Field Sampling SOP (S-4): Installation and Operation of the Rainew Tipping Bucket Rain Gauge

Follow these easy instructions and you will experience years of trouble-free operation and enjoyment from your rain gauge.

1. The following items should be included in the shipping box:

   The Rain Gauge
   Connecting Cable (this cable can not be buried)
   The Display
   Mounting Hardware

   If you are missing any of the items please contact Rainwise at 1-800-762-5723 to obtain the missing parts.

2. Determine a location for the Rain Gauge keeping in mind the following guidelines:

   a. Choose a flat, level surface
   b. Make sure the area is open with no overhanging obstructions.
   c. Avoid mounting the gauge on a steel or iron surface.

3. Back out the four (4) screws holding the collector onto the base until it can be rotated to a point where the collector can be removed from the base. Remove the collector. Using the four (4) screws supplied with the gauge, mount the base at the location you determined in Step 2. Do not replace the collector.

4. Run the wire from the gauge to the location of the display. You can run the wire through a window if you are careful not to cut the wire when the window is closed. **The cable can not be buried.**

5. Plug the connector on the cable into the receptacle in the counter.

6. Move the dipper in the bottom of the Rain Gauge base back and forth. You should see a count on the display for every tip of the bucket. Zero the counter.

7. Place the Rain Gauge collector back onto the base, rotating the collector until the ears are fully under the screw heads. Tighten the screws until they are snug (**Do not over tighten**). Remove the shipping tape from the screen. This completes the installation. Now you must wait for the rain.

NOTE: a Lithium button battery # 357 powers the counter. This battery is installed in the counter and should last at least a year. It may be obtained at most drug or hardware stores. If you have any questions, please contact:

RainWise Inc.
P.O. Box 443
Bar Harbor, Maine 04609

207-288-5169

If you have a problem with your Rainew gauge, call RainWise at 1-800-762-5723. Do not contact the dealer or catalog company.

Thank you for buying the HOBO® Event data logger. With proper care it will give you years of accurate and reliable measurements. The HOBO Event is compatible with the HOBO Shuttle allowing for convenient retrieval of field data.

Specifications:
Event type: Tips or relay contact openings
Minimum event interval: ½ second
Operating temperature (logger): -20°C to +70°C (-4°F to +158°F)
Time accuracy: ±100 ppm at 20°C, full dependence shown in Plot A
Capacity: 8000 events (note that the 8000 events require 32K of memory in the HOBO Shuttle to fully offload.)
Size/weight: 4.25" x 3.50" x 1.75"/3.3 oz.
Battery" CR-2032 (lithium); provides one year of continuous use.
Storage temperature: -40°C to +75°C (-40°F to +167°F)
Case: Weatherproof enclosure (avoid placing in direct sunlight)
Relative humidity range (when case is open): 0 to 95%, non-condensing

Connecting the communications cable and launching
A Starter Kit, which includes an interface cable and software, is required to operate your logger. Connect the interface cable into the 3.5-mm jack (Diagram A) on the logger and into a working serial port of your computer. Install and start the logger's software. Select **Launch…** under **Logger** on the menu bar and the launch dialog box will appear. For a complete explanation on installing the software and launching your logger, please refer to the software manual or the software's on-line help.

External contact opening
The HOBO Event data logger detects contact openings on a cable connected to its 2.5-mm jack (Diagram A). An event is recognized when the contact is opened. *The time of contact closure is not recorded.* In applications where both actions are important, a HOBO® State data logger should be used.

Connecting to a tipping-bucket rain gauge
The black and white input wires (cable to 2.5 mm jack) of the HOBO Event can be connected directly to the relay output of most tipping-bucket rain gauges (polarity of input connection does not matter). If your gauge came with a counter display and battery, these should be disconnected, and the HOBO Event connected instead. When connecting and disconnecting an active HOBO Event be careful not to touch the input wires together as this will record an event.
Operation indication
The HOBO Event data logger has a red light (Diagram A) that blinks every two seconds while it's logging. The light also blinks four times rapidly as it stores an event.

Lockout after event
The HOBO Event data logger has a feature that causes it to ignore events for a programmable period after an event is recorded. The lockout time can be set for as short as one second to as long as nine hours. *When the*

HOBO Event data logger is being used with a rain gauge, we recommend *setting the lockout to one second to eliminate switch bounce.*

Readout
Reconnect the HOBO data logger to the interface cable, start the software, select **Readout** under **Logger** on the menu bar and the data will be displayed in tabular or cumulative graph (BoxCar Pro only) form. For a complete explanation on reading out your logger, please refer to the software manual.

Changing the battery
Open the case by unsnapping the latch and lifting the lid. Unplug the 2.5-mm sensor cable and firmly tap the open case into the palm of your hand until the circuit board dislodges. Remove the circuit boards and remove the battery by carefully pushing it out with a small, blunt instrument. Be sure to install the battery with the printed side of the battery away from the HOBO's circuit board (Diagram B). The logger's light will blink three times after the battery has been installed.

Keep the inside of the case dry
With the case closed and latched, the HOBO Event data logger is weatherproof. The electronics can be permanently damaged by corrosion from moisture, so protect them from rain and condensation. Should the electronics get wet, remove the battery immediately and dry the board completely with a hair dryer before reinstalling the battery. The moisture-absorbing desiccant pack inside the case should be replaced when the battery is changed.