



S600-C Multi-parameter Water Monitoring Sensor Manual Instruction



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Content

1. Specification	1
2. Brief Introduction	2
2.1 Product Information	2
2.2 Safety Information	3
3. Sensor Instruction	4
3.1 Conductivity/Temperature	4
3.2 pH	5
3.3 ORP	5
3.4 Turbidity	6
3.5 Dissolved Oxygen	6
3.6 Depth	7
3.7 Chlorophyll	7
3.8 Blue-Green Algae	8
3.9 COD	8
3.10 NH ₄ ⁺	9
4. Sensor Dimension and Cautions	10
4.1 S600-C dimension	10
4.2 Sensor Probe position	11
4.3 Cautions	11
5. Software Introduction	12
5.1 Installation	12
5.1.1 Requirements	12
5.1.2 Early preparations	12
5.2 Software Usage	14
5.2.1 Connection Interface	14
5.2.2 Display Interface	18
5.2.3 Functions Setting	18
6. Product Maintenance and Service	29
6.1 Sensor Maintenance	29
6.2 Sensor Calibration	30
6.2.1 Temperature Calibration	31
6.2.2 Conductivity Calibration	32
6.2.3 pH Calibration	34
6.2.4 ORP Calibration	36
6.2.5 Turbidity Calibration	36
6.2.6 Dissolved Oxygen Calibration	38
6.2.7 Depth Calibration	39
6.2.8 Chlorophyll Calibration	40
6.2.9 Blue-Green Algae Calibration	41
6.2.10 COD Calibration	43
6.2.11 NH ₄ ⁺ Calibration	44
Appendix I Product List	46





1. Specification

Table 1 S600-C Online Multi-parameter Water Quality Sensor

Specification	Details
Size	φ88mm*548mm (length)
Weight	2.5KG
Main Material	POM+316 Stainless Steel
	O ring: viton ring+ rubber ring
	Cable: PVC
Waterproof Rate	IP68
Measuring parameters	Standard: Temperature, Conductivity, pH, Turbidity, Dissolved Oxygen Optional: Depth, ORP, Chlorophyll, Blue-green Algae, NH4+, K+, TSS, Salinity and etc.
Data Output	RS 485. Modbus; Bluetooth(Optional)
Internal Storage	8M (Optional)
Power	DC 12~24V
Storage Temperature	-20~+60℃ (pH/ORP storage temperature 0~60℃)
Working Temperature	0~50℃
Pressure Range	Sensor Probe ≤0.6Mpa; Sensor Body≤2Mpa
Cable Length	5m standard cable, other length can be optional;
Guarantee Period	Sensor Body 12 months; pH/ORP probe 12 months; Ion sensor: 6 months; DO membrane cap 6 months;



2. Brief Introduction

2.1 Product Information

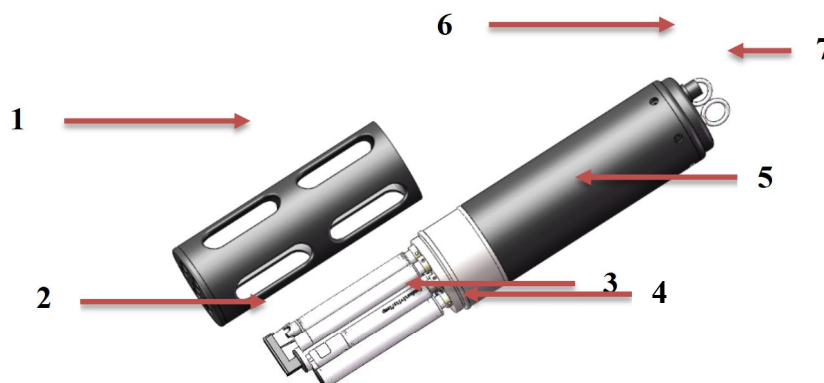
S600-C is an integrated multi-parameter water quality instrument used for monitoring water quality. It can be installed with up to 7 probes (built-in pressure sensor is for optional), can measure water quality parameters as below: Temperature, Conductivity, pH, ORP, Turbidity, Dissolved Oxygen, depth, Chlorophyll, Blue-green Algae, NH₄⁺, K⁺, TSS, Salinity and etc.

S600-C has a special self-cleaning design, equipped with self-cleaning components to eliminate bubbles and prevent microbial growth, and can be monitored in various water environments including rivers, lakes, oceans, reservoirs, industrial water and groundwater.

Characteristics:

- Good reliability, can operate in an unattended environment for months without maintenance;
- Self-cleaning function, self-cleaning coating film and wiper structure design, ensure the measurement window clean, prevent microbial growth, reduce maintenance frequency;
- Automatic identification, each probe is digital sensor, easy for replacement;
- High degree of integration, can choose sensors with different parameters;
- The maintenance frequency is low, requiring only maintenance once every three months, which greatly reduces the maintenance work;

Multi-parameter sensor structure is as below:



Picture 2.1 S600-C Online Multi-parameter Water Quality Sensor

1. Protection cap	2. Cleaning wiper
3. Sensor probes	4. Sensor base position
5. Sensor body	6. Signal output connector
7. fixed ring	



2.2 Safety Information

Please read this manual instruction first before open or installation or use the sensor.

Upon receipt of the instrument, pls carefully open the package and inspect the instrument and accessories for any damaged caused by transport. If any damaged is found, please inform the manufacturer and distributor immediately and keep the package for disposal.

When the instrument breaks down, please contact the after-sales department of the manufacturer directly.

Do not disassemble by yourself.



3. Sensor Instruction

3.1 Conductivity/Temperature

The conductivity and temperature of S600-C are combined on the same sensor, which not only provides accurate conductivity and temperature values, but also provides conductivity values for calculation of salinity, specific conductivity, and total dissolved solids. The temperature values provided can also provide the best data for temperature compensation for other sensors installed on the S600-C.

Technical Parameter (Conductivity)

Name	Parameter
Measuring principle	Four-electrode method
Measuring range	0-200mS/cm
Measuring accuracy	0-100: reading value $\pm$ 0.5% 100-200: reading value $\pm$ 1%
Resolution	1 μ S/cm-100 μ S/cm (according to the range)
Temperature compensation	Yes
Working temperature	0-50 $^{\circ}$ C
Storage Temperature	-20C $\sim$ +60 $^{\circ}$ C
Calibration way	one or two point calibration

Technical Parameter (Temperature)

Name	Parameter
Measuring principle	Thermistor method
Measuring range	0-50 $^{\circ}$ C
Measuring accuracy	$\pm$ 0.2 $^{\circ}$ C
Resolution	0.1 $^{\circ}$ C
Working temperature	-5C $\sim$ +50 $^{\circ}$ C
Storage Temperature	-20C $\sim$ +80 $^{\circ}$ C
Calibration way	one point calibration



3.2 pH

pH reflects the pH and basic characteristics of water. pH of 7.0 is neutral, values below 7.0 are acidic, and values above 7.0 are alkaline. The pH sensor adopts a new double salt bridge structure design, increases stability of long-term monitoring, prolongs the service life of the sensor, and has many characteristics such as easy to clean, strong, corrosion resistance and so on.

Technical Parameter:

Name	Parameter
Measuring principle	Electrode method
Measuring range	0-14
Measuring accuracy	±0.1
Resolution	0.01
Temperature compensation	Yes
Working temperature	0-50℃
Storage Temperature	0-60℃
Calibration way	two or three point calibration

3.3 ORP

ORP sensor is a composite electrode integrated with measuring electrode and reference electrode, which reflects the REDOX characteristics of water.

Technical Parameter:

Name	Parameter
Measuring principle	Electrode method
Measuring range	-1999~+1999mV
Measuring accuracy	±20mV (standard solution)
Resolution	±0.1mV
Temperature compensation	Yes



Working temperature	0-50℃
Storage Temperature	0-60℃
Calibration way	one point calibration

3.4 Turbidity

Turbidity reflects the turbidity of water. Turbidity sensor adopts the principle of 90 degree scattered light detection. Infrared light emitted by the light source is scattered by particles in the measured water and converted to electrical signal by photo detector, and the turbidity value of water sample is obtained after digital signal processing.

Technical Parameter:

Name	Parameter
Measuring principle	Scattered light measurement
Measuring range	0.01-4000NTU
Measuring accuracy	0-10NTU: ± 0.1 NTU 10-100NTU: reading value $\pm 2\%$ or ± 0.1 NTU the bigger one; 100-4000NTU: reading value $\pm 5\%$
Resolution	0-10NTU: 0.01NTU 10-100NTU: 0.1NTU 100-4000NTU: 1NTU
Temperature compensation	Yes
Working temperature	0-50℃
Storage Temperature	-20℃~60℃
Calibration way	one or two point calibration

3.5 Dissolved Oxygen

The principle of the dissolved oxygen sensor is based on the widely validated fluorescence quenching theory. The oxygen concentration can be calculated by measuring the phase difference between the excitation light and the reference light and comparing with the internal calibration value.



Technical Parameter:

Name	Parameter
Measuring principle	Fluorescence method
Measuring range	0-200% saturability 0-20mg/L
Measuring accuracy	0-100%: $\leq \pm 1\%$ 100-200%: $\leq \pm 1.5\%$
Resolution	0.001mg/L-0.01mg/L (according to the range)
Temperature compensation	Yes
Working temperature	0-50°C
Storage Temperature	-20°C~+60°C
Calibration way	one or two point calibration

3.6 Depth

The instrument can get the depth value by installing the built-in pressure sensor. The main factors affecting the depth measurement includes the density of water, temperature, atmospheric pressure and so on.

