Online Optical Dissolved Oxygen Sensor

User Manual (Version V1.1)

www.yosemitech.com

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Thanks for choosing Yosemite Technologies' instrument!

Please read this manual carefully before using this product, and keep this manual in safe place for future reference.

Please follow the instructions and procedures stated in this manual.

To ensure after sales warranty coverage, please follow the user instructions and maintenance procedures stated in this manual. Any damage and lost caused by improper use of this product will not be covered by factory warranty. Please keep all documents, and if you have any questions, please do not hesitate to contact Yosemite Technologies' customer services.

Remove the instrument from package material and examine it to make sure that there is no damage occurred during shipment. If there is any damage, please contact Yosemite Technologies Customer Service immediately. Save all materials until you are sure that the instrument functions properly. Any damage or defective items must be returned in their original packaging material.

Y504-A Optical Dissolved Oxygen Sensor

¾ inch NPT →

Sensor Guard →

Y504-A

Sensor Cap
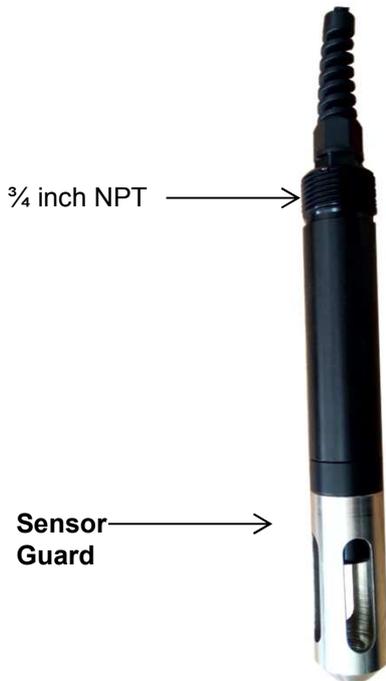
- 0-20mg/L or 0-200% Saturation
- 0~50 ℃；IP68 rating
- Membraneless, no electrodes design
- No oxygen consumption
- Flow Independent
- Automatic temperature compensation
- No H2S Interference
- Low Drift, fast response, and more accurate
- Low Maintenance, low operating cost
- Easy sensor cap replacement
- RS-485；MODBUS protocol compatible

Principle of Operation：

Yosemitech Optical dissolved oxygen sensor measures dissolved oxygen using the principle of oxygen dynamic luminescence quenching technique. When blue light excites sensor film, the sensing film emits red light. The phase difference between the blue excitation and returned red emission is measured, and the result is used to calculate DO concentration.

Ordering：

Model Description	Model #
Online Optical Oxygen Sensor	Y504-A
Online Oxygen Controller	Y611-A

