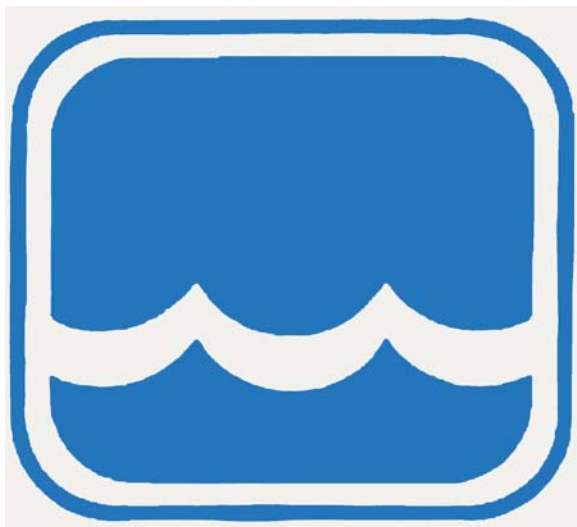




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Stormwater Sampler: SS505

5/23/02



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Congratulations on your purchase of the Global Water SS505 Stormwater Sampler. This instrument has been quality tested and approved for providing accurate and reliable measurements. We are confident that you will find the SS505 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. SS505 Checklist**

- a. Stormwater Sampler
- b. 12V Battery (Inside Enclosure)
- c. Battery Charger
- d. SS505 Manual
- e. RG333 Auto-Drain Rain Gauge

## **II. Inspection**

- a. Your SS505 unit was carefully inspected and certified by our Quality Assurance Team before shipping. If any 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 SS505.



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### **III. Description**

- a. The Global Stormwater Sampler, SS505, is designed specifically to meet the sampling requirements of the Stormwater program. The Sampler takes a discrete sample in one bottle based on rainfall accumulation and/or rise in storm water level. The Global Stormwater Sampler is easily set up and installed in any stormwater channel to take and store physical water samples throughout the storm event.
- b. The Global Stormwater Sampler consists of a rugged, rainproof lockable carrying enclosure. The enclosure contains a sample bottle, a peristaltic sampling pump, a control panel, a bypass plug, and a rechargeable battery. A rain gauge, a water sensor, a rain sensor, and a battery charger are also provided.

### **IV. Installing the Stormwater Sampler**

#### **SAMPLING LOCATION**

- a. To meet specific permitting requirements, sampling locations may need to be established and certified by a licensed Professional refer to your permitting requirements prior to establishing a sampling program. An appropriate sampling location will most likely be:
  - Close to a storm water discharge channel or stream
  - Situated so the rain gauge is away from trees and buildings
  - Removed from public areas

#### **SAMPLING UNIT**

- b. The sampler must be placed upright (it will not work if placed on its back or side) within 15 feet of the rain sensor (see installation instructions below).
- c. Open the sampler and remove the battery charger from the unit.
- d. To secure the sample bottle:
  - 1) Tighten the bottle cap/float switch
  - 2) Place bottle into the sampler enclosure
  - 3) Insert end of peristaltic pump hose into the hole in the bottle cap
  - 4) Plug the float switch lead into the control panel.  
(Located under control panel enclosure).



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- e. The sampling unit can be secured from vandalism and strong winds by one of the following methods:
  - Mount unit on post and lock closed
  - Lock closed and chain rugged handle to a solid structure (such as a tree, post, or building)
  - Enclose and lock unit in a steel electrical box
- f. Avoid drilling holes in the enclosure if possible. If holes must be drilled in the enclosure avoid drilling through the control panel enclosure. Any holes drilled through the enclosure must be sealed with some type of silicone glue to prevent water from entering the case and causing an equipment failure.
- g. The unit is water resistant, not water proof. The unit must be located well above the expected water level to continue to provide reliable service. Also, ensure that the black vent screw is tightened down to prevent moisture from entering the unit.

### **V. Installing the Rain Gauge**

- a. Please refer to the RG333 Auto-drain Rain Gauge for instructions or visit our web site at [www.globalw.com](http://www.globalw.com).

### **VI. Installing the Rain Sensor**

- a. The rain sensor is used to trigger a sample for specific amounts of rainfall accumulation. Based on your application's requirements, insert the tip of the rain sensor into the rain gauge at a specified rainfall accumulation (0.1 to 0.6, 1.0, or 2.0 inches). Securely hook the rain sensor's cable into the groove in the cylinder. Insert the rain sensor's plug into the "Sensor" socket on the control panel.



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## **VII. Installing the Pickup Hose and Water Sensor**

- a. The water sensor and pickup hose should be installed in a storm water discharge channel or stream that is appropriate for your sampling program. The water sensor and pickup hose can be installed in the following manner:



Securely insert a piece of mounting material into the center of the channel.

