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Powerstar™ Room Thermostats

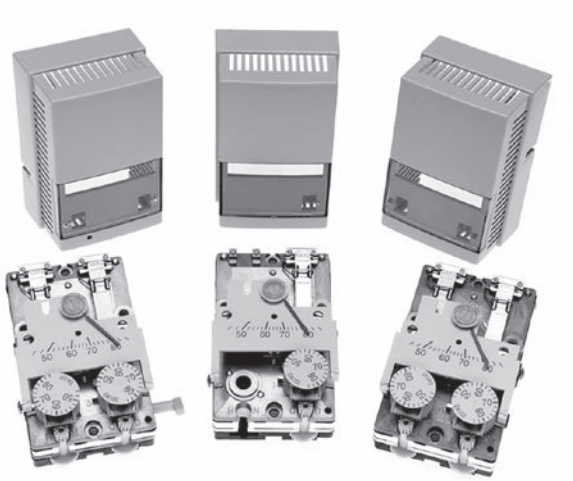
Proven to provide fast response and highly accurate temperature control, Powerstar Pneumatic Room Thermostats are designed to control heating and/or cooling by operating a variety of pneumatic devices such as valves or damper actuators.

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 setpoint adjustment, room temperature indication, and setpoint indicator.



192 DN/DNV Dual Setpoint (Day/Night) | 192 S Single Setpoint | 192 HC Heating/ Cooling Setpoint

Selection Guide

Air Supply	Applications	Control Outputs	Control Setpoints	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	●	●	**192 S**
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	Direct/Direct		●	**192 HC**
				Reverse/Reverse		●	**194 HC**
				Direct/Reverse		●	
				Reverse/Direct		●	
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		●	**192 DN 194 DN**
				Reverse/Reverse		●	
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	●	●	**192 DNV 194 DNV**
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	●	●	**193 HC Free Energy Band**
				Reverse/Reverse	●	●	
				Direct/Reverse	●	●	
				Reverse/Direct	●	●	
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		●	**193 HC Free Energy Band (Hesitation)**

Connect Box connects a range of equipment

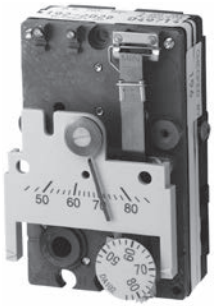
Connect Box enables you to manage small- to medium-sized buildings in a smarter and simpler way. It's an IoT building monitoring solution that connects all your devices in a few clicks, as well as enables integration to your existing building automation system, building management system, or cloud application.

With this one device, you can choose the right functionality for your needs.

Download Connect Box Flyer

SIEMENS

Powerstar™ Single Setpoint Pneumatic Room Thermostat



192 S Thermostat chassis

Typical wall plate and screws

Description

Providing proportional single output, single setpoint, 1-pipe for low air capacity or 2-pipe for high air capacity pneumatic room temperature control, the 192 S Powerstar Single Setpoint Pneumatic Room Thermostat is the most economical model. Refer to the Retroline® Retrostats on page F-13 to replace competitive models.

Features

- Single setpoint 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, setpoint 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" setpoint knob for convalescent homes

Applications

Designed for heating and cooling applications for control of pneumatic valves and damper actuators. The 192 S Powerstar Single Setpoint 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.

Application Drawings

Dotted lines are alternative control schemes.

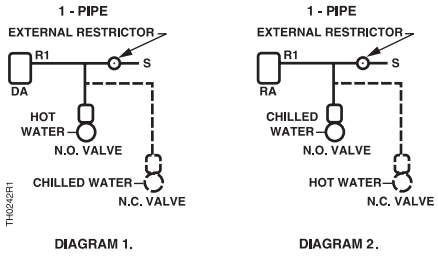


DIAGRAM 1.

DIAGRAM 2.

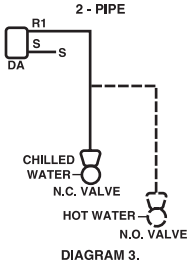


DIAGRAM 3.

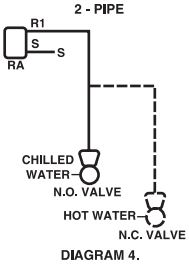


DIAGRAM 4.

Specifications

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

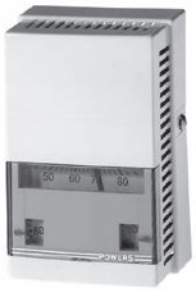
Nominal Air Consumption for Air Compressor Sizing
1-pipe ..... 25 scim (6.8 ml/s)
2-pipe ..... 20 scim (5.5 ml/s)
Nominal Air Capacity for Air Main Sizing
1-pipe ..... 25 scim (6.8 ml/s)
2-pipe ..... 20 scim (5.5 ml/s)
Nominal Chassis Air Capacity
1-pipe Supply ..... 25 scim (6.8 ml/s)
2-pipe Supply ..... 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)

Product Ordering

	Thermostat Chassis Type				Thermostat Chassis & Wall Plate	
					Control Action	
Model #	Output	Setpoint	Air Output Capacity	Thermometer & Setpoint Scales	Direct	Reverse
192 S 1-pipe	Single	Single (Heat or Cool)	Low (No Relay)	°F	**192-200**	**192-201**
				°C	**192-220**	—
192 S 2-pipe	Single	Single (Heat or Cool)	High (Integral Relay)	°F	**192-202**	**192-203**
				°C	**192-222**	**192-223**

For complete conversion kits, refer to the Retroline® Retrostats starting on page F-13.

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 setpoint 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.

Features

- Dual setpoint 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, setpoint 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" setpoint knob for convalescent homes

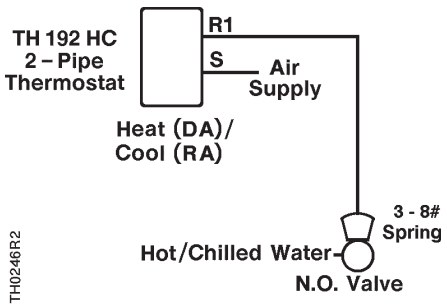
Applications

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 setpoint to cooling setpoint in commercial and institutional facilities.

Recommendation

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

Application Drawing



Specifications

Scale; Range
Major (minor) Divisions ..... 45° to 85°F, 10(2)°F (7° to 30°C, 5(1)°C)
Factory Calibration ..... 72°F, 7.5 psi ± 0.3 (22°C, 52 kPa @ 1.8)
Sensitivity Adjustment Range ..... 1 to 4 psi/°F (12 to 50 kPa/°C)
Factory Setting ..... 2.5 psi/°F (31 kPa/°C)
Limit Stop
Field Adjustment Range ..... 45/85°F (7/30°C)
Fixed Limit Stop Range ..... 55/75°F (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 psi (124kPa)/ (124 kPa)/25 psi (172 kPa)
Supply Air Pressure
Two Pressure (Range)
Cooling ..... 15 to 19 psi (103 to 131 kPa)
Heating ..... 23 to 30 psi (159 to 207 kPa)
Two Pressure, Honeywell Competitive Model
Cooling/Heating ..... 13 psi (90 kPa)/18 psi (124 kPa)
Two Pressure, Johnson Competitive Model[1]
Cooling/Heating ..... 15 psi (103 kPa)/20 psi (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 Controls heat/cool thermostats have a cooling supply pressure of 20 psi (138 kPa) and a heating supply pressure of 15 psi (103 kPa). For this application, the heating and cooling actions must be reversed. If exposed setpoint is required, order special cover, **192-773**.

Product Ordering

	Thermostat Chassis Type				Thermostat Chassis & Wall Plate	
					Control Action	
Model #	Output	Setpoint	Air Output Capacity	Thermometer & Setpoint Scales	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)	—
				°C	**192-228** Cool (RA)	—

For complete conversion kits, refer to the Retroline® Retrostats starting on page F-13.

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 setpoint, 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 setpoint 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.

Features

- Dual setpoint 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, setpoint 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" setpoint knob for convalescent homes

Applications

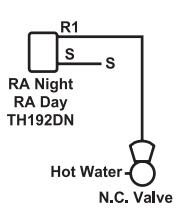
The 192 DN and DNV Powerstar Pneumatic Room Thermostat controls valves and damper actuators in cooling equipment, automatically performing setback changes from day to night. The 192 DNV also performs a purge sequence at night to bring in “vent” outside air to cool the building. A manual override selector 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.

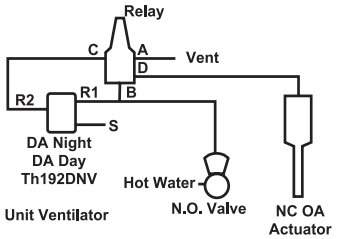
Recommendation

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

Application Drawings



Day/Night.



Day/Night/Vent.

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

Specifications

Scale; Range
Major (Minor) Divisions....45° to 85°F, 10(2)°F (7° to 30°C, 5(1)°C)

Factory Calibration ....72°F, 7.5 psi (22°C, 31 kPa)

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

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

Limit Stop
Field Adjustment Range .... 45/85°F (7/30°C)
Fixed Limit Stop Range.... 55/75°F (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 psi (124 kPa)
Night (recommended) .... 25 psi (172 kPa)
Vent-Day/Night.... 0 psi (0 kPa)/25 psi (172 kPa)
Two Pressure
Day (range) .... 15 to 19 psi (103 to 131 kPa)
Night (range) .... 23 to 30 psi (159 to 207 kPa)
Two Pressure (Honeywell Competitive Model)
Day/Night .... 13 psi (90 kPa)/18 psi (124 kPa)
Two Pressure (Johnson Controls Competitive Model)
Day/Night .... 15 psi (103 kPa)/20 psi (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)

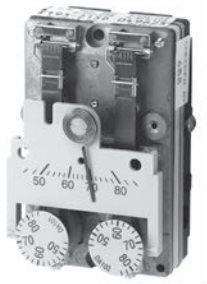
Shipping Weights
Thermostat Chassis and Wall Plate ....0.53 lb. (0.24 kg)
Plastic Cover ....0.07 lb. (0.04 kg)
Metal Cover (dual)....0.27 lb. (0.12 kg)

Product Ordering

	Thermostat Chassis Type				Thermostat Chassis & Wall Plate		
					Control Action		
Model #	Output	Setpoint	Air Output Capacity	Thermometer & Setpoint Scales	D (DA) / N (DA)	D (RA) / N (RA)	D (DA) / N (DA) (with Night Vent)
192 DN	Single	Dual (Day and Night)	High (Integral Relay)	°F	**192-204**	**192-205**	**192-206**
192 DNV 3-pipe				°C	**192-224**	—	—

For complete conversion kits, refer to the Retroline® Retrostats starting on page F-13.

Powerstar™ Free Energy Band Heating/Cooling Pneumatic Room Thermostats



193 HC Thermostat chassis

Typical wall plate and screws

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

Description

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

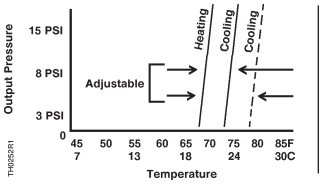
Features

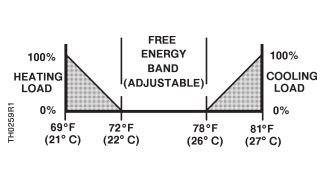
- Dual setpoint dials available in Fahrenheit or Celsius scales
- Integral, field adjustable limit stops
- Sensitive bimetal responds to temperature changes
- Adjustable Free Energy Band
- Test port for fast check of output pressure without removing the cover
- Wall mounting plates for connection to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

Options

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

Input/Output Characteristics





Applications

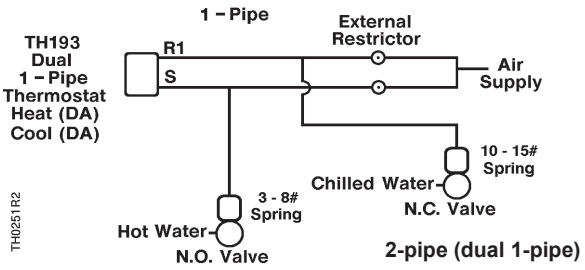
Designed for buildings with early morning heat requirements and mid-morning to afternoon cooling requirements, the Powerstar Free Energy Band Pneumatic Room Thermostat two temperature thermostat controls valves, damper actuators and mechanical heating and cooling equipment. Providing energy management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

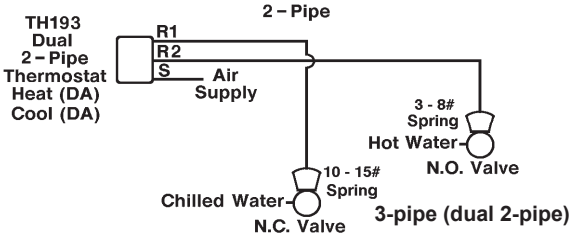
Recommendation

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

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

Application Drawings





Specifications

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

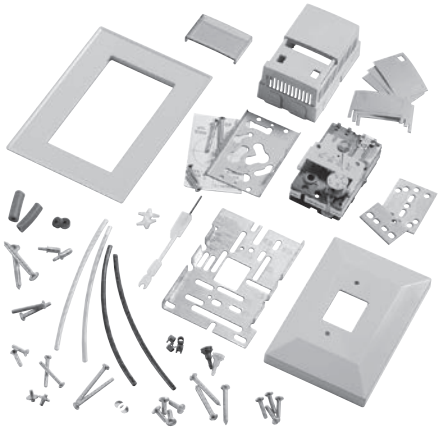
Nominal Air Consumption for Air Compressor Sizing
1-pipe.....50 scim (14 ml/s)
2-pipe..... 40 scim (11 ml/s)
Nominal Air Capacity for Air Main Sizing
1-pipe.....50 scim (14 ml/s)
2-pipe..... 40 scim (11 ml/s)
Nominal Chassis Air Capacity
1-pipe Supply..... 25 scim (6.8 ml/s) per side
2-pipe Supply.....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

Product Ordering

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

For complete conversion kits, refer to the Retroline® Retrostats starting on page F-13.

RETROLINE® Powerstar™ Retrostat Pneumatic Room Thermostats



192/194 Dual Setpoint Pneumatic Room Thermostat Kit

RETROLINE®

easily replaces:

- Barber-Colman (Siebe, Invensys, Schneider)
- Johnson Controls
- Honeywell
- Robertshaw (Siebe, Invensys, Schneider)

Description

The Powerstar Retroline Retrostat Pneumatic Room Thermostat converts most existing pneumatic room thermostats to a Powerstar 192/194 direct or reverse acting, 2-pipe, single or dual setpoint unit.

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

Features

- Complete kit including Retrostat cover kit with exposed or concealed setpoint adjustment
- Setpoint 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 included “goof plate.”
- Integral, field adjustable limit stops
- Test port for fast check of output pressure without removing the cover
- Field replaceable thermometer, setpoint dial(s), restrictor(s), and filter(s)

Options

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

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.

Specifications

Single Setpoint			
Description	Thermometer & Setpoint Scales	Control Action	
		Direct	Reverse
Single Temperature	°F	192-840	192-841
	°C	192-850	192-851

Table Notes:
Kits include covers.
If a different cover is required, refer to the Accessories and Service Kit section.

Dual Setpoint			
Action/Changeover Pressure	Manufacturer	Thermometer & Setpoint Scales	Kit Part No. (Desert Beige)
Day/Night			
Day (DA) 13 psi (90 kPa) / **Night** (DA) 18 psi (124 kPa)	Honeywell	°F	194-3042
Day (DA) 15 psi (103 kPa) / **Night** (DA) 20 psi (138 kPa)	Johnson/B-C	°F	194-3043
Day (DA) 15 psi (103 kPa) / **Night** (DA) 20 psi (138 kPa)	Johnson/B-C	°C	194-3143
Day (DA) 18 psi (124 kPa) / **Night** (DA) 25 psi (172 kPa)	Siemens	°F	192-3044
Day (DA) 18 psi (124 kPa) / **Night** (DA) 25 psi (172 kPa)	Siemens	°C	192-3144
Day (RA) 18 psi (124 kPa) / **Night** (RA) 25 psi (172 kPa)	Siemens	°F	192-3054
Heat/Cool			
Heat (DA) 20 psi (138 kPa) / **Cool** (RA) 15 psi (103 kPa)	Johnson/B-C	°F	194-3083*
Heat (DA) 25 psi (172 kPa) / **Cool** (RA) 18 psi (124 kPa)	Siemens	°F	192-3084*

Table Notes:
- For detailed specifications on Day/Night, refer to 192 DN or DNV.
- For detailed specifications on Heat/Cool, refer to 193 HC.
- All kits include covers.

Product Ordering

Manufacturer Part No.	Manufacturer	Control Action/Temperature Scale	Retroline Part No.	
			Kit	Replace. Chassis
T-4002-201[1]	Johnson Controls	Single Temperature, Direct Acting	**192-840**	**192-202**
T-4002-202[1]	Johnson Controls	Single Temperature, Reverse Acting	**192-841**	**192-203**
T-4002-203	Johnson Controls	Single Temperature, Direct Acting	**192-840**	**192-202**
T-4002-204	Johnson Controls	Single Temperature, Reverse Acting	**192-841**	**192-203**
T-4506-201[1]	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
T-4506-202	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
T-4506-203[1, 2]	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
T-4506-204[2]	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
T-4506-201[1]	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
T-4506-202	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
T-4506-203[1, 2]	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
T-4506-204[2]	Johnson Controls	Day (DA) 15 psi (103 kPa) changeover / Night (DA) 20 psi (138 kPa)	**194-3043**	**194-2043**
TP970A1002	Honeywell	Single Temperature, Direct Acting	**192-840**	**192-202**
TP970A1012	Honeywell	Single Temperature, Direct Acting	**192-840**	**192-202**
TP970A1035	Honeywell	Single Temperature, Direct Acting	**192-840**	**192-202**
TP970A1038	Honeywell	Single Temperature, Direct Acting	**192-840**	**192-202**
TP970A1053	Honeywell	Single Temperature, Direct Acting	**192-840**	**192-202**
TP970A1061	Honeywell	Single Temperature, Direct Acting	**192-840**	**192-202**
TP970A2004	Honeywell	Single Temperature, Direct Acting	**192-840**	**192-202**
TP970A1002	Honeywell	Single Temperature, Reverse Acting	**192-841**	**192-203**
TP970B1028	Honeywell	Single Temperature, Reverse Acting	**192-841**	**192-203**
TP970B1036	Honeywell	Single Temperature, Reverse Acting	**192-841**	**192-203**
TP970B1044	Honeywell	Single Temperature, Reverse Acting	**192-841**	**192-203**
TP971A1003	Honeywell	Day (DA) 13 psi (90 kPa) changeover / Night (DA) 18 psi (124 kPa)	**194-3042**	**194-2042**
TP971A1029	Honeywell	Day (DA) 13 psi (90 kPa) changeover / Night (DA) 18 psi (124 kPa)	**194-3042**	**194-2042**
TP971A1037	Honeywell	Day (DA) 13 psi (90 kPa) changeover / Night (DA) 18 psi (124 kPa)	**194-3042**	**194-2042**
TP971A1045	Honeywell	Day (DA) 13 psi (90 kPa) changeover / Night (DA) 18 psi (124 kPa)	**194-3042**	**194-2042**
TP971A1086	Honeywell	Day (DA) 13 psi (90 kPa) changeover / Night (DA) 18 psi (124 kPa)	**194-3042**	**194-2042**

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

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.

Features

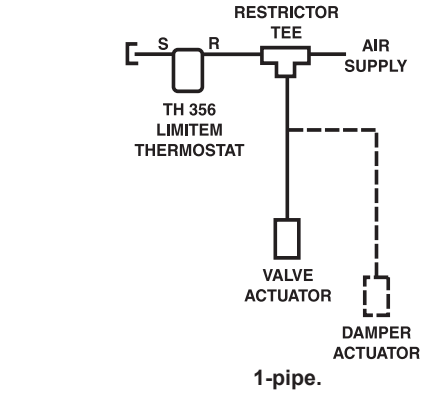
- Durable copper motor tube and steel rod temperature sensing element
- Two-valve design reduces air waste
- Duct mounting hardware included
- All metal construction
- 18" (46 cm) sensing tube

Applications

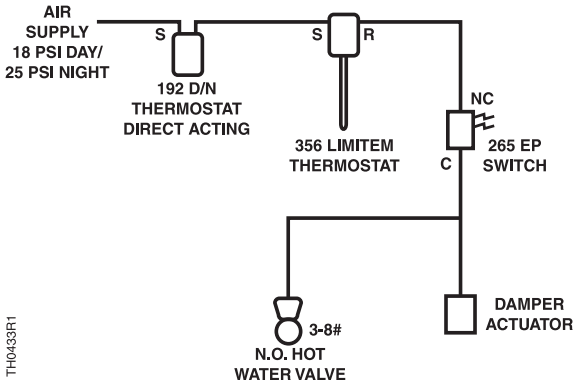
The 356 Limitem Rigid Bulb Thermostat provides primary control for unit ventilators, fan coils and other air handling units. Can also be used as low limit control for air flow to a controlled space.

