RXW Soil Moisture Sensor (RXW-SMx-xxx) Quick Start
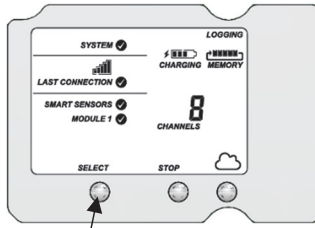
HOBO®
Data Loggers

Adding a Sensor Node to the HOBOnet® Wireless Sensor Network

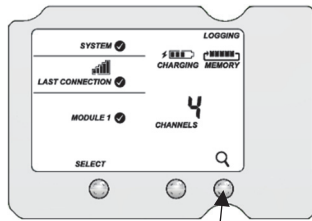> **Important:** Keep the sensor node near the station while completing these steps.
>
> If you are setting up a new station, follow the instructions in the station quick start guide before setting up this sensor node (go to www.onsetcomp.com/resources/documentation/24380-man-rx2105-rx2106-qsg for RX2105 and RX2106 stations or www.onsetcomp.com/resources/documentation/18254-man-qsg-rx3000 for RX3000 stations).
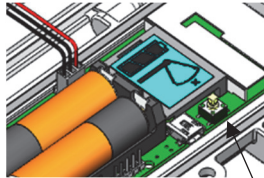
1

Press the Select button on the station to switch to the module with the manager (module 2 on RX2105 or RX2106 stations).

2

Press the Search button. The magnifying glass icon blinks while the station is in search mode waiting for sensor nodes to join the network.

3

Open the sensor node door and install the rechargeable batteries. Press the button on the sensor node for 3 seconds.

4 Watch the sensor node LCD while it joins the network:

a.

This signal strength icon blinks while searching for a network.

b.

Once a network is found, the icon stops blinking and the bars cycle from left to right.
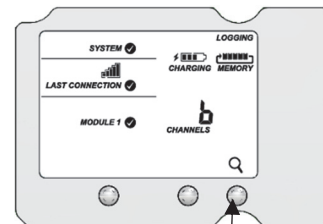
c.

This network connection "x" icon blinks while the sensor node completes the registration process, which may take up to five minutes.

d.

Once the sensor node finishes joining the network, the "x" icon is no longer displayed and the channel count on the station LCD increases by two (one for soil moisture and one for the sensor node battery).

5

Press the Search button on the station again to stop the search for sensor nodes.
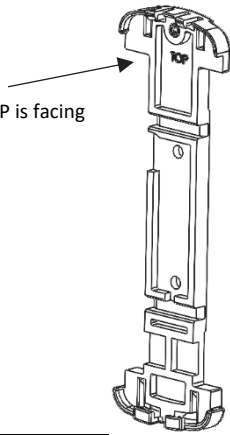
6 **HOBOlink®** Go to www.hobolink.com to monitor sensor node status and health. See the HOBOlink Help for details.

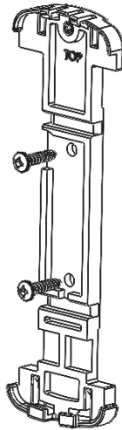### Installing the Bracket and Sensor Node

1

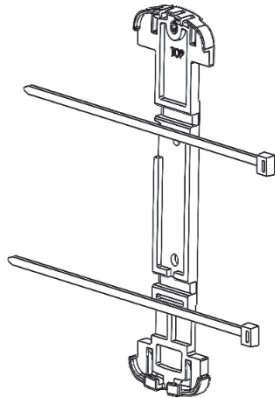Orient the bracket so the text TOP is facing upwards.

2

To install the bracket onto a wall, use the two long screws included in the package. Screw the bracket to a wall using the two holes on the mid-section of the bracket.
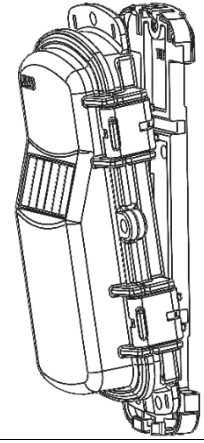
3

To install the bracket onto a pole, slip a cable tie through each of the channels on the bracket and fasten the tie around the pole.

