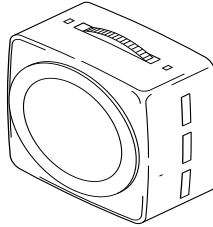


APPLICATION

The 2216 Series Pneumatic Room Thermostats are designed for applications requiring separate control points due to varying occupancy or seasonal loads. They are direct acting and are particularly well suited to day/night control in buildings such as schools, hospitals, and shopping malls. These thermostats have a serrated thumb wheel for setpoint adjustment.



SPECIFICATIONS

Action: Direct, proportional.

Setpoint Range:

Day, 55 to 85 °F (13 to 29 °C)

Night, 50 to 80 °F (10 to 27 °C).

Throttling Range:

Day, Adjustable 2 to 12 °F (1.1 to 6.7 °C).

Night, Adjustable 3 to 5 °F (1.7 to 2.8 °C).

Supply Air Pressure:

Below 17 psig (117 kPa), Operates at day setpoint.

Above 21 psig (144.5 kPa), Operates at night setpoint.

Maximum Air Pressure: 30 psig (207 kPa).

Main Air Consumption: 30 scim (8.2 mL/s) at 16 psig (110 kPa); 43 scim (11.7 mL/s) at 25 psig (172 kPa).

Calibration Point: 9 psig (62 kPa) branch line pressure when ambient equals setpoint (factory-set).

Day/Night Indexing: Remote, by changes in main air pressure, or local, with switching lever.

Setpoint Adjustment: Serrated thumbwheel.

Construction:

Mechanical Components, Die cast aluminum, stainless steel, and glass-filled nylon.

Diaphragm, Fabric-reinforced Neoprene.

Air Lines, Connect to thermostat nipples with spring-reinforced plastic tubes.

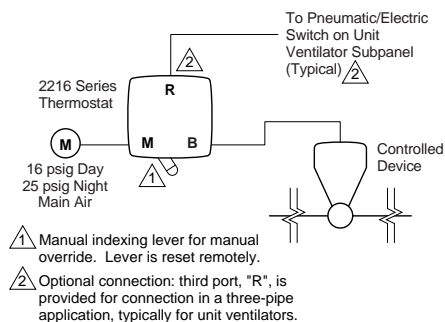
Branch Connections, Equipped with internal filters.

Environment: Humidity, 5 to 95% relative humidity, non-condensing.

Model Chart — Thermostats.

Part Number	Replaces Model	Day/Night Action	Description
2216-126	T27-301	Direct/ Direct	Includes 1/4" by 3/16" barbed couplings, 20-693 tubing, standard mounting plate and screws.

PIPING DIAGRAM



Location

Locate the thermostat where it will be exposed to an unrestricted circulation of air, which represents the average temperature of the controlled space.

Caution:

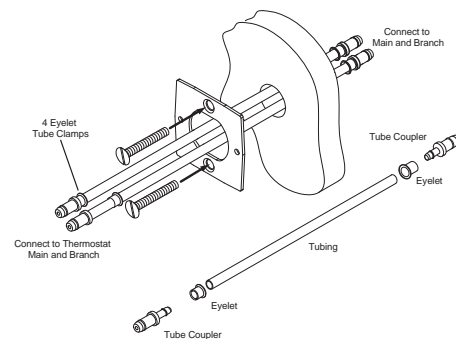
- Do not locate the thermostat near sources of heat or cold, such as lamps, motors, sunlight, or concealed ducts or pipes. Doing so will affect the accuracy of the thermostat.
- Avoid installing the thermostat on outside walls.
- Mount thermostats *only after the wall surfaces have been finished.*

Accessories

Part Number	Replaces Model	Description
Accessories		
20-660	6-441	Cover screw
20-707	10-53	Metal thermostat guard
20-715	10-62	Clear thermostat guard
21-876	10-76	Opaque thermostat guard
21-928		Gray plastic cover, blank dial
21-933		Gray plastic cover, °F/°C dial
Calibration		
20-881	N2-4	Calibration wrench
22-138	MCS-GA	Branch tap gauge adaptor
900-002		Thermostat calibration kit
Installation		
10-82-SS		Outlet box mounting plate, stainless steel
20-850	10-82	Outlet box mounting plate, black
20-642		Mounting ring
21-473		Snap-in drywall mounting
22-021		Universal drywall mounting kit
22-022	N5-95	Competitor replacement mounting kit
22-024		Standard mounting kit

Installation

- Tools (not provided):
 - Appropriate screwdriver for mounting the thermostat
 - 20-881 Thermostat calibration and cover screw wrench (or 1/16" and 1/4" hex wrenches)



- Assemble the eyelets and two tube couplers to tubing.
- Connect the assembly by inserting the tube couplers into existing tubing in the wall (see figure above). Note which connection is Main and which connection is Branch.

- Pull tubing through center hole in mounting plate and screw mounting plate to wall with flat head screws. Cut tubing and insert two couplers. The Main and Branch tubing is connected into the corresponding ports on the thermostat.
- Affix thermostat to mounting ring with round head screws, taking care not to kink the tubing.

