APPLICATION SPECIFIC COMMUNICATING THERMOSTAT (BACNET OR STAND-ALONE)

BAC-4000 APPSTAT SERIES

DESCRIPTION

The **KMC AppStat** combines the power of a space-mounted equipment controller with the convenience of built-in temperature, humidity and motion sensors. The controllers include a wide range of factory supplied programs for two and four pipe fan coil units, roof top units, heat pump units, and packaged or split unitary systems. Stand alone operation means no special programming, software applications, or setup tools are required to configure and commission an **AppStat**. All options can be set by using only the five front panel buttons and the easy-to-read menus in the full color display. The attractive two-piece design is ideal for new installations or upgrades of older, less efficient thermostats. **AppStat** installation requires only mounting the backplate to a wall or electrical box, connecting wires to screw terminals, and plugging the AppStat into the backplate. The full color display is easy to read across a room even in bright sunlight. All models are native BACnet, Application Specific Controllers ready to connect to a BACnet MS/TP network.

BAC-4000

FEATURES

- ***Stand alone operation if needed***
- ***Two piece design for easy installation***
- ***Fahrenheit or Celsius***
- ***Bright, full color display***
- ***Built-in temperature, humidity, and motion sensors (dependent on model)***
- ***Factory supplied programs for multiple applications***
- ***Network ready for BACnet MS/TP***

SPECIFICATIONS

Specifications and design subject to change without notice.

Screen	
Type	Active color LCD with LED back lighting, 128 x 128 pixels
Dimensions	1.00" x 1.04" (25 x 26 mm)
Case Material	White flame-retardant plastic
Mounting	**Backplate mounts to a standard 2" x 4" vertical handy-box or Euro style box. The controller is secured to the backplate with a concealed Allen screw.**
Environmental Limits	
Operating	32° to 140°F (0° to 49°C)
Shipping	-40° to 160°F (-40° to 71°C)
Humidity	0 to 95% RH non-condensing
Supply Voltage	24 VAC (–15%, +20%), 50-60 Hz, 12 VA, Class 2 only, non-supervised (all circuits, including supply voltage, are power limited circuits)
Inputs and Outputs	All inputs and outputs for the AppStat are set up at the factory and do not require set up in the field.
Inputs	Analog inputs for discharge air temperature, water supply temperature, outside air temperature, fan status, and remote temperature sensor Sensors are automatically detected Inputs accept industry-standard 10K ohm Type II for space, 10K ohm Type III for duct Input overvoltage protection up to 24 volts AC, continuous 12-bit analog-to-digital conversion
Relay Outputs	All relay outputs are normally open, SPST, Form "A" relays 1 Ampere maximum per relay at 24 volts AC or DC for each output. Maximum for all relay outputs is 3 amperes (72VA)
Analog Outputs	Short-circuit protected Loads up to 10 mA at 0–12 VDC 8-bit PWM digital-to-analog conversion
Connections	Screw terminal blocks, wire size 14–22 AWG, for inputs, outputs, power, and network connections.

APPLICATION SPECIFIC COMMUNICATING THERMOSTAT (BACNET OR STAND-ALONE)

BAC-4000 APPSTAT SERIES

SPECIFICATIONS (continued)

