Preface

Thank you for purchasing turbidity online analyzer. Please read this manual carefully before operating and using it correctly to avoid unnecessary losses caused by false operation.

Note

- Modification of this manual's contents will not be notified as a result of some factors, such as function upgrading.
- We try our best to guarantee that the manual content is accurate, if you find something wrong or incorrect, please contact us.
- This product is forbidden to use in explosion-proof occasions.

Version

U-PTU300-ZXEN1

Safety Precautions

In order to use this product safely, be sure to follow the safety precautions described.

About this manual

- Please submit this manual to the operator for reading.
- Please read the operation manual carefully before applying the instrument. On the precondition of full understanding.
- This manual only describes the functions of the product. The company does not guarantee that the product will be suitable for a particular use by the user.

Precautions for protection, safety and modification of this product

- To ensure safe use of this product and the systems it controls, Please read carefully the operation manual and understand the correct application methods before putting into operation, to avoid unnecessary losses due to operation mistakes. If the instrument is operated in other ways not described in the manual, the protections that the instrument give may be destroyed, and the failures and accidents incurred due to violation of precautions shall not be borne by our company.
- When installing lightning protection devices for this product and its control system, or designing and installing separate safety protection circuits for this product and its control system, it needs to be implemented by other devices.
- If you need to replace parts of the product, please use the model specifications specified by the company.
- This product is not intended for use in systems that are directly related to personal safety.Such as nuclear power equipment, equipment using radioactivity, railway systems, aviation equipment, marine equipment, aviation equipment and medical equipment.If applied, it is the responsibility of the user to use additional equipment or systems to ensure personal safety.
- Do not modify this product.

- The following safety signs are used in this manual:

Hazard, if not taken with appropriate precautions, will result in serious personal injury, product damage or major property damage.

Warning:Pay special attention to the important information linked to product or particular part in the operation manual.

- Confirm if the supply voltage is in consistent with the rated voltage before operation.
- Don't use the instrument in a flammable and combustible or steam area.
- To prevent from electric shock, operation mistake, a good grounding protection must be made.
- Thunder prevention engineering facilities must be well managed: the shared grounding network shall be grounded at is-electric level, shielded, wires shall be located rationally, SPD surge protector shall be applied properly.
- Some inner parts may carry high voltage. Do not open the square panel in the front except our company personnel or maintenance personnel acknowledged by our company, to avoid electric shock.
- Cut off electric powers before making any checks, to avoid electric shock.
- Check the condition of the terminal screws regularly. If it is loose, please tighten it before use.
- It is not allowed to disassemble, process, modify or repair the product without authorization, otherwise it may cause abnormal operation, electric shock or fire accident.
- Wipe the product with a dry cotton cloth. Do not use alcohol, benzine or other organic solvents. Prevent all kinds of liquid from splashing on the product. If the product falls into the water, please cut off the power immediately, otherwise there will be leakage, electric shock or even a

fire accident.

- Please check the grounding protection status regularly. Do not operate if you think that the protection measures such as grounding protection and fuses are not perfect.
- Ventilation holes on the product housing must be kept clear to avoid malfunctions due to high temperatures, abnormal operation, shortened life and fire.
- Please strictly follow the instructions in this manual, otherwise the product's protective device may be damaged.

- Don’t use the instrument if it is found damaged or deformed at opening of package.
- Prevent dust, wire end, iron fines or other objects from entering the instrument during installation, otherwise, it will cause abnormal movement or failure.
- During operation, to modify configuration, signal output, startup, stop, operation safety shall be fully considered. Operation mistakes may lead to failure and even destruction of the instrument and controlled equipment.
- Each part of the instrument has a certain lifetime, which must be maintained and repaired on a regular basis for long-time use.
- The product shall be scrapped as industrial wastes, to prevent environment pollution.
- When not using this product, be sure to turn off the power switch.
- If you find smoke from the product, smell odor, abnormal noise, etc., please turn off the power switch immediately and contact the company in time.

Disclaimer

- The company does not make any guarantees for the terms outside the scope of this product warranty.
- This company is not responsible for damage to the instrument or loss of parts or unpredictable damage caused directly or indirectly by improper operation of the user.

No.	Name	Quantity	Note
1	Turbidity analyzer	1	
2	Manual	1	
3	Certificate	1	

After opening the box, please confirm the package contents before starting the operation.If you find that the model and quantity are incorrect or there is physical damage in appearance, please contact us.

Statement

Copyright Declaration:

all the contents contained in this instruction manual are protected by copyright law. without the written authorization of the company, no organization or individual may reproduce and reproduce the entire specification and part of the content in any form or means and shall not disseminate it in any form.
this specification is applicable to SUP-PTU300 turbidity online analyzer products.

Note:

The contents of this document will be updated periodically due to product version upgrade or other reasons.Unless otherwise agreed, this document serves only as guidance for use and all statements, information and recommendations in this document do not constitute any express or implied warranty.

Caution,danger

This product sensor light source has certain harm to the eye, do not aim the sensor light source to the eye!

