RDO® Blue Optical Dissolved Oxygen Sensor

RDO BLUE IS AN OPTICAL DISSOLVED OXYGEN SENSOR DESIGNED FOR DEMANDING ENVIRONMENTS WHERE YOU NEED RELIABLE DO MEASUREMENTS AND WIDESPREAD COVERAGE TO OPTIMIZE YOUR SITE.

RDO Blue is suitable for freshwater or saltwater applications and is ready for connection with transmitters, controllers, dataloggers or telemetry. RDO Blue can also be used in a hand-held configuration for spot-checks and site assessments.

DO MORE FOR LESS

RDO Blue sensors are low power, low maintenance and low cost so you can monitor wherever you need to. Instead of spot checking sites with a shared probe or installing one sensor per site, pond or tank, you can affordably install RDO Blue in multiple locations for comprehensive insight about DO conditions that affect your aquatic organisms.

For aquaculture applications, this will help you optimize aeration and feeding to lower operational costs while maintaining the health of your stock. For environmental applications, access to data from more locations allows you to fully characterize your site, identify problem areas, and gain valuable insight to guide decisions.

[1]Ryton® is a registered trademark of Solvay.

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ENHANCED RELIABILITY

The redesigned RDO Blue is made from Ryton®[1], a high-performance material used to replace metal parts in automotive and heavy industrial applications. It's lightweight, strong, and resistant to chemicals, corrosion, abrasion, UV exposure and high heat.

Anti-rotational teeth lock the housing and sensor tip together to provide a strong, reliable connection between parts. Internal potting around the cable connection ensures the electronics are protected from humidity even in tough conditions.

SHARED ECOSYSTEM

With the Twist-Lock option, RDO Blue plugs into the In-Situ ecosystem and allows you to collect readings, calibrate, and manage the instrument with a TROLL® Com Plus and VuSitu®. This mobile solution keeps your data organized and geographically accurate by enabling data collection at distinct sites with GPS tags. VuSitu instantly uploads logs, live recordings, calibration reports and other files to your HydroVu® account for secure data storage and convenient access and sharing from any browser or mobile device.

You can also connect RDO Blue to VuLink® to create a simple and complete solution with power, logging and telemetry for your critical DO data. With HydroVu for advanced data visualization and site information, you get a comprehensive overview of your monitoring sites and can set up alarms for notification of critical site conditions.

Applications:

- **POND AQUACULTURE**
- **RECIRCULATING AQUACULTURE SYSTEMS**
- **OPEN PEN AQUACULTURE**
- **SURFACE WATER SPOT SAMPLING**
- **REMOTE MONITORING VIA TELEMETRY**

RDO® Blue Optical Dissolved Oxygen Sensor

SENSOR RATINGS	
SENSOR TYPE	Optical Dissolved Oxygen Sensor
RANGE, DO	0-60 mg/L; 0-600% Saturation
ACCURACY, DO	+/- 0.1 mg/L (0-20 mg/L) +/-5% (20-60 mg/L)
RESOLUTION, DO	0.01 mg/L
RESPONSE TIME, CAP	T63<5s, T90<45s, T95<60s (RDO-X cap)
UNITS, DO	mg/L, ppm, % saturation
RANGE, TEMP.	-5°C to 50°C (23°F to 122°F)
ACCURACY, TEMP.	+/- 0.1°C
RESOLUTION, TEMP.	0.01°C
UNITS, TEMP.	Celsius, Fahrenheit
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 Compliant with ASTM D888-18 Method C and ISO 17289 methods.
ENVIRONMENTAL RATINGS	
PRESSURE	150 psi from 0° to 50°C (32°F to 122°F)
DEPTH	100 m (328 ft) @ 25°C (77°F)
OPERATING TEMP. (NON-FREEZING)	-5.0°C to + 50.0°C (23°F to 122°F)
STORAGE TEMP.	-40°C to + 65°C (-40°F to 149°F)
COMPLIANCE	EMC 2014/30/EU , IEC 61000-6-2:2005, EN 55011:2009
IP RATING	IP-67 with sensor cap off; IP-68 with sensor cap installed
CHEMICAL RATINGS	
INTERFERENCES	Alcohols >5%; hydrogen peroxide > 3%; sodium hypochlorite (commercial bleach) > 3%; gaseous sulfur dioxide; gaseous chlorine. Do not use the RDO sensing foil in organic solvents (e.g., acetone, chloroform, methylene chloride, etc.) or ozone, which can cause permanent damage to the sensing element (foil matrix).
GENERAL RATINGS	
DIMENSIONS	L 22.06 cm (8.69 in) x D 2.95 cm (1.16 in)
WEIGHT	205 g (0.5 lb) (without cable)
WETTED MATERIALS	Polyphenylene Sulfide (PPS) (housing, guard), Polycarbonate/Acrylonitrile Butadiene Styrene (PC/ABS) blend (sensor nose), Polycarbonate/Polymethylmethacrylate (PC/PMMA) blend (RDO cap), Acrylonitrile Butadiene Rubber (NBR) (O-rings), FKM Fluoroelastomer (O-rings), Thermoplastic Polyurethane (TPU) (cable jacket, strain relief cone), Titanium (Twist-Lock connector on applicable product models), Proprietary RDO sensing formulation (RDO cap tip)
COMMUNICATION OUTPUT	Modbus/RS485
READING RATE	1 reading every 1 second
EXTERNAL POWER REQUIREMENTS	8 to 36 VDC (20mA at 8 VDC peak)
POWER CONSUMPTION	Power On: 3mA at 16 VDC for 0.7s Reading: 8mA at 16 VDC for 0.75s Idle: 2mA at 16 VDC
WARRANTY	2 years from date of shipment

RDO BLUE FEATURES PATENTED RDO TECHNOLOGY, INCLUDING:

EPA-Approved Method
RDO luminescence-quenching sensors have been proven through extensive lab testing, and the methodology has been approved by the United States EPA. RDO sensors do not consume oxygen and do not require water movement for accurate measurements.

Smart Sensor Cap
RDO sensing foils are calibrated at 90 discrete points and the calibration coefficients are stored in the replaceable cap. Simply press it on and you're ready to go, no data entry or extra steps needed.

Abrasion Resistance
A unique, three-layer system provides unmatched chemical and abrasion resistance, extending the life of the sensor cap and expanding the range of compatible conditions.

Instant Hydration Conditioning
RDO sensors do not require 12-24 hours of hydration conditioning and read accurately within 90 seconds of going from dry to wet conditions.

Liquid and Gas Formulation
The RDO system measures accurately in both liquid and gas without requiring separate calibrations or change of settings.

Smart Addressing
All RDO instruments have an easy-to-configure Modbus interface, so they're ready for integration into another system and access to data is reliable.

Enhanced Reliability
Ryton construction with complete internal potting creates a solid core and provides strength and chemical resistance to eliminate most common failures.

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