Application Drawings

Dotted lines are alternative control schemes.



1-pipe.



2-pipe.

Specifications

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)

Product Ordering

Control Action	Temperature Operating Range	Part No.
Direct Acting	0° to 100°F (-18° to 38°C)	**356-0012**
Direct Acting	30° to 180°F (-1.11° to 82.2°C)	**356-0750**
Reverse Acting	0° to 100°F (-18° to 38°C)	**356-0013**
Reverse Acting	30° to 180°F (-1.11° to 82.2°C)	**356-1005**

TECH TIP

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).

Unit Mounted Thermostats

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.

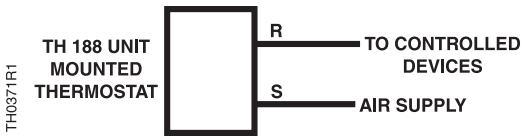
Features

- Liquid-filled thermal system temperature sensing element
- Durable die-cast metal case with rugged setpoint 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

Applications

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

Typical Connections



Specifications

Control Action ..... Heating/Cooling, Direct and Reverse; Direct 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
- 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)

Product Ordering

	Control Action	Changeover Pressure	Average Air Usage	Part No.
Single Setpoint	Direct Acting / 25 psi (172 kPa)	—	40 scim (11 ml/s)	**188-0031**
Heat/Cool	Direct Acting (Heating) / Reverse Acting (Cooling) 18 psi (124 kPa)	21 psi (145 kPa)	40 scim (11 ml/s)	**188-0030**
Heat/Cool	Retroline Direct Acting/Reverse Acting 18 psi (124 kPa) / 13 psi (90 kPa). Retroline replacement for **Honeywell LP916BXXXX.**	15 psi (103 kPa)	40 scim (11 ml/s)	**188-0033**
Heat/Cool	Retroline Direct Acting/Reverse Acting 25 psi (172 kPa) / 15 psi (103 kPa). Retroline replacement for **Johnson Controls T-3300-2.**	17 psi (117 kPa)	40 scim (11 ml/s)	**188-0034**

Single Input Receiver-Controller

Powers RETROLINE®
easily replaces:

- Barber-Colman
- Johnson Controls
- Honeywell
- Robertshaw
- Seibe

195 Single Input Receiver-Controller

Description

The 195 Single Input Receiver-Controller is a pneumatic controller which receives one pneumatic input, and produces a pneumatic output signal based on the net pneumatic input and the mechanical settings of the setpoint and percent proportional band. This controller can be easily changed from direct to reverse acting.

Powers Retroline Receiver-Controller (195-1000) includes decals and installation instructions to replace competitive models.

Features

- Rugged proven design
- Plug-in air connections for ease of installation, calibration, and service
- Internal restrictors for transmitter inputs
- Stick-on scales included for setpoint dial in standard transmitter ranges
- Large, easy-to-read scales on all adjustments
- Calibration card for converting transmitter range to 3 to 15 psi (21 to 103 kPa) signal
- Tamper-resistant cover

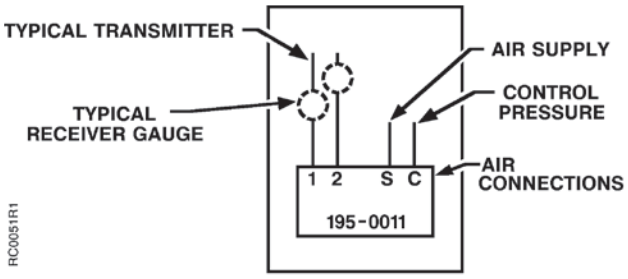
Options

- Retroline products for replacing competitive products

Applications

The 195 Single Input Receiver-Controller is a one-input, direct/reverse acting instrument used to control temperatures, humidity, and pressure of mechanical equipment in commercial and industrial facilities.

Typical Connections



Specifications

Action
Input #1 ..... Direct
Input #2 ..... Reverse

Pneumatic Inputs ..... 3 to 15 psi (21 to 103 kPa)

Control Output .....0 psi (0 kPa) to supply pressure 22 psi (152 kPa)

Operating Ambient Temperature Range .....40° to 120°F (4° to 49°C)

Supply Pressure
Operating..... 22 psi (152 kPa)
Maximum Safe ..... 30 psi (207 kPa)

% Proportional Band Adjustment Range .....2 to 20% for a 5 psi (34 kPa) control pressure change

Air Consumption ..... 60 scim (17 ml/s)

Air Capacity ..... 2 psi (14 kPa) Pressure Change at 9 psi (62 kPa) control pressure
Supply ..... 640 scim (175 ml/s)
Exhaust ..... 590 scim (161 ml/s)

Mounting ..... Surface

Air Connections.....Barb fittings for 1/4" (6 mm) OD polyethylene tubing. Two plug-in connectors are provided; one for the direct acting and the reverse acting transmitter inputs and one for supply and control lines. 1/8" NPT connection provided for control pressure gauge (gauge not included)

Case Material .....Lexan, 20% glass-filled

Dimensions ..... 6.75" W x 5.69" H x 3.5" D (171 mm W x 144 mm H x 89 mm D)

Shipping Weight .....3.1 lb. (1.4 kg)

Product Ordering

Description	Part No.
Single Input Receiver-Controller	**195-0011**

RETROLINE®

Manufacturer	Manufacturer Part No.	Part No.[1]
Barber-Colman	RKS-1001	**195-1000**
Barber-Colman	RKS-2001	**195-1000**
Barber-Colman	RKS-5001	**195-1000**
Honeywell	RP908A	**195-1000**
Honeywell	RP920A	**195-1000**
Johnson Controls	T-5800-1	**195-1000**

Ordering Notes:
1. Includes **195-0011** plus decals to replace any competitive single input receiver-controller.

Multiple Input Receiver-Controller

Powers RETROLINE®
easily replaces:

- Barber-Colman
- Johnson Controls
- Honeywell
- Robertshaw
- Seibe

195 Multiple Input Receiver-Controller
with Control Pressure Gauge

Description

The 195 Multiple Input Receiver-Controller is a pneumatic controller that receives up to three pneumatic inputs and produces a pneumatic output signal based on the net pneumatic input and the setpoint, percent proportional band, and authority settings. The Controller can be easily changed from direct to reverse acting.

Powers Retroline Receiver-Controller (195-1000) includes decals and installation instructions to replace competitive models.

Features

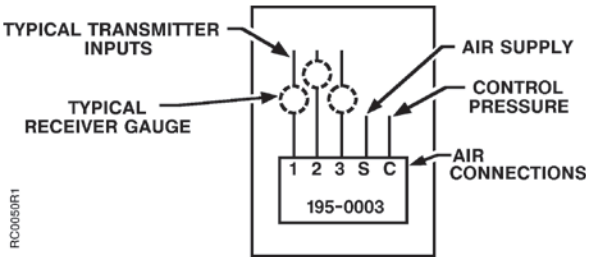
- Rugged proven design
- Plug-in air connections for ease of installation, calibration, and service
- Internal restrictors for transmitter inputs
- Stick-on scales included for setpoint dial in standard transmitter ranges
- Large, easy-to-read scales on all adjustments
- Calibration card for converting transmitter range to 3 to 15 psi (21 to 103 kPa) signal
- 0 to 30 psi (0 to 200 kPa) Pressure Gauge
- Retroline products for replacing competitive products

Applications

The 195 Multiple Input Receiver-Controller is commonly used when the setpoint needs to be automatically reset based on a separate input; can also be used as a single input device.

Example: Change hot water supply temperature setpoint based on outside air temperature.

Typical Connections



Specifications

Action
Input #1 ..... Direct
Input #2 ..... Reverse

Reset
Input #3 ..... Direct reset relative to Input #2
Reverse reset relative to Input #1

Pneumatic Inputs ..... 3 to 15 psi (21 to 103 kPa)

Control Output .....0 psi (0 kPa) to supply pressure 22 psi (152 kPa)

Operating Ambient Temperature Range .....40° to 120°F (4° to 49°C)

Supply Pressure
Operating..... 22 psi (152 kPa)
Maximum Safe ..... 30 psi (207 kPa)

% Proportional Band Adjustment Range .....2 to 20% for a 5 psi (34 kPa) control pressure change

% Authority Adjustment Range ..... 20 to 200%

Air Consumption .....60 scim (17 ml/s), *not including transmitters*

Air Capacity .....@ 2 psi (14 kPa) Pressure Change and 9 psi (62 kPa) control pressure
Supply ..... 640 scim (175 ml/s)
Exhaust ..... 590 scim (161 ml/s)

Mounting .....Surface, vertical

Air Connections.....Barb fittings for 1/4" (6 mm) OD polyethylene tubing. Two plug-in connectors are provided; one for the three transmitter inputs and one for supply and control lines. 1/8" NPT connection provided for control pressure gauge.

Case Material .....Lexan, 20% glass-filled

Dimensions ..... 6.75" W x 5.69" H x 3.5" D (171 mm W x 144 mm H x 89 mm D)

Shipping Weight .....3.1 lb. (1.4 kg)

Product Ordering

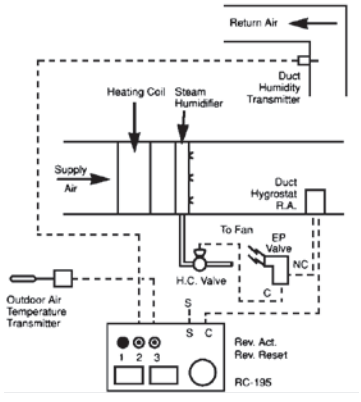
Description	Part No.
Multiple Input Receiver-Controller	**195-0003**

RETROLINE®

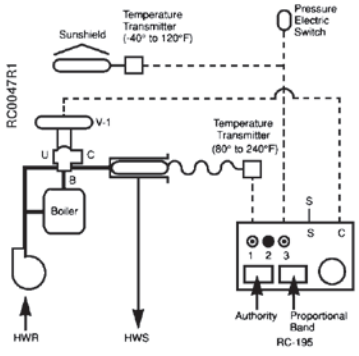
Manufacturer	Manufacturer Part No.	Part No.[1]
Barber-Colman	RKS-3002	**195-2000**
Barber-Colman	RKS-4002	**195-2000**
Johnson Controls	T-5800-3	**195-2000**
Robertshaw	P-341	**195-2000**
Robertshaw	P-541	**195-2000**
Honeywell	RP908B	**195-2000**
Honeywell	RP920B	**195-2000**

Ordering Notes:
1. Includes **195-0003** plus decals to replace competitive receiver-controllers.

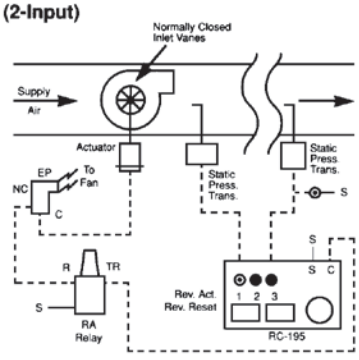
Dimensions/Engineering Drawings



Humidity Control



Temperature Control



Static Pressure Control

Air Station Equipment

201-1000 Single-stage,
Compressed Air Pressure Reducing Valve

656-0009
High Capacity, 3-way Pilot Valve

908-051
Compressed Air Filter

Description

Providing pneumatic control, Air Station Equipment, which includes Single- and Dual-stage Pressure Reducing Valves and High Capacity, 3-way Pilot Valves, responds rapidly to large volume demands and supply pressure variations. The Compressed Air Filter removes water or oil to 0.025 particle size.

Features

Pressure Reducing Valve

- 200 mesh stainless strainer
- Locking handle
- Dual tappings for right or left-hand gauge (201-1000)
- Gauge plug and bushing
- 2-1/2" (64 mm) gauge with 0 to 30 psig (0 to 207 kPa) (201-1001, 201-1002)

Compressed Air Filter

- 20 scfm (33.9 m^3/hr) capacity
- Manual drain port
- Replaceable cartridge

Applications

Air Station Equipment and compressor systems are available for schools, hospitals, commercial office and industrial buildings, and other facilities.

Compressed air systems include:

- Single (low) pressure
- Dual (low and high) pressure
- Dual, low pressure for two pressure systems

Your local Siemens Building Technologies representative can assist you in selecting the appropriate air compressors and accessories for optimum efficiency and duty cycling.

Specifications

Single-stage, Compressed Air Pressure Reducing Valve, 201-1000

Capacity ..... 8 scfm (17 m^3/hr)
Maximum Inlet Pressure ..... 250 psig (1734 kPa)
Reducing Pressure Range ..... 3 to 60 psig (21 to 430 kPa)
Inlet/Outlet Connections ..... 1/4" NPT Internally Threaded
Gauge Port ..... 1/4" NPT Externally Threaded x 1/8" NPT Internally Threaded bushing
Shipping Weight ..... 1.7 lb. (0.8 kg)

Compressed Air Filter, 908-051

Capacity ..... 20 scfm (33.9 m^3/hr) @ 100 psig
Maximum Pressure ..... 300 psig (2068 kPa)
Inlet/Outlet Ports ..... 3/8" NPT Internally Threaded
Shipping Weight ..... 4.2 lb. (1.9 kg)

High Capacity, 3-way Pilot Valve, 656-0009

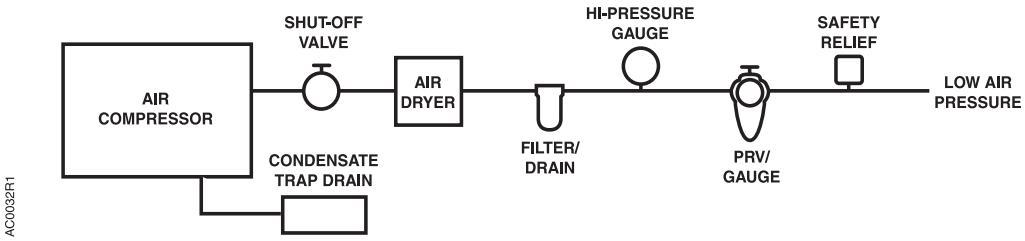
Application ..... Two-pressure systems/ Day-Night or Heat-Cool
Inlet/Outlet Ports ..... 1/2" (12 mm) O.D. SAE flare
Pilot Port ..... 1/8" NPT Internally Threaded
Actuator ..... 3 to 8 psi, 10 to 15 psi (69 to 103 kPa)
Valve Specifications ..... Cv=2.5, 14 scfm (24 m^3/s) based on 18 psig (124 kPa) with a 1 psi (7 kPa) pressure drop
Shipping Weight ..... 2.0 lb. (0.9 kg)

High Capacity, 3-way Pilot Valve, 656-0010

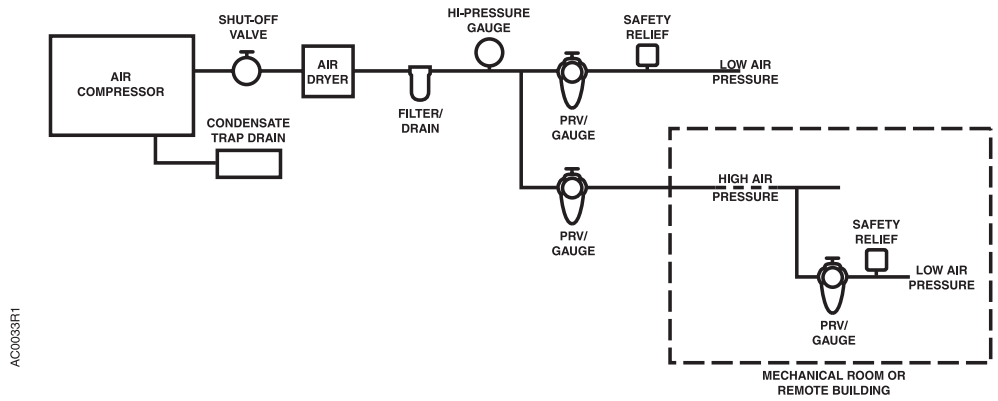
Application ..... Two-pressure systems/ Day-Night or Heat-Cool
Inlet/Outlet Ports ..... 1/2" (13 mm) O.D. SAE flare
Pilot Port ..... 1/8" NPT Internally Threaded
Actuator ..... 3 to 8 psi (21 to 55 kPa)
Valve Specifications ..... Cv=2.5, 14 scfm (24 m^3/s) based on 18 psig (124 kPa) with a 1 psi (7 kPa) pressure drop
Shipping Weight ..... 2.0 lb. (0.9 kg)

Product Ordering

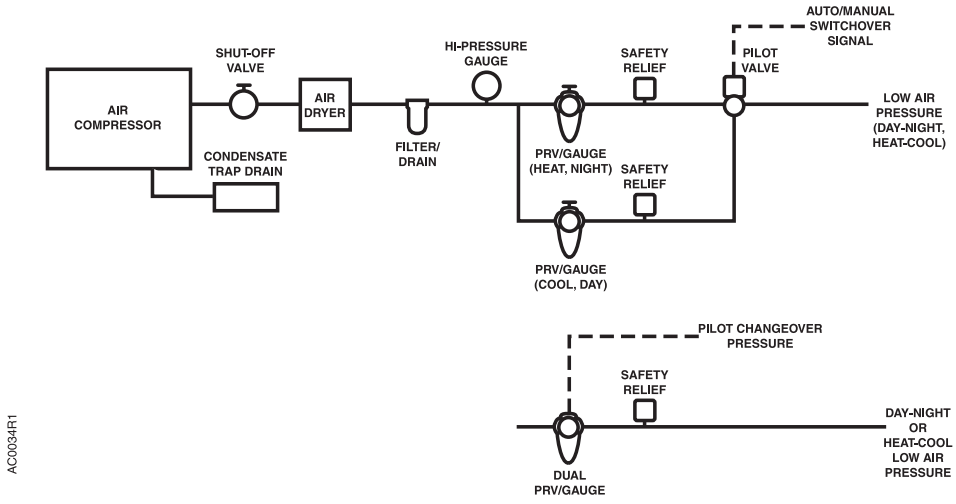
Description	Part No.
Single-stage, Compressed Air Pressure Reducing Valve	**201-1000**
Compressed Air Filter	**908-051**
High Capacity, 3-way Pilot Valve (10 to 15 psi)	**656-0009**
High Capacity, 3-way, Pilot Valve (3 to 8 psi)	**656-0010**



Single Pressure



Low and High Pressure



Dual Pressure

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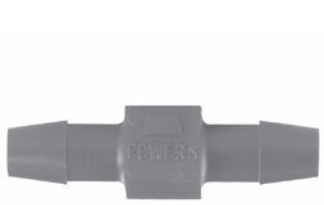
External Restrictors



In-line Barbed Restrictor

Tee Barbed Restrictor

Description

Restrictors are available in a variety of orifice sizes and connection types.

Features

External Types 2 and 3

- Air filter
- Barbed connection for 1/4-inch (6 mm) plastic tubing (Types 2 and 3)
- Color-coded (Types 2 and 3)
- Air flow direction arrow to minimize installation errors
- Air flow restrictor capacity molded (Types 2 and 3) on body

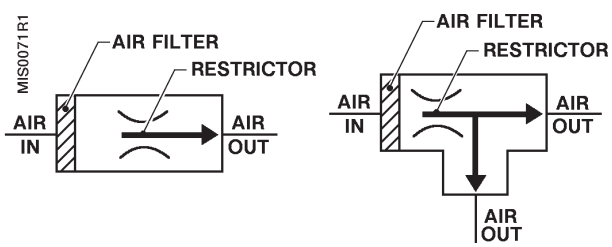
Applications

External restrictors are used:

- For 1-pipe room thermostats, 20 scim (5.5 ml/s), refer to Figure 3.
- For 1-pipe transmitters, 40 scim (11 ml/s), refer to Figures 1 and 2.
- When installed tubing lengths exceed maximum recommended values, refer to Figure 2.
- With check valves to provide air flow time delays:
  – Slow to supply, fast to exhaust, refer to Figure 4.
  – Fast to supply, slow to exhaust, refer to Figure 5.
- VAV vortex control. Use 80 scim (22 ml/s) restrictor in positioning relay control pressure line to prevent cycling.
- When other air capacities, 10 scim (2.7 ml/s), or 320 scim (87 ml/s) are required to compensate for tubing size or response time.

