



BAC-19xx63-ZEC FlexStats

Touchscreen Zoning Equipment Controllers

DESCRIPTION

KMC Conquest® BAC-19xx63-ZEC series FlexStats provide flexible control over indoor air quality. Devices in this series can function as stand-alone HVAC control units without the expense of a large BAS (Building Automation System) or as integrated, networked components of a BAS.

FlexStats are wall-mounted, touchscreen, combined sensors and controllers. These intelligent integral temperature/humidity/CO₂-sensing, wall-mounted thermostats simplify networked zone control for common HVAC equipment.

Integrated schedules, alarms, and trends enable these native BACnet Advanced Application Controllers (B-AAC) to be powerful components of the modern smart building ecosystem.

Key features include:

- A **touchscreen** operator interface provides system viewing and adjustment for users. The customizable screen features a title bar, room temperature and setpoint displays, four-object icon bar, fan status, the number of connected zones, the number of calls for heating or cooling, and a time and date display.
- Up to four internal **sensors** in a single package minimizes labor, wiring, and wall space, while standard temperature and optional humidity and CO₂ sensors allow expanded energy-efficient control.
- Besides the internal sensors, **input** terminals for six external inputs are provided. Nine **outputs** provide a combination of relays and universal (analog) outputs.
- Communication options include **BACnet** MS/TP, Ethernet, or IP (Normal or Foreign Device).
- **Rapid configuration from the touchscreen** for a range of control applications. For demanding custom requirements, these controllers are also **fully programmable**, using KMC software, to configure the standard library to meet the application-specific requirements of a particular project.
- KMC TotalControl™ additionally provides the capability of creating **custom graphical** web pages (hosted on a remote web server) to use as a remote user-interface for the controllers.
- The IoT platform KMC Commander® provides remote monitoring and control with **quickly createable dashboard** thermostat and trend “cards” on a PC or mobile device as well as remote alarms and dedicated trend graph pages.



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APPLICATIONS

BAC-19xx63-ZEC model applications include the following:

- Zone Actuator Control (single-zone VAV damper control)
- Heat Pump Units
- Roof Top Units

These applications can be configured from the touchscreen without using any software. Additional customization and applications beyond the standard library can be created using software. (See [Configuring, Programming, and Designing on page 4](#). See also [Sample Installation on page 6](#).)

MODELS

All BAC-19xx63-ZEC models feature 6 relays and 3 analog/universal outputs.

Models with the “E” suffix (e.g., BAC-193263CEW-ZEC) have Ethernet (BACnet over Ethernet, BACnet over IP, or BACnet over IP as Foreign Device) communication options. Models with no “E” suffix use MS/TP communication.

See the chart on the next page for additional features.

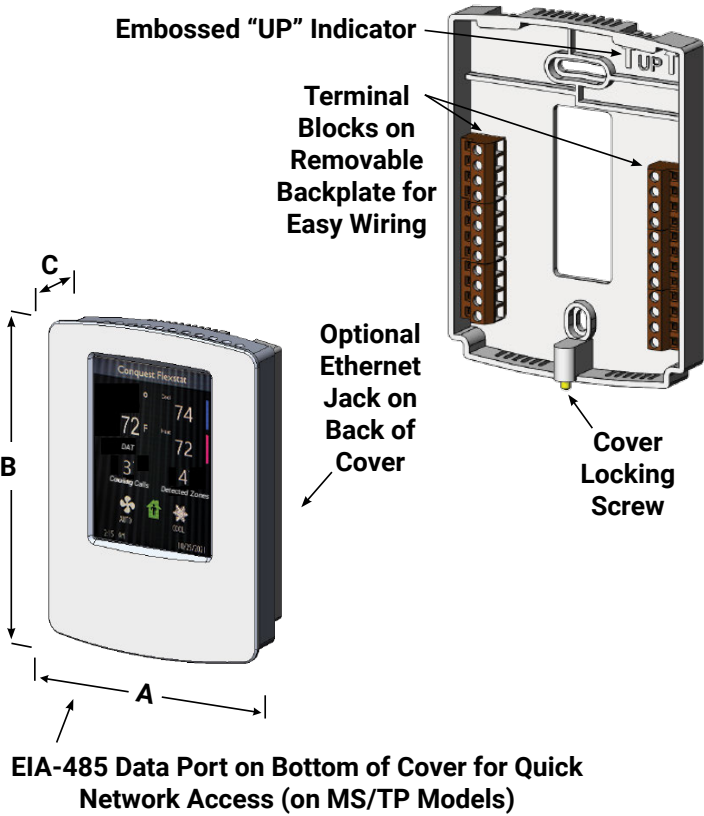
Model Applications*	Integrated Sensors**	BACnet Network Connection
HPU, RTU, Zone Actuator Controller (ZAC)		
BAC-190063CEW-ZEC***	Temperature	Ethernet/IP
BAC-190063CW-ZEC		MS/TP
BAC-193263CEW-ZEC	Temperature, Humidity, CO ₂	Ethernet/IP
BAC-193263CW-ZEC		MS/TP

*NOTE: Applications and options are dependent on the model. See [Applications on page 1](#).

