

CS511

Dissolved Oxygen Sensor



The CS511 is a rugged, low-maintenance sensor that is manufactured by Sensorex¹. It consists of a self-polarizing galvanic cell that generates a millivolt signal proportional to the amount of oxygen present in the measured medium (typically water).

Oxygen diffuses through the CS511's membrane onto a cathode that produces a chemical reaction. An electrical current is produced by this reaction, which is converted from microamps to millivolts by an in-line resistor. An in-line thermistor provides automatic temperature compensation.

Because the CS511 is shipped dry, DO electrolyte needs to be added before using the sensor. DO electrolyte as well as spare membranes are included in the sensor's shipping kit.

Agitator

The PT4 agitator is offered for applications where the water velocity is less than 1 inch per second (2.5 cm s^{-1}). It sweeps a brush across the probe membrane to keep the probe clean and provide water movement for accurate readings.

¹Currently, the CS511 is Sensorex Model DO6400/T. Prior to June 2008, the CS511 was Sensorex Model DO6200/T. The older DO6200/T has a slightly different appearance than the sensor in the photograph. The maintenance kits and spare part kit for the DO6400/T are not compatible with the older DO6200/T. Replacement parts remain available for the older DO6200/T; contact Campbell Scientific for more information.

Ordering Information

Dissolved Oxygen Sensor

CS511-L Sensorex DO6400/T Dissolved Oxygen Sensor with user-specified cable length. Enter length, in feet, after the -L. 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 a connector for attachment to a prewired enclosure.
- CWS** Cable terminates in a connector for attachment to a CWS900 interface. Connection to a CWS900 allows the sensor to be used in a wireless sensor network.

Accessories/Replacement Parts

- 22261** Maintenance Kit that consists of five Teflon membranes, five membrane o-rings, five tensioning washers, and a 250-ml bottle of electrolyte.
- 22262** Maintenance Kit that consists of 25 Teflon membranes, 25 membrane o-rings, 25 tensioning washers, and a 500-ml bottle of electrolyte.
- 22263** Spare Parts Kit that contains two membrane locks, two tensioning washers, two body o-rings, and one membrane replacement tool.
- PT4-L** Agitator with Repeat Cycle Timer with user-specified lead length. Enter length, in feet, after the -L

Specifications

O₂ Measuring Range: 0.5 to 50 ppm

Output

100% Saturation: 33 mV ± 9 mV
0% Saturation: <2 mV

Accuracy: ±2%

Response Time: 5 minutes from 100% to 0% oxygen

Minimum Water Velocity: 2 in s⁻¹ (5 cm s⁻¹)

Minimum Submersion Depth:

2.5 in (6.35 cm)

Operating Temperature: 32° to 122° F (0° to 50°C)

Pressure: 0 to 100 psig

Temperature Compensation: Automatic from 40° to 104°F (4° to 40°C)

Sensor Materials

Body: Noryl
Anode: Silver
Cathode: Zinc

Probe Electrolyte: NaCl + glycerol (prevents freezing)

Dimensions

Diameter: 2.25 in. (5.72 cm)
Height: 7 in. (17.78 cm) from bottom of sensor to end of cable strain relief

Shipping Weight including sensor and shipping kit: 1.75 lb (0.8 kg)

Power Requirements for optional PT4 Agitator: 12 Vdc, 0.9 A

Datalogger Compatibility: All contemporary dataloggers, and many retired loggers (e.g., CR510, CR10(X), CR23X).