Figures are on page F-31

Typical Connections



Specifications

Materials
Type 2 and 3.....Plastic

Ambient Temperature
Minimum..... 40°F (4°C)
Maximum..... 140°F (60°C)

Air Connections
Type 2 and 3.....Barb for 1/4" (6 mm) OD polyethylene tubing

Mounting .....In-line

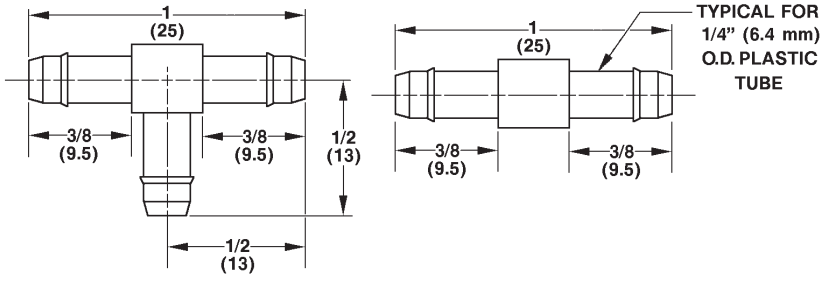
Flow Capacity at Various Air Pressure Drop

Air Pressure	% of Max. Flow Capacity	Nominal Capacity				
		10	20	40	80	320
22 psi (152 kPa)	100%	10 scim (2.7 ml/s)	20 scim (5.5 ml/s)	40 scim (11 ml/s)	80 scim (87 ml/s)	320 scim (87 ml/s)
10 psi (69 kPa)	70%	7 scim (1.9 ml/s)	14 scim (3.8 ml/s)	28 scim (7.6 ml/s)	56 scim (15 ml/s)	224 scim (61 ml/s)
5 psi (34 kPa)	50%	5 scim (1.4 ml/s)	10 scim (2.7 ml/s)	20 scim (5.5 ml/s)	40 scim (11 ml/s)	160 scim (44 ml/s)
2.5 psi (17 kPa)	35%	3.5 scim (1.0 ml/s)	7 scim (1.9 ml/s)	14 scim (3.8 ml/s)	28 scim (7.6 ml/s)	112 scim (31 ml/s)

Product Ordering

Nominal Air Capacity	Orifice Diameter	Part No.		Barbed Restrictor Body Color
		Type 2 In-line Barbed *(Pkg. of 5)*	Type 3 Tee Barbed *(Pkg. of 5)*	
10 scim (2.7 ml/s)	0.0035" (0.09 mm)	**184-115**	**184-112**	Red
20 scim (5.5 ml/s)	0.0051" (0.13 mm)	**184-116**	**184-113**	Yellow
40 scim (11 ml/s)	0.0074" (0.19 mm)	**184-117**	**184-114**	Green
If inoperative, replace the unit.				

Dimensions



Dimensions shown in inches (mm)

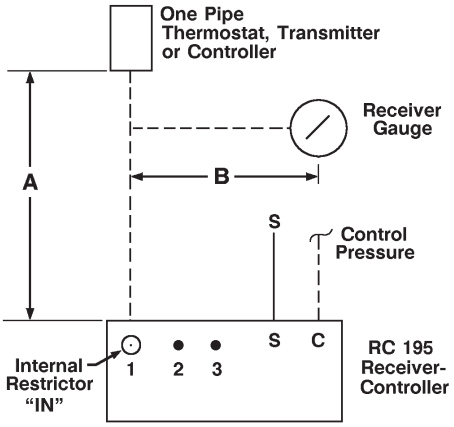


Figure 1.

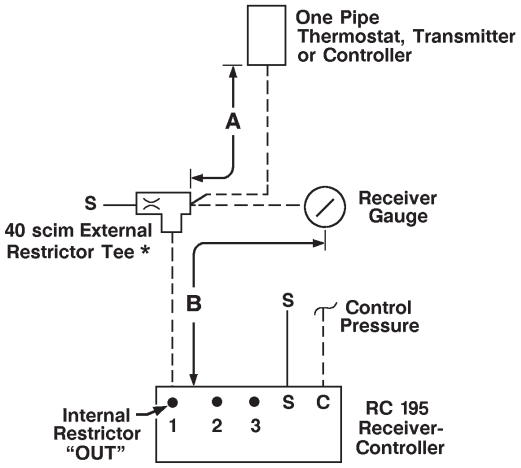


Figure 2.

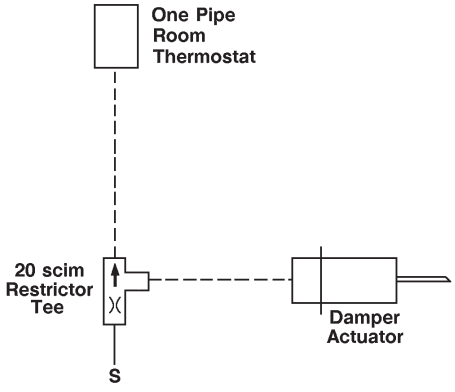


Figure 3.

* Use External Restrictor with RC195 when "A" length exceeds 300 ft. (91 m) or when "A & B" length exceeds 1,000 ft. (305 m).

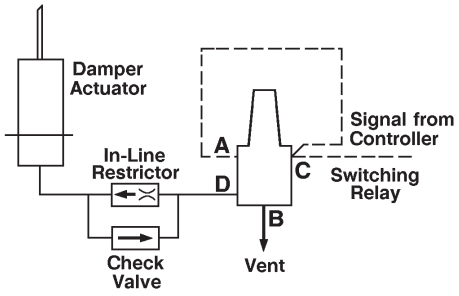


Figure 4.

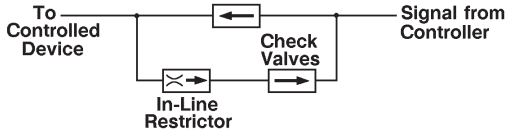
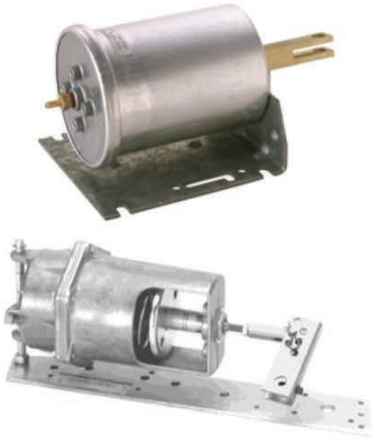


Figure 5.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Pneumatic Tube Fitting Kit

141-0601 Pneumatic Tube Fitting Kit

141-464 Case

Description

The Pneumatic Tube Fitting Kit provides the service or installation mechanic with a compact and convenient source of the most commonly used brass barbed fittings for 1/4-inch (6 mm), 3/8-inch (10 mm) and 1/2-inch (13 mm) OD polyethylene tubing.

Features

- Rustproof, odor and oil resistant case
- Translucent lid for easy identification of fittings
- Double positive latches
- 15 dividers for configuring up to 24 compartments
- Lower cost for fittings
- Representative quantities of commonly used 1/4-inch (6 mm), 3/8-inch (10 mm) and 1/2-inch (13 mm) brass fittings

Applications

The Pneumatic Tube Fitting Kit is useful for servicing, modifying, or adding to pneumatic control systems. Purchasing in quantity reduces material costs. Labor savings is the major reason to have this convenient kit in your service shop or van.

Specifications

Case Material ..... Copolymer Resin

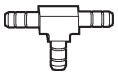
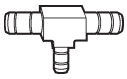
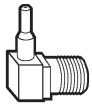
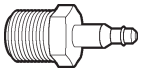
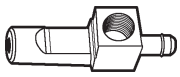
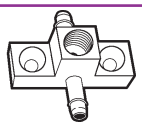
Dimensions ..... 15" L x 11.75" W x 2.5" D
(381 mm L x 298 mm W x 64 mm D)

Shipping Weight
Case .....3.0 lb. (1.4 kg)
Case and Fittings .....7.0 lb. (3.2 kg)

Other Supplies and Equipment

The fittings in this kit represent most of the commonly used polyethylene tube fittings required by HVAC mechanics.

Kit Includes:

	Description	Quantity
	**Barbed Tee.**	
	• 1/4" (6 mm)	12
	• 3/8" (10 mm)	6
	• 1/2" (13 mm)	6
	**1/4" (6 mm) Barbed Reducing Tee.**	
	• 3/8" (10 mm)	6
	• 1/2" (13 mm)	6
	**90° Elbow.**	
	• 1/4" (6 mm)	12
	• 3/8" (10 mm)	6
	• 1/2" (13 mm)	6
	**1/8" NPT Externally Threaded x 90° Elbow.** • 1/4" (6 mm) or 5/32" (4 mm)	12
	**1/4" (6 mm) OD Copper Coupling.** • 1/4" (6 mm)	10
	**1/8" NPT Externally Threaded.** • 1/4" (6 mm)	10
	**Gauge Tee 1/8" NPT Externally Threaded/ NPT Internally Threaded.** • 1/4" (6 mm)	10
	**Gauge Tee 1/8" NPT Internally Threaded.** • 1/4" (6 mm)	5
	**Plug.** • 1/4" (6 mm)	10
	**Reducer Coupling OD.** • 1/4" (6 mm)	10
	**Coupling.**	
	• 1/4" (6 mm)	12
	• 3/8" (10 mm)	10
	• 1/2" (13 mm)	10

Product Ordering

Description	Part No.
Complete Kit with 159 fittings	**141-0601**
Case only	**141-464**

Controls Cabinet/Enclosure

567-556 Small Panel with Window

567-351 Exposed Panel Assembly

Description

Designed to conveniently group control system components, 567 Controls Cabinets are available in two styles, exposed and flush mount.

With the exposed panels, the control components can be mounted in the door or mounted within the enclosure using the perforated panel. The cabinet housing, door, and perforated mounting plate may be ordered as a unit or separately.

The flush mount panel is designed to recess the panel into a wall. The controls are mounted within the enclosures on a perforated panel. Order both the cabinet and the mounting kit.

Features

- Panels are symmetrical, and can be mounted with door hinge on left or right-hand side
- Removable door with lock and keys
- Removable perforated subpanel permits mounting controls without drilling holes
- Attractive gray finish permits use in occupied areas
- Support kit is available for floor mounting (medium and large exposed cabinets only)
- Variety of mounting methods available
- Knockouts are provided for electrical or pneumatic piping
- Panels listed under UL508 Industrial Control Panel Enclosures
- CSA listed under LR 84214
- NEMA Type 1
- Exposed Panels available in 6" or 9" depth

Applications

The 567 Controls Cabinets provide a convenient central location for equipment mounting, termination of piping, wiring adjustment, and calibration.

Panels may be used with DDC and/or pneumatic systems using either copper or polyethylene tubing for transmission lines, with wired electric/electronic systems, or with a combination of both. Within the panel enclosure, use polyethylene pneumatic tubing for easy installation and arrangement and for a flexible connection to hinged door components.

The empty panel can be installed at the job to permit early rough-in of conduit. Since the door and subpanel can be separated from the cabinet, controls may be mounted to the door subpanel either at the job site or at the field office and connected to the cabinet at your convenience. After reassembly, final connections are then made.

Specifications

Exposed Panel

Dimensions – 9" Depth

Size 3: ..... 24.94" H x 24.38" W x 9.38" D
(633 mm H x 619 mm W x 238 mm D)
Size 4: ..... 36.5" H x 24.38" W x 9.38" D
(927 mm H x 619 mm W x 238 mm D)

Dimensions – 6" Depth

Size 1: ..... 19.5" H x 16.38" W x 5.75" D
(495 mm H x 416 mm W x 146 mm D)
Size 2: ..... 20.0" H x 20.0" W x 6.0" D
(508 mm H x 508 mm W x 152 mm D)
Size 3: ..... 24.94" H x 24.38" W x 6.0" D
(633 mm H x 619 mm W x 152 mm D)
Size 4: ..... 36.5" H x 24.38" W x 6.0" D
(927 mm H x 619 mm W x 152 mm D)

Dimensions – 3.5" Depth

Size 0: ..... 12" H x 14" W x 3.5" D
(305 mm H x 356 mm W x 89 mm D)

Shipping Weights – 9" Depth

Size 3: .....39.0 lb. (18 kg)
Size 4: .....72.0 lb. (33 kg)

Shipping Weights – 6" Depth

Size 1: .....20.0 lb. (9 kg)
Size 2: .....28.0 lb. (13 kg)
Size 3: .....38.0 lb. (17 kg)
Size 4: .....63.0 lb. (29 kg)

Shipping Weights – 3.5" Depth

Size 0: .....12.0 lb. (5.5 kg)

Flush Mount Panel – 567-391

Dimensions ..... 19.5" H x 16.13" W x 5.13" D
(495 mm H x 410 mm W x 130 mm D)

Shipping Weight .....20.0 lb. (9 kg)

Panel Door

Shipping Weights

Size 1: .....8.0 lb. (3.6 kg)
Size 3: .....13.0 lb. (5.9 kg)
Size 4: .....20.0 lb. (9 kg)
Size 0: .....13.0 lb. (5.9 kg)

Product Ordering

Size	Part No. – 9"	Part No. – 6"
Exposed Panel Assembly		
Size 1	—	**567-351**
Size 2	—	**567-454**
Size 3	**567-352**	**567-452**
Size 4	**567-353**	**567-453**
Panel Door Only		
Size 1	**567-361**	—
Size 3	**567-362**	—
Size 4	**567-363**	—
Panel Enclosure		
Size 1	**567-371**	—
Size 3	**567-372**	—
Mounting Plate Only		
Size 1	**567-381**	—
Size 3	**567-382**	—
Size 4	**567-383**	—
Flush Mount Panel & Kit		
Flush Mount Panel	**567-391**	—
Flush Mount Kit contains escutcheon, hinged locking door and two keys	**567-390**	—
Small Panel with Mounting Plate, Key Lock		
Size 0 with blank door	**567-551**	
Size 0 with window door	**567-556**	

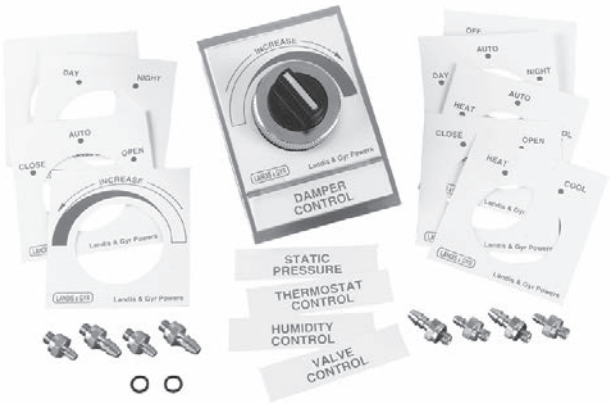
Accessories

Description	Part No.
Replacement Door Lock & Key Assembly	**567-225**

Literature

For additional details, see Siemens technical instruction #155-272P25 for CP567 Control Cabinets.

Selector Switches



786 Floating Selector Switch

Description

The 786 Selector Switch is used to deliver or stop the flow of compressed air to selected controllers valves, or dampers in commercial applications.

The common port may be connected to two or three ports depending on the switch model.

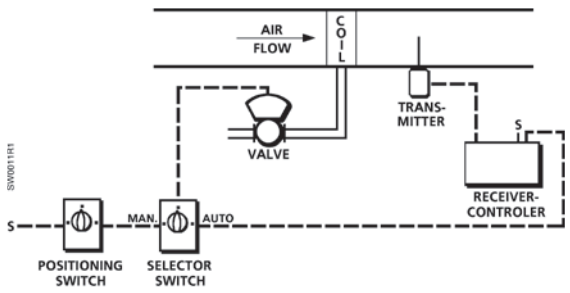
Features

- Compact design and lightweight construction
- Click stop for positive positioning
- Easy panel mounting through 1-7/32-inch (31 mm) diameter knockout
- 10-32 Internally Threaded connection ports
- Dial label and nomenclature sheets for most applications
- Barb fitting for 5/32-inch (4 mm) OD tubing for port connections

Applications

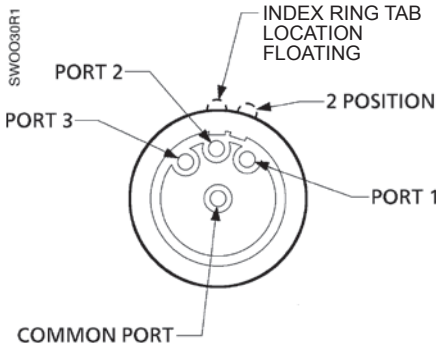
The 786 floating Selector Switch is used in compressed air systems to connect and direct supply and signal pressures. Typical applications are OPEN/CLOSE damper position, DAY/NIGHT thermostat operation, and ON/OFF/AUTO system operation. The compact design makes these especially adaptable to panel groupings.

Application Drawing



Standard and Large Capacity.

Typical Connections



2- and 3-position Selector Switch.

Specifications

Medium ..... Air

Air Connections
- Standard Switch ..... 1/16" NPT
- LC Switch ..... 1/8" NPT

Inlet Pressure
- Nominal ..... 30 psi (206 kPa)
- Maximum ..... 125 psi (858 kPa)

Operating Temperature ..... 35º to 150ºF (2º to 66ºC)

Capacity at 1 psi (7 kPa) Differential
- 5/32" (4 mm) OD tubing ..... 250 scim (68 ml/s)
- 1/4" (3 mm) OD tubing ..... 480 scim (130 ml/s)

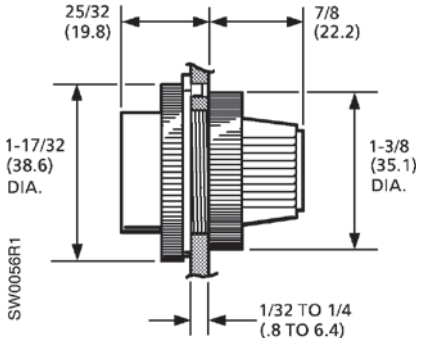
Port Threads ..... 10-32 NPT Internally Threaded

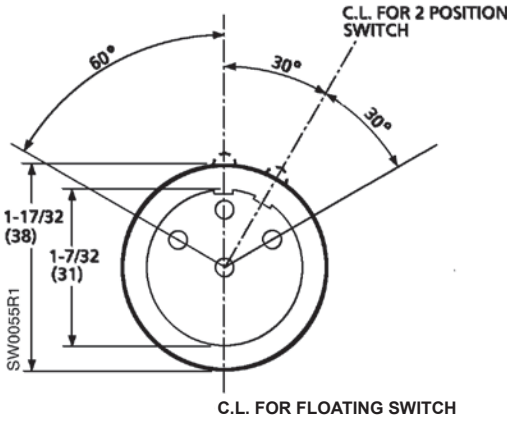
Materials
- Body ..... Acetal
- O-rings ..... Buna N

Product Ordering

Description	Part No.
2-position	**786-0600**
Floating	**786-0610**

Dimensions





Dimensions shown in inches (mm)

Positioning Switch

141 Positioning Switch

Description

The 141 Positioning Switch is used to deliver any manually selected pressure over a range of 0 to 30 psi (0 to 207 kPa) to air-operated equipment. The adjustment knob can be left free to rotate or held in position by snapping the locking ring.

Features

- Compact design and lightweight construction
- Non-rising low torque pressure adjustment knob with snap-action locking ring for maintaining pressure setting
- Available in manual select or bleed type models
- Easy to surface or panel mount
- Easy panel mounting through 1-7/32" (31 mm) diameter knockout
- Includes dial label and nomenclature sheet for most applications

Applications

The 141 Positioning Switch is used in compressed air systems to maintain a uniform outlet pressure despite changes in the inlet pressure and changes in downstream flow requirements; especially suited for installations where space is limited and where panel mounting with a flush mount knob is desired.

