Titus Alpha BACnet Controller

(ACS) Application Specific Controller with Integral Actuator
(EMCS) Energy Management
Stand-alone or networked operation
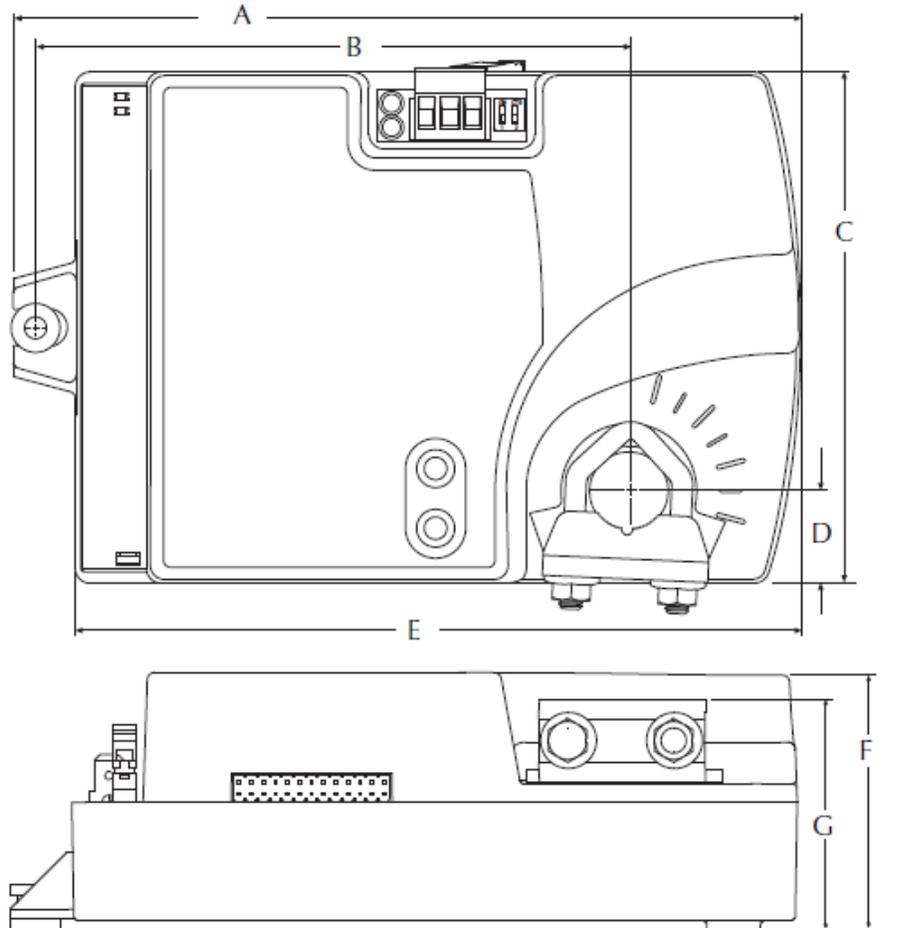
Dimensions

A	B	C	D	E	F	G
6.53 in	4.89 in.	4.25 in.	0.77 in.	6.00 in	2.14 in.	1.92 in.
166 mm	124 mm	108mm	19 mm	152 mm	54 mm	49 mm

Note: See page 2 for specifications

Titus Alpha BACnet Controller
Specifications

Analog inputs	All inputs are configured as analog objects
Active inputs	1
Passive inputs	3
Air flow sensor	1
Key features	Standard units of measure. Overvoltage input protection
Connector	Spade connectors, 0.25 inch
Conversion	12–bit analog–to–digital conversion
Input range	0–12 volts DC

Outputs, analog	2
Key features	Output short protection Configured as BACnet analog objects. Standard units of measure
Connector	Spade connectors, 0.25 inch
Conversion	12–bit analog–to–digital conversion
Output voltage	0–10 volts DC
Output current	30 mA per output, 30 mA total for all analog outputs

Outputs, binary	4 triacs for external equipment 2 for the internal actuator
Key features	Optically isolated triac output
Conversion	12–bit analog–to–digital conversion
Connector	Spade connectors, 0.25 inch
Output range	Maximum switching 24 VAC at 3 amperes