4

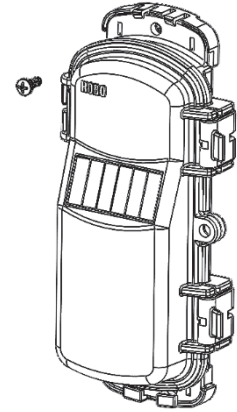Insert the bottom of the sensor node into the retaining clips on the bottom of the bracket then press the top of the sensor node into the clips at the top of the bracket.

5

Use the short screw included in the package to fasten the sensor node to the bracket.

6

Close the sensor node and use a padlock to keep it secure.

Note: Ensure that the node seal is clean from foreign debris.

Mounting and Positioning the Sensor Node

- Position the sensor node towards the sun, making sure the solar panel is oriented so that it receives optimal sunlight throughout each season. It may be necessary to periodically adjust the sensor node position as the path of the sunlight changes throughout the year or if tree and leaf growth alters the amount of sunlight reaching the solar panel.

- Make sure the sensor node is mounted a minimum of 1.8 m (6 feet) from the ground or vegetation to help maximize distance and signal strength.

- Consider using plastic poles such as PVC to mount the sensor node as certain types of metal could decrease the signal strength.

- Place the sensor node so there is full line of sight with the next sensor node. Use a repeater if there is an obstruction between sensor nodes.

- There should not be more than five sensor nodes in any direction from a repeater or the manager. Data from sensor nodes travels or "hops" across the network and may not reach the station if the sensor node is more than five hops away.

Sensor Mounting Guidelines

- This sensor measures the water content in the space immediately adjacent to the probe surface. Air gaps or excessive soil compaction around the probe can profoundly influence soil water content readings.

- Do not mount the probes adjacent to large metal objects, such as metal poles or stakes. Maintain at least 8 cm (3 inches) of separation between the probe and other objects. Any objects, other than soil, within 8 cm (3 inches) of the probe can influence the probe's electromagnetic field and adversely affect output readings.

- The RXW-SMC sensor must be installed at least 3 cm (1.18 inches) from the soil surface and the RXW-SMD sensor must be installed at least 10 cm (3.94 inches) from the soil surface to obtain accurate readings.

- It is important to consider the particle size of the medium in which you are inserting the sensor because it is possible for sticks, tree bark, roots, or other materials to get stuck between the sensor prongs, which will adversely affect readings. Be careful when inserting these sensors into dense soil as the prongs can break if excessive sideways force is used to push them into the soil.

- Good soil contact with the sensor probes is required.

- Install the sensor probes into undisturbed soil where there aren't any pebbles in the way of the probes.

- Use a soil auger to make a hole to the desired depth (an angled hole is best) and push the probes into undisturbed soil at the bottom of the hole. Alternatively, dig a hole and push the probes into the side of the hole.

- If the probe has a protective cap on the end, remove it before placing the probe into the hole.

- To push the probe into the soil, use a PVC pipe with slots for the sensor and a longer slot for the cable.

- Thoroughly water the soil around the sensor after it is installed with the hole partially backfilled to cause the soil to settle around the sensor.

- As the hole is back-filled, try to pack the soil to the same density as the undisturbed soil.

- Secure the sensor cable to the mounting pole or tripod with cable ties.

- Use conduit to protect the cable against damage from animals, lawn mowers, exposure to chemicals, etc.

- When removing the probe from the soil, **do not pull it out of the soil by the cable!** Doing so may break internal connections and make the probe unusable.

For specifications, complete mounting guidelines, and other details about this sensor node, refer to the full product manual. Scan the code at left or go to: www.onsetcomp.com/resources/documentation/22241-rxw-smx-manual