Specifications

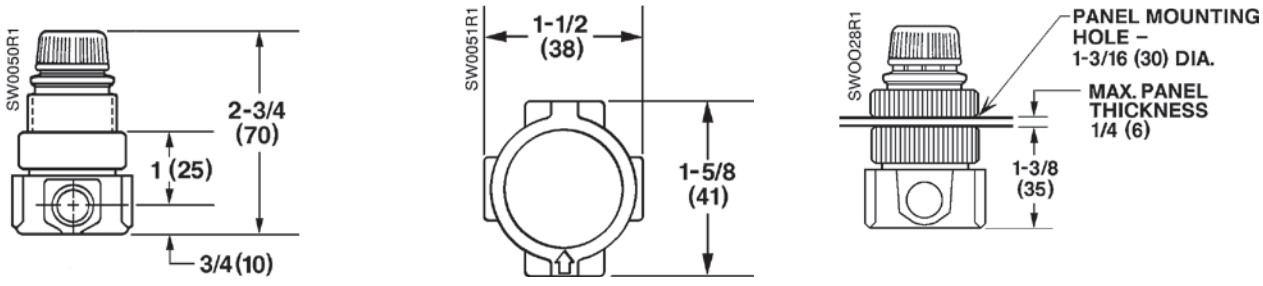
Medium ..... Air
Air Connections ..... 1/8" NPT Internally Threaded
Inlet Pressure
Nominal ..... 30 psi (206 kPa)
Maximum ..... 400 psi (2745 kPa)

Operating Temperature ..... 0º to 150ºF (-18º to 66ºC)
Capacity at 1 psi (7 kPa) Differential
5/32" (4 mm) OD tubing ..... 500 scim (140 ml/s)
1/4" (6 mm) OD tubing ..... 650 scim (180 ml/s)
Shipping Weight ..... 0.5 lb. (0.23 kg)

Product Ordering

Description	Part No.
Positioning Switch	**141-0600**

Dimensions



Dimensions shown in inches (mm)

Differential Static Pressure Airflow Switches

141 Differential Static Pressure Airflow Switches

Description

The 141 Airflow Switch senses static differential pressure and at setpoint open/closes a set of electrical contacts.

Features

- Available in ranges:
  – 0.05 to 2" W.C. (12.45 to 249 Pa)
  – 1 to 12" W.C. (249 to 2988 Pa)
- Available with auto reset
- Can be used in multiple applications:
  – Proof of flow
  – High limit cut out
  – Filter 'dirty' indication

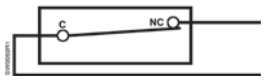
Applications

The 141 Airflow Switch actuates electrical circuits (positive pressure), fan inlet (negative pressure), or across the fan (differential pressure) to detect excessively high positive pressures or low negative pressures and turn off the fan before damage occurs to ducts or dampers.

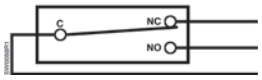
The manual reset switch (141-0575) should be used for applications that require safety lock out (shut down) of the fan. The switch can be used on the fan discharge.

The auto reset switch should be used for applications that require positive proof of airflow (or fan operation) or detect high differential pressures associated with dirty air filters or similar maintenance alarms that do not require safety lock or (shut down) of the fan.

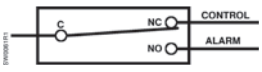
Typical Connections



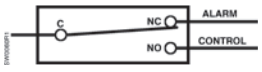
141-0575 Manual Reset Switch.



141-0518 and 141-0574 Auto Reset Switches.



Auto Reset Switches to Prove Excessive Airflow or Pressure.



Auto Reset Switches to Prove Insufficient Airflow or Pressure.

Specifications

Medium ..... Air

Switch Action Manual Reset
(must be manually rest by operator)..... NC; only opens on increasing pressure signal

Ambient Temperature Range ..... -40° to 180°F (-40° to 82°C)

Maximum Overpressure ..... 0.5 psi (3.4 kPa)

Mounting Position ..... Diaphragm in any vertical plane

Body ..... Zinc-plated Steel with blue erudite dip

Electrical Ratings
Non-inductive ..... 15 amps @ 120 to 277 Vac
Pilot Duty ..... 300 VA @ 120 to 277 Vac

Conduit Opening ..... 1/2" (13 mm) conduit size

Sample Line Connectors ..... 2 connectors, complete with nuts and ferrules, which accept 1/4" (6 mm) OD copper or polyethylene tubing

Material ..... Aluminized Steel

Agency Approvals ..... UL MFHX File MH9888
CSA 1811M25

Dimensions ..... 6.13" H x 3.88" W x 3.19" D
(156 mm H x 98 mm W x 81 mm D)

Shipping Weight ..... 1.0 lb. (0.45 kg)

Product Ordering

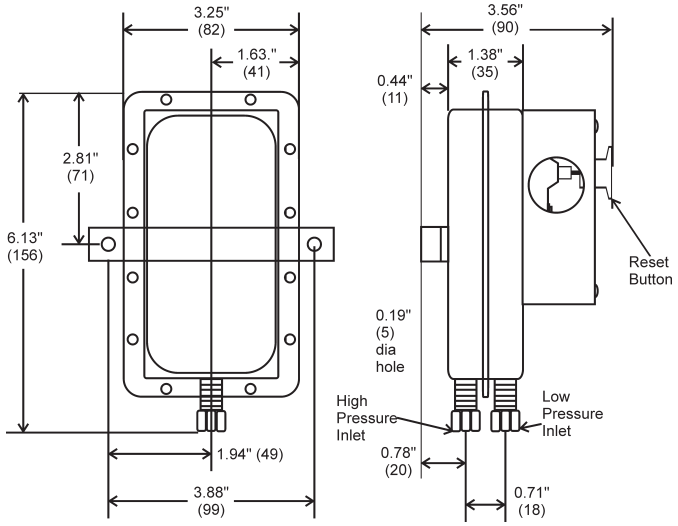
Setpoint Range (Field Adjustable)	Switching Action/Reset	Factory Setpoint Accuracy*	Differential*	Part No.
1" to 12" W.C. (250 to 3000 kPa)	SPDT/Auto Reset	@ 12" ± 1.5" W.C. (3000 Pa ± 375 Pa)	Approx. 0.6" to 1.5" W.C. (150 Pa to 375 Pa)	**141-0518**
1" to 12" W.C. (250 to 3000 kPa)	SPST/ Manual Reset	1" ± 0.1" W.C. (250 Pa ± 25 Pa) to 12" ± 1.2" W.C. (3000 Pa ± 300 Pa)	Not Applicable	**141-0575**
0.05" to 2.0" W.C. (12.5 to 250 kPa)	SPDT/ Auto Reset	@ 1" ± 0.2" W.C. (250 Pa ± 50 Pa)	Approx. 0.06" to 0.6" W.C. (15 Pa to 150 Pa)	**141-0574**

*Setpoint accuracy tolerance and switching differential decrease proportional to setpoint decrease.

Accessories Ordering

Description	Part No.
High Accuracy Static Pressure Sensor	**269-062**
Static Pressure Sensing Kit	**189-142**

Dimensions



Dimensions shown in inches (mm)

Pressure Electric Switch

134-1450 Pressure Electric Switch

134-1460 Pressure Electric Switch

Description

The 134 Pressure Electric Switches are heavy duty pressure-actuated, mechanical contact type switches used to open or close electrical circuits from pressure signals in pneumatic control systems.

Features

- DPST or SPDT snap-acting
- External adjustment and indication of setpoint and differential
- Screw terminals are easily accessible for field wiring
- Long life, heavy duty contact mechanism
- Normally open or normally closed contacts models available
- Not position sensitive, can be mounted in any position
- Mounting bracket included

Applications

The 134 Pressure Electric Switches are used wherever it is necessary to close (or open) an electrical circuit on the basis of a predetermined air pressure signal. This switch is to be used in areas protected from the weather. Typical applications include the control of air compressors, fans, pilot lights, resistance heating elements, control of electric heating loads or motors on fans, pumps or small air compressors.

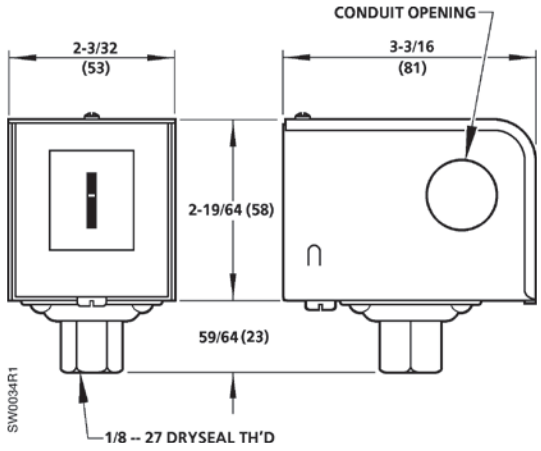
Specifications

Medium ..... Compressed air
Setpoint Range ..... 3 to 30 psi (20 to 200 kPa)
Differential ..... Adjustable from 1.5 to 20 psi (10 to 138 kPa)
Maximum Pressure ..... 50 psi (345 kPa)
Pressure Connection ..... 1/8" Externally Threaded NPT
Conduit Opening ..... 1/2" (13 mm) nominal conduit
Ambient Temperature ..... 32° to 140°F (0° to 60°C)
Pilot Duty
134-1450, 134-1451 ..... 125 VA @ 600 Vac
134-1460 ..... 125 VA @ 24 to 277 Vac
Agency Approval (for 134-1450 only) ..... UL file E 35198
Shipping Weight ..... 2.0 lb. (0.9 kg)

Product Ordering

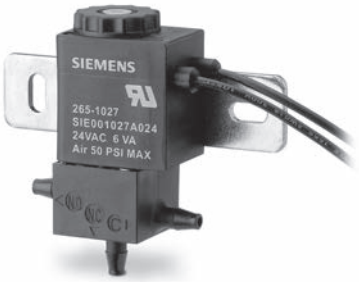
Description	Switch Action	Electrical Rating	Part No.
Pressure Differential, Adjustable Switch, 1.5 to 10 psi	DPST (NO)	**IND:** 12 A @ 120, 208 & 240 Vac	**134-1450**
	DPST	**Non-IND:** 12 A @ 120 to 277 Vac	**134-1451**
Fixed Differential Switch 2.0 psi	SPDT (NC)	**IND:** 16 A @ 120 Vac;8 A @ 240 Vac **Non-IND:** (SPDT) 16 A @ 120 to 277 Vac (SPST) 24 A @ 120 to 277 Vac	**134-1460**

Dimensions



Dimensions shown in inches (mm)

Three-way EP Valves



265-1027
3 EP Valve

265-1021
3 EP Valve

Description

A general purpose, electrically operated, two-position three-way valve designed to control air flow, the 265 Three-Way Valve can be used for interlock between an electrical system and a pneumatic control system; available in open frame (yoke) and junction box (splice box) types.

Features

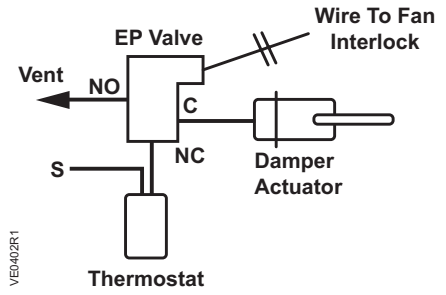
- UL and cUL recognized per UL429
- Valve may be mounted in any position
- Mounting holes provided in the yoke
- Wide selection of AC voltages
- Junction box and open frame types available

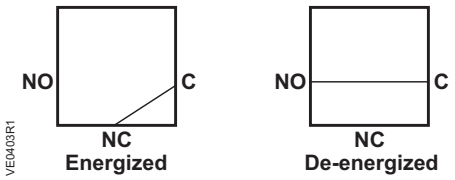
Applications

The 265 EP Three-way Valves are commonly-used to alternately apply pressure to and exhaust pressure from pneumatically-controlled devices, such as valves and damper actuators, by an electrical input energizing or de-energizing the solenoid of the valve.

A standard method is shown in the Application Drawings below. The input air is connected to port 1 (normally closed) and the output is connected to port 3 (common). Thus when the solenoid is energized, port 1 connects to port 3 permitting the thermostat to control the damper actuator. When the solenoid is de-energized, port 2 (normally open) is connected to port 3, exhausting air from the actuator permitting it to return to its normal position.

Application Drawings





Specifications

Ambient Temperature
- Junction Box Type ..... 0° to 100°F (0° to 38°C)
- Open Frame Type ..... 0° to 110°F (0° to 43°C)

Controlled Medium ..... Air only

Maximum Air Pressure ..... 50 psi (207 kPa)

Air Flow Capacity
- Inlet Pressure ..... 20 psi (138 kPa)
- Differential Pressure ..... 1 psi (7 kPa)
- Air Flow ..... 600 scim (164 cm^3/s)

Cv Flow Factor 0.06

Electrical Ratings
- Voltages ..... 24 to 240 Vac
- Power Consumption ..... 6 VA

Mounting Bracket ..... 1 oval and open-ended hole; part of the yoke.

Junction Box ..... NEMA 1 Enclosure

Air Connections ..... Barbed fittings for 1/4" (6 mm) OD tubing

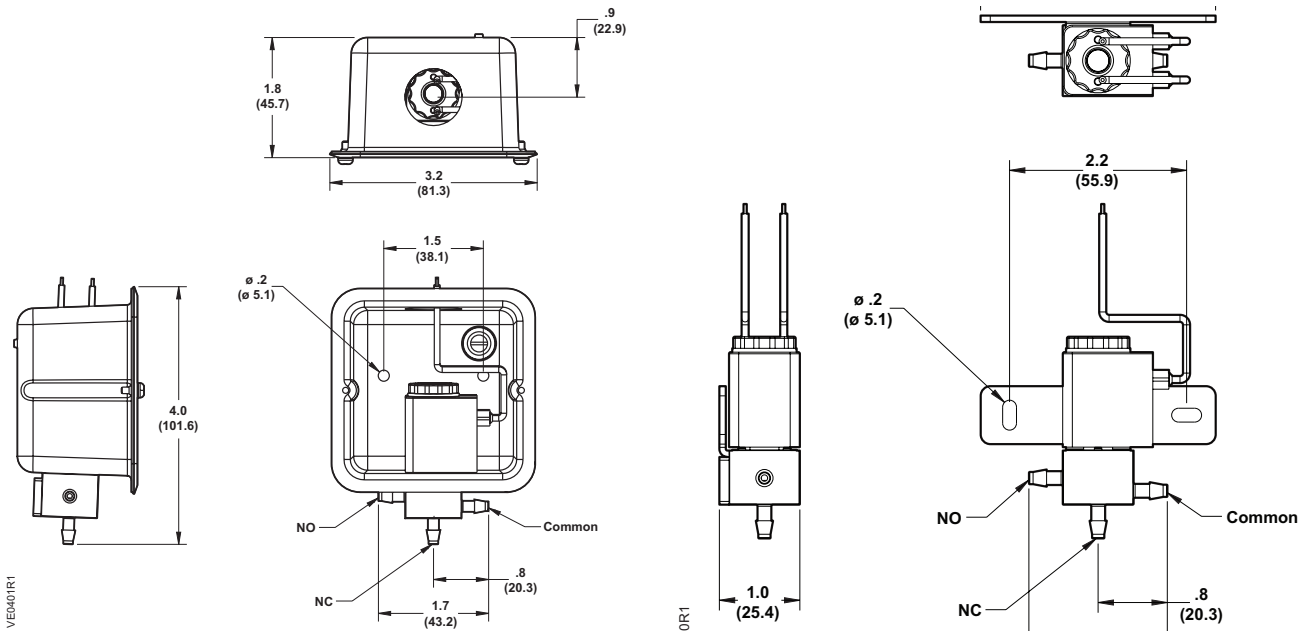
Materials
- Body ..... Glass Filled Thermoplastic
- Internal ..... Buna N, Copper, Stainless Steel

Shipping Weight
- Open Frame Type ..... 0.25 lb. (0.11 kg)
- Junction Box Type ..... 0.50 lb. (0.23 kg)

Product Ordering

AC Voltage		
60 Hz	**50 Hz**	**Part No.**
Junction Box		
24	—	**265-1021**
120	110	**265-1022**
240	220	**265-1024**
Open Frame		
24	—	**265-1027**
120	110	**265-1028**

Dimensions



Dimensions shown in inches (mm)

Multipurpose Relay

243-0009
Multi-purpose Relay

Description

The 243 Multipurpose Relay is pneumatic auxiliary devices designed to provide a variety of pneumatic control functions for the typical control system.

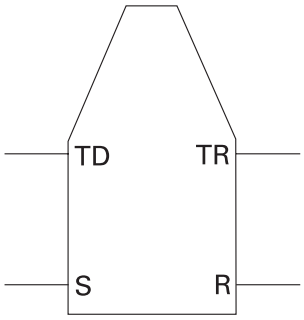
Features

- Use for your most common applications
- High accuracy/repeatability
- Two-valve design prevents constant air loss
- Internal relief mechanism for fail safe operation

Applications

The 243 Multipurpose Relay is used as direct and reverse acting, amplifying, signal advancing, minimum pressure relay, and lower pressure transfer.

Typical Connections



R = output
TD = direct acting input
TR = reverse acting input
S = air supply

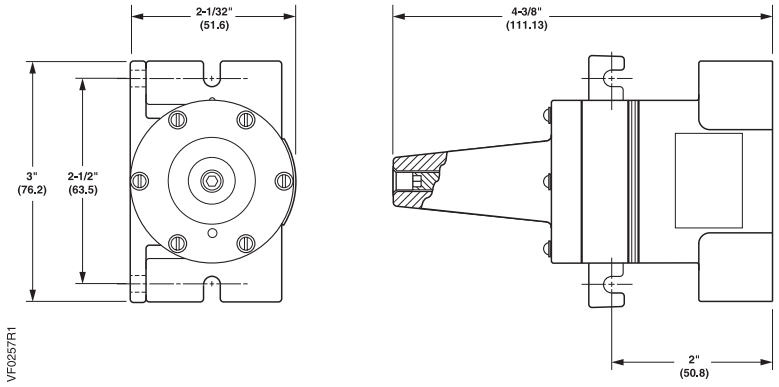
Specifications

Ambient Temperature Range
Operational....40° to 120°F (4° to 49°C)
Storage....-20° to 120°F (-29° to 49°C)
Hysteresis .... 0.25 psi (1.7 kPa)
Relief Valve Differential .... 1.0 psi (6.9 kPa)
Air Capacity .... 400 scim (109 ml/s)
Air Consumption (max.) .... 7 scim (2 ml/s)
Spring Range .... 0 to 25 psi (0 to 172 kPa)
Air Connections.... 1/8" NPT
Spring Adjustment Range .... 25 psi (0 to 172 kPa)
Supply Air
Normal.... 25 psi (172 kPa)
Maximum.... 30 psi (207 kPa)
Shipping Weight ....1.5 lb. (1.35 kg)

Product Ordering

Description	Part No.
Multipurpose Relay	**243-0009**

Dimensions



Dimensions shown in inches (mm)

Balance-retard Relay

243-0010
Balance-retard Relay

Description

The 243 Balance-retard Relay is gradual-acting, pneumatic devices designed to provide special functions such as balancing, signal retard, hesitation, and pressure limiting.

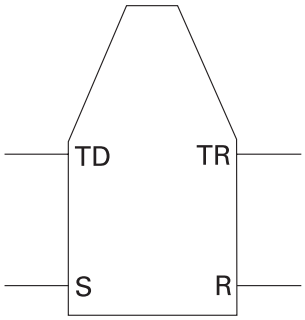
Features

- Internal relief valve for fail-safe operation
- Adjustable retard setting

Applications

The 243 Balance-retard Relay is adjustable and the ports can be pneumatically piped in a variety of different combinations. Each combination represents a relay application that can be used to perform a specific function in a control loop. The relay is factory set for balancing action.