Communications	
BACnet MS/TP	EIA–485 operating at rates up to 76.8 kilobaud. Removable screw terminal block. Wire size 12–24 AWG
Sensor jack	RJ-45 jack compatible with model STE-8000 and STE-6000 models with RJ-45 jacks

Supported objects	See PIC statement for supported BACnet objects
Control Basic	5 program areas in BAC-8005 6 program areas in BAC-8205
PID loop objects	2
Value objects	60 analog, 32 binary, and 12 multistate

Memory	Programs and program parameters are stored in nonvolatile memory. Auto restart on power failure

Applications programs	KMC Controls supplies the BAC-8x07 with programming sequences for dual-duct VAV applications:

  ♦ Cooling VAV with modulating, time proportional, two-stage, three-stage, and tri-stage reheat
  ♦ Monitor CO2 to control indoor air quality
  ♦ Control local lighting with motion sensing
  ♦ Fan control
  ♦ Balancing
  ♦ UL 864 smoke controll (BAC-8205 only)

Air flow sensor features	Configured as BACnet analog input object. CMOS differential pressure 0-2 inches of water (0-500 Pa) measurement range. Internally linearized and temperature compensated. Span accuracy 4.5% of reading. Barbed connections for 1/4 FR tubing. Range dependent upon DP pickup, tubing size/length and connections.

Actuator specifications	
Torque	40 in-lb. (4.5 N•m)
Angular rotation	0 to 95° Adjustable end stops at 45° and 60° rotation
Motor timing, BAC-8005	90 sec./90° at 60 Hz 108 sec./90° at 50 Hz
Motor timing, BAC-8205	60sec./90° at 60 Hz 72 sec./90° at 50 Hz
Shaft size	Directly mounts on 3/8 to 5/8 inch (9.5 to 16 mm) round or 3/8 to 7/16 inch (9.5 to 11 mm) square damper shafts.

Regulatory	UL 916 Energy Management Equipment FCC Class B, Part 15, Subpart B BACnet Testing Laboratory listed as an application specific controller (ASC). UL 864 smoke controls (BAC-8205 only)

Installation	
Supply voltage	24 volts AC, -15%, +20% 5 VA
Weight	13.2 ounces (376 grams)
Case material	Flame retardant plastic

Environmental limits	
Operating	32 to 120° F (0 to 49° C)
Shipping	–40 to 140° F (–40 to 60° C)
Humidity	5–95% relative humidity (non-condensing)

Models	
BAC-8005	Cooling VAV controller with 90 second actuator and reheat
BAC-8205	Cooling VAV controller with 60 second actuator, reheat, and UL 864 smoke control application

Titus Alpha BACnet Controller
Room sensors

Digital display

Digital w/occupancy sensor
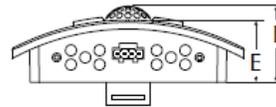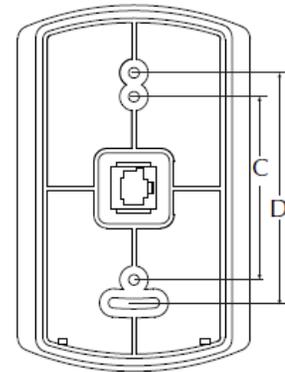
Dimensions

A	B	C	D	E	F
3.25 in	5.16 in.	2.58 in.	3.25 in.	0.87 in	1.07 in.
83 mm	116 mm	66 mm	83 mm	22 mm	27 mm

Display	Multifunctional LCD 1.88 x 1.25 in. (48 x 32 mm)
Compatibility	BAC-8000 series VAV controllers
Controller Connection	
Connector type	Eight-wire RJ-45 modular jack
Cable type and length	Standard Ethernet cable up to 75 feet (22.9 meters)
Power	Supplied by connected controller
Mounting	Surface mount directly to any flat surface or to a 2 x 4 inch or 4 x 4 inch handy-box. Mounting on a 4 x 4 inch box requires a mounting backplate.
Weight	2.8 ounces (80 grams)
Material	Flame retardant plastic
Accessories	
Mounting backplate	HMO-1161W
Gasket	HPO-116
Replacement Allen screws	HPO-0044 (package of 10)
Environmental Limits	
Operating Temperature	34° to 125° F (1.1 to 51.6° C)
Shipping	−40° to 140° F (−40°C to 60° C)
Humidity	0 to 95% relative humidity non-condensing

