

# CS431

## Submersible Pressure Transducer



The CS431, manufactured by Instrumentation Northwest for use with Campbell Scientific dataloggers, measures both water level and water temperature. It uses piezoresistive strain gage technology to measure water level and an on-board thermistor to measure temperature. Piezoresistive transducers include a strain gage bonded to a pressure-sensitive diaphragm. Electrical resistance changes as pressure changes on the diaphragm.

Campbell Scientific dataloggers measure the resistance then convert the measured value to the desired units. Compatible dataloggers include the CR10X, CR800, CR850, CR1000, CR3000, and CR5000. The CR510 datalogger can also be used to measure water level. However, the CR510 does not provide enough channels to connect the thermistor and therefore cannot measure water temperature.



### Construction

The CS431 has a 316 stainless steel body and Viton® and Teflon® wire seals that resist corrosion. Its double-sealed, cable harness protects the cable jacket and reduces the possibility of leakage. The end cone is interchangeable with a ¼" NPT inlet allowing easy hookup and field calibration. You can choose a polyurethane or Teflon cable. Both cable options are vented.

### Ordering Information

#### Pressure Transducer

**CS431** Pressure transducer; must choose a cable type and a measurement range.

#### Cable Options (choose one)

- L** Polyurethane cable with user-specified lead length; enter lead length, in feet, after the -L. For example, CS431-L25 orders a 25-ft polyurethane cable.
- LT** Tefzel cable with user-specified lead length; enter lead length, in feet, after the -L. For example, CS431-LT25 orders a 25-ft Tefzel cable.

#### Measurement Range Options (choose one)

- 5** Pressure range of 0 to 5 psig.
- 15** Pressure range of 0 to 15 psig.
- 30** Pressure range of 0 to 30 psig.
- 50** Pressure range of 0 to 50 psig.
- 100** Pressure range of 0 to 100 psig.

#### Calibration Options (choose one)

- SC** Standard Calibration
- XC** Enhanced measurement calibration that allows more accurate compensation for temperature variations..

#### Accessory

**7421** Split Mesh Cable Grip

### Specifications

**Available Pressure Ranges:** 5, 10, 30, 50, 100 psi

#### Pressure Measurement Accuracy

**Repeatability:** ±0.1% FSO, typical  
**Linearity:** ±0.1% FSO, typical

#### Temperature Error

**Standard Calibration (-SC):** ±2.0% FSO, 0° to 40°C  
**Enhanced Calibration (-XC):** ±0.2% FSO, 0° to 40°C

#### Typical Output

**Voltage Sensitivity:** 15 to 16 mV/V at 20°C

**Typical Bridge Resistance:** 4 kohm at 20°C

**Typical Excitation Voltage:** 0.8 V

#### Temperature Range

**Compensated:** 0° to 40°C  
**Operating:** -5° to 70°C

**Maximum Cable Length:** 2000 ft

#### Dimensions

**Length:** 10.75 in. (27.31 cm)  
**Diameter:** 0.84 in. (2.13 cm)

**Weight:** 3 lbs (1.4 kg) with 50 ft cable

