



## BAST-421C – BACnet Communicating Thermostat for Modulating Fan Coil Operation

The BASstat series of BACnet-compliant wired or wireless communicating thermostats ensure effortless integration into BACnet/IP (Wi-Fi) or BACnet MS/TP (EIA-485) networks. These thermostats are suited for modulated heating, cooling, and ventilation with analog output control in 4-pipe applications such as Fan Coil Units (FCU) or Air Handlers. A configurable control algorithm allows adaptability to the specific application. This adaptive algorithm applied to the modulated valve control saves energy and ensures comfort for the occupants. Three sensing options are available: built-in temperature sensor, input for remote temperature sensor, or temperature override network command from Building Automation System. Occupancy status can be set from thermostat buttons, a wired ESI input, or over the BACnet network. Thermostat buttons are optionally lockable to prevent unauthorized control or configuration changes. Digital display with graphical icons is easy to read and understand.

NOTE: This unit is designed for 4-pipe HVAC systems and not recommended for 2-pipe HVAC systems.

### Versatile BACnet Communication in Two Distinct Models

- BACnet MS/TP in B2 models with MS/TP baud rates 9.6kbps - 76.8kbps (BTL Listed)
- BACnet/IP in BW2 models with 802.11 b/g/n 2.4GHz Wi-Fi
- Both B2 and BW2 models are BACnet compliant with a B-ASC device profile

### Flexible Installation

- 24VAC (+/-10%) power input
- Digital Display with graphical icons of operation, °C or °F display
- Modulating valve control, analog Outputs for Fan Coil Operation
- Suitable for 4-pipe modulating heat/cool control applications with manual or automatic changeover



ASHRAE **BACnet™ MS/TP**

NOTE: 2-pipe heat/cool applications and floating-type valve actuators are not supported by this device

- Occupied/Unoccupied modes with 2 sets of Cool/Heat set points
- Effective run time accumulation for energy consumption calculations
- Built-in temperature sensor
- Remote temperature sensor input (NTC Thermistor 3kΩ)
- Occupancy status can be switched (1) locally by the user, (2) by using a separate occupancy sensor, or (3) by using BACnet network command
- Networked current temperature override from BACnet client (BMS)
- Fully Configurable Algorithm control parameters: Deadband, Proportional Gain, Integral Rate, Stage Trip Points, Stage Widths, Short Cycle Delay, Maximum Cycles Per Hour
- Stand-alone operation with setpoints reset and schedule from BACnet BMS or optional full BACnet BMS control

