RDO® Trio

THE RDO TRIO COMBINES THE LATEST OPTICAL DISSOLVED OXYGEN TECHNOLOGY WITH INTEGRATED SALINITY COMPENSATION. FEATURING AN OPTIONAL WIPER AND THREE BUILT-IN SENSORS: DISSOLVED OXYGEN, CONDUCTIVITY, AND TEMPERATURE, IT DELIVERS RELIABLE, REAL-TIME DATA IN A COMPACT, EASY-TO-DEPLOY DESIGN.

COMPACT & COST EFFECTIVE

The RDO Trio offers an all-in-one design that simplifies deployment without compromising performance. Its compact footprint is ideal for installations with limited space, and the integrated sensor configuration reduces hardware requirements and overall system cost.

SHARED ECOSYSTEM

The RDO Trio is fully compatible with In-Situ's shared ecosystem, allowing for seamless integration with other instruments, cables, and VuSitu® mobile app. Cloud Connect automatically uploads all VuSitu data to your HydroVu® account for secure access in one central location.

INTELLIGENT WIPING

RDO Trio is the first DO sensor on the market that has a built-in way to self-clear a false low DO event due to fouling. Low DO levels automatically trigger a cleaning cycle. This avoids unnecessry usage of energy-hungry aerators, blowers, or pumps.

COMPLETE ANTIFOULING

The sensor's flat-face design resists debris buildup, allowing for quick, easy cleaning. An integrated wiper and a weighted, copper-infused guard extend deployment and reduces the need for frequent manual maintenance.

INTEGRATED SALINITY COMPENSATION

Real-time salinity compensation directly integrated into the device allows RDO Trio to maintain highly accurate DO measurements as salinity fluctuates, without the need to change salinity values between calibration and deployment.

OPEN MODBUS API

All RDO Trio instruments feature an open Modbus interface for seamless integration with SCADA systems, controllers, and telemetry devices. The RDO Trio includes a comprehensive public Modbus API guide to make setup fast and reliable. This feature supports plug-and-play configuration, improves data organization, and reduces troubleshooting time, especially in complex or large-scale deployments.

SMART SENSOR CAP

RDO sensors are calibrated at 90 discrete points, and the calibration coefficients are stored in the replaceable cap. Simply screw it in 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.

EPA-APPROVED METHOD

RDO luminescence-quenching sensors have been proven effective through extensive lab testing, and the methodology has been approved by the United States EPA[1]. RDO sensors do not consume oxygen and do not require water movement for accurate measurements.

INSTANT HYDRATION CONDITIONING

The RDO formulation reads accurately within 90 seconds of going from dry to wet conditions.

Applications:

- **POND AQUACULTURE**
- **FISH TANKS & RACEWAYS**
- **RECIRCULATING AQUACULTURE SYSTEMS (RAS)**
- **OPEN OCEAN & OFFSHORE AQUACULTURE**
- **SURFACE WATER MONITORING**
- **COASTAL & MARINE MONITORING**
- **HYPOXIA & HARMFUL ALGAL BLOOM MONITORING**

GENERAL	RDO TRIO DISSOLVED OXYGEN	RDO TRIO TEMPERATURE	RDO TRIO CONDUCTIVITY
ACCURACY[2,3]	±0.1 mg/L from 0 to 20 mg/L ±5% from 20 to 60 mg/L ±1% of reading or ±1% of air saturation WIG from 0 to 200% ±5% of reading from 200 to 600%	± 0.1°C	± 0.5% from 1 to 100,000 µS/cm ±1% from 100,000 to 200,000 µS/cm ± 2% from 200,000 to 350,000 µS/cm
RANGE	0 to 60 mg/L 0 to 600% Saturation	-5 to 50°C	0 to 350,000 µS/cm
RESOLUTION / PRECISION	0.01 mg/L 0.1% air saturation	± 0.1°C	0.1 µS/cm
RESPONSE TIME T63	< 15 s	< 2 s	< 1 s
RESPONSE TIME T90	< 45 s	< 15 s	< 3 s
RESPONSE TIME T95	< 60 s	< 30 s	< 5 s
UNITS OF MEASURE	mg/L, %	Celsius or Fahrenheit	µS/cm
METHODOLOGY	Dissolved Oxygen: EPA-approved In-Situ Methods 1002-8-2009 Conductivity: Standard Methods 2510/EPA 120.1 Temperature: EPA 170.1 Salinity calculation methods: PSS-78 (default) or Standard Method 2520-B		
DERIVED PARAMETERS	Salinity, Total Dissolved Solids, Specific Conductivity		
WETTED MATERIALS	Polycarbonate/Acrylonitrile Butadiene Styrene (PC/ABS) blend, Polycarbonate/Acrylic, Titanium, Graphite, FKM Fluoroelastomer		
OPERATING TEMPERATURE	-5 to 50°C (23 to 122°F)		
STORAGE TEMPERATURE	-40 to 65°C (-40 to 149°F)		
DIMENSIONS	169 mm (6.70 in) height 57.2 mm (2.3 in) OD of guard		
WEIGHT	382 g (13.5 oz) Wiper version 357 g (12.6 oz) non-Wiper		
WEIGHT IN WATER (FRESHWATER, REDUCE BY ~3% FOR SEAWATER)	197 g (7.0 oz) Wiper version		
MAX PRESSURE RATING	150 PSI		
POWER INPUT	Input: 8 to 36 VDC (1.2 W) Reading: 7 mA @ 16 VDC Wiping: 20 mA @ 16 VDC Idle: 4 mA @16 VDC		
OUTPUT OPTIONS	Modbus RS-485		
ENVIRONMENTAL RATING	On all units: IP68 with RDO-S Cap installed and cable attached; IP67 without RDO-Cap installed or cable detached On wiper units: IP68 with wiper brush installed; IP67 without wiper brush installed		
SOFTWARE SUPPORT	VuSitu and HydroVu		
WARRANTY	2 years from date of shipment		

NOTES: [1]In-Situ, Inc., EPA Approves Optical RDO Method, In-Situ Technical Note, 1–4, https://media.in-situ.com/FDUAXN8W/as/q655hshq8r4b9jgmwxxjwjqs/EPA_Approves_RDO_Method_TechNote, n.d. [2]Published DO accuracy spec may require a user calibration to achieve. [3]Published Conductivity accuracy spec may require a user calibration to achieve. Accuracy above 350,000 µS/cm is unspecified, but the unit will continue to provide readings.

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