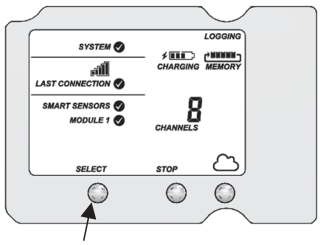
Adding a Mote to the RX Wireless Sensor Network

Important: Keep the mote near the RX3000 station while completing these steps.

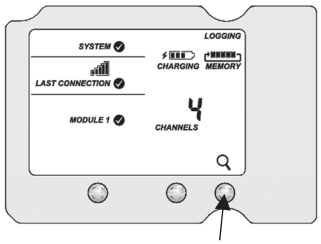
If you have not configured the RX3000 station with the RXW Manager, follow the instructions in the *HOBO RX3000 Remote Monitoring Station Quick Start* before continuing (go to www.onsetcomp.com/manuals/rx3000-qsg).

1



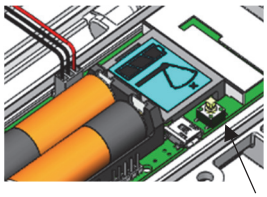
Press the Select button on the RX3000 station to switch to the module where the RXW Manager is installed (Module 1 or Module 2).

2



Press the Search button. The magnifying glass icon will blink while the RX3000 is in search mode waiting for motes to join the network.

3



Install the rechargeable batteries. Press this button on the mote for 3 seconds.

4 Watch the mote LCD during the process of joining the network:

a.

This signal strength icon blinks while searching for a network.

b.

Once a network is found, the icon will stop flashing and the bars will cycle from left to right.

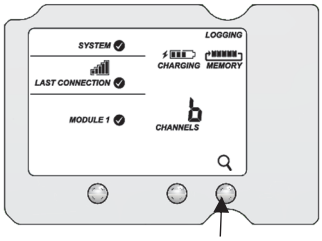
c.

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

d.

Once the mote has finished joining the network, the "x" icon is removed and the channel count on the station LCD increases by two (one for soil moisture and one for the mote battery).

5



Press the Search button on the RX3000 station again to stop the search for motes.

6 HOBOlink® Go to www.hobolink.com to monitor mote status and health. See the HOBOlink Help for details.

Mounting and Positioning the Mote

- Close the mote and use a padlock to keep it secure.
- Mount the mote vertically using cable ties or screws.
- Position the mote 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 mote 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 mote 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 mote as certain types of metal could decrease the signal strength.
- Place the mote so there is full line of sight with the next mote. Use a repeater if there is an obstruction between motes.
- There should not be more than five motes in any direction from a repeater or the RXW Manager. Data from sensor motes travels or "hops" across the network and may not reach the RX3000 station if the mote is more than five hops away from a repeater or RXW Manager.

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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 mote, refer to the full product manual. Scan the code at left or go to www.onsetcomp.com/support/manuals/22241-rxw-smx-manual.

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