



Y511-A

Self-cleaning Turbidity Sensor

User Manual

Yosemite Technologies Ltd.

V 1.0

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Preface

Dear customer,

Thank you for your purchasing Yosemite Technologies' instrument. Reading the entire manual before use is highly recommended for operation and maintenance the instrument and keeping out of unnecessary trouble.

Please observe the operating procedures and precautions in this manual.

To make sure the effective after-sales protection provided by the instrument, please do not use any operation or maintenance other than which mentioned in the manual.

Due to non-compliance with the precautions specified in this manual, any fault and loss caused shall not be covered by the warranty, and the manufacturer shall not bear any relevant responsibility. If you have any questions, please contact our post-sales service department or representative.

Carefully unpack the instrument and accessories from the shipping container, and inspect for possible damage during shipping. Check received parts with items on the packing list. If any parts or materials are damaged or missing, please contact Yosemite Technologies customer service or the authorized distributor immediately.

Save all packing materials until you are sure that the instrument functions properly. Any damaged or defective items must be returned in their original packaging materials.

Overview

Yosemitech's new optical fiber type turbidity sensor, the use of 90° scattered light measurement principle, in line with the ISO7027 international standard, custom optical devices, small size, easy installation and maintenance, not easy to be affected by ambient light interference, with better repeatability and stability.

Features

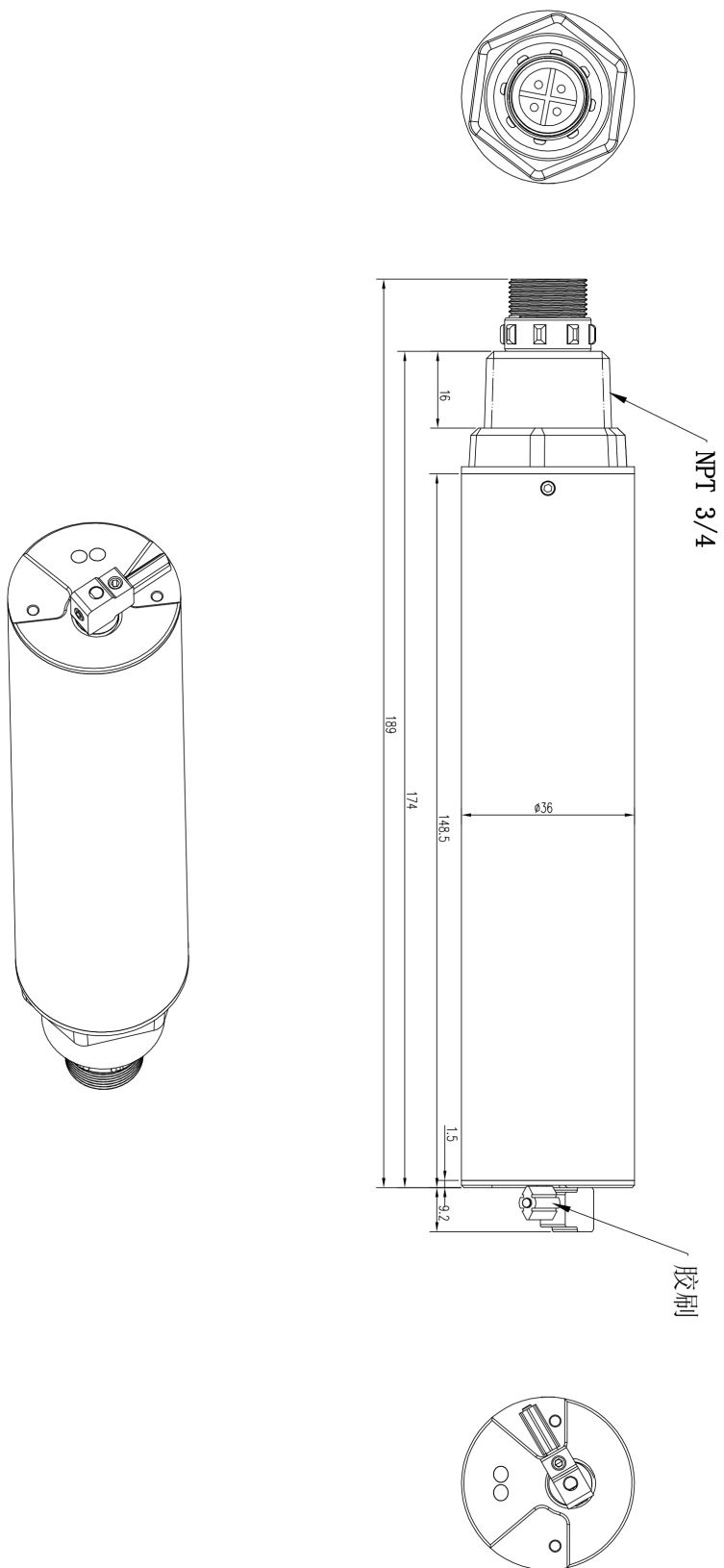
The RS - 485 output , **Modbus protocol compatible**

