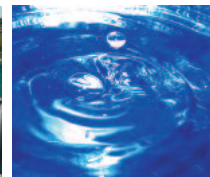
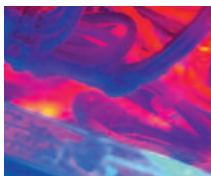


# Triton™ DO8 Series Optical Dissolved Oxygen Sensor



**ELECTRO-CHEMICAL DEVICES**

## **Triton™ DO8**



**Dissolved Oxygen Measurement**  
Drinking Water, Industrial Water, Water Treatment

# Triton DO8 Series Dissolved Oxygen Sensor

## Applications

- **Sewage treatment plants**  
Oxygen measurement and regulation in the activated sludge basin for a highly efficient biological cleaning process
- **Water monitoring**  
Oxygen measurement in rivers, lakes or seas as an indicator of the water quality
- **Water treatment**  
Oxygen measurement for status monitoring of drinking water, for example (oxygen enrichment, corrosion protection etc.)
- **Fish farming**  
Oxygen measurement and regulation for optimum living and growth conditions

## Features and Benefits

- **Optical technology**  
Minimum maintenance  
Long maintenance intervals  
Stable measurement  
Maximum measurement accuracy
- **No flow needed**  
Measurement possible in still water
- **Intelligent sensor**  
Self monitoring  
Storage of calibration data in sensor
- **Digital data transmission**  
Insensitive to electromagnetic interferences
- **Dual Channel Capability**  
Lower Cost - 2 DO8 sensors per Analyzer

## General Description

The Triton DO8 optical dissolved oxygen sensor uses a fluorescence quenching method to determine the oxygen concentration in water. The use of this Optical Dissolved Oxygen method by the Triton DO8 minimizes maintenance, increases reliability and improves the long term accuracy of the measurement. Combine this improved measurement technology with the rugged, easy to install design and the Triton DO8 provides the best solution for long term measurements in aeration basins, aquaculture and all types of environmental water.

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 two optical components inside the sensor, an emitter and a detector. 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. 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 for reliability inside the sensor. The oxygen

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level, water temperature and air pressure are used by the sensor to calculate the various dissolved oxygen values. The O<sub>2</sub> values and diagnostic values, including the aging of the sensor cap and any implausibly high or low oxygen values detected by the sensor are monitored by the Triton DO8 sensor and digitally communicated to the C-22 controller. The digital communication provides a trouble free connection between the Triton DO8 sensor and the C-22 controller that is unaffected by the RFI and EMI noise so common at waste water treatment plants.

The Triton DO8 is unaffected changes in the flow, the pH or the conductivity of the sample. While flow past the sensor cap is not necessary for the measurement, higher flow rates do minimize the growth of biofilms on the sensor and provide a more representative measurement of the sample.

Unlike 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 DO8 sensor is the easily replaceable sensor cap and it should provide greater than two years service in an aeration basin. Simply wiping the sensor with a wet rag is all the maintenance that is required. For maximum sensor cap life always protect the cap from direct sunlight.

The standard installation method for the Triton DO8 sensor is immersion into a basin or stream with the sensor mounted at the end of a PVC extension pipe. Rail Mounting Brackets and Wall Mounting Brackets are available. For installations where immersion mounting is not convenient or possible a flow through assembly is also available.

## 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

T<sub>90</sub> = 60 sec

### Accuracy

Max. error < 2 % of measured range

### Repeatability

±0.5 % of measured range

### Resolution

0.01 ppm or 0.01 % Saturation

### Operating Lifetime of Sensor Cap

> 2 year (protect against direct sunlight)

### Wetted Materials

316 SS, POM, Silicone

### Sensor Cable

Shielded 7 core cable  
7 meter (23 ft) or 15 meter (49 ft) lengths

### Process Connection

G1 Thread (¾" FNPT adapter available)

### Maximum Cable Length

100 m maximum from C-22 controller

### Dimensions

Length 8.7" (220 mm)  
Diameter 1.6" (40 mm)

### Weights

Cable length 7 m (23 ft): 0.7 kg (1.5 lbs)  
Cable length 15 m (49 ft): 1.1 kg (2.4 lbs)

# Triton DO8 Series Dissolved Oxygen Sensor

## Ordering Information

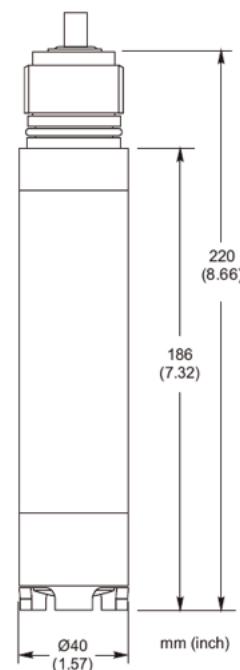
Part #	Model and Description
1397000-1	Triton Series DO8 Optical Dissolved Oxygen Sensor with 7 meter cable
1397001-1	Triton Series DO8 Optical Dissolved Oxygen Sensor with 15 meter cable
16F01221.F000	C-22 Single Channel Optical Analyzer/Controller, (1) 4-20 mA output, (2) Form C SPDT relays
16FF2421.FF00	C-22 Dual Channel Optical Analyzer/Controller, (2) 4-20 mA output, (4) Form C SPDT relays

## Accessories

Part #	Model and Description
2500207	Replacement Sensor Cap (Optically Active Component)
1000225	Set of (2) sealing o-rings used with Sensor Cap
1000224	G1 to ¾" FNPT adapter kit, changes G1 rear facing male thread to female socket
1000223	Immersion Assembly (G1 adapter, Cap/Cable feed-through, 1 meter down pipe)
2000263	Rail Mounting Brackets, (2) Quick Release "U" clamps for 2" Guard Rail mounting
1000219	Flow Through Housing
9640028	7 Conductor Cable, per meter
1000222	NEMA 4X Junction Box, (2) cable glands, terminal strip, PVC box, 6"x3"x2", LWD
1000226	Air Blast Spray Cleaner, includes spray head, ¼ Tube fittings

## Engineering Specifications

- 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 for 30 hours submersion in fresh water.
- The sensor shall be housed in 316 SS and the body shall be constructed of polyoxymethylene, POM plastic.
- The sensor shall be made of 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 H<sub>2</sub>S or other reducing agents in the sample, or chlorine and other oxidizing chemicals in the sample.
- The sensor shall facilitate either immersion (pipe) mounting or flow through designs.
- The sensor cap shall last up to two years in municipal aeration basins if protected from direct sunlight.
- The sensor shall require no sample conditioning.
- The analyzer shall be an ECD Triton Series DO8 dissolved oxygen sensor and C-22 controller manufactured by Electro-Chemical Devices, Inc.



DO8 Sensor Dimensions

Specifications subject to change without notice.

Represented by:

**Liquid Controls (Aust) Pty Ltd**  
**3/1 Quist Crt. Dandenong Vic 3175**  
**Tele: +61 03 9794 7066**  
**Fax: +61 03 9794 0641**  
**Email: [liquid@liquidcontrols.com.au](mailto:liquid@liquidcontrols.com.au)**  
**Web: [liquidcontrols.com.au](http://liquidcontrols.com.au)**

