direct Acting	192-840	192-202
		TP970A2004	Single Temperature, Direct Acting	192-840	192-202
		TP970A1002	Single Temperature, Reverse Acting	192-841	192-203
		TP970B1028	Single Temperature, Reverse Acting	192-841	192-203
		TP970B1036	Single Temperature, Reverse Acting	192-841	192-203
		TP970B1044	Single Temperature, Reverse Acting	192-841	192-203
		TP971A1003	Day (DA) 13 psi (90 kPa) changeover/Night (DA) 18 psi (124 kPa)	194-3042	194-2042
		TP971A1029	Day (DA) 13 psi (90 kPa) changeover/Night (DA) 18 psi (124 kPa)	194-3042	194-2042
		TP971A1037	Day (DA) 13 psi (90 kPa) changeover/Night (DA) 18 psi (124 kPa)	194-3042	194-2042
		TP971A1045	Day (DA) 13 psi (90 kPa) changeover/Night (DA) 18 psi (124 kPa)	194-3042	194-2042
		TP971A1086	Day (DA) 13 psi (90 kPa) changeover/Night (DA) 18 psi (124 kPa)	194-3042	194-2042
		TP971B1001	Day (RA) 13 psi (90 kPa) changeover/Night (RA) 18 psi (124 kPa)	194-3052	194-2052
		TP971B1004	Day (RA) 13 psi (90 kPa) changeover/Night (RA) 18 psi (124 kPa)	194-3052	194-2052
		TP972A1002	Heat (DA) 18 psi (124 kPa) changeover/Cool (RA) 13 psi (90 kPa)	194-3082	194-2082
		TP972A1028	Heat (DA) 18 psi (124 kPa) changeover/Cool (RA) 13 psi (90 kPa)	194-3082	194-2082
		TP972A1036	Heat (DA) 18 psi (124 kPa) changeover/Cool (RA) 13 psi (90 kPa)	194-3082	194-2082
		TP972A1101	Heat (DA) 18 psi (124 kPa) changeover/Cool (RA) 13 psi (90 kPa)	194-3082	194-2082

Johnson Controls

Honeywell

### Ordering Notes

1. Suggested Retrofit Kit converts horizontal thermostat to vertical position.
2. Suggested Retrofit Kit has an additional manual changeover switch, not provided on the original.

## Product Ordering

	Manufacturer Part No.	Control Action/Temperature Scale	Retroline Part No.		
			Kit	Replace. Chassis	
Thermostats	TK-18	Single Temperature, Direct Acting	192-840	192-202	Barber-Colman
	TK-19	Single Temperature, Reverse Acting	192-841	192-203	
	TK-19-1	Single Temperature, Reverse Acting	192-841	192-203	
	TK-19-19	Single Temperature, Reverse Acting	192-841	192-203	
	TK-1001	Single Temperature, Direct Acting	192-840	192-202	
	TK-1101	Single Temperature, Reverse Acting	192-841	192-203	
	TK-1001-116	Single Temperature, Direct Acting	192-850	192-222	
	TK-1002	Single Temperature, Direct Acting	192-840	192-202	
	TK-1002	Single Temperature, Reverse Acting	192-841	192-203	
	TK-5001-116	Single Temperature, Direct Acting	192-850	192-222	
	TKR-18	Single Temperature, Direct Acting	192-840	192-202	
	TKR-18-91	Single Temperature, Direct Acting	192-840	192-202	
	TKR-19	Single Temperature, Reverse Acting	192-841	192-203	
	TKR-1001	Single Temperature, Direct Acting	192-840	192-202	
TKR-1101	Single Temperature, Reverse Acting	192-841	192-203		
RETROLINE®	2212-118	Single Temperature, Direct Acting	192-840	192-202	Robertshaw
	2212-119	Single Temperature, Reverse Acting	192-841	192-203	
	2212-128	Single Temperature, Direct Acting	192-840	192-202	
	2212-129	Single Temperature, Reverse Acting	192-841	192-203	
	2212-418	Single Temperature, Direct Acting	192-840	192-202	
	2212-419	Single Temperature, Reverse Acting	192-841	192-203	
	2212-518	Single Temperature, Direct Acting	192-840	192-202	
	2212-519	Single Temperature, Reverse Acting	192-841	192-203	
	T15-101	Single Temperature, Direct Acting	192-840	192-202	
	T18-101	Single Temperature, Direct Acting	192-840	192-202	
	T18-201	Single Temperature, Direct Acting	192-840	192-202	
	T18-301	Single Temperature, Direct Acting	192-840	192-202	
	T18-3011	Single Temperature, Direct Acting	192-840	192-202	
	192-202	Single Temperature, Direct Acting	192-840	192-202	
192-203	Single Temperature, Reverse Acting	192-841	192-203		
192-204	Day (DA) 18 psi (124 kPa)/Night (DA) 25 psi (172 kPa) changeover	192-3044	192-204		
192-205	Day (RA) 18 psi (124 kPa)/Night (RA) 25 psi (172 kPa) changeover	192-3054	192-205		
192-208	Heat (DA) 25 psi (172 kPa)/Cool (RA) 18 psi (124 kPa) changeover	192-3084	192-208		
192-222	Single Temperature, Direct Acting	192-850	192-222		
192-223	Single Temperature, Reverse Acting	192-851	192-223		
192-224	Day (DA) 18 psi (124 kPa) changeover/Night (DA) 25 psi (172 kPa)	192-3144	192-224		
192-225	Day (RA) 18 psi (124 kPa) changeover/Night (RA) 25 psi (172 kPa)	192-3154	192-225		
192-228	Heat (DA) 25 psi (172 kPa) changeover/Cool (RA) 18 psi (124 kPa)	192-3184	192-228		



832 D Pneumatic Room Thermostat and screws.

## Description

The single set point, direct acting thermostat provides gradual acting pneumatic room temperature control for heating and cooling applications. The 832 D Thermostat is ruggedly constructed for dependable, long-term service.

## Applications

Designed for controlling rooms heated or cooled by radiation, ventilation, or an air conditioning system, the 832 D Pneumatic Room Thermostat is versatile and responsive for individual room control.

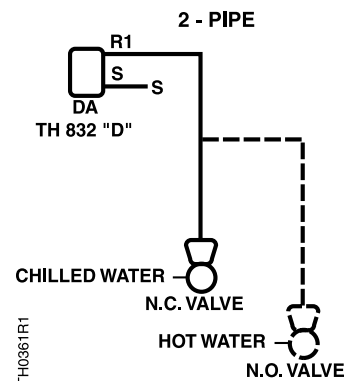
Other applications include room control of radiant panels, finned radiation, and unit ventilators.

# features

- All metal construction
- Rapid response to temperature change
- Unique design of supply and exhaust air valves prevents waste
- Quiet operation
- Easy-to-calibrate and service
- Tamper-proof cover screws
- Exposed remote changeover control
- Calibrated thermometer

### Application Drawing

Dotted lines are alternative control schemes.



## Specifications/Product Ordering

**Control Action** ..... Direct  
**Operating Range** ..... 60 to 85°F (15 to 30°C)  
**Sensitivity Fixed** ..... 2.5 psi/°F (31 kPa/°C)  
**Temperature Response** ..... 0.5°F (0.3°C)  
**Maximum Ambient Temperature** ..... 110°F (43°C)  
**Dial Graduations** ..... 2°F (1.1°C)  
**Normal Air Supply Pressure** ..... 18 psi (124 kPa)  
**Maximum Operating Pressure** ..... 30 psi (207 kPa)  
**Dimensions** ..... 2.88" W x 5.63" H x 2.19" D  
 (73 mm W x 143 mm H x 56 mm D)

**Air Consumption for Compressor Sizing** ..... 10 scim (2.7 ml/s)  
**Cover Style** ..... Key or concealed set point adjustment  
**Cover Finish** ..... Silver; Special order other finishes.  
**Shipping Weight** ..... 3.0 lb. (1.36 kg)



832D	Description	Thermostat Part No. <sup>2</sup>	Cover Assembly
	Concealed adjustment with thermometer	<b>832-0120</b>	<b>856-036</b>
	Concealed adjustment without thermometer	<b>832-0490</b>	<b>856-046<sup>1</sup></b>
	Exposed key adjustment with thermometer	<b>832-0500</b>	<b>856-044</b>
	Exposed knob adjustment with thermometer	<b>832-1260</b>	<b>856-044</b>

**Thermostat comes complete with cover.**

### Ordering Notes

1. Blind cover, **856-046**, does not include mounting screws, **856-014**, that are required for installation.
2. Does not include adjustment key, **856-055**, that is required for installation.

▶ Order the Calibration Kit in the Accessories and Service Kits section.

TECH TIPS

**To calibrate any pneumatic thermostat, perform the following:**

1. Remove the cover.
2. Measure the ambient temperature.
3. Set the set point dial to the ambient temperature.
4. Measure the controller output pressure (branch pressure).
5. Turn the calibration screw(s) until the branch pressure equals the midpoint of the control span [usually 8 psi (55 kPa)].
6. Replace the cover.

# Limitem Rigid Bulb Thermostats



356 Limitem Rigid Bulb Thermostat.

## Description

The 356 Limitem Rigid Bulb Thermostat is a pneumatically-operated, duct-mounted thermostat, which is available in either direct or reverse acting in a variety of ranges.

## Applications

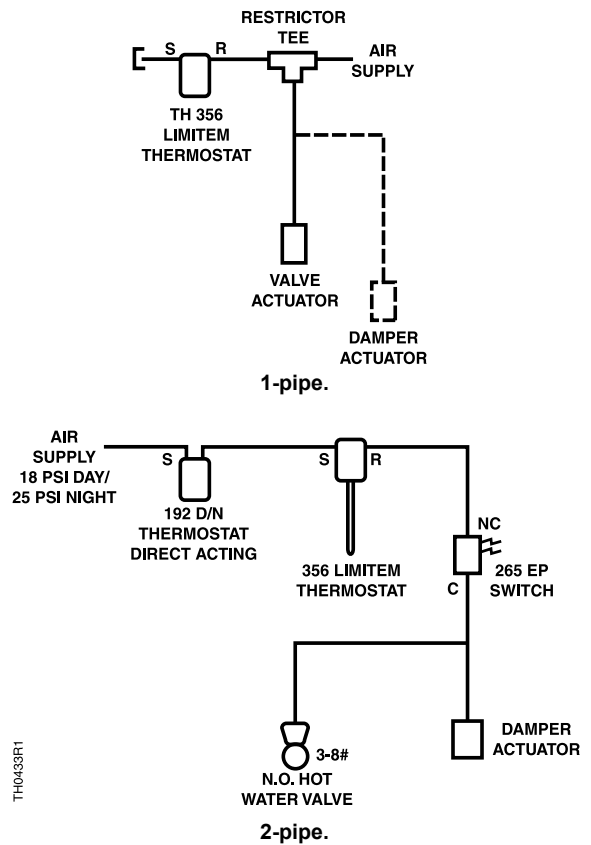
The 356 Limitem Rigid Bulb Thermostat provides primary control for unit ventilators, fan coils and other air handling units. Can also be used as low limit control for air flow to a controlled space.

# features

- Durable copper motor tube and steel rod temperature sensing element
- Two-valve design reduces air waste
- Duct mounting hardware included
- All metal construction
- 18" (46 cm) sensing tube

### Application Drawings

Dotted lines are alternative control schemes.



## Specifications/Product Ordering

**Control Action** ..... Direct or Reverse  
**Maximum Supply Air Pressure** ..... 30 psi (207 kPa)  
**Sensitivity Range (adjustable)** ..... 0.25 to 2 psi/°F (3 to 25 kPa/°C)  
**Factory Sensitivity Setting** ..... 1.25 psi/°F (15 kPa/°C)  
**Temperature Response** ..... 0.50°F (0.9°C)  
**Dial Graduations** ..... 5°F (2.7°C)/2°C (3.6°F)  
**Maximum Ambient Temperature**  
 Case ..... 200°F (93°C)  
 Bulb (Direct Acting) ..... 225°F (107°C)  
 Bulb (Reverse Acting) ..... 250°F (121°C)

**Nominal Air Supply Pressure** ..... 18 to 25 psi (124 to 172 kPa)  
**Maximum External Pressure (on bulb)** ..... 250 psi (1722 kPa)  
**Mounting** ..... Flange or 3/8" NPT  
**Air Connections** ..... 1/8" NPT  
**Dimensions**  
 Bulb Length ..... 18" (457 mm)  
 Flange OD ..... 2.56" (65 mm)  
 Case ..... 1.5" Diameter x 3" L  
 (33 mm Diameter x 76 mm L)  
**Shipping Weight** ..... 2.0 lb. (0.91 kg)

356 Limitem	Temperature Operating Range	Part No.	Direct Acting
	0 to 100 °F (-18 to +38°C)	<b>356-0012</b>	
30 to 180°F (-1.11 to +82.2°C)	<b>356-0750</b>		
-20 to +40°C (-4 to +104°F)	<b>356-0014</b>		
0 to 80°C (32 to 176°F)	<b>356-1003</b>		
0 to 100°F (-18 to +38°C)	<b>356-0013</b>	Reverse Acting	
30 to 180°F (-1.11 to +82.2°C)	<b>356-1005</b>		
100 to 250°F (37.8 to 121°C)	<b>356-1006</b>		
-20 to +40°C (-4 to +104°F)	<b>356-0015</b>		
0 to 80°C (32 to 176°F)	<b>356-1007</b>		
40 to 120°C (104 to 248°F)	<b>356-1008</b>		



TECH TIPS

When using the Limitem as a one-pipe device, a 40 scim (11 ml/s) restrictor will limit your output to 80% of supply. A 20 scim (5 ml/s) restrictor will limit your output to 60% of supply.

*Example:* With a 20 scim (5 ml/s) restrictor and 25 psi (11.3 kPa) supply, your maximum output is 15 psi (6.8 kPa).

# 357 D

## Limitem Remote Bulb Thermostats



357 D Limitem Remote Thermostat with an average bulb.

### Description

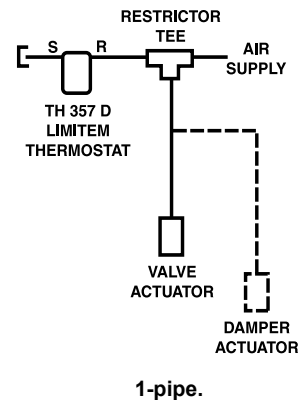
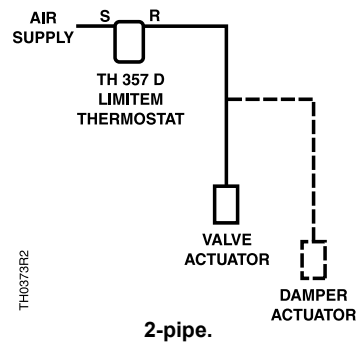
The 357 D Limitem Remote Bulb Thermostat is a pneumatically-operated thermostat that is gradual, direct acting with a remote or averaging bulb.

### Applications

The 357 D Limitem Remote Bulb Thermostat provides primary monitoring and control for air handling units or a low limit control.

#### Application Drawings

Dotted lines are alternative control schemes.



features

- Direct acting only
- Remote or averaging bulbs for flexibility in installation
- Liquid-filled sensing element for rapid response to temperature changes
- Two-valve design reduces air waste
- Adjustable sensitivity

## Specifications/Product Ordering

**Control Action** ..... Direct  
**Maximum Supply Air Pressure** ..... 30 psi (207 kPa)  
**Sensitivity Range (adjustable)** ..... 0.33 to 3.5 psi/°F (4 to 43 kPa/°C)  
**Factory Sensitivity Setting** ..... 1.25 psi/°F (15 kPa/°C)  
**Bulb** ..... Liquid-filled  
**Temperature Response** ..... 0.5°F (0.3°C)  
**Dial Graduations** ..... 5°F (2.7°C), 2°C (3.6°F)  
**Maximum Ambient Temperature (case)** ..... 180°F (82°C)  
**Nominal Air Supply Pressure** ..... 18 to 25 psi (124 to 172 kPa)  
**Mounting** ..... Bracket supplied

**Air Connection** ..... 1/8" NPT  
**Dimensions (Case)** ..... 1.75" Diameter x 3.5" H  
 (44.5 mm Diameter x 88.9 mm H)  
**Shipping Weight** ..... 2.0 lb. (0.9 kg)



357 D Litem	Temperature Operating Range	Sensing Element	Capillary	Bulb	Maximum Ambient Temp.	Part No.
	20 to 100°F (-6.7 to +37.8°C)	Remote Bulb	8' (2.4 m)	3/8" x 4' (0.95 mm x 10.2 cm)	201°F (94°C)	<b>357-0003</b>
	35 to 145°F (1.7 to 62.8°C)	Averaging Bulb	40' (12.2 m)	3/32" x 15' (0.24 mm x 457 cm)	210°F (99°C)	<b>357-0004</b>
	120 to 230°F (48.9 to 110°C)	Remote Bulb	40' (12.2 m)	3/8" x 4" (0.95 mm x 10.2 cm)	261°F (127°C)	<b>357-0005</b>
	35 to 145°F (1.7 to 62.8°C)	Averaging Bulb	6" (15 cm)	3/32" x 8' (0.24 mm x 244 cm)	211°F (99.4°C)	<b>357-0001</b>





188 Unit Mounted Thermostat.

## Description

The 188 Unit Mounted Thermostat is a gradual acting thermostat with a remote bulb operating on the force-balance principle, using pneumatic feedback to obtain linearity and maintain selected room temperature by positioning pneumatic devices to control heating or cooling.

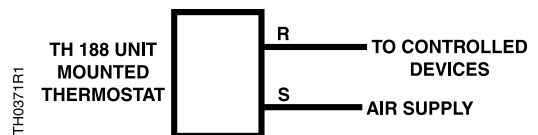
## Applications

The 188 Unit Mounted Thermostats are designed primarily for use in fan coil induction units and unit ventilators to control the temperature within and occupied space. The thermostats temperature range is limited to applications at ambient temperatures.