Technical Parameter:

Name	Parameter
Measuring principle	Pressure sensitive method
Measuring range	200m (effective measurement depth of the electrodes is 60m)
Measuring accuracy	$\leq \pm 0.05 \% \text{F.S}$
Resolution	0.001m
Calibration way	one point calibration

3.7 Chlorophyll

Chlorophyll sensor adopts the principle of coherent fluorescence detection to measure chlorophyll concentration by detecting the excited fluorescence intensity. Chlorophyll sensors are widely used in environment monitoring of algal growth, phytoplankton and eutrophication in rivers, lakes, reservoirs and



coastal waters.

Technical Parameter:

Name	Parameter
Measuring principle	Fluorescence method
Measuring range	0-400ug/L or 0~100RFU
Linearity	$R^2 > 0.999$
Resolution	0.01ug/L
Working temperature	0-50℃
Storage Temperature	-20℃~+60℃
Calibration way	one or two point calibration

3.8 Blue-Green Algae

Blue-green algae sensor adopts the principle of coherent fluorescence detection to measure the concentration of blue and green algae by detecting the excitation fluorescence intensity. Blue-green algae sensor are widely used in environment monitoring of algal growth, phytoplankton and eutrophication in rivers, lakes, reservoirs and coastal waters.

Technical Parameter:

Name	Parameter
Measuring principle	Fluorescence method
Measuring range	0-100ug/L or 0~100RFU
Linearity	$R^2 > 0.999$
Resolution	0.01ug/L
Working temperature	0-50℃
Storage Temperature	-20℃~+60℃
Calibration way	one or two point calibration

3.9 COD

The self-cleaning COD sensor uses the principle of spectrophotometric ultraviolet absorption detection to



measure the organic matter in the water. The sensor adopts a dual-path structure design, which can automatically eliminate turbidity, ambient light and other interference. It has the advantages of long life, free maintenance, no reagent, no pretreatment, fast response and so on. It can be applied to surface water, groundwater, municipal sewage, industrial wastewater and other application environments that requires long-term early warning and monitoring of COD.

Technical Parameter:

Name	Parameter
Measuring principle	Spectrophotometric ultraviolet absorption
Measuring range	0.1~200mg/L (equiv. KHP)
Linearity	±2% or 0.5 mg/L take the bigger(equiv. KHP)
Resolution	0.1mg/L (equiv. KHP)
Working temperature	0-50℃
Storage Temperature	-20℃~+60℃
Calibration way	one or two point calibration

3.10 NH₄⁺

Composite ion electrode method is used for ammonia nitrogen, which is composed of ammonium ion electrode, pH electrode (reference electrode) and temperature electrode. The intelligent measurement and online correction function based on internal calibration algorithm greatly improves the accuracy of measurement.

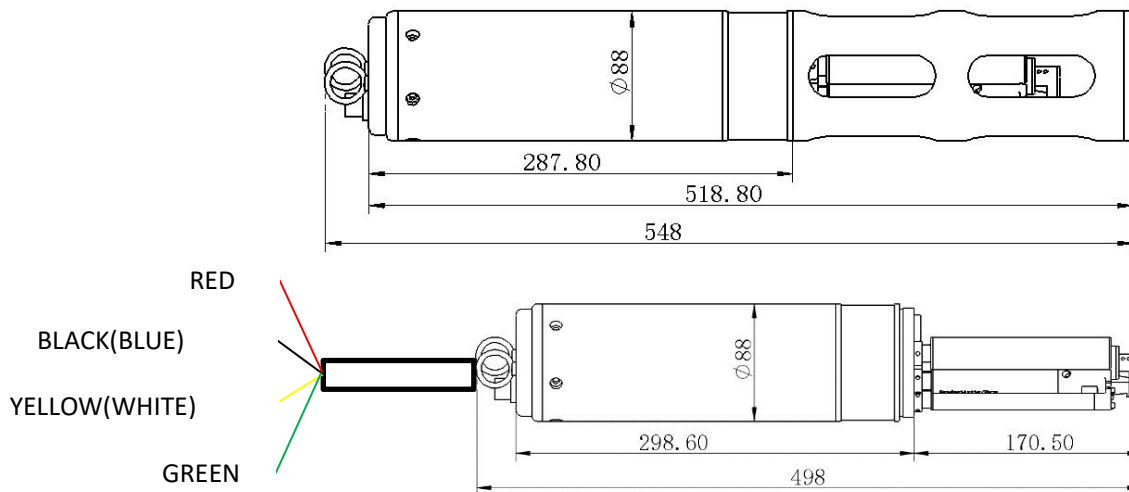
Technical Parameter:

Name	Parameter
Measuring principle	Composite ion electrode method
Measuring range	0~10/100/1000mg/L for option
Linearity	10% or ±0.2mg/L take the bigger
Resolution	0.01mg/L-0.1mg/L (according to the range)
Temperature compensation	Yes
Working temperature	0-50℃
Storage Temperature	-20℃~+60℃

4. Sensor Dimension and Cautions

4.1 S600-C dimension

Sensor size is as below:



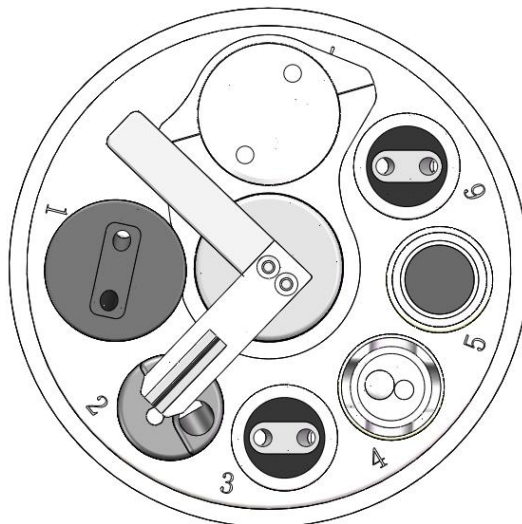
Picture 4.1 Sensor Dimension

1. RED-- Power (Vcc)	2. Black(Blue)-- GND
3. Yellow(White)-- 485B	4. Green-- 485A



4.2 Sensor Probe position

S600-C sensor probe position is as below:



Picture 4.2 S600-C Sensor Probe position

1—Turbidity	2—EC/Temp
3—BGA (blue-green algae)	4—pH / ORP
5—DO	6—Chlorophyll
7—COD	

Note: Except the turbidity sensor and COD sensor must be installed at position 1 or 7, other sensors can be installed at any other position.

4.3 Cautions

Regular cautions as below:

- (1) Please keep the measuring part of the electrode clean when installing. Do not touch the surface directly with hands or unclean objects. It will be impossible to measure accurate values for a long time after touching oil, grease and glue objects.
- (2) The sensor electrode is a precision measurement component. Avoid cleaning, soaking, and mechanical scratching of strong acid and alkali, which will change the electrode constant and affect the measurement accuracy of the system.
- (3) The measurement signal is a weak electrical signal. It is forbidden to wear and bind the cable together with the power and control line to avoid interference with the measurement.
- (4) Cables are dedicated cables. If they need to be extended, contact the manufacturer in advance to avoid inaccurate measurement.



5. Software Introduction

5.1 Installation

5.1.1 Requirements

Software operating environment needs Window 8 and above, it is recommended to use Windows 10.

.NET Framework 4.6.1 runtime environment is required. Display resolution: 1366 x 768 or above. The software installation package contains the “Multisensor.exe” running program and the English translation related file “en” (as shown in Figure 5.1). do not delete.

名称	压缩后大小	原始大小	类型
en			
Multisensor.exe	1,031,761	2,225,152	应用程序

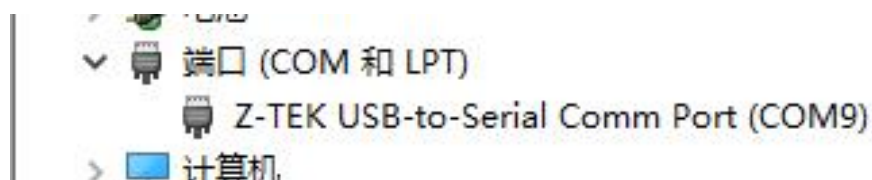
Picture 5.1 Software Package

Pls run Multisensor.exe file in the folder of USB flash drive for installation, and run the test software again after installation.

5.1.2 Early preparations

1. Serial port connection

Ensure that the RS485 communication serial port driver is properly installed, select Device Manager, check that the driver is normal, and assign the serial port number. It is shown in Picture 5.2, the specific connection mode is shown in Picture 5.3.



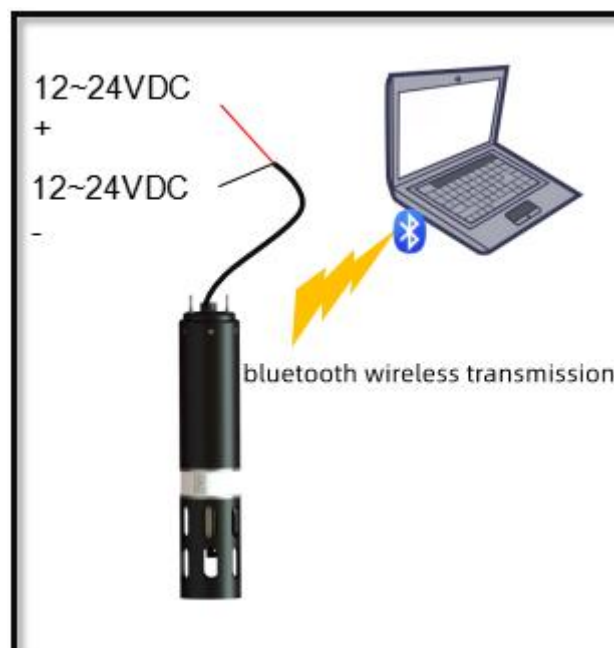
Picture 5.2Serial port Check



Picture 5.3 Serial port connection

2. Bluetooth connection (Optional)

Ensure that the computer has Bluetooth function or is connected to an external USB Bluetooth module, and the driver is installed. The connection mode is shown in picture 5.4.



