

# CSIM11 & CSIM11-ORP

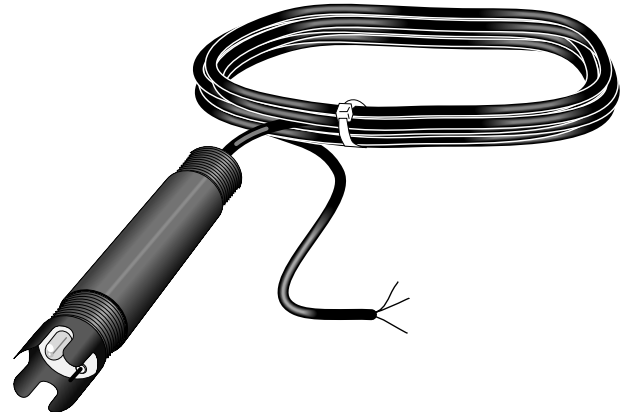
## Innovative Sensors pH & ORP Sensors



The CSIM11 measures the full pH range, and the CSIM11-ORP measures oxidation reduction potential (ORP). They are designed for submersion or insertion into tanks, pipelines, and open channels. If 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. These sensors are compatible with our contemporary dataloggers (except the CR200 series) and many retired dataloggers.

The construction of the two sensors is identical except the CSIM11-ORP includes a 0.2-inch, large surface area, platinum band measuring electrode. This allows the CSIM11-ORP to respond to the electron activity in the fluid.

The sensors feature a plunger-style pH glass electrode allowing them to be mounted at any angle. The porous Teflon® liquid junction is less susceptible to clogging as compared to conventional reference junctions. An integral titanium ground rod picks up stray current to help eliminate ground loop errors. An internal amplifier boosts the signal, decreasing signal interference. 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.



Threading at either end of probe is 3/4" NPT male. One differential channel is required to connect the sensor to a datalogger.

## 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-foot 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-foot 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 Refi II Solution for CSIM11 or CSIM11-ORP (4 oz container)

## Specifications

<b>Temperature Range:</b>	0° to +80°C
<b>Pressure Range:</b>	0 to 30 psig
<b>Accuracy:</b>	±0.1% over full range
<b>Impedance:</b>	<1 Mohm @ 25°C
<b>Reference Cell:</b>	Single Junction KCl/AgCl
<b>Body Material:</b>	ABS
<b>Wetted Materials:</b>	ABS, Teflon®, Viton®, Glass, Titanium
<b>Response Time:</b>	95% of reading in 10 s
<b>Drift:</b>	<2 mV per week
<b>Internal Lithium Battery Lifetime:</b>	5 yrs (life of probe)
<b>Patent Numbers</b>	
<b>Plunger-Style pH Glass Electrode:</b>	4,333,812
<b>Porous Teflon® Liquid Junction:</b>	4,128,468

### pH Sensor

<b>pH Range:</b>	0 to 14
<b>Zero Potential:</b>	7.0 pH ±0.2 pH
<b>Sodium Error:</b>	<0.05 pH in 0.1 Molar Na+ ion at 12.8 pH
<b>Output:</b>	±59 mV/pH unit

### ORP Sensor

<b>ORP Range:</b>	-700 to +1100 mV
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**Note:** The 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.

