

Triton® DO82 Dissolved Oxygen Sensor

The DO82 Dissolved Oxygen Sensor is a rugged, reliable solution for continuous dissolved oxygen measurement in water and wastewater applications. Utilizing a proven optical sensing technology, the DO82 delivers stable, accurate readings with minimal maintenance, making it ideal for demanding industrial and environmental processes.



Triton TR82 Series Turbidity & Suspended Solids Sensors

- **Oxygen Dissolved Oxygen Sensor** that uses Fluorescence Quenching Method to determine oxygen concentration in water eliminating the need for frequent calibration and membrane replacement
- **Intelligent Sensor with Stored Calibration Data**, advanced 2nd generation software algorithms for noise free, stable output
- **ULTRA Long Life Membrane Cap** provides years of service, there is no required/recommended annual membrane cap replacement
- **Replaceable Membrane Cap** allows fast field service without returning the sensor to the factory, reducing downtime and maintenance costs.
- **Universal Design with Waterproof Fixed or Detachable Cable** assemblies. Available with hand rail mounted immersion assemblies, flow through cells and automatic spray cleaning systems
- **Interfaces with T80 Transmitter:** 4-20 mA with MODBUS RTU or HART® on the T80 Transmitter, single or dual channel models

Consult our Technical Support staff for additional configuration options at +1-714-695-0051 or email: sales@ecdi.com

Description

The Triton® DO82 Optical Dissolved Oxygen sensor uses fluorescence quenching to determine the oxygen concentration in water. The use of this optical method by the Triton® DO82 minimizes maintenance, increases reliability and improves the long term accuracy of the measurement.

Combined with a rugged, easy-to-install design, the Triton® DO82 delivers reliable, long-term dissolved oxygen measurement for:

- Aeration Basins
- Aquaculture

and a wide range of environmental water applications.

A circular layer of optically active, oxygen sensitive molecules is integrated into an easily replaceable cap. This durable layer is highly permeable to oxygen and rapidly equilibrates to its surroundings.

The cap aligns the optically active fluorescence layer above the emitter and detector inside the sensor. The emitter flashes a green light at the layer and the layer fluoresces back a red light.

The duration and intensity of the fluorescence are directly dependent on the amount of oxygen in the layer. With little to no oxygen in the layer, the response is longer and more intense.

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Oxygen, however, quenches the fluorescence response so the response decreases to shorter times and lower intensities as the oxygen level increases. Both the time and intensity values are used to calculate the oxygen level and various diagnostics functions associated with the measurement.

The optical signals are continuously monitored and analyzed to calculate the dissolved oxygen value. The O₂ level and diagnostic values, including the aging of the sensor cap are digitally communicated to the instrument.

The digital communication provides a stable, trouble free connection that is immune to the RFI and EMI noise common at waste water treatment plants

The Triton® DO82 is unaffected by changes in the flow, pH or conductivity of the sample.

Unlike many amperometric dissolved oxygen sensors, there are no membranes to replace, electrolytes to refill or anode/cathode assemblies to service or replace.

The only serviceable part of the Triton® DO82 sensor is the easily replaceable sensor cap and it should provide greater than two years of service in an aeration basin.

The standard installation method for the Triton® DO82 sensor is immersion into a basin or stream with the sensor mounted at the end of a PVC extension pipe.

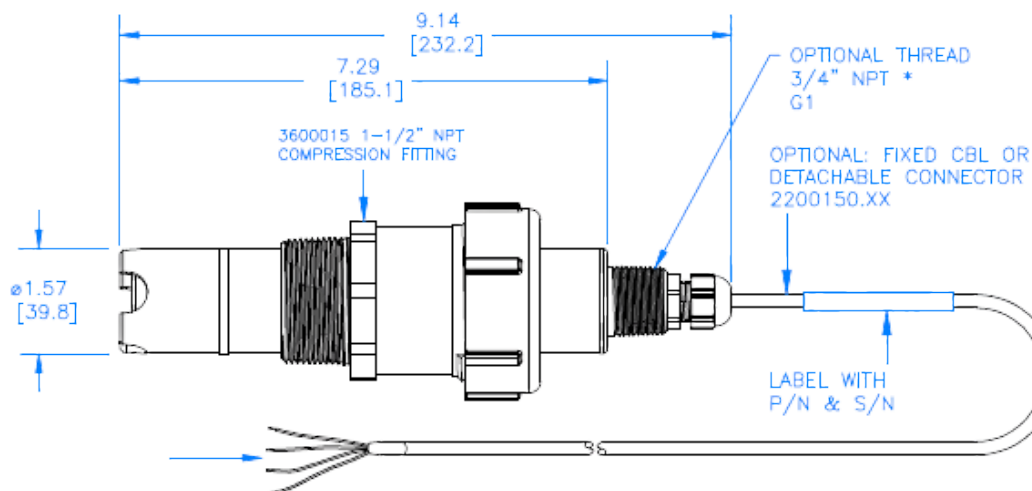
Rail Mounting and Wall Mounting Brackets are available; for installations where immersion mounting is not convenient or possible, a flow through cell is also available.

