L512-A TSS Sensor
User Manual

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User Notes

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 Luminsens 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 Luminsens 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.

Model Description	Model #
TSS Sensor	L512-A
Online Controller	----

Range	0.5~4000 mg/L
Housing IP Rating	IP68
Deepest Depth	10 m underwater
Accuracy	＜5%
Temperature Range	0 ~ 50℃
Interface	Support RS-485, MODBUS protocols
Assembly	Immersion or circulation installation
Power Requirements	DC 5~12, Current< 50 mA
Sensor OD	36 mm
Sensor Length	190 mm
Cable Length	10m standard, 5 m, 15 m or 30 m optional
Body Materials	POM -316L

L512-A Maintenance

Maintenance schedule and methods

1． Maintenance Schedule

Unlike traditional electrical chemical sensors, the turbidity sensors with wiper require low maintenance. There is no need for frequent solution filling and calibrations.

Maintenance tasks	Maintenance frequency
Calibration (if required of agency)	Calibration based on required schedule

2．Maintenance methods

Routine Maintenance

1) **Surface:** Wash the outer surface of sensor with tap water, if there is still a clastic residue, using wet soft cloth to wipe, for some stubborn dirt, can add household detergents in tap water to clean.

2) **Check the cable:** The cable should not be tight when work properly, otherwise it easy to make the internal wire break and the sensor can't work normally.

3) Check the sensor measurement window whether have smudge and cleaning wiper whether is normal or not.

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

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

FAQ:

| Error	Possible Cause	Solution
Unstable turbidity reading	Connection error	Reconnect controller and cable
	Cable failure	Contact customer service
Measured value is too high, too low or instability	Sensor outside window is attached	Wash the surface

Quality Assurance

1. Turbidity Sensor Dimensions 36x190 mm (Φ xL)

2. Power Supply Requirements

Power Supply DC ~12 V ±5%, Current < 50 mA

3. Sensor Cable
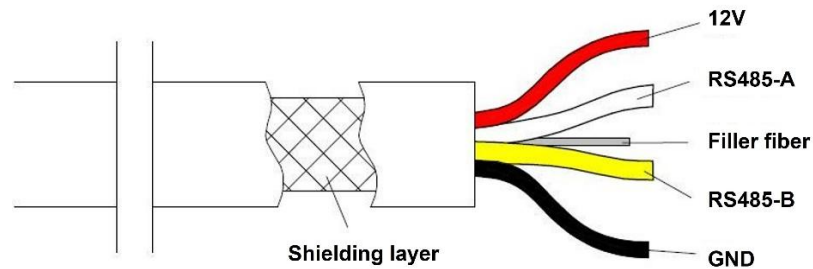
1) Red—Power (VCC)

2) White—485 Date-B (485-A)

3) Yellow—485 Date-A (485-B)

4) Black—Ground (GND)

Communication Protocol

Serial port settings: BAUD 9600, no Parity. The data bits are 8 bits. Stop bit is 1 bit.

Communication protocol: Modbus RTU.

No.	Definition	Register address	Read/Write	Specification
1	Concentration	0001H	Read	Unit ppm
2	Environmental temperature value	0002H	Read	Read value/100 Unit ℃
3	Signal high value	0003H	Read	Unit mv
4	Signal low value	0004H	Read	Unit mv
5	Signal amplitude	0005H	Read	Unit mv
6	Parameter K	0014H	Read/Write	Double HGFEDCBA
7	Parameter B	0018H	Read/Write	Double HGFEDCBA

Quality Assurance

Online self-cleaning turbidity sensor and controller are warranted for one (1) year from date of purchase against any material and manufacturing workmanship.

If there are defects found during the warranty period, Luminsens 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.

This warranty does not apply to consumables, such as the consumption parts (including but not limited to the lamp, piping, etc.). Contact Luminsens technologies or your agents to start technical support within the guarantee period.

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

product.

Quality Assurance

Limitation of Warranty

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 Luminsens technologies.
- Freight for parts or products express or express delivery within the warranty.
- Travel expense for repair in local in warranty.

Quality Assurance

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

It constitutes the final, complete and exclusive statement about the quality guarantee, no person or agent is authorized in the name of Luminsens 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, Luminsens 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.