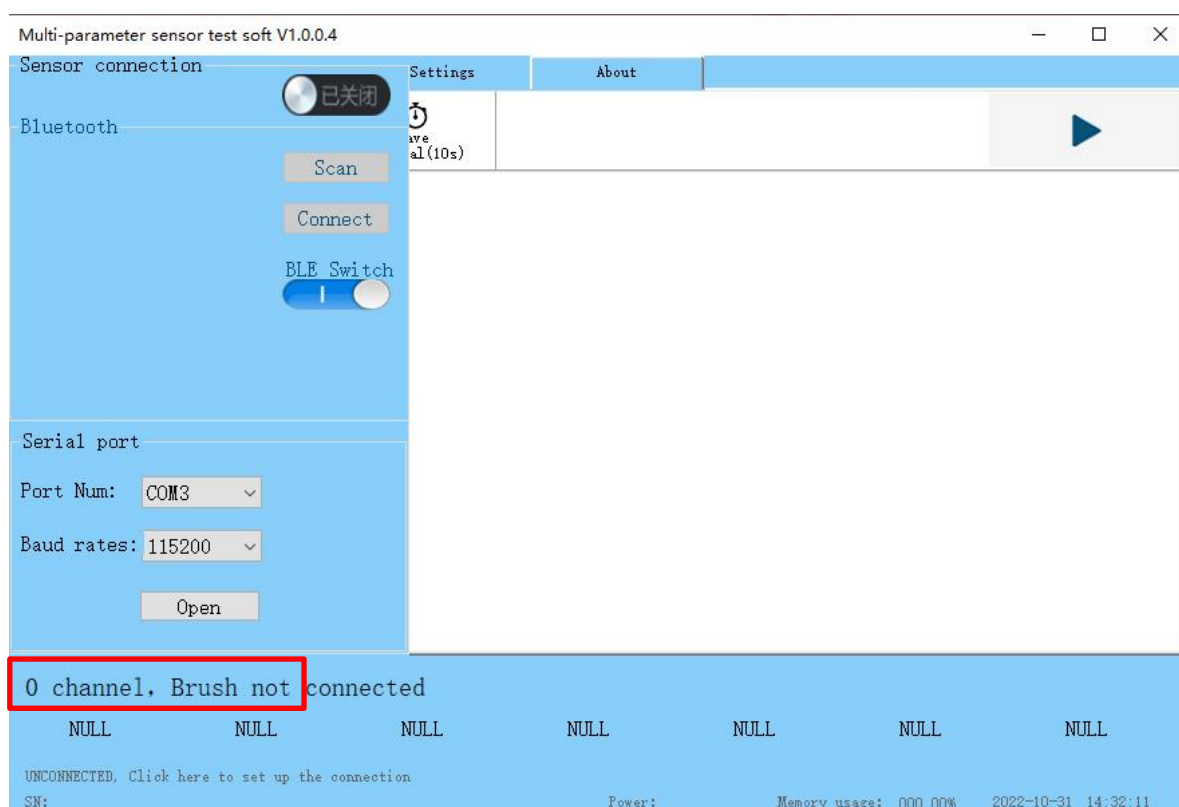
Picture 5.4 Bluetooth connection



5.2 Software Usage

5.2.1 Connection Interface

After the external connection is connected, open the test software “Multisensor” and click the lower left corner to pop up the connection menu. You can choose Bluetooth connection or serial port connection. The interface is shown in Picture 5.5.



Picture 5.5 Start Interface

5.2.1.1 Serial port Connection

- ① For serial port connection, select the corresponding serial port number first;
- ② Select the serial port baud rate and click Set (baud rate is 9600 by default and can be changed);
- ③ Click “ Open” to start the software;

If the serial number information is obtained normally, it indicates that the connection is successful and the communication is normal. The connection of different channels of the host will be displayed under the software, and shown in Picture 5.6. If there is no response or the communication fails, the message “ Communication is abnormal,

Multi-parameter sensor test soft V1.0.0.4

Sensor connection

Bluetooth

已关闭

Scan

Connect

BLE Switch

Serial port

Port Num: COM5

Baud rates: 115200 Set

Close

1. Choose connected serial port

2. Select serial port rate for device communication

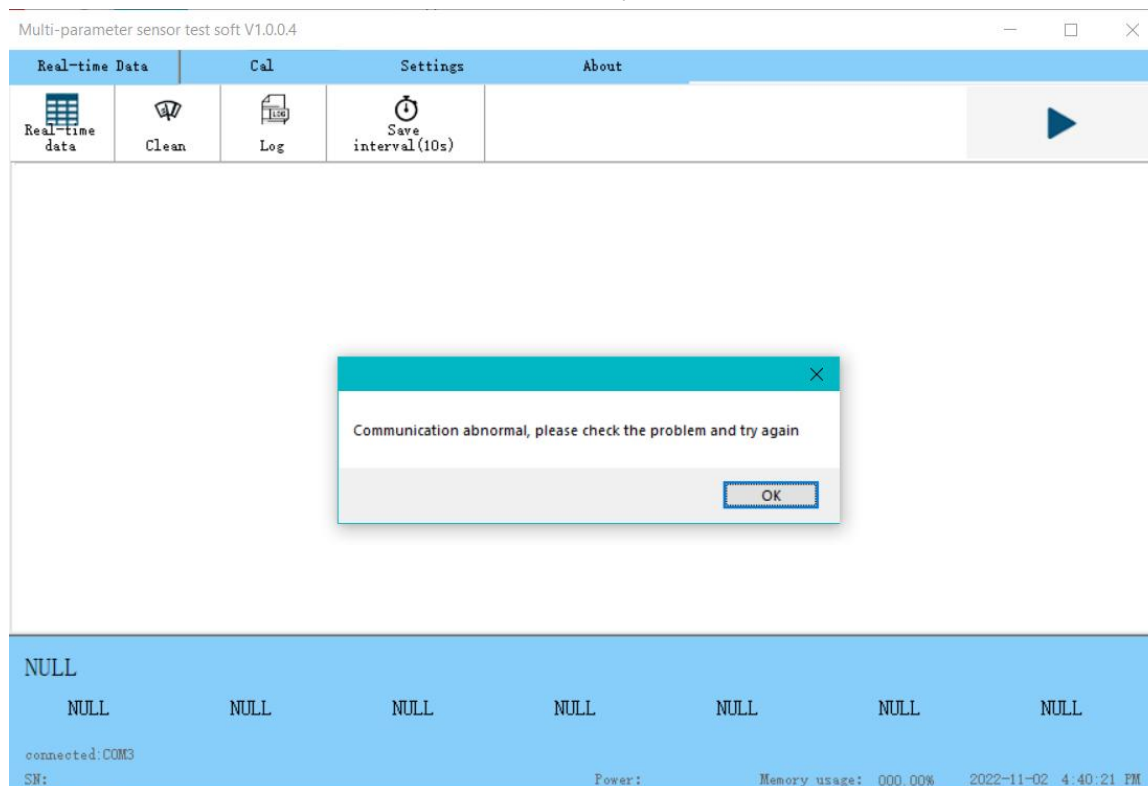
3. Click Open software

4. display number information and host channel, connection is successful and communication is successful.

7channels, Brush is connected.

