STE-6000 Series
Room Temperature Sensors/Transmitters

Description

These compact and economical room temperature sensors and transmitters are designed for use in KMC controllers or other building automation systems. They incorporate a 10,000 ohm (@ 77° F) thermistor for precise, stable temperature sensing and offer a variety of features.

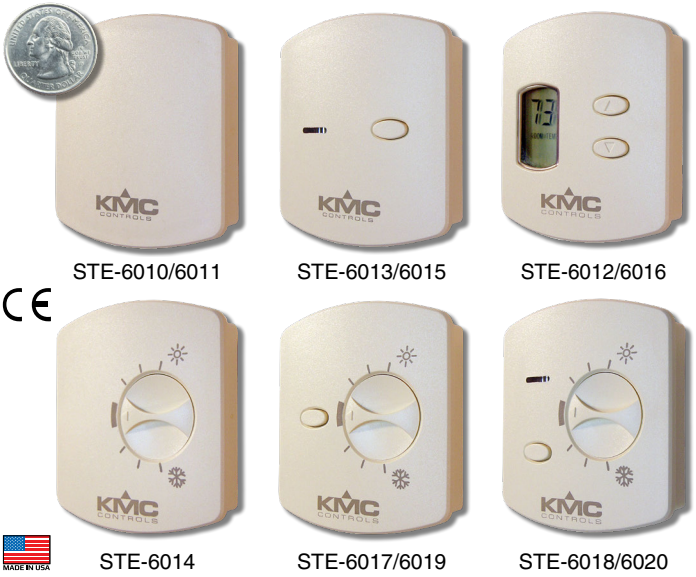
The durable, low-profile cover is visually appealing. These sensors may be surface mounted on a hollow wall or (using an HMO-6036 universal backplate) to a 2 x 4 in. electrical box.

Models

STE-60xx Model Number	Setpoint Adjust		Other Interface Features			Cable Connections			Temperature Output	
	Rotary Dial*	Up/Down Buttons	Override Button(s)	LCD Display	LED Status Indicator	Screw Clamp Terminals	RJ-45 Connector**	EIA-485 Data Port***	10K Ohms Thermistor	0 to 5 VDC Transmitter
6010-10							X	X	X	
6011-10						X			X	
6013-10			X		X	X			X	
6015-10			X		X		X	X	X	
6012-10		X	X	X		X				X
6016-10		X	X	X			X	X		X
6014-10	X						X	X	X	
6017-10	X		X				X	X	X	
6019-10	X		X			X			X	
6018-10	X		X		X		X	X	X	
6020-10	X		X		X	X			X	

*Earlier rotary dial models were marked with ° F or ° C, but dials now have warmer/cooler icons instead of numbers.
**Requires KMD-569x sensor to controller cable for legacy models or (STE-6010/6014/6017 only) Ethernet cable for Conquest controllers.
***Requires converter/router and cable.

The standard color is almond. To order in white, add a "W" in the place of the hyphen near the end of the model number (e.g., STE-6012**W**10).



Features and Applications

An STE-6014/6017/6019/6018/6020 includes a **rotary setpoint dial** with warmer/cooler icons.