Typical Connections



R = output
TD = direct acting input
TR = reverse acting input
S = air supply

Specifications

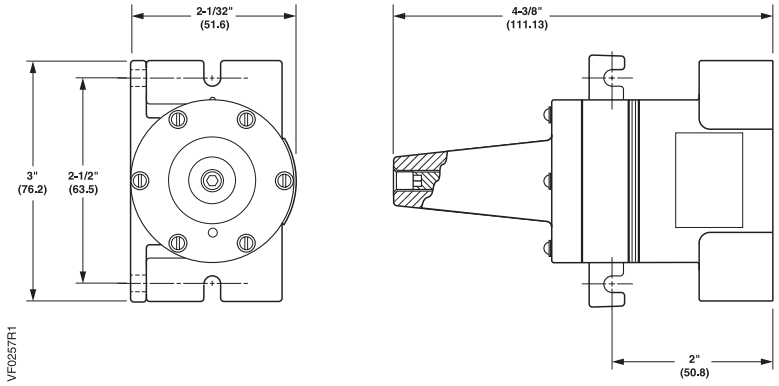
Ambient Temperature Range
Operational....40° to 120°F (4° to 49°C)
Storage....-20° to 120°F (-29° to 49°C)
Hysteresis ....0.25 psi (1.7 kPa)
Relief Valve Differential ....1.0 psi (6.9 kPa)
Air Capacity ....400 scim (109 ml/s)
Air Consumption (max.) ....7 scim (2 ml/s)
Spring Range ....0 to 25 psi (0 to 172 kPa)

Air Connections....1/8" -27 Internally Threaded NPT
Spring Adjustment Range
Balance ....0 to 15 psi (0 to 103 kPa)
Retard....0 to 10 psi (0 to 69 kPa)
Supply Air
Normal....25 psi (172 kPa)
Maximum....30 psi (207 kPa)
Shipping Weight ....1.5 lb. (1.35 kg)

Product Ordering

Description	Part No.
Balance-retard Relay	**243-0010**

Dimensions



Dimensions shown in inches (mm)

Analog Relay

243-0011 Analog Relay

Description

The 243 Analog Relays are pneumatic auxiliary devices designed to assist the engineer in obtaining specialized control action within a pneumatic control system.

Features

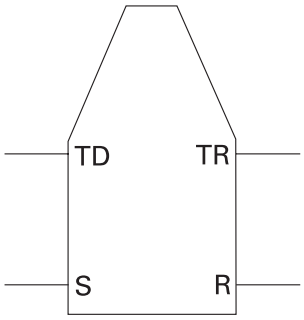
- Multi-function
- Lightweight commercial model with molded barb fittings for 1/8" (3 mm) polyetheylene tubing
- Heavy duty die-cast model with 1/8" NPT ports
- Mounting bracket included with both models; can be mounted in any position

Applications

The 243 Analog Relay is used for amplifying, summing, differential pressure, ratio control higher pressure and signal characterization control. The relay has a two-valve design to ensure stability and prevent unnecessary air consumption.

This relay does not require any adjustment or calibration and can be mounted in any position. An internal relief is provided to assure fail-safe operation on loss of air supply.

Typical Connections



R = output
TD = direct acting input
TR = reverse acting input
S = air supply

Specifications

Air Supply
Normal..... 0 to 25 psi (0 to 172 kPa)
Maximum..... 30 psi (207 kPa)

Ambient Temperature Range
Operating.....40° to 120°F (4° to 49°C)
Storage.....-20° to 120°F (-29° to 49°C)

Hysteresis ..... 0.25 psi (1.7 kPa)

Relief Valve Differential ..... 1.0 psi (6.9 kPa)

Air Capacity ..... 400 scim (109 ml/s)

Air Consumption (max.) ..... 7 scim (2 ml/s)

Mounting .....Integral brackets for wall or panel

Spring Adjustment Range Action .....Gradual

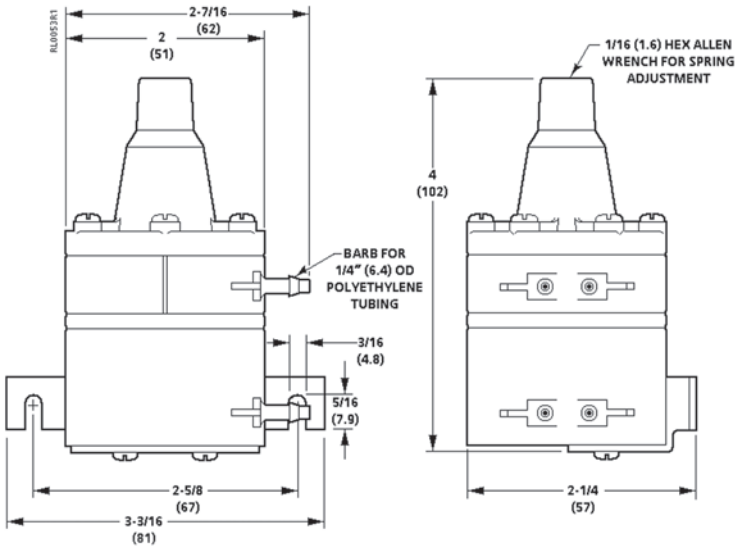
Supply Air
Normal..... 25 psi (172 kPa)
Maximum..... 30 psi (207 kPa)

Shipping Weight .....1.5 lb. (1.35 kg)

Product Ordering

Description	Part No.
Analog Relay	**243-0011**

Dimensions



Dimensions shown in inches (mm)

Switching Relay

243 Switching Relay

Description

The 243 Switching Relay is a compact three-way air valve that can be used to perform a variety of switching and diverting functions.

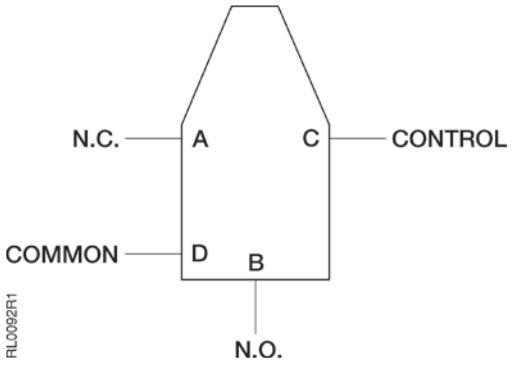
Features

- Adjustable changeover pressure
- Factory calibrated at 9 psi (62 kPa) for most applications
- 1/8" NPT threaded ports

Applications

The 243 Switch Relay action connects common port to either of two other ports.

Typical Connections



When air pressure to the C port is increased, ports A and D are connected. When air pressure to the C port is decreased, ports B and D are connected.

Specifications

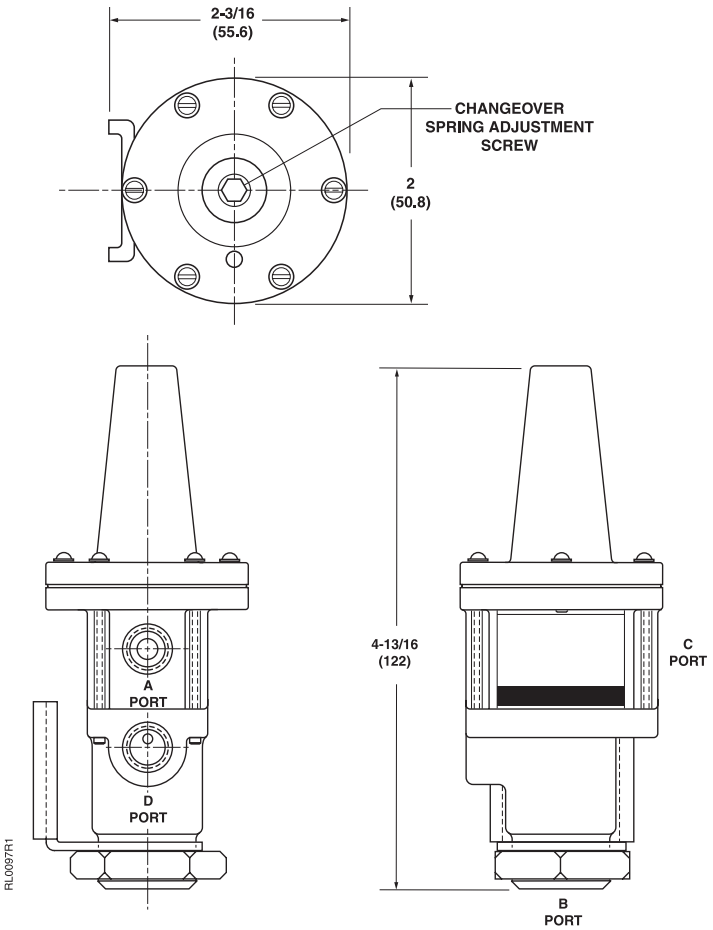
Maximum Instrument Air Supply ..... 30 psi (207 kPa)
Changeover Range ..... 3 to 25 psi (21 to 172 kPa)
Standard Changeover Setting ..... 9 psi (62 kPa)
Changeover Differential (nominal) ..... 1.5 psi (10.3 kPa)
Ambient Temperature
Maximum..... 160°F (71.1°C)
Minimum ..... -20°F (-28.8°C)
Air Connection ..... 1/8" NPT

Adjustable Changeover Range ..... 0 to 25 psi (0 to 172 kPa)
Changeover Differential .....1.5 psi (10 kPa) nominal
Standard Changeover Settings ..... 9 psi (62 kPa)
Nominal Capacity @ 2 psi ΔP
A Port ..... 800 scim
B Port ..... 1100 scim
Shipping Weight .....2.0 lb. (0.9 kg)

Product Ordering

Description	Part No.
Switching Relay	**243-0001**

Dimensions



Dimensions shown in inches (mm)

Reverse Acting Relay

243 Reverse Acting Relay

Description

The 243 Reverse Acting Relay provides a proportional output signal that varies inversely with the input signal. A spring adjustment is provided to allow setting a desired reverse acting schedule required by a particular application.

Features

- Lightweight and compact
- Can be mounted in any position
- Mounting bracket and screws included
- Field adjustable spring range
- Can be used as a signal inverting relay
- Force-balance operation minimizes air consumption
- Internal relief provides fail-safe operation
- Amplifies air volume to minimize system lag

Applications

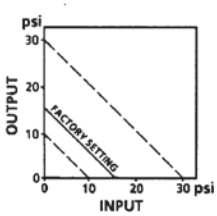
The 243 Reverse Acting Relay has two applications. For both, the supply air pressure must be equal to or greater than the spring setting.

Signal Reverse Acting Relay Application: The relay reverses a controller signal to match the operation of a control element. An increase in input pressure causes equivalent decrease in output pressure.

Signal Inverting Application: A typical application reverses the action of a face and bypass damper actuator on a coil used for both heating and cooling. The output pressure is directly proportional to the input pressure until one-half the spring setting is reached. After this point, the output pressure is inversely proportional to the input until the output reaches zero.

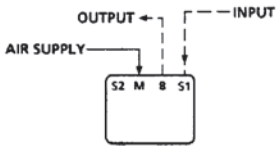
Typical Input/Output Drawings

Reverse Acting Relay Application

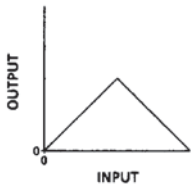


An increase in input pressure causes equivalent decrease in output pressure.

Input S1	Input B
0	15
5	10
10	5
15	0

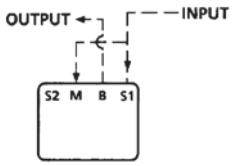


Signal Inverting Application



The output pressure is directly proportional to the input pressure until one-half the spring setting is reached. After this point, the output pressure is inversely proportional to the input until the output reaches zero.

Input S1+M	Output B
3	3
7.5	7.5
12	3
15	0



Key

B	Output Pressure	**S2**	Not Used
M	Supply Air	**SP**	Spring Setting
S1	Input Pressure		

Specifications

Operating Range ..... 0 to 30 psi (0 to 207 kPa)

Adjustment Using 5/64" (2 mm) Hex Wrench
- Range Adjustment ..... 10 to 30 psi (69 to 207 kPa)
- Factory Setting ..... 15 psi (103 kPa)

Maximum Ambient Temperature ..... 104°F (60°C)

Maximum Air Pressure ..... 30 psi (207 kPa)

Air Capacity ..... 230 scim (63 ml/s)

Air Consumption for Air Compressor Sizing ..... 29 scim (8 ml/s)

Material
- Housing ..... Glass-filled Nylon

Air Connections ..... Barbed nipple for 1/4" (6 mm) OD polyethylene tubing

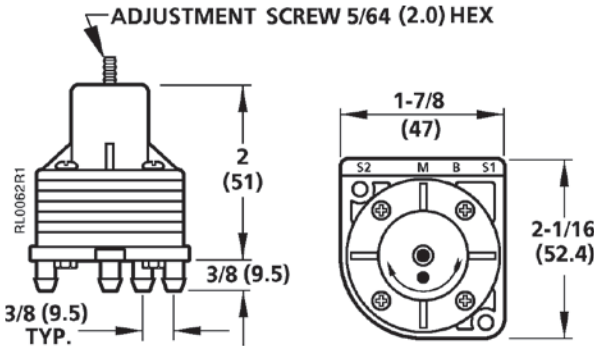
Mounting ..... Mounting bracket included

Shipping Weight ..... 0.27 lb. (0.13 kg)

Product Ordering

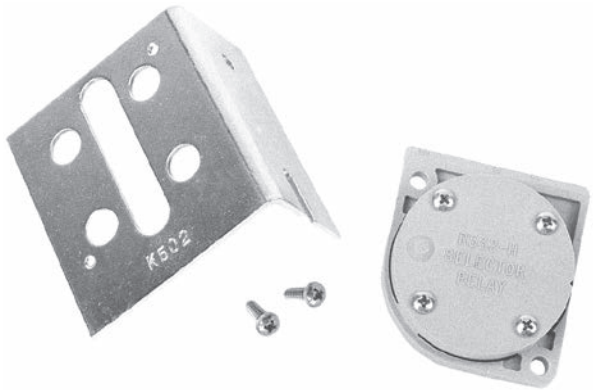
Description	Part No.
Reverse Acting Relay	**243-0024**

Dimensions



Dimensions shown in inches (mm)

Highest Pressure Signal Selector



243 Highest Pressure Signal Selector
and Mounting Bracket

Description

A dual input, single output logic device, the 243 Highest Pressure Signal Selector, is used in pneumatic control systems to compare pressure signals.

Features

- Selects the highest of two input signals
- Small, lightweight
- Mounting bracket provided

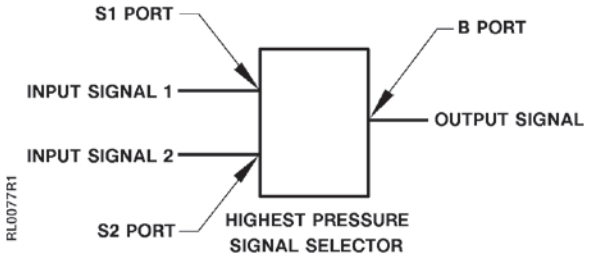
Applications

The 243 Highest Pressure Signal Selector is used where two proportional high capacity air signals (2-pipe thermostat) must be compared and the highest of the two signals transmitted to another logic or final control device.

Recommendation

Use 243-0019 selector to compare more than two inputs.

Typical Connections



Input Signal 2	Input Signal 1	Output Signal
3 psi	15 psi	15 psi
15 psi	3 psi	15 psi
9 psi	9 psi	9 psi

Specifications

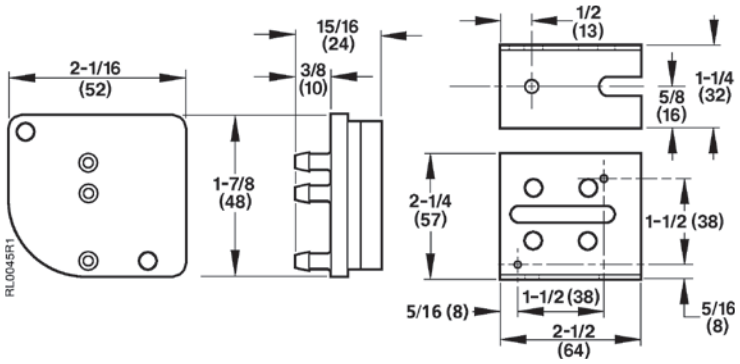
Action ..... Direct
Maximum Air Pressure ..... 30 psi (207 kPa)
Adjustments ..... None
Connections ..... 1/4" (6 mm) OD polyethylene tubing
Operating Ambient Temperature
Minimum ..... 40°F (4°C)
Maximum ..... 140°F (60°C)

Air Consumption ..... None
Air Capacity @ P = 2 psi ..... 130 scim (35 ml/s)
Materials ..... Glass-filled Nylon
Shipping Weight ..... 0.25 lb. (0.10 kg)

Product Ordering

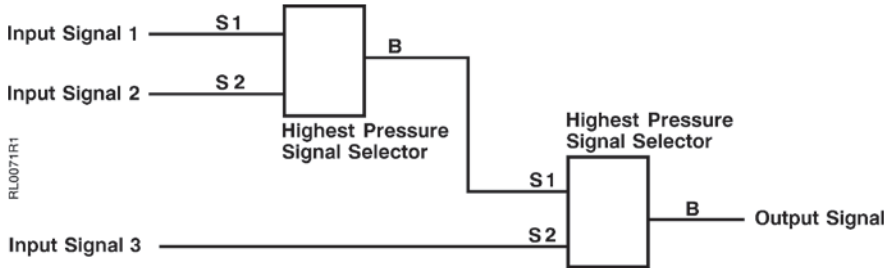
Description	Part No.
Highest Pressure Signal Selector	**243-0018**
If inoperative, replace the unit.	

Dimensions and Engineering Drawings

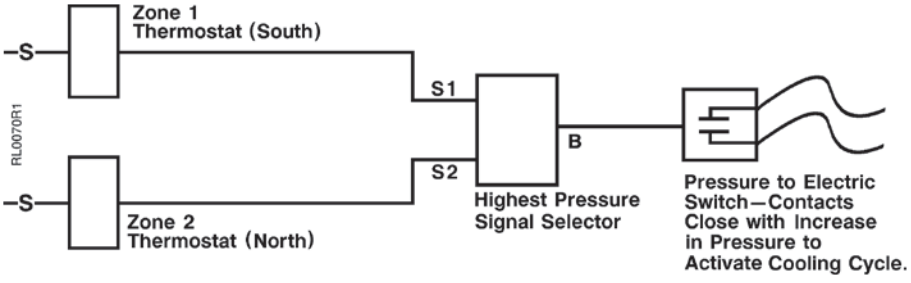


Dimensions shown in inches (mm)

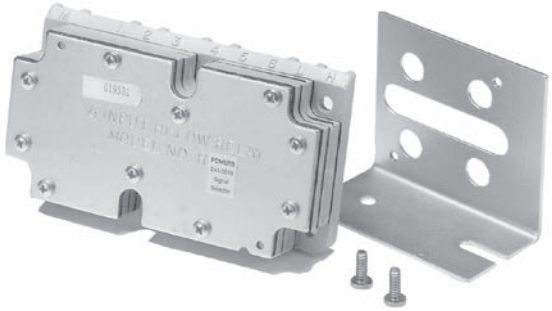
Highest of the Three Signal Pressures.



Single Fan Cooling Control from Two Zone Direct Acting Thermostats.



Lowest and Highest Signal Selector



243 Lowest and Highest Pressure
Signal Selector and Mounting Bracket

Description

The 243 Lowest and Highest Signal Selector is a six-input, dual output logic device for use in pneumatic control systems.

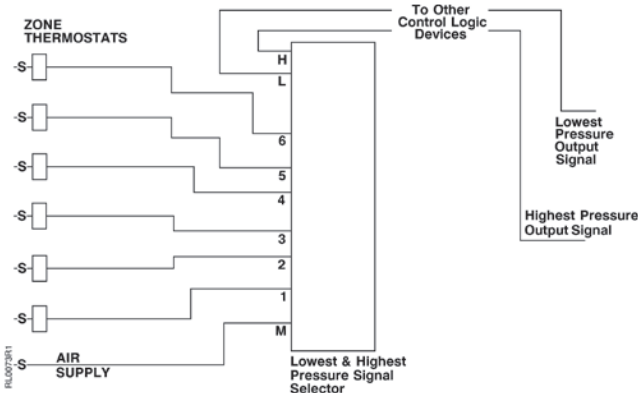
Features

- Accepts up to 6 inputs
- Selects both or highest/lowest signal
- Easily supported in-line or mounted using provided hardware
- Small, lightweight

Applications

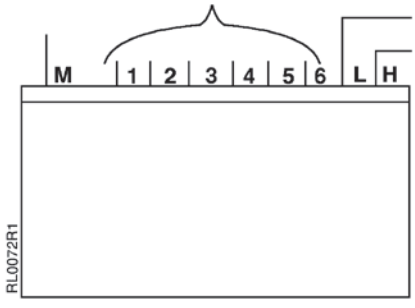
The 243 Lowest and Highest Signal Selector is used where up to six input air signals must be compared and the lowest and/or highest of the signals transmitted to another logic or final control device. Unused input ports must be connected to the highest numbered input port being used. This is a low capacity output device, therefore, an amplifying relay will be required for many applications.