# features

- Liquid-filled thermal system temperature sensing element
- Durable die-cast metal case with rugged set point knob
- Adjustable sensitivity
- Universal mounting bracket for easy installation
- Integral adjustable limit stops
- Available as:
  - Direct Acting only (Heating)
  - Reverse Acting only (Cooling)
  - Heat or Cool depending on supply air pressure

## Typical Connections



## Specifications/Product Ordering

**Control Action** ..... Heating/Cooling, Direct and Reverse;  
Direct only; Reverse only

**Operating Range** ..... 60 to 85°F (15.5 to 29.4°C)

**Operating Pressure** ..... 30 psi (207 kPa) max.

**Adjustment Sensitivity** ..... 1 to 5.25 psi/°F (12 to 65 kPa/°C)

**Factory Sensitivity Setting** ..... 2.25 psi/°F (28 kPa/°C)

**Temperature Response** ..... 0.2°F (0.1°C)

**Maximum Ambient Temperature**

Case ..... 135°F (57.2°C)

Bulb ..... 231°F (111°C)

**Scale Graduations** ..... 1°F (0.55°C)

**Nominal Air Supply Pressure**

Direct or Reverse Acting ..... 25 psi (172 kPa)

Heating/Cooling ..... 25 psi (172 kPa)/18 psi (124 kPa)

**Average Air Usage**

20 scim Restrictor ..... 25 scim (6.8 ml/s)

40 scim Restrictor ..... 45 scim (12.2 ml/s)

**Air Connections** ..... 1/4" (6 mm) Brass barbed for polyethylene tubing

**Bulb Size** ..... 3/8" Diameter x 3-1/2" L  
(9.5 mm Diameter x 89 mm L)

**Capillary Length** ..... 48" (121.9 cm) approx.

**Finish** ..... Corrosion-resistant Zinc Chromate

**Dimensions (case)**

Heating/Cooling, Reverse Acting ..... 3.1" W x 2.4" H x 2.13" D  
(100 mm W x 61 mm H x 54 mm D)

Direct Acting ..... 3.1" W x 2.4" H x 1.38" D  
(100 mm W x 61 mm H x 35 mm D)

**Shipping Weight** ..... 3.0 lb. (1.36 kg)



188	Control Action	Changeover Pressure	Average Air Usage	Part No.	
	Direct Acting/25 psi (172 kPa)	—	40 scim (11 ml/s)	<b>188-0031</b>	Single Set Point
	Reverse Acting (Cooling) 18 psi	—	20 scim (5 ml/s)	<b>188-0024</b>	
	Direct Acting/Reverse Acting (Cooling) 18 psi (124 kPa)	—	40 scim (11 ml/s)	<b>188-0030</b>	Heat/Cool
	Retroline Direct Acting/Reverse Acting 18 psi (124 kPa)/13 psi (90 kPa). Retroline replacement for <b>Honeywell LP916BXXXX</b> .	15 psi (103 kPa)	40 scim (11 ml/s)	<b>188-0033</b>	
	Retroline Direct Acting/Reverse Acting 20 psi (138 kPa)/15 psi (103 kPa). Retroline replacement for <b>Johnson Controls T-3300-2</b> .	17 psi (117 kPa)	40 scim (11 ml/s)	<b>188-0034</b>	

# Pneumatic High and Low Temperature Detection Thermostats



134 Pneumatic Low Temperature Detection Thermostat.

## Description

The 134 High and Low Temperature Detection Pneumatic Thermostats automatically “lockout” at set point and require manual reset.

## features

- Snap-acting pneumatic switch
- Sight-set calibrated set point scale
- No leakage of air prior to reset of switch
- Easily adjustable settings
- Normally closed air valve; bleeds to less than 2 psig (14 kPa) when supplied through a restrictor
- Barb fitting for push-on connection of 1/4” (6 mm) OD polyethylene tubing
- Holds dead-ended line to approximately 22 psig (152 kPa) air pressure

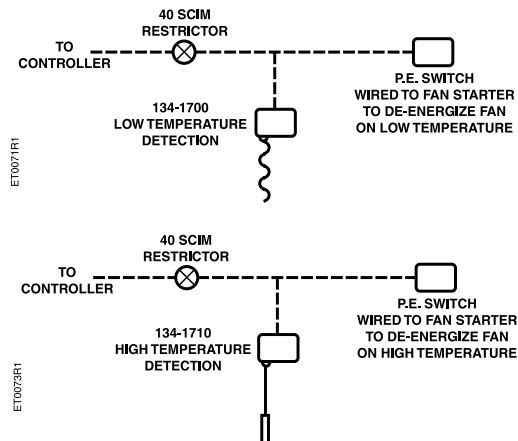
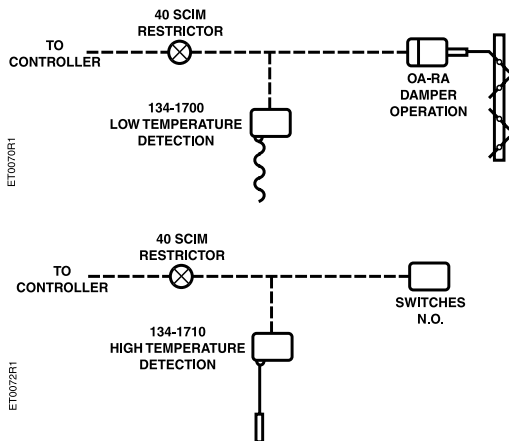
## Applications

The 134 Pneumatic High and Low Temperature Detection Thermostats are used on pneumatic heating and cooling systems in areas protected from the weather.

On a typical high limit application, the thermostat shuts down air conditioning or ventilating fans when the duct temperature becomes excessively high. A normally closed switch opens at set point.

On a typical low temperature application, the thermostat stops the fan or closes a damper when the temperature drops to the set point at any one foot (30.5 cm) or more of the sensing element.

## Application Drawings



## Specifications/Product Ordering

### Part No. 134-1700

**Ambient Temperature Range** ..... Greater than set point to 140°F (60°C)  
**Pneumatic Switch** ..... NC, 0.020" (0.6 mm) diameter bleed  
**Control Point Low Temperature Thermostat** ..... Lowest temperature at any one foot section of the sensing bulb  
**Case Finish** ..... Gray Baked Enamel  
**Shipping Weight** ..... 2.45 lb. (1.11 kg)

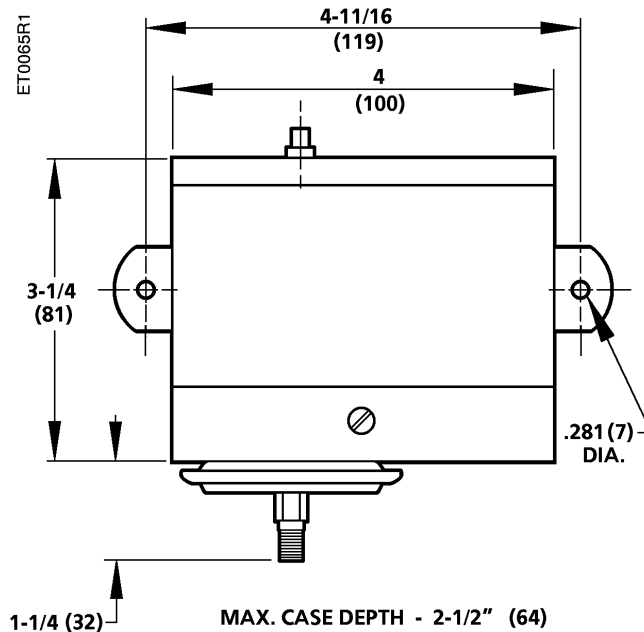
### Part No. 134-1710

**Ambient Temperature Range** ..... -40 to +140°F (-40 to +60°C)  
**Pneumatic Switch** ..... NC, 0.02" (0.6 mm) diameter bleed  
**Control Point Low Temperature Thermostat** ..... Lowest temperature at any one foot section of the sensing bulb  
**Case Finish** ..... Gray Baked Enamel  
**Shipping Weight** ..... 2.38 lb. (1.08 kg)



	Temperature Range	Differential	Maximum Bulb Temperature	Bulb & Capillary Length	Switch Reclose	Part No.	
134	15 to 55°F (-9 to +12.8°C) with stop at 35°F (1.67°C)	5°F (2.8°C) Non-Adjustable	400°F (204°C)	20' (6 m)	Temperature must increase by 5°F (2.8°C) before pneumatic switch can be reclosed.	<b>134-1700</b>	Low Temp.
	100 to 170°F (38 to 77°C)	10°F (5.6°C) Non-Adjustable	250°F (121°C)	2.7" (69 mm) Dia. x 10" (25.4 cm) L bulb with 6' (183 mm) capillary	Temperature must drop 10°F (5.6°C) before pneumatic switch can be reclosed.	<b>134-1710</b>	High Temp.

## Dimensions



Dimensions in inches (millimeters).



186 Room Hygrostat.



186 Duct Hygrostat.

**Description**

The 186 Room and Duct Hygrostats are pneumatic instruments sensitive to slight changes in relative humidity.

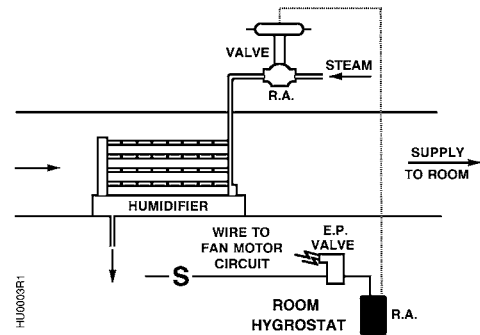
**Applications**

The 186 Room and Duct Hygrostats provide control of relative humidity for comfort control in hospitals, schools and office buildings.

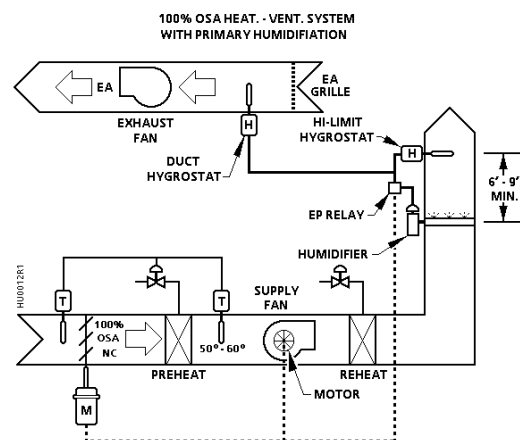
**features**

- Adjustable sensitivity
- Sensitive hygroscopic membrane
- Includes temperature compensation
- Galvanized steel housing standard on duct model
- Models available for normal comfort range and high limit range
- Room type comes complete with standard cover and wall plate
- Duct type comes mounted inside a duct mounting box

**Application Drawings**



**Room Application.**



**Duct Application.**

## Specifications/Product Ordering

<b>Sensitivity</b> .....	1/4 to 4 psi/% RH
<b>Normal Supply Pressure</b> .....	15 to 25 psi (103 kPa to 172 kPa)
<b>Maximum Supply Pressure</b> .....	30 psi (207 mm)
<b>Air Consumption</b> .....	15 scim (4 ml/s)
<b>Effect of 10°F Temperature Change</b> .....	Shift of 1% RH
<b>Effect of 5 psi Supply Pressure Change (mid sensitivity)</b> .....	7.0 min./vol unit
<b>Duct Box</b> .....	Extends 6" (152 mm) into duct
<b>Air Connections</b>	
Duct .....	Barb fitting for 1/4" (64 mm) OD polyethylene tubing
Room.....	5/32" (4 mm) OD polyethylene tubing

### Dimensions

<b>Chassis</b> .....	2.9" H x 1.75" W x 1.13" D (73.66 mm W x 44.45 mm H x 28.70 mm D)
<b>Room</b> .....	2.16" W x 3.34" H (55 mm W x 85 mm H)
<b>Duct</b> .....	4.5" W x 5.88" H x 6" D (114 mm x W 149 mm H x 152 mm D)

**Standard Room Cover** ..... Desert Beige, plastic

### Shipping Weights

186-0013 & 186-0019 .....	0.84 lb. (0.38 kg)
186-0087; 186-0088; 186-0090; 186-0091 .....	3.3 lb. (1.5 kg)

	Control Range	Type of Control	Control Action		
			Direct	Reverse	
186 Hygrostats	20 to 90% RH	—	<b>186-0013</b>	<b>186-0019</b>	Room
	20 to 90% RH	—	<b>186-0087</b>	<b>186-0088</b>	Duct
	55 to 95% RH	High Limit	—	<b>186-0090</b>	
	25 to 65% RH	Room Comfort	—	<b>186-0091</b>	



## Electric Low Voltage Wall Thermostats



141 Electric Low Voltage Wall Thermostat.

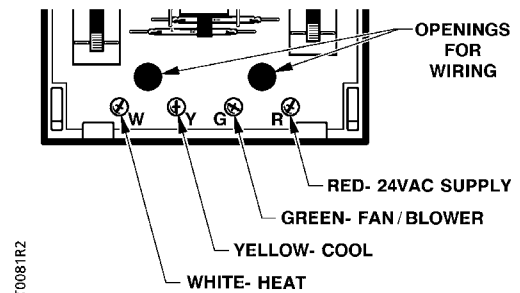
### Description

The 141 Electric Low Voltage Wall Thermostat is a 24 Vac heat/cool room thermostat with universal control for use with most low voltage gas, oil, or electrical systems.

### Applications

The 141 Electric Low Voltage Wall Thermostat controls gas, oil, or electrical heat and refrigeration cooling. For greater room comfort, the thermostat is heat-anticipated with an adjustable heater on the heating side and a fixed nonadjustable heater on the cooling side.

#### Typical Connections



- Mercury-free
- Sensitive spiral bimetal for accurate temperature control
- Adjustable differential
- Exposed bimetal thermometer and set point adjustment
- Adjustable heat anticipator
- Scale plate for optional horizontal mounting
- Heat/Off/Cool and Fan-Auto/On switches

# features

## Specifications/Product Ordering

**Control Function** ..... Heating and Cooling  
**Set Point Range** ..... 50 to 90°F (10 to 32°C)  
 Heat Differential..... 1°F (18°C)  
 Cool Differential..... 1.5°F (24°C)  
**Heat Anticipator** ..... 0.1 to 1.0 Amps (adjustable)  
**Cool Anticipator** ..... Fixed  
**Electric Rating** ..... 24 Vac (30 Vac) max.  
**Switch Action** ..... SPDT

**Selector Switches** ..... System "Heat-Off-Cool";  
 Fan "Auto-On"  
**Approvals** ..... CSA (UL not required)  
**Mounting** ..... Vertical or Horizontal (optional cover plate provided)  
**Dimensions** ..... 4.5" H x 2.75" W x 1.25" D  
 (14 mm H x 70 mm W x 32 mm D)  
**Finish** ..... Ivory, plastic case  
**Shipping Weight** ..... 0.25 lb. (0.11 kg)

141	Description	Part No.
	Electric Low Voltage Wall Thermostat	<b>141-0599</b>

TECH TIPS

Retroline® Restrostats are the contractor's choice for easy replacement of Johnson Controls, RobertShaw, and Honeywell pneumatic thermostats.

For complete listings, refer to page A-15.



## Electric Line Voltage Remote Bulb Thermostats



141 Electric Line Voltage Remote Bulb Thermostat.

### Description

The 141 Electric Line Voltage Remote Bulb Thermostat is a two-position electric line voltage thermostat with remote bulb.

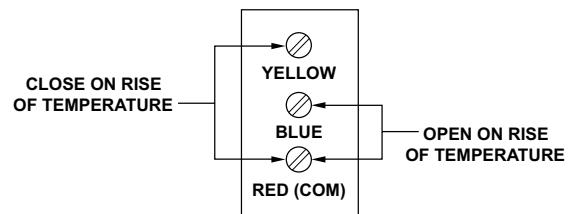
### Applications

The 141 Electric Line Voltage Remote Bulb Thermostat is used for temperature control in heating and cooling application, typically to directly operate two-position damper motor actuators, motor actuated valves, relays and similar equipment. Typical applications includes summer-winter change over and the direct control of liquid or air temperatures where two position (ON-OFF) control is acceptable.

# features

- Temperature sensitive, liquid-filled sensing element
- Single-pole, double-throw snap-acting switches
- Enclosed switches suitable for low or line voltage power switching
- Gray baked enamel case

### Typical Connections



## Specifications/Product Ordering

### Inductive Amps

Full Load Amps	
120 Vac.....	7.4
240 Vac.....	3.7
Locked Rotor Amps	
120 Vac.....	44.5
240 Vac.....	22.2

### Resistive Amps

120 Vac.....	25
240 Vac.....	20

**Dimensions** .....2.5" W x 5.38" H x 2.31" D  
(64 mm x (136 mm x 59 mm)

**Shipping Weight** ..... 1.8 lb. (0.82 kg)



	Temperature Scale Range	Max. Bulb Temp.	Bulb Size	Switch Differential	Part No.
141	20 to 120°F (-7 to +49°C)	130°F (54°C)	3/8" Diameter x 6-3/4" L (9.5 mm Diameter x 171 mm L) Capillary 6' (183 cm)	Adjustable 6 to 30°F (3 to 16°C)	<b>141-0520</b>
	100 to 240°F (38 to 110°C)	250°F (121°C)	7/16" Diameter x 3-1/2" L (11 mm Diameter x 69 mm L) Capillary 6' (183 cm)	Adjustable 7 to 45°F (14 to 25°C)	<b>141-0521</b>

# Electric Line Voltage Room Thermostats—Heating/Cooling



134 Electric Line Voltage Room Thermostat—Heating/Cooling.

## Description

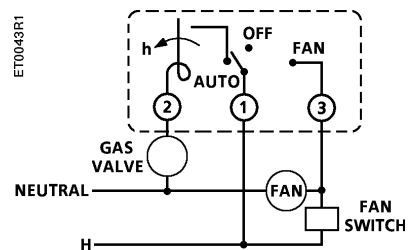
The 134 Electric Line Voltage Room Thermostat is a line voltage On/Off room thermostat for heating and cooling applications.