Null	COND	BGA(freshwater) pHORP	DO	CHL	TURB
connected: COM5					

Picture 5.6 serial port connection



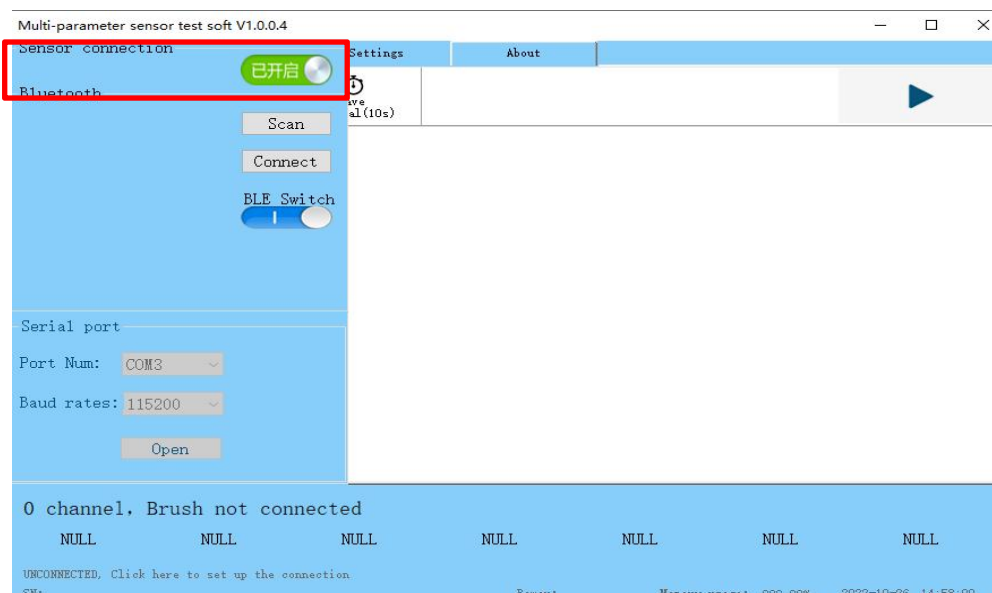
Picture 5.7 Communication fails



5.2.1.2 Bluetooth Connection (Optional)

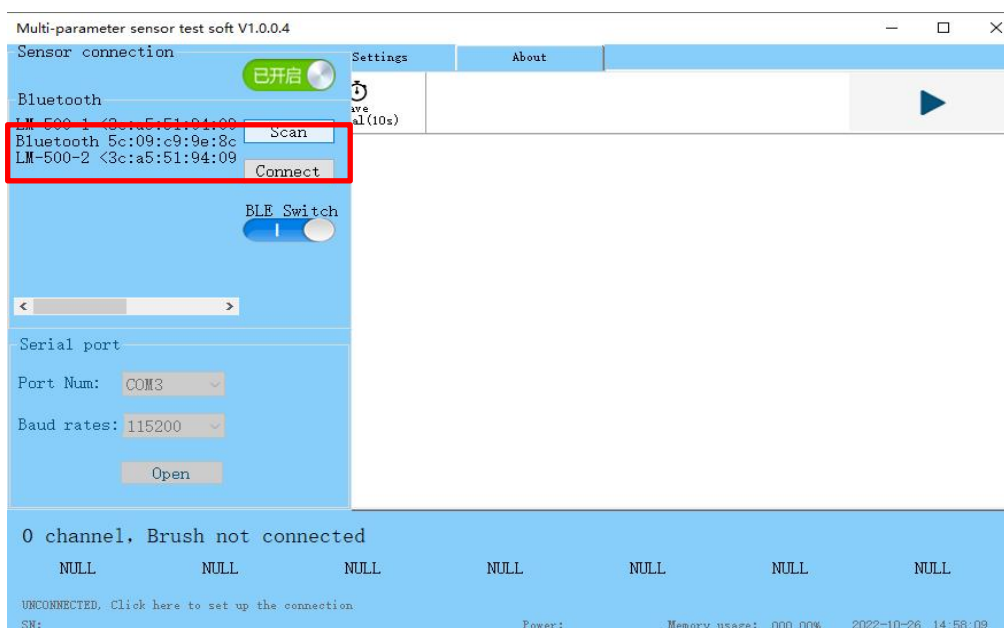
Before using the Bluetooth connection, please ensure that the Bluetooth switch on your computer is enabled (it is recommended to use the latest version of Bluetooth, the old version Bluetooth connection may be unstable).

- ①turn on Bluetooth switch;



Picture 5.8 Bluetooth interface

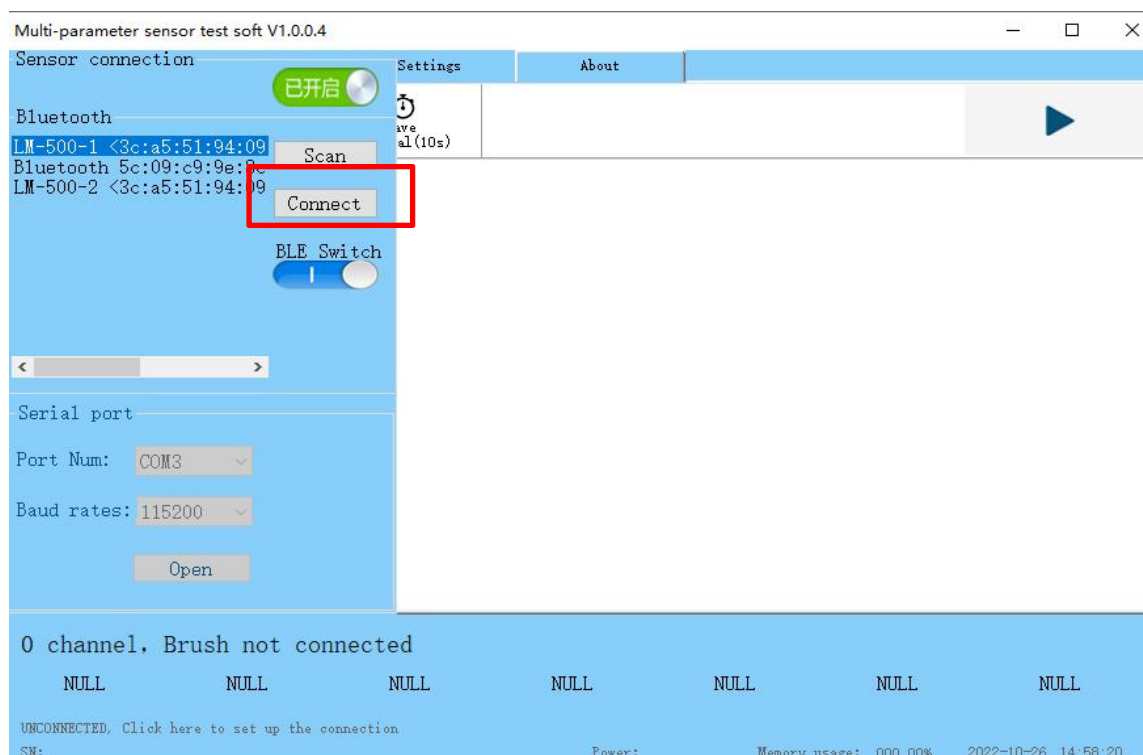
- ②Click the “Scan Bluetooth” button and wait for 10 seconds. A List of scanned Bluetooth devices will be displayed on the left.



Picture 5.9 Bluetooth scan interface

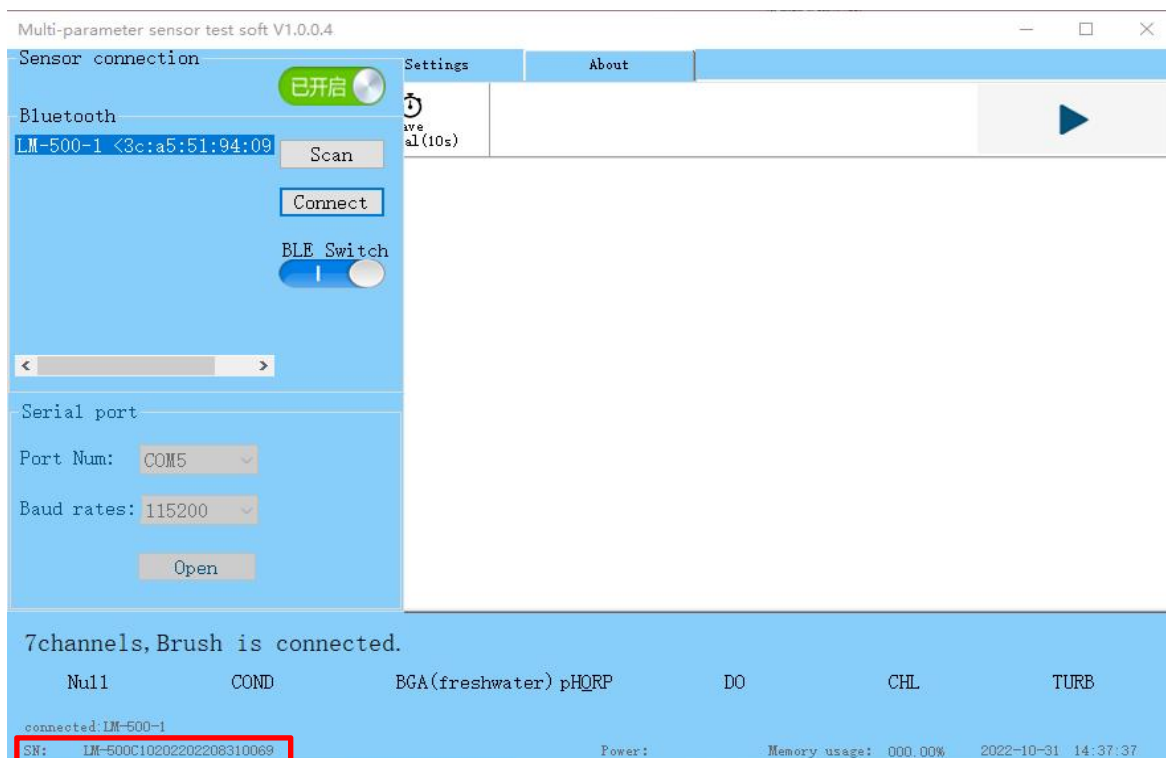


- ③ Click to select a corresponding device name, and then click the “Connect” button to connect;



Picture 5.10 Bluetooth connection interface

- ④ If yes, the device ID is obtained. This is shown in Picture 5.11.

