BAC–7001/7051
Advanced Application Controllers for Variable Air Volume Terminal Units

Description

The BAC–7001 and BAC7051 are native BACnet, direct digital controllers designed for VAV terminal units. An integrated actuator and the supplied programs make these an ideal controller for temperature setback, overrides, proportional reheat and other HVAC sequences. Install this versatile controller in stand-alone environments or networked to other BACnet devices. As part of a complete facilities management system, the BAC-7001 and 7051 controllers provide precise monitoring and control of connected points.

- BACnet MS/TP compliant
- Standard VAV control sequences are incorporated to provide pressure independent control of a single-duct VAV unit.
- On-board airflow sensor for use with a single or multi-point differential pressure measuring station or pitot tube.
- Use to control heating, cooling, cooling with heat change-over, cooling with time proportional reheat or three-stage, sequential reheat.

Specifications

Inputs

- 3 universal inputs each of which is programmable as an analog, binary or accumulator objects. A fourth input is dedicated to the airflow sensor.
- Standard units of measure
- Pull-up resistors for switch contacts and other unpowered equipment. Switch select none or 10kΩ.
- Removable screw terminal block, wire size 14–22 AWG
- 10–bit analog–to–digital conversion
- Pulse counting to 16 Hz
- 0–5 volts DC analog input range
- Overvoltage input protection
- Compatible with KMD-1161 and KMD-1181 NetSensors

Applications programs

KMC Controls supplies the BAC–7001 and BAC-7051 with programming sequences for three single-duct VAV applications:

- Heating-cooling changeover
- VAV with time proportional reheat
- VAV with three-stage reheat.

Outputs

- 3 universal outputs each of which is programmable as an analog or binary object.
- Standard and custom units of measure
- Removable screw terminal block, wire size 14–22 AWG
- 0–10 volts DC for analog objects
- 0–12 volts DC for binary objects
- Output current limited to 100mA per output.

Specifications based on firmware 1.5. Specifications and design subject to change without notice.

Programmable features

- 10 Control Basic program areas
- 4 PID loop objects
- 40 analog and 40 binary value objects
- See Pic statement for supported BACnet objects

Schedules

- 8 Schedule objects
- 3 Calendar objects

Alarms and events

- Supports intrinsic reporting
- 8 Notification class objects

Trends

- 8 Trend objects

Memory

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

Communications

- EIA–485 operating up to 76.8 kilobaud
- NetSensor compatible through RJ–12 connector

Velocity sensor features

Platinum-ceramic flow-through, 0 to 3000 FPM (15.24 m/s) using 24 inch, 1/4 FR tubing and SSS-1000 series flow pickups. Range dependent upon DP pickup, tubing size/length and connections.

Actuator features

Actuator motor is programmed by output 4.

