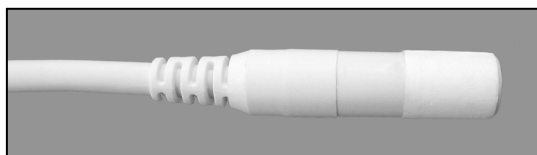


Temperature/RH Smart Sensor (S-THB-M00x)

The Temperature/RH smart sensor is designed to work with smart sensor-compatible HOBO® data loggers. 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	0.2°C over 0° to 50°C (0.36°F over 32° to 122°F); see Figure 1	± 2.5% from 10 to 90%; see Figure 2 for full range
Resolution	0.02°C at 25°C (0.04°F at 77°F); see Figure 1	0.1% RH at 25°C (77°F)
Bits Per Sample	12	10
Drift	< 0.1°C (0.18°F) per year	< 1% per year typical; hysteresis 1%
Response Time	5 minutes in air moving 1 m/sec	10 minutes in air moving 1 m/sec with protective cap
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, the Temp/RH Smart Sensor should be mounted 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	10 x 35 mm (0.39 x 1.39 in)	
Weight	S-THB-M002 - 110 g (3.88 oz); S-THB-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)	
Part Numbers	S-THB-M002, S-THB-M008	
CE Specification	This product meets CE specification EN61326 criterion C for ESD, criterion C for Radiated Immunity, criterion C for Fast Transient, criterion B for Conducted Immunity, criterion A for Power Frequency Magnetic Fields, and Radiated Emissions Group 1, Class B. To minimize measurement errors due to ambient RF, use the shortest possible probe cable length and keep the probe cable as far as possible from other cables.	

* A single smart sensor-compatible HOBO logger can accommodate 15 data channels and up to 100 m (325 ft) of smart sensor cable (the digital communications portion of the sensor cables).

Temperature/RH Smart Sensor

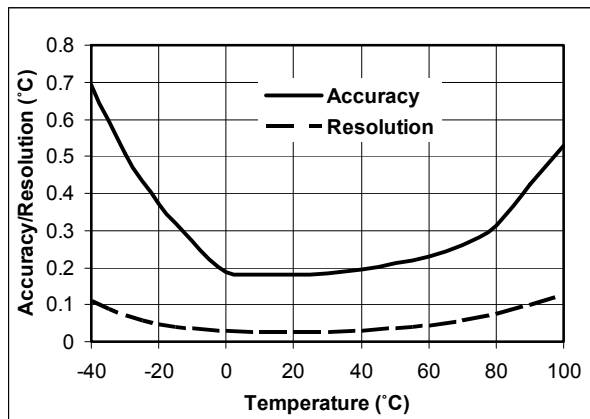


Figure 1: Temperature Accuracy and Resolution

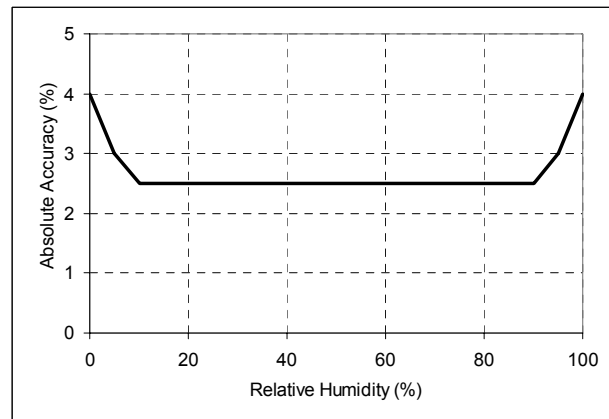


Figure 2: Relative Humidity Accuracy

Inside this Package

- Temp/RH Smart Sensor

Mounting

Accessories

Solar Radiation Shield (part # M-RSA or RS3)

Replacement RH Sensor (part # HUM-RHPCB-2)

Typical Mounting

- Solar Radiation Shield: Use the washer and screw (included with the M-RSA radiation shield) or cable clamps (included with the RS3 radiation shield) to secure the smart sensor in the radiation shield as shown in Figures 3 and 4.

