

Rain Gages & Snowfall Conversion Adapter

Models TE525WS, TE525, TE525MM, CS705

The TE525 series tipping bucket rain gages are manufactured by Texas Electronics. Both the TE525WS (8" orifice) and TE525 (6" orifice) measure in 0.01 inch increments; the TE525MM measures in 0.1 mm increments. These gages funnel precipitation into a bucket mechanism that tips when filled to a calibrated level. A magnet attached to the tipping mechanism actuates a switch as the bucket tips. The momentary switch closure is counted by the pulse-counting circuitry of Campbell Scientific dataloggers.

The CS705 Snowfall Conversion Adapter

Campbell Scientific's CS705 consists of an antifreeze reservoir, overflow tube, and catch tube. Snow captured in the catch tube dissolves into the antifreeze. As the snow melts, a mixture of melted snow and antifreeze flows through the overflow tube into the tipping bucket. The liquid is then measured by the tipping bucket mechanism.

The CS705 possesses inherent delays and is not suitable for real-time precipitation measurements. Three factors contribute to the delays: temperatures of air and liquid in the reservoir, surface tension in the overflow tube, and the form of the precipitation. For rainfall at 25°C, a delay of minutes is expected after the gage receives a minimum accumulation of ~0.03". For snowfall, a delay of hours to tens of hours is expected. The longest delays should be expected for low density snows at very cold air temperatures. However, all precipitation falling into the catch tube eventually flows through the overflow tube and is measured by the tipping bucket gage below.

The CS705's specially shaped cylinder allows it to mount to any 6- or 8-inch tipping bucket rain gage. The CS705 will not directly install on the TE525MM; the MM funnel must first be replaced with an 8-inch funnel.

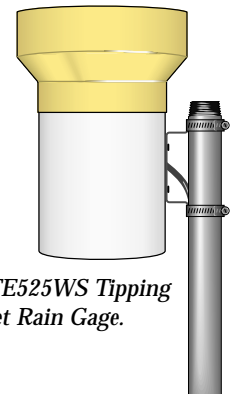
Mounting

The gage mounts to a user-supplied mast or pole with two 3-inch hose clamps. Accurate measurements require the gages to be level.

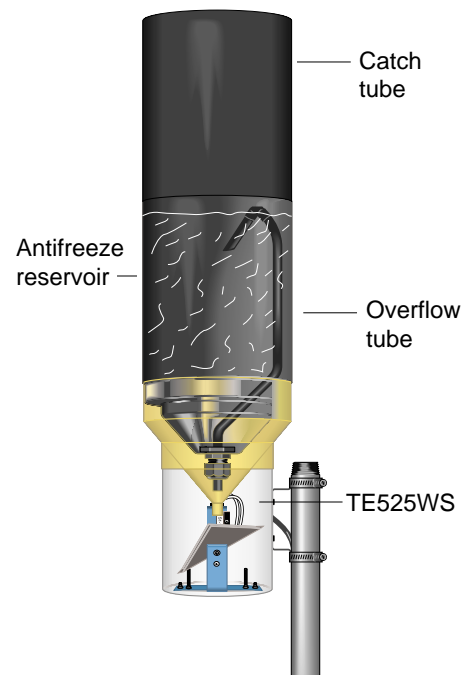
Ordering Information

TE525WS-L__	8-inch diameter; 0.01 inch tips; user-specified lead length.* Enter lead length (in feet) after L.
TE525-L__	6-inch diameter; 0.01 inch tips; user-specified lead length.* Enter lead length (in feet) after L.
TE525MM-L__	24.5 cm diameter; 0.1 mm tips; user-specified lead length.* Enter lead length (in feet) after L.
CS705-A	Snowfall conversion adapter and four gallons of 1:1 propylene glycol and ethanol (PGE).
CS705	Snowfall conversion adapter without antifreeze.

*A 25' lead length is recommended for most applications, e.g. TE525WS-L25.



The TE525WS Tipping Bucket Rain Gage.



Transparent view of CS705 snowfall adapter and a TE525WS rain gage.



CAMPBELL SCIENTIFIC, INC.

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Tipping Bucket Specifications

Sensor type:	Tipping bucket/magnetic reed switch
Material:	Anodized aluminum
Temperature:	0° to +50°C
Resolution:	1 tip
Cable:	2-conductor shielded cable

	<u>TE525WS</u>	<u>TE525</u>	<u>TE525MM</u>
Rainfall per tip:	0.01" (0.254 mm)	0.01" (0.254 mm)	0.004" (0.1 mm)
Orifice diameter:	8" (20.3 cm)	6.06" (15.4 cm)	9.66" (24.5 cm)
Height:	10.5" (26.7 cm)	9.5" (24.1 cm)	11.5" (29.21 cm)
Weight:	2.5 lbs. (1.1 kg)	2.5 lbs. (1.1 kg)	2.7 lbs. (1.2 kg)
Accuracy:			
Up to 1 inch/hr:	±1%	±1%	Up to 10 mm/hr: ±1%
1 to 2 inch/hr:	+0, -2.5%	+0, -3%	10 to 20 mm/hr: +0, -3%
2 to 3 inch/hr:	+0, -3.5%	+0, -5%	20 to 30 mm/hr: +0, -5%

CS705 Specifications (see notes below)

Material:	Powder-coated aluminum
Capacity:	8" of liquid @ -20°C operating temperature (assuming 1:0 starting ratio of antifreeze:water)
Catch tube height:	10" (25.4 cm)
Catch tube diameter:	8.25" (20.96 cm)
Antifreeze reservoir capacity:	2.5 gallons (see note 3)
Antifreeze reservoir height:	14" (35.6 cm)
Antifreeze reservoir diameter:	8.25" (20.96 cm)

Notes:

- 1) The TE525 requires recalibration when the CS705 is added or removed; the TE525WS does not. A retrofit kit is available to convert a TE525 to a TE525WS; contact CSI for more information.
- 2) The CS705 is not compatible with the TE525MM or the CS700 rain gages.
- 3) Although any antifreeze will work for the CS705, Campbell Scientific (CSI) recommends a 1:1 mixture of propylene glycol and ethanol (PGE). PGE is more environmentally friendly. PGE is available from CSI in a package of four, one-gallon containers.
- 4) It is recommended that waste from the tipping bucket gage be captured and disposed of properly in accordance with local, state, and federal regulations.



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