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Specifications

Measurement Range	0 - 20 mg/L (0 - 20 ppm) 0 - 200 % Saturation 0 - 400 hPa (0 - 6 psi)
Pressure Range	Maximum Pressure: 10 bar (145 psi)
Temperature Range	-5° - 50°C (20° - 120°F) Measuring -20° - 60°C (0° - 140°F) Ambient
Response Time	T90 = 60 sec
Accuracy	Maximum Error < 0.02 ppm below 12 ppm 0.04 ppm > 12 and < 20 ppm Temperature Element Class B Pt RTD $\pm 0.3^{\circ}\text{C}$
Repeatability	± 0.5 % of measured range
Resolution	0.01 ppm or 0.01 % Saturation
Wetted Materials	316 Stainless Steel CPVC Silicone
Sensor Cable	Shielded 4 Core Cable • 10 ft (3m) • 20 ft (6.1m) • 30 ft (9.1m) • 40 ft (12.2m) • 50 ft (15.25m) Optional Detachable Cable Assembly (IP68 Rating)
Process Connection	$\frac{3}{4}$ " NPT, rear facing thread or G1 rear facing thread
Maximum Cable Length	100 m, maximum from T80 Transmitter
Weights	Cable Lengths 10 ft (3m) 0.7 kg (1.5 lbs) Cable Lengths 50 ft (15.2m) 3.5 kg (7.7 lbs)

Dimensions



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Order Information

DO82	A	B	C	D	E	Sample Order
	0	00	1	1	0	DO82-000-110

(A) Immersion Style Sensor - 3/4" MNPT Mounting Thread
(B) No Spray Cleaner
(C) (DA) Axially Detachable Cable
(D) 10 ft (3.0 meters)
(E) None

A. Triton® DO82 Sensor Style

Part No.

- 0** (I) Immersion Style Sensor - 3/4" MNPT Mounting Thread
- 1 (IM) Immersion Style Sensor - G1 Mounting Thread
- 2 (F) Flow Cell and Sensor - 3/4" FNPT Entries
- 3 (FM) Flow Cell and Sensor - 1" Slip Entries
- 5 (FR) Flow Cell Replacement Sensor
- 7 Saltwater Immersion Style

B. Spray Cleaner

Part No.

- 00** No Spray Cleaner
- 01 (SC) Spray Cleaner for Immersion Style
- 02 (SC2) Spray Cleaner for Flow Cell Style
- 03 PVC Compression Fitting, DO82 to 1 1/2" MNPT

C. Cable Style

Part No.

- 0 Fixed Cable
- 1** (DA) Axially Detachable Cable

D. Cable Length

Part No.

- 0 No Cable (Replacement Sensor with detachable cable option)
- 1** 10 ft (3.0 meters)
- 2 20 ft (6.1 meters)
- 3 30 ft (9.1 meters)
- 4 40 ft (12.2 meters)
- 5 50 ft (15.2 meters)
- X Specify Length

E. Solution Ground

Part No.

- 0** None
- 1 Isolated Housing Ground

Controllers for Triton® DO82 Sensors

Part No.

- | | |
|---------------|---|
| T80-10-100-01 | T80 Optical Dissolved Oxygen Transmitter, 24 VDC Power, (1) 4-20 mA Output, Universal Mount |
| T80-1X-XXX-XX | Other Model T80 Versions – See Model T80 Section |

Triton® DO82 Spare Parts

Part No.

- | | |
|-----------|---|
| 2500207-1 | Replacement Sensor Cap (Optically Active Component) |
| 1000225 | Set of (2) Sealing O-Rings used with Sensor Cap |
| 2200150-X | Detachable Cable Assembly, X = Length in Feet |

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Equipment and Specifications may be updated periodically to enhance performance and reliability.