Models are available with SPST or SPDT contact action and for standard, nominal 1/4 hp / 10 amps noninductive, or heavy duty, nominal 1 hp / 22 amps noninductive applications.

## Applications

The 134 Electric Line Voltage Room Thermostat controls heating and cooling applications or year-round air conditioning units in commercial, industrial, or residential installations.

### Typical Connections



# features

- Single set point dial
- Exposed bimetal thermometer
- Temperature range from 50 to 90°F (10 to 30°C)
- High and low limit stops
- Standard or heavy duty models
- Dual Fahrenheit/Celsius scale plate

## Specifications/Product Ordering

### Part No. 134-1083

**Motor Rating**  
 120 Vac ..... 6.0 A  
 240 Vac ..... 3.7 A

**Switch Action** ..... SPST with "Auto-Off-Fan" switch

**Dimensions** ..... 2.78" W x 5.19" H x 1.88" D  
 (71 mm W x 132 mm H x 48 mm D)

**Shipping Weight** ..... 1.3 lbs. (0.6 kg)

### Part No. 134-1084

**Motor Rating**  
 120 Vac ..... 6.0 A  
 240 Vac ..... 3.0 A

**Resistive Rating**  
 120 Vac ..... 10.0 amps  
 240 Vac ..... 10.0 amps

**Switch Action** ..... SPDT

**Dimensions** ..... 3" W x 4.75" H x 1.44" D  
 (75 mm W x 120 mm H x 36 mm D)

**Shipping Weight** ..... 1.0 lb. (0.6 kg)

### Part No. 134-1085

**Motor Rating**  
 120 Vac ..... 16.0 Heating/8.0 Cooling  
 240 Vac ..... 8.0 Heating/8.0 Cooling

**Resistive Rating**  
 120 Vac ..... 22.0 Heating  
 240 Vac ..... 22.0 Heating

**Switch Action** ..... SPDT

**Dimensions** ..... 3" W x 4.75" H x 1.44" D  
 (75 mm W x 120 mm H x 36 mm D)

**Shipping Weight** ..... 1.0 lb. (0.6 kg)

### Part No. 134-1086

**Motor Rating**  
 120 Vac ..... 6.0 A  
 240 Vac ..... 3.0 A

**Switch Action** ..... SPST

**Dimensions** ..... 3" W x 4.75" H x 1.44" D  
 (75 mm W x 120 mm H x 36 mm D)

**Shipping Weight** ..... 1.3 lb. (0.6 kg)

	Temp. Set Point Range	Temp. Set Point Adjustment	Temperature Difference	Part No.
134	40 to 90°F (5 to 30°C)	Concealed	1.8°F (1°C)	<b>134-1083</b>
	40 to 90°F (5 to 30°C)	Concealed	1.8°F (1°C)	<b>134-1086</b>
	40 to 90°F (5 to 30°C)	Exposed Knob or Concealed <sup>1</sup>	1.8°F (1°C) Heating 2.31°F (1.3°C) Cooling	<b>134-1084</b>
	40 to 90°F (5 to 30°C)	Exposed Knob or Concealed <sup>1</sup>	3°F (1.7°C) Heating 3.5°F (2°C) Cooling	<b>134-1085</b>

#### Ordering Note

- Each thermostat is shipped with a blank faceplate for use when concealed adjustment is desired.





RAA10C Fan Coil Thermostat with concealed set point knob.



RAA20U Room Thermostat with exposed set point knob.



RAA30U Room Thermostat with On/Off selector switch.



RAA40 Room Temperature Thermostat with Heat/Cool/Off selector switch.

### Description

Designed for simple heating or cooling or heating/cooling applications, the RAA... Electric Room Thermostats are an attractive and economical solution that is based on two-wire, gas membrane technology.

The RAA... Electric Room Thermostats are available in single scale Fahrenheit or Celsius models, except the RAA10, with models for dry wall or electrical wall box mounting. Models are designed for wall box mounting includes wall box plate adapter and screws.

- Two-point control algorithm for on/off control
- 24...120, 277 Vac line
- Two mounting styles: electrical wall box or drywall
- Dual Fahrenheit/Celsius scale

#### Options

- Tamperproof cover (concealed set point knob)

### Applications

The RAA... Electric Room Thermostats are typically used in public buildings, storage rooms, entrance hallways and maintenance rooms where two-position (On/Off) control is required.

#### Descriptions of models are as follows:

RAA10... model is a heating or cooling only thermostat that has a concealed set point knob for use in areas where set point adjustment is limited to authorized personnel. Typical applications are frost and overheat protection and temporary heat for buildings under construction.

RAA20... model is a heating or cooling only thermostat that has an external set point knob for occupant adjustment.

RAA30... is a heating or cooling only thermostat that has an external set point adjustment knob with an On/Off switch.

RAA40... is a heating and cooling thermostat with an external set point knob and a selector switch for Heat/Cool/Off.

#### Note:

ARG 70 wall plate is required in order to be UL compliant for switching line voltage.

The RAA... Room Thermostats are designed for either simple heating or cooling or for 2-pipe heating and cooling systems where fan control is not required.

features

## Specifications/Product Ordering

**Operating Voltage** .....24...120, 277 Vac  
**Frequency** .....50 or 60 Hz  
**Set Point Adjustment Range** ..... 50 to 85°F (10 to 29°C)  
**Switching Differential** ..... ≤ 1.8°F (1°C)  
**Switch Rating** ..... 6A RES, 2A FLA, 12A LRA  
**Time Constant** ..... 14 min.  
**Switch Action Output** ..... SPDT Two-position (On/Off)  
**Operation—Conditions**  
 Operating Temperature ..... 32 to 122°F (0 to 50°C)  
 Relative Humidity ..... <95% RH  
**Transportation/Storage Conditions**  
 Temperature ..... -4 to +122°F (-20 to +50°C)  
 Relative Humidity ..... <95% RH

**Housing**  
 Material ..... Plastic  
 Color ..... White  
 Bellows ..... Environmentally-friendly gas  
**Wiring** ..... Screw terminals for wires of  
 2 x 16 AWG or 1 x 14 AWG, 20 AWG max.  
**Agency Listings** ..... Conforms to CE requirements  
 UL listed to 873  
 cUL listed to Canadian standard C22.2 No. 24-93  
**Shipping Weight** ..... 0.31 lb. (0.14 kg)

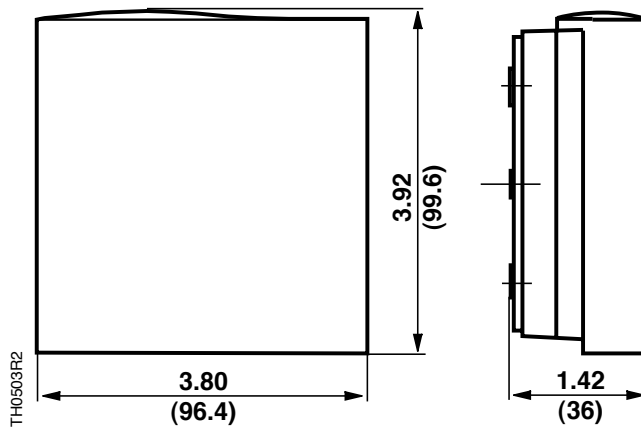
	Description	Part Nos.	
		Electric Wall Box <sup>1</sup>	Dry Wall
RAA...	Thermostat for heating or cooling only with concealed set point knob	RAA10CW	RAA10C
	Thermostat for heating or cooling only with exposed set set point knob	RAA20UW	RAA20U
	Thermostat for heating or cooling only with exposed set point knob and On/Off switch	RAA30UW	RAA30U
	Thermostat for heating/cooling with exposed set point knob and Heat/Cool/Off selector switch	RAA40UW	RAA40U

**Table Note**

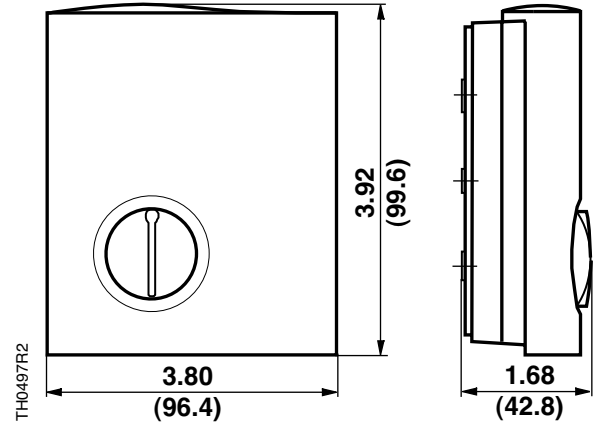
1. Includes wall plate, **ARG70**, to be UL compliant for switching line voltage.



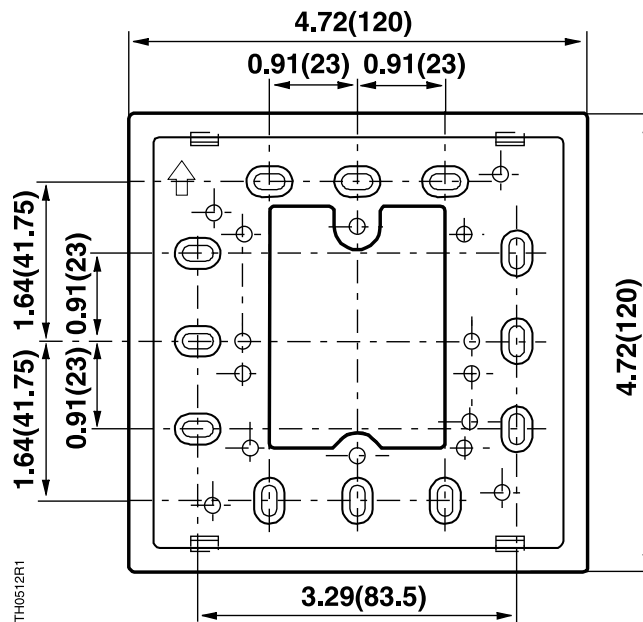
RAA10... Thermostat



RAA20... Thermostat



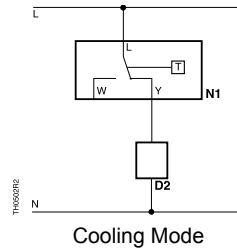
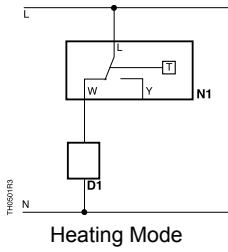
Wall Plate for Mounting



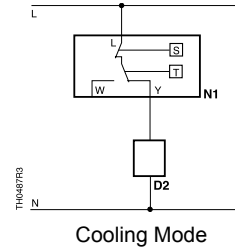
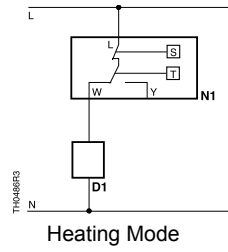
Dimensions shown in inches (mm).

# Engineering Drawings

## Wiring Diagrams



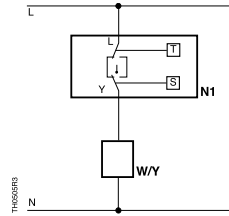
RAA10.../RAA20...



RAA30...

**Key**

- D1 Heating device
- D2 Cooling device
- L Operating voltage
- N Neutral
- N1 Room thermostat
- S On/Off switch
- T Thermostat
- W Heating control output
- Y Cooling control output

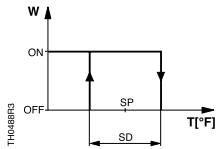


RAA40...

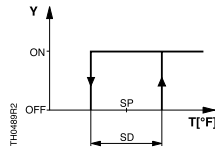
**Key**

- L Operating voltage
- N Neutral
- N1 Room thermostat
- S Heat/Off/Cool switch
- T Thermal switch
- W/Y Heating/Cooling device

## Operating Diagrams



Heating Mode

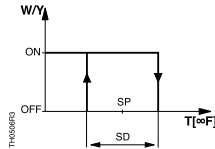


Cooling Mode

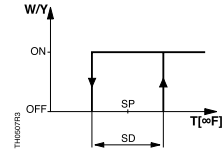
RAA10..., RAA20... and RAA30

**Key**

- T Room temperature
- SD Switching differential
- SP Room temperature set point
- W Heating output signal
- Y Cooling output signal



Heating Mode



Cooling Mode

RAA40...

**Key**

- T Room temperature
- SD Switching differential
- SP Room temperature set point
- W/Y Heating or cooling output signal





RAB10.1U Thermostat with manual changeover.



RAB20U Thermostat with exposed set point knob and external changeover.



RAB30U Thermostat with exposed set point knob and 3-speed fan control.



RAB90.1U 3-speed fan switch.

### Description

Designed to control 2- or 4-pipe fan coil or unit ventilators, the RAB... Electric Fan Coil Thermostats are an attractive and economical solution that is based on two-wire, gas membrane technology.

Providing On/Off control, the RAB... Electric Fan Coil Thermostats are available with dual scale Fahrenheit/Celsius models with manual or external changeover.

The RAB20U requires an aqua sensor to initiate changeover.

### Applications

The RAB... Electric Fan Coil Thermostats are recommended for applications in commercial or light industrial building in conjunction with zone valves, thermal valves, fans or thermostats.

**Note:**

ARG70, wall plate, is required for UL compliance in switching line voltage.

# features

- Fan Speed Switch (RAB90.1U) for remote switching location (24...277 Vac)
- Two-point control algorithm for on/off control
- Line voltage
- 2-pipe or 4-pipe fan coil applications
- 3-speed fan control
- Fan on only models for ventilation
- Manual or external changeover
- Two mounting styles: electrical wall box or drywall
- Adjustable upper/lower limit stops
- Dual Fahrenheit/Celsius scale

## Specifications/Product Ordering

**Operating Voltage** ..... 24...120, 277 Vac  
**Frequency** ..... 50 or 60 Hz  
**Set Point Setting Range** ..... 50 to 85°F (8 to 30 °C)  
**Switching Differential (SD)** ..... ≤1.8°F (1°C)  
**Switch Rating** ..... 0.2 to 6 (2) A  
**Time Constant** ..... 14 min.  
**Operating Conditions**  
 Temperature ..... 14 to 122°F (-10 to +50 °C)  
 Relative Humidity ..... <95% RH  
**Transportation Conditions**  
 Temperature ..... -4 to +122°F (-20 to +50 °C)  
 Relative Humidity ..... <95% RH  
**Safety** ..... UL 873

**Wiring** ..... Screw Terminals for Wires of  
 2 x 16 or 1 x 14 AWG, 20 AWG max.  
**Cover Color** ..... White  
**Shipping Weight** ..... 0.08 lb. (0.18 kg)

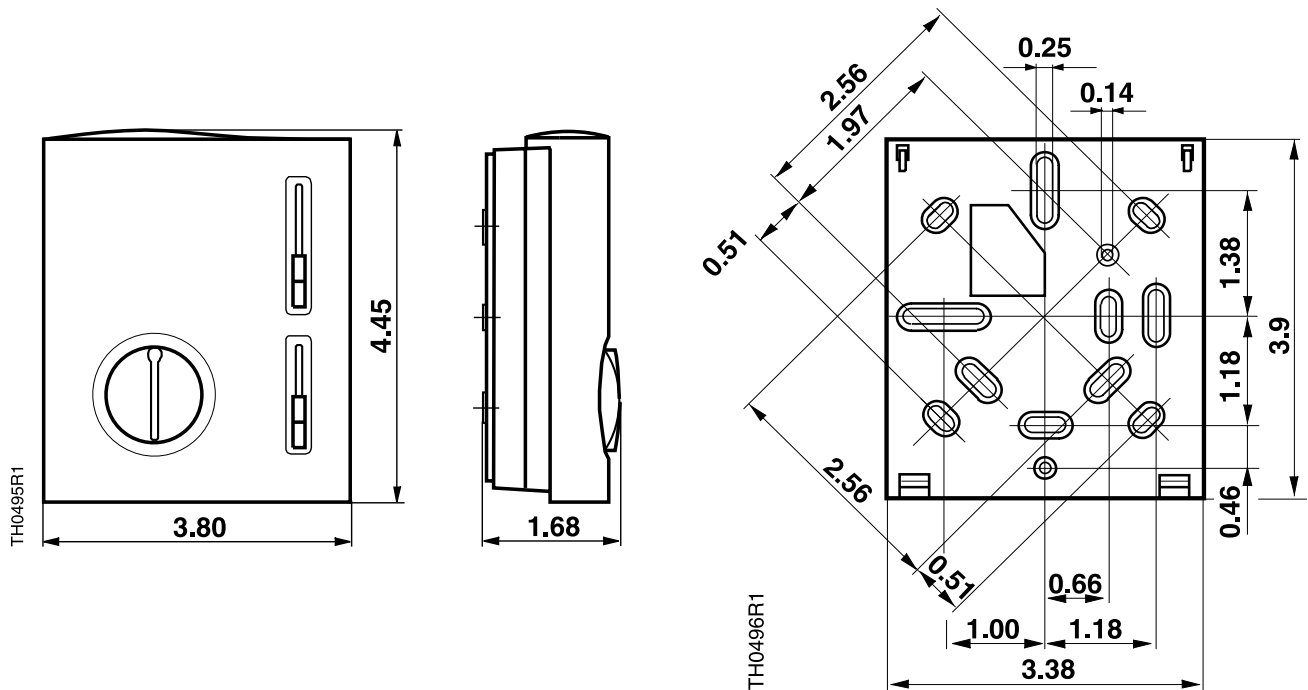


		Description					Part Nos.	
RAB...	Application	Change-over	Ventilation	3-speed Fan Control	Switch	Electric Wall Box <sup>1</sup>	Dry Wall	
						2-pipe	Heating/Cooling	Manual
2-pipe	Heating/Cooling/Ventilation	Manual	Yes	Yes	Heat/Cool/Vent	RAB10.1UW	RAB10.1U	
2-pipe	Heating/Cooling	Auto	No	Yes	—	RAB20UW	RAB20U	
2-pipe	Heating/Cooling/Ventilation	Auto	Yes	Yes	Heat/Cool/Vent	RAB20.1UW	RAB20.1U	
4-pipe	Heating/Cooling	Manual	No	Yes	Heat/Cool	RAB30UW	RAB30U	
4-pipe	Heating/Cooling/Ventilation	Manual	Yes	Yes	Heat/Cool/Vent	RAB30.1UW	RAB30.1U	
—	3-speed Fan Switch	—	—	Yes	—	—	RAB90.1U	

