WATER

WL400 Water Level Sensor

Submersible Pressure Transducer For Level & Pressure

- High accuracy and reliability
- Completely submersible sensor and cable
- Compact, rugged design for easy installation
- Minimal maintenance and care
- Sensor compatible with most monitoring equipment

- 4-20mA output
- Vented cable for automatic barometric compensation
- Multiple ranges available from 3’ to 250’
- Wet-wet sensor eliminates vent tube concerns
- Dynamic temperature compensation system
- Not affected by foam, wind or rain

- Monitors levels in groundwater wells, rivers, streams, tanks, lift stations and open channels

Description

Global Water's WL400 Water Level Sensor submersible pressure transducer consists of a solid state pressure sensor encapsulated in a submersible stainless steel 13/16” diameter housing. The water level gauge uses a marine grade cable to connect the water pressure sensor to the monitoring device. Each of Global Water's pressure transducers has a two-wire 4-20 mA high level output, five full scales ranges, and is fully temperature and barometric pressure compensated.

Low Level Range

The water depth indicator is available in a 0-3' full scale range which is ideal for measuring shallow flows or small water level changes. The 0-3' range is great for measuring flows in sewers, storm drains, weirs, flumes, lakes, tanks or any water body that is less than 3' deep. The 0-3' water monitoring sensor accurately measures small changes in water, even when the water's depth is only a few inches deep. Other metal foil type sensors typically have serious problems at low level ranges because of crinkling, stretching and drifting.

Protective Cap

The water sensor also utilizes a stainless steel micro-screen cap to protect the sensing element. This protective cap has hundreds of openings, making fouling the sensor with silt, mud or sludge virtually impossible.

Encapsulated Pressure Sensor

Global Water's Water Level Sensors are fully encapsulated with marine-grade epoxy. The submersible pressure transducer's electronics are encased in marine grade epoxy so that moisture can never leak in or work its way down the vent tube to cause drift or level sensor failure (as is the case with other pressure sensors). The vent tube is sealed directly to the sensing element, and any moisture that may enter the vent tube only comes in contact with a silicon sensing device, not the electronics.

Output Signals

The WL400 water pressure sensors have a two-wire 4-20 mA output signal that is linear with water depth. 10 to 36 VDC is required to operate the depth level sensor, so the WL400 submersible pressure transducer can be operated from 12 or 24 VDC systems. The 4-20 mA signal can run up to 3,000' from the sensor to the logging device. Common twisted pair or electrical extension cord wire may be spliced to the vented cable once the cable is out of the water. The 4-20 mA signal may be converted to 0.5 to 2.5 VDC by dropping the current signal across a 125 ohm resistor.

Contact Global Water for all your instrumentation needs:

- Water Level
- Water Flow
- Water Samplers
- Water Quality
- Weather
- Remote Monitoring
- Control

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In the U.S. call toll free at 1-800-876-1172
International: 1-979-690-5560
Fax: 1-979-690-0440
Email: globalw@globalw.com

Visit our online catalog at: www.globalw.com
Our Address:
11390 Amalgam Way
Gold River, CA 95670

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Specifications

Sensing element:
Sensor Element: Silicone Diaphragm, Wet/Wet Transducer
Range: 0-3', 0-15', 0-30', 0-60', 0-120',0-250'
Linearity and Hysteresis: ±0.1% FS
Accuracy: ±0.1% FS at constant temperature, ±0.2% over 35° to 70°F range
Overpressure: Not to exceed 2 x full scale range
Resolution: Infinitesimal (Analog)
Outputs: 4-20mA, or 0.5 to 2.5 VDC across 125 ohm resistor
Supply Voltage: 10-36VDC
Current Draw: Same as sensor output.
Warm Up Time: 10 ms minimum
Operating Temperature: -40° to +185°F
Weight: 1/2 lb.
Compensated Temperature Range: 30 to 70°F submerged, automatic barometric compensation

Housing:
Material: 304L SS
Size: up to 5 1/2" long x 13/16" diameter
Weight: ~115g (4 oz)

Cable:
Conductors: 4 each 22 AWG
Jacket Material: 87A shore hardness Polyurethane
Optional jacket: Fluorinated Ethylene Propylene (FEP) Teflon
Cable O.D.: 7.8mm (0.307")
Vent tube: HD Polyethylene
Shield: Aluminum Mylar
Temperature range: -30 to 85°C (-22 to 185°F)
Weight: ~65g/m (0.7 oz/ft)

Options and Accessories

WL400 Water Level Sensor

Specify Water Level Range: 0-3', 15', 30', 60', 120', 250'.
Includes 25' cable
(Specify range upon order placement)

WLEXC Extra Cable

Cable length is measured from end of cable to bottom of sensor.
After 25', up to 500'
(Specify total cable length upon order placement)

EZ100

Optional Sensor Display

PRP Pressure Pipe Option

Water level sensor is housed in a 8" PVC (PRPP) or stainless steel pipe with 3/4" NPT male thread (PRPM) for logging pressure in municipal water systems. 10' cable standard. Calibrated in psi with ranges of 0 to 30 psi, 60 psi, 100 psi available.

