Triton® DO80
Dissolved Oxygen Analyzer

ELECTRO-CHEMICAL DEVICES

Why choose a Triton® DO80?

- Easy to Use
  - Pre- Calibrated
  - No initial Burn In Required
  - No Liquids or Membranes to handle
- Easy to Calibrate
  - Zero,
  - Slope,
  - or Standardize
- Rugged design
- Fast Response
- Not flow sensitive

What is the Triton® DO80?

- The Triton® DO80 is an Optical Dissolved Oxygen Analyzer
  - Measures the Partial Pressure of oxygen in the water or air
  - The same O_2 measurement that is performed with galvanic or polarographic sensors.
  - With an improved technology
- Uses the Optical Property "Fluorescence" to determine the amount of oxygen dissolved in the water or present in the gas.

What is the Triton® DO80?

- The Triton® DO80 Sensor is a Smart Sensor.
  - Digital Communication
  - All data processing is internal to the sensor
  - Calibration is stored in the sensor's memory
  - Integral Temperature measurement
  - Self diagnostics
  - Easily replaceable sensor cap, greater than two year life is typical

What is the Triton® DO80?

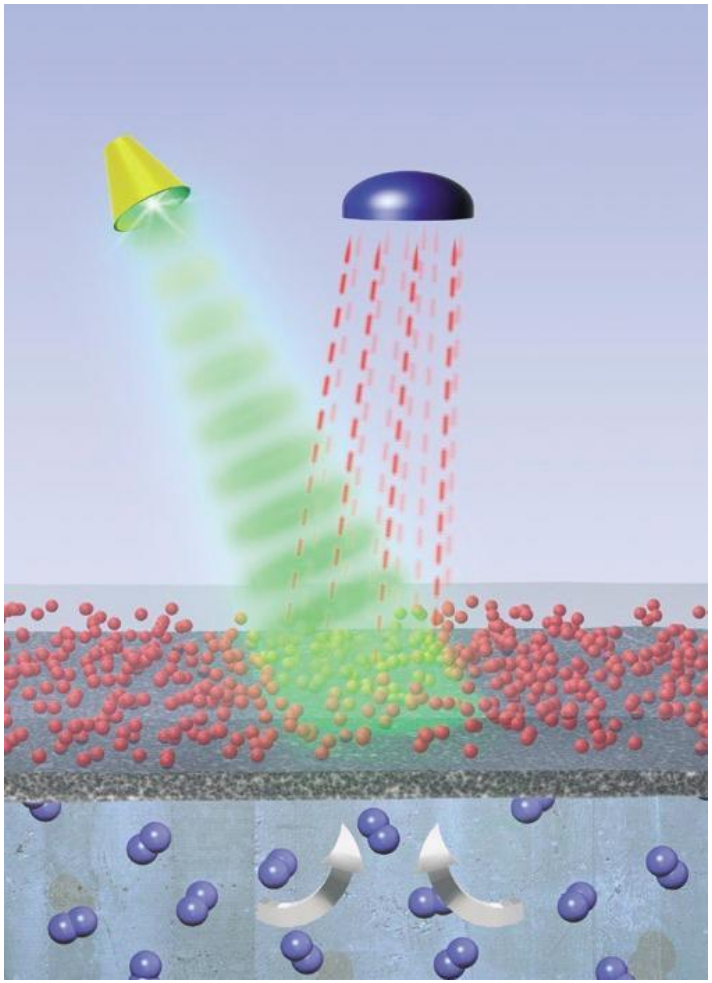
- The Triton DO80® Analyzer has all the features of the T80 and can be ordered as a Single or Dual channel instrument.
- The standard model has
  - (1) 4-20 mA output per Channel
  - (3) relays
  - The digital communication of the Triton® DO80 limits the sensor choices to the DO80 sensors only.

Specifications

- Measuring Range
  - 0 - 20 mg/l (0 - 20 ppm)
  - 0 - 200 % Saturation
  - 0 - 400 hPa (0 – 400 mbar)
- Maximum Pressure
  - 10 bar (145 psi)
- Temperature Range
  - -5° - 50 ° C (20 ° - 120 ° F)
- Response Time
  - T90 < 60 seconds
- Accuracy
  - Max. error < 2% of measurement range
- Resolution
  - 0.01 mg/l or 0.01% SAT

How does it Work?

