

Submersible Pressure Transducer

MODEL WL2100W

INTRODUCTION

Special points of interest:

- Water level monitoring & recording
- High accuracy ±0.05% F.S. BSL
- Pre-calibrated sensor
- Temperature compensated
- Output signal SDI-12 or 4-20mA

The Hydrological Services WL2100W is our latest generation of wet pressure transducers. It allows the measurement of water head to a fine degree of accuracy and repeatability, due to full temperature compensation, and interfaces via SDI-12 or 4-20mA.

The Submersible (Wet) transducer consists of a strain gauge bridge sensing element fitted to a housing. The strain gauge bridge is type 316 Stainless Steel and the house is a combination of Nickel plated brass and delrin. The electronic components are factory sealed within the housing. The electrical connection is made via a multicore vented submarine cable.

The WL2100W output is both SDI-12 and 4-20mA compatible - but not at the same time. This allows any SDI-12 or any 4-20mA recording device to communicate with the pressure transducer. The operator may use the SDI-12 to RS232 adaptor cable and then communicate using RS232 from a PC. This special mode is enacted on each command by proceeding each SDI-12 command with an ascii '*' rather than a "break". When the ascii '*' is detected, all of the timing/break requirements of the SDI-12 are removed. Commands may be typed from a terminal program such as "Hyperterm".



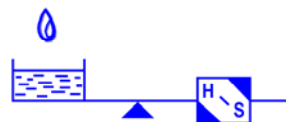
Submersible Pressure Transducer Model WL2100W

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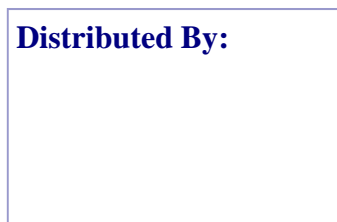
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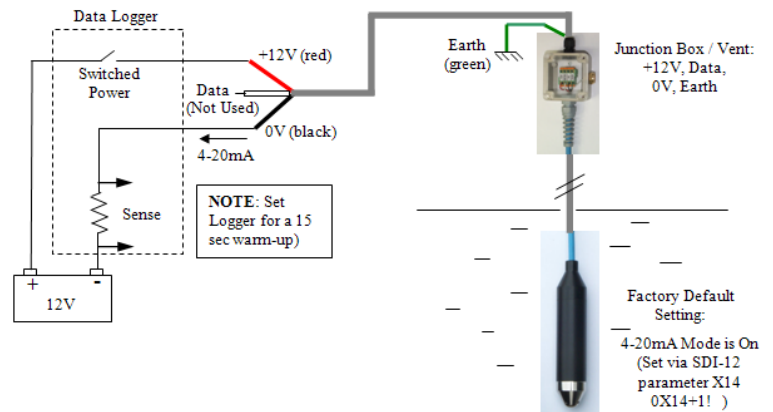


Specifications

Isolation Diaphragm :	316 Stainless Steel
Operating Range :	100kPa (10 metres), 200kPa (20m), 300kPa (30m)
Overpressure :	1.5 x Range
Supply Voltage :	9V – 30VDC (beyond SDI-12 specification Version 1.2)
Supply Current :	2.0mA nominal in SDI-12 mode
Output Signal :	SDI-12 Compliant (Version 1.2) OR 4-20mA (The user selects)
Overall Accuracy :	± 0.05% F.S. BSL
Long term stability :	Typically ± 0.03% FS/annum
Measurement Cycle :	Every 4 secs (in 4-20mA mode), When requested (in SDI-12 mode)
Recommended Warm Up Time :	15 secs (after power is first applied)
Operating Temperature range :	-20C to +60C (Compensated over this range)
Humidity :	100% (WL2100W)
Electrical Connection :	Junction Box
Vented Cable :	6 core vented polyurethane with kevlar strength members. (Up to 60m – due to SDI-12 specification).
Voltage Spike Protection :	Will withstand a 600V voltage spike in accordance with ENV50142 with out damage when applied between excitation lines and case.
Calibration :	Over full pressure range.
Insulation :	Greater than 100Mohm at 500V d.c.
Dimensions :	Length 180mm Diameter 37mm
Mass :	0.39 kg (excluding cable)

Installation

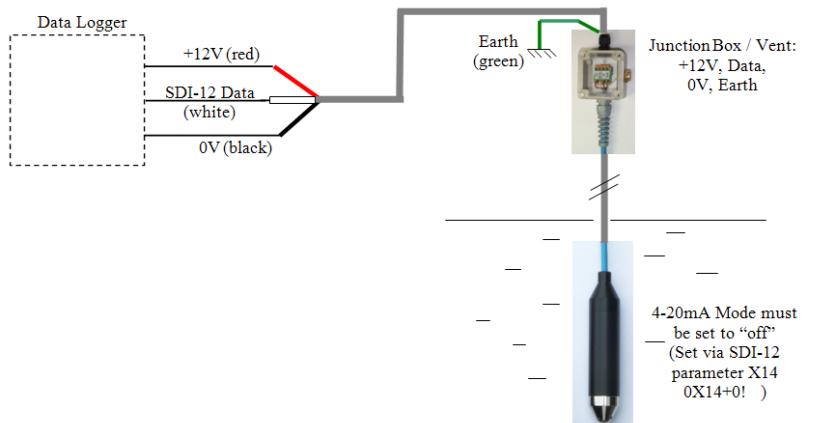
Connection as a 4-20mA Transducer



Basic Configuration of a WL2100W in 4-20mA mode

Connection as an SDI-12 Transducer

**Note that the WL2100 is supplied set to the 4-20mA mode as default. Therefore to operate in SDI-12 mode with minimal power consumption, the X14 parameter must be



Basic Configuration of a WL2100W in SDI-12 mode

$$\text{Water Level} = \left(\frac{\text{Pressure Measured}}{\text{Temp Compensated}} \times \text{User Factor} \right) + \text{Offset}$$

(The "User Factor" can be altered to reflect the location on earth (gravity) and the water conditions (density)
See FAQ E1 for more information)