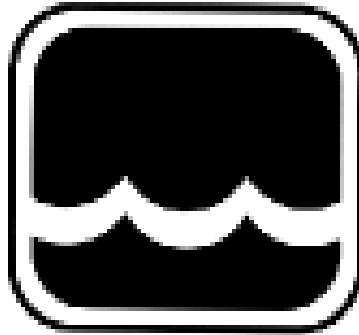




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**Instrumentation, Inc.**

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**8" Tipping Bucket  
RG600**



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Congratulations on your purchase of the Global Water RG600 8" Tipping Bucket. This instrument has been quality tested and approved for providing accurate and reliable measurements. We are confident that you will find the RG600 to be a valuable asset for your application. Should you require assistance, our technical staff will be happy to help.

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## **I. RG600 Checklist**

- a. 8" Tipping Bucket w/cable attached
- b. RG600 Manual

## **II. Inspection**

- a. Your RG600 unit was carefully inspected and certified by our Quality Assurance Team before shipping. If any significant damage has occurred during shipping, please notify Global Water Instrumentation, Inc. and file a claim with the carrier involved. Use the checklist to ensure that you have received everything needed to operate the RG600.

## **III. Description**

- a. The sensor consists of a gold anodized aluminum collector funnel with a knife-edge that diverts the water to a tipping bucket mechanism. The mechanism is designed so that each tip of the bucket measures 0.01 inch of rainfall (or .2mm for RG600M). A magnet is attached to the tipping bucket that actuates a magnetic switch as the bucket tips. Thus, a momentary switch closure takes place with each tip of the bucket. Connecting the sensor to an event/pulse counter on an electronic datalogger or display module will allow record keeping of accumulated rainfall. The aluminum housing is covered with white baked enamel.

## **IV. Tipping Bucket Installation**

- a. The tipping bucket requires a clear and unobstructed mounting location to obtain accurate rainfall readings. Choose a location that is easily accessible for normal cleaning and is distant from trees or other sources of heavy pollen or debris. The tipping bucket may be mounted in one of two ways, either on a flat level surface or on a mast, see Appendix A.



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- b. Use the included mounting screws to attach the unit to a flat surface. Ensure that the surface is level and free of vibration. Be sure there is an unobstructed path for water runoff from the drain screens.
- c. Use the included pipe clamps to attach the unit to a mast. Ensure that the mast is properly guyed so that vibration in high winds is kept to a minimum.
- d. Once the tipping bucket is mounted remove the gold funnel. Verify that the tipping bucket is not held in the center position. If held in upright gently press either end down against the stop to ensure proper operation.

### **V. Installation of Tipping Bucket with the GL500 Datalogger**

- a. Attach the two wires to the pulse channel of the GL500.

### **VI. Tipping Bucket Calibration Information**

- a. Accurate calibration can be obtained only with laboratory equipment, but an approximate field check can be easily made. The tipping bucket mechanism is a simple and highly reliable device. Any accumulation of foreign material, dust, etc. will alter the calibration of the unit.
- b. The tipping bucket must be calibrated with the rate of flow of water through the tipping bucket mechanism. At least 36 seconds should be allowed to fill one side of the tipping bucket. This represents a maximum flow rate of one inch of rain per hour. If the flow rate is increased, the unit will read low (if properly calibrated). Decreasing the rate of flow will not affect the calibration. Some time is required for the bucket to tip (a few milliseconds).
- c. During the first 50% of this tipping time, water continues to flow into the filled bucket; the last 50% of this tipping time, water flows into the empty bucket. The amount of water flowing during the first 50% of time is the error, the faster the flow rate the greater the error. At flow rates of one inch per hour or less, the water actually drips into the bucket rather than flowing. Under these conditions, the bucket tips between drips and there is no error in the readings.



## VII. Tipping Bucket Calibration Check

- a. Obtain a plastic or metal container of at least one quart capacity. Place a very small hole in the bottom of the container. Place the can in the tipping bucket funnel and pour exactly 27.9 ounces of water into the can. If it takes less than 45 minutes for the water to run out, then the hole in the container is too large.
- b. Rough field calibration of this sort should result in one hundred tips,  $\pm$  three. Adjusting screws are located under the tipping bucket mechanism on the base plate. Adjust both screws equally, i.e. if you turn one screw one-half turn then turn the other one-half turn. Turning the screws clockwise will increase the number of tips per 27.9 ounces of water. Turning the screws counter-clockwise decreases number of tips per 27.9 ounces of water. One-half turn of both screws normally results in a change of 2-3%.

