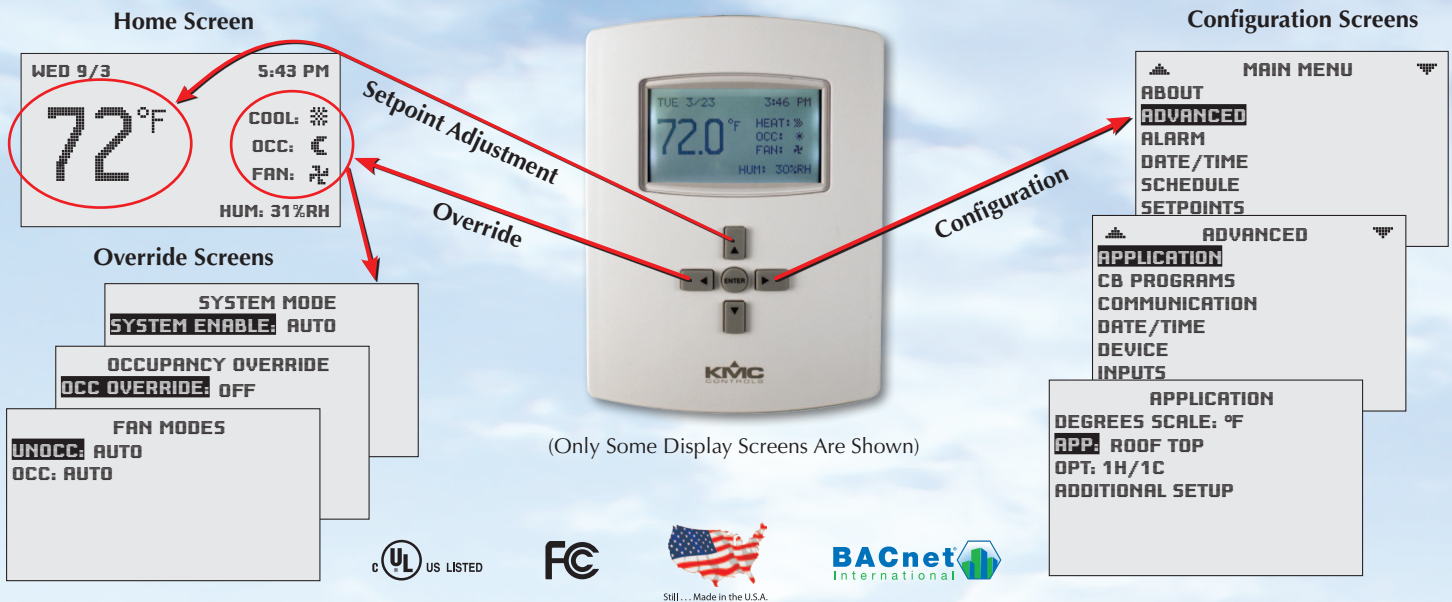




FlexStat™



Flexible IEQ Control at Your Fingertips



FlexStat Introduction

What if you could have **flexible, set-and-forget control over the indoor environmental quality (IEQ)** in your building without the expense of a large building automation system? Well, now you can, with the KMC FlexStat. FlexStat IEQ control for your space optimizes temperature, humidity, and ventilation for your health and comfort...while saving energy at the same time.

The FlexStat series of intelligent temperature/humidity/motion/CO₂-sensing, wall-mounted, thermostat/controllers are native BACnet Advanced Application Controllers (B-AAC) for connection with a BACnet system. The FlexStat simplifies networked zone control for common HVAC equipment—such as packaged rooftop units, air handlers, fan coil units, and heat pumps—which can be controlled via the on-board libraries of programs built into the FlexStat. The on-board library of programs permits rapid configuration of a wide range of HVAC control applications via the FlexStat's easy-to-use display and buttons. Plus, the standard library can be customized (using BACstage™ or TotalControl™) to meet the unique site needs and application-specific requirements of a particular project.

With its built-in library of applications, **just one FlexStat model can replace multiple competitor models.** With a single BAC-120163CW, for example, all these application options can be selected from the menus:

- Air handling unit, with proportional heating and cooling valves, and with optional economizer, dehumidification, and/or fan status.

- Fan coil unit, 2-pipe or 4-pipe, proportional or 2-position valves, with optional dehumidification (with 4-pipe option) and/or fan status.
- Heat pump unit, with up to two compressor stages, and with optional auxiliary heat, emergency heat, dehumidification, and/or fan status.
- Roof top unit, with up to two H/C stages, and with optional economizer, dehumidification, and/or fan status.

