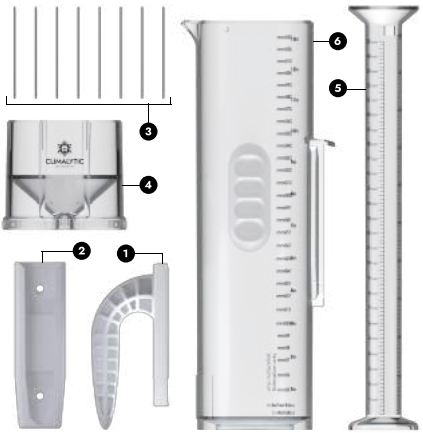
TROPO Precipitation Gauge Installation and User Guide

CLIMALYTIC™
INSTRUMENTS, LLC

The most advanced, precise, easy-to-use manual precipitation gauge

Included in the box:
Outer Tube, Inner Tube, Cap, Mounting bracket, Handle, Bird-deterrent Rods (8x), 11" Cable Ties (2x), 1.5" Phillips Wood Screws (2x), Adhesive Foam, Bubble Level, and Cleaning Brush.



REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	01-001-01-00	Removable Handle	1
2	01-002-01-00	Mounting Bracket	1
3	01-003-01-00	Bird Deterrend Rods	8
4	01-004-01-00	Cap	1
5	01-005-01-00	Inner Tube	1
6	01-006-01-00	Outer Tube	1
-	01-007-01-00	Cable Ties	2
-	01-008-01-00	User Guide	1
-	01-009-01-00	Wood Screws	2
-	01-011-01-00	Adhesive Foam	1
-	01-012-01-00	Bubble Level	1
-	01-013-01-00	Brush	1

Tools required: There are two installation options, each option requires the following tools:

Cable tie option
- Pliers

Wood screw option
- 5/32" (4 mm) drill bit
- Drill and phillips screwdriver

INSTALLATION

Step 1 Determining gauge location is important to ensure the highest quality precipitation measurements. In open areas, strive to have the gauge at a location twice as far from obstacles as they are high. In developed areas, strive to have the gauge as far from obstacles as they are high. Do not install the gauge where rain splashing off roofs, trees or other structures will impact the measurements.

Step 2 Determining gauge height is important to reduce undercatch of precipitation from wind. **In open areas, the top of the gauge should be approximately 2-3 feet (.6 - .9 m) off the ground**, whereas **in developed areas the top of the gauge should be approximately 5-6 feet (1.5-1.8 m) off the ground.**

Step 3 Install and/or identify a secure pole or post to mount the gauge to. *TIP: The Climalytic Instrument Mount available at* store.climalytic.com *is a convenient, sturdy option.*

Step 4 Install the gauge mount onto a post or a pole with the provided hardware (wood screws or cable ties). In either case, it is important to make sure the mounting bracket is positioned so the top of the installed gauge (without the cap installed in areas with snow) is well above the top of the post/pole to reduce any interference of precipitation falling into the gauge. *TIP: Try to mount the main body of your gauge on the north side of the pole/post to reduce premature fading of the gauge.*

Wooden post installation: A 4"x4" (101 mm x 101 mm) wooden post is recommended.

1. Position the provided bubble level on top of the mounting bracket, then position the bracket in the desired location making sure it is level.
2. Use a 5/32" (4 mm) drill bit to create pilot holes for the #14 x 1.5" wood screws. *TIP: Mark and drill the bottom hole only, proceed to step 3, then using the level adjust the mount vertically before drilling the top hole and proceeding to step 3.*
3. Screw the mount into place with a phillips screwdriver, making sure **not to over tighten the screws and crack the mounting bracket.** Place the provided bubble level on top of the mounting bracket to ensure it is level.
   TIP: Retighten the screws in about a year to ensure a strong hold.