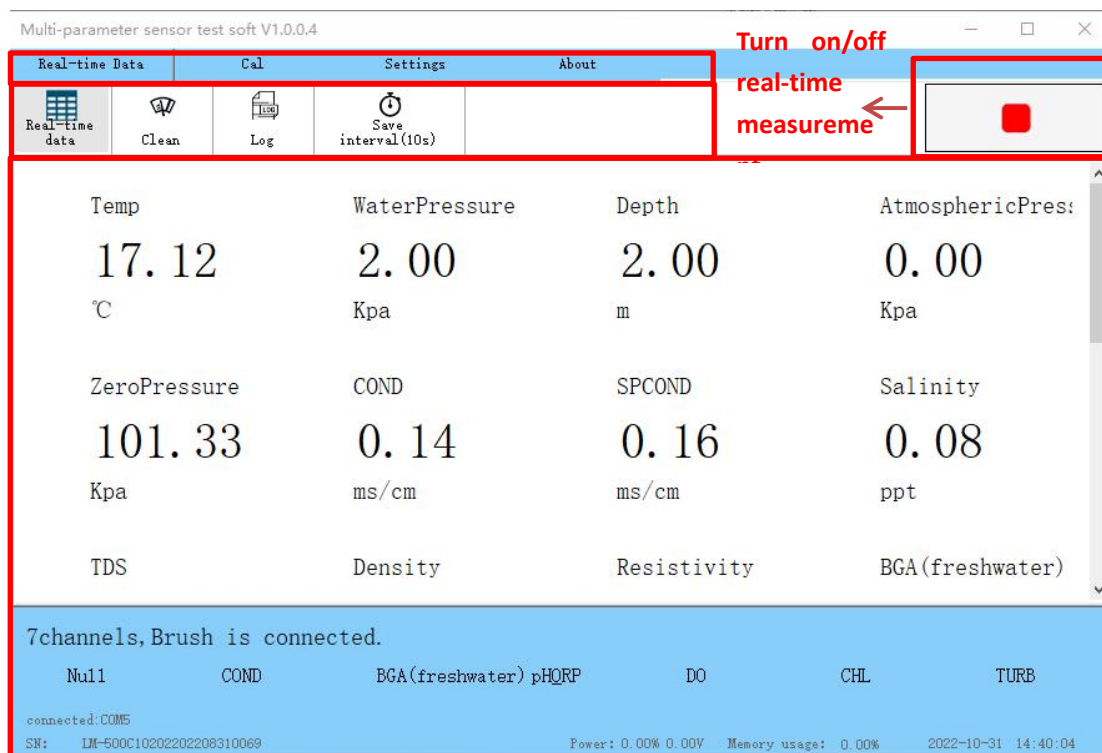


Picture 5.11 Bluetooth Connection succeed



5.2.2 Display Interface

After successful communication with the sensor, click any area of the software to hide the interface of connection setting. Then click the “Open” button and the sensor software starts working. Wait for a period of time (the length of time is equal to the “save interval” time in area ②, unit: second /S) to start displaying real-time measurement data, and the refresh frequency can be set. The interface is shown in picture 5.12.



Picture 5.12 Main Measuring interface

- ① Main Menu: contains “Real-time Data”, “Calibration”, “Settings”, “About” 4 parts.
- ② Shortcut operation area
- ③ Data display area: Display real-time measurement data, host channel connection.

5.2.3 Functions Setting

5.2.3.1 Real-time Data

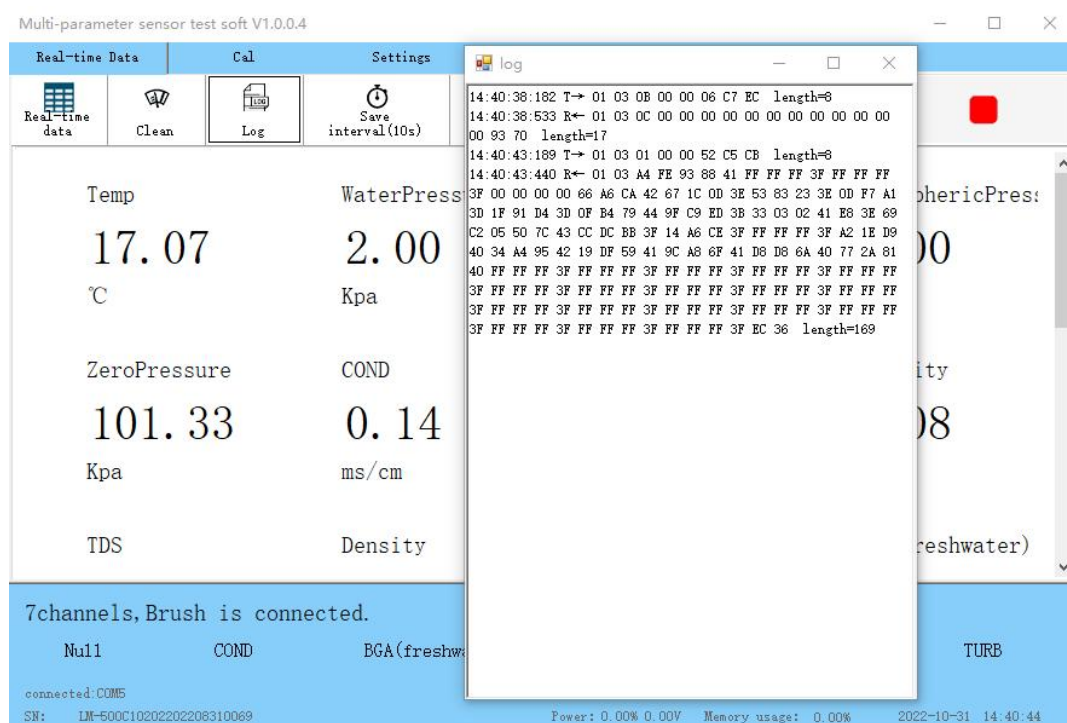
When enter the software initially, you are in the Real-time Data interface of the main menu.

1. Click the “Real-time Data” button in the shortcut operation area to view the real-time data measured by the multi-parameter sensor. The interface is shown in Picture 5.13 of the initial measurement main interface.
2. Click the “Clean” button in the shortcut operation area, and the multi-parameter sensor brush will be wiped



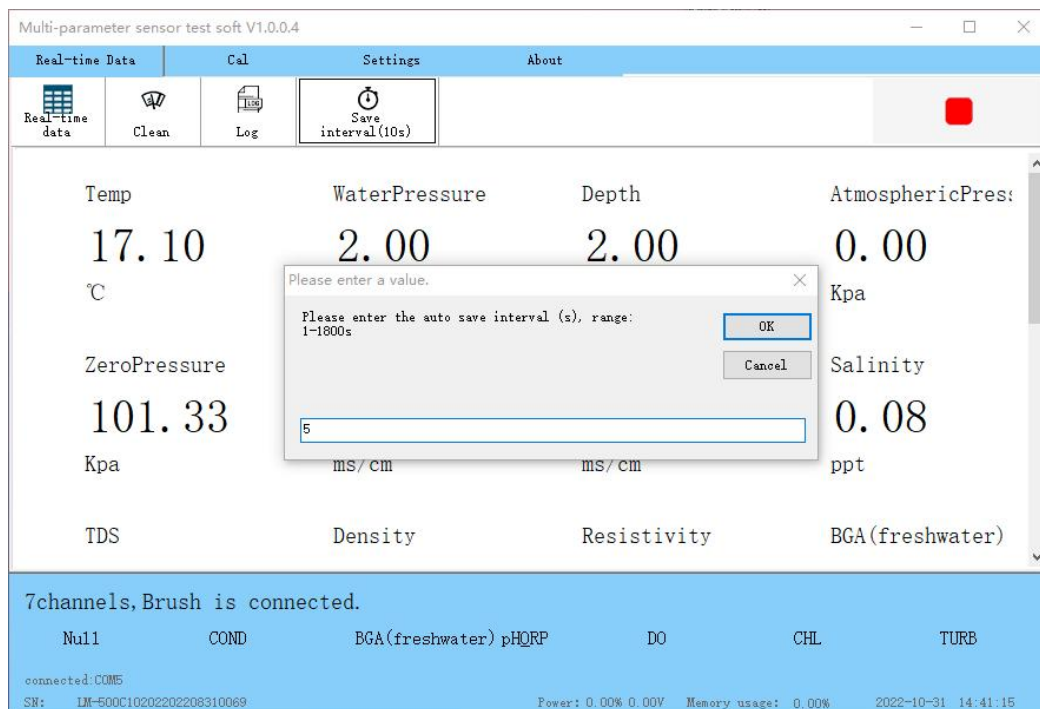
immediately according to the wiper set times.

3. Click the “Log” button in the shortcut operation area to view the real-time communication data between the software and the sensor, as shown in Picture 5.13



Picture 5.13 Log Interface

4. Click the “Save Interval” button in the shortcut operation area to modify the automatic data storage interval, ranging from 1 to 1800s. During software measurement, the data are automatically saved into the “My Documents” folder→SDT→Multisensor→Value folder of the computer/machine, separated by the device number and date (you can modify it manually). The file stored location can be changed in the Settings. As shown in Picture 5.14.

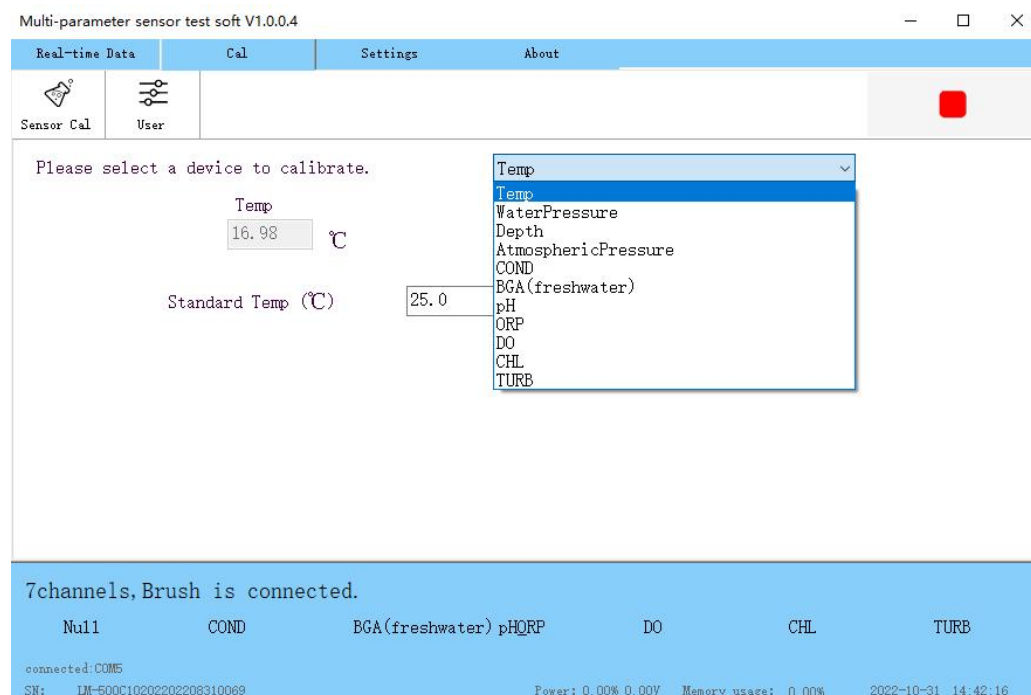


Picture 5.14 Auto Save Interval Interface

5.2.3.2 Calibration

The calibration will be specified below in “6.2 Calibration of Sensor” and will not be detailed here.

