

CS450 and CS455

Submersible Pressure Transducers



Campbell Scientific's CS450 and CS455 submersible pressure transducers provide reliable, accurate pressure/level measurements that are fully temperature compensated. Their rugged construction makes them suitable for water level measurements in canals, wells, ponds, harbors, lakes, streams and tanks. An NTP fitting allows the CS450 and CS455 to be used in closed-pipe applications.

Both of these transducers output either a digital SDI-12 or RS-232 signal to indicate observed pressure/level. This output is acceptable for recording devices with SDI-12 or RS-232 capability including Campbell Scientific dataloggers.

The CS450 and CS455 consist of a piezoresistive sensor housed in a metal case. The CS450 has a 316L stainless-steel case that can be submerged in most canals, wells, ponds, lakes, and streams. The CS455 has a rugged titanium case that allows it to be used in saltwater or other harsh environments.

The transducers have a rugged Hytrel cable that remains flexible, even under harsh environmental conditions. The cable incorporates a vent tube to compensate for atmospheric pressure fluctuations. To prevent water vapor from entering the inner cavity of the transducer, the vent tube opening should terminate inside a desiccated enclosure or a desiccant tube.

Features/Benefits

- Output acceptable for recording devices with SDI-12 or RS-232 capability including Campbell Scientific dataloggers.
- Static accuracy of $\pm 0.1\%$ FS over a 0° to 60°C temperature range.
- Quality construction insures product reliability.
- Rugged stainless steel or titanium case protects piezoresistive sensor.
- Quick shipment after receipt of order (ARO).
- Fully temperature compensated.
- 24-bit A/D.
- Simultaneous 50/60 Hz rejection.
- Low power sleep state between measurements reduces power consumption.



Questions • Research • Pricing
www.campbellsci.com/cs450
www.campbellsci.com/cs455

Ordering Information

Pressure Transducers

CS450-L Pressure Transducer with Stainless Steel Case and user-specified length. Enter length, in feet, after the -L.

CS455-L Pressure Transducer with Titanium Case and user-specified length. Enter length, in feet, after the -L.

Range Options for CS450 and CS455 (choose one)

- 2 Pressure range of 0 to 2.9 psig (0 to 20 kPa) or up to 6.7 feet of fresh water.
- 7 Pressure range of 0 to 7.25 psig (0 to 50 kPa) or up to 16.7 feet of fresh water.
- 14 Pressure range of 0 to 14.5 psig (0 to 100 kPa) or up to 33.4 feet of fresh water.
- 29 Pressure range of 0 to 29 psig (0 to 200 kPa) or up to 67.0 feet of fresh water.
- 72 Pressure range of 0 to 72.5 psig (0 to 500 kPa) or up to 167.0 feet of fresh water.
- 145 Pressure range of 0 to 145 psig (0 to 1000 kPa) or up to 334.5 feet of fresh water.

Common Accessories

25431 Split Mesh Cable Grip

25366 Desiccant Tube



Above is the CS450 Submersible Pressure Transducer. The CS455 looks similar, but it has a titanium case that allows it to be used in saltwater or other harsh environments.

Specifications

| | |
|-----------------------------------|---|
| Power Requirements: | 6 to 18 Vdc |
| Power Consumption | |
| Quiescent: | < 80 μ A |
| Measurement/Communication: | 8 mA for 1-s measurement |
| Maximum: | 40 mA |
| Measurement Time: | < 1.5 seconds |
| Outputs: | SDI-12 (version 1.3) 1200 baud; RS-232 9600 baud |

Measurement Ranges:

| Pressure (PSIG) | Pressure (kPa) | ft of fresh water |
|-----------------|----------------|-------------------|
| 0 to 2.9 | 0 to 20 | 0 to 6.7 |
| 0 to 7.25 | 0 to 50 | 0 to 16.7 |
| 0 to 14.5 | 0 to 100 | 0 to 33.4 |
| 0 to 29 | 0 to 200 | 0 to 67 |
| 0 to 72.5 | 0 to 500 | 0 to 167 |
| 0 to 145 | 0 to 1000 | 0 to 334.5 |

| | |
|---------------------------------|---|
| Accuracy: | $\pm 0.1\%$ FS TEB* |
| Resolution: | 0.0035% FS |
| Overpressure: | 2 x pressure range |
| Operating Temperature: | -10° to 80°C |
| Compensated Temperature: | 0° to 60°C |
| Temperature Accuracy: | $\pm 0.2^\circ$ C |
| Maximum Cable Length | |
| SDI-12: | ~1500 ft (457 m) for one sensor connected to a single port. 200 ft (60 m) for 10 sensors connected to a single port. |
| RS-232: | 200 ft (60 m) |
| Cable Type: | 5 Conductor, 26 AWG, Hytrel Jacket |
| Top Cone Material: | Delrin |
| Body Material | |
| CS450: | 316L stainless steel |
| CS455: | Titanium |
| Element Material | |
| CS450: | 316L stainless steel |
| CS455: | Hastelloy |
| Dimensions | |
| Length: | 8.4 inches (21.34 cm) |
| Diameter: | 0.84 inches (2.13 cm) |
| Weight | |
| CS450 (no cable): | 0.40 lbs (0.18 kg) |
| CS455 (no cable): | 0.25 lbs (0.11 kg) |
| Cable: | 0.283 lbs/ft (0.421 kg/m) |

*Total ERROR Band (TEB) includes the combined errors due to nonlinearity, hysteresis, nonrepeatability, and thermal effects over the compensated temperature range, per ISA S51.1.