Self-cleaning TSS sensor supports two-points calibration.

一、 **Materials required**

（1） Diatomite, median particle size 36.8 μm (CAS:68855-54-9)。

（2） Take 4g of diatomite and dissolve in deionized water, fixed capacity to 1L. At this time, the 4000mg/L sludge standard solution is prepared;

（3） Dilute the solution in step 1 according to the required concentration. For example, take 500mL of 4000mg/L sludge standard solution and dissolve in deionized water, fixed capacity to 1L. At this time, the 2000mg/L sludge standard solution is prepared.

Notes for calibration

（1） Because diatomite is insoluble in water, so it is necessary to use a magnetic stirrer to stir to maintain a uniform while standard solution is used;

（2） In order to reduce the interference of diatomite effectively, during calibration, the Y518-A senser is recommended that the measurement window be immersed vertically downwards in the standard solution, so, it is recommended to use a large diameter for the calibration vessel(inner diameter>30cm), standard solution volume>5L; the sensor can be tested with a 1L light-proof bottle;

（3） When using, all test instruments must be wiped clean to avoid pollution;

（4） The standard solution should be configured at the time of use
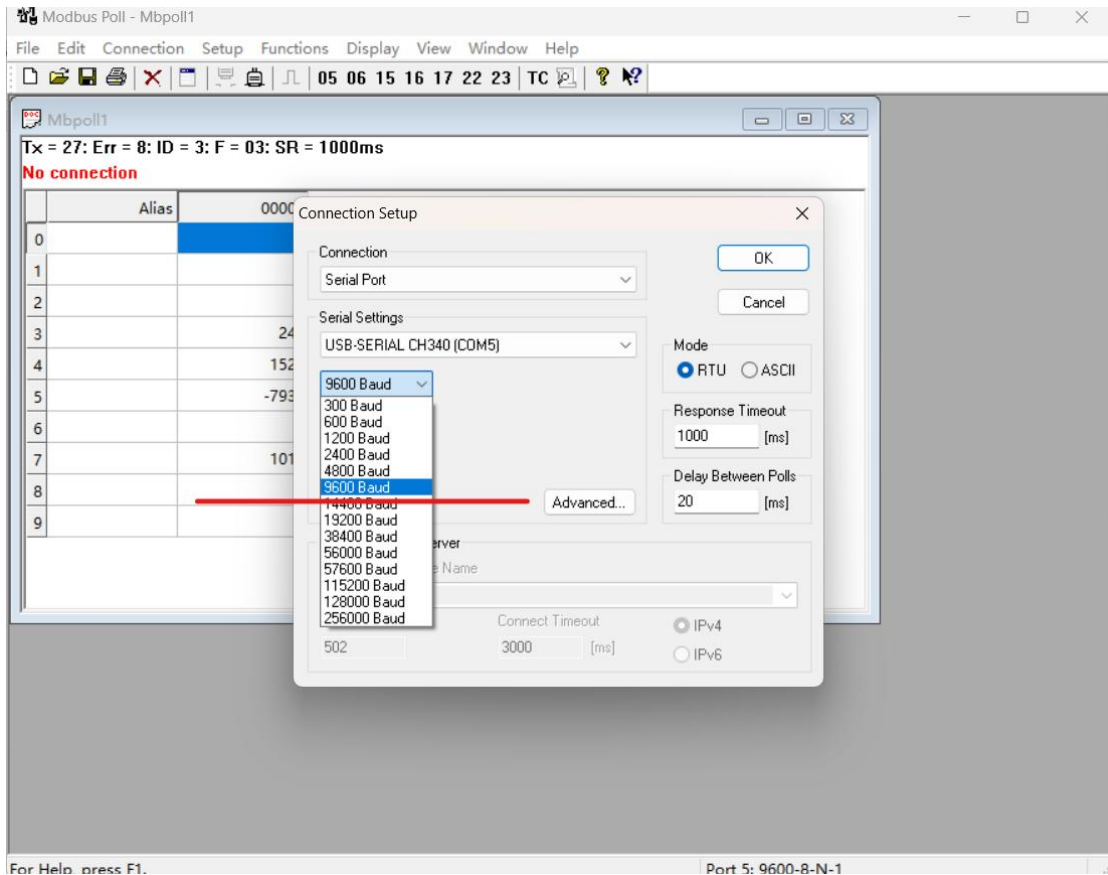
二、 **Calibration tool instructions**

