BHT-Barometric/Humidity/Temperature Sensor

Modbus RTU (RS-485)

Description

BHT is a high-quality combination temperature, humidity, and barometric pressure sensor module. All sensing elements are integrated into a single probe and radiation shield.

BHT is a low-power digital-output module with a Modbus interface. It is compatible with the Dyacon Control Module or Modbus host devices, such as programmable logic controllers (PLCs) and data loggers.

Not only does **BHT** provide current measurements, but it also provides barometric pressure trends for the previous three hours.

User registers for sensor calibration allow the instrument to be calibrated using Modbus messages.

Applications

- Weather station sensor
- Automated process control sensor
- HVAC air sensor

Measurements

- Air Temperature (Celsius)
- Air Pressure (mbar)
- Relative Humidity (%)
- Air Pressure Trend (rising, falling, steady)

Key Features

Construction: The sensing probe is housed in a compact, low mass, radiation shield. Cabling to the probe can be routed adjacent to or through the shield and mounting hardware, providing an extra measure of protection from cable strain, fatigue, and animal damage.

Hum-Temp: Temperature and relative humidity are produced from a precision Swiss sensing element. The best-in-class capacitive sensor is highly accurate to the boundaries of its operational limits. The robust sensor is highly stable in harsh environments and exhibits minimal aging.

Barometric Pressure: A 24-bit ADC digital pressure sensor element has the capability to deliver 10 cm (+/- 1.5 mbar) resolution.

The 3-hour barometric pressure trend is given as steady or rising or falling (slow or fast).

Data Connection: Power and data are provided through a 4 wire connection. **BHT** uses an RS-485 (Modbus slave) data connection. **BHT** is a low power device suitable for solar powered instrumentation systems.

Mounting: The **BHT** mounting system is compatible with standard 1" pipe.

Accessories: BHT can be used with the aspiration kit for improved performance.

Highlights

- Air temperature
- Relative humidity
- Barometric pressure
- 3-hr pressure trend
- Modbus RTU slave device
- Low power: 1.4 mA
- Ultra-low power: <60 microAmp
- Smart-FanTM aspiration option
- Easy mounting
- Made in USA

Stevens Water Monitoring Systems, Inc

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Specifications

Temperature	Range	-40°C to 80°C
	Resolution	0.01°C**
	Accuracy (0°C to 60°C)	+/- 0.2 K*
	Reproducibility	+/- 0.1 K
	Response Time	12 s
	Long Term Drift	<0.05 K/yr
	Sensor Type	PTAT
Relative Humidity	Range	0% to 100% RH
	Resolution	0.01% **
	Accuracy	+/- 1.8% (0% to 80%)*
	Reproducibility	+/- 0.2% RH*
	Hysteresis	< +/- 1% RH
	Linearity	< +/- 1% RH
	Response Time	12 s
	Long Term Drift	<0.5% RH/yr
	Sensor Type	Capacitive
Barometric Pressure	Range	10 mbar to 1300 mbar
	Resolution	0.065 mbar**
	Accuracy	+/- 1.5 mbar*
	Response Time	0.5 ms
	Long Term Stability	<1 mbar/yr
	Sensor Type	MEMS
Electrical	Power Input	5 VDC to 24 VDC
	Current	1.4 mAavg at 12 VDC full run mode† 60 uAavg in sleep mode‡
Mechanical	Material	UV-stabilized, PVC, white
	Overall (WxDxH)	13.2 cm x 13.4 cm x 13 cm (5.2” x 5.3” x 5.1”)
	Cable	4 conductor, 24 AWG, stranded Foil shield w/ drain wire Outdoor rated cable
	Total Weight	288 g (10.2 oz)
	Weight Shield Only	228 g (8.1 oz)
Data	Protocols	Modbus RTU slave (RS-485) Half duplex (2-wire)
	Min. Request Period	50 ms at 19200 bps
Temperature	Operating Temperature	-40°C to 60°C
	Storage Temperature	-40°C to 80°C
Accessories	Aspirator Kit	51-6057
	Horizontal Mounting Kit	51-6004

** Specifications are derived from component sensing elements.*
*** Standard resolution (0.1) and high resolution registers (0.01) are both available.*
† Continuous full run mode, reading 200 range registers once per second.
‡ Timeout set to 50 or greater. No Modbus activity.

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