**NOTE: Terminals are provided for up to six additional (external) inputs.

***NOTE: All models contain a hardware Real Time Clock ("C").

SPECIFICATIONS



DIMENSIONS		
A	3-7/8 inches	984 mm
B	5-1/8 inches	1302 mm
C	1-5/16 inches	330 mm

Sensors

Temperature Sensor

Sensor type	Thermistor, 10K Type II
Accuracy	±0.36° F (±0.2° C)
Resistance	10,000 ohms at 77° F (25° C)

Humidity Sensor (optional)

Sensor type	CMOS
Range	0 to 100% RH
Accuracy @ 25°C	±3% RH (10 to 90% RH)
Response time	Less than or equal to 4 seconds

CO₂ Sensor (optional)

Detector type	Non-Dispersive Infrared (NDIR), with dual channel detector for superior stability
Rated life	15 years minimum
Operating limits	32° to 122° F (0 to 50° C)
CO ₂ range	400 to 10,000 ppm
Accuracy	±(30 ppm + 3% of measured value)

Calibration Automatic calibration built-in*

***NOTE:** The CO₂ sensor uses a self-calibration technique designed to be used in applications where **CO₂ concentrations will periodically drop to outside ambient conditions** (approximately 400 ppm), typically during unoccupied periods. The sensor will typically reach its operational accuracy after 25 hours of continuous operation if it was exposed to ambient reference levels of air at 400±10 ppm CO₂. The sensor will maintain accuracy specifications if it is exposed to the reference value at least four times in 21 days. The “Standard” DCV mode option is compliant with 2019 California Title 24 Part 6 120.1(c)4.

Inputs and Outputs

Inputs, Universal (6 on Terminal Blocks)

Universal inputs	Configurable as analog or binary objects
Termination	1K and 10K ohm sensors, 0–12 VDC, or 0–20 mA (without need for an external resistor)
Resolution	16-bit analog-to-digital conversion
Protection	Overvoltage protection (24 VAC, continuous)
Wire size	14–22 AWG, copper, screw terminal blocks

Outputs, Relays (6)

Relays outputs	The NO, SPST (Form “A”) relays carry 1 A max. per relay or 1.5 A per bank of 3 relays (relays 1–3 and 4–6) @ 24 VAC/VDC
Wire size	14–22 AWG, copper, screw terminal blocks

Outputs, Universal (3)

Universal outputs	Configurable as an analog (0 to 12 VDC) or binary object (0 or 12 VDC, on/off)
Power/protection	Each short-circuit protected universal output capable of driving up to 100 mA (at 0–12 VDC) or 100 mA total for each bank of 3 outputs (outputs 4-6 and 7-9)
Resolution	12-bit digital-to-analog conversion
Wire size	14–22 AWG, copper, screw terminal blocks

Communications

MS/TP (optional)	One EIA-485 port (screw terminals) for BACnet MS/TP, operating at 9.6, 19.2, 38.4, 57.6, 76.8, or 115.2 kilobaud; max. length of up to 4,000 feet (1,200 meters) of 18 AWG shielded twisted-pair, no more than 51 pf/ft (167 pf/m); not available on “E” models
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Ethernet (optional) On “E” models only, a 10/100BaseT Ethernet connector for BACnet IP (Normal or Foreign Device) or Ethernet 802.3 (ISO 8802-3); segmentation supported; up to 328 ft (100 m) between controllers (using T568B Category 5 or better cable)

Configurability

OBJECTS*	DEFAULT #	MAXIMUM #
Inputs and Outputs**		
Analog or binary input	6	
Analog output	3	
Binary (relay) output	6	
Values		
Analog value	75	200
Binary value	40	200
Multi-state value	16	43
Program and Control		
Program (Control Basic)***	10	
PID loop	7	10
Schedules		
Schedule	2	
Calendar	1	
Logs		
Trend log	10	20
Trend log multiple	1	4
Alarms and Events		
Notification class	2	5
Event enrollment	10	40
Tables		
Input tables	4	
Control Basic tables	4	
*Configuration allows creation and deletion of objects. The configuration of default objects depends on the selected application.		
**6 external inputs (terminal blocks) and up to 4 (dependent on model) internal sensors		
***10 program objects containing a library of 5 built-in programs and 5 empty program objects (for any customized Control Basic programming).		