1.Open Modbus，Click Connection，Select the first item in the menu
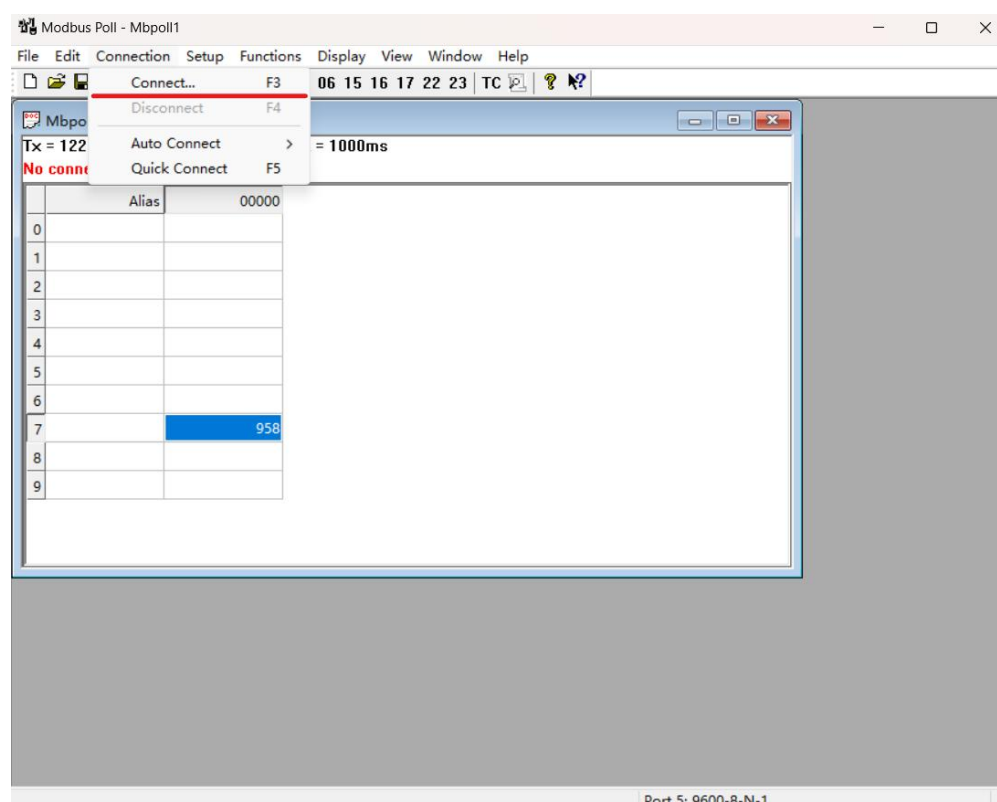