Content

Chapter 1 Product information

1.1 Product Overview

The SUP-PTU300 online turbidity analyzer is a patent product with independent intellectual property rights for on-line monitoring of drinking water quality. It has the characteristics of ultra-low turbidity detection limit, high precision measurement, long time maintenance-free equipment, water saving and digital output. It supports remote monitoring of cloud platform and mobile phone data, and RS485-modbus communication.

1.2 Product appearance

The appearance of the product is shown below:

Figure 1 Product appearance diagram

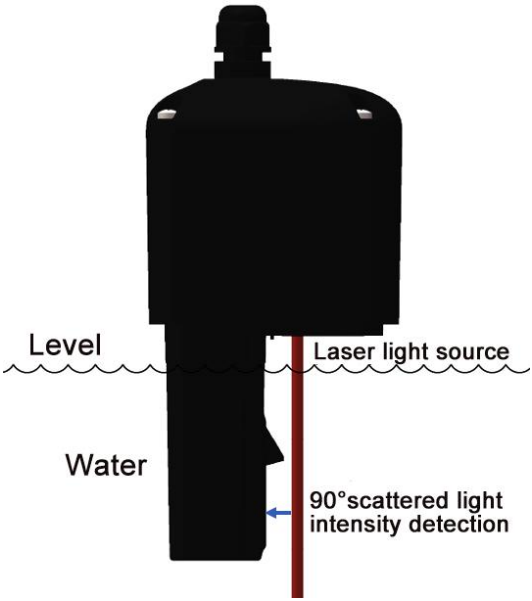
1.3 Product characteristics

- Laser light source, with ultra-high noise ratio, high monitoring accuracy, still maintain high accuracy in the low range, can be applied to the membrane clean water after drinking water turbidity measurement.
- Small size, easy system integration

- Water consumption is small, saving daily operation cost
- It can be applied to the turbidity measurement of drinking water after membrane-type clean water.
- Automatic discharge, long time maintenance-free operation, save daily operation and maintenance costs
- Optional Internet of things module support cloud platform and mobile phone data remote monitoring.

1.4 Working principle

SUP-PTU300 turbidity meter adopts 90° scattering detection principle, and designs unique photoelectric receiving structure, as well as automatic temperature and light compensation method, which greatly improves the accuracy and accuracy of turbidity detection. The sensor ARM7 built-in data processor, and adopts efficient digital filtering algorithm to avoid noise interference. At the same time, it adopts standard Modbus digital signal output and 4-20 mA analog output, which is convenient for users to access the computer monitoring system.



1.5 Technical parameters

Range	0-1 NTU,0-20 NTU ,0-100NTU
Operating voltage	DC 24V
Measurement	90° scattering
Zero drift	≤±0.015 NTU
Value error	≤±2% or ±0.015 NTU larger
Discharge mode	Automatic discharge
Calibration	Formalhydrazine standard liquid calibration (factory calibrated)
Water pressure	0.1 Kg/cm3-8Kg/cm3,
Digital output	RS485Modbus protocol (baud rate 9600,8, N 、1)
Analog output	4-20 mA
Storage temperature	-20℃-60℃
Working temperature	0-50℃
Sensor material	Composite
Maintenance cycle	6-12 months recommended (depending on site water quality environment)
Resolution	0.001NTU
Inlet water flow	50ml/min to 300ml/min
Weight	4.5Kg
Ingress protection	IP54
Humidity	Relative humidity 5%~95%, non-condensing
Cable length	2m
Dimension	183mm*349mm*113.5mm
Sensor dimension	66mm*145mm*54mm
Water inlet and outlet	Water inlet: 6mm hose; water outlet and drain: 10mm hose

Chapter 2 Installation

2.1 Overview

SUP-PTU300 turbidity meter must be installed correctly to achieve the design function, usually the installation of equipment must be under the guidance of the company's approved qualified engineers.

considerations:

Do not install turbidity on-line meter when charged and running water!

2.2 Install parts

For safe transportation, the turbidity on-line instrument usually needs reasonable packing, please keep the number packing material when you open the box, so that it can be used when transshipment is needed in the future.

The turbidity in-line instrument standard includes the following components:

1 set of turbidity on-line

Product Description 1

Optional accessories:

