Sensor and Thermostat
Selection Guide

Contents

KMC Sensors and Thermostats

KMC Controls manufactures a variety of pneumatic, analog electronic, and digital sensors and thermostats. Some sense only one variable (e.g., temperature), while others sense multiple variables (e.g., humidity and CO$_2$).

"Sensors" are used in diverse HVAC and Building Automation System (BAS) applications and are closely related to several other types of devices:

- **Sensors** measure a physical characteristic of an environment and provide a signal corresponding to those properties. Sensors may be stand-alone or integrated within a control device (e.g., a thermostat).

- **Transmitters** are also sensors, but take a relatively small (and passive) sensor signal (e.g., the resistance of a thermistor in response to a temperature) and convert it into an active voltage (e.g., 0–5 VDC) or active current (e.g., 4–20 mA). Boosting the signal allows greater distance between the sensor and the controller.

- **Transducers** convert one kind of energy into another. The physics may be different, but they can function as sensors. In building automation, transducers may convert pressure into voltage or current (or vice versa) or voltage signals into current signals (or vice versa).

- In HVAC and BAS applications, many sensors, transmitters, and transducers perform essentially the same function, sensing a physical characteristic and providing a signal to an external control device. **Thermostats**, on the other hand, contain a sensor integrated with a control device. Thermostat technology ranges from simple bimetallic switches to sophisticated digital devices.

See also the **Sensor and Thermostat Selection Fundamentals** white paper. For details about the various models in this document, see the product data sheets and other documentation on the **KMC Controls web site**.

Thermostats (Integrated Room Temperature Sensor Plus Controller)

TYPICAL APPLICATIONS	TYPE	DISPLAY	FEATURES	MODELS	
AHU, FCU, HPU, RTU, and Custom Applications	Digital B-AAC	LCD	BACnet Advanced Application Controller; optional humidity, motion, and CO_2 sensors; programmable	**BAC-12xxxx, BAC-13xxxx, and BAC-14xxxx FlexStat**	
FCU, HPU, RTU	Digital B-ASC	Color LCD	BACnet Application Specific Controller; optional humidity and motion sensors, configurable	**BAC-4xxx-CW000x AppStat**	
FCU and Baseboard Heating	Analog Electronic	LCD	Six-wire modular jack, single setpoint	**CTE-5201-16**	
VAV, FCU, Baseboard Heating, and Chilled Beam	Analog Electronic	LCD	"Universal" analog electronic replacement, dual setpoint, two analog outputs	**CTE-5202**	
VAV	Analog Electronic	Mechanical Indicator on Scale	Designed for use with CEE/CEP/CSE/CSP-4xxx controller-actuators, single and dual setpoints (replaced by CTE-5202)	**CTE-100x** and **CTE-110x**	
VAV	Analog Electronic	Mechanical Indicator on Scale	Designed for use with CSP-500x controller-actuators, single and dual setpoints (replaced by CTE-5202)	**CTE-510x**	
VAV and FCU	Pneumatic	Mechanical Indicator on Scale	1- and 2-pipe, DA and RA	**CTC-16xx**	

Temperature Sensors (Room)

TYPE	DISPLAY	FEATURES	MODELS	
Digital	LCD	For BAC/KMD-58xx and BAC/KMD-7xxx controllers, optional humidity and motion sensors	**KMD-1xxx NetSensor**	
Digital	LCD	For BAC-8xxx SimplyVAV controller-actuators	**STE-8xxx NetSensor**	
Digital	LCD	For BAC-59xx and BAC-9xxx controllers; optional humidity, motion, and CO_2 sensors	**STE-9xxx NetSensor**	
Thermistor, 10K, Type II and Transmitter	LCD or None	Thermistor only or active voltage option, override and setpoint adjustment options, screw terminals or modular jack connection	**STE-60xx**	
Thermistor, 10K, Type III	None	Flat wall plate with hidden thermistor	**STE-1430**	
Analog Electronic Transmitter	None	Wall-mounted humidity transmitters with temperature sensors (thermistors)	**THE-1102** and **THE-1105**	
Analog Electronic Transmitter	None	For use with CTE-110x/510x thermostats	**TTE-1001**	