Accessory：

Model Description	Model #
Optical Oxygen Sensor Cap	Y9002

溶解氧
Dissolved Oxygen

光学组件
Optical Assembly

微处理器
Microprocessor

数字信号输出
Digital Signal Output

探测器
Detector

温度
Temperature

气压
Pressure
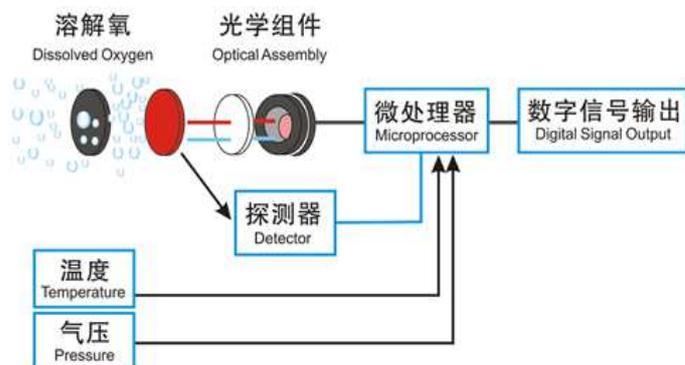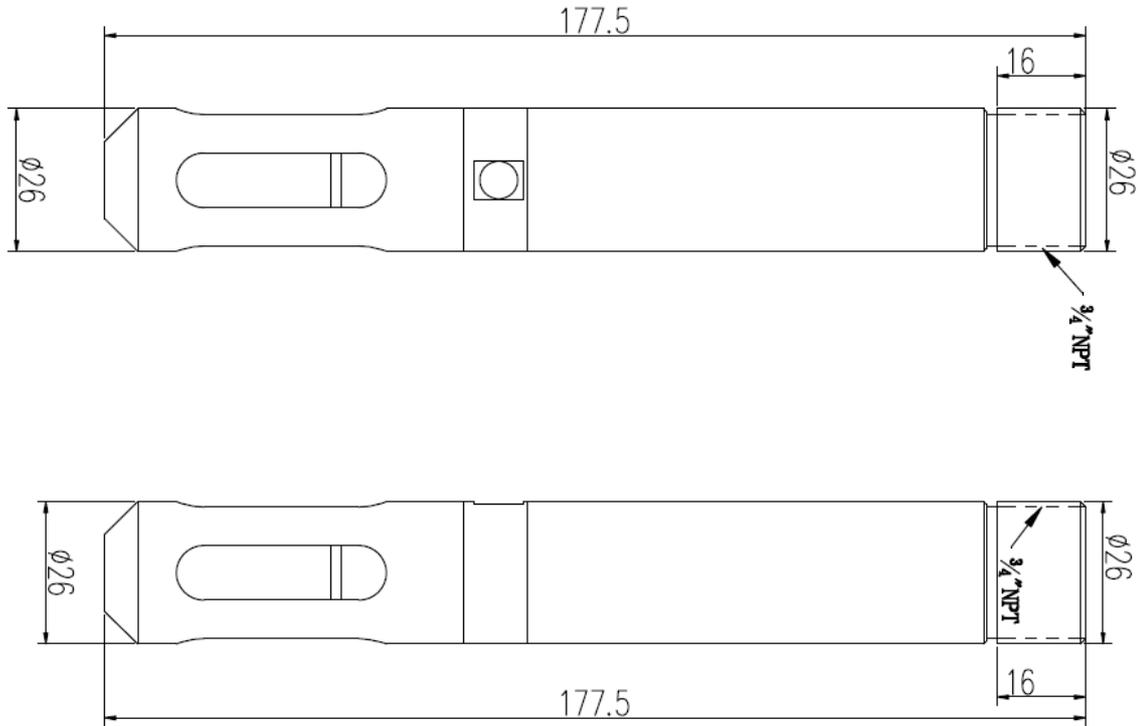
Figure 1: Y504-A sensor outline
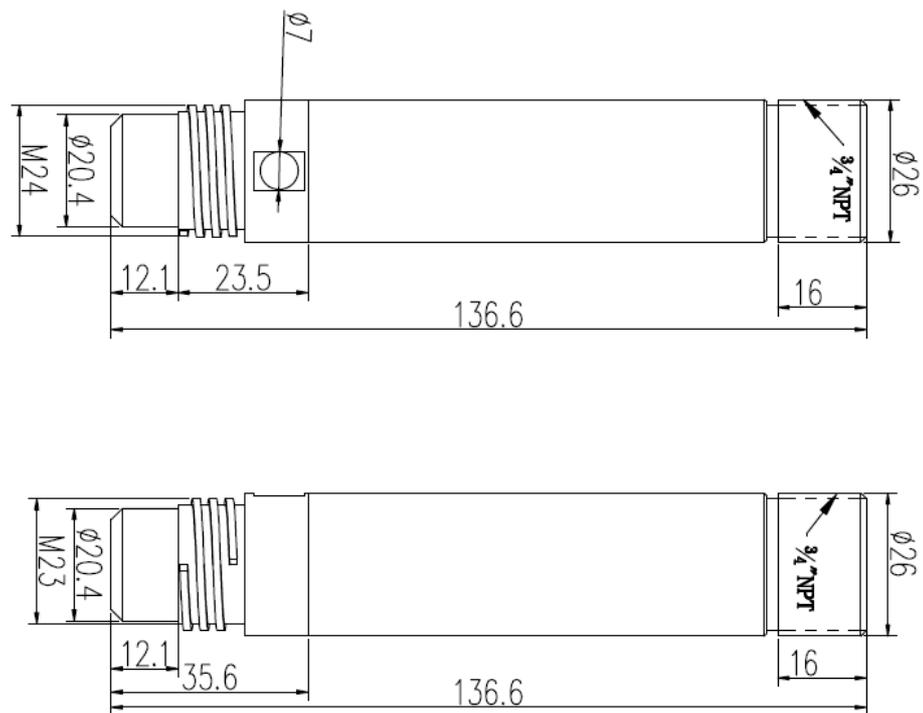
Figure 2: Sensor dimensions

