Triton DO8– Dissolved Oxygen Sensors
The Triton DO8 is an Optical Dissolved Oxygen Analyzer

- DO8 Sensor & DO8 Instrument
- Measures the Partial Pressure of oxygen in the water or air
- mg/l, % saturation, or mBar
- The same O₂ measurement with an improved technology

Uses the optical property "Fluorescence" to determine the amount of oxygen dissolved in the water

Not Amperometric, Polarographic or Galvanic
What is the Triton DO8?

- **The Triton DO8 Sensor** is a smart sensor:
  - Digital Communication
  - All signal processing is internal
  - Factory Calibration is stored in the sensor memory
  - Integral Temperature measurement
  - Self diagnostics
  - Easily replaceable sensor cap with typically a two year life

- **The Triton DO8 Analyzer** has all the features of the C22 and can be ordered as a single or dual channel instrument:
  - (1) 4-20 mA output and 2 relays per channel
  - The digital communication of the Triton DO8 limits the sensor choices to the DO8 sensors only.
What is the Triton DO8?

Specifications

- **Measuring Range**
  - 0 - 20 mg/l (0 - 20 ppm)
  - 0 - 200 % Saturation
  - 0 - 400 hPa (0 - 6 psi)
- **Maximum Pressure**
  - 10 bar (145 psi)
- **Temperature Range**
  - -5; - 50;C (20; - 120;F)
- **Response Time**
  - T90 in 60 seconds
- **Accuracy**
  - Max. error < 2% of measurement range
- **Resolution**
  - 0.01 mg/l or 0.01% SAT
Inside the sensor there is a Green LED light source that flashes rapidly.

It Shines down on the end cap of the DO8 sensor that contains organo-metallic (OG) molecules that Fluoresce red light when excited by a green light.

A detector measures the intensity and response time (decay) of the Fluorescence.
How does it Work?

- Oxygen exchanges freely between the media and the OG molecules in the cap.
- The Special OG Molecules can grab onto the $O_2$
- When oxygen binds to the molecule, it fluoresces less.
- Hence the name of the technology **Fluorescence Quenching**.
  - No $O_2$ = High Fluorescence
  - High $O_2$ = Low Fluorescence
- The amount of quenching depends on the overall concentration of the $O_2$ in the system.
How does it Work?

- The amplitude of the signal, its intensity, is large and the response time of the decaying signal is long in low oxygen environments.

- The amplitude is lower and the response time is shorter for higher oxygen environments.

- The amplitude and response time are independent of each other
  - Response time is used to determine Oxygen concentration
  - Amplitude infers lifetime of the cap and the sensors dynamic range
Where is it Used?

- **Aeration Ponds at Municipal WWTP**
  - secondary treatment, bacteria neutralize the waste and consume oxygen which must be added or they die.

- **Fish Farming**
  - High density requires aeration

- **Monitoring of Aerobic or Anaerobic Chemical Processes**
  - Food processing WWT
  - Chemical/Petro WWT

- **Drinking water**
Why use an Optical DO?

- **Lower Maintenance**
  - Just Wipe the sensing end of with a wet rag and it is ready to go.
  - Use the Air Blaster Cleaner for even less maintenance.
  - No membranes to replace
  - No Solutions to refill

- **Fast, Accurate, Easy to Use**

- **Greater Stability**
  - Less Drift
  - Bi monthly (every two months) calibration check

- **Not Flow sensitive**

Air Blast Cleaner PN 1000226
Quick Start Up Guide

What’s Needed (one from each group needed)

- Single Channel Analyzer (PN 16F01221.F000)
- Dual Channel Analyzer (PN 16FF2421.FF00)
- Triton DO8 Sensor, 7 m cable (PN 1397000-1)
- Triton DO8 Sensor, 15 m cable (PN 1397001-1)
- Flow Through Cell (PN 1000219)
- Immersion Pipe Assembly (PN 1000223)

Spare Parts (recommended)

- Replacement Cap (PN 2500207)
- O-ring set for Cap (PN 1000225)
Quick Start Up Guide

- Wire the Analyzer
  - 2 wires for the 4-20 mA
    - Configured 0-20 mg/l
  - 2 wires each for the relays
    - Configure, if used
  - 3 wires for the Power

- Install the sensor in the flow cell or Immersion pipe

- Connect the Sensor (4 wires)

- Power the Analyzer

- The Factory Calibrated Sensor is measuring

- That’s all that’s required!
Electro-Chemical Devices has multiple offerings of DO sensors - the right sensor for your application!

Amperometric and Optical Sensors:

Contact ECD for all of your liquid analytical measurement requirements

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