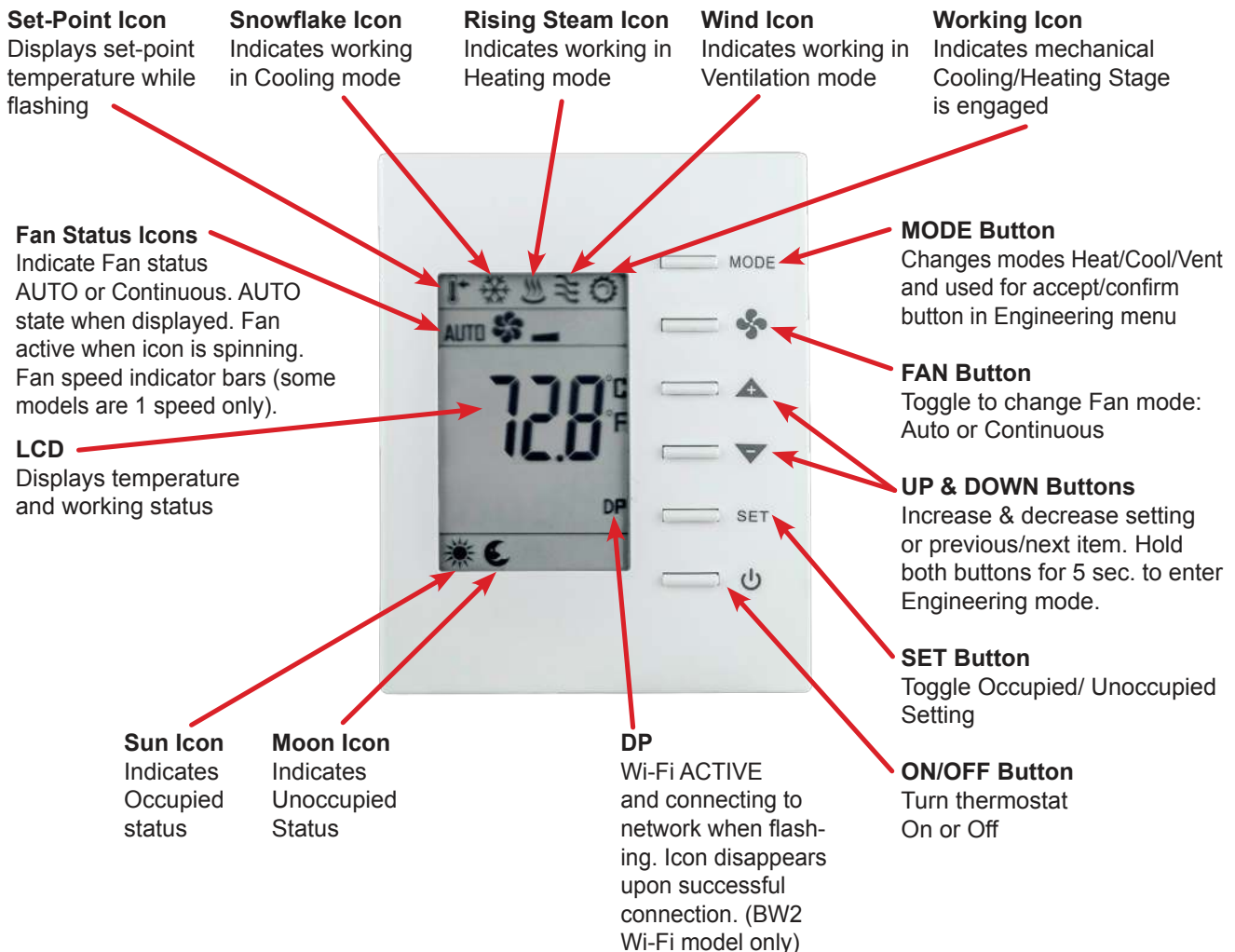
- Non-volatile memory (EEPROM) retains user settings during power loss
- Lockable buttons/user interface
- Operating Environment: 0-50°C, 5-95% RH (non-condensing)
- Wiring: 14 to 22 AWG wires or 1.5mm<sup>2</sup> wires
- Dimensions: 94x118x34 mm (W x H x D)
- Mounts directly onto wall, panel, standard 65x65 mm junction box (hole pitch 60 mm) or standard 2x4 inch vertical junction box (hole pitch 83.5 mm)

## BASstat – Overview

The BASstat's white backlit LCD display is large and easy to read, even from a distance. It incorporates graphical icons to aid visual indication of current state of operation. Several icons indicate parameters such as: Active Mode, Cooling stage 1 or 2, Heating stage 1 or 2, Ventilation Only, Fan Active, Occupied/Unoccupied state, and Clock icon to indicate Short Cycle Delay or Max Cycles per hour active waiting state. These icons are very useful in indicating the thermostat's current state of operation.

Six buttons on the BASstat allow users to manipulate

temperature set point, change HVAC modes, turn the thermostat ON/OFF, and more. Pressing the Set and Up/Down buttons can manually toggle the thermostat from occupied/unoccupied modes, where BACnet occupancy command is not an option. All 6 of these buttons are lockable in a configurable manner to prevent unauthorized configuration change. Some or all buttons can be locked for application flexibility, making the stat suitable for applications where limited user control is allowed.

