



## Emptying Collection Chamber, ETI NOAHIV Electronic Rain Gauge

### Items needed:

- Field form for the current week's sample
- Transfer pump (siphon) with tubing
- Discard container to collect water and/or antifreeze/water mixture for disposal (if needed)
- Antifreeze (if applicable): propylene glycol or ethylene glycol (low toxicity)

### Instructions:

#### Using the Transfer Pump

Complete these steps to empty the collection chamber of the electronic rain gauge. This eliminates both the need to open the rain gauge and the need to lift the collection chamber when it is full.

1. Connect orange tubing to “IN” and “OUT” ports of the transfer pump.

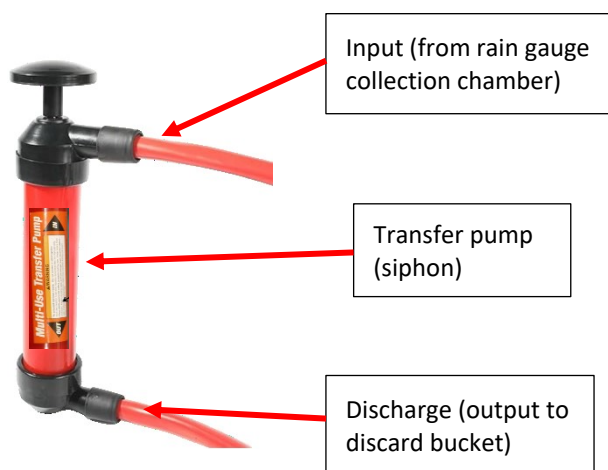


Figure 1. Transfer pump (siphon)

2. Place the end of the “input” tubing in the collection chamber of the rain gauge.
3. If the rain gauge is winterized, place the other end of the “discharge” tubing in a discard bucket or other container to collect the anti-freeze/water mixture. If the rain gauge is not winterized (i.e., does not contain anti-freeze), a discard bucket is not needed, and the contents of the collection chamber may be discharged away from the rain gauge.
4. Pump the transfer pump repeatedly to empty the rain gauge collection chamber. The collection chamber does not need to be emptied completely.



Figure 2. Transfer pump with ETI

1. If needed, re-winterize the rain gauge. The gauge should always be charged with antifreeze when the average low ambient temperature is below 40°F (4°C) on a consistent basis. ETI recommends using antifreeze medium with low hygroscopy (low moisture absorption from the air). The ratio should be at least 40 % water in the anti-freeze. For example, 3.78L antifreeze concentrate + 1.5L water.
2. Dry and store the transfer pump for future use. If the pump was used to empty an antifreeze/water mixture, rinse the pump with clean water before drying and storing. Tap water is fine for rinsing the pump.
3. Dispose of the antifreeze mixture liquid in the discard bucket (if applicable) according to local guidelines for proper disposal. If the liquid is just water, special disposal is not needed.
4. Indicate on the field form for the current week's sample that the gauge was emptied and antifreeze recharged (if applicable). Make note in the Remarks block (Block 10).

### Without the Transfer Pump

Complete these steps to empty the collection chamber of the electronic rain gauge. This requires opening the rain gauge and the need to lift the collection chamber out when it is full.

1. Remove the inlet orifice and set aside. It is held on by friction fit with an o-ring.
2. If the lifting tool is available, insert it into the two openings of the collection chamber, if the lifting tool is not available, use two fingers inserted into the two openings of the collection chamber. Carefully lift the collection chamber straight up. Make sure the collection chamber is not dropped on the load cell plate, it can cause irreversible damage.
3. If the rain gauge is winterized, pour the contents in a discard bucket or other container to collect the antifreeze/water mixture. If the rain gauge is not winterized (i.e. does not contain antifreeze), a discard bucket is not needed, and the contents of the collection chamber may be emptied away from the rain gauge.
4. Insert the collection back into the gauge shell and onto the load cell platform. Ensure there is no debris (i.e. mud, snow) on the bottom of the collection chamber. Do not drop the collection chamber onto the load cell. Doing so may damage the load cell.
5. The collection chamber sits on three alignment guide pins and a center pin on the triangular plate, rotate the collection chamber until the guide pins are registered into the ring.

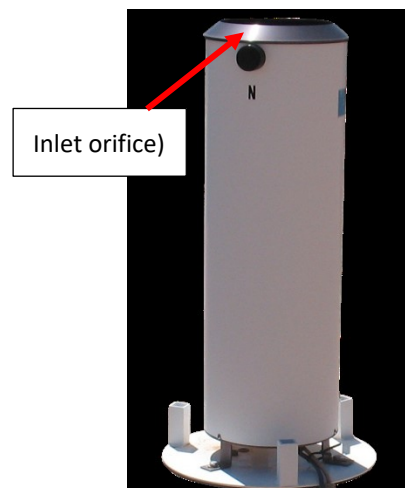


Figure 3. ETI Inlet Orifice

6. Examine the relative positions of the collection chamber and the outer shell. When viewed from the side, the collection chamber will be slightly higher than the outer shell and will not appear crooked.



7. When viewed from above, the collection chamber will be centered within the shell, with even spacing between the outer shell and the collection chamber and not touching on any side.



8. Align the black mark on the collection chamber with the black alignment mark between the two LED emitters.



9. Place the inlet orifice on top of the rain gauge and press down to firmly seat it on the shell.
10. Dispose of the antifreeze mixture liquid in the discard bucket (if applicable) according to local guidelines for proper disposal. If the liquid is just water, special disposal is not needed.
11. Indicate on the field form for the current week's sample that the gauge was emptied and antifreeze recharged (if applicable). Make note in the Remarks block.