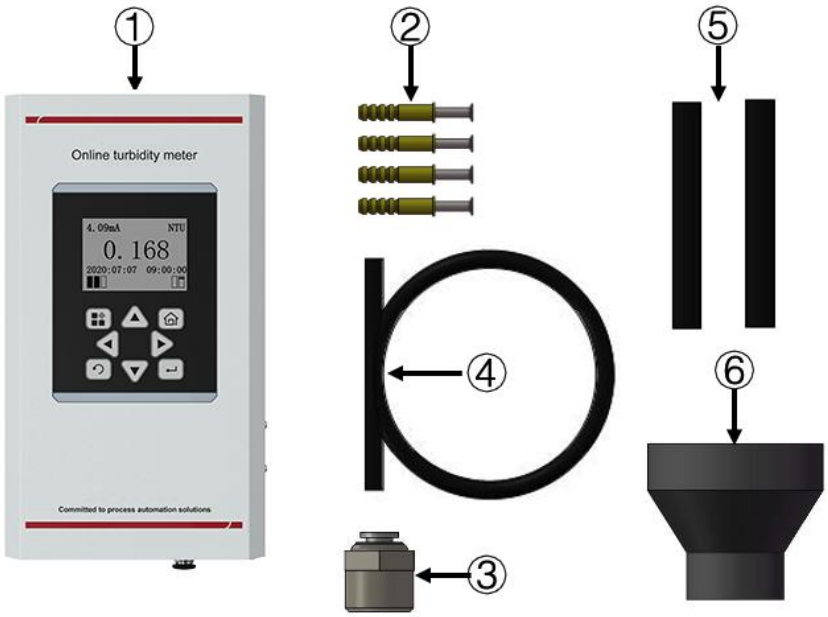
4 points adapter

Water mains

Power adapter (optional)

Considerations:

After unpacking please count the accessories, specific accessories according to the user order contract distribution



Installation list

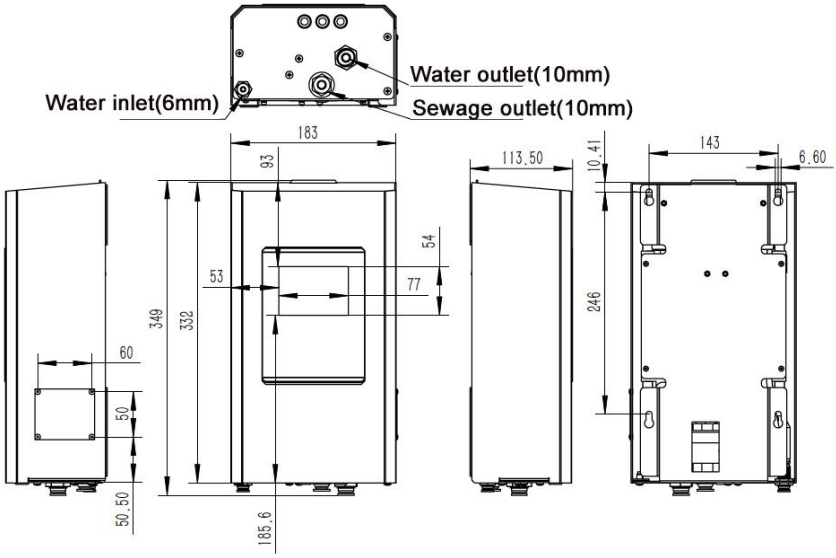
No	Details
1	Turbidity meter* 1
2	Φ8mm*length 40mm expansion screw*4
3	G1/2(4 points) to Φ6mm quick plug connector*1
4	Φ6mm*length 2000mm water inlet hose*1
5	Φ10mm*length 150mm water/sewage hose*2
6	Φ50mm-25mm variable diameter*1

User-provided installation lists

Type	No	Details
Consumables	1	DC24V power supply and two-core power cord
	2	Two-core shielded data cable
	3	Line pipe and pipe clamp
	4	Φ25mm drainage pipe, straight pipe, elbow, pipe clamp,
	5	Inlet pipe, straight pipe, elbow, tee, pipe clamp
	6	Inlet ball valve
	7	Inlet Y filter
	8	G1/2 internal threaded joint
Tools	9	Water pipe installation tools, glue, raw tape, handsaw, etc.
	10	General hand tools, cross-head screwdrivers, etc.
	11	Electric tools, electric or pneumatic percussion drills, etc.
	12	Electrical tools, wire strippers, electrical tape, etc.