Order Information

										(A) Immersion Style Sensor - 3/4" MNPT Mounting Thread (B) No Spray Cleaner (C) (DA) Axially Detachable Cable (D) 10 ft (3.0 meters) (E) None	
DO82	A	B	C	D	E	Sample Order					
	0	00	1	1	0	DO82-000-110					

Triton® DO82 Accessories

Part No.	
1000450-2	Flow-Thru Housing, 3/4" NPT Entries *FLOW CELL STYLE DO82 ONLY*
1000450-1	Flow-Thru Housing, 1" Slip Entries *FLOW CELL STYLE DO82 ONLY*
1000455-1	Flow-Thru Housing with Spray Cleaner, 3/4" NPT Entries *FLOW CELL STYLE DO82 ONLY*
1000455-2	Flow-Thru Housing with Spray Cleaner, 1" Slip Entries *FLOW CELL STYLE DO82 ONLY*
1000455-3	Flow-Thru Housing with Spray Cleaner, 2" FNPT Entries *FLOW CELL STYLE DO82 ONLY*
1000234-X	Immersion Assembly (G1 Adapter, Cap/Cable Feed-through, X = Length in Feet)
1000234-99	Immersion Assembly (G1 Adapter, Cap/Cable Feed-through, *USER SUPPLIED 1" DOWN PIPE*)
1000334-X	Immersion Assembly (3/4" NPT Adapter, Cap/Cable Feed-through, X = Length in Feet)
1000334-99	Immersion Assembly (3/4" NPT Adapter, Cap/Cable Feed-through, X = Length in Feet, *USER SUPPLIED 1" DOWN PIPE*)
2000263	Rail Mounting Brackets, (2) Cable Glands, 7 pt. Terminal Strip, PVC Box
1000255-2	Handrail Mount Immersion Bracket 1" Sensors
2000263	Boom Assembly
1000222-1	NEMA 4X Junction Box, (2) Cable Glands, 7 pt. Terminal Strip, PVC Box
1000226-1	Air Blast Spray Cleaner, for immersion service, Spray Head & 1/4" Tube Fittings
3501127	Guard Cap, DO80/82, Closed Front End, Slotted Sides, PVC
1000235.3	Single Sensor DO80/82 Float *G1 Thread Version Sensor
1000251-2	PVC Ball Valve Retraction Assembly, 2" NPT Process Connection (G1)
1000251-3	PVC Ball Valve Retraction Assembly, 2" NPT Process Connection (3/4" NPT)
1000252-X	PVC Ball Valve Retraction Assembly, 2" NPT Process Connection w/ Custom Insertion Length (X = Specify Length)
3600395	Compression Fitting, 1 1/4" Tube x 2" MNPT PVC
3600015	PVC Compression Fitting, DO80/82 to 1 1/2" MNPT
2200040-X	Cable Assembly, In-Line Quick Disconnect (X = Length in Feet)
2000130	In-Line Cable Quick Disconnect

Note: This is a partial list of available configurations. For additional options or customization, please contact Electro-Chemical Devices Support Toll Free at: **(800) 729-1333** or your local ECD representative.

Engineering Specification

- The dissolved oxygen sensor shall use Fluorescence Quenching as the method for continuously monitoring the dissolved oxygen.
- The sensor should meet an ingress protection rating of IP68.
- The sensor shall be housed in 316 SS and the body shall be constructed of chlorinated polyvinyl chloride, CPVC plastic.
- The optically active surface shall be coated with silicone rubber.
- The operation of the sensor should not be affected by changes in the pH of the solution or changes in the flow or air bubbles at the sensing tip.
- The operation of the sensor should not be affected by H₂S or other reducing agents in the sample, or chlorine and other oxidizing chemicals in the sample.
- The sensor shall facilitate either immersion (pipe) or flow through designs.
- The sensor shall be 8.0" L x 1.6" diameter with rear facing 3/4" MNPT or G1 threaded connection.
- The sensor shall have a threaded, replaceable, optically active cap that does not require annual/yearly replacement.
- The sensor shall be available with a fixed cable or an optional waterproof IP68 detachable cable assembly.
- The analyzer shall be an ECD Triton® Series DO82 Dissolved Oxygen sensor and T80 transmitter manufactured by Electro-Chemical Devices, Inc.

***Specifications subject to change without notice.**

Represented By:



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