BACnet communication	
	Integral peer-to-peer BACnet MS/TP network communications. Network speed from 9600 to 76,800 baud Automatic baud detection. Screw terminal block mounted to backplate. Wire size 14–22 AWG Front panel selection for device instance, MAC address, and baud rate Meets or exceeds ANSI/ASHRAE BACnet Standard 135-2008 for Application Specific Controllers.
Accuracy–Temperature Only Models	
Type	Thermistor
Accuracy	±0.36°F (±0.2°C)
Resistance	10,000 Ω at 77°F (25°C)
Operating Range	48° to 96°F (8.8° to 35.5°C)
Accuracy–Temperature and Humidity Models	
Temperature Sensor	
Type	CMOS; 10K Type II Space, 10K Type III Duct
Accuracy	±0.9°F offset (±0.5°C) from 40° to 104°F (4.4° to 40°C)
Resolution	±0.1°F (±0.1°C)
Operating Range	36° to 120°F (2.2° to 48.8°C)
Response time	5 to 30 seconds
Remote	10KΩ Type II for Space, 10KΩ Type III for Duct
Humidity Sensor	
Type	CMOS
Humidity	0 to 100% RH
Accuracy @ 25°C	± 2% RH (10 to 90% RH)
Response Time	4 seconds or less
Regulatory approvals	UL 916 Energy Management Equipment, File #E145832 FCC Class A, Part 15, Subpart B and complies with Canadian ICES-003 Class B BACnet Testing Laboratory listed SASO PCP Registration KSA R-103260
Motion Sensor	
Detector Type	Passive infrared
Range	33' (10 m)
Dimensions	5.12"H x 3.50"W x 1.13"D (130 x 89 x 29 mm)
Weight	0.38 lb (0.17 Kg)
Warranty	5 years

APPLICATIONS

Fan Coil Units

AppStats for the control of fan coil units are available with inputs, outputs, and sequences of operation for the following functions.

- Two-pipe heating and cooling with on/off valves, modulating valves, or both
- Four-pipe heating and cooling with on/off valves, modulating valves, or both
- Three-speed or modulating fan control
- Automatic or manual fan control
- Remote space temperature sensor
- Local temperature setback mode based on optional built-in motion sensor
- Dehumidification on models with humidity sensor

Roof Top and Unitary Units

AppStats for the control of roof top or similar packaged or split unitary units are available with inputs, outputs, and sequences of operation for the following functions.

- One or two stage heating
- One or two stage cooling

Roof Top and Unitary Units (continued)

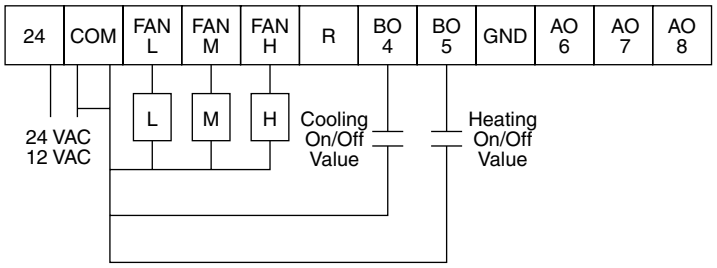
- Optional economizer Automatic or manual fan control
- Modulating valves or on/off heating and cooling valves
- Remote space temperature sensor
- Local temperature setback mode based on optional built-in motion sensor
- Dehumidification on models with humidity sensor

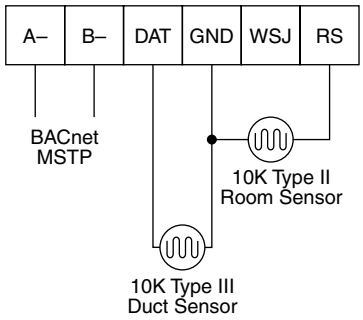
Heat Pump Units

AppStats for the control of heat pump units are available with inputs, outputs, and sequences of operation for the following functions.

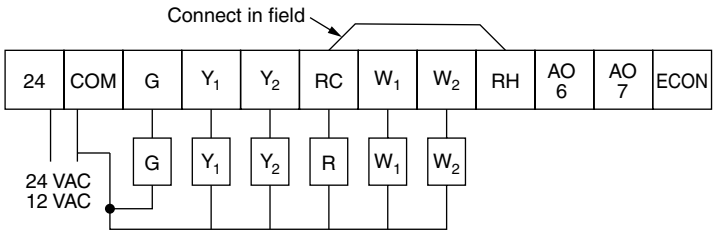
- Two stages of heat and two stages of cooling plus auxiliary heat
- Optional economizer
- Dehumidification-in models with auxiliary heat and a humidity sensor
- Local temperature setback mode based on optional built-in motion sensor
- Automatic or manual fan control