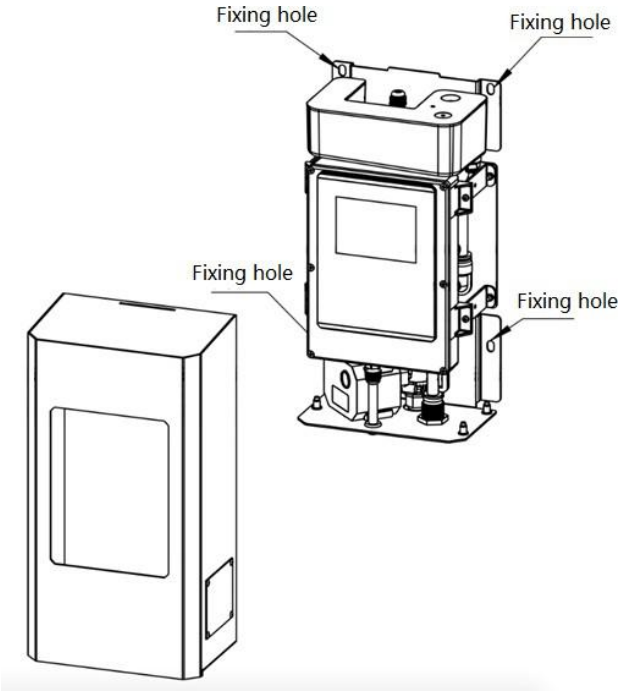
2.2 Mechanical installation

2.2.1 Dimension



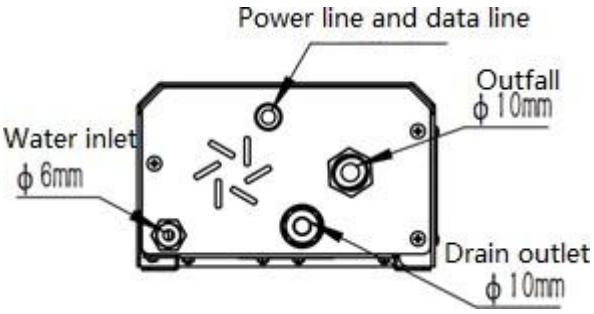
2.2.2 Fixed

To fix the turbidity online analyzer in front of the vertical wall, you need to remove the front panel. Loosen the connection between the front panel and the back panel by removing the three screws under the panel, and then remove it diagonally There are four fixed holes on the back panel of the turbidity online instrument, see the position indicated by the arrow in the figure below. Usually measure the size on the wall and drive in expansion screws to fix the instrument on the wall. The equipment can also be installed inside the cabinet. Pay attention to the level when installing.



2.4 Water supply

The water pipe joint of the turbidity online meter is at the bottom of the equipment, as shown in the following figure.



Function diagram of bottom water pipe quick-plug interface

Considerations:

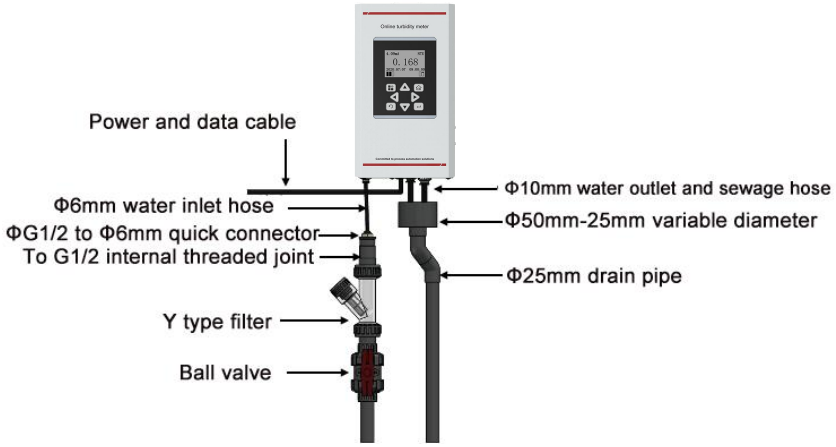
Feed water pressure should be controlled kg/cm 32less than 300 mL /min of Type 02 flow Water intake should be guaranteed to always have a state of water, not intermittent water supply.

2.5 Power supply

Turbidity meter connection as shown below. the working voltage is DC24V, daily working current is between 0.05 A and 0.5 A.

Cable colour	Connection
Red	+24 V
Black	GND
Green	485A
Yellow	485B

2.6 Overall installation effect



2.7 Tips

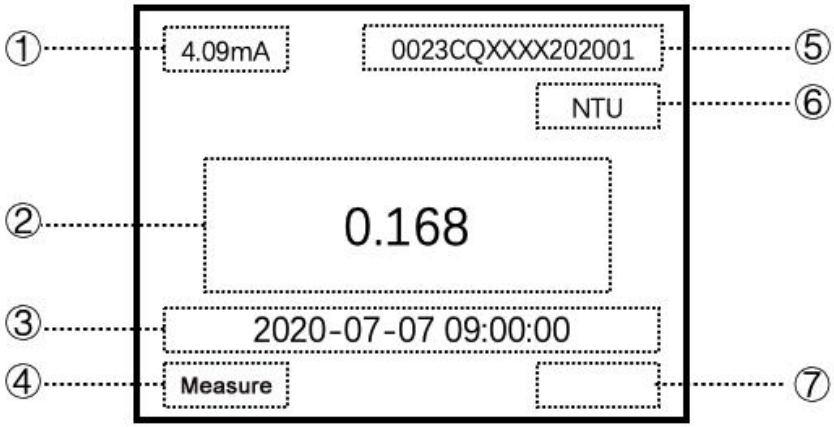
- Ensure the level of instrument installation
- Water can only be passed after installation
- Wait for a period of time for the value to stabilize for the first time after booting up
- The equipment automatically suspends the measurement order every time the sewage is discharged:
- The length of the water outlet hose and the sewage hose should not exceed 0.3 meters (it is recommended to use a DN25 water pipe to drain the water to the drainage pipe or drainage ditch)
- Power supply is not less than 20 watts
- The signal line cannot touch the 24V power line
- The length of the water inlet hose should not exceed 2 meters (if the sampling point of the tested water sample is far away, it is recommended to use a DN25 water pipe to lead the water sample to the vicinity of the equipment first)
- It is recommended to install a pre-filter or Y-type filter before the instrument enters the water to avoid the inflow of large foreign matter or sediment
- It is recommended to install an inlet water regulating valve before the instrument enters water to control the inlet water flow and facilitate maintenance

Chapter3 Operation

3.1 Operation panel

The operation panel is directly in front of the turbidity online analyzer.