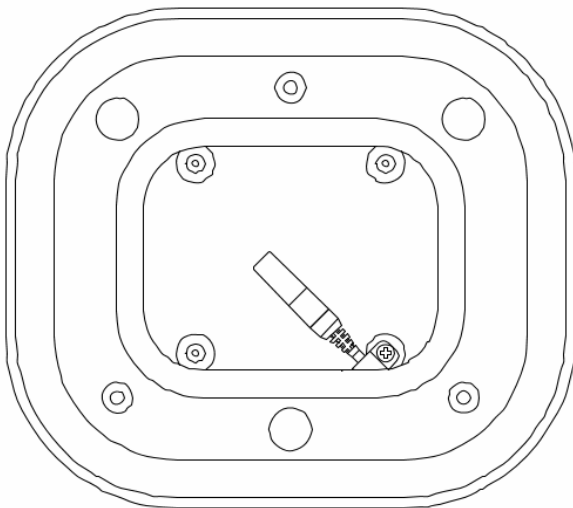


Figure 3: Temp/RH Sensor mounted in the Solar Radiation Shield M-RSA

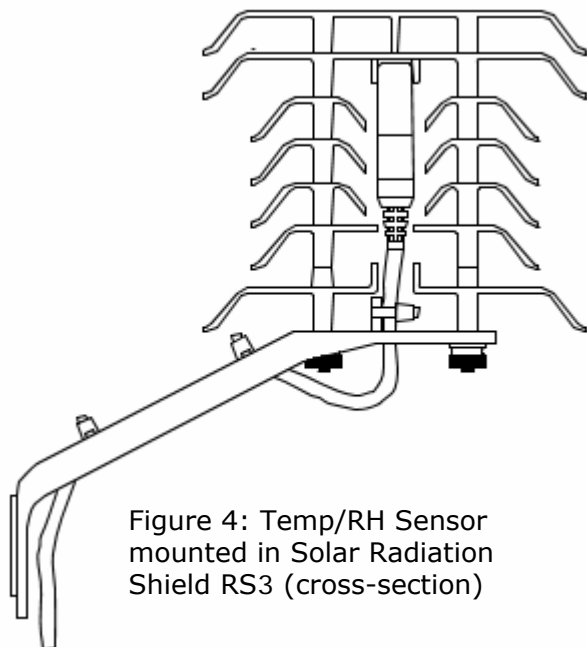


Figure 4: Temp/RH Sensor mounted in Solar Radiation Shield RS3 (cross-section)

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 mounting the probe, care should be taken to thermally isolate the sensor from the mounting surface to ensure accurate air temperature and humidity readings. The probe's temperature sensor is at the end of the cable, just below the cup.
- It is recommended that the probe be protected from direct exposure to the weather. This will prolong the sensors' accuracy.
- If you are running sensor cables along the ground, it is recommended that you use conduit to protect against animals, lawn mowers, exposure to chemicals, and so on.
- The protective housing on the cable contains the smart sensor's electronics. It is waterproof, but it is not designed for prolonged submergence in puddles, saturated soils, etc.
- Refer to the logger user's guide for more information regarding setting up complete weather stations.