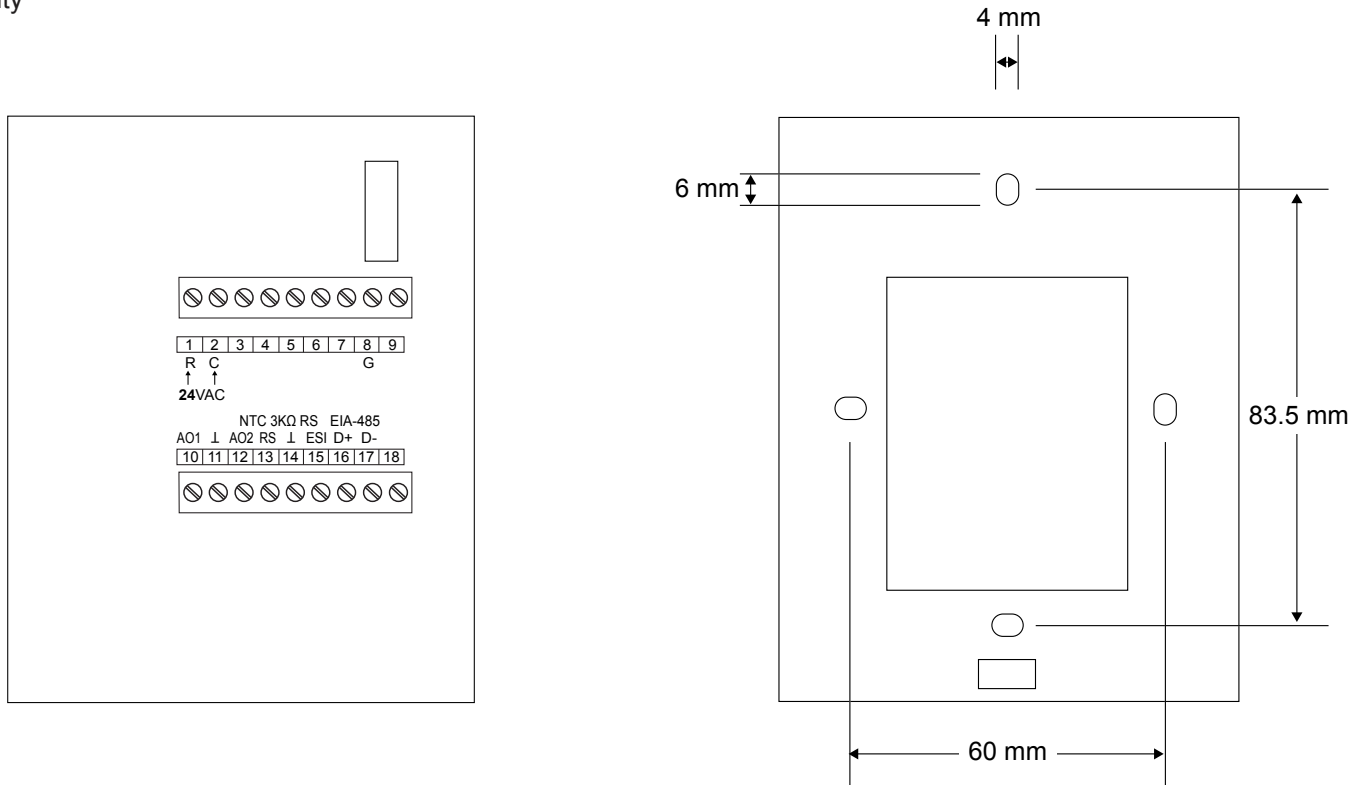


## Wiring Diagram

Wiring: 14 to 22 AWG wires or 1.5mm<sup>2</sup> wires.

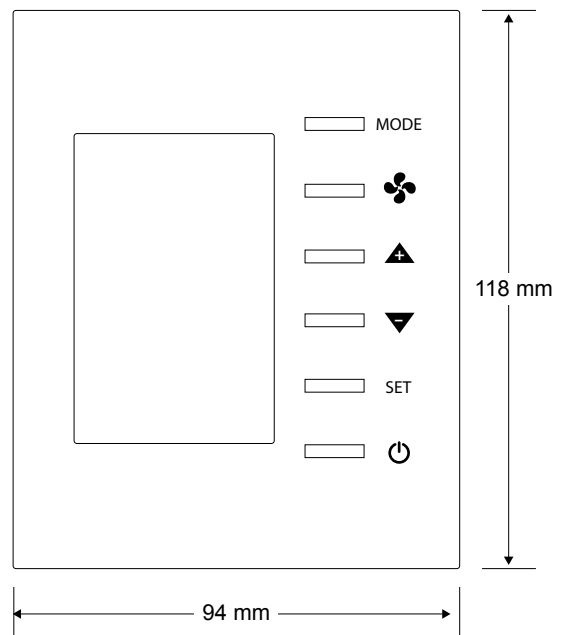
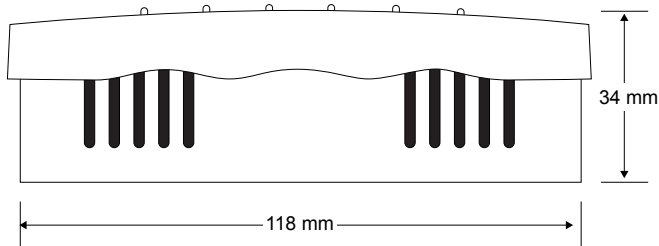
Mounts directly onto wall, panel, standard 65×65mm junction box (hole pitch 60 mm) or standard 2×4-inch vertical junction box (hole pitch 83.5mm).