The function definition of the display screen is shown in the figure below.



Display diagram

No	Description
1	Turbidity (4~20) mA output value
2	Turbidity measurement results
3	Date and time display
4	Measurement procedure
5	Serial Number
6	Units of measurement
7	Blowdown valve status and measuring cylinder status  ：Closed；  ：Open；  ：Measuring tank full of water；  ：Measuring tank water is not full。

Operation button function table

Button	Description
	Menu
	Main interface
	Back
	Confirm
	Up, down, left, and right

3.2 Equipment workflow

Work Flow Chart of Turbidity Online Meter

Step	Description
1	Automatic cleaning: There will be an automatic cleaning process for a few minutes after the equipment is powered on.After completion, go to step 2。
2	Initialization: the device performs the initialization operation, and then enters step 3 after completion;If there is an error, go to step 6。
3	Waiting for water: the device waits for water to fill the measuring cylinder, and then enters step 4 after completion;If there is an error, go to step 6.
4	Measurement: The equipment enters the normal measurement phase, and then enters step 5 after completion;If there is an error, go to step 6。
5	Drainage:The equipment enters the drainage stage, and then enters step 3 after completion;If there is an error, go to step 6.
6	Error: The device enters the error phase, after the countdown is completed, go to step 5.

3.3 Main settings

3.3.1 Execution time setting

Set the waiting time

Step	Choose	Description	Confirm
1		Main menu	——
2		Parameter settings	
3			

4		Select characters	——
5		Choose the right number	
6		Main interface	——

Setting the measurement time, drainage time and error restart interval time is similar to the setting of the waiting time, just select the measurement pool waiting time as the corresponding option in the parameter setting.

3.3.2 ID setting

ID setting

Step	Choose	Description	confirm
1		Main menu	——
2		Parameter settings	
3		ID setting	
4		Select characters to edit	——
		Choose the right number	
5		Main interface	

3.3.3 Date and time settings

Date and time settings

Step	Choose	Description	confirm
1		Main menu	——
2		Date and time settings	
3		Date settings	

4		Select characters to edit	——
5		Choose the right number	
6		Date settings	
7		Select characters to edit	——
8		Choose the right number	
9		Main interface	

3.3.4 (4~20) mA calibration

（4~20）mA calibration

Step	Choose	Description	confirm
1		Main menu	——
2		Calibration	
3		（4~20）mA calibration	
4		4mA calibration	
5		Select characters to edit	——
		Choose the right number until output 4mA	
6		20mA calibration	
		Select characters to edit	——
7		Choose the right number until output 20mA	
8		Main interface	

3.3.5 Turbidity calibration

Turbidity calibration

Step	Choose	Description	confirm
1		Main menu	——
2		Calibration	
3		Turbidity calibration	
4		Single point calibration	
5		Select characters to edit	——
6		Choose a suitable number, unit mNTU	
7		Main interface	

Chapter 4 Data interface

4.1 Overview

SUP-PTU300 turbidity meter supports two standard data interfaces simultaneously :485 Modbus interface and 4-20 mA interface. Users can choose any kind of use according to their own needs.

4.2 485Modbus interface

4.2.1 Wiring mode

485Modbus interface wiring mode as below table.

Color	Function
Green	485A
Yellow	485B

4.2.2 485 baud rate

485Modbus interface baud rate is 9600, data bit 8, no check, stop bit :1.

4.2.3 Modbus Agreement

1.Host call format:

host sends a read command to the turbidity sensor in 8 bytes in the following format (MSB first):

MSB LSB

byte 1	byte 2	byte 3	byte 4	byte 5	byte 6	byte 7	byte 8

Meaning:

byte 1: turbidity sensor ID number with value range 0 x01-0xFF, default value 0 x03;.

byte 2: Modbus the function code in the protocol, should fill in 0 x03(read);

byte 3, byte 4: register start address, high byte in byte 3, low byte in byte 4;

byte 5, byte 6: number of registers, high byte in byte 5, low byte in byte 6;

byte 7, byte 8:16 bit CRC check, low byte in byte 7, high byte in byte 8;

2.Sensor response format:

If the number of host call registers is 1, the data length of the reply is 2 bytes and the response length is 7 bytes; if the number of host call registers is 2, the data length of the reply is 4, the response length is 9, and so on;

MSB LSB

byte 1	byte 2	byte 3	byte 4	byte 5	byte 6	byte 7	byte 8	byte 9

Meaning:

byte 1: turbidity sensor ID number with value range 0 x01-0xFF, default value 0 x03;.

byte 2: Modbus the function code in the protocol, should fill in 0 x03(read);

byte 3: reply data length;

byte 4, byte 5, byte 6, byte 7: data;

byte 8, byte 9:16 bit CRC check, low byte in byte 8, high byte in byte 9;

[Example]

(1)Read turbidity values (register address 0 x 0013, length 2) Hex sent :03 03 00 13 00 02 34 2C

Hexadecimal reception ;03 03 04 00 00 00 76 58 15

Note :00 00 00 Turbidity value (integer, unit mNTU, value 118 mNTU or 0.118 NTU),58 15 is the check value.

