

Novalynx Corporation Tripping Bucket Rain Gauge Model 260-2500



Some of the pros and cons of tripping bucket gauges -

With light precipitation of long-duration the tripping bucket is fairly accurate but in heavy rain it can be off much larger amounts. What causes this is every time the bucket trips, there is a little water entering the bucket at the time of tripping that is lost. If the rain is light not much is lost but if the rain is heavy much more will be lost.

There are also advantages to the tripping bucket gauge. For example, during thunderstorms you cannot safely get a measurement but with the tripping bucket you have a pretty good idea of how much rain has fallen and can use this information to make reports while the event is still occurring.

The larger the diameter of the gauge the greater is the accuracy in windy conditions. Also, if the gauge is well-placed where you do not get blowing snow off of buildings, it can help determine the snow depth when it occurs under very windy conditions. Much of the snow blows along the surface of the snow causing drifting which creates a problem in making measurements. But with a tripping bucket gauge say 5 feet above the ground less of the blowing snow enters the gauge and by using the snow to water ratio and the amount of liquid caught it can help determine how much new snow has actually fallen.



If you have a heated tripping bucket gauge and a heavy wet snow is occurring the snow will not stick to the lip of the gauge as it would to other gauges because it would melt as it fell giving greater accuracy.



The bulb you see is the auxiliary heater; the 100 watt bulb is below the black floor plate.



In the picture above you see the green inner cover for the 12 inch rain gauge and above you see the outer brown cover. You can see the two light sources under these two covers in the first picture. The 100 watt bulb is right below the bottom plate and the 40 watt bulb is at the edge of the cylinder. The two covers that go around the white inner cylinder are used to insulate the white cylinder and carries heat up the sides of the cylinder so no snow will build up around the top of the funnel.

Errors with Heated Tripping Bucket Gauges

It is a good idea to never depend on a tripping bucket gauge particularly heated for your liquid precipitation. Use a standard 8 inch National Weather Service rain gauge or with snow a core sample could be used. Some of the things I've discovered using my 12 inch heated tripping bucket rain gauge are as follows:

1. Very light long-duration snows generally give the maximum error.
2. Snows with higher moisture content and lower snow to water ratio give less error.
3. When I use the auxiliary light in heavy snows it increases the error.
4. The longer the period of precipitation and generally the larger the amount of the precipitation the greater the error in precipitation.

The Inside of the 12 Inch Heated Tripping Bucket Gauge



Something I recently discovered with the tripping bucket was interesting. When the bucket trips it spills some water on the bottom plate of the inner gauge. There is a 100 watt bulb below this metal plate that is used unless the snow is very heavy. I found this spilled liquid was being heated enough that it creates a vapor that is condensed on the inside bottom of the funnel and this condensation ran down to the bottom of the funnel and dripped into the bucket. So in reality this liquid that was being vaporized was being measured twice by the tripping bucket which sounds like a problem but actually counters the problem of rain gauge heater evaporating some of the precipitation. When I put the auxiliary heater on, it heats the bottom of the funnel and doesn't allow for this condensation and therefore I have a larger error. The added heat from the Auxiliary heater also adds to the evaporation rate and adds to the error as well.