

BrainBox AI Stat 2

Overview

The BrainBox AI Stat 2 streamlines the control of new or existing rooftop unit and heat pump unit applications.

Features & Benefits

- Elegant and compact design, provides a modern appearance when installed in any environment
- Native support of ASHRAE Guideline 36 sequences
- Wi-Fi ready, Cloud native
- Field selectable wired BACnet MS/TP or wireless BACnet/IP over Wi-Fi
- Integrated temperature and humidity sensing
- Optional integrated Radar Motion Detection and CO₂ sensing



Product Specifications

Model	Application	Temperature	Humidity	Motion	CO ₂
BBAI-STAT-2-215HW	Rooftop Unit (RTU) or Heat Pump (HP) 2UI, 1AO, 5BO	✓	✓		
BBAI-STAT-2-537HW	Rooftop Unit (RTU) or Heat Pump (HP) 5UI, 3AO, 7BO	✓	✓		
BBAI-STAT-2-537MHCW	Rooftop Unit (RTU) or Heat Pump (HP) 5UI, 3AO, 7BO, Motion and CO ₂	✓	✓	✓	✓

Power supply input

Voltage Range	24VAC/DC; ±15%; Class 2
Typical Power Consumption	1.5VA; all external loads excluded
Maximum Power Consumption ¹	96VA max including BOs at 2A each; external 24VAC loads excluded
Frequency Range	50 to 60Hz
Overcurrent Protection	External fuse required
Fuse Type	Up to 4A depending on output current consumption ¹

Wired communications

BACnet Transport Layer	MS/TP, half-wave rectified device
Baud Rates Supported	9600, 19200, 38400, 76800, (76800 default)
Service Port	Mini USB2 MS/TP
BACnet Profile	BACnet Building Controller (B-BC)
Web Server Protocol	Access point local web server Station mode VLAN web server
Web Server Application Interface	REST API

Wireless communications

Wi-Fi Communication Protocol	BACnet/IP over Wi-Fi 6 (WPA2, WPA3 / 2.4GHz)
Wi-Fi Connection Types	Hotspot (default), Client, Access Point
Addressing	IPv4, DHCP or Static

Hardware

Processor	STM32 (ARM Cortex™ M33) 32-bits
CPU Speed	250MHz
Memory	2MB Non-volatile Flash (applications & storage) 640KB SRAM
Real Time Clock (RTC)	Real Time Clock (built-in capacitor, one week backup)
Transceiver	¼ Load Device

Display characteristics

Display Type	FFT with backlight
Display Resolution	240 x RGB x 320
Effective Viewing Area (W x H)	48.96 x 36.72 mm (1.93 x 1.44")

¹ Device power (terminal R) and all other loads on the BrainBox AI Stat 2 should not exceed 4A total consumption.

Temperature and humidity sensor

Sensor	Sensirion™ SHT40
Temperature Range	0°C to 60°C (32°F to 140°F)
Temperature Accuracy	±0.2°C (±0.36°F)
Humidity Range	0-100% RH
Humidity Accuracy	+/-1.8% RH @ 25-75% RH, +/- 3% overall

Motion detection (BBAI-STAT-2-537MHCW)

Operating Principle	Radar cross-section optimized for human beings
Detection Distance and Angle	6 m (20 feet) at 0° 5 m (16 feet) at ±45° 1 m (3 feet) at ±80°

CO₂ sensor (BBAI-STAT-2-537MHCW)

Sensor	Telaire™ T6713 Self calibrating, non-dispersive infrared (NDIR, dual beam)
Range	400-2000 ppm
Accuracy	±30 ppm at 3% of reading (accuracy is valid after a minimum of two weeks of continuous operation)
Response Time	3 minutes

Mechanical

Dimensions (H × W × D)	125.0 × 91.0 × 25.0 mm (4.92 × 3.58 × 0.98")
Shipping Weight	0.18 kg (0.4 lb)
Enclosure Material and Color	ABS, White
Enclosure Rating	Plastic housing, UL94 V-0
Installation	Standard 2" x 4" electrical junction box

Environmental

Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-30°C to 50°C (-22°F to 122°F)
Relative Humidity	0 to 90% RH Non-condensing

