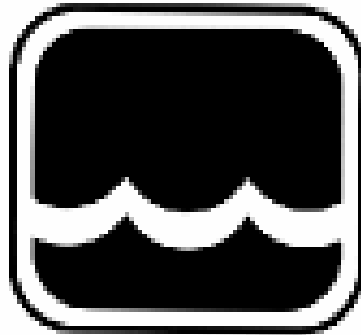




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Conductivity Sensor Head
WL200

01/09/07
P/N: 01-726

Rev.: B



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Congratulations on your purchase of the Global Water WL200 Conductivity Sensor Head. This instrument has been quality tested and approved for providing accurate and reliable measurements. We are confident that you will find the WL200 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. WL200 Checklist

- a. WL200 Conductivity Sensor Head
- b. WL200 R-2 Controller
- c. WL200 Manual

II. Inspection

- a. Your WL200 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.
- b. Use the checklist to ensure that you have received everything needed to operate the WL200.



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III. Features

a. Conductivity Switch

1. Sensitivity-adjustable controller
2. No moving parts
3. Safe operation
4. Controls up to two levels with controller
5. 1" NPT fitting (bulkhead or flange-type fitting available.)
6. One to three electrodes, depending upon tank material and number of functions required
7. Electrodes are 1/8" diameter, 316 Stainless Steel; all wetted material are food grade.
8. Standard 24" electrode can be cut by end user to shorten the length; two 24" extensions can be added for a maximum recommended length of 72".
9. Option
 - a) Extension kit for increasing length of probes.
Part number: WL200-EXT
10. Other
 - a) Integral junction box with IP68 (NEMA 6) protection 10 foot cable for attaching sensing head to controller.

b. R-Series Controller

1. Dual probe level detection
2. Solid state circuitry, coated for moisture protection
3. Factory-fixed or adjustable sense resistance
4. Electromechanical relay output for isolation and reliability



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IV. Specifications

Power: WL200 110 AC (220 AC Optional)

Sensing Heads:

Electrodes 24" length, standard
72" length, maximum (with two extensions)
May be cut to custom length

Materials 316 Stainless Steel electrodes
Polypropylene all food-grade materials

Mounting 1" NPT, standard
Bulkhead or snap-in flange optional

Pressure 30 PSIG, maximum

Temperature 100°C, maximum (212°F)

R-Series Controllers:

Sensing Inputs 3 maximum (High, Low, Common)

Output Contact rating 5 Amps resistive @ 240 VAC, form SPDT

Sensing Type ON/OFF Resistance

Voltage at Probe 12 VAC nominal
Terminals

Sensing Resistance Factory-fixed or adjustable to 100,000 ohms

Sensing Resistance Tolerance Factory-fixed – $\pm 10\%$; adjustable – guaranteed range

Voltage 120 or 230 VAC



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Tolerance	±15% nominal
Frequency	50/60 Hertz
Output Type	Electromechanical relay
Output Contact	SPDT isolated
Output Contact Ratings (1-3 or 1-4)	5A @ 220 VAC 10A @ 120 VAC 10A @ 30 VDC
Socket Rating	10A @ 300 VAC
Controller Dimensions	1-3/4" x 2-3/8" x 2-3/4"
Socket Dimensions	1-9/16" x 2" x 11/16"
Total Height Installed	3-11/16"
Transient Protection	Dielectric Breakdown: 1500 volts RMS minimum
Environmental	-20°C to 60°C Operating Temperature
Mechanical	Plug-In Mounting: DIN-type track mount/surface mount 8-pin socket termination: Octal 8-pin plug
Mounting Connection	Two molded thru holes for mounting with #8 screws or bolts; can be DIN rail-mounted



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V. Operation

a. Conductivity Switch

1. Global Water's WL200 conductivity switch has no moving parts, which allows it to be used in several different environments. These environments include semisolid liquids like food industry and industrial slurries or heavy-bodied liquids like wastewater. With no moving parts, switch operation of the WL200 is not interrupted. Only an extremely small amount of current is necessary for the unit to perform. As with any device, a properly installed and grounded system poses no electrical hazard.

b. R-2 Controller

1. The R2-type liquid level controllers provide high-level, low-level or bi-level control in a convenient octal plug-in package. Models are available for pump-up or pump-down operation. Transformer isolated AC voltage on the probes prevents electrolytic plating. Less than 1/1000 of an amp of current is used to sense the presence of conductive liquid between the probes and common. Onboard sensitivity-adjustable units eliminate false tripping caused by floating debris and foaming agents. Isolated electromechanical relay contacts can be directly connected to the control circuitry or control pumps and solenoids. The R2-type controllers can be used at a distance of up to 500 feet from probes, and twisted pair or shielded cable is recommended.