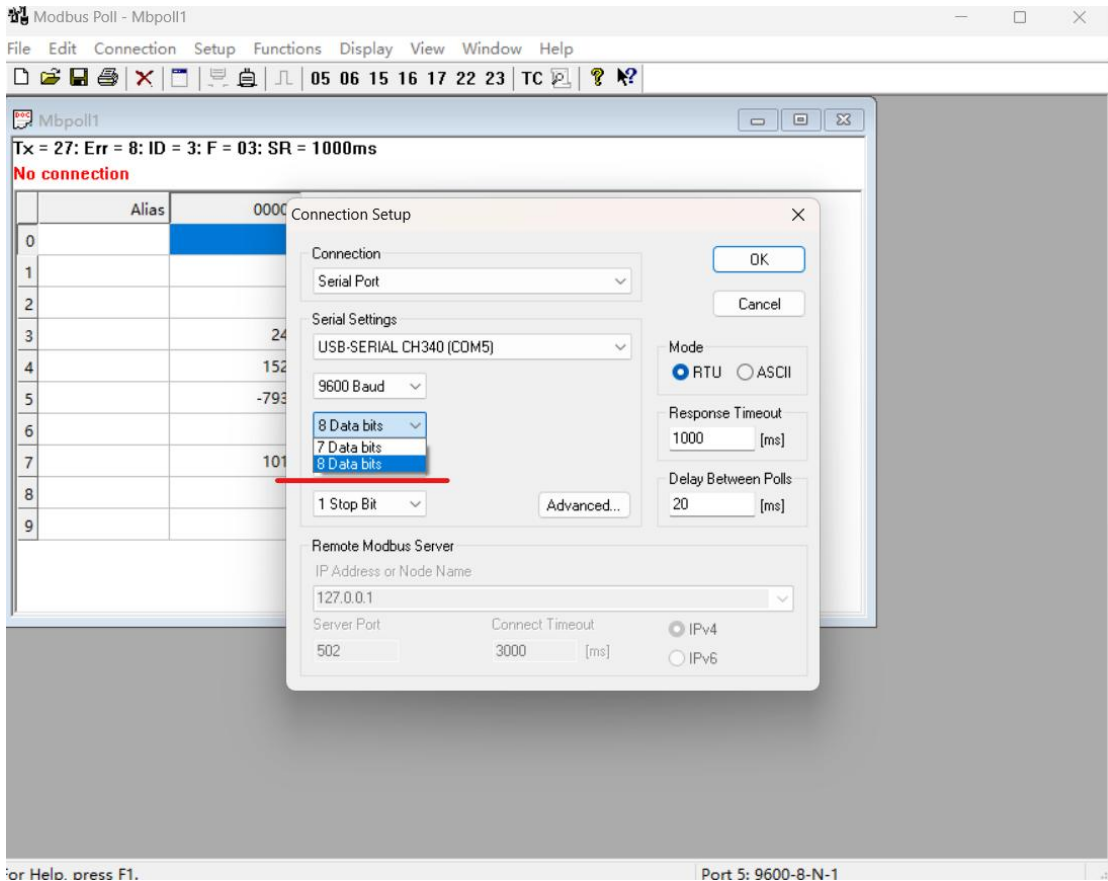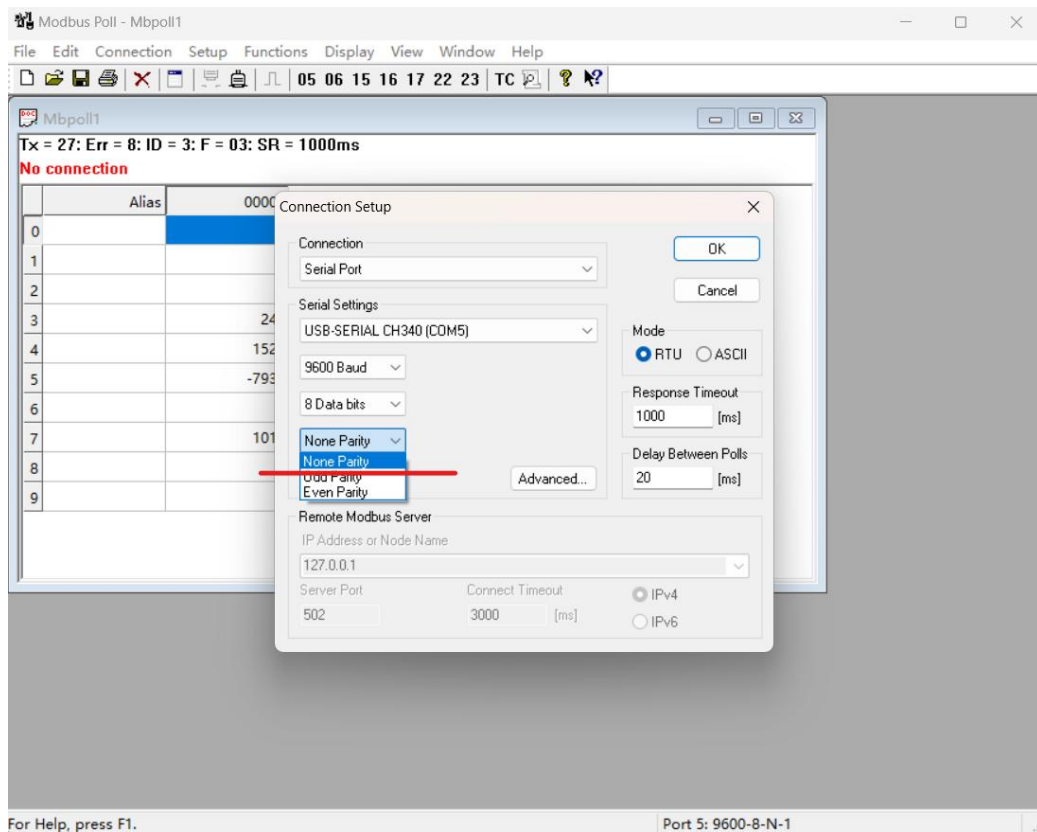2.As shown in the image，Select the corresponding serial port