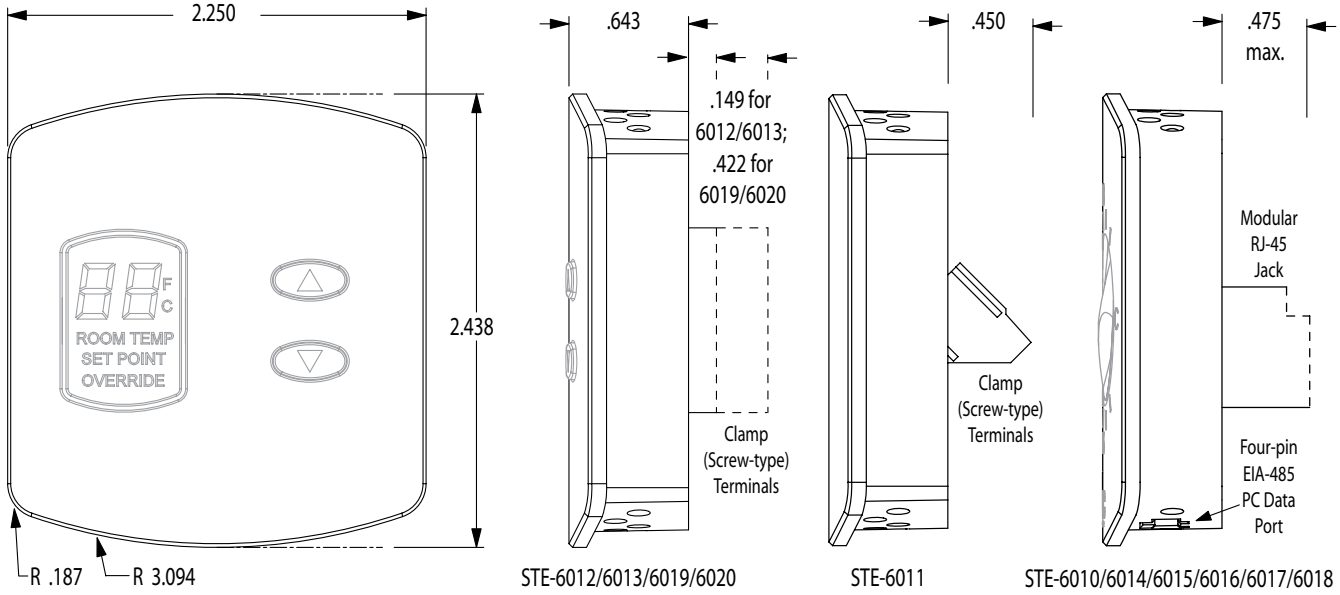
An STE-6013/6015/6017/6019/6018/6020 allows selection of an **override** condition by pushing the **button** on the front. A **green LED status indicator** (not on the STE-6017/6019) illuminates according to the user-defined controller configuration (e.g., during occupied or override modes).

An STE-6012/6016 transmitter includes an **LCD display** for the room temperature and setpoint. The temperature display can be toggled between Fahrenheit and Celsius scales. The **setpoint** is **adjustable via** the **Up and Down arrow buttons** on the front panel. If the system is in occupied mode, pressing a button raises or lowers the setpoint. When either button is pushed, the display toggles from room temperature to the setpoint. When the button is released, the number displayed is the new setpoint, and the display returns to room temperature after ten seconds. If the system is in unoccupied mode, pressing either button selects **override** mode.

An STE-6010/6014/6015/6016/6017/6018 includes a **data port** on the cover's underside for easy temporary computer connection to the EIA-485 network. See **EIA-485 Network Connection on page 4**.

Dimensions

All dimensions are in inches



Specifications

Material Flame-retardant plastic, light almond or white

Weight Approx. 1.25 oz. (35 grams)

Sensor

Type	Type II thermistor
Accuracy	± 0.36° F (± 0.20° C)
Resistance	10,000 ohms @ 77° F (25° C)
NTC	4.37%/° C @ 25° C
Dissipation Constant	2 mW/° C
Temp. Reading	Thermistor resistance only from all models except the 0–5 VDC voltage output from the STE-6012/6016 transmitter

Connections Clamp (screw-type) terminals or modular RJ-45 jack (see **Models on page 1** and **Connections (Modular) on page 3**)

NOTE: STE-6015/6016/6018 modular models are not compatible with KMC Conquest controllers. STE-6011/6012/6013/6019/6020 models with terminals can be connected to any controller.

Rotary Setpoint Pot. Linear 0–10K ohms (±20%), for ±3° F (±1.5° C) setpoint offset range in KMC Conquest controllers default configuration or for 54–90° F (12–32° C) typical range in legacy KMC controllers

Front Buttons

STE-6013/6015/6017/6019/6018/6020	One momentary push button that shunts thermistor to signal override (SENSORON) condition
STE-6012/6016	Two momentary push buttons that signal override condition, adjust setpoint, toggle ° C or F, and calibrate temperature reading

Power Requirements

LED Indicator	**10 VDC** (12 VDC max); 5 mA max. current draw at 12 VDC (STE-6013/6015/6018/6020)
LCD Display	**7.5 VDC** (10.4 mA max. current draw) for unoccupied/setback mode or **12 VDC** (9.7 mA) for occupied/normal modes (STE-6012/6016)

