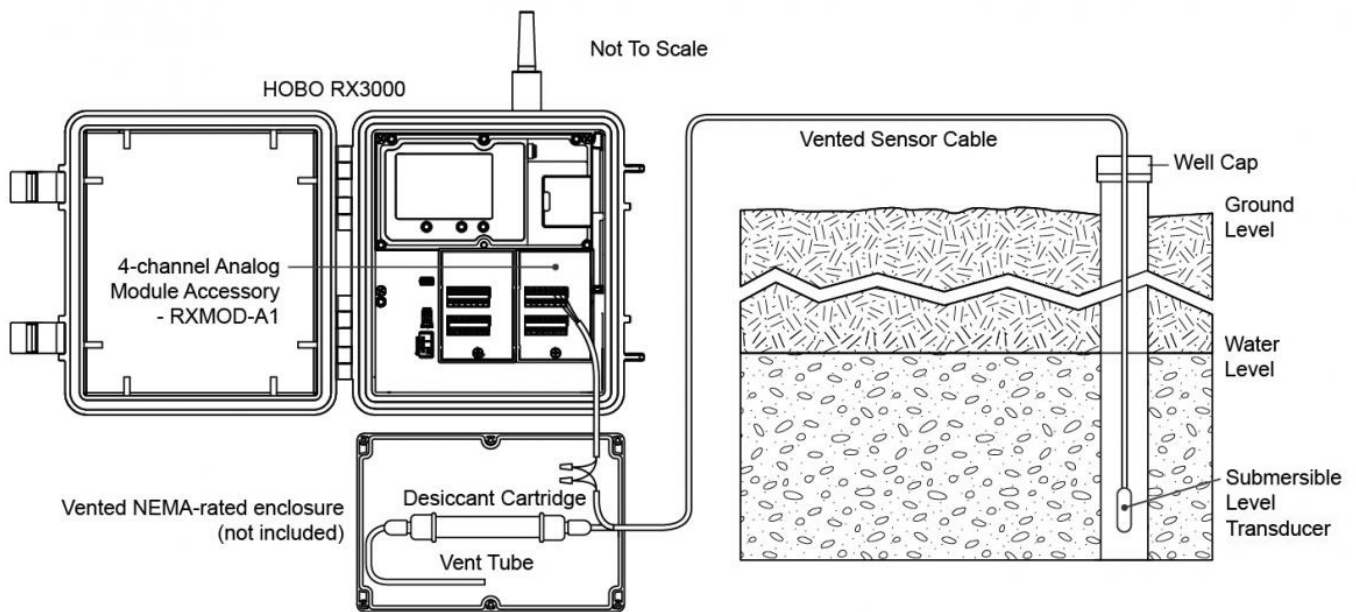


Remote Water Level Monitoring Technical Note

Product: HOBO® RX3000 Station

Summary: This technical note provides details on configuring the HOBO RX3000 Remote Monitoring Station with water level sensors with a 4-20mA output.

The combination of the RX3000 station and one or more third-party water level sensors with 4-20mA analog outputs provide a solution to remotely monitor water levels and access data via the internet. This system can also send notifications when critical levels are reached. Typical applications include monitoring wells, groundwater, surface water, storm water and storm surges.

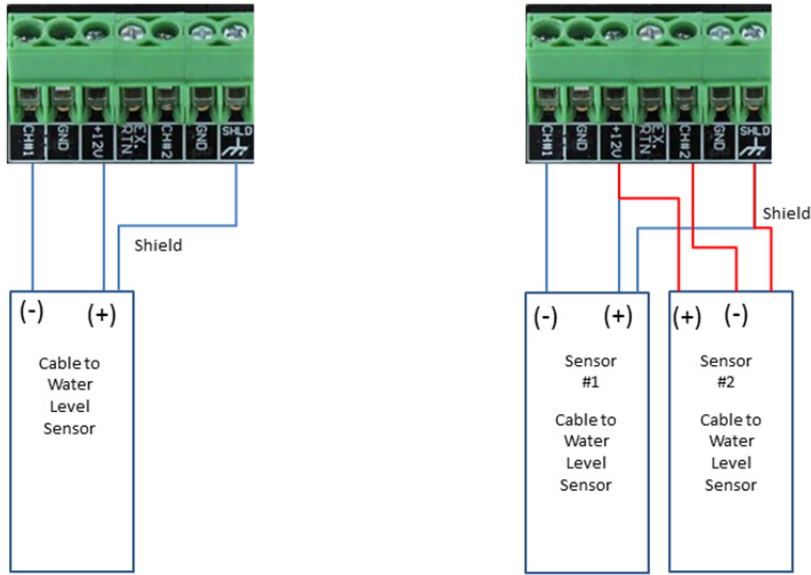


Connecting the Water Level Sensor

Before connecting your water level sensor to the RX3000 station, make sure that the cable has been routed through openings as needed. Specifically, if the cable needs to go through a well cap, do that before connecting the wires. Also make sure that the cable is coming through one of the cable openings in the bottom of the RX3000.

