In-Situ

Innovations in **Water Monitoring** | Spec Sheet

In-Situ Aquaculture Management System

The wireless In-Situ aquaculture system automates oxygen monitoring and control. The system includes solar-powered buoys, aerator controllers, and software. Easy to install, alarms when system needs maintenance, and automates oxygen management.

The Aquaculture Pond Buoy allows easy remote monitoring of dissolved oxygen levels and temperature in aquaculture pond raceways. The solar-powered buoy has an easy-to-use optical RDO® Titan probe for 24-hour dissolved oxygen monitoring, plus a transceiver that transmits data wirelessy, right to your laptop or PC.

Saves Money

- **Improves fish production**—consistent control of oxygen can improve feed conversion ratios, minimize fish stress, and reduce fish disease and mortality.
- **Reduces calibration and maintenance**—RDO Titan Probe stays calibrated for an entire season. Automated cleaning system removes fouling.
- **Reduces manual oxygen checks**—drive less and stay informed of oxygen levels in every pond—24 hours a day.
- **Installs quickly**—a wireless 20-pond system (10-12 acre ponds) can be installed in one day.
- **Improves aeration control**—automated control can reduce energy expenses and wear on equipment.
- **Qualifies for grants and credits**—USDA grants for energy efficient systems and solar tax credits reduce costs.

Minimizes Risk

- **Obtains fast, stable results**—the RDO Titan Probe responds quickly to changes and is not susceptible to drift.
- **Alerts sent to phone, email, or text message**—receive real-time updates—anywhere, anytime.
- **Reduces failures**—wireless operation reduces potential damage from lightning strikes, mowers, and exposure.
- **Monitors aerator operation**—the system continuously reports amperage draw of aerator motors.
- **Tracks pond temperature**—when temperatures exceed optimal levels, you can verify eligible loss of inventory.

Healthy Water. | Healthy Fish. | Healthy Profits.

Applications

- **Pond aquaculture**
- **Tank aquaculture**

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)

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Aquaculture Management System

Spec Sheet

Oxygen Monitoring Buoy

The buoy is a self-contained, self-powered oxygen and temperature monitoring platform. Radio transmissions relay RDO Titan Probe readings to a base station. A site survey will determine radio and repeater requirements for your aquaculture operation.

Operating temperature	Buoy: -25° to 60° C (-13° to 140° F) Probe: 0° to 50° C Cap: 32° to 122° F
Storage temperature	Buoy: -10° to 60° C (14° to 140° F) Sensor cap: 1° to 60° C (33° to 140° F), in factory container Probe: -5° to 60° C (23° to 140° F)
Buoy materials	Polyethylene float with PVC mountings and fittings
Radio type	Frequency hopping spread spectrum; site specific up to 11 km (7 mi)
Solar Panel	10W
Battery	12V, 12 Ah, SLA
Charge controller	4.5A, 12V
Brush motor	12 VDC
Brush enclosure	PVC
Dimensions	61 x 91.4 x 81.3 cm (24 x 36 x32 in) (WxHxD)
Weight	18 kg (40 lbs)
Warranty	1 year

Aerator Controller

The aerator controller is a radio-linked AC relay controller and AC current measuring system. Models are available with 4 or 8 AC relays with corresponding AC current sensor inputs.

Operating temperature	0° to 50° C (32° to 122° F)
Storage temperature	-10° to 60° C (14° to 140° F)
Enclosure	Steel: Type 1, 3R Fiberglass: NEMA 4x
Power, required	100-240 VAC, 0.15 A, 50-60 Hz
AC relay outputs	24-240 VAC, 10A
Current inputs	200 mA max.
Certifications	UL and CSA safety standards by ETL for use in general locations
Dimensions	Steel: 31.8 x 33.8 x 16.5 cm (12.5 x 13.3 x 6.5 in) (WxHxD) Fiberglass: 30.0 x 35.1 x 17.8 cm (11.8 x 13.8 x 7.0 in)
Weight	Steel: 10.3 kg (22.6 lbs) Fiberglass: 7.0 kg (15.5 lbs)
Warranty	1 year

Wireless Repeater

Use a wireless repeater to overcome physical obstructions or to increase range. A site survey will determine radio and repeater requirements.

Radio Type	Frequency hopping spread spectrum; site specific up to 11 km (7 mi)
Power options	AC power supply or one 20 W solar panels
Battery	12 V, 12 Ah, SLA
Charge controller	4.5 A, 12 V
Warranty	1 year

RDO® Titan Probe

Sensor type & cap	Optical dissolved oxygen sensor Uses the RDO Classic Sensor Cap
Range, DO	0 to 50 mg/L
Accuracy, DO	±0.1 mg/L, 0 to 8 mg/L ±0.2 mg/L, 8 to 20 mg/L; ±10% of reading, 20 to 50 mg/L
Resolution, DO	0.01 mg/L
Response time, cap	T90: <45 sec. T95: <60 sec. @ 25° C
Range, temperature	0° to 50° C (32° to 122° F)
Accuracy, temperature	±0.1° C typical
Resolution, temperature	0.01° C
Salinity compensation	Fixed or real-time capable
Barometric compensation	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 temperature	Probe: 0° to 50° C (32° to 122° F)
Storage temperature	Sensor cap: 1° to 60° C (33° to 140° F), in factory container Probe: -5° to 60° C (23° to 140° F)
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

General Ratings

Usage life of cap	1-year life typical
Shelf life of cap	3 years from date of manufacture
Communication output	Modbus/RS485
Power requirements	8 to 36 VDC
Power consumption	Maximum: 50 mA at 12 VDC
Cable lengths	Modbus/RS485: Up to 1219 m (4000 ft)
Cable connection	Detachable from probe
Warranty	Probe: 3 years from date of shipment CE FC

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