A one-size FlexStat “fits all.”

Flexible Features

Easy to configure and easy to use, the FlexStat has many features, including the following:

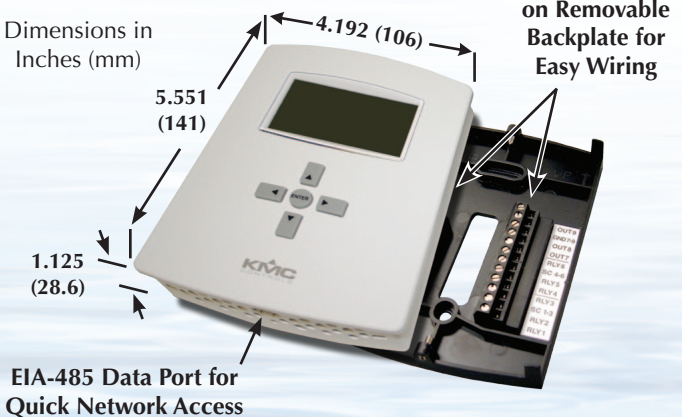
- User-friendly, high-contrast, backlit, dot-matrix LCD display with five buttons for easy, plain-English menu-driven configuration and operation.
- Multiple display options include selectable space temperature display precision, degrees F/C toggle, rotation values, display blanking, hospitality mode, and locked mode.
- Temperature sensing (standard) and optional humidity, motion (with effective range of up to 33 feet), and CO₂ sensing (see CO₂ and DCV Options section on the back page for details).
- Six analog inputs for additional configurable remote external sensors, such as remote space temperature (with averaging, highest, and lowest options), remote CO₂, outside air

temperature, mixed air temperature, water supply temperature, fan status, and other sensors. Analog inputs accept industry-standard 10K ohm thermistor sensors, dry contacts, or 0–12 VDC active sensors.

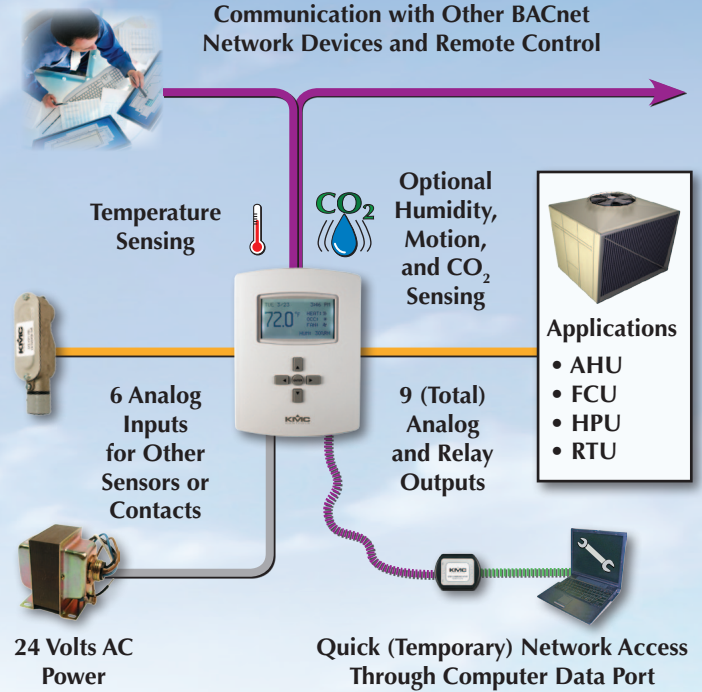
- A total mix of nine relays (binary) and analog outputs.
- Configurable password protection, with three levels of password-protected access to configuration, scheduling, and setpoint adjustment, prevents disruption of operation and configuration.
- Users can easily adjust the setpoint and (if allowed) change system modes, occupancy override, and fan speed.
- Built-in scheduling with Entire Week, Weekdays, Weekend, Individual Days, and Holidays options for easy configuration. Six On/Off and independent heating and cooling setpoint periods per day.
- Multiple built-in alarms and trend logs enhance system monitoring.
- Integral energy management control with energy deadband heating and cooling setpoints, economizer, optimum start, standby, DCV, and other advanced features. Selectable constant or intermittent/auto fan operation in either occupied or unoccupied modes.
- Two-piece design allows field rough-in and termination of field wiring to the backplate without needing the FlexStat at the site—permitting FlexStats to be bulk-configured off-site and plugged into the wired backplates at a later time if desired.
- During installation, easily select from the built-in, factory-tested library of configurable application control sequences.