Configuring, Programming, and Designing

ZEC FlexStat basic configuration can be done (without any software) through the built-in menu structure available on the touchscreen.

For additional customization, programming (with Control Basic), and/or creating graphics for the controller, see the table for the most relevant KMC Controls tool. See the documents or Help systems for the respective KMC tool for more information.

SETUP PROCESS			KMC CONTROLS TOOL
Configuration	Programming (Control Basic)	Web Page Graphics	
✓			FlexStat Screen Menus
✓	✓		KMC Connect™ software (ver. 1.0.15.x or later)
✓	✓	✓*	TotalControl™ software (ver. 4.5.2.x or later)
		✓**	KMC Commander® IoT platform
*Custom graphical user-interface web pages created in TotalControl can be hosted on a remote web server, but they are not hosted in the ZEC FlexStat. **KMC Commander can display thermostat and trend “cards,” trends, alarms, and schedules on its web pages for monitor and control of ZEC FlexStats and many other devices.			

Hardware Features

Processor, Memory, and Clock

Processor	32-bit ARM® Cortex-M4
Memory	Programs and configuration parameters are stored in nonvolatile memory; auto restart on power failure
RTC	Real time clock with (capacitor) power backup for 72 hours (“C” model only) for network time synchronization or full stand-alone operation

Installation

Power

Supply voltage	24 VAC (50/60 Hz) or 24 VDC; –15%, +20%; Class 2 only; non-supervised (all circuits, including supply voltage, are power limited circuits)
Required power	13 VA, plus external loads
Wire size	14–22 AWG, copper, in a removable screw terminal block

Connections

Screw terminals	Wire size 14–22 AWG, for inputs, outputs, power, and MS/TP network
Modular RJ-45 jack	Ethernet port on “E” versions for standard T568B (Category 5 or better) Ethernet patch cable up to 328 feet (100 meters)
Four-pin EIA-485	Data port on the underside of the case enables easy temporary computer connection to the BACnet network (using an interface cable included with the HPO-5551 tech cable kit for the BAC-5051E)

Display

Type	Color resistive touchscreen
Size	2-7/8 x 2-3/16 inches (720 x 550 mm)
Features	Customizable screen includes a title bar, dedicated room temperature and setpoint displays, customizable four-object icon bar, time and date display, and up to 24 total rotation value displays (e.g., humidity, CO2, OAT, and DAT) in three areas of eight current values each
Icons	Animated, language-independent, symbols showing fan, occupancy, heating, cooling, and auto

Enclosure and Mounting

Weight	0.6 lbs. (0.27 kg)
Case material	Flame-retardant plastic
Mounting	Surface mount directly to any flat surface or to a 2 x 4 inch or 4 x 4 inch electrical box (mounting on a 4 x 4 box requires an HMO-10000W backplate)

NOTE: The two-piece design allows field rough-in and termination of field wiring to the backplate without requiring that the FlexStat be at the site. This allows FlexStats to be mass-configured off-site and plugged into the wired backplates at a later time if desired.

Environmental Limits

Operating	34 to 125° F (1.1 to 51.6° C)
Shipping	–40 to 140° F (–40 to 60° C)
Humidity	0 to 95% relative humidity non-condensing

Warranty, Protocol, and Approvals

Warranty

KMC Limited Warranty 5 years (from mfg. date code)

BACnet Protocol

Standard	Meets or exceeds the specifications in ANSI/ASHRAE BACnet Standard 135-2010 for Advanced Application Controllers
Type	BTL-certified as a B-AAC controller type

Regulatory Approvals

BTL	BACnet Testing Laboratory listed as Advanced Application Controller (B-AAC)
UL	UL 916 Energy Management Equipment listed
RoHS 2	RoHS 2 compliant
FCC	FCC Class A, Part 15, Subpart B and complies with Canadian ICES-003 Class A*

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

ACCESSORIES

NOTE: For accessory details, see the respective product data sheets and installation guides.