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Range	0-20mg/L or 0-200% Saturation
Response Time	10 sec
Housing IP Rating	IP68
Accuracy	1%
Drift	<1% per year
Working Temperature Range	0 ~ 50℃
Temperature Accuracy	±0.2℃
Interface	Support RS-485， MODBUS protocols
Construction	¾ inch NPT
Power Requirements	DC 6~12V +/-5%， current <50mA
Temperature Sensor Type	NTC
Sensor OD	26mm
Sensor Length	177.5 mm
Cable Length	10m standard; 5m, 15m, and 30m optional
Calibrations	Support one point and two-points calibrations
Sensor Cap Lifetime	1 Year（at normal use）
Body materials	POM and Stainless steel

1.Maintenance Schedule

Unlike traditional electrical chemical sensors, optical DO sensors require low maintenance. There are no need for frequent solution filling and calibrations.

Maintenance task	Frequency
Sensor cleaning	Every 30 days
Sensor and sensor cap inspection	Every 30 days
Sensor cap replacement	Every one year
Calibration（if required of agency）	Calibration based on required schedule

Note：above schedule is only for reference, customers should make on their own judgment based on their applications. Yosemite Technologies' sensor cap may be used longer than one year, we recommend to replace the sensor cap per year to ensure performance.

2.Routine Maintenance

DO Probe:

•Inspect all sensor connectors for corrosion and replace sensors if necessary.
•Inspect sensor o-rings and replace if necessary
•After prolonged storage, calibration of the sensor is required.
•After use, rinse the sensor body with tap water, dry it, and put on storage cap. Keep DO sensor storage cap wet to moisturize DO membrane surface.
•DO NOT DRYOUT DO SENSOR CAP!
•Inspect the sensor for scratches or cracks, if any are present , replacement of sensor cap may be needed.

Cable:

Cable's minimum bending radius is 15mm. The wires inside the cable may break if it is under long term stressed condition.

3.Sensor Cap care and Storage

Sensor cap storage：if the senor do not in use, store the sensor in its storage cup. Store the sensor cap in water saturated air. If sensor cap has been dried out, please submerge the sensor cap in warm (about 40 -50ºC) water for 48 hours。

Do not expose sensor cap under direct sunlight, keep surface clean, dirty or scratch will cause inaccurate reading.

If DO membrane surface is dirty, try to rinse the surface with tap water first. If necessary, please gently wipe the surface with lens cleaning tissues that has been moistened with clean water. Do not use organic solvents to clean the sensor cap.

1、DO Sensor Dimensions

　26x177.5 mm(Φ xL)

2、Power Supply Requirements

　Power Supply DC 6~12V +/-5%, Current <50mA

3、Sensor Cable

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

1: Red—Power (VCC)

2: White—485 Date_B (485_B)

3: Green ---485 Date_A (485_A)

4: Black --- Ground (GND)

5: Bare wire ---- shield

Common Trouble Shootings

Error	Possible Cause	Solution
No data displayed on controller (if sensors are connected)	Connection issue	Reconnect sensor to controller
	Cable failure	Contact customer service
	Bad sensor cap or loose sensor cap	Reinstall sensor cap or replace
Unstable DO reading	Dirty sensor cap	Clean sensor cap
	Damaged sensor cap	Replace sensor cap
	Sensor cap expired	
Bad Temperature reading	Bad connection	Reconnect sensor to controller
	Dirty temperature sensor	Clean sensor

Yosemite Technologies online dissolved oxygen sensor and controller are warranted for one (1) year from date of purchase against any material and manufacturing workmanship. Within the warranty period, Yosemite Technologies Environmental Technologies will repair or replace, free of charge, any product that Yosemite Technologies determines to be covered by warranty.

Limitation of Warranty

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alternation, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to fire, improper packing and shipping, lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Yosemite Technologies.

This limited warranty does not cover cost of shipping the product back to Yosemite Technologies, or any travel cost related the repair work.

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

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