Application Drawing



Typical Connections

Input Port #	Input Signal	Lowest Pressure Output Signal	Highest Pressure Output Signal
1	3 psi	—	—
2	6 psi	—	—
3	9 psi	—	—
—	—	3 psi	15 psi
4	10 psi	—	—
5	13 psi	—	—
6	15 psi	—	—



Specifications

Action ..... Direct

Air Supply Pressure
- Normal Operating ..... 20 psi (138 kPa)
- Maximum ..... 30 psi (207 kPa)

Adjustments ..... None

Connections ..... 1/4" (6 mm) OD polyethylene tubing

Operating Ambient Temperature
- Minimum ..... 40°F (4°C)
- Maximum ..... 140°F (60°C)

Air Consumption ..... 44 scim (12 ml/s)

Air Capacity @ P = 2 psi
- Highest ..... 5 scim (1.4 ml/s)
- Lowest ..... 10 scim (2.7 ml/s)

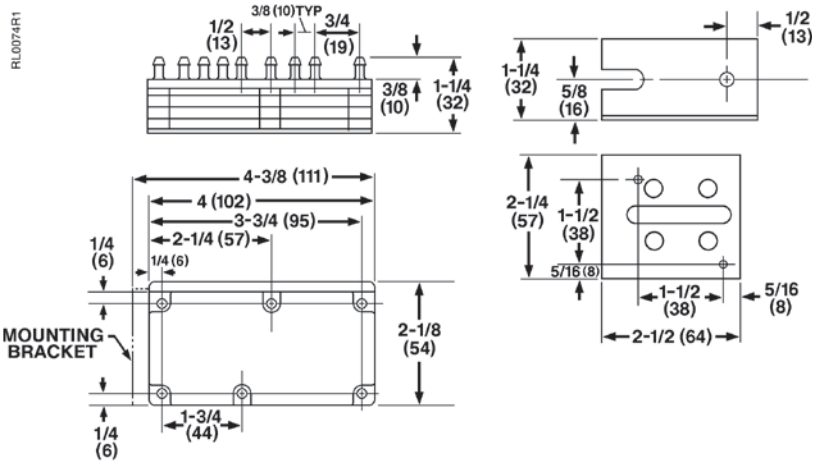
Material ..... Glass-filled Nylon

Shipping Weight ..... 0.63 lb. (0.295 kg)

Product Ordering

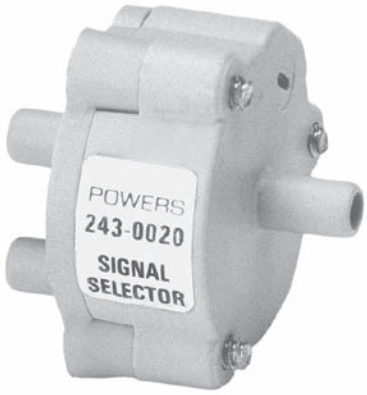
Description	Part No.
Lowest and Highest Signal Selector	**243-0019**
If inoperative, replace the unit.	

Dimensions



Dimensions shown in inches (mm)

Lowest Pressure Signal Selector



243 Lowest Pressure Signal Selector

Description

The 243 Lowest Pressure Signal Selector is a dual input, single output logic device for use in pneumatic control systems.

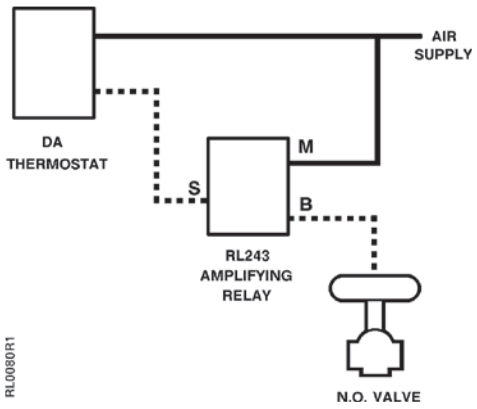
Features

- Small, lightweight
- Can be mounted in any position
- Can be supported by the 1/4-inch (6 mm) poly tubing connected to the input and output fittings
- Can be used as volume amplifying relay
- Cascade multiple selectors for more than two inputs

Applications

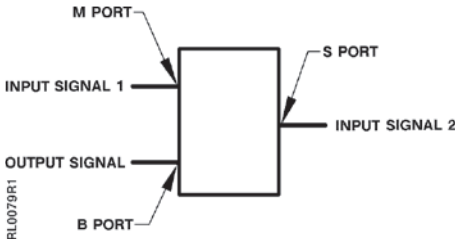
The 243 Lowest Pressure Signal Selector is used where two input air signals must be compared and the lowest of the two signals transmitted to another logic or final control device. The 243 Lowest Pressure Signal Selector can also be used as a direct acting amplifying relay.

Application Drawing



Direct Acting Amplifying Relay.

Typical Connections



Specifications

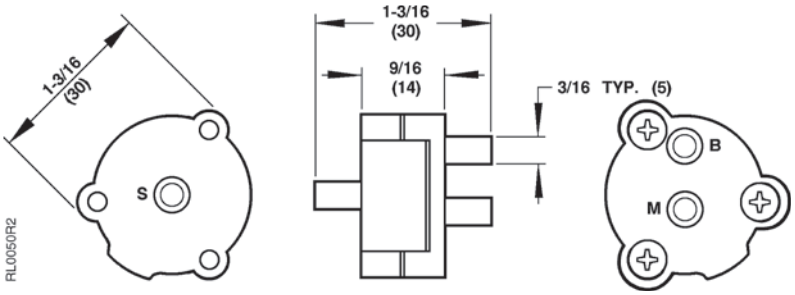
Action ..... Direct
Maximum Pressure ..... 30 psi (207 kPa)
Adjustments ..... None
Connections ..... 1/4" (6 mm) OD polyethylene tubing
Operating Ambient Temperature
Minimum..... 40°F (4°C)
Maximum..... 140°F (60°C)

Air Consumption ..... 29 scim (8 ml/s)
Air Capacity @ P = 2 psi ..... 82 scim (22 ml/s)
Material ..... Glass reinforced nylon
Diaphragm ..... Nylon reinforced fairprene
Mounting ..... In-line
Shipping Weight ..... 0.31 lb. (0.01 kg)

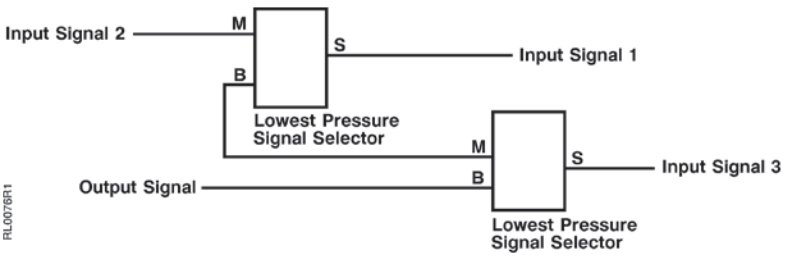
Product Ordering

Description	Part No.
Lowest Pressure Signal Selector	**243-0020**
If inoperative, replace the unit.	

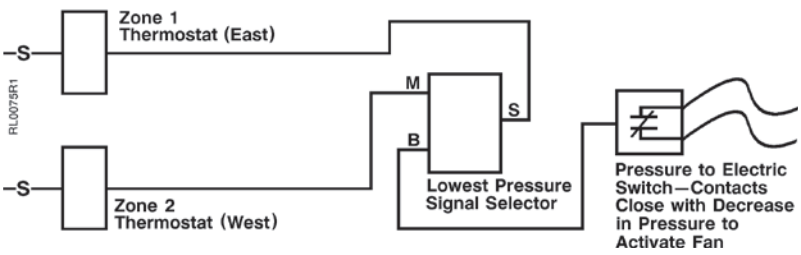
Dimensions and Engineering Drawings



Dimensions shown in inches (mm)

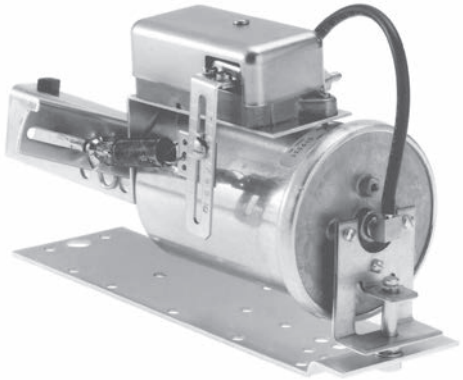


Input Signal 2	Input Signal 1	Output Signal
3 psi	15 psi	3 psi
15 psi	3 psi	3 psi
9 psi	9 psi	9 psi



Lowest of Three Signal Pressures.

Positioning Relay



147 Positioning Relay and Mounting Kit shown on a No. 3 Damper Actuator

Description

The 147 Positioning Relay is a compact pneumatic auxiliary device designed to provide positive positioning of a pneumatic valve or damper actuator.

Features

- Designed to operate at a very low bleed rate to minimize air consumption
- Provides simplified adjustment of both starting pressure and operating span
- Adjustable start point
- Adjustable span
- Rapid response
- Good repeatability
- Consistency of operation

Applications

The 147 Positioning Relay accurately positions damper actuator in response to a control air signal change. Damper actuators that are equipped with a Positioning Relay can use full control air pressure at any point in stem travel to initiate stem movement or to maintain stem position. However, the actuator spring still provides the necessary force to move the stem in the opposite direction.

A mounting kit is required for direct attachment of the relay to a pneumatic damper actuator or valve actuator.

NOTE: Refer to pages B-47 – B-61 for a complete line of pneumatic damper actuators.

Specifications

Ambient Temperature Range
Operating.....35° to 160°F (2° to 71°C)
Storage.....-20° to 160°F (-29° to 72°C)
Maximum Pilot Signal Pressure ..... 30 psi (207 kPa)
Maximum Supply Air Pressure ..... 60 psi (413 kPa)
Start Point Adjustment Range ..... 3 to 10 psi (21 to 69 kPa)
Operating Span Adjustment Range ..... 3 to 12 psi (21 to 83 kPa)
Response ..... 0.10 psi (0.689 kPa) input change

Air Capacity @ ΔP ..... 410 scim (112 ml/s)
Air Consumption .....40 scim (11 ml/s
Air Connections ..... 1/8" NPT
Materials
Body .....Zinc
Cover ..... Steel
Shipping Weight (with mounting kit) .....2.0 lb. (0.9 kg)

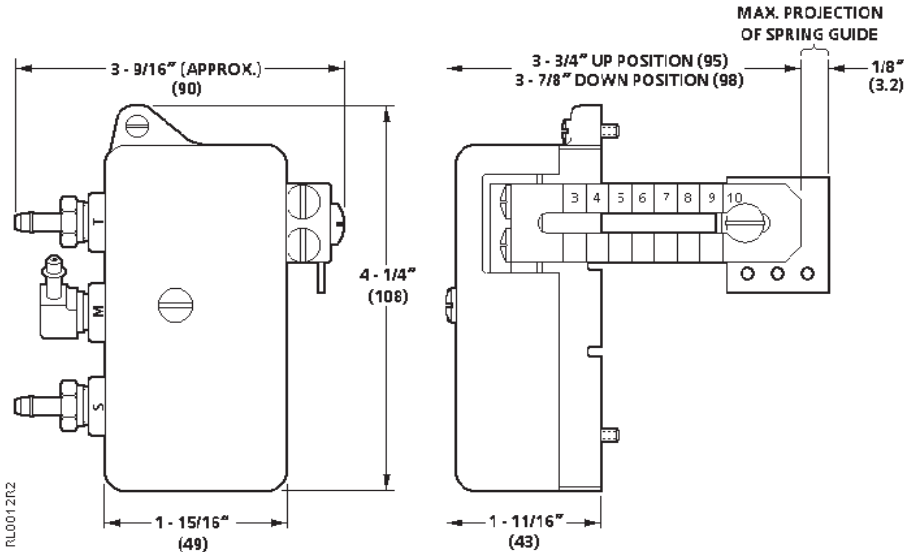
Product Ordering

Description	Part No.	
	Positioning Relay	Mounting Kit
Positioner		
Field mount positioner for No. 3 Damper Actuator mfg. after 1/93	**147-2000**	**147-104**
Field mount positioner for No. 4	**147-2000**	**147-314**
Field mount positioner for No. 6	**147-2000**	**147-276**
8-inch Valve Actuator		
For 599 Series Flowrite actuators mfg. after 3/96	**599-00426**[1]	
For Model 3 Flowrite actuators mfg between 3/93 and 1/96	**147-2000**	**—**
For Models 1 and 2 Flowrite actuators.[2]	**147-2000**	**—**
12-inch Valve Actuator		
For 599 Series Flowrite actuators mfg. after 1/96	**599-00423**[1]	
For Flowrite actuators mfg. between 3/78 and 1/96	**147-2000**	**—**

Ordering Note:

1. Relay and mounting hardware included.
2. Also order spring arm, **147-307**, for use with 591 5 and 6-inch balanced valves.

Dimensions

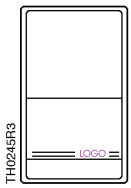
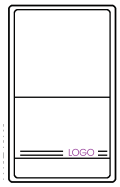
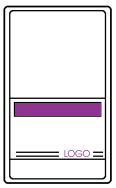
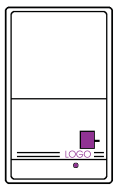
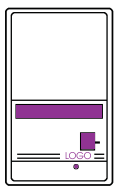
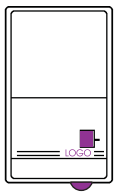
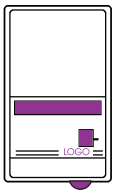


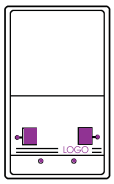
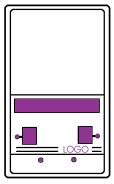
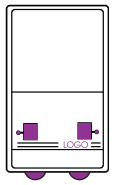
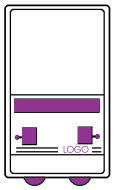
Dimensions shown in inches (mm)

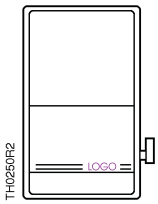
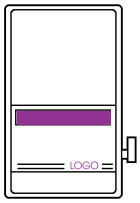
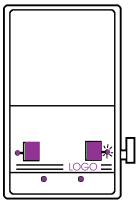
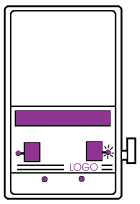
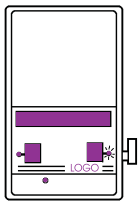
Table of Contents

(Continued on next page)

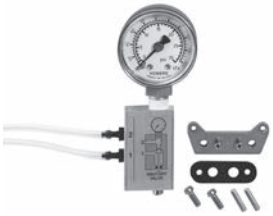
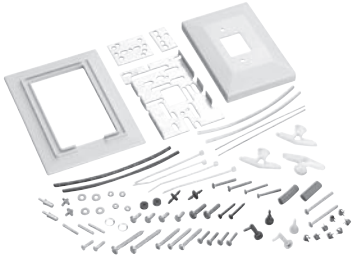
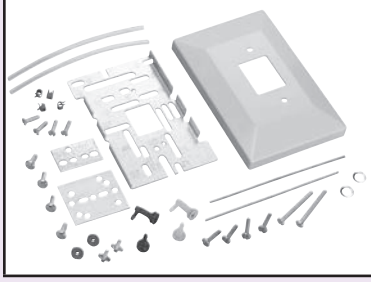
Accessories & Service Kits

	Pneumatic Thermostat Cover Feature Description *(Sold Separately)*	Fits Models			Part No. Quantity 1 (each)	
		192 S	192 HC	193 HC	Plastic Beige	Plastic White
Single Setpoint 192 Series Pneumatic Thermostat Covers						
	**"No-Access" Blank Cover without Logo** • Setpoint Adjustment Knob – Concealed • Setpoint Key Adjustment Port – Concealed • Setpoint Indicator Dial – Concealed • Thermometer on Thermostat – Concealed • Logo – None	●	●	●	192-257	192-257W
	**"No-Access" Blank Cover with Logo** • Setpoint Adjustment Knob – Concealed • Setpoint Key Adjustment Port – Concealed • Setpoint Indicator Dial – Concealed • Thermometer on Thermostat – Concealed • Logo – POWERS	●	●	●	192-256	192-256W
	**"No-Access" Cover with Thermometer** • Setpoint Adjustment Knob – Concealed • Setpoint Key Adjustment Port – Concealed • Setpoint Indicator Dial – Concealed • Thermometer on Thermostat – Exposed • Logo – POWERS	●	●	●	192-254	—
	**Key Setpoint Adjust with Setpoint Indicator** • Setpoint Adjustment Knob – Concealed • Setpoint Key Adjustment Port – Exposed • Setpoint Indicator Dial – Exposed • Thermometer on Thermostat – Concealed • Logo – POWERS *Use with 1/2" diameter setpoint knob stats ("K" suffix)*	●			192-265	—
	**Key Setpoint Adjust, Setpoint Indicator, Thermometer** • Setpoint Adjustment Knob – Concealed • Setpoint Key Adjustment Port – Exposed • Setpoint Indicator Dial – Exposed • Thermometer on Thermostat – Exposed • Logo – POWERS *Use with 1/2" diameter setpoint knob stats ("K" suffix)*	●			192-266	192-266W
	**Full Access, Setpoint Adjust Knob, Setpoint Indicator** • Setpoint Adjustment Knob – Exposed • Setpoint Key Adjustment Port – Concealed • Setpoint Indicator Dial – Exposed • Thermometer on Thermostat – Concealed • Logo – POWERS	●			192-250	192-250W
	**Full Access, Setpoint Adj Knob, Indicator, Thermometer** • Setpoint Adjustment Knob – Exposed • Setpoint Key Adjustment Port – Concealed • Setpoint Indicator Dial – Exposed • Thermometer on Thermostat – Exposed • Logo – POWERS	●			192-252	192-252W

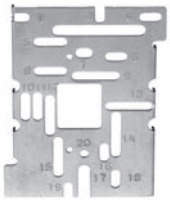
	Pneumatic Thermostat Cover Feature Description *(Sold Separately)*	Fits Models		Part No. Quantity 1 (each)	
		192 HC	193 HC	Plastic Beige	Plastic White
Dual Setpoint 192 Series Pneumatic Thermostat Covers					
	**Key Setpoint Adjust with Setpoint Indicator** • Setpoint Adjustment Knobs – Concealed • Setpoint Key Adjustment Ports (both) – Exposed • Setpoint Indicator Dials (both) – Exposed • Thermometer on Thermostat – Concealed • Logo – POWERS *Use with 1/2" diameter setpoint knob stats ("K" suffix)*	●	●	**192-267**	—
	**Key Setpoint Adjust, Setpoint Indicator, Thermometer** • Setpoint Adjustment Knobs – Concealed • Setpoint Key Adjustment Ports (both) – Exposed • Setpoint Indicator Dials (both) – Exposed • Thermometer on Thermostat – Exposed • Logo – POWERS *Use with 1/2" diameter setpoint knob stats ("K" suffix)*	●	●	**192-268**	—
	**Full Access, Setpoint Adjust Knob, Setpoint Indicator** • Setpoint Adjustment Knobs (both) – Exposed • Setpoint Key Adjustment Ports – Concealed • Setpoint Indicator Dials (both) – Exposed • Thermometer on Thermostat – Concealed • Logo – POWERS	●	●	**192-258**	—
	**Full Access, Setpoint Adj Knob, Indicator, Thermometer** • Setpoint Adjustment Knobs (both) – Exposed • Setpoint Key Adjustment Ports – Concealed • Setpoint Indicator Dials (both) – Exposed • Thermometer on Thermostat – Exposed • Logo – POWERS	●	●	**192-260**	—