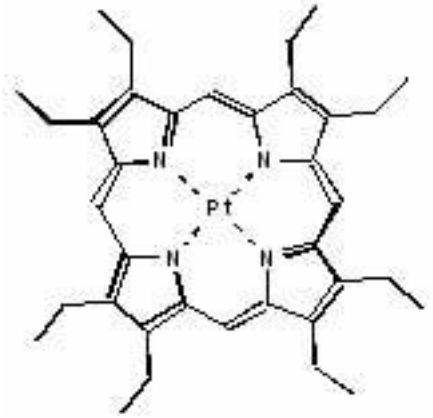
- Inside the sensor there is a Green LED light source that flashes rapidly.
- It Shines through a window on the inside of the membrane cap to the optically active layer.
- The layer contains organo-metallic (OM) molecules that Fluoresce red light when excited by the green light.
- A detector measures the intensity and response time (decay) of the Fluorescence.



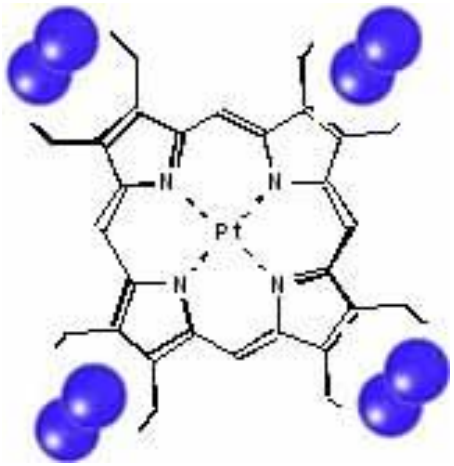
How does it Work?

- Oxygen exchanges freely between the media and the OM molecules in the cap.
  - A thin silicone coating protects the OM molecules from the environment.
- The OM Molecules catch and release the O_2 depending on the concentration present.
- 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**