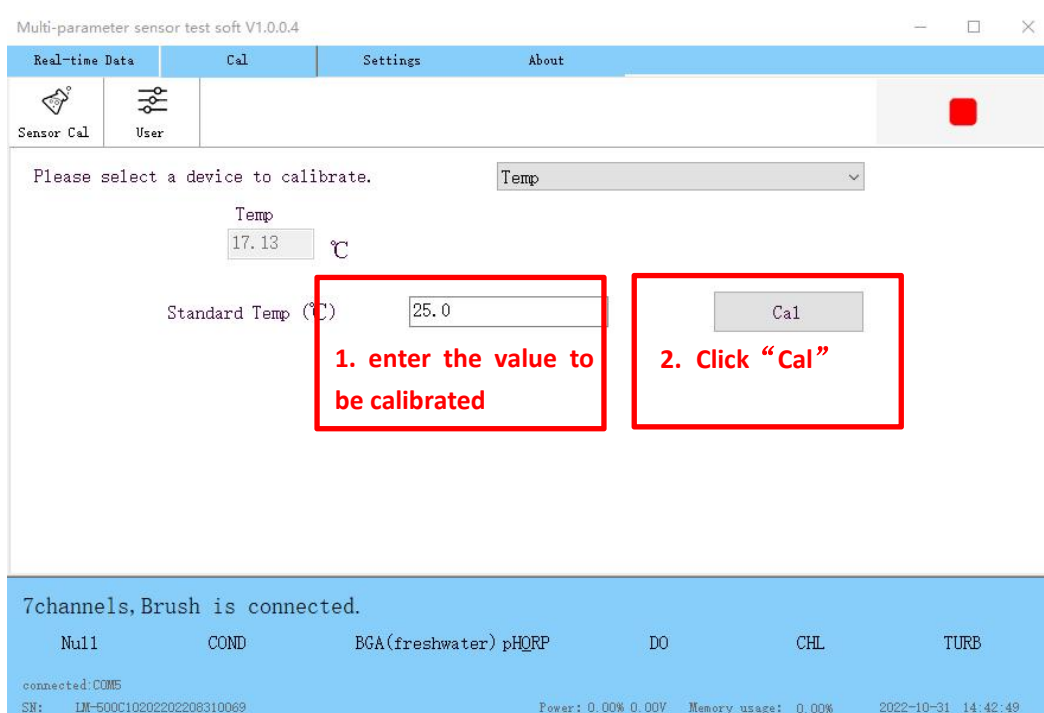
1. Sensor Calibration: the corresponding parameters can be selected according to the connected sensor for calibration, as shown in Picture 5.15



Picture 5.15 Selecting Calibration Parameters Interface



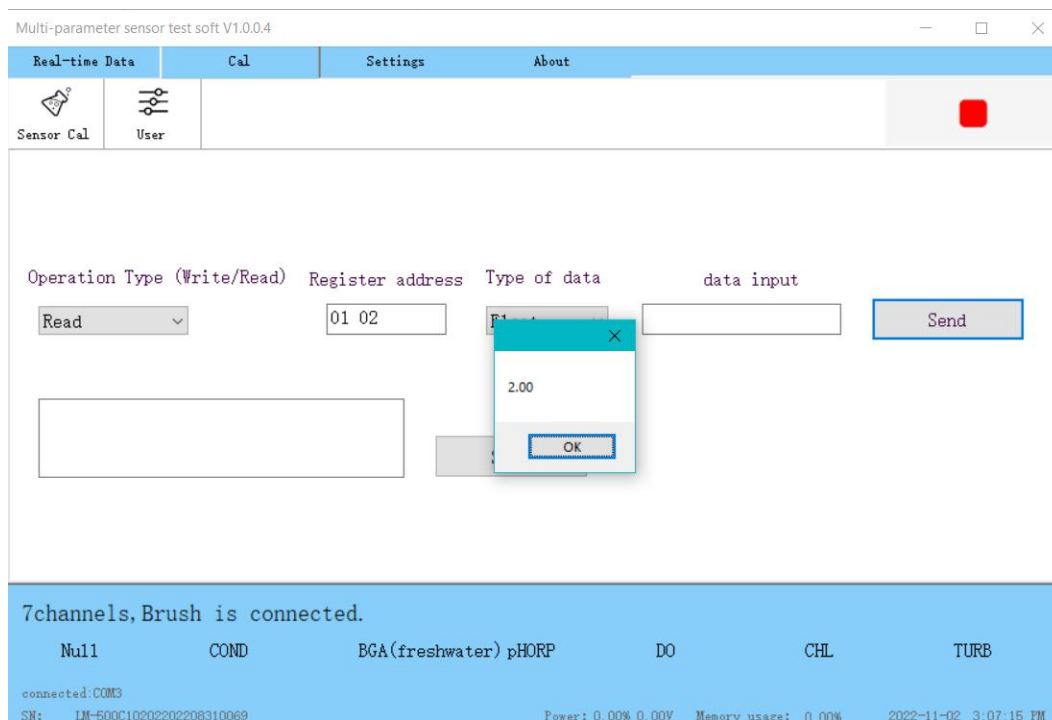
After selecting parameter to be calibrated, enter a value in the calibration box, and click “Cal”. If “Succeed” is displayed, the calibration is successful.



Picture 5.16 Calibration Interface

2. User-defined

This software supports custom communication in accordance with the communication protocol. The operation interface is as follows:



Picture 5.17 User-defined Interface



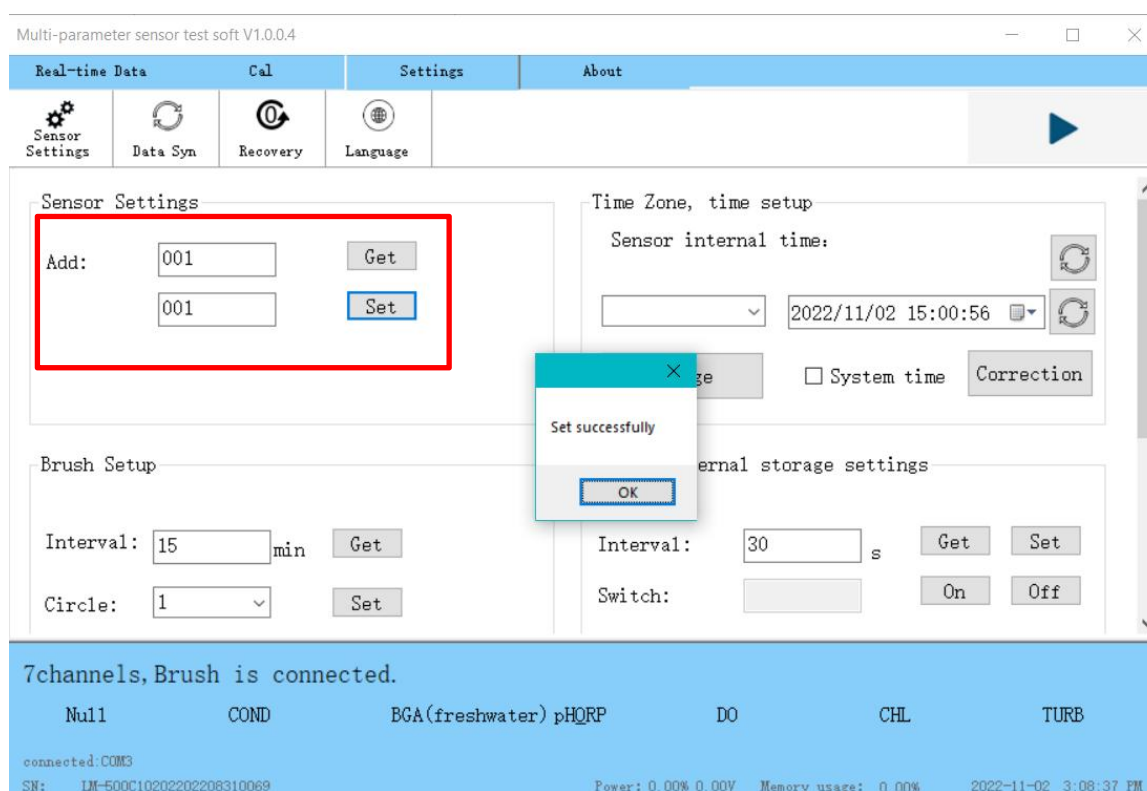
5.2.3.3 Settings

You can query and set the sensor and software through “Settings” in the menu.