Temperature Sensors (Other)

TYPE	DISPLAY	FEATURES	MODELS	
Analog Electronic (Thermistor)	None	Duct, immersion, outside air, strap-on options	**STE-14xx**	
Analog Electronic (Thermistor)	None	Duct-mounted humidity transmitter with temperature sensor	**THE-1002**	
Analog Electronic (Thermistor)	None	Duct flow sensor with temp. sensing (for REE-1005)	**SSE-20xx**	
Analog Electronic (Thermistor)	None	Duct temperature transmitter for use with CEE-11xx remote thermostat controllers	**TTE-2001**	

Humidity Sensors

TYPE	DISPLAY	FEATURES	MODELS	
Digital	LCD	For BAC/KMD-58xx and BAC/KMD-7xxx controllers, optional humidity and motion sensors	**KMD-1xxx NetSensor**	
Digital	LCD	For BAC-8xxx SimplyVAV controller-actuators	**STE-8xxx NetSensor**	
Digital	LCD	For BAC-59xx and BAC-9xxx controllers; optional humidity, motion, and CO_2 sensors	**STE-9xxx NetSensor**	
Analog Electronic (Thermistor)	None	Duct-mounted humidity transmitter with temperature sensor	**THE-1002**	
Analog Electronic Transmitter	None	Compact wall-mounted humidity transmitter with temperature sensor (thermistor)	**THE-1102**	
Analog Electronic Transmitter	None	Wall-mounted humidity transmitter with temperature sensor (thermistor)	**THE-1105**	

CO, CO_2, and Smoke Sensors

TYPE	DISPLAY	FEATURES	MODELS	
Smoke—Analog Electronic (Contacts)	None	Duct smoke detector	**CAE-1x03**	
CO—Analog Electronic	LCD	CO sensors, room and duct	**SAE-11xx**	
CO_2—Analog Electronic	LCD	CO_2 sensors, room and duct	**SAE-10xx**	
CO_2—Digital	LCD	Digital wall sensor for BAC-59xx and BAC-9xxx controllers	**STE-9xxx NetSensor**	

Flow and Pressure Sensors

TYPE	DISPLAY	FEATURES	MODELS	
Analog Electronic	None	For use with CEP-4xxx controllers	**SSE-1000/2000**	
Pneumatic (but used with electronic and digital controller)	None	Pick-up tubes for use with controllers that have flow and pressure sensors	**SSS-10xx**	
Analog Electronic Transducer	None	Gauge pressure transducers (P-E/I)	**TPE-1464-x**	
Analog Electronic Transducer	None	Low pressure transducers	**TPE-1475-2x and TPE-1477-2x**	
Analog Electronic Transducer	None	Liquid differential pressure transducers (P-E/I)	**TPE-1483-x**	

Refrigerant Monitor

TYPE	DISPLAY	FEATURES	MODELS	
Analog Electronic	None	FirstWatch refrigerant sight glass monitor	**SLE-1001**	

Miscellaneous

For convenience in installing a complete BAS, KMC Controls sells to our customers a large variety of **Veris data servers, current transformers, monitors, meters, sensors, and accessories**. For full Veris product descriptions and specifications, go to **Veris.com** and enter the part number in the Search field at the top of the page. See also the **Veris catalog**.

Digital/Electronic Handling Precautions

For **digital and electronic** sensors, thermostats, and controllers, take reasonable precautions to prevent electrostatic discharges to the devices when installing, servicing, or operating them. Discharge accumulated static electricity by touching one's hand to a securely grounded object before working with each device.

NOTICE

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

Important Notices

Support

Additional resources for product specifications, installation, configuration, application, operation, programming, upgrading and much more are available on the KMC Controls web site (**www.kmccontrols.com**). To see all available files, log-in to the KMC Partners site.