Torque

50 in-lb. (5.7 N•m) minimum
70 in-lb. (7.9 N•m) maximum

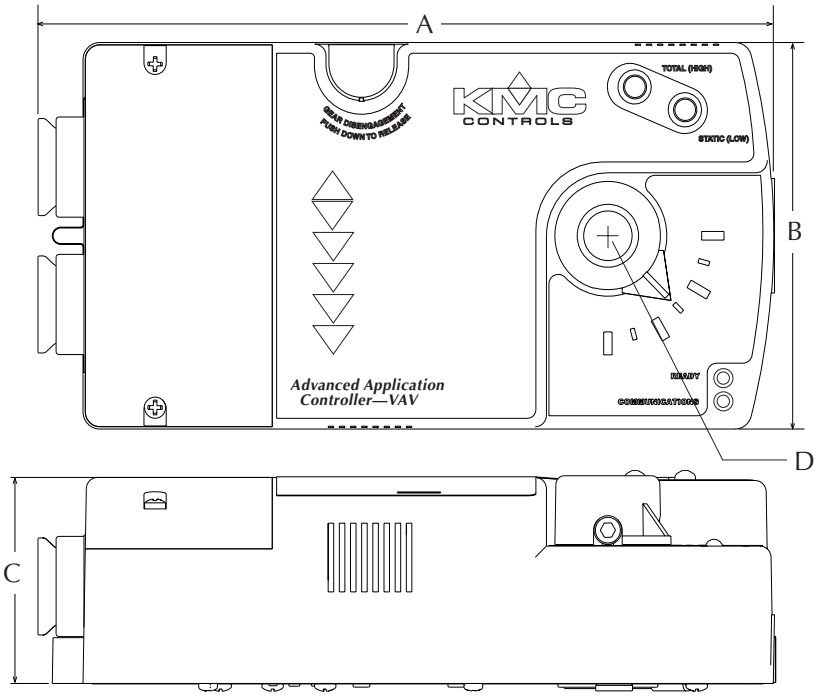
Angular Rotation

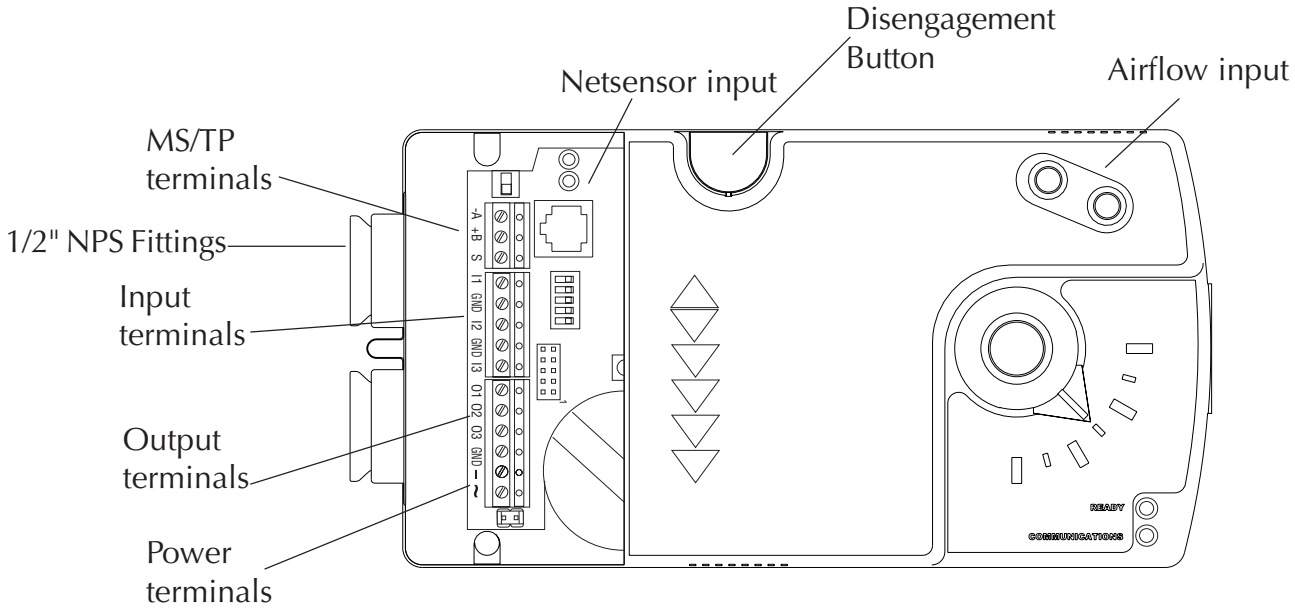
0 to 95° Adjustable end stops at 45/60/90° rotation

Motor Timing

BAC-7001	18°/minute at 60 Hz.
	15°/minute at 50 Hz.
BAC-7051	60°/minute at 60 Hz.
	50°/minute at 50 Hz

A	B	C	D
8.23 in.	4.22 in.	2.25 in.	0.51 in.
209 mm	107 mm	57 mm	13 mm





Installation

Supply voltage

24 volts AC, -15%, +20% 25 VA

Weight

2.4 lbs (1.1 kg)

Case material

Black flame retardant polymer
UL94-5V plenum rated

Environmental limits

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

Regulatory

- UL 916 Energy Management Equipment
- FCC Class A, Part 15, Subpart B
- BACnet Testing Laboratory listed

Software compatibility

Requires BACstage 2.1 or a later version for configuration and programming.

Accessories

HFO-0011	3/8 inch (9.5 mm) shaft adaptor

Airflow sensors

Order one of the following for installation on VAV units without airflow sensors. A tubing adaptor (3/16 to 1/4) is required.

SSS-1002	3-5/32 in. length (80 mm)
SSS-1003	5-13/32 in. length (137 mm)
SSS-1004	7-21-32 in. length (195 mm)
SSS-1005	9-29/32 in. length (252 mm)

Power transformer

XEE-6111-40	Single-hub 120 volt transformer
XEE-6112-40	Dual-hub 120 volt transformer

Models

BAC–7001	VAV Controller with 18°/minute actuator
BAC–7051	VAV Controller with 60°/minute actuator

BMA™ BACnet MANUFACTURERS ASSOCIATION

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