Motion sensor range	Model STE-8201 only
Detector type	Passive infrared
Range	33 feet (10 meters). See diagrams
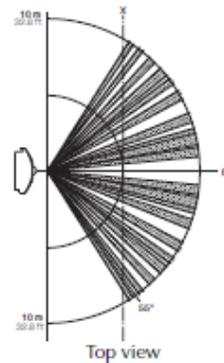
Top view

Side view

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Room sensors

Dial sensor
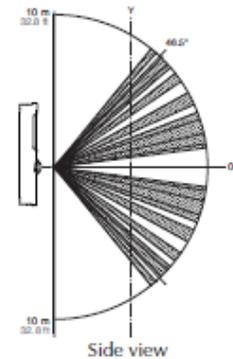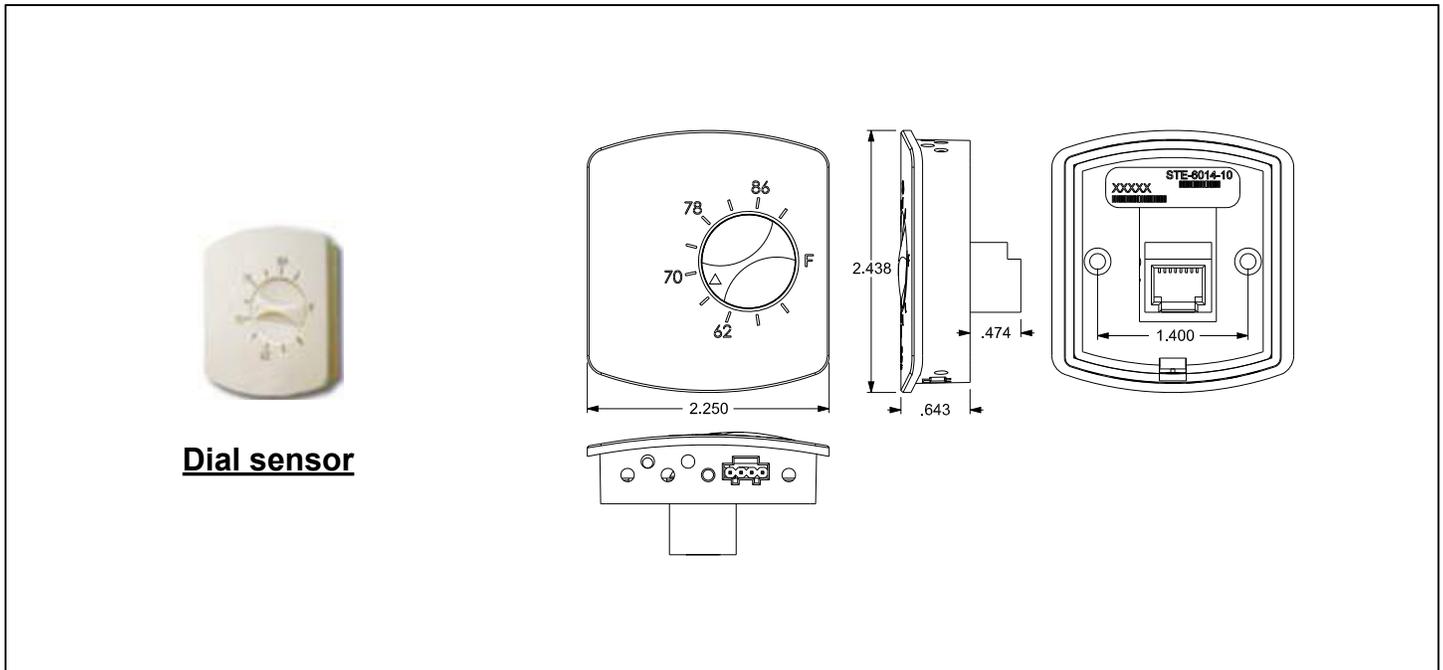
Material Light Almond (or White) ABS, UL Flame Class 94HB

Sensor
Type Type II 10k-ohm thermistor

Accuracy ±0.36° F (±0.20° C)
Temp. Reading Thermistor resistance only from all models except the 0–5 VDC voltage output from the STE-6012/6016 transmitter

Power Requirements
6013/6015/6018/6020 (LED) 10 VDC (12 VDC max); 5 mA max. current draw at 12 VDC