SIEMENS

Technical Specification Sheet
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Room Temperature Sensors, Series 1000 and Standard Design and Semi-Flush Mount Series 2000 (Interactive)

Figure 1. Room Temperature Sensor--Series 1000 Shown with All Available Options.

The **Series 1000** and **Series 2000** Room Temperature Sensors from Siemens Building Technologies, Inc., offer a wide range of features and functionality that work in concert with the APOGEE® Automation System to deliver exceptional occupant comfort in even the most demanding application environments. The product family includes plain sensing-only variants, and fully interactive types with a two-line LCD that permits viewing and modifying controller points directly from the sensor's keypad and display as well as a semi-flush mount model (Series 2000). All sensors incorporate precision temperature sensing elements to accurately and reliably measure room temperature. Their compact, low profile design results in an attractive, inconspicuous installation. A styled ventilation ring optimizes airflow through the cover for fast measurement response and superior control.

Series 1000

The **Series 1000** Room Temperature Sensor provides accurate, reliable sensing of room temperature Terminal Equipment Controllers (TECs), Modular Building Controllers (MBCs), Remote Building Controllers (RBCs), Programmable Modular Controllers (PXCs) and Modular Equipment Controllers (MECs).

TEC Applications

Room temperature sensors for TEC applications incorporate a thermistor element and plug-in Portable Operator's Terminal port located on the bottom of the cover. The plug-in Portable Operator's Terminal port provides a convenient means of communicating with the TEC to command or troubleshoot the system. These sensors connect to TECs via a six-wire cable terminated with a plug-in RJ-11 connector. The cable transmits the temperature, the communication with the Portable Operator's Terminal, and the optional setpoint and override signals.

MBC, RBC, PXC, and MEC Applications

Room temperature sensors for MBC, RBC, PXC and MEC applications incorporate a platinum RTD element. Connections to field panels are made via 18 to 22 AWG twisted pair cabling. A conveniently located unpluggable termination block simplifies both installation and service.

Optional Features

- Digital temperature display: The digital temperature display provides an easy-to-read room temperature value in degrees Fahrenheit or Celsius.
- Setpoint adjustment: The high accuracy setpoint adjustment incorporates dual temperature scale indication and an access door that covers the setpoint adjustment switch.
- Override button: The flush mounted override button allows an occupant to change to an occupied control schedule during the unoccupied cycle for a predetermined time period.
- Maintenance free: These sensors draw a small amount of power directly from the controller and do not use batteries. This eliminates the cost of battery replacement and disposal.

Specifications (Series 1000)

Temperature Range	
Setpoint	55°F to 95°F (13°C to 35°C)
Operating	55°F to 95°F (13°C to 35°C)
Output Signals	Changing resistance
Sensing Element Type	
540 Models	10K NTC Thermistor (Type II)
544 Models	1K Platinum RTD (375 ALPHA)
Accuracy	
10K ohm Thermistor	
55 - 80.6°F (13 - 27°C)	±0.5°F (±0.3°C)
80.6 - 95°F (27 - 35°C)	±1.0°F (±0.5°C)
1,000 ohm RTD mid-range	
75°F (24°C)	±0.75°F (± 0.4°C)
Calibration Adjustments	None required
Installation	
TEC	100 ft. Maximum cable length. 6C #24 AWG, Belden 1228A or equal, NEC Class 2
MBC/RBC/PXC/MEC	300 to 750 ft Max. cable length 18 to 22 AWG twisted pair NEC Class 2
Installation Adjustments	None required
Cover	
Dimensions	3-11/32" H × 2-1/2" W × 1-1/2" D (85 mm × 63 mm × 38 mm)
Color	Desert beige or white
Power Consumption[1] 544-7xx units	8.6 mW maximum

1 Power consumption values apply only to those units with single line display.

Figure 2. Room Temperature Sensor and Semi-Flush Mount Room Temperature Sensor--Series 2000.

Series 2000

The **Series 2000** Room Temperature Sensors provide an interactive digital link to Terminal Equipment Controllers (TECs) that allows viewing and adjusting controller points directly from the sensor's liquid crystal display and keypad. These sensors incorporate a precision thermistor to accurately and reliably measure room temperature.

NOTE: The Semi-Flush Mount Sensor can only be mounted in a 2 × 4 box without a gang riser/ring.