Connecting a Water Level Sensor that Can Operate from 12V Power

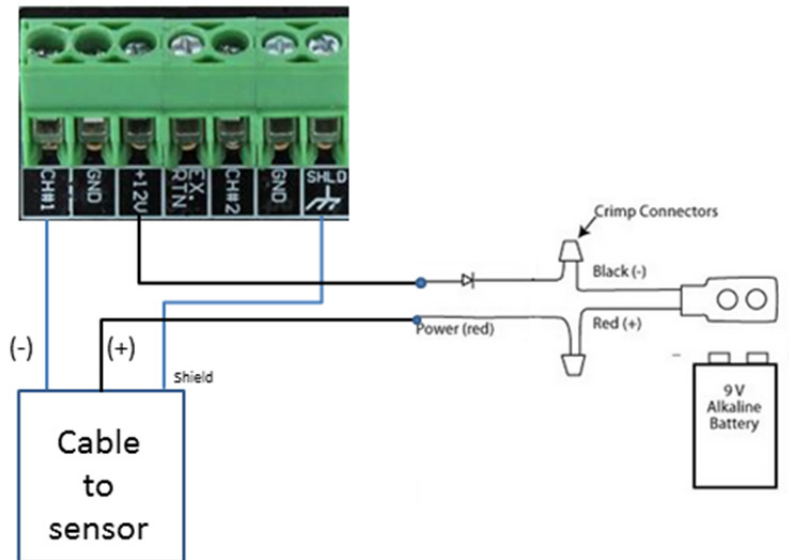
Connect as shown below.



Configuration with Sensors that work with a 12V Power Supply

Connecting a Sensor that Requires More than 12 Volts

Some water level sensors need excitation power higher than the 12 volts the RX3000 provides. The diagram below shows how to use a 9V battery to boost the 12V excitation of the RX3000. This configuration requires a 9V battery connector such as Radio Shack Model 270-325, and a diode rated for at least 50mA and 20V, such as a 4148 diode or a 5817 Schottky diode. With a 1 minute logging rate and 30ms warm-up time, a good 9V battery should last for over a year in this configuration. Onset recommends replacing the battery annually to be safe.



Analog Sensor Module Connections using a 9V Battery to Boost the Output Voltage

Connecting Desiccant Cartridge and Weatherproof Cable Channels

The desiccant cartridge should be located inside a vented, weatherproof enclosure (supplied by others). Install the weatherproof cable channels in both channel openings in the bottom of the logger.

Deployment Tips

- The desiccant tube is recommended for keeping moisture out of the vent tube for accurate measurements. The vent tube to the atmosphere should be routed through one of the weatherproof sensor cable openings.
- Be sure the wells with the water level sensors have vent holes to the atmosphere.

Configuring Analog Sensors in HOBOLink

1. From your device page in HOBOLink, click the Analog Sensors Module tool icon next as shown in this example.



2. On the Module Configuration page, set your desired module logging interval.

- Check “Use excitation power.”
- Select Warmup and set the warmup time to 500 milliseconds (0.5 seconds)
- Click Next.

The screenshot shows the 'Module Configuration' page. The left sidebar contains a tree view with 'General', 'Readout', 'Smart Sensors', and 'Module 1: Analog Sensors' selected. The main configuration area includes:

- Logging Interval:** 0 hours, 10 minutes, 0 seconds (highlighted with a red box).
- Sampling Interval:** Enable, 0 minutes, 0 seconds.
- Statistics:** Minimum, Maximum, Average, Std Dev.
- Use excitation power:** Use excitation power, Warmup (0 seconds, 500 milliseconds) (highlighted with a red box), Continuous.
- Serial Number:** 10707194.

 On the right, there are buttons for 'Back', 'Save', and 'Next', and a usage summary showing 'Actual usage to date: 2% of plan' and 'Estimated usage with this configuration: 4% of plan'.

- 3. On the Sensor Configuration page, check “Enable Graph” and “Enable this Channel.”
 - Select 0-20mA from the Sensor/Input Type drop-down menu.
 - Check “Enable Scaling.”
 - Enter the Raw and Scaled units values as depicted below (the example is for a 0–10 foot water level sensor with a 4-20mA output).