Actuators and Valves

MEP-4xxx	Actuators, 25 to 90 in-lb., fail-safe and non-fail-safe
MEP-7xxx	Actuators, 180 and 320 in-lb., fail-safe and non-fail-safe
VEB-43 series	2-way, NPT, control ball valves
VEB-46 series	3-way, NPT, Control Ball Valve

Communications

BAC-5051AE	BACnet router
HPO-5551	Router technician cable kit
HSO-9001	Ethernet patch cable, 50 feet
HSO-9011	Ethernet patch cable, 50 feet, plenum rated
HSO-9012	Ethernet patch cable, 75 feet, plenum rated
KMD-5567	MS/TP network surge suppressor

Mounting Hardware

HMO-10000W	White mounting plate, allows mounting to 4 x 4 inch electrical boxes
HPO-0044	Replacement cover hex screw

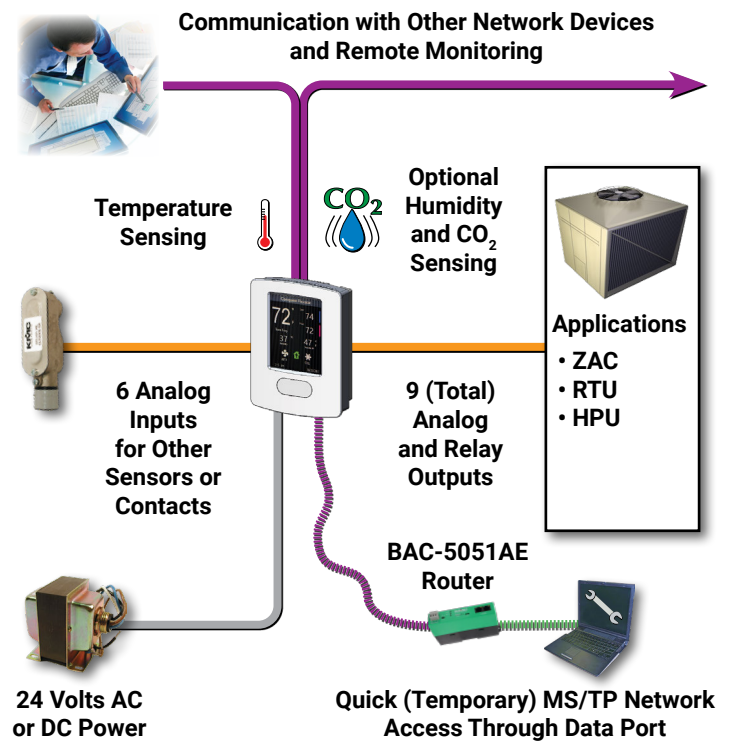
Sensors, External

CSE-1102/1103	Fan status differential pressure switch
CTE-3006/3007	Low limit switch, SPDT
STE-1405	DAT sensor with plenum-rated cable
STE-1451	OAT sensor
STE-6011W10	Space temperature sensor, white

Transformers, 120 to 24 VAC

XEE-6111-050	50 VA, single-hub
XEE-6112-050	50 VA, dual-hub

SAMPLE INSTALLATION



NOTE: Potential applications are dependent on the model. See [Applications on page 1](#) and [Models on page 1](#).

NOTE: The two-piece design allows field rough-in and termination of field wiring to the backplates without requiring the controllers to be present on-site. This allows the BAC-19xx63-ZEC to be configured off-site and connected to the wired backplate at a later time if desired.

NOTE: BAC-19xx63-ZEC series FlexStats are **not** plug-in replacements for the older BAC-1000/120000/130000/140000 series FlexStats. The new BAC-19xx63-ZEC series backplate will need to be installed in the place of the older one. Wiring, configuration, and/or programming may also require changes.

NOTE: For more information about mounting and maintenance, see [Room Sensor and Thermostat Mounting and Maintenance Application Guide](#).

SUPPORT

The latest support files are always available on the KMC Controls web site (www.kmccontrols.com). Log in to see all available files.

For specific FlexStat information, see the **BAC-19xx63-ZEC FlexStat Installation Guide** for:

- General installation procedures
- Maintenance information

See the **BAC-19xx63-ZEC FlexStat Sequence of Operation and Wiring Guide** for:

- Sample wiring for applications
- Sequences of operation
- Input/output objects and connections

See the **BAC-19xx63-ZEC FlexStat Application Guide** for:

- Configuration of settings
- Passwords
- Communication options
- Display customization
- CO₂ and DCV information
- Wiring considerations
- Restarting options
- Troubleshooting

For additional instructions on custom configuration and programming, see the Help system in the relevant KMC software tool.

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