Temperature/RH Smart Sensor (S-THC-M00x) Manual

Temperature/RH Smart Sensor

Models: S-THC-M002
S-THC-M008

Accessories:

- Solar radiation shield (RS3-B)

The temperature/RH smart sensor is designed to work with smart sensor-compatible HOBO® data loggers and stations. All sensor parameters are stored inside the smart sensor, which automatically communicates configuration information to the logger without any programming, calibration or extensive user setup.

Specifications

	Temperature	RH
Measurement Range	-40°C to 75°C (-40°F to 167°F)	0-100%* RH at -40° to 75°C (-40° to 167°F); exposure to conditions below -20°C (-4°F) or above 95% RH may temporarily increase the maximum RH sensor error by an additional 1%
Accuracy	±0.25°C from -40° to 0°C (±0.45°F from -40° to 32°F) ±0.20°C from 0° to 70°C (±0.36°F from 32° to 158°F) ±0.25°C from 70° to 75°C (±0.45°F from 158° to 167°F)	±2.5% from 10% to 90% RH typical to a maximum of ±3.5% including hysteresis at 25°C (77°F); below 10% and above 90% ±5% typical
Resolution	0.02°C (0.036°F)	0.01% RH
Bits Per Sample	16	16
Drift	<0.01°C (0.018°F) per year	<1% per year typical
Response Time (typical, to 90% of change)	Without solar radiation shield: 3 minutes, 45 seconds in air moving 1 m/s With RS3-B solar radiation shield: 6 minutes, 30 seconds in air moving 1 m/s	Without solar radiation shield: 15 seconds in air moving 1 m/s With RS3-B solar radiation shield: 30 seconds in air moving 1 m/s
Operating Temperature Range	-40°C to 75°C (-40°F to 167°F)	
Environmental Rating	Weatherproof: 0 to 100% RH intermittent condensing environments. For best results, protect the temp/RH sensor from sunlight and direct splashing by mounting it inside a protective enclosure, such as a solar radiation shield.	
Housing	PVC cable jacket with ASA styrene polymer RH sensor cap; modified hydrophobic polyethersulfone membrane	
Sensor Dimensions	45.97 x 11.43 x 10.16 mm (1.81 x 0.45 x 0.40 inches)	
Weight	S-THC-M002: 110 g (3.88 oz) S-THC-M008: 180 g (6.35 oz)	
Number of Data Channels**	2	
Measurement Averaging Option	No	
Cable Lengths Available	2.5 m (8.2 ft); 8 m (26.2 ft)	
Length of Smart Sensor Network Cable*	0.5 m (1.6 ft); 6 m (19.6 ft)	
CE	The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).	
UKCA	The UKCA marking identifies this product as complying with all relevant directives in the UK Declaration of Conformity.	

* Maximum 100% RH readings are only logged with RX3000 stations. The maximum readings for this sensor with U30 and H21 stations is approximately 99.99%.

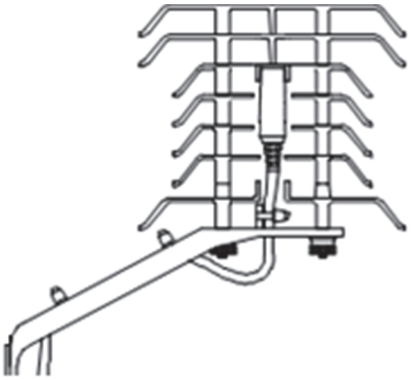
** A single HOBO station can accommodate 15 data channels and up to 100 m (328 ft) of smart sensor cable (the digital communications portion of the sensor cables).

Connecting the Sensor to a Station or Logger

To connect the sensor to a station or logger, stop the station or logger from logging and insert the smart sensor's modular jack into an available smart sensor port. See the station manual for details on operating stations or loggers with smart sensors.

Mounting

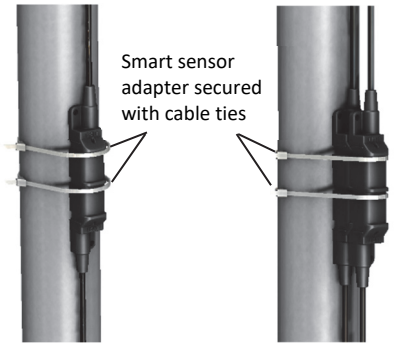
Use a solar radiation shield to mount the sensor. Use the cable clamps included with the RS3-B radiation shield to secure the smart sensor as shown.



Temp/RH Sensor mounted in Solar Radiation Shield RS3-B (cross-section)

Mounting Considerations

- A solar radiation shield is strongly recommended when measuring air temperature in direct sunlight. Solar radiation can be a significant source of error in the temperature and RH readings.
- When deploying an S-THC sensor, it is recommended that you mount the sensor vertically. If it must be mounted horizontally, then make sure the vent on the side of the sensor is vertical or facing down.
- Thermally isolate the sensor from the mounting surface to ensure accurate air temperature and humidity readings.
- Protect the sensor from direct exposure to the weather. This will prolong the sensor accuracy.
- Secure the smart sensor adapter to the mast with the cable ties as shown. Multiple smart sensor adapters can be stacked as shown in the example below on the right.



One Smart Sensor Adapter Mounted

Two Smart Sensor Adapters Stacked and Mounted

- Alternatively, mount the smart sensor adapter to a flat surface using two screws (no larger than a #6) and two washers as shown.

- If you are running sensor cables along the ground, use conduit to protect against animals, lawn mowers, exposure to chemicals, etc.
- Refer to the station manual and Tripod Setup Guide at www.onsetcomp.com/support/manuals for more information regarding setting up stations.

Maintenance

The temperature/RH smart sensor is sensitive to dust, salts and other airborne contamination. Periodically inspect the sensor probe and rinse it with distilled water to clean it. Do not use hot water, organic solvents, or detergents. Dry before use.

ONSET
1-508-759-9500 (U.S. and International)
1-800-LOGGERS (564-4377) (U.S. only)
www.onsetcomp.com/support/contact