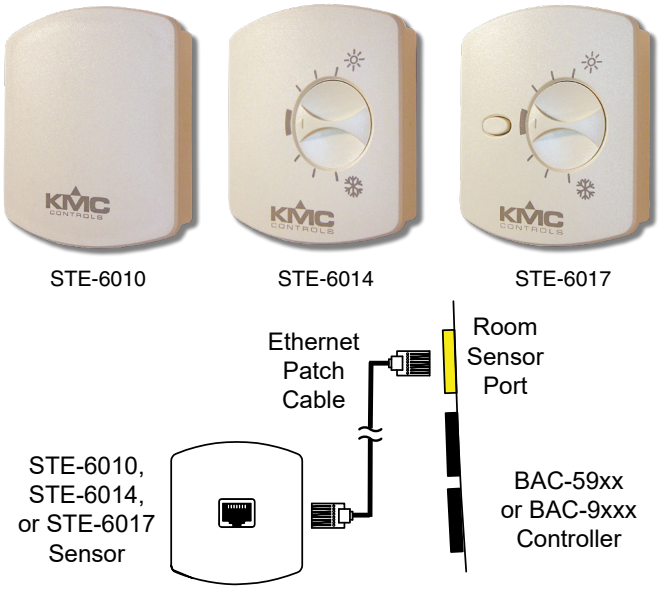
Approvals CE compliant

Environmental Limits

Display (6012/6016)	35 to 90° F (2 to 32° C)
Operating	34 to 125° F (1.1 to 51.6° C)
Shipping	–40 to 140° F (–40 to 60° C)
Humidity	0 to 95% RH non-condensing

Connections (Modular)

KMC Conquest BAC-59xx and BAC-9xxx



For **STE-6010/6014/6017** (but not STE-6015/6016/6018) sensors with **modular connectors**, use **HSO-9001**, **HSO-9011**, **HSO-9012**, or other standard Ethernet patch cables to connect the sensors' modular ports to the BAC-59xx/9xxx controllers' room sensor ports.

NOTE: The room sensor ports in KMC Conquest controllers do **not** support the LED/LCD voltages required by modular **STE-6015/6016/6018** sensors. **STE-6011/6012/6013/6019/6020** sensors (with terminals) can be connected to the **terminals** on BAC-59xx/9xxx controllers, but they require **custom configuration in software** since they are not automatically detected by the controller. STE-6012/6013/6020 sensors also require **voltage supplied** from a controller output or an external power supply.

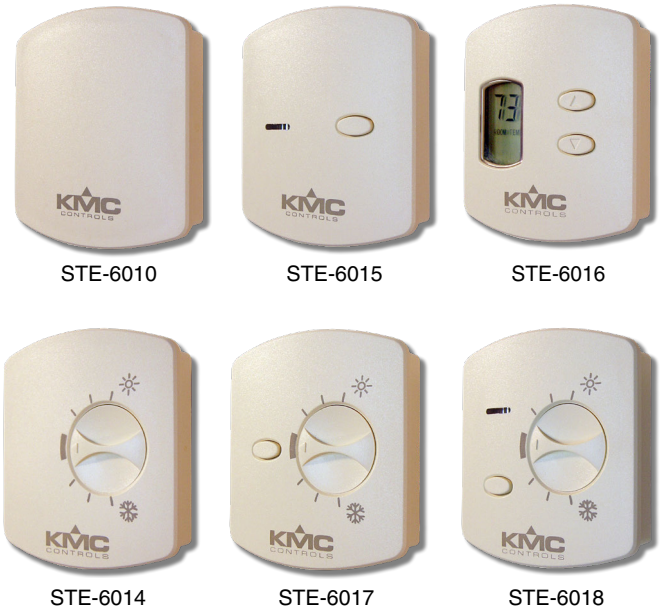
For **STE-6011/6019** (but not STE-6012/6013/6020) sensors with terminal blocks, an **HPO-9005** adapter and Ethernet patch cable can be used to connect the sensors' terminals to the BAC-59xx/9xxx controllers' room sensor ports. (This is especially useful in retrofit applications.)

BAC-59xx/9xxx controllers automatically detect and configure an appropriate sensor plugged into the room sensor port. The sensor's **temperature** from AI1 is automatically mapped to the Space Temperature Reference value object (AV1).

The STE-6014 and STE-6017 include a **dial** for adjusting the zone **setpoint**. If either of these two sensors is detected, the reading of the dial setting (AI2) is mapped to the Setpoint Offset (AV2). The default range of the offset is plus or minus 3 for °F (1.5 for °C) applications. (For example, users could adjust the active setpoint from approximately 69 to 75 for a scheduled setpoint of 72° F.)