EIA-485 connection to pins 16(D+) and 17(D-) applicable to B2 - BACnet MS/TP model only. BW2 model uses Wi-Fi connectivity



## Dimensions (all dimensions are in mm)

Width: 94mm  
Height: 118mm  
Depth: 34mm



## Specifications

### Functional

Compliance

### B2 model

EIA-485

### BW2 model

IEEE 802.11b, 802.11g, 802.11n  
(single stream) 16.5dBm@11b,  
14.5dBm@11g 13.5dBm@11n  
Frequency range:  
2400MHz~2484MHz

Protocols supported

BACnet MS/TP

BACnet/IP

Cable length

4000 ft/1200 m  
@76.8kbps (max)

N/A

Wi-Fi range

N/A

150ft. as defined by the standard  
(depending on obstructions)  
54Mbps max data rate

Authentication

N/A

WEP, WPA/WPA2 PSK

Maximum Number of Devices

32 MS/TP devices (max)

N/A or depending on Wi-Fi router  
performance

Temperature Display Range

-30 to 120.0°C (-22 to 248°F)  
with suitable sensor

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with suitable sensor

Temperature Display Resolution

0.1°F (0.1°C)

0.1°F (0.1°C)

Temperature Accuracy

±1.8°F (±1.0°C) with all  
outputs off

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### Electrical

Input

AC only

AC only

Voltage (V, ± 10%)

24 VAC

24 VAC

Power

5 VA Frequency 47–63 H

5 VA

Frequency

47–63 Hz

47–63 Hz

### Environmental/Mechanical

Operating temperature

0°C to +50°C (32 to 122°F)

0°C to +50°C (32 to 122°F)

Storage temperature

-10°C to +60°C (14 to 140°F)

-10°C to +60°C (14 to 140°F)

Relative humidity

5–95%, noncondensing

5–95%, noncondensing

Protection

IP30

IP30

Weight

0.44 lbs. (.2 kg)

0.44 lbs. (.2 kg)

### Regulatory Compliance

CE Mark; RoHS



BW2 model Wi-Fi FCCID

P53-EMW3165-P

## Electromagnetic Compatibility

The BASstat complies with the following specifications and bears the CE mark in accordance with the provisions of the Electromagnetic Compatibility (EMC) Directive 2004/108/EC based on the following specifications:

Standard	Test Method	Description
EN 61000-6-2	IEC 61000-4-2	Electrostatic Discharge Immunity
EN 61000-6-2	IEC 61000-4-3	Radiated, Radio-Frequency, Electromagnetic Field Immunity
EN 61000-6-2	IEC 61000-4-4	Electrical Fast Transit/Burst Immunity
EN 61000-6-2	IEC 61000-4-5	Voltage Surge Immunity
EN 61000-6-2	IEC 61000-4-6	Immunity to Conducted Disturbances
EN 61000-6-2	IEC 61000-4-8	Power Frequency Magnetic Field Immunity
EN 61000-6-2	IEC 61000-4-11	Voltage Dips and Interruptions
EN 61000-6-3	IEC 61000-3-2	Limits for Harmonic Current Emissions
EN 61000-6-3	IEC 61000-3-3	Limitation of Voltage Fluctuations and Flicker in Low Voltage Supply Systems

## Ordering Information

<b>Model</b>	<b>Description</b>
BAST-421C-B2	BACnet MS/TP FCU 4-pipe, single-speed Fan, Wired
BAST-421C-BW2	BACnet/IP FCU 4-pipe, single-speed Fan, Wi-Fi

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