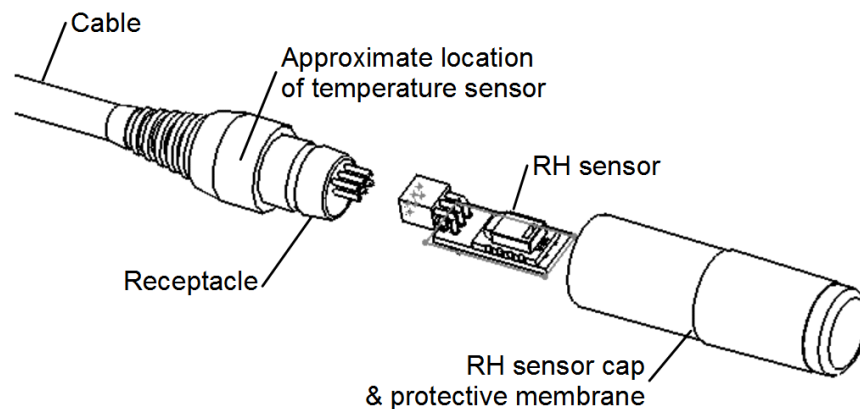
Connecting

To use the sensor with the smart sensor-compatible HOBO logger, stop the logger and insert the modular jack into an available port. If a port is not available, use a 1-to-2 adapter (Onset Part # S-ADAPT). The next time you launch the logger, it will automatically detect the new sensor. Note that the logger supports a maximum of 15 data channels. Use the software to launch the logger and verify the sensor is functioning correctly. See the logger user's guide for more details about connecting HOBO smart sensors to loggers.

Replacing the RH sensor

The RH sensor is protected by an ASA styrene polymer cap and a modified hydrophobic polyethersulfone fluid barrier membrane that allows vapor to penetrate while protecting the sensor from condensation. RH sensor performance may degrade over time. To replace the RH sensor, take the following steps:

1. Remove the tape fastening the sensor cap to the receptacle. Discard the tape.
2. Grasp the cap and membrane and pull firmly to remove them. Discard them.
3. **Note the orientation of the small circuit board containing the RH sensor.** Pull it out and discard it in compliance with local disposal guidelines for circuit boards.



4. Push gently but firmly to install the new sensor (Onset part # HUM-RHPCB-2) **in the same orientation.**

Temperature/RH Smart Sensor

5. Put the new sensor cap and membrane on. Do not force the cap. If it does not go on easily, the sensor may be installed backwards. Reverse the sensor and try again.

Maintenance

The Temperature/RH smart sensor is sensitive to dust, salts and other airborne contamination. Periodically inspect the RH sensor. If contamination is present on the protective cap, gently rinse it with cool fresh water. If the sensor itself is contaminated, you can rinse it with distilled water. Do not use hot water, organic solvents, or detergents. Dry before use.

Warranty

As part of Onset's ongoing efforts to provide 100% customer satisfaction, our Continuing Engineering Group constantly monitors and evaluates all of our products and software. In the unlikely event any significant defect is found, Onset will notify you. If you find a defect, please e-mail us at loggerhelp@onsetcomp.com.

Onset Computer Corporation (Onset) warrants to the original end-user purchaser for a period of **one year** from the date of original purchase that the HOBO product(s) purchased will be free from defect in material and workmanship. During the warranty period Onset will, at its option, either repair or replace products that prove to be defective in material or workmanship. This warranty shall terminate and be of no further effect at the time the product is (1) damaged by extraneous cause such as fire, water, lightning, etc. or not maintained in accordance with the accompanying documentation; (2) modified; (3) improperly installed; (4) repaired by someone other than Onset; or (5) used in a manner or purpose for which the product was not intended.

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Returns

Please direct all warranty claims and repair requests to place of purchase.

Before returning a failed unit directly to Onset, you must obtain a Return Merchandise Authorization (RMA) number from Onset. You must provide proof that you purchased the Onset product(s) directly from Onset (purchase order number or Onset invoice number). Onset will issue an RMA number that is valid for 30 days. You must ship the product(s), properly packaged against further damage, to Onset (at your expense) with the RMA number marked clearly on the outside of the package. Onset is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company. Loggers and sensors must be clean before they are sent back to Onset or they may be returned to you.

Repair Policy

Products that are returned after the warranty period or are damaged by the customer as specified in the warranty provisions can be returned to Onset with a valid RMA number for evaluation.

ASAP Repair Policy

For an additional charge, Onset will expedite the repair of a returned product.

Tune Up Service

Onset will examine and retest any HOBO data logger or sensor.

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CE The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).

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