1. Sensor settings

1.1 Address Modification

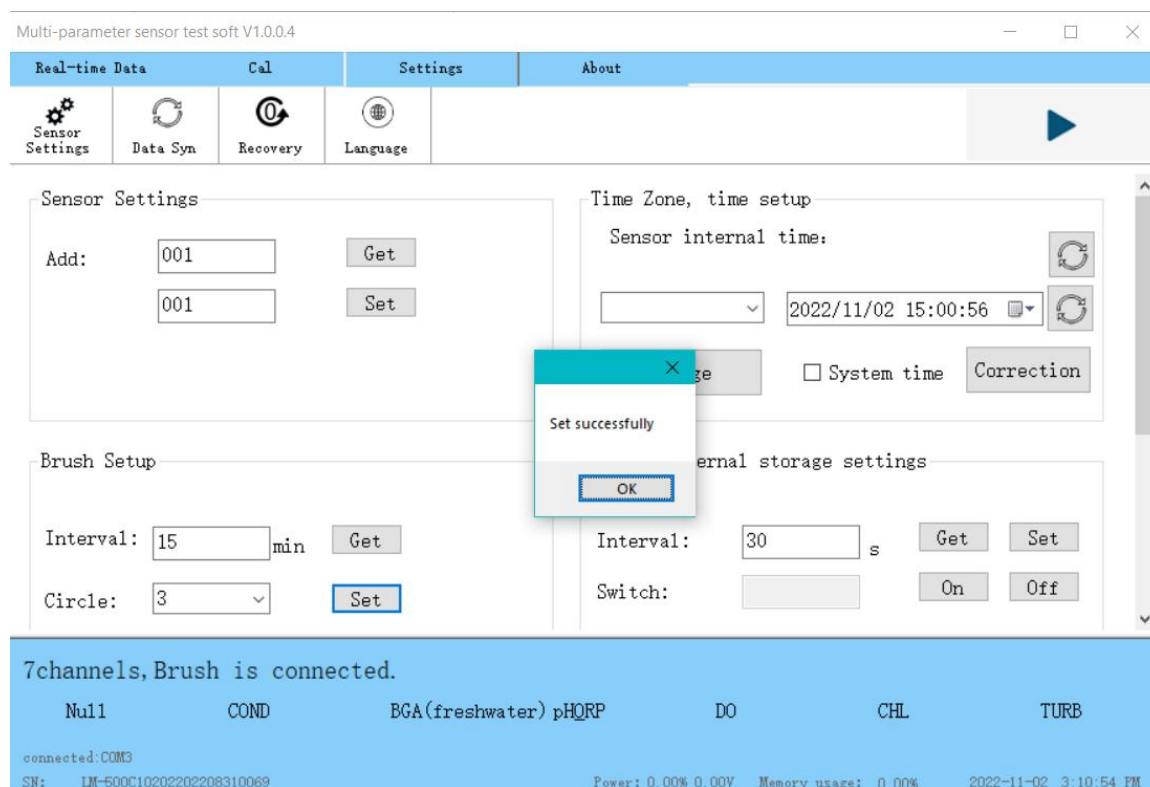
To modify the sensor address, first obtain the correct sensor information, then enter the address to be modified, click “Set”. If “Setting Succeed” dialog box is displayed shown in picture 5.18 (address is a decimal value and the sensor address ranges from 1 to 254).



Picture 5.18 Address Modification Interface

1.2 Brush Modification

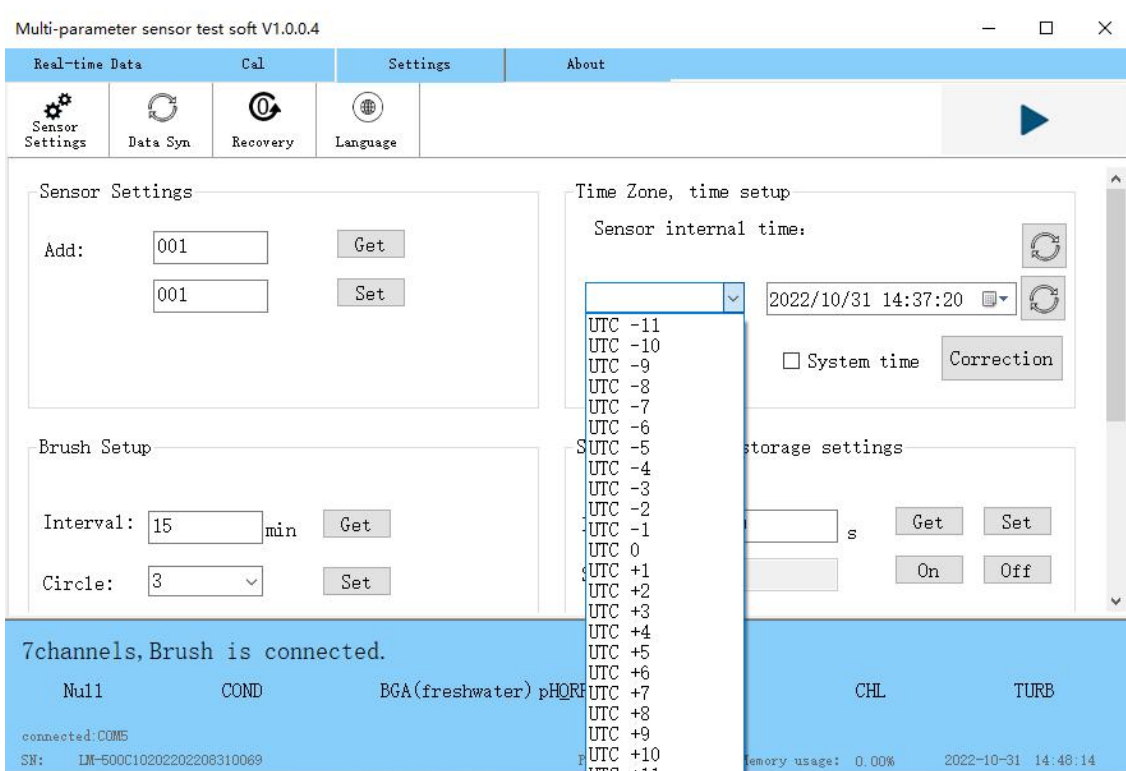
You can view the wiping interval and modify the wiping times as shown in Picture 5.19.



Picture 5.19 Brush Modification Interface

1.3 Time Zone Setting

You can modify the time zone to check the system time.