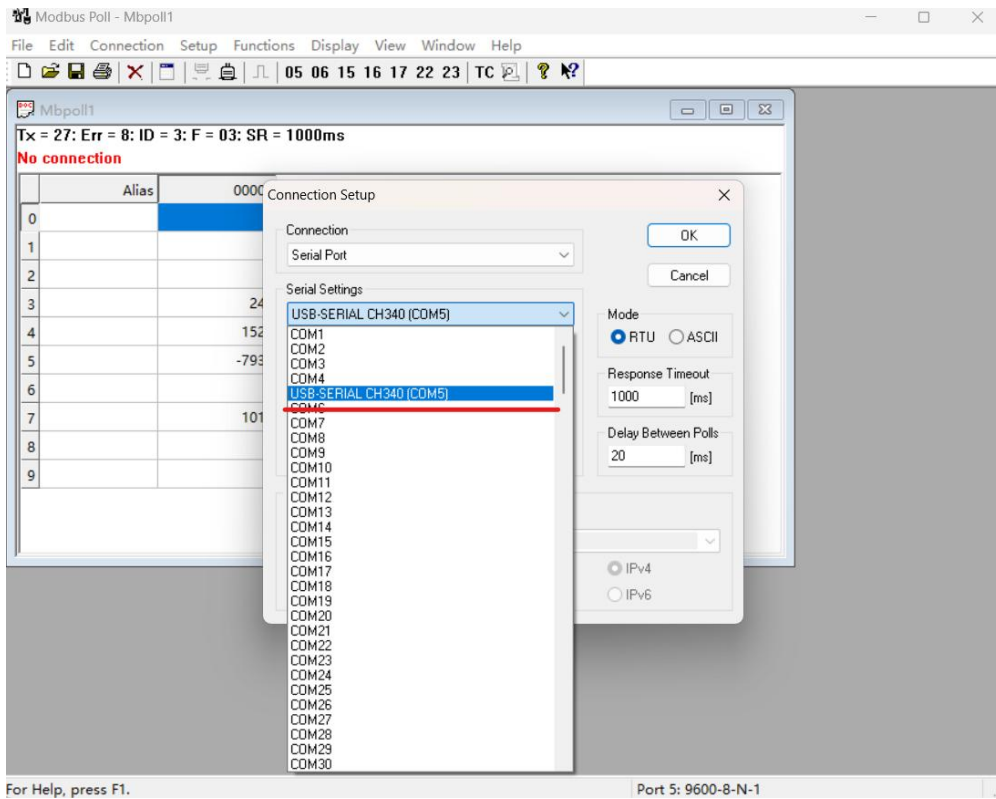
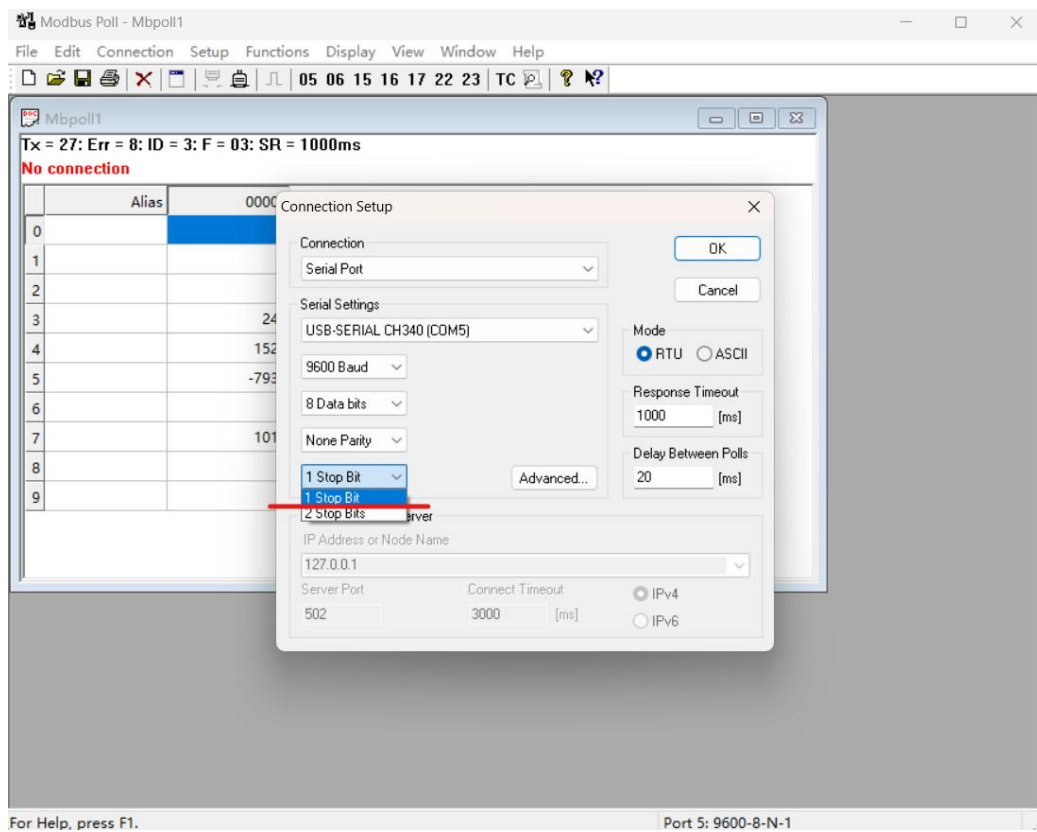3.Select the corresponding baud rate：9600 Baud