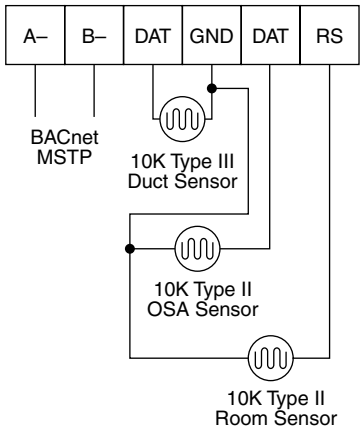
WIRING



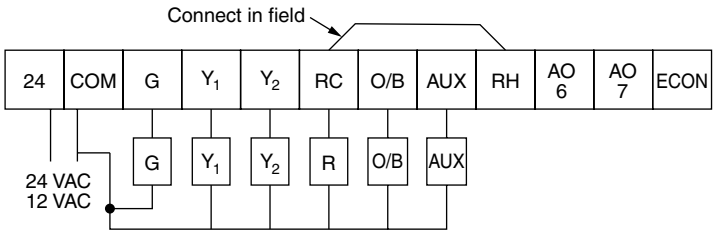


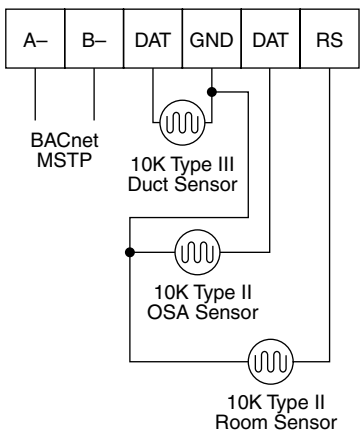
Fan Coil Wiring





RTO Wiring





Heat Pump Wiring

The AppStat requires an external 24 VAC power source. Use the following guidelines when choosing and wiring transformers.

- Use only a Class-2 transformer of the appropriate size to supply power.
- KMC Controls recommends powering the AppStat from a dedicated controls transformer.
- Connect the transformer's neutral lead to the COM terminal.
- Connect the AC phase lead to the 24 VAC terminal.
- Power is applied to the controller when the transformer is powered.

APPLICATION SPECIFIC COMMUNICATING THERMOSTAT (BACNET OR STAND-ALONE)

BAC-4000 APPSTAT SERIES

ORDERING INFORMATION

MODEL	DESCRIPTION
BAC-4002CW0001	Fan Coil AppStat with 3 speed fan control for modulating valves
BAC-4001CW0001	Fan Coil AppStat with 3 speed fan control fan for on/off valves
BAC-4003CW0001	Fan Coil AppStat with 3 speed fan control or modulating fan for on/off or modulating valves
BAC-4001CW0003	Heat Pump AppStat with 3H/2C fan control
BAC-4003CW0003	Heat Pump AppStat with 3H/2C fan control for economizer
BAC-4001CW0002	Roof Top Unit AppStat with 2H/2C or single stage fan control for on/off valves
BAC-4003CW0002	Roof Top Unit AppStat with 2H/2C or single stage fan control for on/off or modulating valves for economizer
BAC-4023CW0002	Roof Top Unit AppStat with 2H/2C or single stage fan control for on/off or modulating valves for economizer with dehumidification

Many more options available; contact Kele

ACCESSORIES

691-K0A	Control transformer, 120:24 VAC, 40 VA, Class 2
ST-D24	10,000Ω duct thermistor @ 77°F (25°C), Type II (yellow leads)
ST-S3E	10,000Ω executive thermistor @ 77°F (25°C), Type III (gray leads), executive beige enclosure with wide back plate
HMO-10000W	White mounting plate for horizontal or 4 x 4 handy box wall mounting