(2)Modify device ID (register address 0 x 0001, length 1).

For example, the current ID of the device is 03 and 04: Hex sent :03 10 00 01 00 01 02 00 04BF 22

Hexadecimal reception ;03 10 00 01 00 01 51EB

The sensor:can be modified using the modbus broadcast address if the device is only connected to the 485 bus

Hex :00 10 00 01 00 01 02 00 04AB 02

Hexadecimal reception ;03 10 00 01 00 01 51EB

4.3 4-20 mA Interface (optional)485Modbus interface

4-20mA interface wiring is shown in the table below.

Color	Function
Brown brown	4-20 mA positive
White	4-20 mA negative

If the equipment line mark is different from the 4-20 mA wiring table, the equipment line mark shall prevail.

The corresponding relationship between the output current value and the turbidity value is shown in the following table.

Relationship between current and turbidity values (type 31)

Current value	Turbidity values
4 mA	0NTU
X mA	[(x -4)/1.6] NTU
20 mA	20NTU

Relationship between current and turbidity values (type 30)

Current value	Turbidity values
4 mA	0NTU
x mA	[(x -4)/16] NTU
20 mA	1NTU

Chapter 5 Operation maintenance

5.1. Operating Panel

The operation panel function definition is shown below.

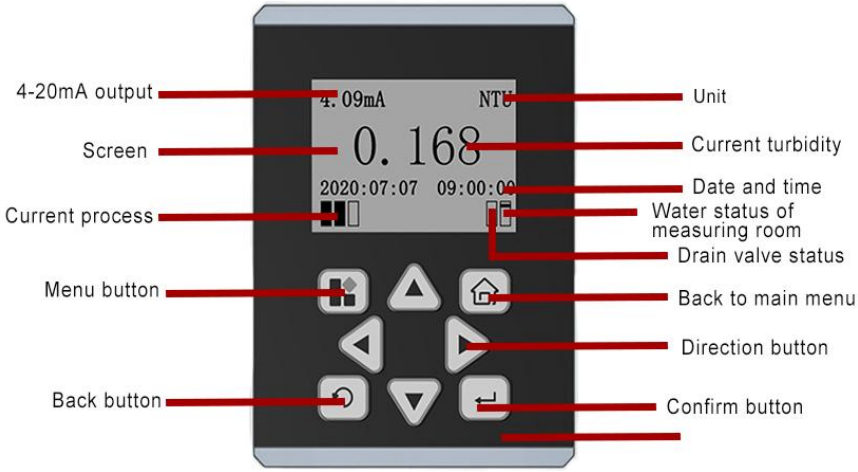


Figure 5 Description of equipment panel

5.2 Maintenance preparation

1）Remove the instrument cover

2）Confirm that the power supply of the meter is normal；

3）Confirm that the sewer/drainage pipe/drainage channel is unobstructed；

4）Confirm that there is water coming from the inlet pipe。

5.3 maintenance work

5.3.1 Check that the incoming water is normal

1）Incoming water in the water pipe;

2）Incoming water can flow into the defoaming tank;

3）There is no water overflow from the water inlet of the defoaming tank.

5.3.2 Check that the drainage is unblocked

On the basis of determining that the incoming water is normal, the liquid level in the defoaming tank is normal, and there is no water overflow：

1) Check whether there is water inside the equipment (bottom plate, back plate, measuring tank). If there is water, it indicates that there was an overflow situation before. There are two reasons for this phenomenon. One is that the incoming water pressure is too high and the water is directly consumed. The overflow in the bubble tank, the second is that the drainage is not smooth, causing the water to overflow from the measuring tank. If the excessive pressure of the incoming water can be ruled out, it means that the drainage is not smooth.

2) Recommended installation method: use two short (within 20cm) plastic hoses to connect the water outlet and the sewage outlet respectively, and then insert the two hoses into the PVC drain pipe with a diameter of 25cm, and use the PVC drain pipe to The effluent is introduced into the sewer;

3) Installation that will cause poor drainage:

Since the hose will inevitably bend and loop, it is easy to cause poor drainage if the hose is used for drainage. If the length of the hose is too long and there is a section of air inside, it will increase the drainage resistance and make it easier to drain. . The following are installation methods that are likely to cause poor drainage. Due to different site conditions, the actual usage shall prevail.

a) Use two very long (more than 1 meter) plastic hoses to lead the water from the outlet and the sewage outlet into the sewer;

b) Use two short plastic pipes and a tee to connect the water outlet with the sewage outlet, and use a long (more than 1 meter) plastic hose to lead the water into the sewer;

c) The hose connected from the water outlet or the sewage outlet has an upward part;

d) The hose connected from the water outlet or the sewage outlet has a rotating part;

5.3.3 Check that the power supply is normal

The power supply voltage of the instrument is direct current, the voltage value is within DC24V±4V, and the voltage is stable.