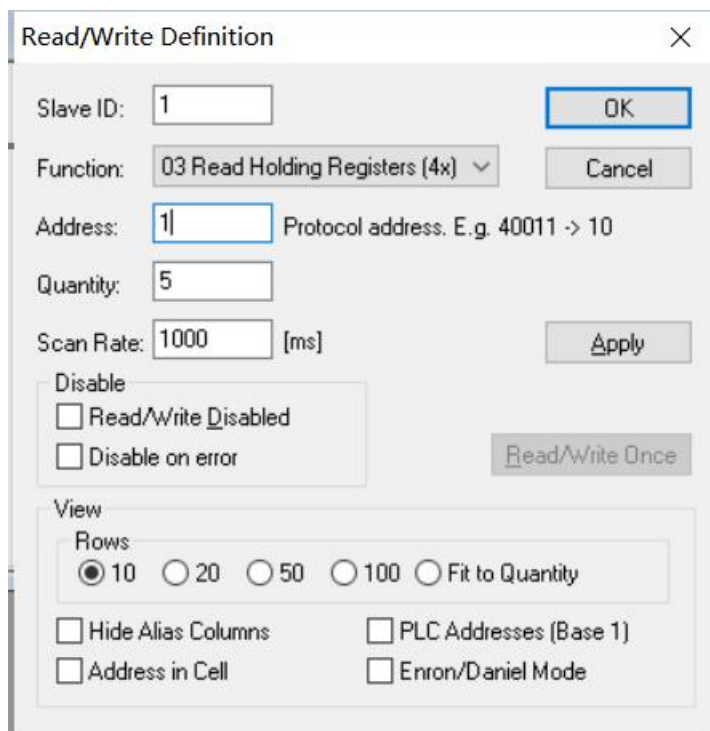4. Select 8 Data bits

5.Select None parity check

4.Select 1 stop check

6.click setup，Select the first item in the drop-down menu
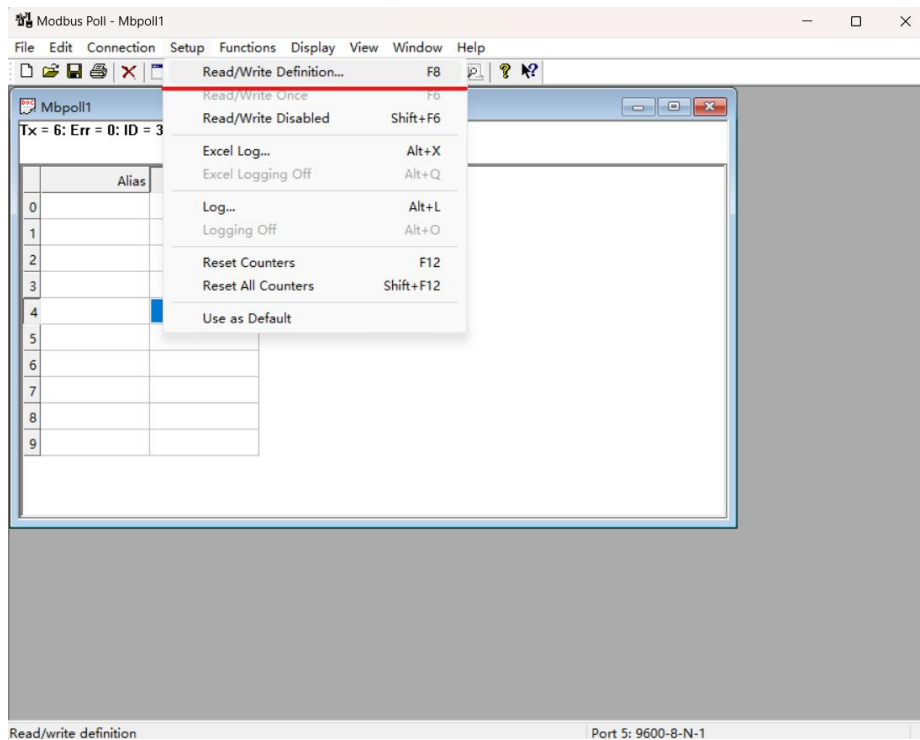
7.

select the 03 function code,

enter the register address into 1,

enter the number of registers into 5,

click OK

