

Technical Specifications

ASP 31-401

Group: **Controls**

Part Number: **ASP 31-401**

Date: **July 2015**

BACnet® Thermostat



Description

The BACnet Thermostat combines the power of a space-mounted equipment controller with the convenience of a built-in temperature sensor. The controllers include factory supplied programs for the following applications:

- Two and four pipe fan coil units
- Roof top units
- Heat pump units

Applications

Stand alone operation. No special programming, software applications, or setup tools are required to configure and commission a BACnet Thermostat. All options can be set by using only the five front panel buttons and the east-to-read menus in the full color display.

New or retrofit applications. The attractive two-piece design is ideal for new installations or upgrades of older, less efficient thermostats. The BACnet Thermostat installation requires only mounting the backplate to a wall or electrical box, connecting wires to screw terminals, and plugging the thermostat into the backplate.

Bright, full-color display. The full color display is easy to read across a room even in bright sunlight. Users can easily choose between Fahrenheit or Celsius values. The display features large numbers and simple color icons to indicate heating or cooling, occupied, unoccupied or local setback modes, and fan operation.

Network ready. All models are native BACnet, Application Specific Controllers ready to connect to a BACnet MS/TP network. Device instance, MAC address, and baud rate are set from the password protected front controls. All models feature a hardware clock and BACnet schedule that can be set up from the front panel or as standard BACnet objects and properties.

Hardware

Full color user interface

The user interface is a color display and has five push buttons. Back lighting automatically starts when any button is pushed and remains lit for 60 seconds after the last button is pushed. Through the menu driven display, an operator can do the following:

- Change setpoints and fan, heating, cooling modes
- Choose between Fahrenheit or Celsius values
- Set BACnet addressing
- Set up and commission the installation
- Add or change user passwords
- Configure any available options

Security

Separate passwords for users and control technicians and engineers.

Screen type

- 128 × 128 pixels
- Active color LCD with LED back lighting
- 1.00 × 1.04 inches (25 × 26 mm)

Inputs and outputs

All inputs and outputs for the BACnet Thermostat 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 thermistor sensors
- 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 volts DC
- 8-bit PWM digital-to-analog conversion

Connections

Screw terminal blocks, wire size 14-22 AWG, for inputs, outputs, power, and network connections.

BACnet communication

- Integral peer-to-peer BACnet MS/TP network communications
- Network speed from 9600 to 76,800 baud
- Front panel selection for device instance, MAC address, and baud rate
- Meets or exceeds ANSI/ASHRAE BACnet Standard 135-2008 for Application Specific Controllers

Table 1: Accuracy-temperature only models

Type	Thermistor
Accuracy	±0.36°F (±0.2°C)
Resistance	10,000Ω at 77°F (25°C)
Operating Range	48 to 96°F (8.8 to 35.5°C)

Regulatory approval

- UL 916 Energy Management Equipment
- 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



Operating Sequences

Fan Coil Units

BACnet Thermostats 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 or modulating valves
- Four-pipe heating and cooling with on/off valves or modulating valves
- Three-speed fan control
- Remote space temperature sensor

Roof Top Units

BACnet Thermostats 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
- Optional economizer
- Automatic or manual fan control
- Modulating valves or on/off heating and cooling valves
- Remote space temperature sensor

Heat Pump Units

BACnet Thermostats 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
- Automatic or manual fan control

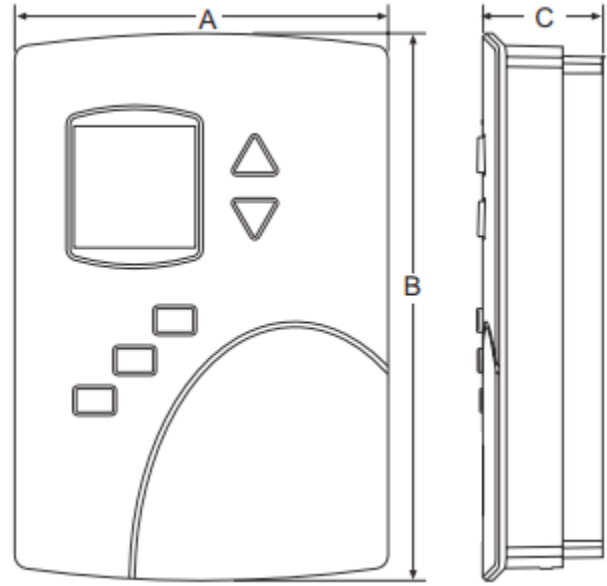


Table 3: Dimensions in Inches (mm)

A	B	C
3.5 (89)	5.12 (130)	1.13 (29)

Installation Information

Mounting

Backplate mounts to a standard 2×4 vertical handy-box or Euro style box. The controller is secured to the backplate with a concealed Allen screw.

Table 2: Mounting Information

General	
Material	White flame-retardant plastic
Weight	Approx. 6 oz. (170 grams)
Supply Voltage	24 volts AC (-15%, +20%), 50-60 Hz, 12 VA, Class 2 only, non-supervised (all circuits, including supply voltage, are power limited circuits)
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

Ordering Information

Table 4: Materials List

Description	Product Number	Model Name
Fan Coil Unit	2508035	MIT-FA-005
2-pipe and 4-pipe		
Modulating or ON/OFF valves		
Modulating or Three-speed fan	2508034	MIT-RA-007
Roof Top Unit		
Modulating or ON/OFF valves		
One or two-stages heat		
One or two stages cooling		
Fan control	2508036	MIT-HA-009
Economizer		
Heat Pump Unit		
3 heat, 2 cool		
Fan Control		
Economizer		



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Warranty

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. To find your local Daikin Applied representative, go to www.DaikinApplied.com.

Aftermarket Services

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