5.3.4 Check the automatic sewage electric valve

An electric valve for automatic sewage discharge is installed under the inside of the instrument. After power on, the instrument will start the self-cleaning process. During this process, pay attention to the following two aspects:

1) Listen to the sound: At this time, you will hear the sound of the electric valve rotating regularly, and the sound should be continuous and stable without abnormal noise; if the electric valve of the newly installed equipment has abnormal noise, it needs to be returned to the factory for repair; if the equipment is running for a period of time, there is abnormal It is necessary to pay special attention to whether the electric valve is working properly.

2) Look at the water flow: After the electric valve is energized, it will be in the closed state, and after the power is off, it will automatically return to the open state; during the automatic cleaning process, the electric valve will switch between energization and power failure; in the case of normal water supply , You can observe the sewage outlet, when the electric valve is opened, water is discharged, and when the electric valve is closed, no water flows out. If there is water flowing out of the sewage outlet, or no water has flowed out, it means that the electric valve is faulty and needs to be returned to the factory for repair.

5.3.5 Check the sensor

1）Clean the sensor

Power off the meter, remove the sensor from the measuring cylinder, and clean the sensor.

When cleaning the light hole, you need to use a cotton swab to clean it. It is best to use a cotton swab dipped in alcohol. If there is no alcohol on site, use a dry cotton swab. If the cotton swab is not available, use a dry paper towel. Do not use wet cotton swabs or wet paper towels dipped in water.

2) Check the light source

Power on the meter, after entering the measurement state, aim the removed sensor at the white wall. It can be observed that the sensor emits a red bright spot similar to a laser pointer every 5-10 seconds for 1-3 seconds. The brightness felt by the naked eye should not be lower than the laser pointer。

Common failure states of light sources are:

a) There is no change after power-on, and there is no timing laser emission;

b) The red bright spot is very dark, far less bright than the laser pointer;

c) Under the condition that there is no water stain on the sensor light hole, the emitted red patches and non-concentrated red bright spots.

In case of light source failure, the sensor can be removed from the meter and sent back to the manufacturer for maintenance and calibration.

Before inserting the sensor back into the measuring cylinder, you need to power off the meter; after putting it in the measuring cylinder, you need to press it down slightly with your hands to ensure that it is inserted in place without tilting. You can observe whether the sensor is in place from the side of the instrument.

5.3.6 Clean the cylinder

Use a test tube brush to clean the defoaming cylinder and the measuring cylinder to ensure that the bottom and side walls of the cylinder are free from visible sediments such as sand

5.3.7 Check running status

After the meter is powered on and completes the self-cleaning process, it will display system date, instrument working status and other information. To ensure that the measuring tank is full of water, the meter will wait for a preset time (3-5 minutes) before starting measurement. And display the measured turbidity results. In case of the following failures, you can follow the recommended handling method:

1) Failure: The display is not bright;

Recommended treatment method: Check whether the power supply of the instrument is normal. If the power supply is normal, the whole machine needs to be returned to the factory for repair.

2) Malfunction: The backlight of the display is bright, and there is no content including the date;

Recommended treatment method: the whole machine needs to be returned to the factory for repair.

3) Failure: display the system date and working status normally, wait for a long enough time (more than 10 minutes), there is still no measurement result display;

Recommended handling method: Check whether the sensor is connected to the meter, or after power failure, reconnect the four-core waterproof connector between the sensor and the meter. If there is still no measurement result display, the whole machine needs to be returned to the factory for repair.

4) Failure: It prompts that the sensor does not respond;

Recommended handling method: check whether the sensor is connected to the meter well, or after power failure, reconnect the four-core waterproof connector between the sensor and the meter. If it still prompts that the sensor does not respond, send the sensor back for testing.

5) Failure: The turbidity value is displayed as 0 for a long time (more than 20 minutes)

6) Recommended processing method: take out the sensor and check whether the light source is normal ; if the light source is normal, turn off the water inlet, turn off the power, put the sensor back into the measuring cylinder, install it in place, and then power on, wait, and observe that the sensor measures the air Whether the value is 0, if it is still not 0, the sensor needs to be sent back for detection.

5.3.8 Check the effect of turbidity measurement

Before determining that the measurement result of the instrument is inaccurate, the following preparations should be made:

1) Confirm that the on-site handheld/lab turbidity meter works normally

Recommended treatment method: Use two or more water samples to verify the handheld/lab turbidity meter. For example, the turbidity value of bottled water, mineral water, and bottled water should be within 0.1NTU; tap water is generally above 0.1NTU and within 1NTU; surface water is generally above 1NTU. The same water sample can be measured more than twice to confirm the reliability of the on-site handheld/lab turbidity meter.