Strong anti-interference ability, not affected by ambient light and chroma

Principle of 90° scattered light

Introduction





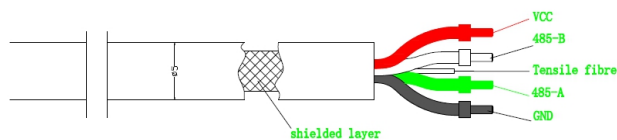
Wire Definition

1、 Power Supply Requirements

Power Supply DC 8-26V $\pm 10\%$, Current $< 50\text{mA}$

2、 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

Technical Specifications

Name	Parameter
Item	Y511-A
Principle	90° light scattering method
Range	0.1~1000 NTU
Resolution	$< 5\%$ 或 0.3NTU
Housing IP Rating	IP68
Maximum pressure	6 bar
Temperature Range	0 ~ 50°C
Interface	Support RS-485, Modbus protocols
Power Requirements	DC9~24V , current $< 50\text{mA}$
Sensor Size	$\Phi 33\text{mm} \times 156\text{mm}$
Cable Length	10m standard, 5m, 15m, and 30m optional
Body materials	SS316/ Ti
Calibration	One point or two points calibration

The specifications are tested in lab condition using reference standards

Installation

Part List

Item	Number	Note
Self-cleaning turbidity sensor	1	
Cable	1	10m

Sensor Installation

1) Wiring and power supply:

- Do not use the sensor cable to pull the sensor! It is required to install sensor in a secure and stable mounting bracket.
- Make sure power supply voltage is correct before power on.

2) Sensor installation:

- It is recommended to install the sensor vertically with probe facing down.
- In consideration of the fluctuation of water level, install the sensor below water level of 30cm, and try to install it in the position where there are no bubbles in the water;
- The sensor must be securely installed to avoid damage caused by water flow and other things.

Calibration

PC tool name: SmartPC(DO).exe.

Note: If custom development is needed, please contact Yosemitech Customer Service.

User Manual:

1. Open the SmartPC and select "Language" in the title bar: English.
2. Select the correct port and click "Connect".
3. Check calibration to perform calibration operation.

Press F1 to get the help document. Find the calibration instructions for the turbidity probe.

4. You can also use the tool to measure and record data, referring to the help documentation.

Stock Solution Preparation

- **Standard liquor (4000NTU) configuration**

1. Weigh 5.000g hydrazine sulfate (CAS:10034-93-2), dissolve in zero turbidity water, constant volume to 500mL;
2. Weigh 50.000g hexamethylenetetramine (CAS:100-97-0), dissolve in zero turbidity water, constant volume to 500mL;
3. Pour the above two solutions into a 1000mL volumetric flask, shake them, place them in a constant temperature water bath at $25 \pm 2^{\circ}\text{C}$, and let them stand for 24h away from the light to obtain 4000NTU standard liquor standard.

- **Different concentration standard solution configuration**

Dilute the 4000NTU standard liquor standard solution according to the required concentration. For example, take 100mL 4000NTU standard liquor standard solution, dissolve it in zero turbidity water (Watsons distilled water), and set the volume to 1000mL to obtain the 400NTU turbidity standard solution.

Maintenance

Maintenance Schedule

cleanliness is very important for maintaining accurate readings.

Maintenance task	Frequency
Sensor cleaning	Depending on the use environment
Calibration	Calibration based on required schedule

Maintenance

1) Clean the sensor surface: Wash the outer surface of sensor with tap water, if there is still residue, using soft brush, for some stubborn dirt, household detergent can be added in tap water to clean.

2) Clean the cap outer surface: Remove the protective cover , flush the dirt on the light window of the sensor with clean water, and finally put the cover on;If you need to wipe it, please wipe it gently with a soft cloth and do not scratch it forcefully. Otherwise, once the fluorescent film is scratched or scratched, the sensor will not work properly

3) Check the cable: inspect the sensor cable if there is damage.

4) Check the sensor shell whether is damaged or not.

5) Check whether the cleaning brush of the sensor is damaged.

Attention

Probe contains sensitive optical components and electronic components. Ensure that the probe far away from severe mechanical impact.

Trouble Shooting

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

Table 5-1 Troubleshooting

ERROR	POSSIBLE CAUSE	SOLUTION
Abnormal communication	Power supply error	Check the output voltage of power supply
	Connection error	Reconnect and check Modbus address
	Cable failure	Contact customer service
Measured value is instability	Dirty electrode	Clean sensor light Windows or contact customer service
	Long time without operation and maintenance	Clean sensor surface and calibrate

Quality Assurance

Warranty period:

Sensor warranty period is 1 year

Electrode warranty period is 4 months (Non-chemical environment, Non industrial wastewater).

If there are defects found during the warranty period, Yosemite technologies promises to repair or replace the defective products, or return the payment of product except the charge for the first time for transport and related formalities. In the warranty period, repair or replacement of any product will only enjoy the rest of the original warranty.

After receiving feedback for the product quality problems from the customer, Yosemite technologies will confirm whether the product need repair within two weeks; It can't be returned without approval to repair the product.

This warranty does not include the following:

- Damage caused due to force majeure, natural disasters, social unrest, war (published or unpublished), terrorism, civil war or any government forced.
- Damage caused due to improper use, negligence, accident, or caused by the improper application and installation.
- Freight for the product shipped back to Yosemite technologies.
- Freight for parts or products express or express delivery within the warranty.
- Travel expense for repair in local in warranty

The quality assurance includes all content of products provided by Yosemite technologies.

It constitutes the final, complete and exclusive statement about the quality guarantee, no person or agent is authorized in the name of Yosemite technologies to develop other warranty.

As described above, the remedial measures such as repair, replacement or return the payment for product is not in violation of the warranty, and it aim at our own products only. Based on the strict liability or other legal theory, Yosemite technologies is not responsible for defects or any other damage due to careless operation, including the subsequent damage with a causal connection between these situations.



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