BAC-12xxxx Series

Dimensions in Inches (mm)



Communication with Other BACnet Network Devices and Remote Control



- Real-time clock and 72-hour power (capacitor) backup for network time synchronization or full stand-alone operation.
- Integral peer-to-peer BACnet MS/TP LAN network communications on all devices (with configurable baud rate from 9600 to 76.8K baud), and “E” versions add BACnet over Ethernet, BACnet over IP, and BACnet over IP as Foreign Device.
- FlexStats come with a printed installation guide in the box. Plus, a large library of additional support for operation, configuration, programming, application, and more is available on the award-winning KMC Controls web site (www.kmcccontrols.com).



All this gives you automation power and support you would expect to find in much larger building automation systems—but in a low-cost, high-value, compact device you can hang on the wall. Hang it on yours.

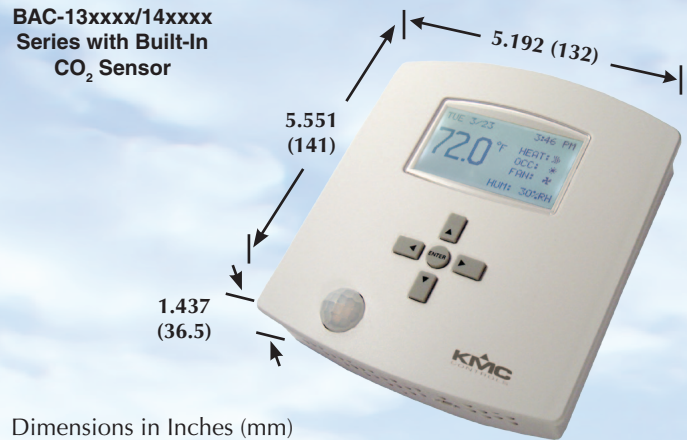
CO₂ and DCV Options

The air we breathe is critically important to our health since lurking potential contaminants can include dust, cigarette smoke, carbon dioxide, carbon monoxide, ozone, radon, VOCs (volatile organic compounds), and various other chemical compounds from outgassing of building materials and cleaning supplies. **Demand Control Ventilation (DCV)** optimizes indoor air quality while still providing energy efficiency.

The BAC-13xxxx series uses Automatic Background Logic (ABC Logic), a patented self-calibration technique designed to be used in applications where concentrations will drop to outside ambient conditions (approximately 400 ppm) at least three times in a 14 day period, typically during unoccupied periods. The sensor will maintain accuracy specifications with ABC Logic enabled, given that it is at least four times in 21 days exposed to the reference value. The BAC-13xxxx series, with ABC Logic, has been certified to comply with CA Title 24, Section 121(c), as well as sub-paragraph 4.F that specifies accuracy will be maintained within tolerance for a minimum of 5 years without recalibration and that a detected sensor failure will cause the controller to take appropriate corrective action.

The BAC-14xxxx series, for zones with continuous occupancy, has a dual channel sensor. A CO₂ channel measures gas concentration, and a reference channel measures the sensor signal intensity. Self-calibrations are performed approximately every 24 hours using the reference channel.

Although BAC-12xxxx FlexStats do not have a built-in CO₂ sensor, they still have DCV control sequences available. When DCV is enabled in these models, IN9 is assumed to be connected to an external CO₂ sensor. BAC-13xxxx/14xxxx FlexStats also have the external sensor option, and if used, the highest of the two readings (internal vs. external) will be used to control DCV



Dimensions in Inches (mm)

sequences. The CO₂ ppm display (when enabled) also shows the highest of the two levels.

When using applications with a modulating economizer option, the three types of Demand Control Ventilation (DCV) configurations available are Basic, Standard (which complies with CA Title 24, Section 121(c) when the BAC-13xxxx settings are properly configured), and Advanced (complies with ASHRAE Standard 62.1-2010 and follows guidelines by Portland Energy Conservation, Inc. when the settings are properly configured).

More Information

- For more details about this FlexStat series, see the data sheet (914-035-01).
- To see FlexStats as part of a building automation system, see Controlling Your Green Building Brochure (SB-048).
- These documents and more can be downloaded from the award-winning KMC Controls web site (www.kmcccontrols.com).

NOTE: Not all characteristics covered by IEQ (e.g., daylighting, views, and acoustics) are relevant to the FlexStat, and earlier BAC-1xxxx series FlexStats (with only three external inputs) do not have all the options described in this document.



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