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VI. Installation

Warnings:

- Install controller according to applicable electrical codes.
- Unit must be installed using Global Water's R2 Controller.
- Do not connect directly to line voltage.
- Not for use in hazardous (explosive) environments.
- Do not exceed pressure and temperature ratings.

a. Conductivity Sensor Head / Conductivity Probes

1. 1 inch NPT (Standard)
2. Probes can be cut to length. Remove probes from sensor head by carefully unthreading them from inserts. Do not over tighten when reinstalling.
3. Cut two (2) probes to the same length, these will be the common and lower level probes. (See Figure 1, page 11.)
4. Cut one (1) probe to the desired length for the upper level of the tank. (See Figure 1, page 11.)
5. Spacer should be located approximately 1 inch from bottom of shortest probe.
6. If build up occurs on probes a short circuit could occur. If this happens, apply shrink tubing to the probes leaving the last one (1) inch bare.

b. Wiring

1. Install cable into sensor head through the compression fitting supplied.
2. Attach one lead between the common probe terminal, and pin five (5) on the controller.
3. Attach a second lead between the lower level probe terminal, and pin six (6) on the controller.
4. Attach a third lead between the upper level probe terminal, and pin eight (8) on the controller.
5. Tighten compression fitting until cable can not be pushed into sensor head.



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c. R2 Conductivity Configuration:

1. 120 VAC is connected between pins 2 and 7
2. Wire the Common Probe to pin 5
3. Wire the Lower Probe to pin 6
4. Wire the Upper Probe to pin 8
5. Pins 1–3 and 1–4 are isolated switch contacts to switch power to a valve or pump.

Note: For single level control, connect probe to pin 8 and use pin 5 as the return

d. Typical Controller Hookup to Switches:

1. Set switches "Normally Open."
2. Connect Upper switch to pins 6 and 8, Lower switch to pins 5 and 6.
3. Connect the switched voltage to terminal 1 (AC or DC Volts)
4. For Pump-Up: Connect one end of the pump/valve to terminal 4 and the other end to the switched voltage return
5. For Pump-Down: Connect one end of the pump/valve to terminal 3 and the other end to the switched voltage return.
6. Connect line voltage to terminals 2 and 7.

e. Conductivity Probe Kit Add-On Electrode Installation:

1. Cut the add-on electrodes to the length needed for your application. De-burr the cut ends with a fine file or equal.
2. Insert the threaded end of each add-on electrode into a coupling, just to the end of the threads.
3. Secure the coupling to the electrode with one (1) of the supplied set screws.
4. Connect the add-on electrodes to the electrodes from the junction box by placing the couplings over the electrode ends until the ends of the add-on electrodes contact the junction box electrodes.
5. Secure the couplings to the electrodes with the rest of the supplied set screws.
6. Slide the plastic spacer from the kit over the ends of the extended electrodes. (See Figure 2, page 11.)



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Figure 1

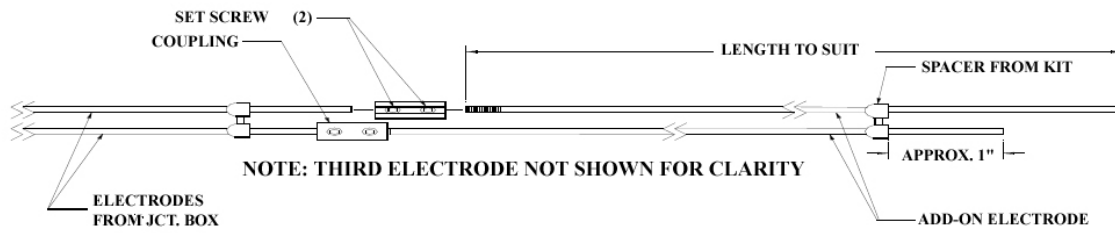


Figure 2



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VII. Maintenance

- a. The unit must be checked periodically. The suggested maintenance rate depends on the installation area.

VIII. Trouble Shooting

- 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.

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 an RMA# (Return Material authorization). Do not return items without an RMA# displayed on the outside of the package.

Clean and decontaminate the WL200 if necessary.

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 order number or the invoice number.
 5. Repair instructions and/or specific problems relating to the product.



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IX. 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.