



# Delfino Online Dissolved Oxygen Sensor

## User Manual



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# Introduction

Dear user

Thank you very much for using the dissolved oxygen sensor of our company. Before you use it, please read this manual in detail, it will be of great help to the use and maintenance of this instrument, and can avoid unnecessary troubles due to improper operation and maintenance.

Please follow the operating procedures and precautions of this manual.

To ensure that the after-sales protection provided by this instrument is effective, please do not use and maintain this instrument by methods other than those specified in this manual.

Any failures and losses caused by non-compliance with the precautions specified in this manual are not covered by the manufacturer's warranty, and the manufacturer does not assume any related responsibilities. Please keep all documents in a safe place. If you have any questions, please contact our after-sales service department.

When receiving the instrument, please carefully open the package and check whether the instrument and accessories are damaged due to transportation. If any damage is found, please contact our after-sales service department and save the packaging for return processing.

When the instrument fails, please do not repair it by yourself, please contact our after-sales service department.

# 1 Specification

Measuring Principle	Fluorescence
DO Measuring Range	Saturation 0-200% Dissolved oxygen concentration 0-20mg/L
DO Measuring Accuracy	3%
Temp Accuracy	±0.5°C
Temp Sensor	NTC
Response Time	T <sub>90</sub> less than 60s
Calibration Method	One or two points
Sensor Drift	< 3% per year
Working Temp	0 to 50°C
Temp Accuracy	±0.5°C
Working Pressure	≤ 6bar
Sensor Interface	Support RS485 Modbus protocol
Installation	M22*1.5mm
Protection Grade	IP68
Power	DC 6~12V, current< 50mA
Main Material	Ti, POM
Sensor Service Life	one year (under normal circumstances)
Shell Dimension	Φ22mm L 188.3mm
Cable Length	Standard 10 meters, length can be customized

## 2 Basic Information

### 2.1 Overview

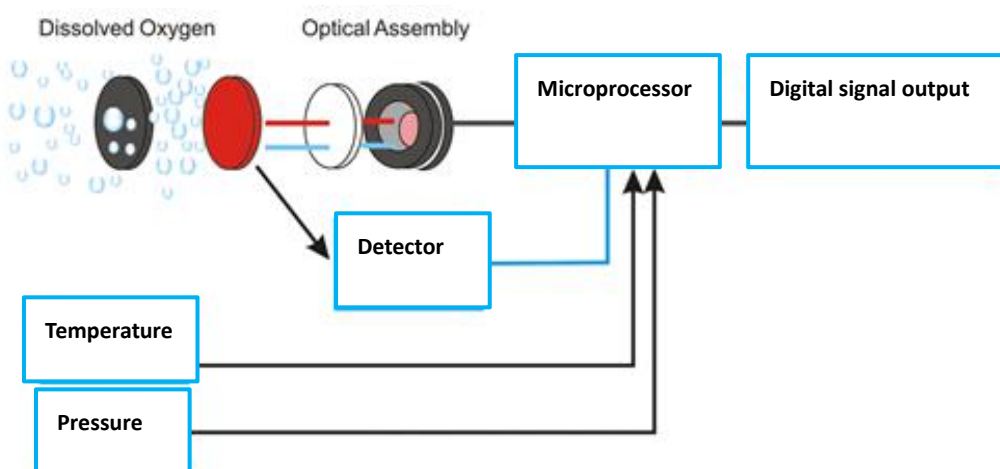
The dissolved oxygen sensor uses fluorescent principle. No oxygen consumption, no flow rate limitation, no electrolyte, no maintenance and calibration, strong anti-interference ability, and excellent stability. Built-in temperature sensor, automatic temperature compensation. RS485 output, can be networked without a controller.

