



RDO® Titan Optical Dissolved Oxygen Probe

ENVIRONMENTAL PROFESSIONALS, AQUACULTURISTS, AND NPDES PERMIT HOLDERS USE IN-SITU® INC.'S RUGGED DISSOLVED OXYGEN (RDO) TITAN PROBE FOR LONG-TERM MONITORING AND PROCESS CONTROL. THE RDO TITAN PROBE USES OPTICAL TECHNOLOGY FOR MEASURING DO IN DEMANDING PROCESS ENVIRONMENTS.



The U.S. Environmental Protection Agency (EPA) has approved In-Situ Inc.'s RDO methods for use in Clean Water Act programs. Visit the In-Situ website to learn more about using breakthrough optical technology at your facility.

SIMPLE DESIGN

- Automates setup and reduces user error—Calibration coefficients and expiration clock are loaded into sensor cap.
- Eliminates membranes and filling solutions
- Flexible communications—Standard Modbus/RS485 output

COST EFFECTIVE

- Integrates into control and alarm systems with open communications protocols and flexible power options
- Eliminates the need for a costly transmitter or controller
- Includes probe with detachable cable. Cable is available in custom lengths.

ROBUST CONSTRUCTION

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

LOW MAINTENANCE

- Requires infrequent calibration
- Includes diagnostic tools to help you evaluate sensor health
- Operates with very low drift for long periods of time
- Responds quickly to oxygen and temperature changes
- Delivers consistent, reproducible results (<0.05 mg/L)

www.in-situ.com

CALL OR CLICK TO PURCHASE OR RENT
1-800-446-7488 (toll-free in U.S.A. and Canada)
1-970-498-1500 (U.S.A. and international)

Applications:

- AQUACULTURE SETTINGS
- MUNICIPAL/INDUSTRIAL WATER AND WASTEWATER TREATMENT
- FOOD/BEVERAGE PROCESS CONTROL
- DAM DISCHARGE MONITORING
- STORMWATER MANAGEMENT

RDO TITAN OXYGEN PROBE

SENSOR TYPE	Optical DO probe uses Classic Sensor Cap. RDO Titan can use Classic, Fast, or RDO-X Cap. Ships with Classic 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. T95: <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	689 ft (210 m) @ 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

GENERAL RATINGS

DIAMETER	2.8 cm (1.1 in.) OD x 16.8 cm (6.6 in.) with restrictor; not including cable
WEIGHT	114 g (4 oz.)
WETTED MATERIALS	Titanium, Delrin®, Nylon, PC/PMMA
COMM. OUTPUT	Modbus/RS485
POWER REQUIREMENTS	8 to 36 VDC
CABLE LENGTHS	Modbus: Up to 1219 m (4000 ft)
WARRANTY	Probe: 3 years from date of shipment
CAP SHELF LIFE	36 months
CAP LIFE	12 months typical

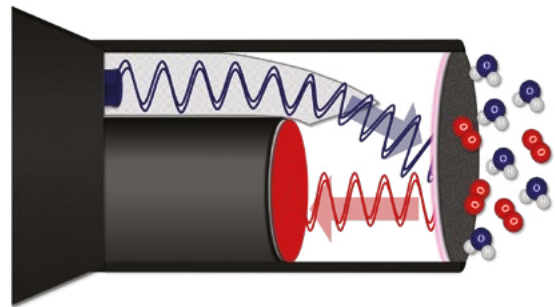
Specifications are subject to change without notice.
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KEY ADVANTAGES

- **Automatic setup**—To eliminate programming errors, the RDO Smart Cap is pre-loaded with factory calibration coefficients, serial number, expiration clock, and manufacture date.
- **Fast response**—With patented signal processing, the probe responds quickly and maintains stability, even in dynamically changing conditions.
- **Long-lasting calibration**—The probe maintains calibration and operates with no drift over long-term deployments.

TECHNOLOGY

The low-maintenance RDO Titan 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 Con TROLL® PRO System or with SCADA/PLC Systems
- **Flexible power requirements**—Uses 8 to 36 VDC input
- **Integrated communication protocols**—Industry standard Modbus over RS485
- **Compliance certified**—CE, FCC Class B heavy industrial immunity and emissions certifications
- **Detachable cable**—Available in custom lengths

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221 East Lincoln Avenue, Fort Collins, CO 80524 USA
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