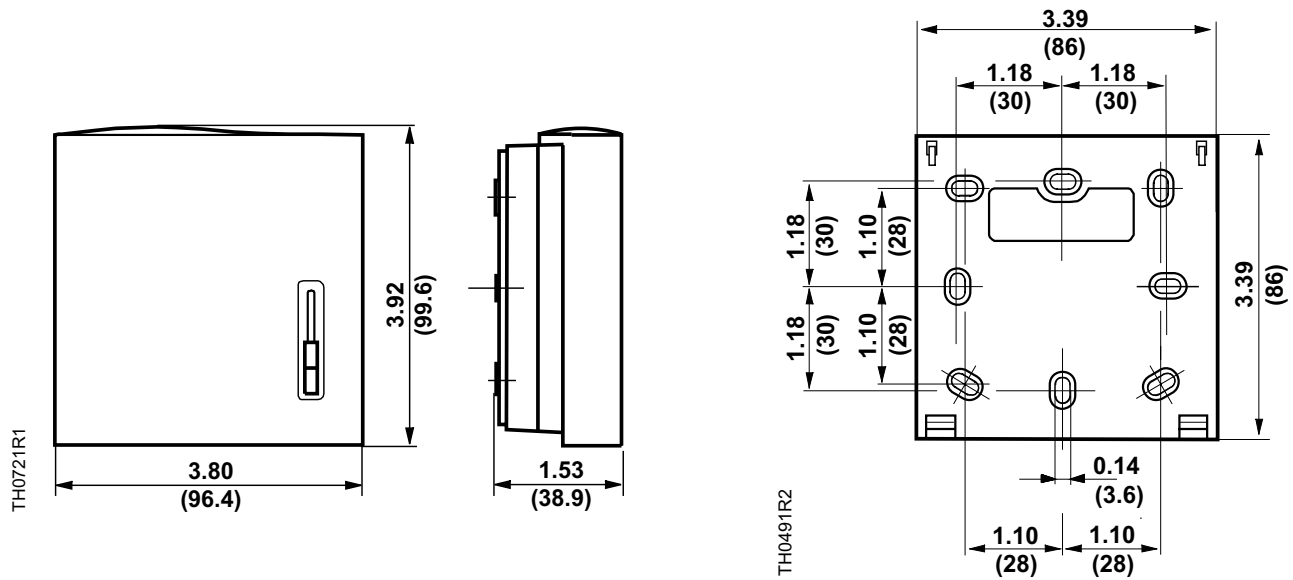
**Ordering Note**

- Includes wallplate, **ARG70**, to be UL compliant for switching line voltage.

## RAB... Room Thermostat and Wall Plate for Mounting



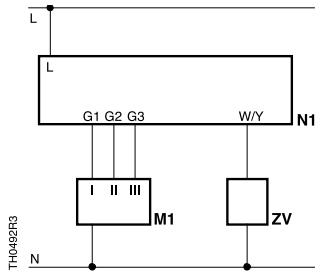
## RAB90.1 and Wall Plate for Mounting



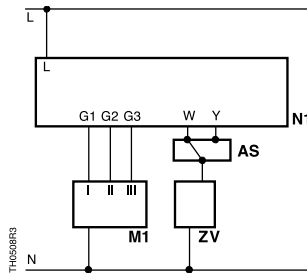
Dimensions shown in inches.

# Engineering Drawings

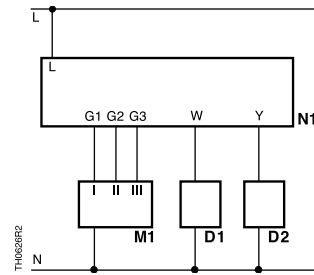
## Wiring Diagrams



RAB10...



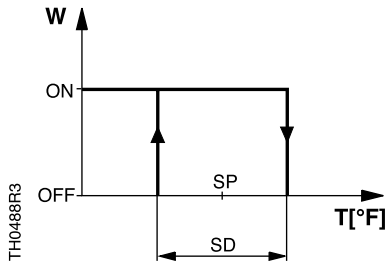
RAB20...



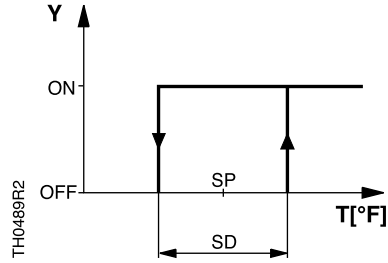
RAB30...

<b>Key</b>					
L	Operating Voltage	G1	Control Output Fan Speed I	ZV	Zone or Thermal Valve
M1	3-speed Fan	G2	Control Output Fan Speed II	W/Y	Control Output Actuator
N	Neutral	G3	Control Output Fan Speed III	AS	Aqua Sensor
N1	Room Thermostat				

## Operating Diagrams



Heating Mode



Cooling Mode

<b>Key</b>			
T	Room Temperature	W	Valve Output Signal Heating
SD	Switching Differential	Y	Valve Output Signal Cooling
SP	Room Temperature Set Point		

# RCC...

New!

## Room Temperature Controllers for Two-pipe Fan Coil Units



RCC10U Room Temperature Controller.



RCC20U Room Temperature Controller.



RCC50.1U Room Temperature Controller.

### Description

The RCC... Room Temperature Controllers are room temperature controllers for two-pipe fan coil units.

### Applications

The RCC... Series of Room Temperature Controllers are typically used for:

- Controlling Normally Open (NO) 120 Vac, two-position valves. (RCC10U/20U)
- Controlling room temperature in individual rooms that are heated or cooled with two-pipe fan coil units.
- Opening or closing a 0 to 10V Normally Closed valve. (RCC50.1U)
- Switching an electrical heater (RCC20U).
- Operating a 3-speed fan.

The RCC... Series is suitable for systems with:

- Automatic Heating/Cooling changeover.
- Heating only/Cooling only or Heating and Cooling applications.

# features

#### RCC10U

- Output for on/off valve actuator
- Output for three-speed fan
- Dual set point temperature scale
- Control depending on the room or return air temperature
- Automatic Heating/Cooling changeover
- Operating modes: Normal, Energy Saving, Frost Protection and Off
- Operating mode changeover input for remote control
- Selectable control parameters

#### RCC20U

- Outputs for on/off valve actuator and electrical heater.
- Output for three-speed fan.
- Dual set point temperature scale.

- Control depending on the room or return air temperature (remote sensing).
- Automatic Heating/Cooling changeover.
- Operating modes: Normal, Energy Saving, Frost Protection and Off.
- Operating mode changeover input for remote control.
- Selectable control parameters.

#### RCC50.1

- Modulating P+I control
- Output for 0 to 10 Vdc valve actuator
- Outputs for three-speed fan
- Dual set point temperature scale
- Automatic heating/cooling changeover
- Operating modes: Normal, Energy Saving and Off
- Operating mode changeover input for remote control
- Moisture damage protection function

## Specifications/Product Ordering

**Operating Voltage**  
 RCC10U/20U ..... 120 Vac  
 RCC50.1U ..... 24 Vac ±20%

**Frequency** ..... 50/60 Hz

**Power Consumption** ..... Maximum 4 VA

**Control Outputs (Fan) 11, 10, 9** .. 120 Vac max./3A res./3.5 FLA/7.0 LRA

**Control Output 3** ..... 0 to 10 Vdc  
 Resolution ..... 39 mV  
 Current ..... ±1 mA

**Signal Input 2 for Changeover Sensor** ..... QAH11.1, Class 2,  
 NTC resistor 3K Ω at 77°F (25°C)

**Permissible Number of thermostats** ..... Ten in Parallel, Signal Input 3

**Status Input D1 and GND**  
 Contact Sensing ..... 6 to 15 Vdc/3 to 6 mA  
 Insulation against live voltage ..... 4 kV

**Operating Action** ..... Normally Open (NO)

**Permissible Cable Length with Copper  
 Cable 16 AWG for Connection to Signal Input 2,  
 D1, and GND** ..... 262 feet (80m)

**Set Point Setting Range** ..... 50 to 85°F (10 to 30°C)

**RCC50.1U**  
 Control Algorithm ..... P + I  
 Proportional Band Heat (PBh) ..... 7°F (4°C)  
 Proportional Band Cool (PBc) ..... 3.5°F (2°C)  
 Integration Time ..... 5 minutes

**Set Point (Energy Saving Mode), Heating** ..... 61°F (16°C)  
**Set Point (Energy Saving Mode), Cooling** ..... 82°F (28°C)

**Operation**  
 Temperature ..... 32 to 122°F (0 to 50°C)  
 Humidity ..... <95% RH

**Shipping and Storage**  
 Temperature ..... -13 to +158°F (-25 to +70°C)  
 Humidity ..... <95% RH

**Agency Approvals** ..... UL 873  
 cUL  
 Certification C22.2 No. 24-93  
 Conforms to CE Requirements

**Connection Terminals** ..... Solid Wires or Prepared Standard Wires  
 2 X16 AWG or 1 X14 AWG  
 Minimum 20 AWG

**Housing Color**  
 Cover ..... White and gray  
 Base ..... Gray

**Degree of Housing Protection** ..... NEMA 1

**Shipping Weight** ..... 0.5 lb. (0.23 kg)

RCC...	Description	Part No.
	Room Temp. Controller with Input for Return Air Temperature Sensor	<b>RCC10U</b>
	Room Temp. Controller	<b>RCC20U</b>
	Room Temp. Controller	<b>RCC50.1U</b>

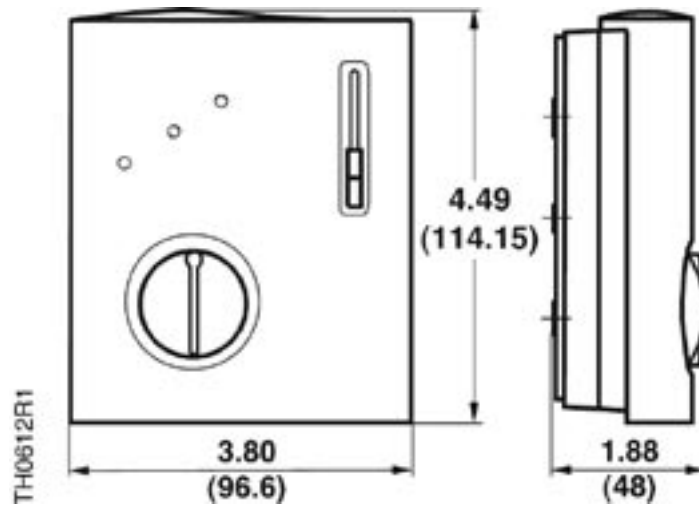
### Ordering Note

To order without a Siemens logo, change the suffix to "/U/NL".

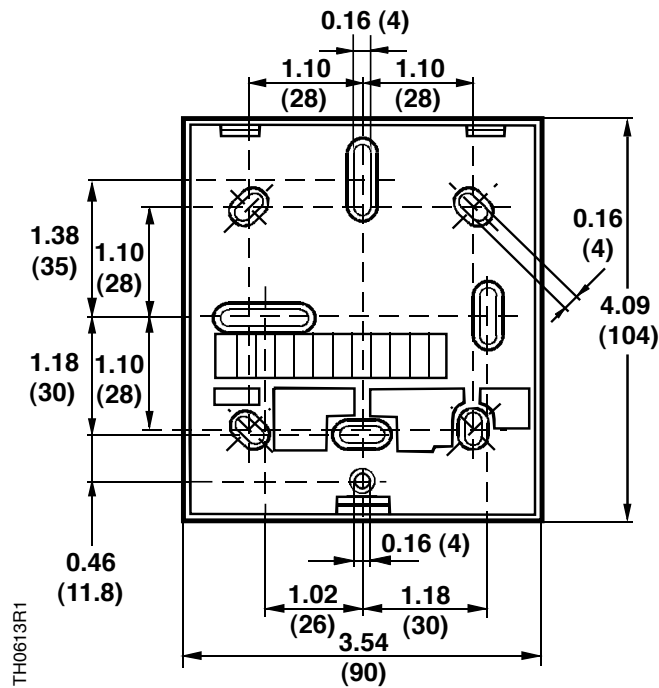
**Example:** RCC10/U/NL.



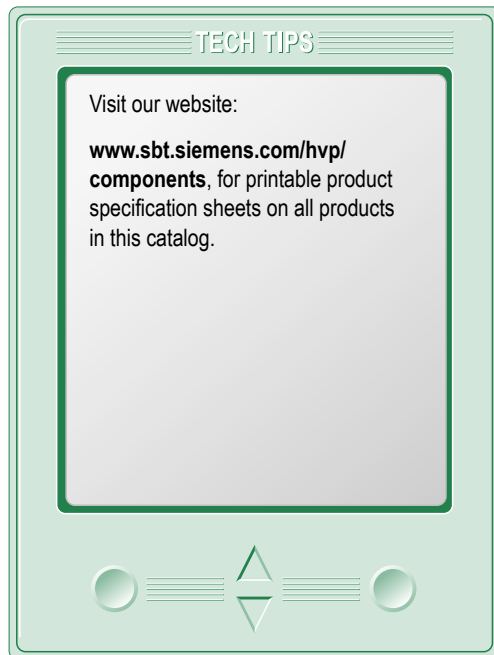
RCC... Controller



Baseplate



Dimensions are shown in inches (mm).





# RCC...

New!

## Free Energy Band™ Room Temperature Controller for Four-pipe Fan Coil Units



RCC30U Room Temperature Controller.

### Description

The RCC... Free Energy Band Room Temperature Controller are room temperature controls for four-pipe fan coil units.

### Applications

The RCC... Series is typically used for the following applications:

- Controlling room temperature in individual rooms that are heated or cooled with four-pipe fan coil units.
- Opening or closing a Normally Closed (NC) Heating and a Normally Open (NO) Cooling, 120 Vac, two-position valve.
- Switching a three-speed fan.

# features

- Outputs for on/off valve actuators
- Outputs for three-speed fan
- Dual set point temperature scale
- Control depending on the room or return air temperature (remote sensing)
- Automatic Heating/Cooling changeover
- Operating modes: Normal, Energy Saving, Frost Protection and Off
- Operating mode changeover input for remote control
- Selectable control parameters
- Free Energy Band between Heating and Cooling for energy conservation

# Specifications/Product Ordering

**Operating Voltage** ..... 120 Vac +10/-15%  
**Frequency** ..... 50/60 Hz  
**Power Consumption** ..... Maximum 10A  
**Control Outputs (Fan) 12, 11, 10  
 7 and 9** ..... 120 Vac max./3A res./  
 3.5 FLA/7.0 LRA  
 120 Vac max./3A res./3.5 FLA/7.0 LRA  
**Control Output 5 (Common)** ..... 120 Vac/7A maximum  
**Signal Input 1 for Return Air Sensor** ..... QAH11.1, Class 2  
 NTC resistor 3K @ 77°F (25°C)  
**Operating Action** ..... Single-pole, Single-throw  
**Permissible Cable Length with Copper  
 Cable 16 AWG for Connection to  
 Terminals 1, D1, and GND** ..... 262 feet (80 m)  
**Setpoint Setting Range** ..... 50 to 85°F (10 to 30°C)  
**Maximum Control Deviation at 72°F (22°C)** ..... Maximum ±1.5°F (0.7°C)  
**Switching Differential in Heating Mode SDH  
 (Selectable)** ..... 2 or 7°F (1 or 4°C)  
**Switching Differential in Cooling Mode SDC** ..... 1 or 3.5°F  
 (0.5 or 2°C) (selectable)  
**Dead Zone in Normal Operation** ..... 3.5 or 9°F (2 or 5°C)

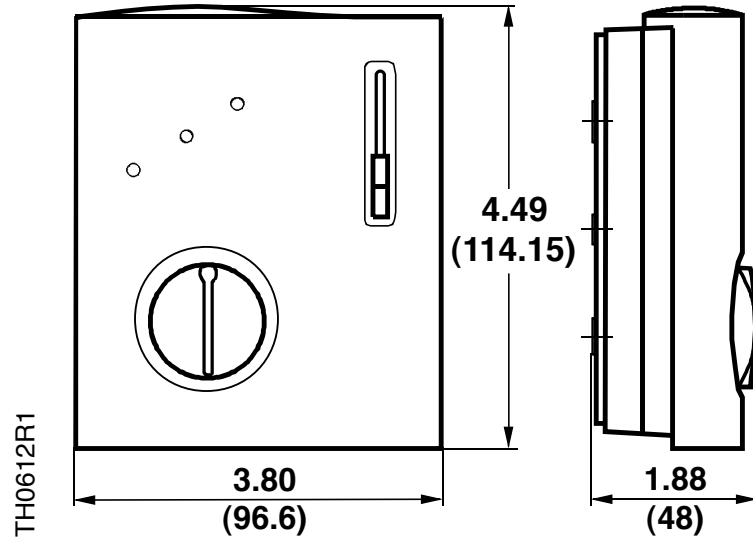
**Set Point (Energy Saving mode), Heating** ..... 61°F (16°C)  
**Set Point (Energy Saving mode), Cooling** ..... 82°F (28°C)  
**Set Point (Frost Protection)** ..... 46°F (8°C)  
**Operation**  
 Temperature ..... 32 to 122°F (0 to 50°C)  
 Humidity ..... <95% RH  
**Shipping and Storage**  
 Temperature ..... -13 to +158°F (-25 to +70°C)  
 Humidity ..... <95% RH  
**Agency Approvals**  
 UL Listing ..... UL 873  
 cUL  
 Certification C22.2 No. 24-93  
 Conforms to CE requirements  
**Connection Terminals** ..... Solid wires or prepared standard wires  
 2 X16 AWG or 1 X14 AWG  
 Minimum 20 AWG  
**Housing Color**  
 Cover ..... White and gray  
 Base ..... Gray  
**Degree of Housing Protection** ..... NEMA 1  
**Shipping Weight** ..... 0.5 lb (0.23 kg)

RCC... FEB	Description	Part No.
	Room Temperature Controller	RCC30U

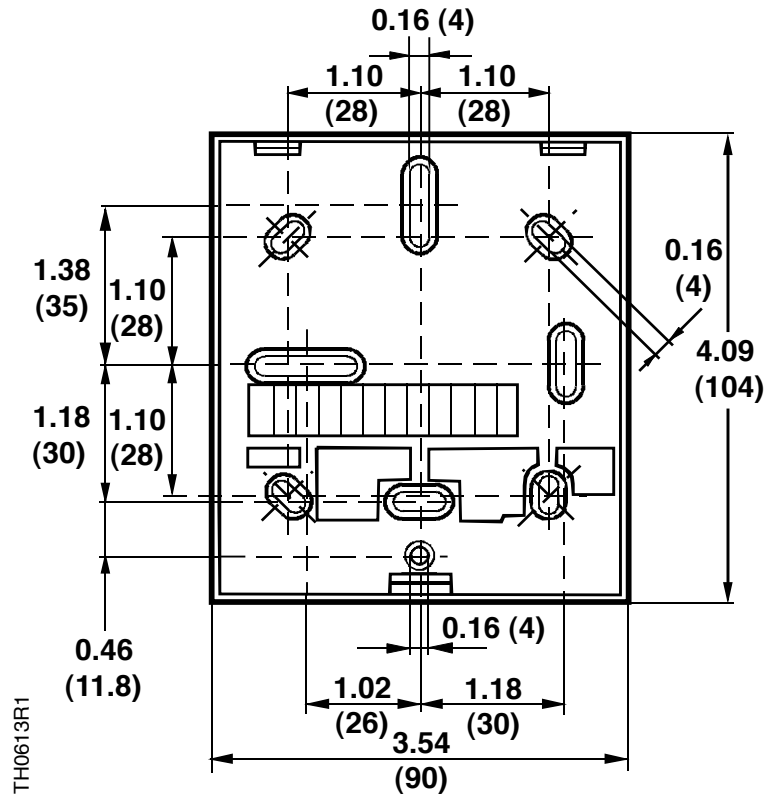
**Ordering Note**  
 To order without a Siemens logo, change the suffix to "/U/NL".  
**Example:** RCC30/U/NL.