NOTE: The setpoint range can be modified by changing the relinquished default value (of 3 for °F or 1.5 for °C) in AV12. (AV12 is the standby offset typically used with occupancy control). See the **KMC Conquest Controller Application Guide** for more information.

KMC Legacy BACnet and KMDigital Controllers



Connecting STE-6010/6014/6015/6016/6017/6018 models with **modular connectors to a legacy KMC controller (before KMC Conquest)** requires a special cable with (on the sensor end) an RJ-45 connector and (on the controller end) an RJ-11 connector with an additional three wires (as relevant to the model) for controller inputs. Purchasing preassembled cables from KMC is more cost-effective and reliable than creating custom cables in the field. Use one of the following cables:

- **KMD-5693** = 25 feet
- **KMD-5694** = 50 feet
- **KMD-5695** = 75 feet

The three additional wire connections to the controller are:

- **Orange** is the **thermistor** (and override) signal to the controller's appropriate input
- **Orange/white** is the **setpoint** signal to the controller's appropriate input
- **Green** is the **supply voltage** to the STE-6015/6018 LED or STE-6016 LCD from an output of the controller (for the STE-6010/6014/6017, clip or tape the unused wire)

NOTE: STE-6011/6012/6013/6019/6020 models with **terminals** can be connected to controller terminals. STE-6012/6013/6020 sensors also require **voltage supplied** from a controller output or an external power supply.

NOTE: All STE-6xxx sensors connected to legacy KMC BACnet and KMDigital controllers require **custom configuration in software**.

EIA-485 Network Connection

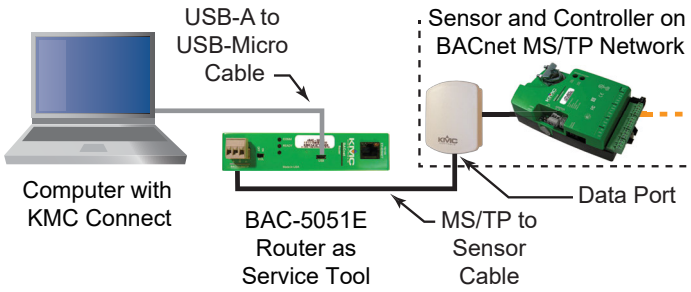
At the bottom of a modular model case is an EIA-485 data port. This port provides a temporary connection to the BACnet MS/TP or KMDigital network for troubleshooting or network setup.

NOTE: The data port is supported with BACnet MS/TP models but not "E" Ethernet models of KMC Conquest BACnet controllers.

To use the port to connect to a computer, a means of converting the EIA-485 signal to a USB signal is required, depending on the software used:

- For KMDigital networks or BACnet networks with BACstage, use a **KMD-5576** USB to EIA-485 converter
- For BACnet networks with **KMC Connect** or **TotalControl**, use a **BAC-5051E** BACnet router with an **HPO-5551** cable kit

NOTE: See instructions for those devices and software.



Accessories

HMO-6036	Universal backplate, almond
HMO-6036W	Universal backplate, white
KMD-569x	Cable for STE-6010/6014/6015/6016/6017/6018 Modular to KMC legacy BAC-58×1 and BAC-7xxx BACnet Controllers (**KMD-5693** = 25 ft.; **KMD-5694** = 50 ft.; **KMD-5695** = 75 ft.)
HPO-9005	Adapter for STE-6011/6019 (but not STE-6011/6012/6013/6019/6020) sensors to connect (with an Ethernet patch cable) the sensors' terminals to BAC-59xx/9xxx controllers' sensor ports
HSO-9001	Ethernet cable, 50 ft., for STE-6010/6014/6017 modular to BAC-59xx/9xxx controllers
HSO-9011	Ethernet cable, 50 ft., plenum Rated, for STE-6010/6014/6017 modular to BAC-59xx/9xxx controllers
HSO-9012	Ethernet cable, 75 ft., plenum rated, for STE-6010/6014/6017 modular to BAC-59xx/9xxx controllers
BAC-5051E	BACnet router
HPO-5551	Conquest router technician cable kit for BAC-5051E router
KMD-5576	USB to EIA-485 converter
SP-001	Flat blade and hex end screwdriver

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