Universal Inputs (UI)

General	
Input Type	Universal; software configurable
Input Resolution	12-Bit analog/digital converter
Contact	
Type	Dry contact
0 to 10VDC	
Range	0 to 10VDC (20k Ω input impedance)
Resistance/Thermistor	
Thermistor	10K Ω Type 2, 3 (10K Ω at 25°C/77°F)
Range	0 to 350K Ω

Analog 0 to 10VDC

Source	
Voltage Range	0 to 10VDC linear
Source Current	Maximum 5mA at 10VDC (minimum resistance 2k Ω)

Binary Output (BO)

General	
Output Type	MOSFET Solid State Relays, Isolated 10 to 30VAC, 2A max
Maximum Total Current for all Outputs	4A max

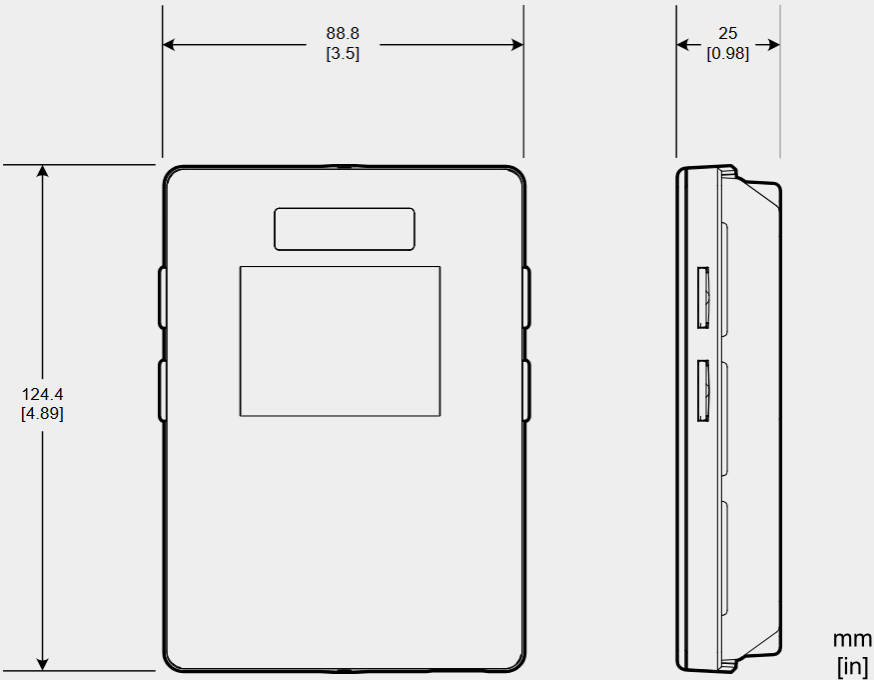
Approvals

Regulatory Compliance & Certifications	
BTL	B-BC
FCC	Compliance with FCC rules part 15, class A
UL Listed (CDN & US)	UL 916 Energy management equipment

This product is manufactured by Strato Automation Inc. (models OS215HW, OS537HW and OS537MHCW). All associated agency listings, including BTL, FCC, UL, and RoHS are maintained under the original manufacturer's certification.

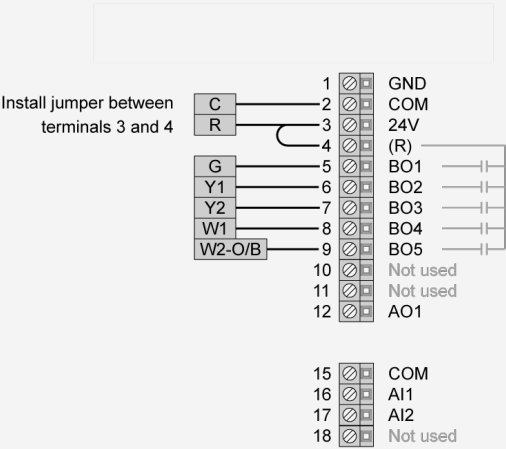


Dimensions



I/O Identification

BBAI-STAT-2-215HW



BBAI-STAT-2-537HW BBAI-STAT-2-537MHCW