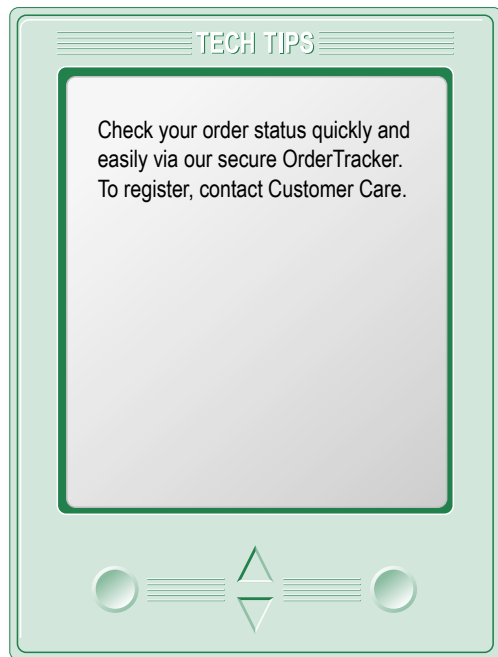
## RCC... FEB Controller



## Baseplate



Dimensions shown in inches (mm).



# RCU50...

## Room Temperature Controllers for CAV and VAV Systems



RCU50U Room Temperature Controller.



RCU50.2U Room Temperature Sensor with manual heating/cooling changeover switch.

### Description

The RCU50... Room Temperature Controllers are designed specifically for Constant Air Volume and Variable Air Volume Systems.

### Applications

Controlling individual room temperature in HVAC installations that are heated or cooled, the RCU50... are especially designed for use with VAV systems with VAV compact controllers, valve actuators, and air damper actuators.

# features

- Modulating P-control
- 0 to 10 Vdc output for heating or cooling
- Operating voltage 24 Vac
- Ergonomic design
- Dual Fahrenheit/Celsius scale

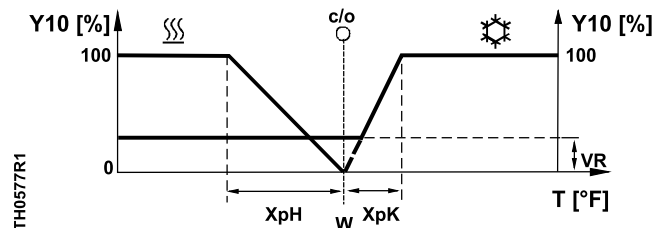
#### Model RCU50U

- Automatic heating/cooling changeover
- Active 0 to 10 Vdc input for set point shifting
- Operating mode changeover input for remote control
- Adjustable minimum limitation for cooling output

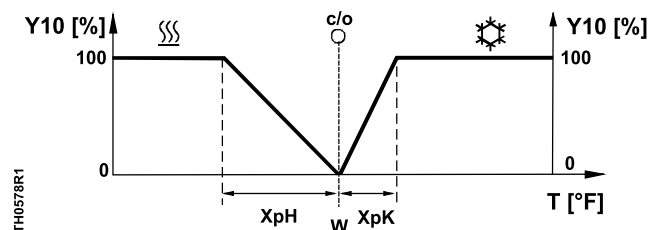
#### Model RCU50.2U

- Manual heating/cooling changeover
- Operating Modes: normal operation and OFF
- Output signal can be reversed 0-10 Vdc/10-0Vdc via a dip switch

### Application Drawing



RCU50U Function Diagram.



RCU50.2U Function Diagram.

<b>Key</b>	
T	Room Temperature
Y10	Output Percentage
W	Room temperature set point
XpH	Proportional band heating
XpK	Proportional band cooling
VR	0 to 100% minimum limitation of cooling output
c/o	Changeover

## Specifications/Product Ordering

<b>Power Supply</b>	
Operating Voltage .....	24 Vac ±20%
Frequency .....	50/60 Hz
<b>Set Point Setting Range</b> .....	46 to 86°F (8 to 30°C)
<b>P-band in Heating Mode</b>	
RCU50U .....	2 or 7°F (1 or 4°C)
RCU50.2U .....	7 F (4°C)
<b>P-band in Cooling Mode</b>	
RCU50U .....	1 or 3.5°F (0.5 or 2°C)
RCU50.2U .....	3.5°F (2°C)
<b>Set Point (Energy Saving Mode), Heating</b> .....	61°F (16°C)
<b>Set Point (Energy Saving Mode), Cooling</b> .....	82°F (28°C)
<b>Set Point Frost Protection (RCU50U)</b> .....	46°F (8°C)
<b>Set Point Shift Temperature @ 72°F (22°C)</b> .....	±22.5°F (±6.6°C)
<b>Control Outputs Y10</b> .....	
Voltage .....	0 to 10 Vdc
Current .....	±1 mA
<b>Status Input D1 (RCU50U)</b>	
Contact Sensing .....	6 to 15 Vdc /3 to 6 mA
Insulation Against Live Voltage .....	4 kV
Maximum Number of Contacts per Panel .....	50

<b>Status Input B1 (RCU50U)</b>	
Set Point Shift of ±22.5°F@ 72°F(22°C) .....	0 to 10 Vdc
Neutral Position (No set point shift) .....	5 Vdc
<b>Signal Input B2 for Changeover Sensor</b> .....	QAH11.1 Safety Class 2
<b>Maximum Copper Cable Length 16 AWG</b>	
For Input Signal B1/B2 (RCU50U) .....	262 ft. (80 m)
For Input Signal D1 (RCU50U) .....	262 ft. (80 m)
<b>Operation</b>	
Temperature .....	32 to 122°F (0 to 50°C)
Humidity .....	<95% RH
<b>Shipping and Storage</b>	
Temperature .....	-13 to +158°F (-25 to +70°C)
Humidity .....	<95% RH
<b>Agency Listings</b> .....	UL Listed 195N; Conforms to CE Requirements
<b>Connection Terminals</b> .....	Use Solid Wires or Prepared Stranded Wires 2 x 16 AWG or 1 x 14 AWG, 20 AWG max.
<b>Housing Color</b>	
Cover .....	White
Base .....	Gray
<b>Shipping Weight</b>	
RCU50U .....	0.5 lb. (0.02 kg)
RCU50.2U .....	0.5 lb. (0.02 kg)

RCU50U	Description	Part No.
	Room Temperature Controller without Operating Mode Selector	<b>RCU50U</b>
	Room Temperature Controller with Manual Heating/Cooling Changeover Switch	<b>RCU50.2U</b>



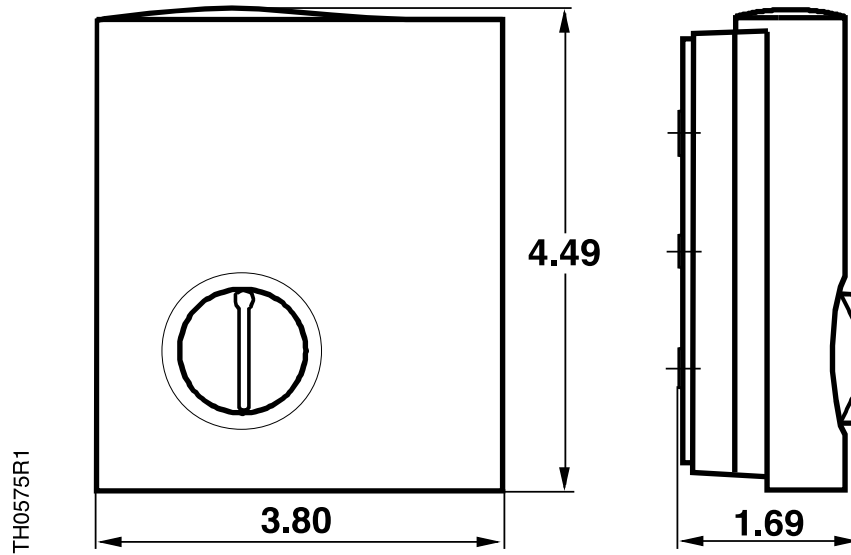
## Device Combinations

### Control Valves

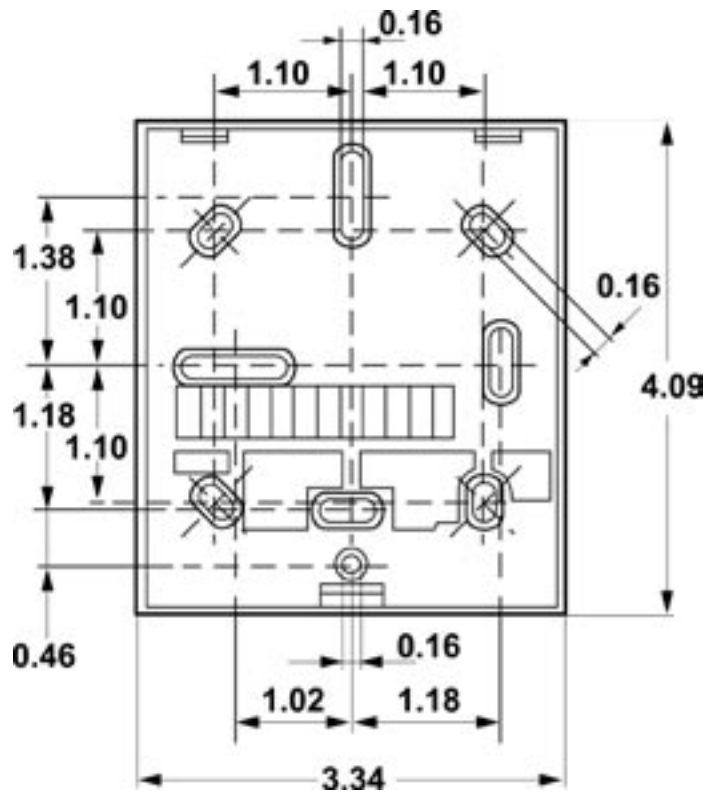
Description	Type Reference	
Temperature Sensor	QAH11.1	<b>155-329P25</b>
Valve Actuator	SSB61U	<b>155-192P25</b>
Valve Actuator	SQS65/65.5U	<b>155-190P25</b>
Damper Actuator	GDE16x.xx GLB16x.xxE GCA161.1E GGB161.1E	<b>155-187/173/176P25</b>

Application	RCU50U	RCU50.2U	RCU61U
Single Duct Cooling Only	•	•	
Single Duct Heat or Cool	•	•	
Single Duct with Elec. Heat			•
Single Duct with Hot Water Coil			•
Single Duct with Fan that Cycles on Call for Heating	•	•	
<b>Refer to page:</b>	<b>A-55</b>		<b>A-59</b>

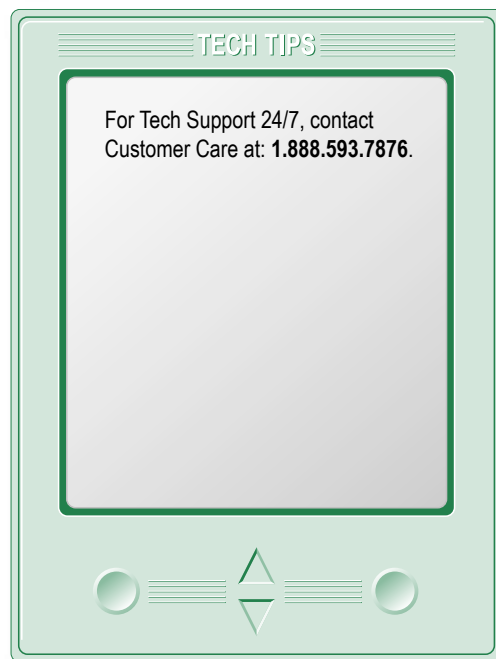
RCU50... Controller



RCU50... Baseplate



Dimensions shown in inches.





# RCU61U

## Room Temperature Controllers for CAV and VAV Systems



RCU61U Room Temperature Controller.

### Description

The RCU61U Room Temperature Controllers are designed specifically for Constant Air Volume and Variable Air Volume Systems.

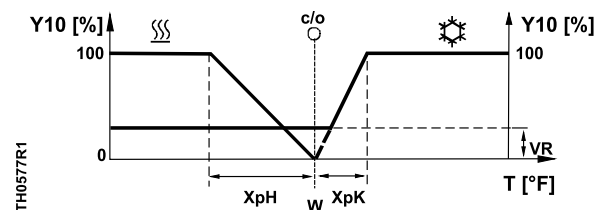
### Applications

Controlling individual room temperature in HVAC installations that are heated or cooled, the RCU61 Temperature Controllers are suited for use with VAV systems with auxiliary heating with VAV compact controllers, valve actuators, and air damper actuators.

# features

- Modulating P-control
- 0 to 10 Vdc output for cooling
- Three-position output 24 Vac for heating
- Operating modes: normal, energy saving and standby
- Active 0 to 10 Vdc input for remote set point shifting
- Operating mode changeover input for remote control
- Adjustable minimum limitation for cooling output
- Operating voltage 24 Vac
- Ergonomic design
- Dual Fahrenheit/Celsius scale

### Application Drawing



RCU61 Function Diagram.

