



## ChemScan RDOX Optical Dissolved Oxygen Probe

**THE CHEMSCAN RUGGED DISSOLVED OXYGEN (RDO) RDOX PROBE USES OPTICAL TECHNOLOGY FOR MEASURING DISSOLVED OXYGEN (DO) IN DEMANDING WASTEWATER PROCESS ENVIRONMENTS, LOW-MAINTENANCE, EASY TO USE AND INTEGRATED DESIGN**



The RDOX Probe lets NPDES permit holder monitor influent, effluent and treatment processes, responding quickly to oxygen and temperature changes for more accurate results

### **ELIMINATE MAINTENANCE**

- Operates with very low drift for long periods of time
- Responds quickly and accurately to oxygen and temperature changes across the full range.
- Delivers consistent, reproducible results (<0.05 mg/L).
- Eliminates membranes and filling solutions

### **SIMPLE DESIGN**

- Automates setup and reduces error-calibration coefficients are loaded into sensor cap.
- Flexible communications-Standard 4-20 mA, Modbus/RS485, direct or using Control Point 2.0 with local display
- Direct connection eliminates the need for a transmitter or controller, and requires only 8 to 36 VDC power

### **COST EFFECTIVE**

- Runs aerators efficiently and mitigates risks.
- Twist lock connection allows interchangeability with all ChemScan probes
- Easily view and filter data using In-Situ telemetry systems and HydroVu™ Data Services.

### **ROBUST CONSTRUCTION**

- Resists abrasion and photobleaching effects.
- Withstands high salinity environments-inert, non-corrosive materials used to construct probe body and sensor.
- Insensitive to interferences that plague membrane-based sensors (hydrogen sulfide, chloride, ammonium, and others).

**[www.ChemScan.com](http://www.ChemScan.com)**

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1-262-717-9500 (U.S.A. and international)

### **Applications:**

- **MUNICIPAL/INDUSTRIAL WATER AND WASTEWATER TREATMENT**

## CHEMSCAN RDOX OXYGEN PROBE

SENSOR TYPE.	Optical DO probe uses Classic Sensor Cap.
RANGE, DO	0 to 60 mg/L
ACCURACY, DO	±0.1 mg/L, 0 to 20 mg/L ±2% of reading, 20 to 60 mg/L
RESOLUTION, DO	0.01 mg/L
RESPONSE TIME, CAP	T90: <45 sec. T85: <60 sec. @ 25° C
RANGE, TEMP.	0° to 50° C (32° to 122° F)
ACCURACY, TEMP.	±0.1° C typical
RESOLUTION, TEMP.	0.01° C
SALINITY, COMP.	Fixed or real-time capable
BAROMETRIC COMP.	Fixed or real-time capable
METHODS.	EPA-approved In-Situ® RDO methods 1002-8-2009, 1003-8-2009, 1004-8-2009 Standard Methods 4500-O

## ENVIRONMENTAL RATINGS

PRESSURE	150 psi from 0° to 50° C; 300 psi @ 25° C
DEPTH	210 m (689 ft) @ 25° C
OPERATING TEMP.	Probe: 0° to 50° C (32° to 122° F)
STORAGE TEMP.	Sensor cap: 1° to 60° C (33° to 140° F), in factory container Probe: -5° to 60° C (23° to 140° F)
COMPLIANCE	Heavy industrial, IEC 61000-6-2:2005
IP RATING	IP-67 with cap off; IP-68 with cap installed

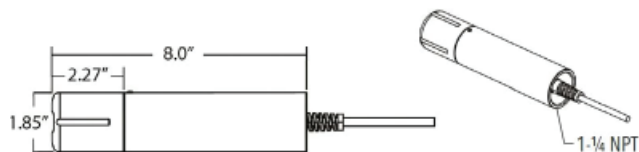
## CHEMICAL RATINGS

INTERFERENCES	Alcohols >5%; hydrogen peroxide > 3%; sodium hypochlorite (commercial bleach) > 3%; gaseous sulfur dioxide; gaseous chlorine. Do not use in organic solvents (e.g., acetone, chloroform, methylene chloride, etc.), which may swell the sensing element (foil matrix) and destroy it.
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## GENERAL RATINGS

COMMUNICATION OUTPUT	Modbus/RS485, SDI-12, 4-20 mA
POWER REQUIREMENTS	8 to 36 VDC
POWER CONSUMPTION	Maximum: 50 mA at 12 VDC
CABLE LENGTHS	Modbus and 4-20 mA: Up to 1,219 m (4,000 ft) SDI-12: Up to 61 m (200 ft)
INT. MOUNTING THREAD	1-1/4 NPT
WARRANTY	Probe: 3 years from date of shipment Cap: 2 years in typical applications

Specifications are subject to change without notice.

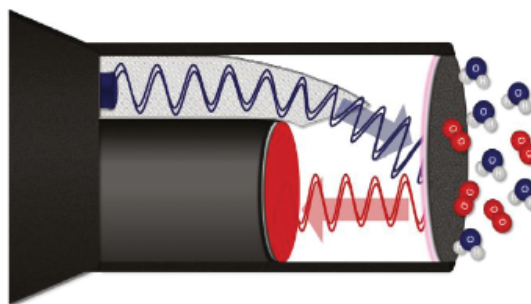


## KEY ADVANTAGES

- **Long-lasting calibration**—the probe maintains calibration and operates with no drift over long-term deployments, delivering consistent, reproducible results.
- **Automatic setup**—the ChemScan RDOX Cap is pre-loaded with factory calibration coefficients, serial number, and manufacture date. ChemScan RDOX can use Classic, Fast, or ChemScan RDOX Cap. Ships with ChemScan RDOX Cap.
- **Sensor health diagnostics**—internal indicators alert you about excessive wear and remind you about regular maintenance intervals.
- **Fast response**—with patented signal processing, the probe responds quickly and maintains stability, even in dynamically changing conditions.

## TECHNOLOGY

The low-maintenance ChemScan RDOX Probe measures DO and provides extremely stable, accurate results. When the probe initiates a reading, a blue LED emits blue light, which excites lumiphore molecules in the sensing element. Excited lumiphore molecules emit red light, which is detected by a photodiode. Oxygen molecules quench the excited lumiphore molecules and prevent the emission of red light—a process called “dynamic luminescence quenching.” Determination of DO concentration by luminescence quenching has a linear response over a range of concentrations



Lumiphore molecules are excited by blue light and then emit red light, which is detected by a photodiode. Optical electronics report DO concentration in mg/L.

## OFFERINGS

- **Simplified integration**—use in conjunction with the ChemScan Control Point 2.0, SCADA/PLC Systems, or telemetry systems and HydroVu™ Data Services. the probe maintains calibration and operates with no drift over long-term deployments, delivering consistent, reproducible results.
- **Compliance certified**—CE, FCC Class B heavy industrial immunity and emissions certifications.
- **Twist-lock cable options**—10m or custom lengths.

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1-800-665-7133 (toll-free in U.S.A. and Canada)

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