## VIII. Specifications

Resolution:	0.01 inches or .2mm
Accuracy:	$\pm$ 1% at 1" per hour
Average Switch Closure Time:	135 ms
Maximum Bounce Settling Time:	0.75 ms
Maximum Switch Rating:	30 VDC @ 2A, 115 VAC @ 1 A
Operating Temperature:	0° to +51°C
Size of Gauge:	10 1/8" x 8"
Weight:	2.5 lb.
Cable:	60', 2 conductor

## IX. Maintenance

- a. The funnel and tipping bucket mechanism should be cleaned periodically. An accumulation of dirt, bugs, etc. on the tipping bucket will adversely affect the readings.



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## X. Trouble Shooting

Issue: Tipping Bucket not reading correctly

- a. Clean Tipping Bucket
- b. Recalibrate Tipping Bucket.

Other issues

- a. Call us for tech support: 800-876-1172 or 916-638-3429 (many problems can be solved over the phone). Fax: 916-638-3270 or Email: [globalw@globalw.com](mailto:globalw@globalw.com). Be prepared to describe the problem you are experiencing including specific details of the application and installation and any additional pertinent information.
- b. In the event that the equipment needs to be returned to the factory for any reason, please call to obtain RMA # (Return Material Authorization). Do not return items without an RMA # marked on the outside of the package. Include a written statement describing the problems. Send the package with shipping prepaid to our factory address. Insure your shipment, as the warranty does not cover damage incurred during transit.
- c. When calling for tech support, please have the following information ready;
  1. Model #.
  2. Unit serial number.
  3. P.O.# the equipment was purchased on.
  4. Our sales number or the invoice number.
  5. Repair instructions and/or specific problems relating to the product.



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## XI. Warranty

- a. Global Water Instrumentation, Inc. warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment from factory. Global Water's obligations under this warranty are limited to, at Global Water's option: (I) replacing or (II) repairing; any products determined to be defective. In no case shall Global Water's liability exceed the products original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by Global Water Instrumentation, Inc., or which has been subject to misuse, negligence or accident. It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.
- b. The warranty begins on the date of your invoice.

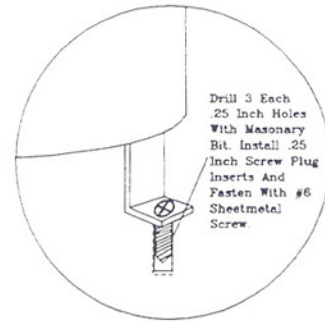
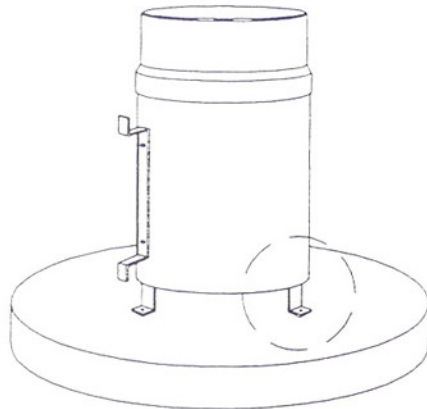


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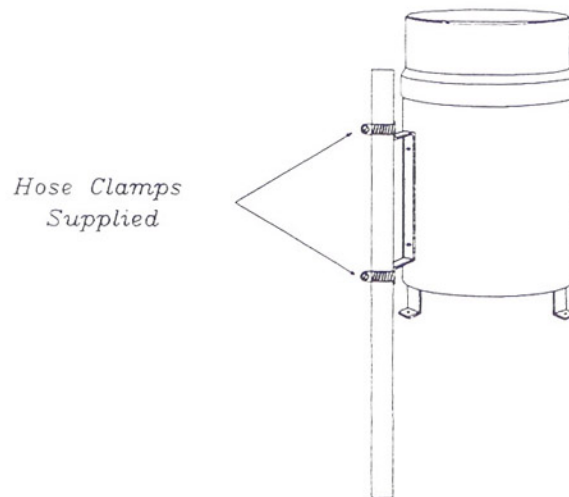
## XII. Appendix A: Rain Gauge Mounting Diagrams

- a. Note – If required, the funnel can be connected to the gauge housing with two sheet metal screws for security in high wind environments.

### MOUNTING EXAMPLES



*Surface Mounted On Masonary Block*



*Mast Mounted*