2) Confirm that the sampling points are consistent

Recommended treatment method: When comparing with hand-held/lab equipment, a water sample should be taken from the water outlet of the measuring instrument.

If problems are found, the following methods are recommended:

Problem: There is a serious deviation in the measured value

Recommended treatment method: first confirm whether the on-site handheld/lab turbidity meter is working properly,

1) Problem: The measurement result of the meter is much larger than actual (more than 0.5NTU);

Recommended treatment method: confirm that the light hole of the sensor is free of water stains , the light source is normal, and clean the cylinder. Restore the factory

calibration table, if the value is still too large, it is recommended to return to the factory for calibration.

2) Problem: The measurement result of the meter is much smaller than the actual value (more than 0.5NTU), or keeps a very small value (less than 0.01NTU) without changing;

Recommended processing method: Confirm that the sensor light source is normal , and restore the factory calibration table. If the value is still too small, it is recommended to return to the factory for calibration.

3) Problem: There is a small deviation between the measurement result of the instrument and the measurement result of the handheld/laboratory instrument that has been confirmed to be reliableRecommended handling method: Each instrument has its own error, especially when the deviation between the handheld/lab instrument and the online instrument is not in the same direction, it will appear that the difference between the two is large, which is normal. In daily practice, people tend to recognize the measurement results of handheld/laboratory instruments more, so there will be the phenomenon of using handheld/laboratory instrument measurement results to calibrate online equipment (standard practice is to calibrate according to the national standard standard solution, but the turbidity standard solution The equipment, storage, and use have high requirements on the cleanliness and operation of the utensils, and the site often does not have the conditions for using the standard solution to calibrate).

After confirming that the sensor light hole is free of water stains, the light source is normal, the cylinder body is cleaned, and the factory calibration table is restored, there are still deviations. If you want to fine-tune the measurement results of the instrument, you can choose to manually correct the calibration table. For example, the on-site turbidity value is 0.03NTU, and the instrument displays 0.06NTU. At this

time, increase the low-point gain value of the turbidity meter, and the meter will reduce the calculated measurement result according to the adjusted calibration curve. After the adjustment is completed, the meter will automatically save the adjustment result.

5.4 Fault analysis

Turbidity sensor can run for a long time, and easy to maintain. If you have a fault, try the methods listed in the table below.

Table: Causes of failure

Fault phenomena	Possible Cause Analysis	Exclusion methods
RS485 can not communicate	1.The signal line is not connected 2.sensor damage	Reconnect signal lines 1. power off 2. contact us
Abnormal increase in turbidity (removal of water source)	Improper installation of leads to contamination of light holes in the sensor 2. sensor internal contamination	cleaning sensor light hole glass cleaning sensor(Operators must undergo relevant operational training)
Low turbidity	Light source damage	contact us

5.5 Maintenance

In order to make the turbidity sensor have a good running state, please do the following basic maintenance as needed:

- It is recommended that sensors be calibrated, tested or inspected every 3 months;
- It is recommended that every 6 months clean the sensor and circulation pool, the poor water quality environment can appropriately increase the number of cleaning;
- Keep all maintenance, calibration operation records

5.6.Field calibration

Turbidity sensors generally recommend users to send products back to manufacturers using standard liquid for accurate calibration.
At the same time, in order to meet the needs of some users on-site calibration requirements, this product also provides on-site calibration function, the operation process is as follows:

Step 1: Press menu key; Step 2: Enter calibration;

Step 3: Enter two-point calibration;

Step 4: Enter the auto-correction calibration table;

Step 5: Enter the current turbidity calibration value, press confirm.

Note:

a)Because the calibration point is the slope determination point, it is suggested that the turbidity of the field comparison water is not less than 0.5 NTU or not less than 80% of the average turbidity value of the normal operation. The average turbidity at field level is
0.4 NTU, not less than 0.4*80%=0.32 NTU;.

b)The turbidity change of water quality should not be too large in the calibration process, and the change should be kept within 2%.

c)Hash 2100 Q portable turbidimeter is recommended for calibration.

d)The accuracy of calibration depends on the change of water turbidity, the accuracy of using calibration equipment, and the standard degree of operator's operation comparison equipment.

Chapter 6 After-sales service

We promise to the customer that the hardware accessories provided during the supply of the instrument have no defects in material and manufacturing process. From the date of the purchase, if the user's notice of such defects is received during the warranty period, the company will unconditionally maintain or replace the defective products without charge, and all non customized products are guaranteed to be returned and replaced within 7 days.

Disclaimers:

- During the warranty period, product faults caused by the following reasons are not in the scope of Three Guarantees service
- Product faults caused by improper use by customers.
- Product faults caused by disassembling, repairing and refitting the product.

After-sales service commitment:

- We promise to deal with the customer's technical questions within 2 hours.
- For the instruments returned to the factory for maintenance, we promise to issue the test results within 3 working days and the maintenance results within 7 working days after receiving them.