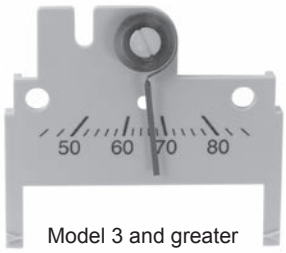
	Pneumatic Thermostat Cover Feature Description *(Sold Separately)*	Fits Model	Part No. Quantity 1 (each)	
		192 DN, DNV	Plastic Beige	Plastic White
Day-Night-Vent 192 Series Pneumatic Thermostat Covers				
 TH0250R2	**"No-Access" Blank Cover with D/N Switch** • Setpoint Adjustment Knobs – Concealed • Setpoint Key Adjustment Ports – Concealed • Setpoint Indicator Dials – Concealed • Thermometer on Thermostat – Concealed • Logo – POWERS	●	**192-262**	**192-262W**
	**"No-Access" Cover with Thermometer and D/N Switch** • Setpoint Adjustment Knobs – Concealed • Setpoint Key Adjustment Ports – Concealed • Setpoint Indicator Dials – Concealed • Thermometer on Thermostat – Exposed • Logo – POWERS	●	**192-264**	—
	**Key Setpoint Adjust with Setpoint Indicator, D/N Switch** • Setpoint Adjustment Knobs – Concealed • Setpoint Key Adjustment Ports (both) – Exposed • Setpoint Indicator Dials (both) – Exposed • Thermometer on Thermostat – Concealed • Logo – POWERS *Use with 1/2" diameter setpoint knob stats ("K" suffix)*	●	**192-269**	—
	**Key Setpoint Adjust with Indicator, Thermometer, D/N** • Setpoint Adjustment Knobs – Concealed • Setpoint Key Adjustment Ports (both) – Exposed • Setpoint Indicator Dials (both) – Exposed • Thermometer on Thermostat – Exposed • Logo – POWERS *Use with 1/2" diameter setpoint knob stats ("K" suffix)*	●	**192-270**	—
	**Key Setpoint Adjust, Indicator, Thermometer, D/N Switch** • Setpoint Adjustment Knob – Concealed • Setpoint Key Adjustment Port (night only) – Exposed • Setpoint Indicator Dial (both day & night) – Exposed • Thermometer on Thermostat – Exposed • Logo – POWERS *Use with 1/2" diameter setpoint knob stats ("K" suffix)*	●	**192-271**	—

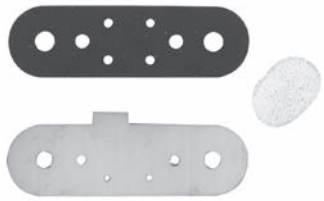
	Description	Product Group	Quantity	Part No.
All Models				
	**Calibration Gauge** • 0 to 30 psi (0 to 207 kPa) • Dual scale in psi/kPa • 1% accuracy (ANSI grade 1A) • 2-1/2" (64 mm) dial face • 1/8" NPT bottom connection *(See POWERS™ installation guide #144-133)*	All models	1	**142-0455**
	**Calibration Thermometer** • 40 to 140°F (4 to 60°C), 1% accuracy • With pocket case and clip *(See POWERS™ installation guide #144-133)*	All models	1	**141-0573**
	**Lockable Thermostat Guard** • Clear cover locking guard • Clear plastic locking ring base • Desert beige locking mounting base • One key and mounting screws included *(See technical instruction # 155-723)*	Any Siemens Thermostat	1	**141-570**
POWERSTAR™				
	**Pressure Gauge** • Dual scale 0 to 30 psi (0 to 200 kPa) • Compound gauge • Back connected 1/8" NPT Externally Threaded *(See technical instruction #155-025)*	19X 356 184 195	1	**142-0473**
	**Pressure Gauge** • 0 to 30 psi compound gauge • Bottom connected 1/8" NPT NPT Externally Threaded • Replacement gauge or use with #192-633 *(See technical instruction #155-025)*	19X 356	1	**142-0476**
	**Needle Probe Kit** • 1-1/2" (38 mm) diameter gauge • 0 to 30 psi (0 to 200 kPa) • Calibration cover wrench *(See POWERS™ installation guide #144-133)*	19X 356	1	**192-633**
	Needle Probe Only • No gauge or cover wrench	19X 356	Pkg of 5	**192-759**
	**Pneumatic Thermostat Calibration Kit** Contains thermometer, gauge squeeze bulb, and fittings for testing room and duct thermostats, pneumatic valve and damper actuators. Includes convenient carrying case. Includes tools contained in 832-178. *(See technical bulletin # 155-253P25)* *(See POWERS™ installation guide #144-133)*	19X 180 182	1	**832-177**

	Description	Product Group	Quantity	Part No.
POWERSTAR™				
	**Calibration Tools** Special tools for calibrating 180, 182, 192, and 832 thermostats. Packed in polyethylene box that fits into carrying case of kit, 832-177 *(See technical bulletin # 155-253P25)* *(See POWERS™ installation guide #144-133)*	192 180 182	1	**832-178**
	**Test Head Kit** Used for testing 1-pipe transmitters, thermostat air lines for leakage. Packed in polyethylene box that fits into carrying case of kit, 832-177. *(See technical bulletin #155-255P25)* *(See POWERS™ installation guide #144-133)*	192 180 182	1	**832-179**
	**192 Series Pneumatic Thermostat Calibration and Cover Screw Wrench** • With pocket clip • 1/16” hex with ball end	19X	Pkg of 5	**192-632**
	**Stud Mounting Bracket** • 6' (2 m) L. Cut to required length	192	1	**141-098**
	**Universal Kit** • Retrofit thermostats including Honeywell, Johnson Controls, and others • Desert beige color	19X	1	**192-300**
	Universal Kit in White Color	19X	1	**192-300W**
	(See technical bulletins #155-231P25, #155-244P25) *(See installation instruction #129-116)*			
	**Honeywell Kit** • Fits Honeywell and others • Desert Beige color *(See technical bulletins #155-231P25, #155-244P25, #155-210P25)* *(See installation instruction #129-116)*	19X	1	**192-483**
	**Johnson Kit** • Retrofit to 19X thermostat. Fits Johnson Controls and others • Desert beige *(See technical bulletins #155-231P25, #155-244P25)*	19X	1	**192-484**

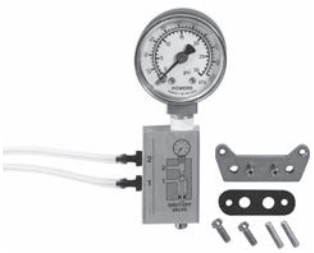
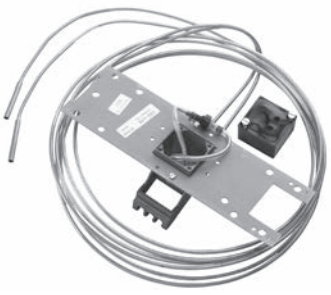
	Description	Product Group	Quantity	Part No.
POWERSTAR™				
	**1- or 2-pipe; split for 3-pipe** Dual 1/4" (6 mm) OD polyethylene with plug-in adapters. 10' (2 m) long. *(See technical bulletin #155-244P25 for products 192-600)*	19X	1	**192-600**
	**Preassembled Plastic Tubing Loop** 8" (203 mm) long, with anti-kink spring, plug-in thermostat adapter. Mates to 1/4" (6.4 mm) OD polyethylene tube barbed fitting. *(See technical bulletin #155-244P25)* *(See installation instruct. #129-072, #129-056)*	19X	Pkg of 10	**192-481**
	**Preassembled Plastic Tubing Loop** 8" (203 mm) long, with anti-kink spring, thermostat plug-in adapter. Mates to 5/32" (4 mm) OD polyethylene tubing. *(See technical bulletin #155-244P25)*	19X	Pkg of 10	**192-505**
	**Preassembled Plastic Tubing Loop** 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. *(See technical bulletin #155-244P25)* *(See installation instruction #129-131)*	19X 184	Pkg of 10	**180-896**
	**20 scim (5 ml/s) In-line Restrictors** *(See technical instructions #155-213)*	192 184	Pkg of 5	**184-116**
	**20 scim (5 ml/s) Restrictor Tee** *(See technical instructions #155-213)*	192 184	Pkg of 5	**184-113**

	Description	Product Group	Quantity	Part No.
POWERSTAR™				
	**Adapter Base** • 3.38" W x 5.69" H (86 mm W x 18 mm H)			
	• Desert Beige (standard)	19X	1	**192-307**
	• White *(See technical bulletin #155-244P25)*	19X	1	**192-307W**
	**Adapter Frame** • 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	**192-308**
	• White *(See technical bulletin #155-244P25)* *(See installation instructions #129-116)*	19X	1	**192-308W**
	**Multi-Slotted Plate** Use with adapter bases. Not for use with thin profile adapter base.	19X	1	**192-301**
	**Thin Profile Adapter Base** • Measures 3.38" x 4.97" H (86 mm x 126 mm) • Desert Beige (standard) *(See technical bulletin #155-244P25)*	19X	Pkg of 5	**192-507**
	**Extra Wall Plate and Mounting Screws** Order only if required for repair or advance mounting prior to factory delivery for chassis (chassis P/N includes wall plate and screws). *(See technical bulletin #155-244P25)*	19X	1	**192-644**

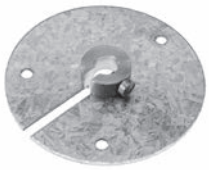
	Description	Product Group	Quantity	Part No.
POWERSTAR™				
	**Retrostat Plastic Thermostat Cover Kit** With dial plates that expose or conceal the setpoint indicator and/or thermometer. Thumb wheel covers to conceal setpoint adjustment. Snap-out tab for Day/Night lever.			
	• Desert Beige (standard)	19X	1	**192-868**
	• White *(See installation instructions #129-144)*	19X	1	**192-868W**
	**Gym Guards** • Desert Beige *(See technical instructions #155-222P25)*	19X DN or DNV	1	**182-624**
	**Lockable Wall Box** *(See installation instructions #129-450)* *(See technical instructions #155-222P25, #155-723)*	Any Siemens Thermostat	1	**141-570**
 Model 3 and greater	**Thermostat Thermometer Kits** • Scale Range: 45 to 85°F • Use with Model 3 and greater	19X	Pkg of 5	**192-786**
	• Scale Range: 10 to 30°C • Use with Model 3 and greater	19X	Pkg of 5	**192-785**
	**Setpoint Dials** Fahrenheit of D.A. Right Side	19X	Pkg of 10	**192-779**

	Description	Product Group	Quantity	Part No.
POWERSTAR™				
	**Plug-in Adapters** For quick thermostat removal. Fits on 5/32" (4 mm) OD polyethylene tubing. Use with compression rings, listed below.			
	• Straight, blue	19X	Pkg of 20	**192-485**
	• Straight, white	19X	Pkg of 20	**192-486**
	(See technical bulletin #155-244P25, #155-210P25)			
	**Plug-in Adapters (Elbow)**			
	• Blue (provides quick thermostat removal)	19X	Pkg of 20	**192-487**
	• White (provides quick thermostat removal)	19X	Pkg of 20	**192-488**
	(See technical bulletin #155-244P25)			
	**Restrictor Plate Replacement Kit** Contains replacement filters, restrictor plates, and gaskets. *(See technical instructions #155-213)* *(See installation instructions #129-067, #129-085)*	19X	Material for 10 thermostats	**192-321**

	Description	Product Group	Quantity	Part No.
POWERS™ Pneumatic Room Thermostats				
	**Adjustment Key** • Opens Powers cover and changes setpoint *(See technical instructions #155-072P25)* *(See installation instructions #129-427)*	832D 832DN	1	**856-055**
	**"D" Thermostat Friction Knob** *(See technical instructions #155-072P25)*	832	1	**833-033**
	**"D" Thermostat Replacement Unit** • Contains chassis only *(See installation instructions #129-427)* *(See technical instructions #155-072P25)*	832D	1	**832-040**

	Description	Product Group	Quantity	Part No.
POWERS™ Pneumatic Room Thermostats				
	**Pneumatic Thermostat Calibration Kit** Contains thermometer, gauge squeeze bulb, and fittings for testing room and duct thermostats, pneumatic valve and damper actuators. Includes convenient carrying case. Includes tools contained in 832-178. *(See technical bulletin #155-253P25)* *(See installation instructions #129-427)*	19X	1	**832-177**
	**Calibration Tools** Special tools for calibrating 180, 182, 192, and 832 thermostats. Packed in polyethylene box that fits into carrying case of kit, 832-177. *(See installation instructions #129-427)* *(See technical bulletin #155-253P25, #155-254P25)*	19X	1	**832-178**
	**Test Head Kit** Used for testing 1-pipe transmitters, thermostat air lines for leakage. Packed in polyethylene box that fits into carrying case of kit, 832-177. *(See technical bulletin #155-255P25)*	19X	1	**832-179**
	**Wall Box Rough-In** 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. *(See technical bulletin #155-331, #155-210P25, #155-244P25)*	19X 186	1	**192-478**

	Description	Product Group	Quantity	Part No.
POWERS CONTROLS™ Unit Mounted, High/Low Detection Thermostats				
	**Remote Bulb Duct Mounting Kit** *(See technical instructions #155-071P25)* *(See installation instructions #129-323)*	188 134	1	**808-517**
	**Capillary Clip** *(See installation instructions #129-166)* *(See technical instructions #155-071P25)*	134 357	Box of 100	**7421700060**
	**Electric Thermostat Guard** 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. *(See technical instructions #155-017P25)*	134	1	**134-117**
	**Lockable Thermostat Guard** *(See technical instruction # 155-723)*	Any Siemens Thermostat	1	**141-570**

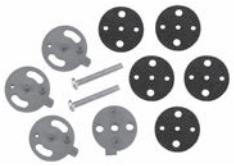
	Description	Product Group	Quantity	Part No.
LIMITEM™ Rigid Duct and Remote Bulb Thermostats				
	**Coil Clip**	357	1	**356-115**
	**Capillary Clip** *(See installation instructions #129-166)* *(See technical instructions #155-071P25)*	134 357	Box of 100	**7421700060**
	**Flange Kit** *(See technical bulletin #155-209P25)* *(See installation instructions #129-166)*	356	1	**808-412**
	**Allen Wrench Kit** (pack of 5)	356 357	5	**192-623**
	**Pressure Gauge** • 0 to 30 psi compound gauge • Bottom connected 1/8" NPT Externally Threaded • Replacement gauge or use with #192-633 *(See technical instruction #155-025)*	19X 356	1	**142-0476**
	**Pressure Gauge** • Dual scale 0 to 30 psi (0 to 200 kPa) • Compound gauge • Back connected 1/8" NPT Externally Threaded *(See technical instruction #155-025)*	356 19X 184 195	1	**142-0473**
	**Needle Probe Kit** • 1-1/2" (38 mm) diameter gauge • 0 to 30 psi (0 to 200 kPa) • Calibration cover wrench *(See POWERS™ installation guide #144-133)*	19X 356	1	**192-633**
	Needle Probe Only • No gauge or cover wrench	19X 356	Pkg of 5	**192-759**

	Description	Product Group	Quantity	Part No.
POWERS™ Receiver-Controllers				
	**Setpoint Dial Sheets** • Direct Acting and Reverse Acting	195	4 Sheets	**195-130**

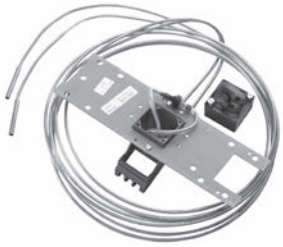
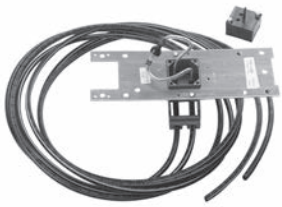
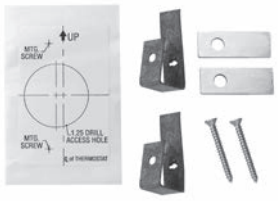
English Units	Metric Units	Scale ID
-40 to +120°F	-40 to +50°C	**A**
50 to 100°F	10 to 38°C	**B**
80 to 240°F	26 to 117°C	**C**
20 to 80% RH	-18 to +38°C	**D**
0 to 100°F	1 to 58°C	**E**
35 to 135°F	0 to 750 Pa	**F**
0 to 3 W.G.	0 to 3.75 kPa	**G**
0 to 15 W.G.	20 to 80% RH	**H**
0 to 0.5 W.G.	0 to 125 Pa	**J**
Blank 10 divisions	Blank 9 divisions	**K (DA)**
Blank 16 divisions	Blank 11 divisions	**K (RA)**
-0.05 to ±0.2" W.G.	-12.5 to +50 Pa	**L**
-0.5 to +0.5" W.G.	-125 to +125 Pa	**M**
0 to 10" W.G.	0 to 2.5 kPa	**N**
Blank 20 divisions	Blank 15 divisions	**P**
0 to 50 psi	0 to 345 kPa	**R**
50 to 150°F	10 to 66°C	**S**
40 to 240°F	4 to 116°C	**T**
-40 to +160°F	-40 to +71°C	**V**
30 to 190°F	-1 to +88°C	**W**

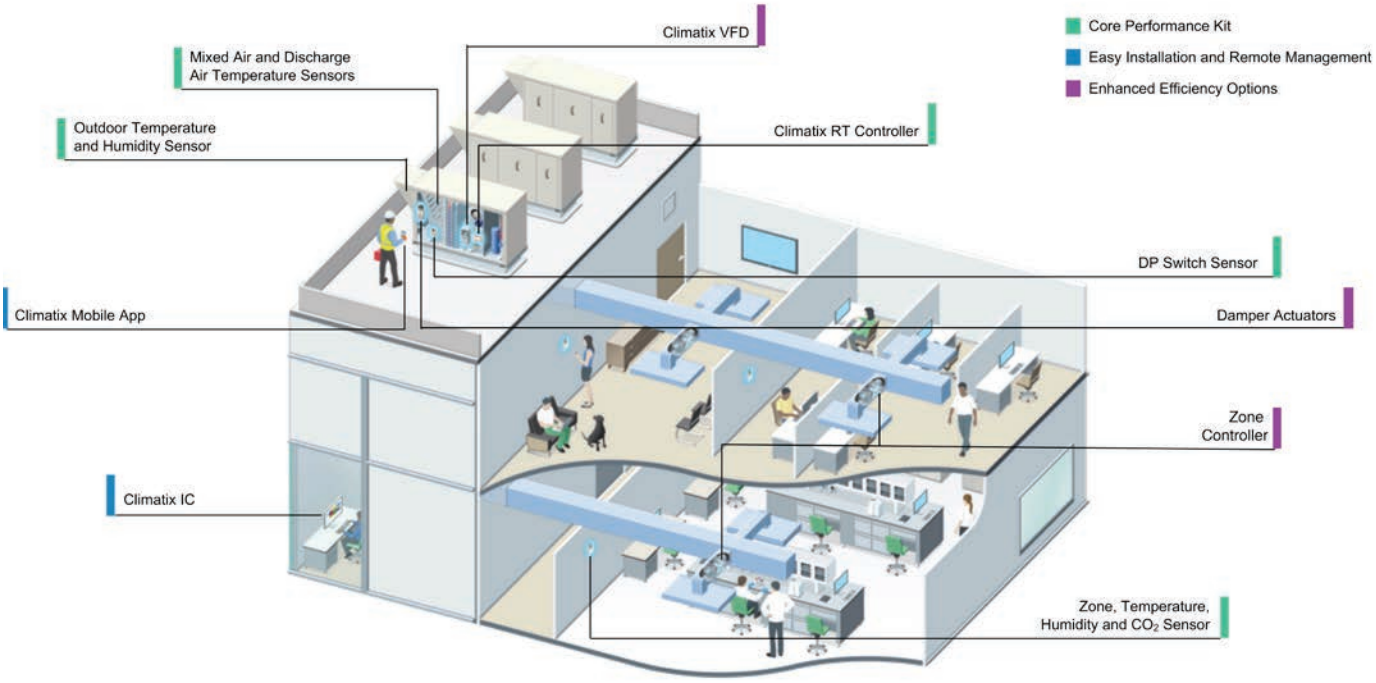
Ordering Notes:
• Add Scale ID as suffix to Part No. • Indicate English or Metric units

(See technical instructions #155-036P25) *(See installation instructions #129-122)*

	**Receiver-Controller Restriction Kit** Includes three input restriction plates, one pilot relay restriction plate, gaskets, and two screws. *(See technical instructions #155-213)* *(See installation instructions #129-084)*	195	1 Kit	**195-066**
	**Receiver-Controller Connector Kit** Includes two plug-in connector assemblies, one 3-barb input connector assembly. Multiple-Input. *(See installation instructions #129-084)* *(See technical instructions #155-036P25)*	195	1 Kit	**195-067**
	**Pressure Gauge** • Dual scale 0 to 30 psi (0 to 200 kPa) • Compound gauge • Back connected 1/8" NPT Externally Threaded *(See technical instruction #155-025)*	195 19X 356 184	1	**142-0473**

	Description	Product Group	Quantity	Part No.
POWERS RETROLINE™ Pneumatic Temperature Transmitters				
	**20 scim (5 ml/s) In-line Restrictors** *(See technical instructions #155-213)*	192 184	Pkg of 5	**184-116**
	**20 scim (5 ml/s) Restrictor Tee** *(See technical instructions #155-213)*	192 184	Pkg of 5	**184-113**
	**Preassembled Plastic Tubing Loop** 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. *(See technical bulletin #155-244P25)* *(See installation instruction #129-131)*	184 19X	Pkg of 10	**180-896**
	**Pressure Gauge** • Dual scale 0 to 30 psi (0 to 200 kPa) • Compound gauge • Back connected 1/8" NPT NPT Externally Threaded *(See technical instruction #155-025)*	184 19X 356 195	1	**142-0473**
Static Pressure Sensor Probe Accessories				
	**Static Pressure Sensor Probe** *(See technical instructions #155-052P25)*	141	1	**269-062**
	**Static Pressure Probe Kit** *(See technical instructions #155-061P25)*	SW269	1	**189-142**
Multiple Applications				
	**Copper to Polyethylene Tubing Adapters** 24" length. Adapts 1/4" (6 mm) OD polyethylene tubing to 1/4" (6 mm) OD copper tubing. Eliminates the need for compression fitting. *(See installation instructions #129-192)*	Multiple Applications	Package of 50	**141-426**

	Description	Product Group	Quantity	Part No.
Air Station Equipment				
	**Air Filter Replacement Element** • For use with 908-051 *(See installation instructions #129-288)* *(See technical instructions #155-312P25)*	Air Station Equipment	1	**908-052**
	**Cartridge Kit** For use with 1 908-046 Filter. 500 scim (137 ml/sec) with 25 psi (127 kPa) supply for oil removal.	Air Station Equipment	1	**908-042**
Pneumatic Room and Duct Hygrostats				
	**Wall Box Rough-In** 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. *(See technical bulletins #155-244P25, #155-210P25)*	19X 832 186	1	**192-478**
	**Wall Box Rough-In** 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. *(See technical bulletins # 155-244P25, #155-210P25)*	19X 186	1	**192-480**
	**Mounting Clips, Spacer and Template for Finished Drywall** *(See technical bulletin #155-244P25)* *(See installation instructions #129-056, #129-131)*	19X	Package of 10	**182-685**
	**Metal/Wood Stud Bracket** • Drywall rough-in *(See technical bulletins #155-244P25, #155-210P25)* *(See installation instruction #129-072)*	19X 186	Package of 5	**182-683**
	**Dual 1/8" (3 mm) OD Copper Tubing with Plug-in Adapters** • For 1- or 2-pipe. Split for 3-pipe *(See technical bulletin #155-210P25, #155-244P25)*	186	1	**192-479**



Climatix RTU Solution — **Designed to make contractors more efficient and faster**

The Climatix RTU solution is designed to be used with minimal interaction. The kit you order includes the Climatix RT controller paired with zone sensors for demand-controlled ventilation plus sensors for temperature, humidity and differential pressure. This kit addresses core RTU performance optimization. You have the option to include the Climatix VFD for enhanced efficiency and damper actuators for reliable, long-lasting fresh air management.