- 1) Securely insert a piece of rebar or similar mounting material into the center of the storm water discharge channel or stream. The material should extend from the bottom of the channel at a distance appropriate for sensor installation. Avoid installation where water may pool.

### **Dry Channel**

- b. In a dry channel, fasten the water sensor and the end of the pickup hose onto the mounting material using tie wraps, electrical tape, or hose clamps. Ideally, the pickup strainer should be placed at  $1/2$  the depth of flow during a storm event. The water sensor should be tied just above the debris strainer, in order to trigger a sample after the sample intake is submerged. The water sensor and pickup hose should be situated to avoid contact with the channel bottom.



In a dry channel, the rain sensor should be tied just above the debris strainer.



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### **Stream**

- c. In a stream, fasten the end of the pickup hose onto the mounting material using tie wraps or hose clamps. The pickup strainer should be submerged under water and should be situated to avoid contact with the channel bottom. For stream sampling (as opposed to dry channel sampling) only the rain sensor will be used to trigger a sample.



In a stream, the pickup strainer should be submerged under water.

## **VIII. Using the Stormwater Sampler**

- a. Verify that the sampling unit, rain gauge, rain sensor, water sensor, and sampling pickup hose are installed correctly (see previous sections). The Global Water SS505 Stormwater Sampler will function only if the battery plug is securely fastened into the battery socket on the control panel, the float sensor plug is inserted into its socket, and either:
  - 1. The rain and water sensors are plugged into their respective sockets (dry channel sampling).
  - 2. The rain sensor is plugged into its socket and the bypass plug is plugged into the water sensor socket (stream sampling).
- b. Verify the rain and water sensor contacts are dry. Turn the sampling unit ON (switch is on the control panel) and verify that the sampler is operating. Use the "Sample Now" switch to test the pump. The momentary switch can also be used to take manual samples. If the momentary switch does not cause the pump to run, verify that the bottle switch is connected to the control panel and that the battery is charged. If the unit still does not sample, refer to the Trouble Shooting section. The unit must be ON to take automatic samples.



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- c. Verify the automatic sampling works by placing the rain and water sensors in about an inch of ionized water. NOTE: The sampler will not take a sample if the water is deionized. If this is an issue, a small amount of salt or dirt placed inside the rain gauge will cause the rain sensor to trigger the sampler correctly.
- d. The sampler will take approximately a 1 L sample. The sampler has a backflush function that will clear the pickup hose and pickup strainer after a sample is complete. The float switch in the bottle cap will turn off the sampler before the sample bottle overflows. After a storm, remove the sample bottle or transfer the sample to a small bottle for lab or turbidity meter analysis. Then, install an empty, clean bottle.

### **IX. Using the Rain Gauge**

- a. Please read the RG333 Rain Gauge for instructions or visit our web site at [www.globalw.com](http://www.globalw.com).

#### **Daily Log**

- b. Whenever possible, take rainfall readings at the same time each day. Record the readings on the daily log, appendix A. Use the date on which the readings are taken even though much or all of the rain may have fallen the preceding day, after the daily reading was taken for the previous day. Enter the reading in hundredths of an inch (.01, .31, 1.01, 3.01). If the rainfall is less than 0.1 enter "T" for trace in the daily precipitation log.



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### **X. Specifications**

|                        |                                                                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Sample Size:           | First Flush: 1 Liter                                                                                                                       |
| Operating Temperature: | 0° to +70°C                                                                                                                                |
| Size of unit:          | 13 3/8" L x 11 5/8" W x 6" D                                                                                                               |
| Weight:                | 15lb (Shipping Weight 17lb)                                                                                                                |
| Materials:             |                                                                                                                                            |
| Enclosure:             | Expanded UV protected by PVC                                                                                                               |
| Bottles:               | 1 Liter Polyethylene                                                                                                                       |
| Sample Tubing:         | 15' nylon reinforced 1/4" ID<br>polyethylene flexible tubing<br>sections with intake strainers                                             |
| Sample Pumps:          |                                                                                                                                            |
| Flow Rate:             | 1000 ml per minute at 4 ft. head                                                                                                           |
| Type:                  | Peristaltic                                                                                                                                |
| Maximum Lift:          | 22'                                                                                                                                        |
| Rain/Water Sensor:     | Solid State with a 15' cable.                                                                                                              |
| Battery:               | Rechargeable 5 AH Gel Cell                                                                                                                 |
| Battery Life:          | The battery will power the sampler<br>for a minimum of four months<br>including five 24-hr. storm events<br>before recharging is required. |



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## **XI. Maintenance Sampler**

- a. The Global Water SS505 Stormwater Sampler requires minimal maintenance. The sampler enclosure is rainproof and rugged. Prevent exposure to extremely rough usage. Routinely wipe the carrying case and control panel face, rinse the pickup hose and debris strainer, and wash the sample bottle with mild soap and warm water. Additional plastic and glass sample bottles, norprene tubing for the sampler pump, bottle caps/float switches, removable debris strainers, sensors, and pickup hose can be purchased from Global Water (see Appendix B section).