8、The sensor is placed in clean water, and the value of register 5 is recorded after the measurement is stable. Then it is placed in the configuration solution, and the value of register 5 is recorded after the measurement is stable.The recorded measurements are used to calculate the coefficients.The coefficient can be obtained using the calibration tool provided by our company.
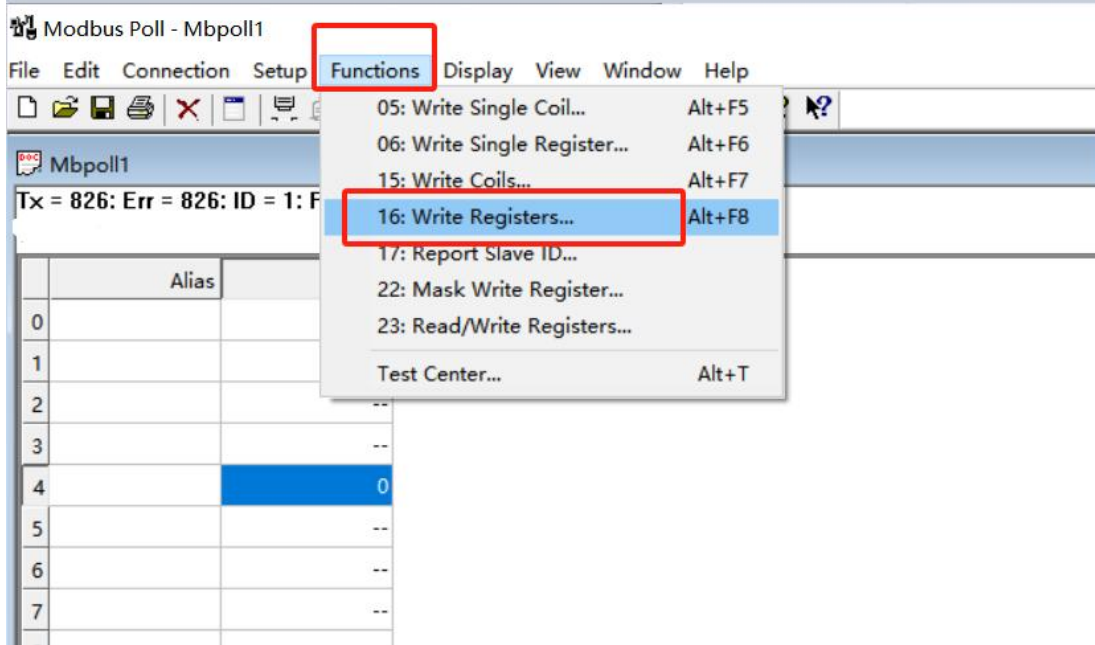