Visit usa.siemens.com/rtu to learn more.

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SIEMENS

Table of Contents

Climatix RTU Overview

Climatix Rooftop Unit Optimization Solution

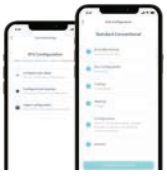
No matter the age of the equipment, optimizing RTU performance is essential to prevent smaller issues from becoming larger problems. Rooftop units may be out of sight, but shouldn't be out of mind.

Equipment performance declines over time without proper attention leading to poor indoor air quality, poor temperature management, nuisance noise, escalating energy bills and unexpected system downtime with more costly repairs.

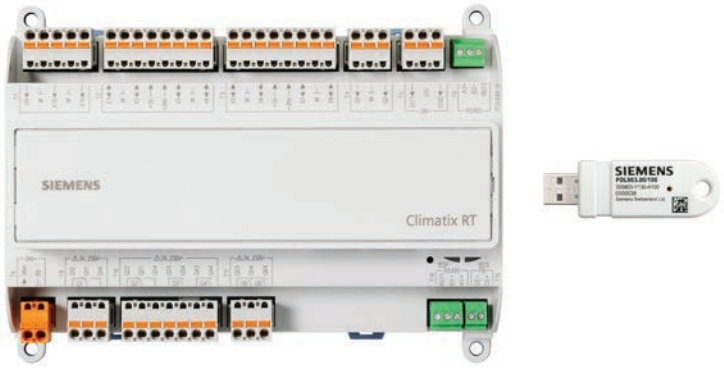
The Climatix RTU solution simplifies maintenance and management of rooftop units to make life easy. It's a pre-engineered package specially designed to optimize RTU performance out of the box. No special controller programming is required – it's done for you. The sensors you need are included in one kit that works with any manufacturer's rooftop unit with up to three cooling compressors and two stages of heating.

Easy to learn. Easy to install. Easy to program.

The Climatix RTU solution is designed to be used with minimal interface. The kit you order includes the Climatix RT controller paired with room unit sensors for demand-controlled ventilation plus sensors for temperature, humidity and differential pressure. This kit addresses the core RTU performance optimization, and you have the option to include the Climatix VFD for enhanced efficiency along with damper actuators and the Intelligent VAV actuator for reliable, long-lasting fresh air management.

Core Performance Kit	Enhanced Efficiency Options	Easy Installation and Remote Management
 Climatix RT Controller	 Climatix VFD	 Climatix Mobile App
 Room Unit Sensors	 Damper Actuators	 WLAN Stick
 Outdoor Temperature and Humidity Sensor		 Climatix IC
 Wiring Harness		
 Mixed Air and Discharge Air Temperature Sensors		

A true controller-driven solution for optimized RTU performance with Climatix RT



Pre-defined applications

Designed exclusively for rooftop units, Climatix RT includes fault detection diagnostics and pre-configured alarms that monitor points such as filter status, damper alarm cycles, excessive or insufficient outside air, freeze alarms, compressor alarms, heater alarms, sensor alarms and more.

Operates with Siemens Room Unit Sensors

Climatix RT controller is specially designed to deliver peak RTU performance used in conjunction with Siemens room unit sensors for demand-controlled ventilation and CO_2 monitoring.

Title 24 energy compliance

No additional controllers are required to supply outdoor air to reduce or eliminate mechanical cooling during ideal conditions. This helps reduce energy consumption and increases the lifespan of the RTU compressors and condensers.

Onboard communication for scalability

Operates with Modbus TCP, Modbus RTU, BACnet IP and BACnet MS/TP.

Commands Climatix VFD

Climatix RT takes VFD configuration to a new level of simplicity, reducing the parameters that need to be programmed…all easily managed through the Climatix mobile app.

Plug-and-play wiring harness now included, reducing the time for installation.

Multi-Zone control made easy

Controlling air flow in multi-zone VAV environments has never been as easy with the Intelligent VAV actuator. This solution paired with the Climatix RTU merges air flow control functionalities with the monitoring of other parameters such as temperature, indoor air quality, humidity and fine dust particles.

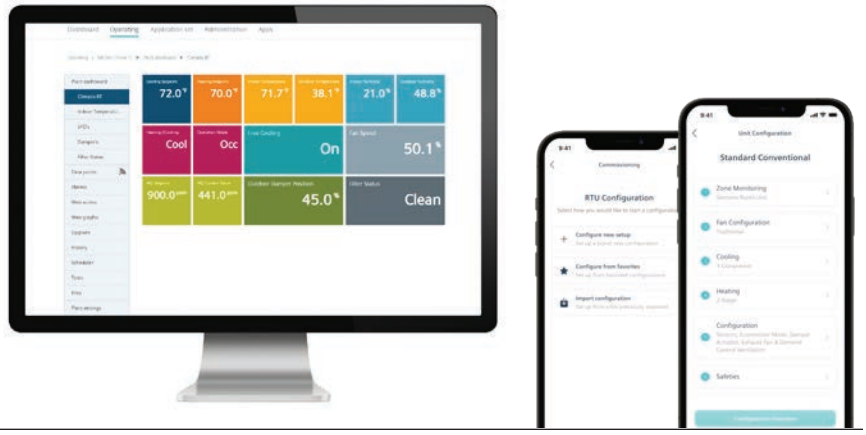
Pre-engineered with pre-defined applications optimized for RTUs

- Mobile app with preassigned I/O setup
- Pre-configured alarms
- Remote monitoring with customized dashboard
- Application-driven VFD with simple configuration
- Multi-use sensors for fault detection and diagnostics
- Onboard communication for scalability
- Title 24 compliant economization
- Integrated actuators with feedback for free cooling
- Enhanced indoor air quality applications
- Operates with Modbus TCP, Modbus RTU, BACnet IP and BACnet MS/TP
- Multi zone control with the Zone Controller distributes air flow from the RTU and controls temperature, humidity and CO_2 into each area.
- Dehumidification control ensures comfort and climate control for all types of environments.
- Ionizer activation enables the control of cleaning the air of contaminants before the air goes out into the space.

Mobile App and Remote Monitoring

Configuration and monitoring made easy

The Climatix mobile app securely connects point to point with the Climatix RT controller and allows even junior techs to easily commission an entire system using the mobile app's guided wizard.



Always keep rooftop unit performance in sight

Mitigate downtime with real-time access from anywhere.

Remotely monitor rooftop unit operating parameters to mitigate downtime. As a cloud-based solution, you can securely monitor multiple locations and equipment anytime from anywhere.

Climatix IC works with the Climatix RT controller and state-of-the-art Climatix mobile app for RTU configuration, commissioning and operations.

The Mobile App

The pre-configured sequence simplifies the setup procedure and allows for saving favorite configurations for even faster implementation on additional units.

Download iOS App

Download Android App

Climatix IC Remote Management

- Secure connection built directly into the controller. No need for additional hardware or IT setup
- Multi-site operation gives the ability to see all your sites
- Real-time analysis and troubleshooting
- Long term storage of data
- Alarm and Fault Detection built in

Climatix Complete Solution

Core Performance Optimization

QMX3.P70 or P74 DCV

See Sect D

RH & Temp Sensor

See Sect E

Climatix RT Controller

See pg G-3

Temperature Sensors (2)

See Sect E

Air Filter DP

See Sect E

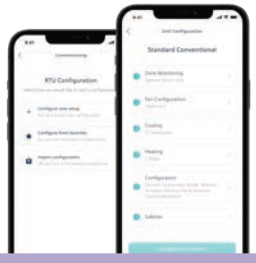
Wiring Harness

RTU Kit

Simple Installation

WLAN Stick

See Sect B



Climatix Mobile App

See pg G-4

Mobile App

Remote Management

See pg G-4

Cloud Software

Multi-Zone Control

Climatix VFD (0.5 ~ 30 HP)

See Sect C

Fan Efficiency

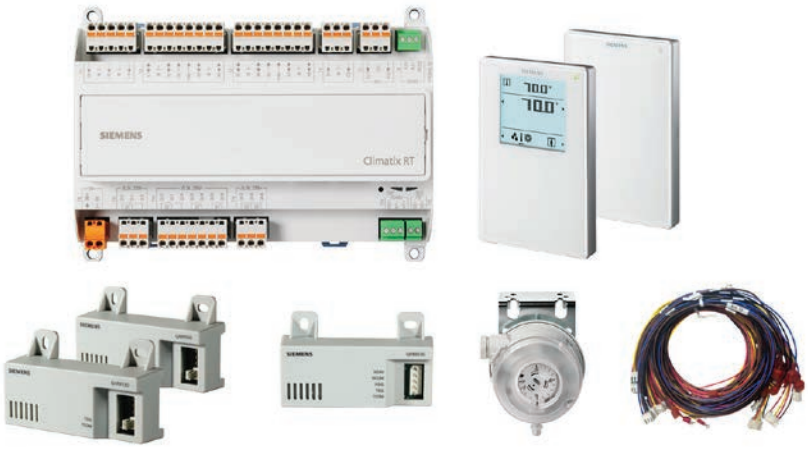
Damper Actuators

See Sect B

Economization

Ordering Information

Climatix RTU Solution Kits



Description

Pre-engineered package with a configurable application that is designed to optimize rooftop unit performance.

Application

The pre-defined application improves performance and indoor air quality while saving energy and increasing efficiency.

Fresh Air purge enables maximum fresh air intake into your space without recirculation of mixed or return air.

Features

- Pre-defined application optimized for RTUs
- Improve IAQ functionality with DCV and Purge
- Pre-configured alarms and FDD
- Mobile app with preassigned terminations for simple and accurate setup
- Title 24 compliant economization with automatic climate zone setup
- Application drive VFD with simple Mobile App setup
- Remote monitoring with customized dashboard
- Climatix IC subscription included (1 year)**

RTU Solution Kits

Product Bundle	Description	Part Number
Climatix IC	Climatix IC Subscription for RTU	**P55693-L121-A100**
WLAN stick	Wireless dongle for Climatix Mobile Application required for easy commissioning and start-up (POL903.00/100)	**S55803-Y130-A100**
Climatix RTU Bundle with QMX3.P74	Climatix RTU controller with predefined application. Configurable I/O and Mobile commissioning. DP Switch (1), Temperature Sensors (2), RH & Temp Sensor (1) Room Unit AQ, RH & Temp (w/ Local HMI), plug-and-play wiring harness	**POL648.10/RTU-P74**
Climatix RTU Distributor Bundle with QMX3.P74 & WLAN Stick	Climatix RTU controller with predefined application. Configurable I/O and mobile commissioning. DP switch (1) , Temperature Sensors (2), RH & Temp Sensor (1), Room Unit AQ, RH & Temp (w/ Local HMI), Plug & Play Wiring harness, & WLAN Stick	**POL648.10/RTU-KIT**
Climatix RTU Bundle with QMX3.P70	Climatix RTU controller with predefined application. Configurable I/O and Mobile commissioning. DP Switch (1), Temperature Sensors (2), RH & Temp Sensor (1) Room Sensor HMI AQ, RH & Temp (w/o Local HMI), plug-and-play wiring harness	**POL648.10/RTU-P70**
Climatix VFD	Climatix VFD, 460VAC, 3-ph, 3HP	**RT003X-43N***

** Sample part number*

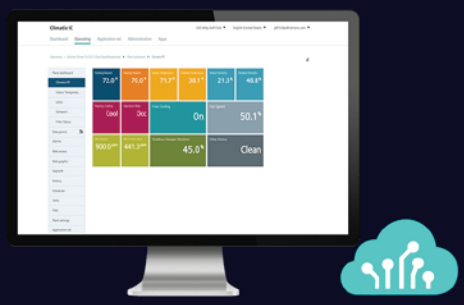
*** Climatix IC subscription must be activated within required time frame from manufactured date of controller.*

Climatix RTU Optimization Solutions At-a-glance

Additional Built-in Functionality

Ability to monitor filter status

BACnet IP and MS/TP
Modbus RTU and TCP

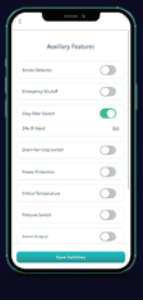


Built-in alarms for fault detection and diagnostics

Remote monitoring available with customizable dashboard

Demand Control Ventilation (DCV)

Air Purge



Expanded Functionality

- Stages of heating
- Stages of cooling
- Return air temp
- Return air humidity
- Exhaust fan
- Pressure switch
- Alarm output
- Ionizer/UV control
- Humidification
- De-humidification
- Smoke detector
- Emergency shutoff
- Drain plug clog switch
- Freeze protection
- Critical temperature input

Implement efficient, free cooling and **increase energy savings**

Siemens Economizer Solution allows a cooling system to supply outdoor air to reduce or eliminate mechanical cooling. The flexible, easy-to-commission Climatix ECO Title 24 compliant controller works alone or with our reliable sensors, damper actuators, and thermostats to provide a cost-effective bundle for both retrofit and new rooftop units. The controller is easily configured with the Climatix mobile app or built-in HMI.

Climatix ECO kits simplify ordering with universal kits that require fewer stock numbers compared to similar products on the market, making inventory management easier. Ideal for replacement, repair and new installations.

Visit usa.siemens.com/climatix-eco to learn more.

Download Climatix mobile app

Download on the App Store

GET IT ON Google Play

SIEMENS

Climatix ECO
Title 24 Economizer Controller

Implement effective free cooling and increase energy savings.

Siemens Climatix ECO allows a cooling system to supply outdoor air to reduce or eliminate mechanical cooling during ideal conditions. A properly functioning economizer reduces energy consumption and increases the lifespan of expensive rooftop unit compressors and condensers.

Easily configured with the Climatix mobile app, the easy to commission Climatix ECO Title 24 compliant controller combined with reliable sensors, damper actuators and thermostats provide a cost-effective bundle for both retrofit and new rooftop units.

Ordering Information

Damper Actuator

Wall CO_2 Sensor (optional display)

Duct CO_2 Sensor (optional display)

Combo T + RH Sensor

Temperature Sensor

Thermostat

Climatix VFD

Wiring Harness

WLAN Stick

Universal Mounting Kit (35 lb.in only)

Product Ordering Information

Product	Description	Specification	Part Number
Climatix ECO Controller	POL224.00 Title 24 Economizer Controller	Complies with 2016 Title 24 part 6 Economizer Fault Detection and Diagnostics (FDD)	**S55392-C202-A100**
Damper Actuators	Spring Return, 0(2) to 10 Vdc Signal, Plenum-rated	35 lb.-in.	**GPC161.1P**
	Spring Return, 2 to 10 Vdc Signal, Plenum-rated	62 lb.-in.	**GMA151.1P**
	Spring Return, 2 to 10 Vdc Signal, Plenum-rated	160 lb.-in.	**GCA151.1P**
	Universal Mounting KIT for 35 lb.-in	For non-shaft mounted damper actuators	**ASK80.1**
CO2 Sensors	QPA2000 Wall CO2 Sensor	0-10 Vdc	**QPA2000**
	QPA2002D Wall CO2 Sensor with display	0-10 Vdc	**QPA2002D**
	QPM2102 Duct CO2 Sensor	0-10 Vdc	**QPM2102**
	QPM2102D Duct CO2 Sensor with display	0-10 Vdc	**QPM2102D**
Combo T + RH Sensor	QFR9530 T + RH Sensor	0-10 Vdc (RH) and 10k Ohm NTC II (Temp)	**S55720-S501**
Temperature Sensor	QAR9530 Temp Sensor	10k Ohm, NTC II	**S55720-S503**
Thermostats	Programmable Thermostat	24V	**RDY2000**
	Programmable Thermostat with BACnet	24V	**RDY2000BN**
Climatix VFD	Climatix VFD, Avail. from 100-575V, up to 30HP	Sample Part: 230VAC, 1HP, 3-PH	**RT-001X-23N**
Wiring Harnesses	ECO Wiring Harness	Complete wiring harness for all connections from controller to device	**POL002.24/KIT**
WLAN Stick	WLAN interface for controller to smartphone or tablet	USB B interface	**S55803-Y130-A100**

Download the Climatix mobile app

Utilizing the Climatix mobile app streamlines the commissioning process, enabling contractors to save time and money.
Download Now!

Android iOS

Climatix ECO Kits

Climatix ECO Controller

Wiring Harness

Combo T + RH Sensor

Temperature Sensor

Damper Actuator

Universal Mounting Kit (35 lb.in only)

WLAN Stick

Description

Climatix ECO kits simplify ordering with universal kits requiring less stock numbers for easy inventory management. This solution also shortens install time to get you up and running faster.

Features

- Streamline your inventory – reduced stock levels for easier inventory management.
- Grab-and-go – any level technician can commission and install quickly by using just one kit.
- Integrated wiring harness – plug-and-play design minimizes wiring errors and can cut installation time down to as little as 30 minutes.
- Sustainable solution – all components shipped in one box, reducing packaging, handling, and waste.

Product Ordering Information

Description	Siemens Part Numbers
POL224.15/KIT 35 lb.-in ECO KIT	**POL224.15/KIT**
POL224.25/KIT 62 lb.-in ECO KIT	**POL224.25/KIT**
POL224.35/KIT 160 lb.-in ECO KIT	**POL224.35/KIT**

Upgrade options with added devices

Combo T + RH Sensor

See Sect E

Wall CO_2 Sensor

See Sect E

Duct CO_2 Sensor

See Sect E

Connect Box connects a range of equipment

Connect Box enables you to manage small- to medium-sized buildings in a smarter and simpler way. It's an IoT building monitoring solution that connects all your devices in a few clicks, as well as enables integration to your existing building automation system, building management system, or cloud application.

With this one device, you can choose the right functionality for your needs.

Download Connect Box Flyer

SIEMENS