Key	
T	Room Temperature
Y2, Y10	Output Percentage
W	Room Temperature Set Point
XpH	Proportional Band Heating
XpK	Proportional Band Cooling
VR	0 to 100% Minimum Limitation of Cooling Output

# Specifications/Product Ordering

**Power Supply**  
 Operating Voltage ..... 24 Vac ±10%  
 Frequency ..... 50/60 Hz

**Set Point Setting Range** ..... 46 to 86°F (8 to 30°C)

**Maximum Control Deviation at 68°F (20°C)** ..... ±0.7 K

**Switching Differential Heating SDH or P-band XpH (Selectable)** ..... 2 or 7°F (1 or 4°C)

**Switching Differential Cooling SDC or P-band XpC (Selectable)** ..... 1 or 3.5°F (0.5 or 2°C)

**Set Point Shift Temperature @ 72°F (22°C)** ..... ±22.5°F (±°C)

**Control Outputs (Cooling) 4 & 5** ..... 0 to 10 Vdc  
 Voltage ..... 24 Vac  
 Current ..... ±1 mA

**Control Outputs (Heating) 8, 9 & 10** ..... 24 Vac ±20%

**Motor Timing for Heat Output** ..... 150 sec. @ 60 Hz

**Status Input D1**  
 Contact Sensing ..... 6 to 15 Vdc /3 to 6 mA  
 Insulation Against Live Voltage ..... 4 kV  
 Maximum Number of Contacts per Panel ..... 50

**Status Input B1**  
 Set Point Shift of 36°F (12.5 C) ..... 0 to 10 Vdc  
 Neutral Position (No Set Point Shift) ..... 5 Vdc

**Signal Input B2 for Changeover Sensor** ..... QAH11.1 Safety Class 2

**Maximum Copper Cable Length 16 AWG**  
 For Input Signal B1/B2 (RCU61U) ..... 262 ft. (80 m)  
 For Input Signal D1 (RCU61U) ..... 262 ft. (80 m)

**Operation**  
 Temperature ..... 32 to 122°F (0 to 50°C)  
 Humidity ..... <95% RH

**Agency Listings** ..... UL Listed 197N; Conforms to CE Requirements

**Connection Terminals** ..... Use Solid Wires or Prepared Stranded Wires  
 2x13 AWG or 1x16 AWG

**Housing Color**  
 Cover ..... White  
 Base ..... Gray

**Shipping Weight** ..... 0.5 lb. (0.02 kg)

RCU61U	Description	Part No.
	Room Temperature Controller	RCU61U



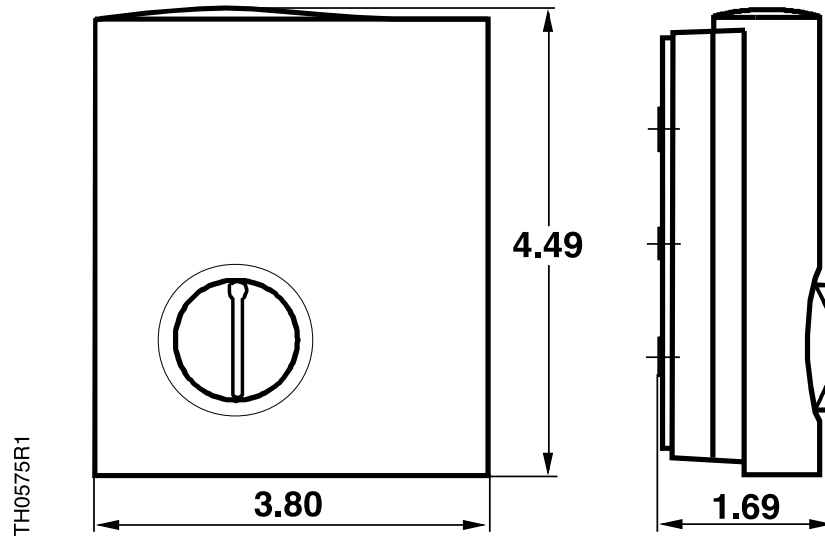
# Device Combinations

## Control Valves

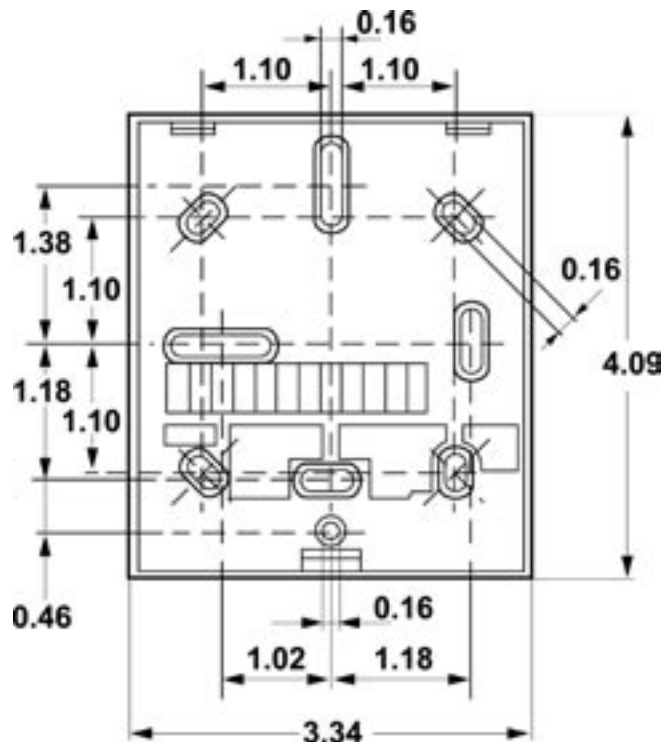
Description	Type Reference	
Valve Actuator	SSB61U SSC61U SQS65U	155-192P25 155-313/314P25 155-190P25
Damper Actuator	GLB16x GCA16x GBB16x GDE16x	155-187/173/176P25

Application	RCU50U	RCU50.2U	RCU61U
Single Duct Cooling Only	•	•	
Single Duct Heat or Cool	•	•	
Single Duct with Elec. Heat			•
Single Duct with Hot Water Coil			•
Single Duct with Fan that Cycles on Call for Heating	•	•	
Single Duct with Fan and Electric Heat			•
Single Duct with Fan and Hot Water Coil			•
Dual Duct	•	•	
<b>Refer to page:</b>	<b>A-55</b>	<b>A-59</b>	

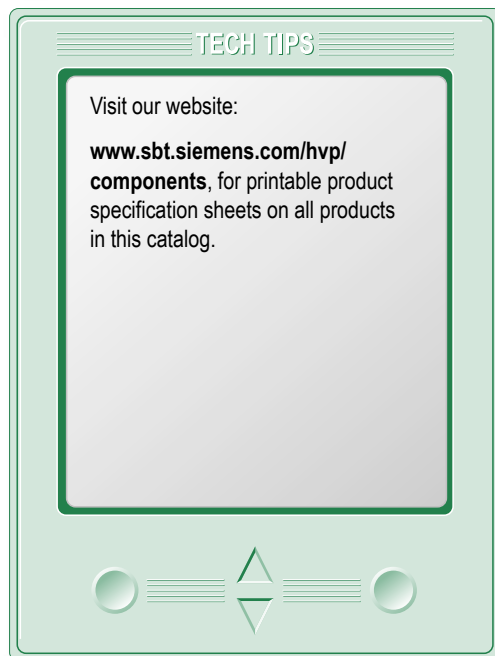
### RCU61U Controller



### Baseplate



Dimensions shown in inches.



# RDU...

New!

## Room Temperature Controllers with LCD for Heating and Cooling Systems



RDU50U Room Temperature Controller.



RDU50.2U Room Temperature Controller.

### Description

The RDU Series Room Controller with LCD is designed for heating and cooling systems.

### Applications

The RDU... Series of Room Temperature Controllers are used for control of the following:

- Individual room temperature HVAC applications that are heated or cooled.
- 0 to 10 Vdc valves or damper actuators.

# features

- Modulating Proportional + Integral (P+I) control
- Control depending on room or remote air temperature
- Output for a 0 to 10 Vdc actuator
- Automatic heating/cooling changeover (RDU50U)
- Manual heating/cooling changeover (RDU50.2U)
- Operating modes: Normal, Energy Saving and Off
- Operating mode changeover input for remote control
- Selectable installation and control parameters
- Adjustable minimum limitation for cooling output
- Optional selectable Direct Acting or Reverse Acting output
- Selectable display of room temperature or set point
- Fahrenheit or Celsius selectable
- Minimum and maximum set point limitation
- Operating voltage 24 Vac
- Available with or without logo

## Specifications/Product Ordering

**Operating Voltage** ..... 24 Vac +20%  
**Frequency** ..... 50/60 Hz  
**Power Consumption** ..... Maximum 4 VA  
**Control Output 1-6** ..... 0 to 10 Vdc  
 Resolution ..... 39 mV  
 Effective Current ..... Maximum +1 mA  
**Return Air Temperature Input 4-3 and Changeover** ..... QAH11.1 Safety Class 2  
 Temperature Input 2-3 (RDU50).NTC Resistor 3K Ohm at 77°F (25°C)  
**Dry Contact D1 and GND**  
 Contact Sensing ..... 6 to 15 Vdc/3 to 6 mA  
 Operating Action ..... Normally Open (NO)  
**Maximum Cable Length 16 AWG for Connection to Terminals 4, 2 and D1** ..... 262 feet (80 m)  
**Setpoint Setting Range** ..... 41 to 95°F (5 to 35°C)  
**Control Deviation at 77°F (25°C)** ..... Maximum +1.5°F (0.9°C)  
**P-band in Heating Mode, Adjustable in 0.5K Increments (1 Kelvin = 2°F)** ..... 0.5 to 4K  
 Factory Setting ..... 2K  
**P-band in Cooling Mode, Adjustable in 0.5K Increments (1 Kelvin = 2°F)** ..... 0.5 to 4K  
 Factory Setting ..... 1K

**Integral Action Time, Adjustable** ..... 1 to 10 Minutes  
 Factory Setting ..... 5 Minutes  
**Set Point (Energy Saving Mode), Heating** ..... 41 to 65°F (5 to 18°C)  
**Set Point (Energy Saving Mode), Cooling** ..... 75 to 95°F (24 to 35°C)  
**Operation**  
 Temperature ..... 32 to 122°F (0 to 50°C)  
 Humidity ..... <95% RH  
**Shipping and Storage**  
 Temperature ..... -13 to +158°F (-25 to +70°C)  
 Humidity ..... <95% RH  
**Agency Approvals** ..... Conforms to CE Requirements  
 NEMA 1  
**Connection Terminals** ..... Use Solid Wires or Prepared Stranded Wires.  
 2X16 AWG or 1X14 AWG  
 Maximum 20 AWG  
**Housing Color**  
 Cover ..... White  
 Base ..... Gray  
**Shipping Weight** ..... 0.5 lb. (0.23 kg)

RDU...	Description	Part No.
	Room Temperature Controller without Operating Mode Selector	RDU50U
	Room Temperature Controller with Manual Heating/Cooling Changeover Switch	RDU50.2U

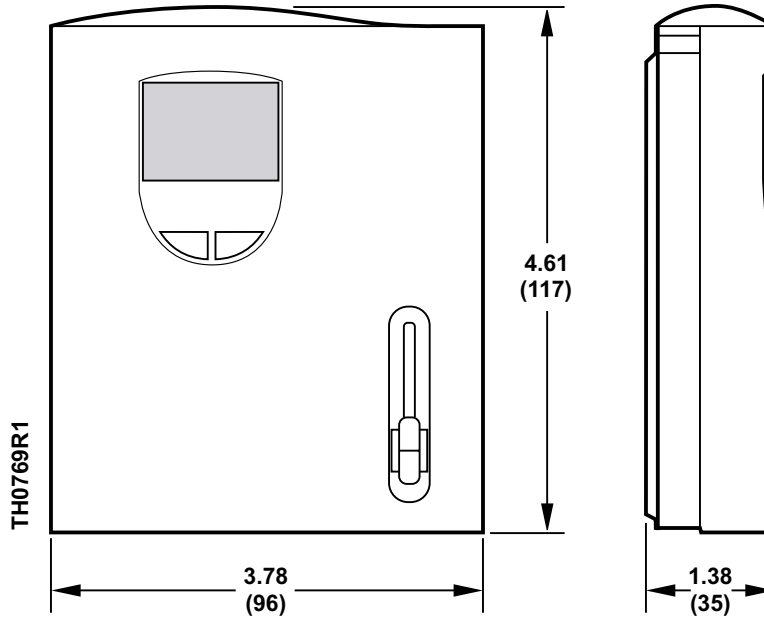
### Ordering Note

To order without logo, change suffix to "/U/NL".

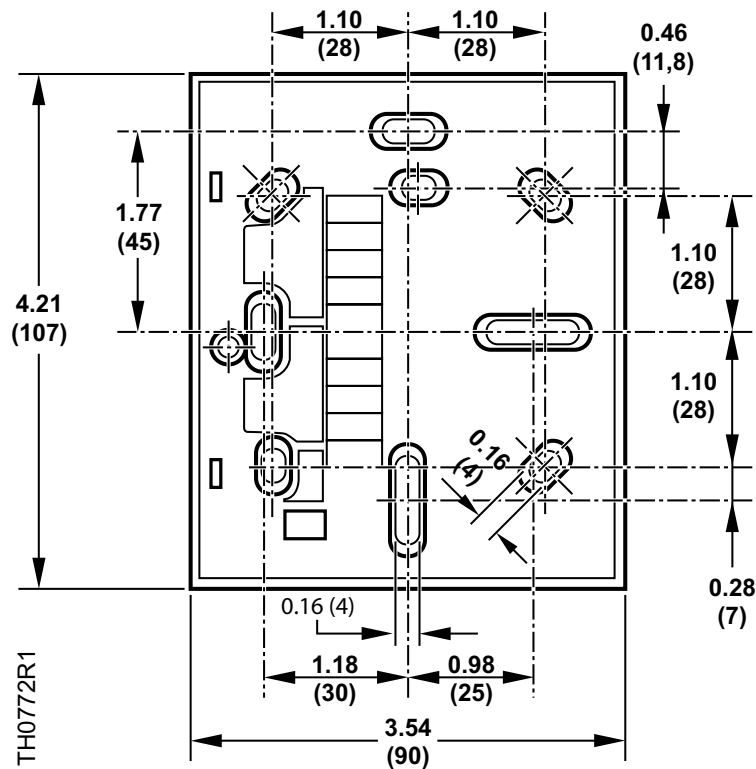
**Example:** RDU50/U/NL.



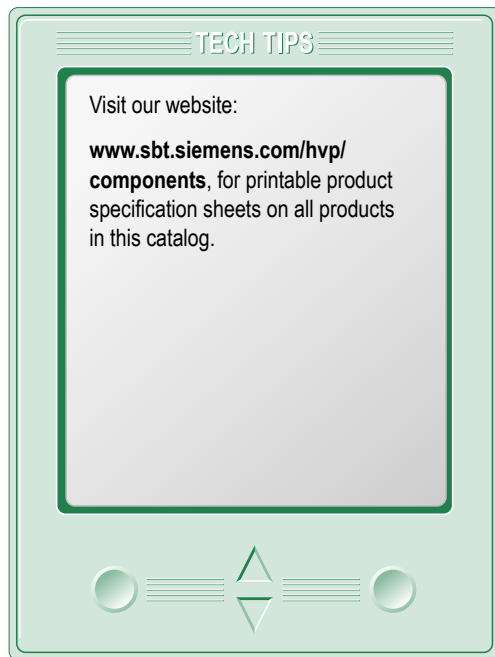
RDU...Controller



Baseplate



Dimensions shown in inches (mm).





# RDX...

New!

## Room Temperature Controllers with LCD



RDX42.22U Room Temperature Controller with LCD.

### Description

The RDX... Room Temperature Controller with LCD is a controller for heat pump systems with reversing valve, optional electric heater, one- or two-stage heating and one-stage cooling.

### Applications

The RDX... Series of Room Temperature Controllers are used for control of the following:

- Heat pump systems with reversing valve, optional electric heater, one- or two-stage heating and one-stage cooling.
- Room temperature in individual rooms that are heated or cooled with four-pipe fan coil units and optional electric heating.
- Opening and closing a valve.
- Switching a one-speed fan.

# features

- Outputs for one-stage compressor and reversing valve or on/off valve actuators
- Output for auxiliary electric heating
- Output for a one-speed fan
- Room or return air temperature control
- Manual heating/cooling changeover
- Operating modes: Normal (heating, cooling), Energy Saving, Off
- Operating mode changeover input for remote control
- Selectable installation and control parameters
- Operating voltage 24 Vac

## Specifications/Product Ordering

**Operating Voltage** ..... 24 Vac + 20%  
**Frequency** ..... 50/60 Hz  
**Power Consumption** ..... Maximum 6 VA  
**Control Output FAN** ..... 24 Vac  
     Rating ..... Maximum 5(3)A  
**Control Outputs Cooling and Heating** ..... 24 Vac  
     Rating ..... Maximum 5(3)A  
**Control Output Aus. Heating** ..... 24 Vac  
     Rating ..... Maximum 5(3)A

**Remote Temperature Sensor Status Input 8-7.QAH11.1 Safety Class II**  
     NTC resistor 3 k ohm at 77°F (25°C)

**Status input D1 and GND**  
     Operating Action Selectable ..... Normal Open (NO)  
     Contact Sensing ..... Normal Closed (NC)  
     Insulation Against Line Voltage ..... SELV 6 to 15 Vdc/3 to 6 mA, 4kV Reinforced Insulation

**Permissible Cable Length with Copper Cable**  
**2 X16 AWG or 1 X14 AWG for Connection to**  
**Terminals 8 and D1** ..... 262 ft. (80 m)

**Setpoint Setting Range** ..... 46 to 95°F (8 to 35°C)  
**Control Deviation at 77°F (25°C)** ..... Maximum + 1°F (0.5 K)  
     Setting Range ..... Factory Setting

**Switching Differential in Heating Mode (adj)** ..... 1 to 7°F    3.5°F (2 K)

**Switching Differential in Cooling Mode (adj)** ..... 1 to 7°F    2°F (1 K)

**Setpoint Differential WD (Adjustable)** ..... 1 to 9°F    3.5°F (2 K)

**Setpoint (Energy Saving Mode), Heating** ..... 46 to 64°F    61°(16°C)

**Setpoint (Energy Saving Mode), Cooling** ..... 75 to 95°F    82.5°F (28°C)

**Operation**  
     Temperature ..... 32 to 122°F (0 to 50°C)  
     Humidity ..... <95% RH

**Shipping and Storage**  
     Temperature ..... -13 to +158°F (-25 to +70°C)  
     Humidity ..... <95% RH

**Agency Approvals** ..... Conforms to CE Requirements  
     NEMA 1

**Connection Terminals** ..... Use Solid Wires or  
     Prepared Stranded Wires. 22 AWG to 14 AWG

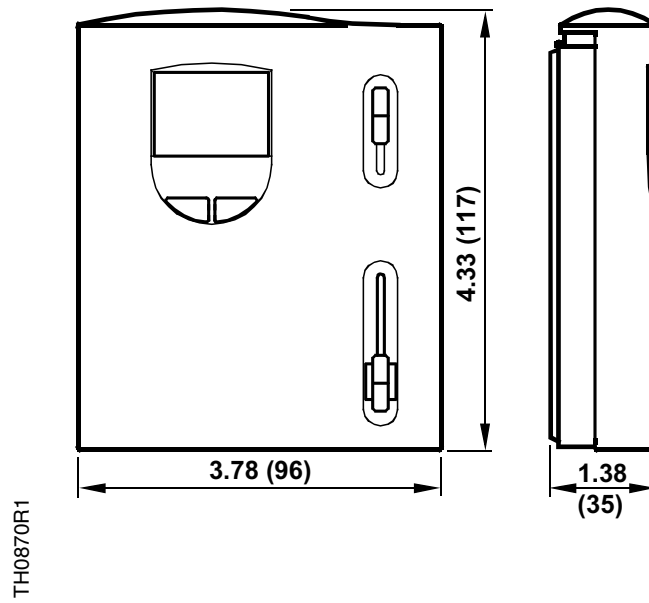
**Housing Cover Color** ..... White

**Shipping Weight** ..... 0.5 lb. (0.225 kg)

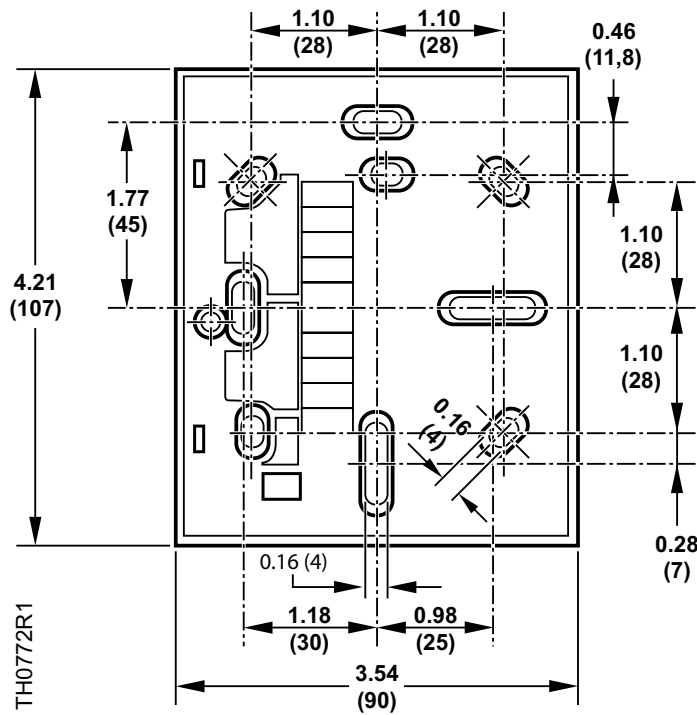
RDX...	Description	Part No.	With Logo
	Room Temperature Controller	RDX42.22U	With Logo
	Room Temperature Controller	RDX42.22/U/NL	Without Logo



RDX... Controller



Baseplate



Dimensions shown in inches (mm).



