
Submersible Pressure Transducer

Model CS431

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. An optional enhanced measurement calibration is available that allows more accurate compensation for temperature variations.

Ordering Information

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

Cable options

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

Measurement range options

- 5 0 to 5 psig range
- 15 0 to 15 psig range
- 30 0 to 30 psig range
- 50 0 to 50 psig range
- 100 0 to 100 psig range

Calibration option

- XC Enhanced calibration

13834 Optional enhanced measurement calibration

7421 Optional split mesh grip



Specifications

Available Pressure Ranges:	5, 10, 30, 50, 100 psi
Pressure Measurement Repeatability:	±0.1% FSO, typical
Pressure Measurement Linearity:	±0.1% FSO, typical
Temperature Error:	±2.0% FSO, 0° to 40°C
Temperature Error when using Enhanced Temperature option:	±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
Compensated Temperature Range:	0° to 40°C
Operating Temperature Range:	-5° to 70°C
Maximum Cable Length:	2000 ft
Dimensions:	0.84" (2.13 cm) diameter, 10.75" (27.31 cm) length
Weight:	3 lbs (1.4 kg) with 50 ft cable