Standard Features

- Programmable Liquid Crystal Display (LCD): A two-line alphanumeric LCD allows simultaneous display of room temperature, a user-selected critical point, and day/night operation status. You can configure the screen to:
  - show English or metric units,
  - turn the room temperature display on or off,
  - select a critical point for display, or
  - turn off the critical point display.
- Digital setpoint adjustment: The sensor's keypad allows error-free digital setpoint adjustments in one-degree increments. Setpoint values momentarily display as changes are made.
- Display of operating mode: Graphic symbols are displayed to indicate the controller's operating mode. A "sun" indicates occupied mode operation and a "moon" indicates night mode operation.
- Override button: A flush-mounted override button allows you to change to an occupied control schedule during the unoccupied cycle for a period of time determined by the system operator.

Standard Features, Continued

- Passkey security: A special hardware passkey plugs into the sensor's MMI port to allow access to the display configuration menu and the controller's point database.

NOTE: The Semi-Flush Mount Sensor MMI port can only be accessed after the front housing is removed.

  - Backward compatibility: These sensors are backward compatible with all TECs. The sensors are wired with six-conductor phone cables and standard RJ-11 connectors.
  - Maintenance free: These sensors draw a small amount of power directly from the controller and do not use batteries. This eliminates the cost of battery replacement and disposal.

Specifications (Series 2000)

Effective Sensing and Setpoint Range (TEC)	55°F to 95°F (13°C to 35°C)
Output Signals	Changing resistance
Room temperature	Changing resistance
Setpoint	Digital
Thermistor Calibration Point (TEC)	77°F (25°C)
Accuracy (10K ohm Thermistor)	
55 - 80.6°F (13 - 27°C)	±0.5°F (±0.3°C)
80.6 - 95°F (27 - 35°C)	±1.0°F (±0.55°C)
Accuracy (QAA1280.FWSC)	
60°F - 85°F (140°C - 185°C)	+3°F (1.7°C)
Other temperature ranges	+4°F (2.2°C)
Resistance value	10K Ω ohms
Calibration	None required
Installation (TEC)	100 ft maximum cable length 6C #24 AWG, NEC Class 2
Installation Adjustments	None required
Dimensions	3-11/32" H × 2-1/2" W × 1-1/2" D (85 mm × 63 mm × 38 mm)
Color	Desert beige or white

Product Ordering Information

TEC Description	**Product Part Number**
Series 1000	
Sensing only	540-660[1]
Sensing only, no logo. White	540-661B
Sensing with override and setpoint	540-670[1]
Sensing with override and setpoint, no logo	540-671[1]
Sensing with override, setpoint and temperature display	540-680[2]
Series 2000	
TEC Sensor	540-650[1]
Semi-Flush Mount Room Temperature Sensor, TEC	QAA1280.FWSC
MBC/RBC/PXC/MEC, Series 1000 Description	**Product Part Number**
Sensing only	544-760[1]
Sensing with override, setpoint	544-770[1]
Sensing with override, setpoint, temperature display	544-780[2]

[1] Add letter suffix to indicate desired color: A=Desert Beige, B=White (for example, 540-660A).

[2] Add letter suffix to indicate temperature display units and color: F=°F, C=°C, A=Desert Beige, B=White (for example, 540-680FA).

Accessories Ordering Information

Description	Product Part Number
Occupancy Override Button, 25-pack (Beige)	544-480A
Occupancy Override Button, 25-pack (White)	544-480B
Setpoint Door, 25-pack (Beige)	544-481A
Setpoint Door, 25-pack (White)	544-481B
Blank Bezel, 25-pack (Beige)	544-482A
Blank Bezel, 25-pack (White)	544-482B
Room Temperature Sensor Repair Kit, Single-pack (Beige)	544-483A
Room Temperature Sensor Repair Kit, Single-pack (White)	544-483B
Blanking Override Button, 25-pack (Beige)	544-484A
Blanking Override Button, 25-pack (White)	544-484B
Passkey for Series 2000 Room Temperature Sensors	544-643A
Single Adapter Base Kit (White)	544-782B
Single Adapter Base Kit (Beige)	544-782A
Double Adapter Base Kit (White)	544-783B
Double Adapter Base Kit (Beige)	544-783A
Extender Ring Kit (White)	544-785B
Extender Ring Kit (Beige)	544-785A
Non-Conduit Rough-In Kit	544-784
Series 2000 (Interactive) Room Temperature Sensors, User Guide	129-363
Sensor Power Supply Module (for MBC applications with digital display option)	PTX6.4SPS
Available with vinyl or plenum jacket in 25-foot, 50-foot and 100-foot lengths. Contact your local Siemens Industry, Inc. field office for more information.	TEC room sensor cables (6 conductor w/RJ-11 connectors on each end)

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