No O_2, High Fluorescence

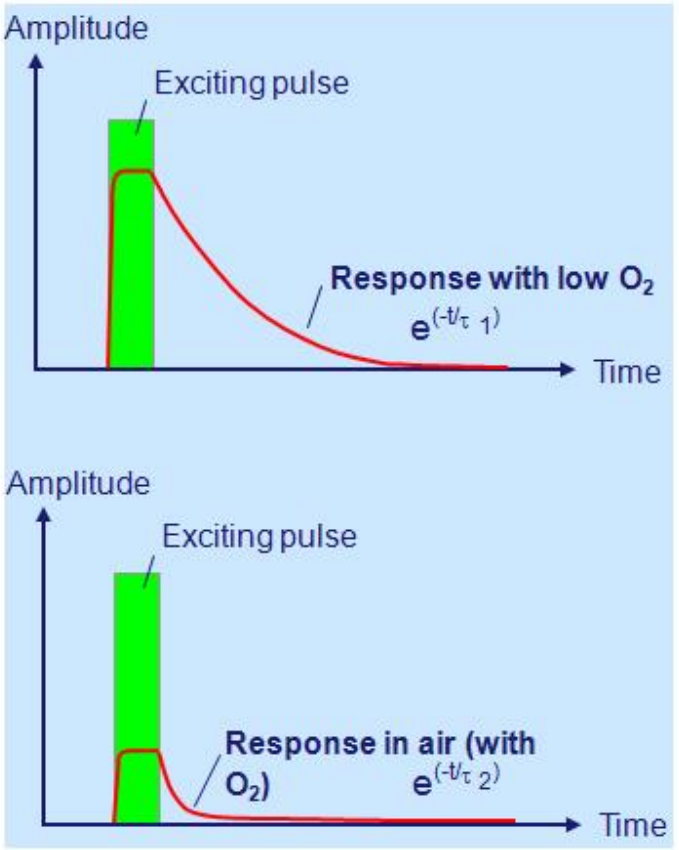


High O_2, Low Fluorescence



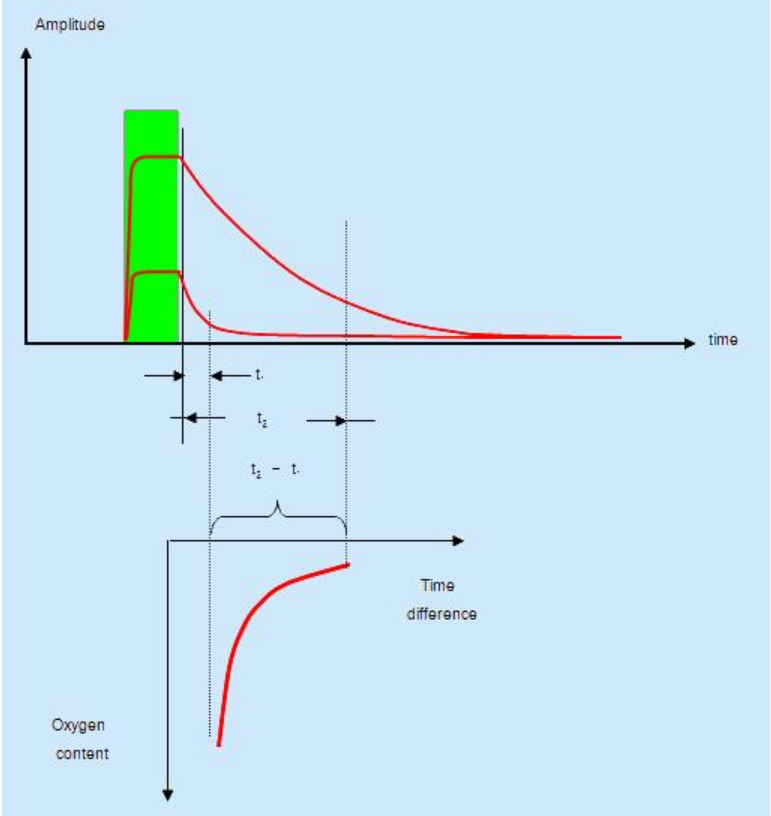
How does it Work?

- 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 calculate the Oxygen concentration
  - Amplitude infers lifetime of the cap and the sensors dynamic range



How does it Work?

- In Low Oxygen environments
  - Small changes in the oxygen cause large changes in the signal.
  - This leads to high noise and signal unstability.
- In High Oxygen environments
  - Large changes in oxygen cause only small changes in signal.
  - The Changes become undetectable
- Optimal Measuring Range
  - 0.5 ppm low end
  - 15 ppm high end



Where are they used?

- Municipal WWTP
  - Aerobic/Anoxic
  - Nitrification/ Denitrification
- Municipal Potable Water
- Fish Farming
  - High density requires aeration
- Monitoring of Aerobic or Anaerobic Chemical Processes
  - Food processing WWT
  - Chemical/Petro WWT

ECD Triton® DO8

- What's Needed (one from each group)
  - Single/Dual Channel Analyzer,
    - T80
  - Single/Dual Channel Analyzer,
    - C22
  - Triton® DO80 Sensor,7 m cable
  - Triton® DO80 Sensor,15 m cable
  - Flow Through Cell
    - (PN 1000219)
  - Immersion Pipe Assembly
    - (PN 1000223)
- Spare Parts (recommended)
  - Replacement Cap
    - (PN 2500207)
  - O-ring set for Cap
    - (PN 1000225)
  - Air Blast Spray Cleaner
    - (PN 1000226)

Installation Assemblies

- Air Blast Cleaner
  - PN 1000226
- Immersion Assembly
  - PN 1000234-xx(3-10 ft)
  - PN 1000234-99 (user supplied 1” pipe)
  - Does not include Mounting Brackets
- ¾” NPT Flow Through Cell
  - PN 1000219-1
- 2” NPT Ball Valve Insertion Assembly
  - PN 1000251-2

Electro-Chemical Devices

Thank You,

Go to www.ecdi.com for Data Sheets/ Instruction Manuals/ Presentations/ Press Release Packages

For over 30 years Electro-Chemical Devices (ECD) has been a recognized leader in industrial process instrumentation:

Liquid analytical sensors, controllers, transmitters, analyzers and electrodes.

Electro-Chemical Devices
1500 North Kellogg Dr
Anaheim Ca 92807

Phone: +1-714-695-0051
+1-800-729-1333
Fax: +1-714-695-0057
email: sales@ecdi.com
web: www.ecdi.com