### **Rain Gauge**

- b. Please see the RG333 Auto-Drain Rain Gauge for more information or visit our web site, [www.globalw.com](http://www.globalw.com).

### **Battery**

- c. The battery will last without requiring recharging through several storm events. If the pump grinds slowly, this is an indication that the battery requires recharging. We recommend fully recharging batteries approximately once per month. In addition, the battery should be recharged before any extended use. NOTE: The battery life will last longer if recharged before it drains below 10.5 volts.
- d. To recharge the battery, unfasten it from the control panel, slide it out of the carrying case, and unhook the cord from the battery terminals. Then, fasten the battery charger's disconnects onto the battery terminals and plug the charger into a wall socket. Full recharge will take about 12 hours. Additional batteries and battery chargers are available from Global Water (see Appendix B section).



To recharge the battery, fasten the charger's disconnects onto the battery terminals and plug the charger into a wall socket.



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## **XII. Trouble Shooting**

Issue: Pump runs all the time

- a. Verify the float switch is working correctly. Lift the float off the end of the switch. The pump should stop.
- b. Verify the rain and water sensor probes are not shorted together. Unplug the rain sensor. If the pump does not stop the control panel is not functioning correctly, call the factory. If the pump stops then the probes on the rain sensor are shorted together, clean them with a wire brush.
- c. If the pump still runs repeat the above steps with the water sensor.
- d. If the pump is still running call the factory for an RMA number.

Issue: The pump does not work

- e. Five items can cause this to happen: a bad rain sensor, a bad water sensor, a bad float switch, a low battery, and a bad control panel.
- f. Test the battery voltage and ensure that it has a full charge.
- g. Check the float switch continuity with a multimeter to verify it is working correctly. NOTE: Continuity can also be checked if the rain and water sensors are taken from a known working unit and used to replace the sensors on the non-working unit. Then pressing the pump test button.
- h. Check the rain sensor continuity with a multimeter to verify it is working correctly. NOTE: Continuity can also be checked using the bypass plug in the water sensor socket and a known good float switch. Place the rain sensor in about 1 inch of water, then press the pump test button.
- i. Check the water sensor continuity with a multimeter to verify it is working correctly. NOTE: Continuity can also be checked using the bypass plug in the rain sensor socket and a known good float switch. Place the water sensor in about 1 inch of water, then press the pump test button.
- j. If the pump is still not running, call the factory for an RMA number.

Other issues

- k. 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).



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Be prepared to describe the problem you are experiencing including specific details of the application and installation and any additional pertinent information.

- I. In the event that the equipment needs to be returned to the factory for any reason, please call to obtain a RMA # (Return Material Authorization). Do not return items without a RMA # 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.

- m. 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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### **XIII. 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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## **XIV. Appendix A: Daily Rainfall Log Sheet**

1. Try to record precipitation each day
2. Record precipitation to the nearest 1/100<sup>th</sup> of an inch (.01,.31,1.31,etc.)
3. If precipitation is less than .01, record "T" for trace.
4. Use the remarks column to list any unusual weather.

|              | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Remarks |
|--------------|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|---------|
| <b>1</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>2</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>3</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>4</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>5</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>6</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>7</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>8</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>9</b>     |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>10</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>11</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>12</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>13</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>14</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>15</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>16</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>17</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>18</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>19</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>20</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>21</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>22</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>23</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>24</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>25</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>26</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>27</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>28</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>29</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>30</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>31</b>    |     |     |     |     |     |      |      |     |      |     |     |     |         |
| <b>Total</b> |     |     |     |     |     |      |      |     |      |     |     |     |         |



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## **XV. Appendix B: Accessories**

| <b><u>Part Description</u></b> | <b><u>Part Number</u></b> | <b><u>Unit</u></b> |
|--------------------------------|---------------------------|--------------------|
| 12V 5Ah Battery                | 00-010                    | Each               |
| Battery Cable                  | CA0100                    | Each               |
| Battery Charger                | FE0400                    | Each               |
| 1 Liter Plastic Sample Bottle  | 00-794                    | Each               |
| Bottle Cap/Float Switch        | CK0300                    | Each               |
| Auto Drain Rain Gauge          | CH0000                    | Each               |
| Pickup Hose                    | 00-546                    | Feet               |
| Pickup Strainer                | CA0300                    | Each               |
| Pump tubing                    | 00-744                    | Feet               |
| Rain Sensor                    | CA0400                    | Each               |
| Flow Sensor                    | CA0500                    | Each               |
| Bypass Plug                    | CK0400                    | Each               |