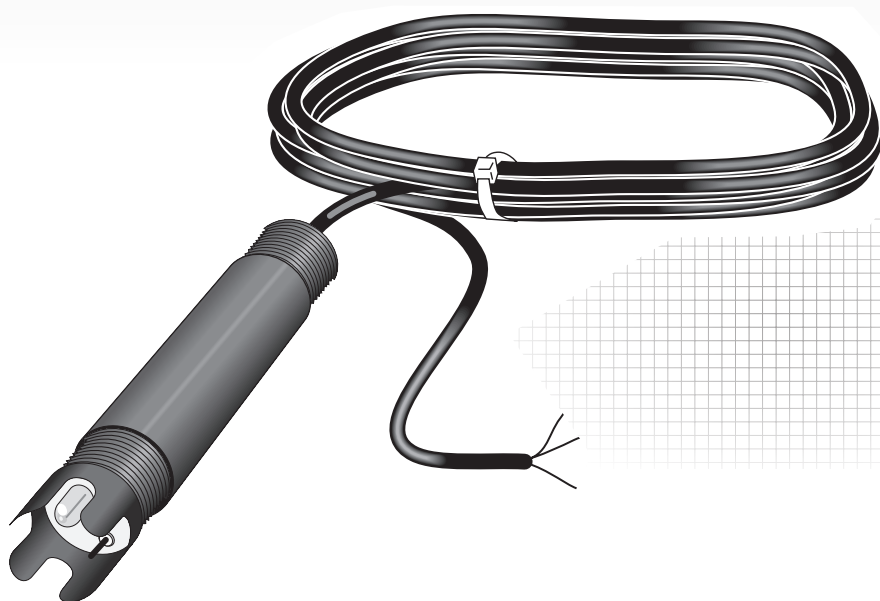




CSIM11 and CSIM11-ORP

pH Sensor and Oxidation Reduction Potential (ORP) Sensor



Better Signal Performance

Internal amplifier boosts signal for less interference

Overview

The CSIM11^a measures the full pH range of liquids and the CSIM11-ORP^a measures oxidation reduction potential (ORP) of liquids. They can be submerged in water or inserted into tanks, pipelines, and open channels. The sensors are intended for non-pressurized systems^b and were not designed for applications above 30 psi.

The construction of the two sensors is identical except the CSIM11-ORP includes a 0.5 cm (0.2 in) platinum band wrapped around the glass electrode, which allows the CSIM11-ORP to respond to the electron density in the fluid.

Benefits and Features

- › Internal amplifier boosts the signal, decreasing signal interference
- › Titanium ground rod runs inside the outer body to eliminate ground loop errors
- › Compatible with most Campbell Scientific dataloggers
- › Weighted option available for stand-alone submersion
- › Porous Teflon[®] liquid junction^c is less susceptible to clogging as compared to conventional reference junctions
- › Plunger-style pH glass electrode^d allowing the probe to be mounted at any angle

^aThe CSIM11 and CSIM11-ORP use glass bulb technology which has a life expectancy of around 6 months to 2 years, depending on the conditions of the water.

^bIf the sensor will be mounted in a pressurized pipe or tank, a variation of the CSIM11 or CSIM11-ORP that does not have a refillable chamber is necessary; contact Campbell Scientific for assistance.

^cPatent number for the plunger-style pH glass electrode is 4,333,812.

^dPatent number for the porous Teflon[®] liquid junction is 4,128,468.



Technical Description

The CSIM11 and CSIM11-ORP have a plunger-style pH glass electrode that allow them to be mounted at any angle. Their porous Teflon® liquid junction is less susceptible to clogging as compared to conventional reference junctions.

A titanium ground rod runs inside their PPS outer body to eliminate ground loop errors. An internal amplifier boosts the signal, decreasing signal interference. The amplifier is powered by two internal lithium batteries, and thus does not require any power from the datalogger. These batteries are designed to last the lifetime of the sensors.

The reference solutions and bulb configuration are optimized for natural water applications. Alternate reference solutions and bulb configurations are available. Contact Campbell Scientific for pricing and availability.

Specifications

- › Temperature Range: 0° to +80°C
- › Pressure Range: 0 to 30 psig
- › Accuracy: $\pm 0.1\%$ over full range
- › Impedance: $< 1 \text{ M}\Omega$ @ 25°C
- › Reference Cell: Single Junction KCl/AgCl
- › Body Material: ABS
- › Wetted Materials: ABS, Teflon®, Viton®, Glass, Titanium
- › Cable Jacket Material: polyurethane
- › Response Time: 95% of reading in 10 s
- › Drift: $< 2 \text{ mV}$ per week
- › Internal Lithium Battery Lifetime: 5 yrs (life of probe)

Ordering Information

Water Quality Sensors

- CSIM11-L** pH sensor with bulb protectors and refillable chamber. Enter lead length, in feet, after the L. A 15-ft lead (CSIM11-L15) is recommended. Must choose a cable termination option (see below).
- CSIM11-ORP-L** ORP sensor with bulb protectors and refillable chamber. Enter lead length, in feet, after the L. A 15-ft lead (CSIM11-ORP-L15) is recommended. Must choose a cable termination option (see below).

Cable Termination Options (choose one)

- PT** Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.
- PW** Cable terminates in connector for attachment to a prewired enclosure.

Common Accessory

- 16349** PH/ORP Probe Refill Solution for CSIM11 or CSIM11-ORP (4 oz container)

- › Length: 17.8 cm (7.0 in)
- › Diameter: 3.0 cm (1.2 in)
- › Weight with 15 ft cable: 0.5 kg (1 lb)

pH Sensor

- › pH Range: 0 to 14
- › Zero Potential: $7.0 \text{ pH} \pm 0.2 \text{ pH}$
- › Sodium Error: $< 0.05 \text{ pH}$ in 0.1 Molar Na^+ ion at 12.8 pH
- › Output: $\pm 59 \text{ mV/pH unit}$

ORP Sensor

- › ORP Range: -700 to +1100 mV