### Features

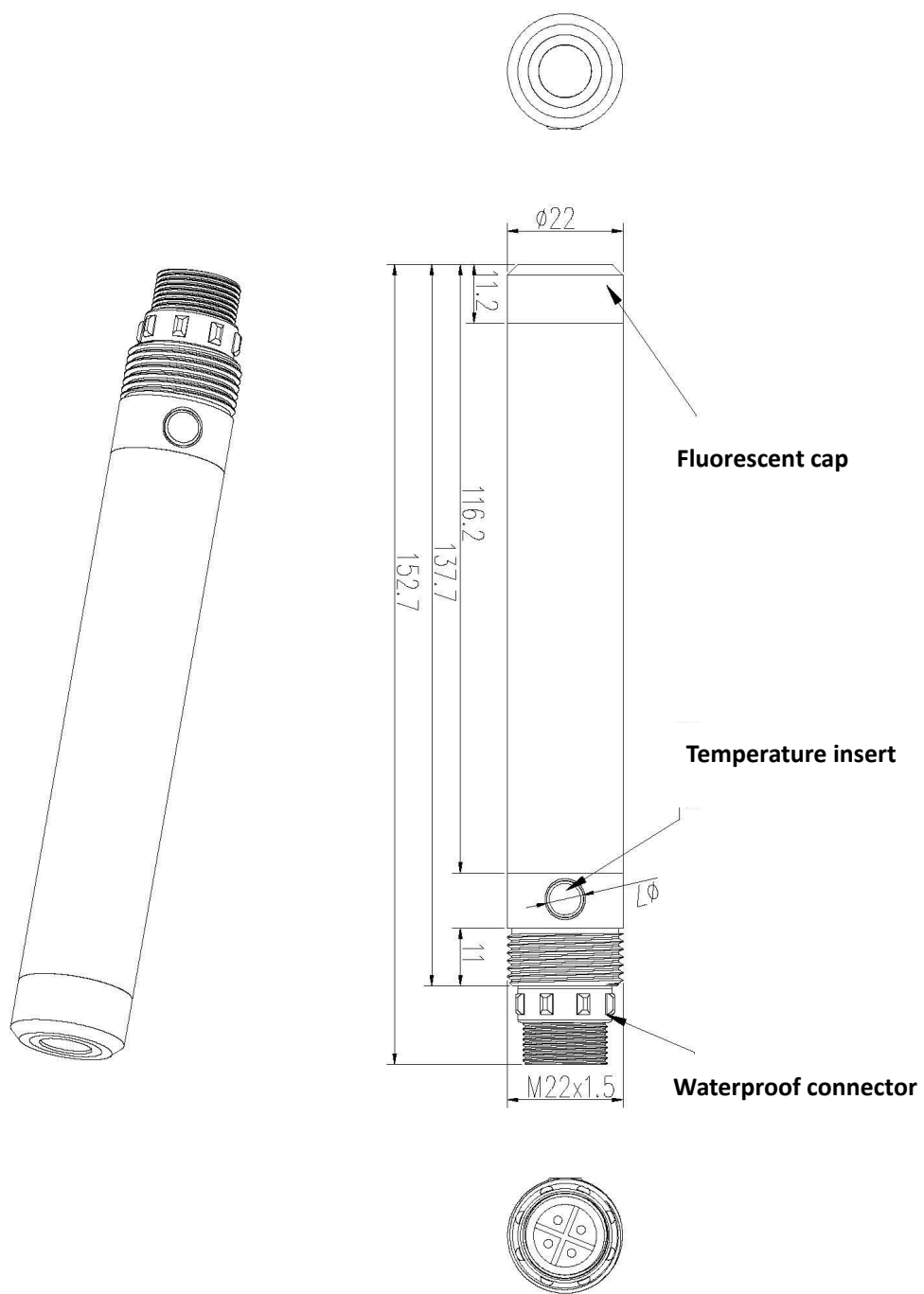
- Digital sensor, RS485 output, support MODBUS
- No membrane, no electrolyte, no interference, no frequent calibration
- No oxygen consumption, no flow rate limitation

### Principle

Fluorescence dissolved oxygen sensor is based on the quenching principle of active fluorescence by specific substances in physics. The blue light emitted from a light emitting diode (LED) irradiates the fluorescent material on the inner surface of the fluorescent cap. The fluorescent material on the inner surface is excited to emit red light. The phase difference between the red light and the blue light is detected and compared with the internal calibration value. Comparing to calculate the concentration of oxygen molecules, the final value is automatically compensated by temperature and air pressure.