# Electric Surface Mounted/ High Temperature Limit Control Thermostats



141-0522 Electric Surface Mounted Thermostat.

141-0530 Electric High Temperature Limit Control Thermostat.

## Description

The 141 Electric Surface Mount Thermostats are single set point electric thermostats for high or low limit control; surface mounted or duct mounted models available.

## Applications

### 141 Surface Mounted Thermostat

The 141 Surface Mounted Thermostat is ideal as a low or high limit control on unit heaters. Also can be used as a convector or fan coil changeover control for automatically selecting the heating or cooling function based on water temperature.

### 141 Electric High Temperature Thermostat

The 141 Electric High Temperature Thermostat is normally located in a duct system and wired to shut down air conditioning or ventilating fans when the air temperature exceeds 125°F (52°C), which would occur during a fire.

This thermostat can also be used as a high limit control for a warm air system when a “lockout” type control is desired or required by code.

# features

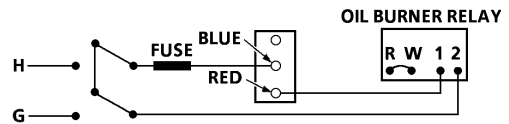
### Electric Surface Mounted Thermostat

- Can be mounted horizontally, vertically or at an angle.
- Visual set point indication through cover

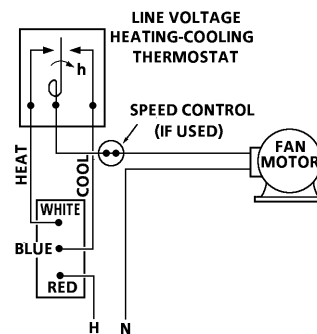
### Electric High Temperature Limit Control Thermostat

- Liquid-filled, rigid bulb sensing unit
- Adjustable high temperature limit stop
- Manual reset to close contacts

### Typical Connections



Typical High Limit Wiring.



Typical Changeover Wiring.

## Specifications/Product Ordering

### Part No. 141-0519

**Set Point Range** ..... 50 to 150°F (10 to 65°C)  
**Maximum Bulb Temperature** .....240°F (116°C)  
**Switch Action** .....SPDT  
**Electrical Ratings**  
 Motor Rating..... 7.4 FLA @ 120 Vac  
   3.7 FLA @ 240 Vac  
 Locked Rotor .....44.5 A @ 120 Vac  
   22.2 A @ 240 Vac  
**Cover Finish** ..... Gray Baked Enamel  
**Dimensions** .....2.30" W x 5.38" H x 1.84" D  
                                 (58 mm W x 173 mm H x 47 mm D)  
**Shipping Weight** ..... 2.0 lb. (0.9 kg)

	Description	Part No.
141	Surface Mounted	141-0522
	High Temperature Limit Duct Mount	141-0530

### Part No. 141-0530

**Set Point Range** ..... 25 to 215°F (-4 to +102°C)  
**Switch Action** ..... SPST, open-on-rise  
**Factory Temperature Setting** ..... 125°F (52°C)  
**Electrical Ratings**  
 Motor Rating..... 10 FLA @ 120 Vac  
   6 FLA @ 240 Vac  
 Noninductive Rating .....1 A @ 0.3 to 12 Vac  
   6 A @ 12-50 Vac  
**Agency Approvals** .....UL MP3487  
   CSA LR6246  
**Cover Finish** ..... Gray Baked Enamel  
**Dimensions** .....2.94" W x 5.38 H x 2.5" D  
                                 (59 mm W x 136 mm H x 64 mm D)  
**Shipping Weight** ..... 1.8 lb. (0.82 kg)





134 Electric Low Temperature Detection Thermostat.

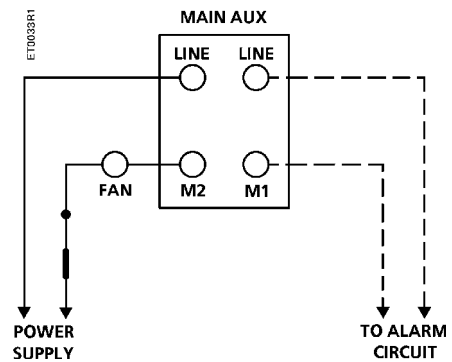
**Description**

The 134 Electric Low Temperature Detection Thermostat is a remote bulb instrument with a Single Pole, Double Throw switch. Any one foot of the capillary element actuates the thermostat switch, making this control ideal for the protection of large coils where air stratification could cause localized freezing conditions.

**Applications**

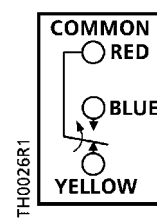
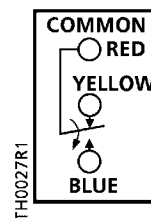
The 134 Electric Low Temperature Detection Thermostats are ideally suited for detecting potential freeze-up conditions of heating coils, cooling coils, liquid heating pipes, and similar applications.

**Typical Connections**



**features**

- Compact and durable construction
- Adjustable concealed, low and high range limit stops with a fixed differential
- Available with manual or automatic reset
- Electroplated copper capillary tube for sensitivity and durability
- Switches 120 V or 20 Vac
- Universal mounting bracket included



## Specifications/Product Ordering

### 134-1504

**Dimensions** ..... 4" W x 3.25" H x 2.5" D  
(102 mm W x 83 mm H x 65 mm D)

**Shipping Weight** ..... 2.4 lb. (1.1 kg)

### 134-1510

**Dimensions** ..... 2.31" W x 3.19" H x 2.31" D  
(59 mm W x 81 mm H x 59 mm D)

**Shipping Weight** ..... 1.8 lb. (0.8 kg)

### 134-1511

**Dimensions** ..... 2.31" W x 3.19" H x 2.31" D  
(59 mm W x 81 mm H x 59 mm D)

**Shipping Weight** ..... 1.8 lb. (0.8 kg)



134	Temperature Range	Switch Action	Bulb Size	Reset Action	Part No.
	35 to 45°F (1.7 to 7.2°C)	SPDT	1/8" x 20' (3 mm x 6 m)	Automatic	<b>134-1510</b>
	35 to 45°F (1.7 to 7.2°C)	SPDT	1/8" x 20' (3 mm x 6 m)	Manual	<b>134-1511</b>
	15 to 55°F (-9.4 to +12.8°C)	DPST, 4-wire 2 Circuit	1/8" x 20' (3 mm x 6 m)	Manual	<b>134-1504</b>



# Thermostats & Hygrostats Accessories & Service Kits

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## Ordering & Information

This section contains a comprehensive listing of products along with important ordering information, including:

- Tools
- Mounting/Rough-in devices
- Covers and finish plates
- Replacement Parts
- Service Kits

### To lookup and order accessories or service kits:

1. Use the table of contents to locate the correct product.
2. Turn to that page and locate the product using the left hand tab and the type of device using the right-hand tab on the table.
3. Locate the product needed and the appropriate part number.

For technical or installation instructions and locations, visit the web site at: [www.sbt.siemens.com/hvp/components](http://www.sbt.siemens.com/hvp/components).

For further assistance, please contact a Siemens Building Technologies representative at: **1.888.593.7876**.







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## Accessories & Service Kits







		Description	Product Group	Quantity	Part No.	
All Models		<b>Calibration Gauge.</b> <ul style="list-style-type: none"> <li>• 0 to 30 psi (0 to 207 kPa)</li> <li>• Dual scale in psi/kPa</li> <li>• 1% accuracy (ANSI grade 1A)</li> <li>• 2-1/2" (64 mm) dial face</li> <li>• 1/8" NPT bottom connection</li> </ul>	All models	1	142-0455	Tools
		<b>Calibration Thermometer.</b> 40 to 140°F (4 to 60°C), 1% accuracy with pocket case and clip.	All models	1	141-0573	
		<b>Pneumatic Spring Clamp.</b>	All models	1	531-833	Clamps
RAA-RDX		<b>Mounting Plate.</b>	All models	1	ARG70	Mounting Hardware
		<b>Changeover/Remote Sensor.</b>	RCC, RCU, RDU, and RDX	1	QAH11.1	Accessories
		<b>Lockable Thermostat Guard</b>	All models	1	141-570	

## Accessories & Service Kits

Powerstar 192/19X	Image	Description	Product Group	Quantity	Part No.	Category	Code
		<b>Pressure Gauge.</b> 1-1/2" diameter 0 to 200 kPa back connected 1/8" NPT male.	19X	1	<b>142-0344</b>	Gauges/ Probes	
		<b>Pressure Gauge.</b> Dual English/Metric scale 0 to 30 psig (0 to 200 kPa) compound gauge back connected 1/8" NPT male.	19X	1	<b>142-0373</b>		
		<b>Pressure Gauge.</b> 0 to 30 psig compound gauge, bottom connected 1/8" NPT male. Replacement or for use with <b>192-633</b> .	19X	1	<b>142-0426</b>		
		<b>Needle Probe.</b> 1-1/2" (38 mm) diameter gauge 0 to 30 psig/ 0 to 200 kPa and calibration cover wrench.	19X	1	<b>192-633</b>	Tools/Kits	155-254P25
		<b>Needle Probe.</b> (no gauge)	19X	Package of 5	<b>192-759</b>		
		<b>Pneumatic Thermostat Calibration Kit.</b> Contains thermometer, gauge squeeze bulb, and fittings for testing room and duct thermostats, pneumatic valve and damper actuators. Includes convenient carrying case. Includes 832-178.	19X	1	<b>832-177</b>	Tools/Kits	155-253P25
		<b>Calibration Tools.</b> Special tools for calibrating 180, 182, 192 and 832 thermostats. Packed in polyethylene box that fits into carrying case of kit, 832-177.	192	1	<b>832-178</b>		155-254P25
		<b>Test Head Kit.</b> Used for testing 1-pipe transmitters, thermostat air lines for leakage. Packed in polyethylene box that fits into carrying case of kit, 832-177.	192	1	<b>832-179</b>	Tools/Kits	155-255P25
		<b>Calibration and Cover Screw Wrench</b> with pocket clip.	19X	Package of 5	<b>192-632</b>		

# Accessories & Service Kits

Powerstar 192/19X

	Description	Product Group	Quantity	Part No.
	<b>Aspirator Box.</b> Required for wall box installation in concrete walls.	19X	1	
	<ul style="list-style-type: none"> <li>• 1- or 2-pipe</li> <li>• 3-pipe</li> </ul>	19X	1	<b>192-069</b> <b>192-502</b>
	<b>Wall Box Rough-In.</b> For 2-pipe dual 1/8" (3 mm) OD copper with plaster plate. 8' (2 m) long, belled to 3/16" (5 mm) OD with thermostat chassis plug-in adapters for easy maintenance.	19X	1	<b>192-478</b>
	3-pipe dual 1/8" (3 mm) OD copper with plaster plate. 8' (2 m) long, belled to 3/16" (5 mm) OD with thermostat chassis plug-in adapters for easy maintenance.	19X	1	<b>192-498</b>
	<b>Wall Box Rough-In.</b> For 1- or 2-pipe dual 1/4" (6 mm) OD polyethylene with plaster plate. 10' (2 m) long. With thermostat chassis plug-in adapters for easy maintenance.	19X	1	<b>192-480</b>
	3-pipe dual 1/4" (6 mm) OD polyethylene with plaster plate. 8' (2.4 m) long. With thermostat chassis plug-in adapters for easy maintenance.	19X	1	<b>192-499</b>
	<b>Stud Mounting Bracket.</b> 6' (2 m) L. Cut to required length.	192	1	<b>141-098</b>
	<b>Stud Mounting Bracket and Dual Copper Tubing,</b> belled to 3/16" (5 mm) OD with plug-in adapters for easy maintenance.	19X	1	<b>192-482</b>
	<b>Metal/Wood Stud Bracket.</b> Drywall rough-in.	19X	Package of 5	<b>182-683</b>

Wall Box Rough-ins

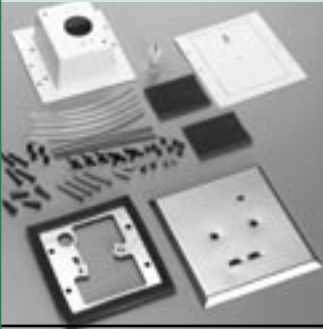


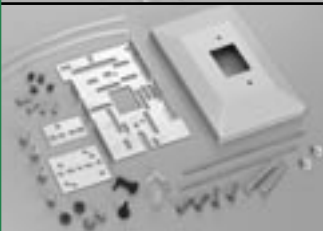

Mounting Brackets

155-210P25  
155-244P25

Thermostats & Hygrostats

## Accessories & Service Kits

Powerstar 192/19X

Image	Description	Product Group	Quantity	Part No.
	<b>Aspirator Rough-In and Finish Plate Kit.</b> Installed on new or existing walls to conceal controlling instrument.	192	1	<b>192-070</b>
	<b>Universal Kit.</b> Retrofit thermostats including Honeywell, Johnson Controls, and others. Desert Beige (standard). For White, add <b>W</b> to part number.	19X	1	<b>192-300</b>
	<b>Honeywell Kit.</b> Fits Honeywell and others. Desert Beige (standard). For White, add <b>W</b> to part number.	19X	1	<b>192-483</b>
	<b>Johnson Kit.</b> Retrofit to 19X thermostat. Fits Johnson Controls and others. Desert Beige (standard). For White, add <b>W</b> to part number.	19X	1	<b>192-484</b>
	<b>Aspirator Conversion Kit.</b> For 2-pipe thermostat chassis only. Converts existing 18XAP installed aspirator wall box for use with chassis. Kit includes plate, gasket, hardware, and instruction sheet. Order 19X chassis separately.	18XAP to 19X	1	<b>192-648</b>









Competitive Mounting Kits



155-231P25

# Accessories & Service Kits

Powerstar 192/19X

	Description	Product Group	Quantity	Part No.
	<b>3-pipe Copper Tubing.</b> For concrete mason block or hollow walls (stud).	19X	1	<b>192-502</b>
	1- or 2-pipe; split for 3-pipe. Dual 1/4" (6 mm) OD polyethylene with plug-in adapters. 10' (2 m) long.	19X	1	<b>192-600</b>
	1- or 2-pipe. Dual 1/4" (6 mm) OD polyethylene with plug-in adapters. 40' (12 m) long.	19X	1	<b>192-755</b>
	1- or 2-pipe. Dual 5/32" (4 mm) OD polyethylene with plug-in adapters. 40' (12 m) long.	19X	1	<b>192-750</b>
	<b>Preassembled Plastic Tubing Loop.</b> 8" (203 mm) long, with anti-kink spring, plug-in thermostat adapter. Mates to 1/4" (6.4 mm) OD polyethylene tube barbed fitting.	19X	Package of 10	<b>192-481</b>
	<b>Preassembled Plastic Tubing Loop.</b> 8" (203 mm) long, with anti-kink spring, thermostat plug-in adapter. Mates to 5/32" (4 mm) OD polyethylene tubing.	19X	Package of 10	<b>192-505</b>
	<b>Preassembled Plastic Tubing Loop.</b> 8" (203 mm) long, with anti-kink spring. Cut and attach directly to thermostat chassis. Attach compression rings to prevent air leakage. Mates to 1/4" (6 mm) OD polyethylene tubing.	19X	Package of 10	<b>180-896</b>
	<b>20 scim (5 ml/sec) Restrictors.</b> For 1-pipe systems. 1/4" (6 mm) OD polyethylene barb unless noted. Brass coupling, 1/8" NPT.	192 (1-pipe)	1	<b>184-040</b>
	<b>20 scim (5 ml/s) In-line Restrictors.</b>	192	Package of 5	<b>184-116</b>
	<b>20 scim (5 ml/s) Restrictor Tee.</b>	192	Package of 5	<b>184-113</b>
	<b>External Restrictor Installation Kit.</b> For dual 1-pipe systems. Supply, thermostat and two-controlled devices.	19X	1	<b>184-130</b>




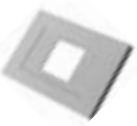
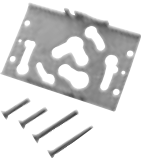