SWO Sewer Flow Option

Cover protects sensor from fouling and velocity effects in sewer, stormwater and irrigation pipe flows. Cover is attached to 6" X 2' stainless steel strap for mounting sensor on pipe bottom

Quick Reference — WL400 Level Sensor

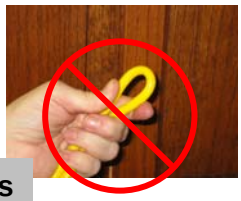
Rev. C

Pressure Transducer for measuring Water Level

with analog 4-20mA Output and Barometric Pressure compensation.

Basic Handling & Operation:

• Ensure that the cable is handled & stored with large loops and NOT KINKED (which blocks the barometric compensation tube).



Big Loops, No Kinks

Installation Notes:

Groundwater Installations:

• **Terminate cable into dry enclosure** – to avoid moisture entering pressure compensation tube in cable.

• **Don't Lose Your Sensor:** Ensure that the cable is clamped securely to topside hardware BEFORE deploying sensor down well.

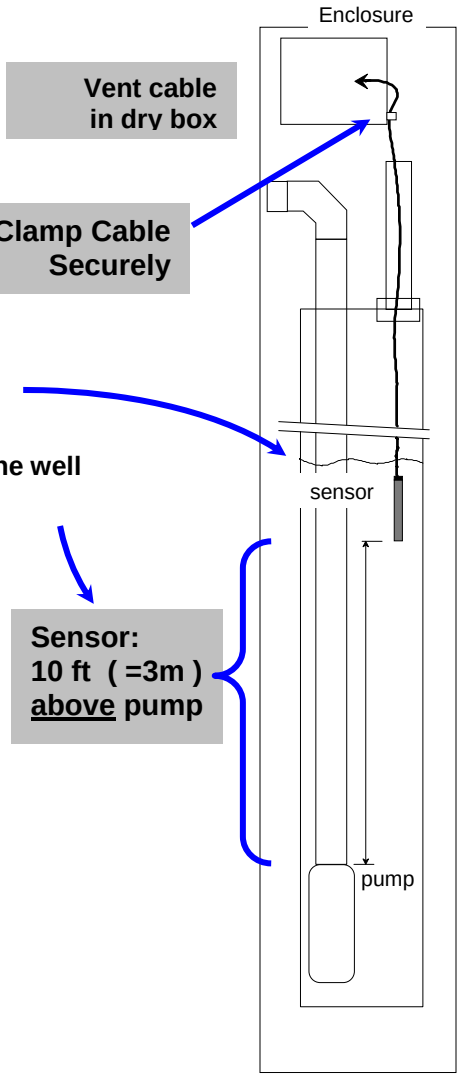
• It is not necessary to locate the sensor at the well's bottom – merely below the lowest likely water level.

• Avoid cable entanglements by **installing sensor at least ten feet above the well pump**.

Open-Channel Installations:

• Keep debris, silt or mud away from sensor (eg: Open Channel installations) by housing sensor in **perforated conduit** or wellscreen.

• **Use Long-Sweep Elbows** (PVC conduit fittings) to ease cable deployment through conduit for riverbank monitoring of flow / level in open channels.



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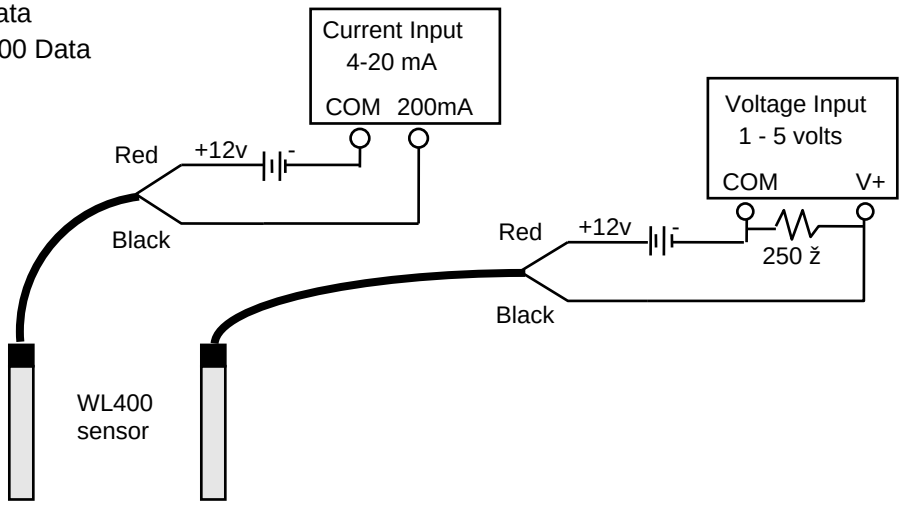
Wiring Notes:

• Connect sensor cable to Analog Input (Current or Voltage) terminals of data collection device (e.g.: Global GL500 Data Logger, PLC, RTU, etc.)



ALWAYS CONNECT SENSOR WITH THE POWER TURNED OFF

• When testing or troubleshooting the level sensor, **disconnect it from your system power source**, and connect to an independent battery or power supply and read output with multimeter.

• To test the actual sensor output, submerse sensor in a water column and look for a current output at or above 4mA and below 20mA. The output increases with increasing depth.

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