



## 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



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

### LOW-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).
- No membranes and filling solutions needed

### INTEGRATED 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 option eliminates the need for a transmitter or controller, and requires only 8 to 36 VDC power

### COST EFFECTIVE

- Used to run aerators efficiently reducing energy use
- Twist lock cable connection and quick connect mount allows for 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 wastewater 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).

### 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. @ 77° F (25° C)
RANGE, TEMP.	32° to 122° F (0° to 50° C)
ACCURACY, TEMP.	±1.8° F (±0.1° C) typical
RESOLUTION, TEMP.	0.18° F (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 32° to 122° F (0° to 50° C); 300 psi @ 77° F (25° C)
DEPTH	689' (210 m) @ 77° F (25° C)
OPERATING TEMP.	Probe: 32° to 122° F (0° to 50° C)
STORAGE TEMP.	Sensor cap: 33° to 140° F (1° to 60° C), in factory container Probe: 23° to 140° F (-5° to 60° C)
COMPLIANCE	Heavy industrial, IEC 61000-6-2:2005
IP RATING	IP-67 with cap off; IP-68 with cap installed

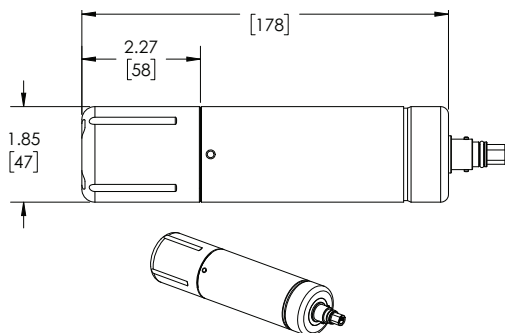
## CHEMICAL RATINGS

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 4,000' (1,219 m) SDI-12: Up to 200' (61 m)
INT. MOUNTING	ChemScan quick connect fitting
WARRANTY	Probe: 3 years from date of shipment Cap: 2 years in typical applications

Specifications are subject to change without notice.

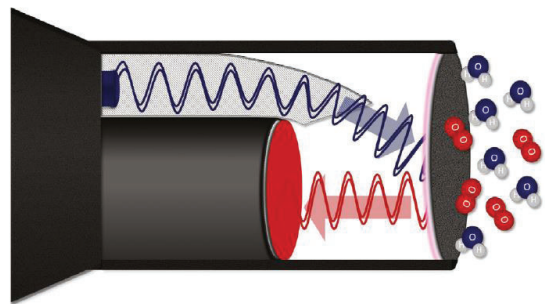


## KEY ADVANTAGES

- **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.