Tubing/Tubing Loops

Restrictors

155-244P25

Thermostats & Hygrostats




## Accessories & Service Kits

Powerstar 192/19X	Image	Description	Product Group	Quantity	Part No.
Powerstar 192/19X		<b>Adapter Base.</b> 3.38" W x 5.69" H (86 mm W x 18 mm H). • Desert Beige (standard)	19X	1	<b>192-307</b>
		• White		1	<b>192-307W</b>
		<b>Adapter Frame.</b> 4.38" W x 5.31" H x 0.09" D (111 mm W x 151 mm H x 2 mm D). • Desert Beige (standard)	19X	1	<b>192-308</b>
		• White		1	<b>192-308W</b>
		<b>Multi-Slotted Plate.</b> Use with adapter bases. Not for use with thin profile adapter base.	19X	1	<b>192-301</b>
		<b>Thin Profile Adapter Base.</b> Measures 3.38" x 4.97" H (86 mm x 126 mm). • Desert Beige (standard)	19X	Package of 5	<b>192-507</b>
• White		Package of 5		<b>192-507H</b>	
	<b>Extra Wall Plate and Mounting Screws.</b> Order only if required for repair or advance mounting prior to factory delivery of chassis (chassis P/N includes wall plate and screws).	19X	1	<b>192-644</b>	
	<b>Mounting Clips, Spacer and Template</b> for finished drywall.	19X	Package of 10	<b>182-685</b>	

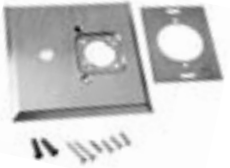





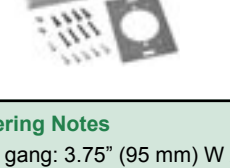
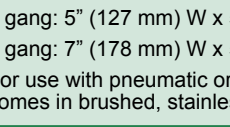
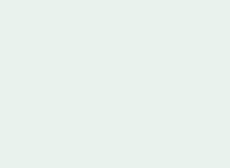
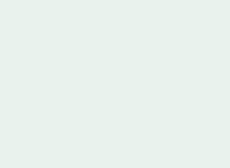
Mounting  
Adapters



# Accessories & Service Kits



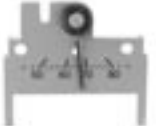

Powerstar 192/19X		Description	Product Group	Quantity	Part No.	Covers/Finish Plates
		<p><b>Terminal Wall Box Cover Kit.</b> Covers abandoned thermostat locations with blank plate. Dimensions 3.13" x 3.25" (54 mm x 84 mm).</p> <ul style="list-style-type: none"> <li>Desert Beige (standard)</li> </ul>	19X	1	<b>192-320</b>	
		<p><b>Retrostat Plastic Thermostat Cover Kit.</b> With dial plates that expose or conceal the set point indicator and/or thermometer. Thumb wheel covers to conceal set point adjustment. Snap-out tab for Day/Night lever.</p> <ul style="list-style-type: none"> <li>Desert Beige (standard)</li> <li>White</li> </ul>	19X	1	<b>192-868</b>	
	<p><b>Gym Guards.</b></p> <ul style="list-style-type: none"> <li>Desert Beige</li> </ul>	19X DN or DNV	1	<b>182-624</b>	155-222P25	

## Accessories & Service Kits

	Description	Product Group	Quantity	Part No.	
Powerstar 192/19X		<b>Finish Plate.</b> Mounts on 4" x 4" (102 mm x 102 mm) electrical box. Pneumatic thermostat mounts to finish plate. 1/2" (13 mm) diameter hole provided for electrical switch. Stainless steel finish.	19X	1	<b>192-729</b>
		<b>Finish Plate.</b> Mounts on 4" x 4" electrical box. Pneumatic thermostat mounts to finish plate. 1/2" (13 mm) diameter hole provided for electrical switch. Plastic finish in Desert Beige.	19X	1	<b>192-730</b>
		<b>Finish Plate.</b> 1 gang <sup>1</sup> , 1 room thermostat. <sup>4</sup> • Brushed Finish • Desert Beige	19X	1	<b>192-860</b>
				1	<b>192-861</b>
		<b>Finish Plate.</b> 2 gang <sup>2</sup> , 1 room thermostat. <sup>4</sup> • Brushed Finish • Desert Beige	19X	1	<b>192-731</b>
				1	<b>192-732</b>
		<b>Finish Plate.</b> 3 gang <sup>3</sup> , 1 room thermostat <sup>4</sup> or 3 gang <sup>3</sup> , pneumatic switches <sup>4</sup> or 3 gang <sup>3</sup> , 1 room thermostat, 1 pneumatic switch <sup>4</sup> . • Brushed Finish • Desert Beige	19X	1	<b>192-733</b>
			1	<b>192-734</b>	
	<b>Finish Plate.</b> 3 gang <sup>3</sup> , 1 pneumatic switch and 1 electric light switch <sup>4</sup> or 3 gang <sup>3</sup> , 1 room thermostat, 1 electric light switch <sup>4</sup> . • Brushed Finish • Desert Beige	19X	1	<b>192-735</b>	
			1	<b>192-736</b>	
<b>Ordering Notes</b> 1. 1 gang: 3.75" (95 mm) W x 5" (127 mm) H. 2. 2 gang: 5" (127 mm) W x 5" (127 mm) H. 3. 3 gang: 7" (178 mm) W x 5" (127 mm) H. 4. For use with pneumatic or automation room sensors and pneumatic or commercial light switches; comes in brushed, stainless steel finish.					




Electrical Finish Plates

155-252P25









Powerstar 192/19X		Description	Product Group	Quantity	Part No.
	 <p>Model 1 and 2</p>	<b>Thermostat Thermometer Kits.</b> <ul style="list-style-type: none"> <li>Scale Range: 45 to 85°F</li> <li>Use with Model 1 and 2</li> </ul>	19X	Package of 5	<b>192-775</b>
 <p>Model 1 and 2</p>	<ul style="list-style-type: none"> <li>Scale Range: 10 to 30°C</li> <li>Use with Model 1 and 2</li> </ul>	19X	Package of 5	<b>192-776</b>	
 <p>Model 3 and greater</p>	<b>Thermostat Thermometer Kits.</b> <ul style="list-style-type: none"> <li>Scale Range: 45 to 85°F</li> <li>Use with Model 3 and greater</li> </ul>	19X	Package of 5	<b>192-786</b>	
	<ul style="list-style-type: none"> <li>Scale Range: 10 to 30°C</li> <li>Use with Model 3 and greater</li> </ul>	19X	Package of 5	<b>192-785</b>	
	<b>Set Point Dials.</b> <ul style="list-style-type: none"> <li>Fahrenheit of D.A.</li> </ul>	19X	Package of 10	<b>192-779</b>	
	<ul style="list-style-type: none"> <li>Fahrenheit of R.A.</li> </ul>	19X	Package of 10	<b>192-780</b>	
	<ul style="list-style-type: none"> <li>Celsius of D.A.</li> </ul>	19X	Package of 10	<b>192-783</b>	
	<ul style="list-style-type: none"> <li>Celsius of R.A.</li> </ul>	19X	Package of 10	<b>192-784</b>	
	<ul style="list-style-type: none"> <li>Fahrenheit of D.A.</li> </ul>	19X	Package of 10	<b>192-777</b>	
	<ul style="list-style-type: none"> <li>Fahrenheit of R.A.</li> </ul>	19X	Package of 10	<b>192-778</b>	
	<ul style="list-style-type: none"> <li>Celsius of D.A.</li> </ul>	19X	Package of 10	<b>192-781</b>	
	<ul style="list-style-type: none"> <li>Celsius of R.A.</li> </ul>	19X	Package of 10	<b>192-782</b>	

Thermometer Kits



## Accessories & Service Kits

Powerstar 192/19X	Image	Description	Product Group	Quantity	Part No.	Replacement Parts
		<b>Replacement Chassis Tube Connector</b> and mounting screws. Also provides access to filters and restrictor plate (10 thermostats).	19X	Material for 10 thermostats	<b>192-525</b>	Replacement Parts
		<b>Plug-in Adapters</b> for quick thermostat removal. Fits on 5/32" (4 mm) OD polyethylene tubing. Use with compression rings, listed below. • Straight, blue	19X	Package of 20	<b>192-485</b>	
		• Straight, white	19X	Package of 20	<b>192-486</b>	
		<b>Plug-in Adapters (Elbow).</b> • Blue (provides quick thermostat removal).	19X	Package of 20	<b>192-487</b>	
		• White (provides quick thermostat removal).	19X	Package of 20	<b>192-488</b>	
		<b>Air Link.</b> Connects adapters for pressure tests.	19X	Package of 20	<b>192-501</b>	
		<b>Compression Rings.</b>	19X	Package of 100	<b>141-388</b>	
		<b>High/Low Set Point Stops.</b> Tamper-resistant, factory-assembled.	19X	1	<b>Special Order</b>	
		<b>Replacement Cover Screws.</b>	19X	Package of 20	<b>192-536</b>	
		<b>Restrictor Plate Replacement Kit.</b> Contains replacement filters, restrictor plates, and gaskets.	19X	Material for 10 thermostats	<b>192-321</b>	Service Kits








## Accessories & Service Kits

832 D	Image	Description	Product Group	Quantity	Part No.		
		<b>Adjustment Key.</b> Opens Powers cover and changes set point.	832 D, 832 DN	1	<b>856-055</b>	Tools/Kits	
		<b>Pneumatic Thermostat Calibration Kit.</b> Contains thermometer, gauge squeeze bulb, and fittings for testing room and duct thermostats, pneumatic valve and damper actuators. Includes convenient carrying case. Includes 832-178.	832	1	<b>832-177</b>		
		<b>Calibration Tools.</b> Special tools for calibrating 180, 182, 192 and 832 thermostats. Packed in polyethylene box that fits into carrying case of kit, 832-177.	832	1	<b>832-178</b>		
		<b>Test Head Kit.</b> Used for testing 1-pipe transmitters, thermostat air lines for leakage. Packed in polyethylene box that fits into carrying case of kit, 832-177.	832	1	<b>832-179</b>		
		<b>Wall Box Rough-In.</b> For 2-pipe dual 1/8" (3 mm) OD copper with plaster plate. 8' (2 m) long, belled to 3/16" (5 m) OD with thermostat chassis plug-in adapters for easy maintenance.	832	1	<b>192-478</b>	Wall Box Rough-Ins	155-210P25 155-244P25
		<b>"D" Base Kit.</b> for mounting "D" thermostat with exposed tubing. Black base with cutout on top.	832 D, DN	1	<b>832-034</b>		
		<b>Gym Guard.</b> No. 1 Silver	832	1	<b>814-018</b>	Covers/Finish Plates	155-218P25
		<b>"D" Thermostat Friction Knob.</b>	832	1	<b>833-033</b>		155-072P25









## Accessories & Service Kits

832 D		Description	Product Group	Quantity	Part No.	Replacement Parts
		<p><b>“D” Thermostat Replacement Unit.</b> Contains chassis only.</p>	832 D	1	<b>832-040</b>	
		<p><b>Exhaust and Supply Valve Repair Kit.</b> Contains parts for replacement of supply and exhaust valves in one thermostat.</p>	832	1	<b>832-164</b>	Service Kits

## Accessories & Service Kits

186		Description	Product Group	Quantity	Part No.		
		<b>Wall Box Rough-In.</b> For 2-pipe dual 1/8" (3 mm) OD copper with plaster plate. 8' (2 m) long, belled to 3/16" (5 m) OD with thermostat chassis plug-in adapters for easy maintenance.	186	1	<b>192-478</b>	Wall Box Rough-ins	155-210P25 155-244P25
		3-pipe dual 1/8" (3 mm) OD copper with plaster plate. 8' (2 m) long, belled to 3/16" (5 m) OD with thermostat chassis plug-in adapters for easy maintenance.	186	1	<b>192-498</b>		155-244P25
		<b>Wall Box Rough-In.</b> For 1- or 2-pipe dual 1/4" (6 mm) OD polyethylene with plaster plate. 10' (2 m) long. With thermostat chassis plug-in adapters for easy maintenance.	186	1	<b>192-480</b>		155-210P25 155-244P25
		3-pipe dual 1/4" (6 mm) OD polyethylene with plaster plate. 8' (2.4 m) long. With thermostat chassis plug-in adapters for easy maintenance.	186	1	<b>192-499</b>		155-244P25
		<b>Mounting Clips, Spacer and Template for finished drywall.</b>	186	Package of 10	<b>182-685</b>		155-254P25
		<b>Stud Mounting Bracket and Dual Copper Tubing,</b> belled to 3/16" (5 mm) OD with plug-in adapters for easy maintenance.	186	1	<b>192-482</b>	Brackets/Clips	
		<b>Metal/Wood Stud Bracket.</b> Drywall rough-in.	186	Package of 5	<b>182-683</b>		155-244P25
		<b>Dual 1/8" (3 mm) OD Copper Tubing with plug-in adapters.</b> For 1- or 2-pipe. Split for 3-pipe.	186	1	<b>192-479</b>	Tubing/ Tubing Loops	
		<b>Plug-in Adapter with Tee</b> 20 scim restrictor for 1-pipe.	186	Package of 10	<b>192-875</b>		

## Accessories &amp; Service Kits

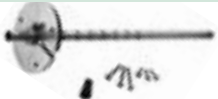





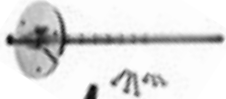

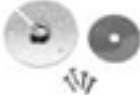


		Description	Product Group	Quantity	Part No.	
186		<b>Hygrostat Restrictor Repair Kit.</b> Includes enough restrictor plates and upper and lower gaskets.	186	Material for 10 Hygrostats	<b>180-893</b>	Service Kits
		<b>Membrane Element Kit.</b> Replaces membrane element. Contains one element assembly, screws, nuts, and lock washers.	186	1	<b>186-062</b>	
184/188		<b>20 scim (5 ml/sec) Restrictors.</b> For 1-pipe systems. 1/4" (6 mm) OD polyethylene barb unless noted. Brass coupling, 1/8" NPT.	184	1	<b>184-040</b>	Restrictions
		<b>20 scim (5 ml/s) In-line Restrictors.</b>	184	Package of 5	<b>184-116</b>	
		<b>20 scim (5 ml/s) Restrictor Tee.</b>	184	Package of 5	<b>184-113</b>	
		<b>Remote Bulb Duct Mounting Kit.</b>	188	1	<b>808-517</b>	Mounting Kits
		<b>Cable Kit for Remote Mounting.</b>	188	1	<b>188-101</b>	
		<b>Restrictor Plate Replacement Kit.</b> <ul style="list-style-type: none"> <li>Restrictor plates and gaskets for 20 scim (5.4 ml/s) restriction</li> <li>Restrictor plates and gaskets for 40 scim (11 ml/s) restriction</li> </ul>	188	5 sets of each	<b>188-159</b>	Service Kits

155-063P25

155-064P25



## Accessories & Service Kits

		Description	Product Group	Quantity	Part No.		
141		<b>Remote Bulb Duct Mounting Kit.</b>	141	1	808-517	Bracket/Clips	155-071P25
		<b>Coil Clip.</b>	141	1	356-115		
		<b>Capillary Clip.</b>	141	Box of 100	357-001		
		<b>Packing Nut.</b> For remote bulb thermostat.	141	1	141-333	Service Kits	
		<b>Well.</b> For 141-0520. 8-1/4" (210 mm)	141	1	141-331	Wells	155-019P25
		<b>Well.</b> For 141-0521. 2-13/16" (71 mm)	141	1	141-332		
134		<b>Remote Bulb Duct Mounting Kit.</b>	134	1	808-517	Bracket/Clips	155-063P25
		<b>Capillary Clip.</b>	134	Box of 100	357-001		155-071P25
		<b>Capillary Support Mounting</b>	134	1	163-172		155-209P25
		<b>Electric Thermostat Guard.</b> For electric thermostats no larger than 5 1/4" H x 3/4" W x 2" D. (133 mm H x 19 mm W x 51 mm D). Made of cast aluminum. Allen Key included.	134	1	134-117	Covers/Finish Plates	155-017P25
		<b>Concealed Adjustment Faceplate.</b>	134	1	134-034		

## Accessories & Service Kits

356/357

Image	Description	Product Group	Quantity	Part No.
	<b>Pressure Gauge.</b> 0 to 30 psig (0 to 200 kPa) compound gauge back connected 1/8" NPT male.	356	1	<b>142-0373</b>
	<b>Pressure Gauge.</b> 0 to 30 psig compound gauge, bottom connected 1/8" NPT male. Replacement or for use with <b>192-633</b> .	356	1	<b>142-0426</b>
	<b>Needle Probe.</b> 1-1/2" (38 mm) diameter gauge 0 to 30 psig (0 to 200 kPa) and calibration cover wrench.	356	1	<b>192-633</b>
	<b>Needle Probe.</b> (no gauge)	356	Package of 5	<b>192-759</b>
	<b>Pipe Plug.</b> 1/8"- 27 NPT	356	1	<b>403-007</b>
	<b>Coil Clip.</b>	357	1	<b>356-115</b>
	<b>Capillary Clip.</b>	357	Box of 100	<b>357-001</b>
	<b>Capillary Support Mounting Flange.</b>	357	1	<b>163-172</b>
	<b>Swivel Flange Mounting Kit.</b>	356	1	<b>356-090</b>
	• <b>Flange Mounting Screws.</b>	356	1	<b>034-289K</b>
	<b>Flange Kit.</b>	356	1	<b>808-412</b>

Tools

155-254P25

Brackets/  
Clips




155-071P25

155-209P25

Mounting Kits

155-070P25

## Accessories & Service Kits

356/357		Description	Product Group	Quantity	Part No.		
		<b>Copper Well for Rigid Bulbs.</b> 1/2" NPT, 18-7/8" L.	356	1	<b>358-051</b>	Wells	155-070P25
		<b>Copper Well for 357-0003 and 357-0005;</b> Models 1 and 4.	357	1	<b>134-061</b>		
	<b>Gauge and Tee (back).</b>	356/357	1	<b>142-0425</b>	Service Kits		

# Notes

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