

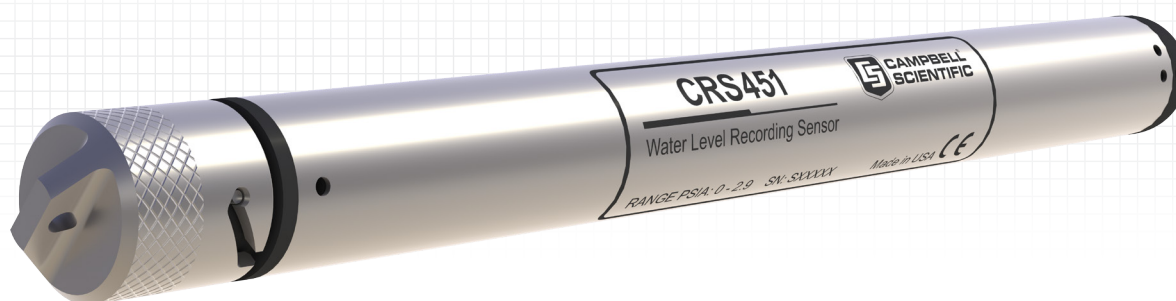


## CRS451 and CRS456

Water Level and Temperature Recording Sensors

# Self-Contained Memory

Easy to use software, reliable hardware



## Overview

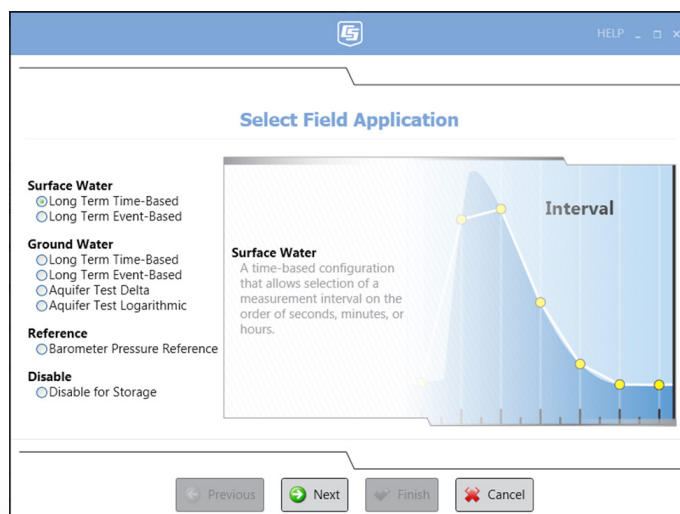
The CRS451/CRS456 combines our CS451/CS456 submersible pressure transducer with a Campbell Scientific recorder. The CRS451/CRS456 supports standard time-based scanning and recording along with event-based recording based on water level change "Delta" or logarithmic time sequence for pump and slug tests. HydroSci software is included and elegantly supports test set up, data retrieval, and data display.

The CRS451/CRS456 is unvented; therefore it is monitoring sealed gage pressure. For maximum accuracy, the data should be corrected for barometric pressure.

The CRS451's 316L stainless-steel case can be submerged in most canals, wells, ponds, lakes, and streams. The CRS456's rugged titanium case allows it to be used in saltwater or other harsh environments.

## Benefits and Features

- › Quality construction ensures product reliability
- › Sensors and data-collection features in one instrument case
- › Free customer-friendly software for communication, configuration, data collection
- › Fast scan rate
- › Large data storage capacity
- › Fully temperature-compensated
- › Long battery life
- › Multiple logging/scanning modes:
  - ◆ Standard
  - ◆ Delta
  - ◆ Logarithmic
- › Rugged stainless-steel or titanium case protects piezoresistive sensor



HydroSci software simplifies the process of configuring the sensor to monitor surface water, ground water, or a standard pump test.

More info: 435.227.9120

[www.campbellsci.com/crs451](http://www.campbellsci.com/crs451)



## Options and Accessories<sup>a</sup>

### Options

- › Accuracy: standard 0.1% full-scale range TEB<sup>b</sup>
- › Pressure ranges: up to 7.25 psi, 14.5 psi, 29 psi, 72.5 psi, or 145 psi
- › Nose cone: standard, weighted (for easier submersion), or ¼ inch NPT (for closed-pipe applications)

### Accessories

- › Suspension Cable Kit (pn 29221-L)
- › Heyco Cable Grip (pn 31648) for mating with a 1 inch PVC pipe

## Specifications

- › Power Requirements: Internal user replaceable lithium battery
- › Measurement Time: <1 s
- › Output: micro USB
- › Internal Data Collection Memory: 4 MB
- › Logging/Scanning Modes: Standard, Delta, Logarithmic
- › Battery life: 5+ years when logging interval is once per hour
- › Diameter: 2.22 cm (0.875 in)
- › Length: 22.23 cm (8.75 in)
- › Weight: 230 g (0.51 lb)
- › Measurement Ranges:

Pressure (psi)	Pressure (kPa)	Depth of fresh water
0 to 7.25	0 to 50	0 to 5.1 m (16.7 ft)
0 to 14.5	0 to 100	0 to 10.2 m (33.4 ft)
0 to 29	0 to 200	0 to 20.4 m (67 ft)
0 to 72.5	0 to 500	0 to 50.9 m (167 ft)
0 to 145	0 to 1000	0 to 102 m (334.5 ft)

- › Resolution: 0.0035% FS
- › Overpressure: 2 x pressure range
- › Operating Temperature Ranged: 0° to +60°C
- › Dry Storage Temperature Range<sup>c</sup>: -30° to +80°C

### Accuracy

- › Water Level: 0.1% FS TEB<sup>b</sup>
- › Temperature: ±0.2°C

### Power Consumption

- › Quiescent: < 80 µA
- › Measurement/Communication Current: 4 mA for 1 s measurement

### Distance from pressure sensor interface (black line etched on housing) to:

- › End of Standard Nose Cone: 2.3 cm (0.9 in.)
- › End of NPT Nose Cone: 2.54 cm (1 in.)
- › End of Weighted Nose Cone: 9.9 cm (3.9 in.)

<sup>a</sup>For more information about the options and accessories, refer to: [www.campbellsci.com/order/crs451](http://www.campbellsci.com/order/crs451) or [www.campbellsci.com/order/crs456](http://www.campbellsci.com/order/crs456)

<sup>b</sup>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.

<sup>c</sup>**WARNING:** Sensor could be damaged if encased in frozen liquid.