

WARRANTY

This product is warranted to be free from defects in material or workmanship for one year from the date of purchase. During the warranty period Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized modifications, or to incidental or consequential damages beyond the Spectrum product. Before returning a failed unit, you must obtain a Returned Materials Authorization (RMA) from Spectrum. Spectrum is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.

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ET Gage

PRODUCT MANUAL

Item # 3710



Spectrum[®]
Technologies, Inc.

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This manual will familiarize you with the features and operation of your new Wireless Modem. Please read this manual thoroughly before using your instrument. For customer support, or to place an order, call Spectrum Technologies, Inc. at (800)248-8873 or (815) 436-4440 between 7:30 am and 5:30 p.m. CST, FAX at (815)436-4460, or E-Mail at specmeters@aol.com.
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GENERAL OVERVIEW

Thank you for purchasing the ETgage evapotranspiration monitor. This manual describes the installation and operation of the gauge.

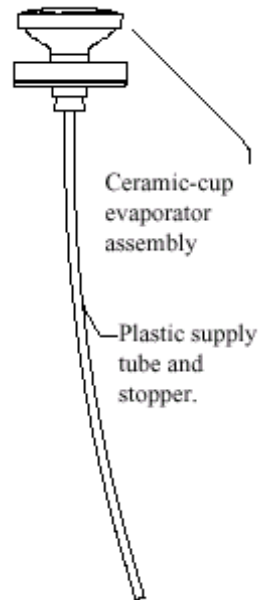
Evapotranspiration (ET) is the process by which soil water is transferred to the atmosphere; either by the plant or directly from the soil surface. Monitoring crop ET can be an effective tool for scheduling irrigation, especially when combined with a program of soil moisture measurement.

The ETgage will give you an accurate measure of reference ET (E_t). Readings are made directly from the sight tube so there is no need for a computer interface or any other electronic equipment. Different covers are available for measuring grass or agricultural canopies.

FILLING/PRIMING

Preparing the ETgage for Installation

1. Invert the ceramic cup (with its canvas covering) and fill it with distilled water. Make sure the ceramic is completely soaked. Fill the reservoir supply bottle about $\frac{3}{4}$ full with distilled water.
2. Insert the rubber stopper and supply tube into the neck of the ceramic cup. Push and turn the stopper firmly into place. Be sure the stopper fits snugly because a good seal is necessary to keep air out of the tube. Water escaping from the cup will fill the supply tube. A little air in the supply tube will not affect performance as water will continue to wick up the walls to the evaporating surface even if air accumulates in the ceramic cup. To avoid temperature sensitivity due to air expansion and contraction, refill the ceramic cup when replenishing the reservoir.



INSTALLATION (CONT.)

Additional Notes

Don't put the ETgauge under a sprinkler because minerals in irrigation water can plug the evaporating surface. The rain collector can be placed under the sprinkler on its own post. This will give a good indication of water added to the soil.

With the Style #54 canvas cover, the ETgauge will estimate the evapotranspiration of a green, well-irrigated crop. This alfalfa reference evapotranspiration (ET_r) assumes 75% of the ground surface is shaded by the crop. To compensate for reduced canopy cover early in the season, a crop coefficient (K_c) can be multiplied by the ETgauge reading. 75% ground cover occurs approximately at an alfalfa height of 9 inches, at mid-boot stage (2 weeks before heading) for small grains or 2 weeks before corn tasseling. The following table gives an estimate for K_c values at different amounts of ground cover.

Percent Ground Cover	K_c
Above 75%	1.0
50%	0.8
25%	0.5
Below 10%	0.3

Table 1: Correction factors for different crop canopy coverage cover.

FILLING/PRIMING (CONT.)

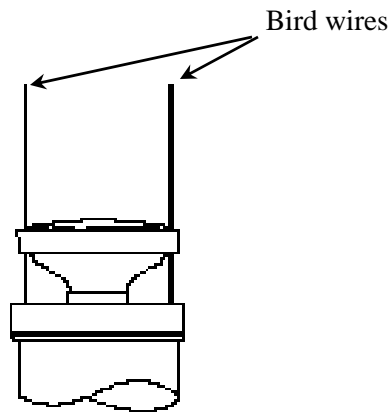
3. Load the cup assembly onto the reservoir tube. Fill the reservoir until the water level in the sight tube is at the zero mark (see **Reading Sight Tube p. xx**). Secure the gray lid with the two spring clips at the top of the reservoir tube. Excess water can be drained from the tube by detaching the sight tube at the upper end. Push the lower end to the side and pull down until the upper end comes free. Tilt the sight tube to the side and allow to drain.

The ETgauge is now ready for installation in the field. When the green cover gets dirty, it should be removed and washed. To avoid air gaps, the cover should fit snugly on the cap.

Note: Always use distilled water when refilling reservoir tube.

INSTALLATION

The green evaporating surface of the gauge should be level and approximately 39" (1m) above the soil surface. The top of the gauge will sit 2½" (6.3cm) above the top of the mounting bracket. The top of the rain gauge and the evaporating surface should be above the top of the mounting post. Add a few drops of a non-detergent oil (e.g. household sewing machine oil) to the rain gauge to keep the water from evaporating.



To prevent birds from perching on the gauge, 2 6-inch stainless steel wires are included with the ETgauge. They should be mounted under the silicone rubber ring that holds the cover on the ceramic cup. The wires are held vertically in place by inserting the bottom ends in the small holes in the gray plastic cap on top of the reservoir bottle.

INSTALLATION (CONT.)

Turf Grass Installation

For landscape applications, use the ETgauge with a Style #30 canvas cover to estimate grass ET_r. Locate the gauge in a site which is representative of the turf being managed. An ideal landscape location is in an open, non-shaded area. Water use and evaporation at various, adjacent microclimates in the area of interest may differ from those at the ETgauge site. For example, ET near hot asphalt will be greater than near pond or water hazard.

Agricultural Crop Installation

In an agricultural setting, the good location for the ETgauge is in a border ridge or, for easy access, alongside a dirt road surrounded by a low-growing irrigated crops. The location of the gauge should be representative of the field and not blocked or shaded by tall crops. Placement near a dry, fallow field, buildings or pavement will lead to high readings.

When using the Style #54 cover in a cornfield, the gauge should be mounted, at least, 1 foot above the crop canopy. This is necessary for adequate exposure to sun and wind. After the height of the corn reaches 1 meter, the Gore-Tex cover may be used. For this cover to properly simulate evapotranspiration from the crop, it must be kept level with the top of the canopy.