

DSMD1900 is a digital optical dissolved oxygen sensor with automatic temperature compensation. This allows for real time temperature compensation. The sensor uses luminescence principle allowing for low maintenance and high accuracy.



Application

The product is widely used in the monitoring of dissolved oxygen in wastewater treatment plant, water plants, water stations, surface waters, aquaculture industries and other fields.

Features

- Does not require membrane replacement
- Simple installation and calibration
- Does not consume oxygen, no flow/agitation requirement
- Temperature compensation

Working Principle

There are 2 common working principles for the measurement of dissolved oxygen.

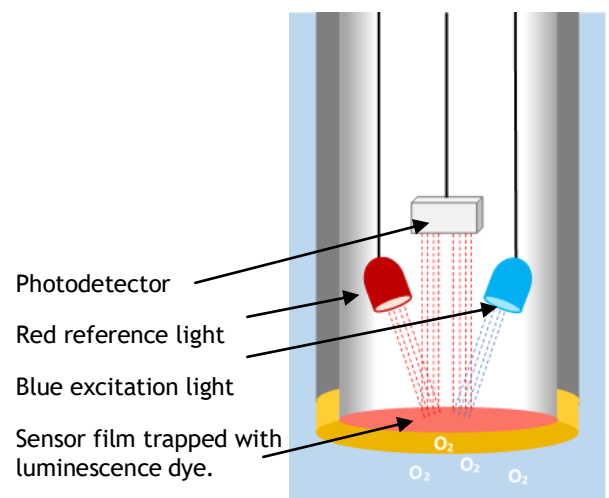
The **traditional amperometric** set-up consists of a silver anode, and a gold cathode that reduces oxygen molecules to generate a current flow which translates to dissolved oxygen readings. However, the progressive wear of the silver anode and the gradual reduction of the electrolyte concentration gives the amperometric set-up a relatively short lifespan.

The **optical method** on the other hand, consist of 4 main components as shown in the diagram below.

The blue light radiates its light towards the sensor layer. This causes excitations in the luminescence dye and results in red light being emitted from the dye.

When the sensor layer is in contact with oxygen molecules. Some of the blue light energy is absorbed by oxygen. Hence, there is less red light emitted by the dye.

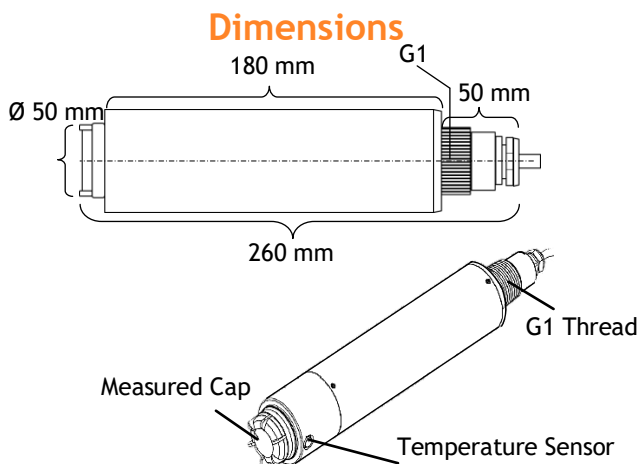
The red light emitted by the dye is compared to a reference red light. This comparison provides the data in determining the concentration of dissolved oxygen in the measured sample. More oxygen present in the sample equates to less red light emitted by the dye.



The optical measurement method is ideal not just for its extended lifespan, but also for its superior stability, faster response time, independence of flowrates and dissolved hydrogen in delivering accurate readings

Technical Specification

Specification	
Method	Optical Luminescence Principle
Measuring range	DO: 0-20 mg/L; 0-20ppm; 0-200% saturation Temp: 0-50 °C
Accuracy	DO: ± 3% Temp: ± 0.5 °C
Pressure	≤ 0.3MPa
Power supply	12 VDC / 24VDC
Communication interface	RS485 (Modbus RTU)
Dimension	260 mm x Ø 50 mm
Weight	1.85 kg
Material	SUS 316L Coating Titanium Oring: Fluororubber Cable: PVC
Cable Length	10 meters (Can be modified by 100m)
Storage	-15-65 °C
Lifespan	1 year
Waterproof	IP68/NEMA6P
Calibration	Air calibration Zero oxygen calibration



Wiring Diagram