Pole mount installation: A 1.25" (31.75 mm) diameter metal pole is recommended, but the provided cable tie can accommodate a pole up to approximately 3 inches (76 mm) in diameter. Ensure the pole and bracket are aligned vertically with the provided bubble level. *TIP: Position the level atop the bracket to ensure it is level.*

1. To increase the frictional grip of the mounting bracket to the pole, affix the adhesive foam strip into the rounded section of the mounting bracket that will have contact with the pole.
2. Use the provided cable ties to secure the mount to the pole. Using pliers, tighten the cable ties until they are extremely tight.
   TIP: Retighten the cable ties in a few days to ensure a strong hold, then clip off the ends of the cable ties.

Step 5 Slide gauge onto mount and make sure the gauge is level, secure and sturdy.

Step 6 (Optional) Press bird deterrent rods into 8 holes around the cap. *TIP: When the rods are installed, use the funnel atop the inner tube for decanting the outer tube instead of the cap funnel. WARNING: Use care handling the deterrent rods and cap with rods attached to prevent injury.*

USER GUIDE

This precipitation gauge collects all types of precipitation. Measure rain, or the water equivalent of melted snow, ice or hail, to the nearest .01 inch or .2 mm using the appropriate scale (inches or mm). Use the printed increment nearest the bottom of the meniscus for making the most accurate determination of the amount. When more than 1 inch (25 mm) of precipitation collects in the inner tube, it overflows into the outer tube up to 13 inches (330 mm).

NOTE: Although **the TROPO is entirely freeze-proof**, it is still recommended to bring the cap and inner tube inside during freezing temperatures to catch snow in the outer tube.

Rain

Only use the outer tube measurement labels for ESTIMATING rainfall amounts when the inner tube is inserted AND full until you can carefully measure the water in the outer tube by repeatedly filling and measuring it with the inner tube. *TIP: You can also easily determine the amount of rain by weight using the same technique described below for SWE, but instead including the inner tube in the dry weight.*

Snow

Remove the top cap/funnel and inner tube during periods of snow to allow snow to fall directly into the outer tube. **Do NOT use the measurement labels on the outer tube for determining the depth of fresh/new snowfall**, instead make a number (5-10) of snowfall measurements using a ruler or measuring stick on a snow measurement board or other level, undisturbed surface to compute a representative average fresh snowfall depth. For determining the fresh/new snow water equivalent (SWE), gather a snow core sample of the fresh/new snow with the TROPO gauge at a spot with the representative snow depth. Allow the snow to melt, then pour it carefully into the inner tube to compute the SWE. *TIP: Use a premeasured amount of warm water to expedite the melting of the snow core sample in the outer tube. Remember to measure and subtract the amount of warm water from the total for determining the SWE.*

Alternatively, SWE can very easily and accurately be determined by weight. First, use a scale to determine the weight of the dry, empty outer tube; write the weight on the bottom of the outer tube for future reference. When the outer tube contains snow, weigh it and subtract the dry weight of the tube to determine the weight of the snow. To compute the SWE, take the weight of snow in **grams and divide it by 206g** or weight in **ounces divided by 7.27oz**. For example, if the snow weighed 80g (2.8oz), the SWE would be 80g/206g or 2.8oz/7.27oz both equating to 0.39 inches (9.9mm).

DATA REPORTING

The data you collect from this gauge is helpful, valuable and important. Please consider joining CoCoRaHS (cocorahs.org) and/or another observer network to share your data with others! You can also download an observation form from climalytic.com for recording your measurements.

REPLACEMENT PARTS AND SUPPORT

Visit climalytic.com for installation and operation videos, maintenance suggestions, measuring techniques for other types of precipitation (hail, sleet), tips, and FAQ's. Please call, text, email or visit our our contact form at climalytic.com/contact with any questions!

To buy replacement or extra parts and other weather instruments visit our online store at store.climalytic.com or exclusive resellers.

Please share a picture of your new gauge on social media and tag us @CLIMALYTIC and use #cocorahs if you are a CoCoRaHS observer!

THANK YOU FOR PURCHASING FROM OUR SMALL, FAMILY OWNED AND OPERATED BUSINESS

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