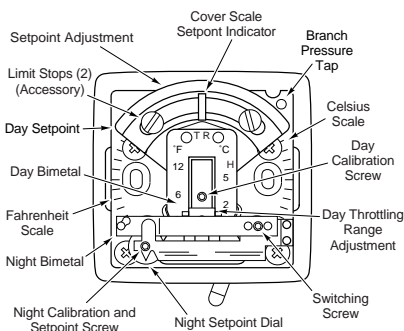
CALIBRATION

The 2216 series thermostats are factory calibrated with day sensor throttling range set at 3 °F (1.6 °C). They should not require calibration upon installation. However, if necessary, change the throttling range, calibration, or switch point setting as follows:

- Remove the thermostat cover. Install a 22-138 branch tap gauge adaptor into the branch pressure tap hole.
- Measure the ambient temperature with an accurate thermometer. This temperature *must be within the range of the thermostat*. Take care not to breathe on, or place a hand near the bimetals, as this will result in an inaccurate reading.

Day Setpoint Calibration

- Position the day setpoint cam to match the ambient temperature.
- Set the main air pressure to 15 psig (103 kPa) and adjust the day calibrating screw, using a 20-881 thermostat wrench (1/16" hex wrench), until the branch tap gauge reads 9 ± 1 psig (62 ± 7 kPa). Clockwise rotation increases the branch line pressure. Counterclockwise rotation lowers the branch line pressure.



Night Setpoint Calibration

- Increase the main air pressure to 25 psig.
- Using a 20-881 thermostat wrench (1/16" hex wrench), rotate the night calibration screw until the branch tap gauge reads 9 ± 1 psig (62 ± 7 kPa). Clockwise rotation increases the branch line pressure. Counterclockwise rotation decreases the branch line pressure.
- The night setpoint is in calibration when the night setpoint dial indicates the ambient temperature within ± 2 °F (± 1 °C). If not, adjust as follows:
 - Rotate the night setpoint screw until the dial gently contacts its stop. Clockwise rotation increases the ambient temperature reading, and counterclockwise rotation decreases the ambient temperature reading.
 - Continue rotating the setpoint screw approximately 1/8 turn, slipping the screw inside the dial.
 - Turn the screw back and check for 9 ± 1 psig (62 ± 7 kPa) branch air pressure, with the dial indicating the ambient temperature within ± 2 °F (± 1.1 °C).
 - Repeat steps a, b, and c, as necessary, until night setpoint calibration is obtained.
- The night setpoint screw may now be used to position the dial to the desired night control point.

Switching Adjustment

The 2216 series thermostats are factory calibrated to switch from day to night action at a pressure between 17 and 21 psig (117 and 145 kPa). If necessary, adjust the switch point as follows:

On October 1st, 2009, TAC became the Buildings business of its parent company Schneider Electric. This document reflects the visual identity of Schneider Electric, however there remains references to TAC as a corporate brand in the body copy. As each document is updated, the body copy will be changed to reflect appropriate corporate brand changes.

Note:

- The switch point adjustment should be made on a test bench at which a variable main air supply is available.
- It is necessary to read the branch line pressure while making the switch point adjustment.

- Set the main air supply to the thermostat to the desired switch over point. For example, if system pressure is 13 psig (89.5 kPa) day and 18 psig (124 kPa) night, the desired switch over point would be between 15 and 16 psig (103.5 and 110.5 kPa).
- Position the day setpoint at the 55 °F (12.7 °C) setting and the night setpoint at the 80 °F (26.6 °C) setting.
- Verify that the branch line pressure gauge or branch pressure tap reads approximately the main air pressure being fed to the thermostat. If not, recheck the day setpoint calibration.
- To lower the switch over point, use a 20-881 thermostat wrench (1/16" hex wrench) to turn the switching screw clockwise, 1/8 turn at a time, until the branch line pressure falls. To raise the switch over point, turn the switching screw counterclockwise in the same manner.

Caution: Do not force the calibrating screws. If the desired action is not obtained when the screws are rotated, check to be sure the direction of rotation is correct.

- Lower the main air pressure to the desired system day pressure and observe the branch line pressure. The branch line pressure should rise to approximately the main air pressure.
- Raise the main air pressure to the night setting and observe the thermostat for proper function. As the main air pressure rises past the switch over point, the branch line pressure should drop off to zero.
- Lower the main air pressure and verify that the branch line pressure rises from zero as the main air pressure drops below the switch over point.
- Reinstall the thermostat cover and recheck the calibration at both day and night settings.

Manual Indexing Lever

After making the switching adjustment, check the operation of the manual indexing lever as follows:

- Set the main pressure to 25 psig (172 kPa).
- Move the manual indexing lever to the right. The day control point should now be active.
- Slowly reduce the main pressure and note the pressure at which the lever snaps back to the left. This should be at the switch over point, between 17 and 21 psig (117 and 145 kPa). If the switch over point was changed, this pressure should correspond to the new switch over setting.
- If the manual indexing lever does not snap back at the correct switch over setting, check and adjust the switch over point as outlined in Switching Adjustment.

Three-Pipe Applications

The 2216 series thermostats are equipped with a third port, labeled "R", which may be used in three-pipe applications (typically unit ventilators). As supplied from the factory, the end of this port connection is closed. For three-pipe applications, open this port connection as follows:

- Note that the "R" port connection is longer than the "M" and "B" connections. Cut approximately 1/16" (1.6 mm) from the end of this port connection, to open the port.
- When the 2216 series is used as a three-pipe thermostat, the pressure at the "R" port is 0 psig during day operation and equals main air pressure (typically 25 psig [172 kPa]) during night operation. If 21 psig (145 kPa) or greater main air pressure is available and the manual indexing lever is moved to the right, the pressure at the "R" port will drop to 2 psig (13.5 kPa) or less.