### 3 Dimension



## 4 Cable Definition

- Do sensor dimension

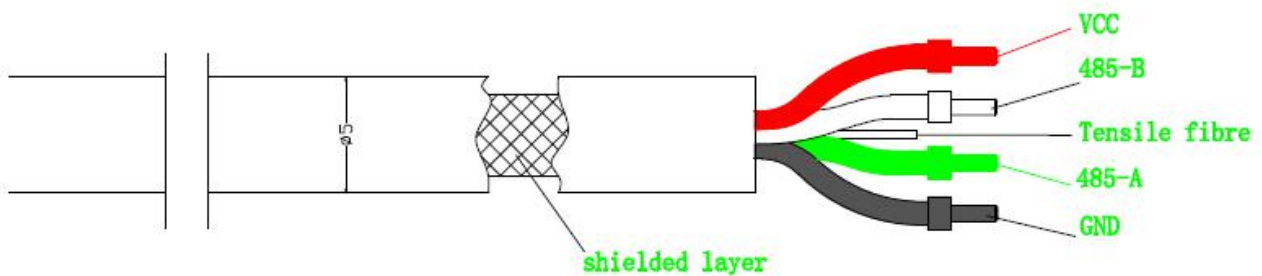
22\*188.3mm(  $\phi$  X L)

- Power supply

The power supply must be DC 6~12V +/-5%. Current <50mA

- Cable information

4 wire AWG-24 or AWG-26 shielding wire. OD=5mm



1. Red wire—Power(VCC)
2. White wire—485\_B
3. Green wire—485\_A
4. Black wire—Ground wire (GND)
5. Bare wire—Shield



## 5 Frequently Asked Questions

Fault	Reasons	Solutions
<p>The operation interface cannot be connected Do not display the measurement results</p>	Controller and cable connection error	Reconnect the controller and cables
	Cable failure	Please contact us
	The fluorescent cap is not tightened or is damaged	Reinstall and tighten the fluorescent cap or replace the fluorescent cap
<p>The measured value is too high, too low or the value is continuously unstable</p>	The outer surface of the fluorescent cap is attached by foreign objects	Clean the outer surface of the fluorescent cap and agitate the probe during measurement
	The fluorescent cap is damaged	Replace the fluorescent cap
	The fluorescent cap has exceeded its service life	
<p>The temperature measurement value exceeds the measurable range or the reading is garbled</p>	Controller and cable connection error	Reconnect the controller and temperature sensor cables
	The temperature sensor is attached to a foreign object	Use a soft brush to gently brush away the attachments

## **6 Warranty Description**

This quality guarantee does not cover the following situations:

1. Damage caused by force majeure, natural disasters, social unrest, war (announced or unannounced), terrorism, civil war or any government coercion
2. Damage caused by improper use, negligence, accident or improper application and installation
3. Freight for returning the goods to our company
4. Expedited or express freight for parts or products within the scope of warranty
5. Travel expenses for local warranty repairs

This quality assurance includes all the content of the quality assurance provided by its products.

This quality assurance constitutes a final, complete and exclusive statement about the terms of the quality assurance. No one or agent is authorized to formulate other warranties in the name of our company.

The above-mentioned remedial measures such as repair, replacement or refund of the purchase price are special cases that do not violate this warranty, and the remedial measures such as replacement or refund of the purchase price are all for the company's product itself. Based on strict liability obligations or other legal theories, the company is not liable for any other damage caused by product defects or negligence in operation, including subsequent damages that have a causal relationship with these conditions.