9.
select the 03 function code,
enter the register address into 20
enter the number of registers into 8,
click OK

10、The data type is double, as shown in the red box.
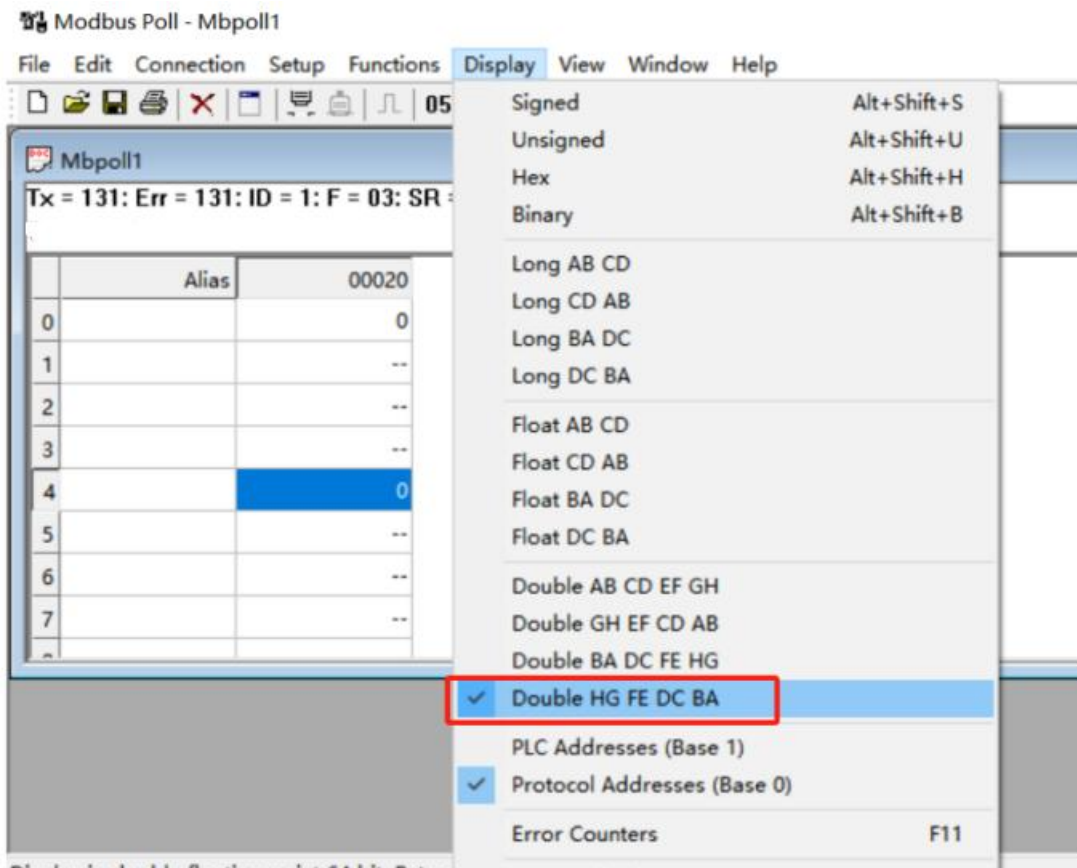
11、Writes to the relevant register according to the value provided by the manufacturer。

12、Set the value of register 20, restart the device, then set the value of register 20, restart the device, can be guided remotely by the manufacturer。