

Fluorescence Dissolved Oxygen



CE	Low Voltage Directive 2014/35/EU
	Electromagnetic Compatibility Directive 2014/30/EU
	RoHS 2 Directive 2011/65/EU
	EN 61010-1:2010; EN 61316-1:2013

Operating Principle

The FDO sensor is based on the ability of selected substances to act as dynamic fluorescence quenchers. The fluorescent indicator is a special platinum porphyrin complex embedded in a gas permeable foil that is exposed to the surrounding water. A black optical isolation coating protects the complex from direct incoming sunlight and fluorescent particles in the water.

The sensing foil is pushed against a sapphire window by a screw mounted securing plate, the foil is excited by modulated green light, and the phase of a returned red light is measured, the duration and intensity of the fluorescence are directly dependent on the amount of oxygen in the surrounding. With little to no oxygen, the response is long and intense. Oxygen quenches the fluorescence response so as the oxygen level increases the response becomes shorter and less intense. FDO sensor use phase difference to calculate the oxygen level

Application

The FDO is designed for the continuous measurement of dissolved oxygen in water. Typical applications include:

- The measurement and control of the oxygen in aeration basins
- The monitoring of oxygen in the effluent from a sewage treatment plant,
- The measurement and control of the oxygen content of public water supplies,
- The measurement and control of the oxygen at fish farms.
- The oxygenation of drinking water.

Specification

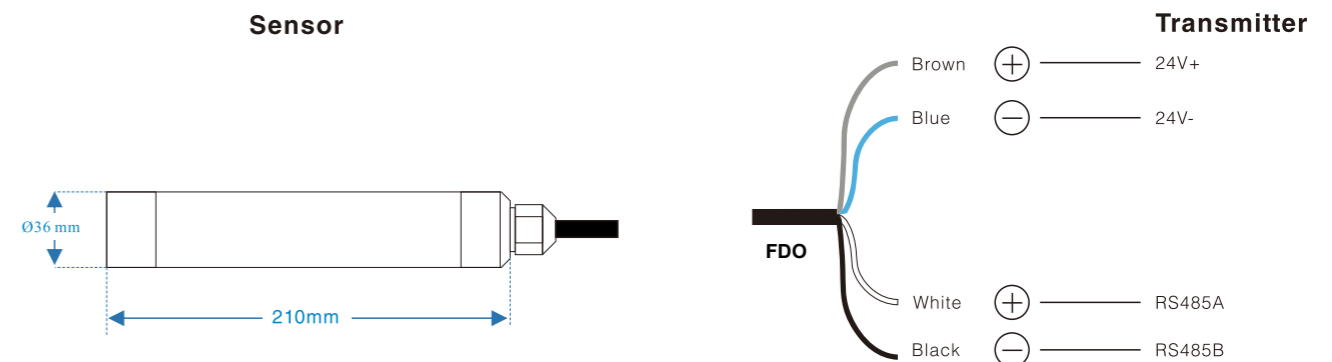
Measure principle	Optical measure by luminescence
Range	0.00~20.00ppm; 0.00~20.00mg/l, 0~200%
Resolution	0.01
Accuracy	±0.1mg/l; ±0.1ppm; ±1%
Respond Time	T90<60s
Operate Temp.	0~50°C
Store Temp.	-10~60°C
Protection	Immersible, IP68
Pressure	5bar
Weight	0.45kg(Sensor & 3 meters cable)
Material	SS316L, Titanium optional
Digital Output	Modbus RS485
Power	24V DC (18~36V DC)
Dimension	Dia. 1.42", & 8.27" length



Feature

- High precision and accuracy. Measure absolute oxygen concentrations without field calibrations
- Integrates directly into the FDO with Smart Sensor technology - "Plug & Play"
- No membrane, stirring/flow, or cleaning required
- Ultra-rugged construction – 316L, Titanium options
- Sapphire sensor window - extremely scratch resistant
- All of the optics and electronics are solid-state with no moving parts
- Optical sensor is not damaged by ambient light, unlike other luminescent DO technologies
- Fully compatible with PC software Delta-Phase View™ for easy setup and data logging
- Low sensitivity to fouling
- Fast response time

Wire Connection



Transmitter



GDC-01/02 Terminal Single or Dual-Channel



GDC-04/06/08 Terminal Multi-channel up to 8



Handheld Terminal

Model Selection

Model	Suffix Code	Description
FDO-	①	Fluorescence Dissolved Oxygen
Cable Length	C10	10" cable
	C30	30" cable
	C50	50" cable
	XX	On request