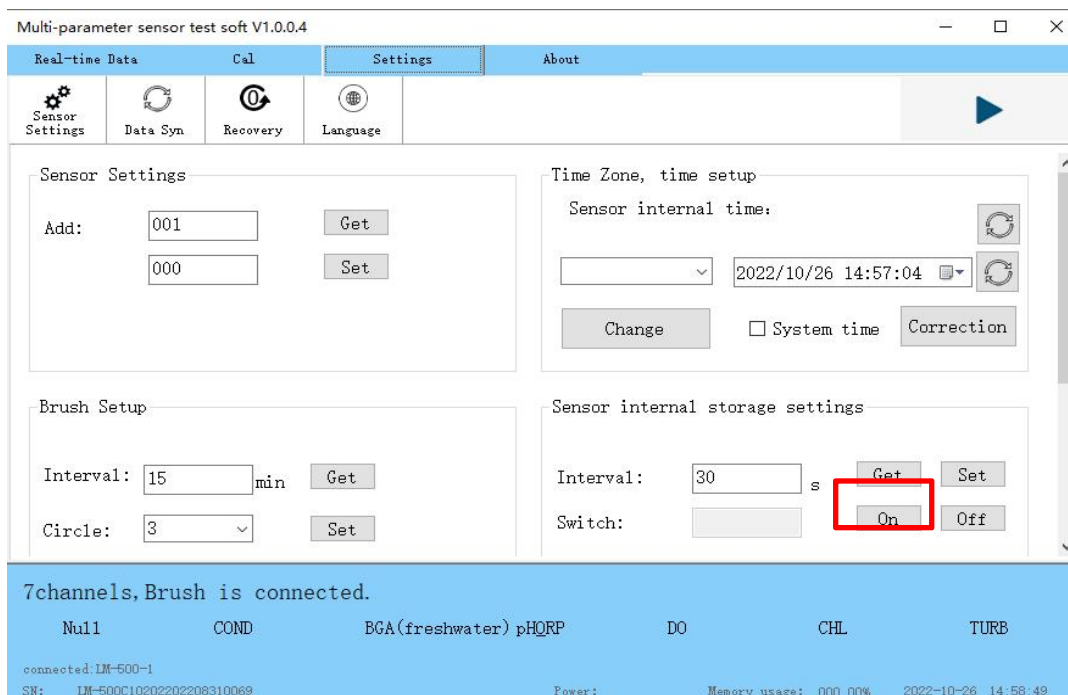


Picture 5.20 Time Zone Setting Interface



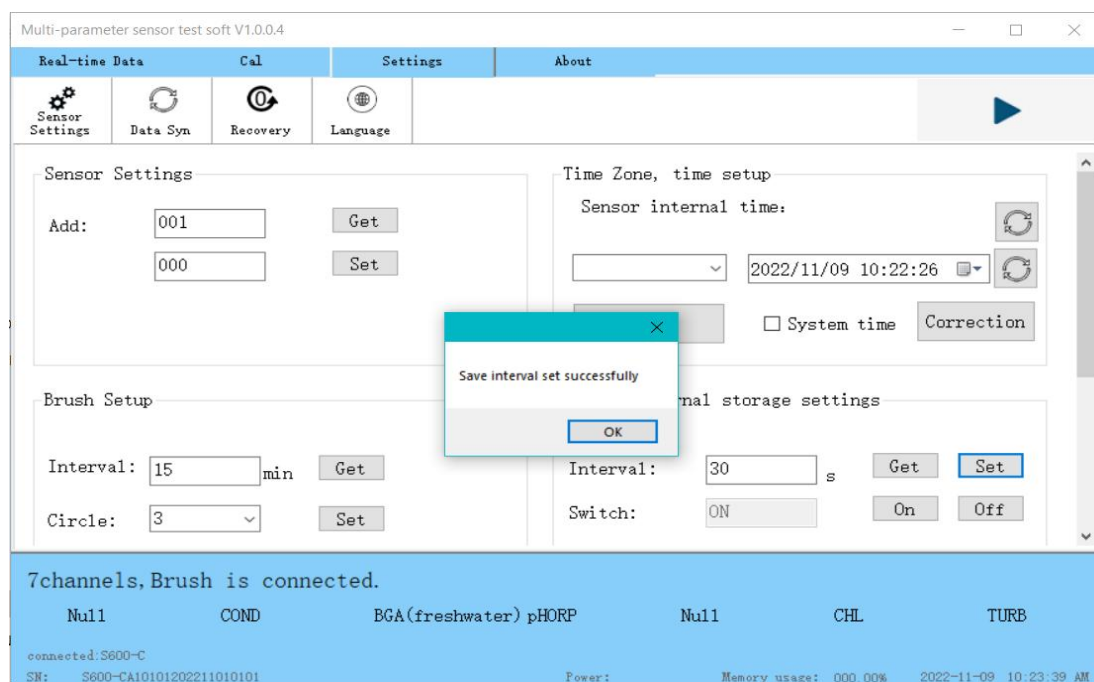
1.4 Internal Storage Settings

① Click “Get” under internal storage settings to obtain the default saving interval or the preset saving interval of the sensor.



Picture 5.21 Get storage interval

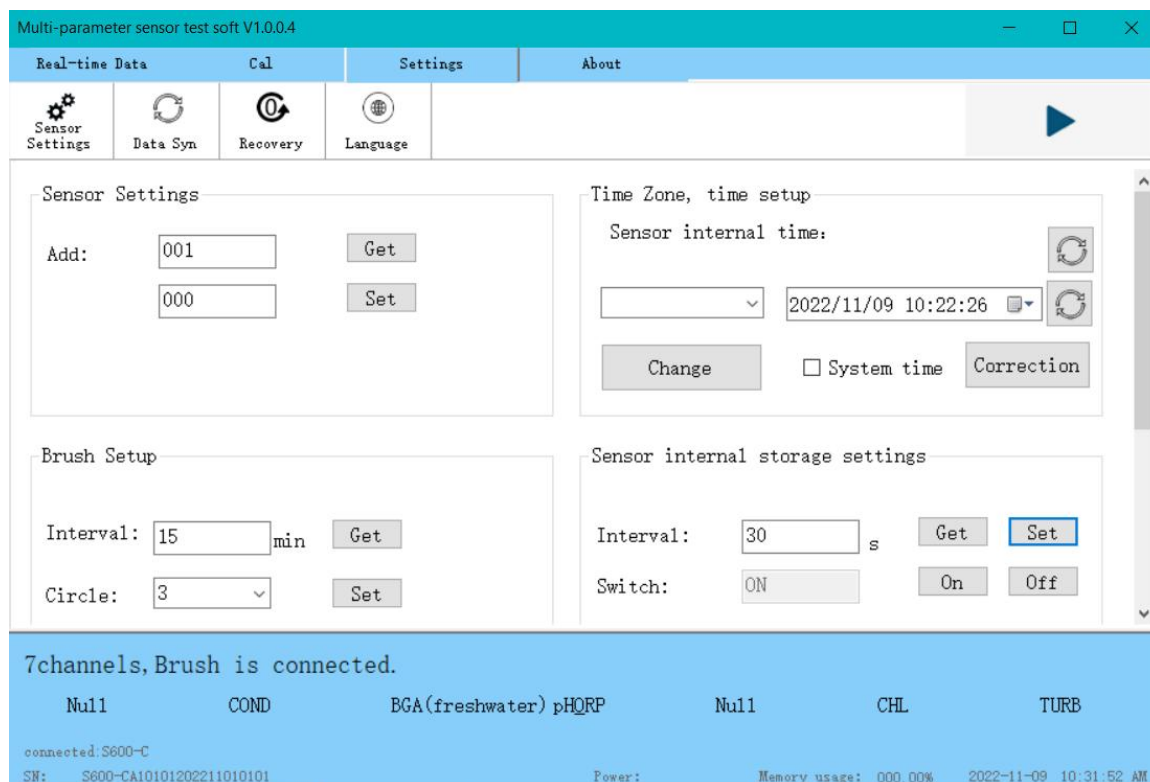
② Set the automatic data saving interval. After entering the value, click “Set” to complete the modification.



Picture 5.22 Change storage interval



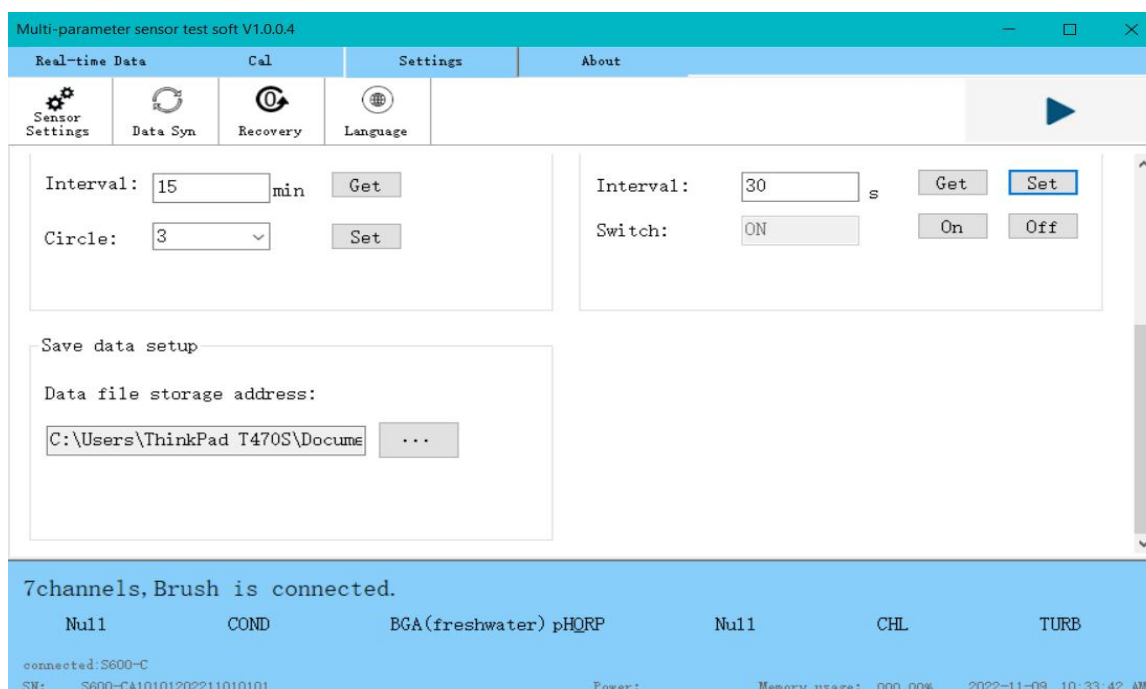
③ The “On” and “Off” buttons behind the auto save switch can be used to open and close the storage inside the sensor.



Picture 5.23 Set auto storage

2. Data storage

In the drop-down screen of sensor Setting, you can see the data store section, which is the local storage of the computer.

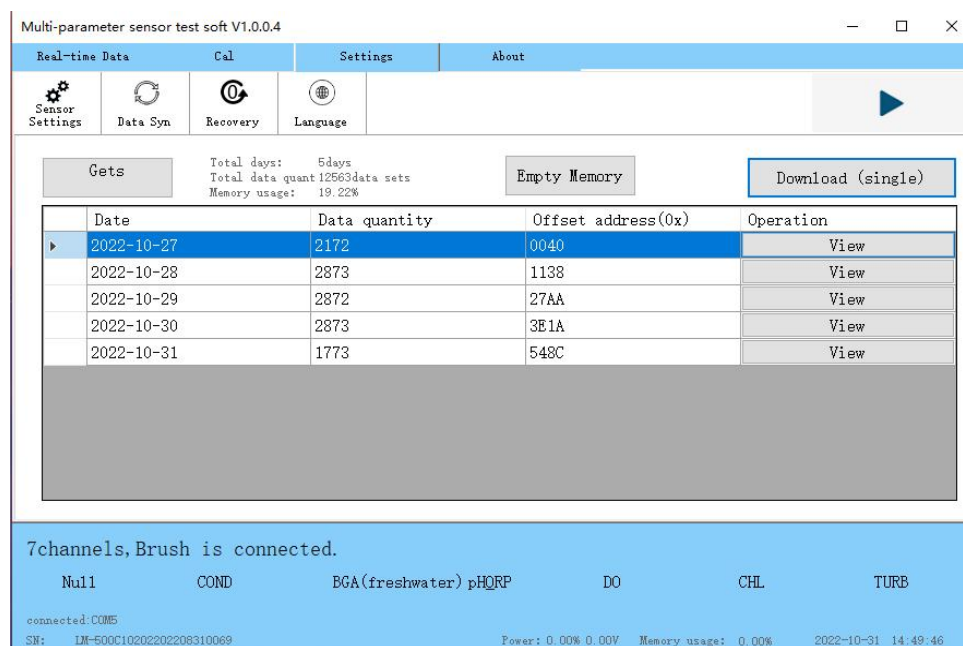


Picture 5.24 Storage position



3.Data Synchronization

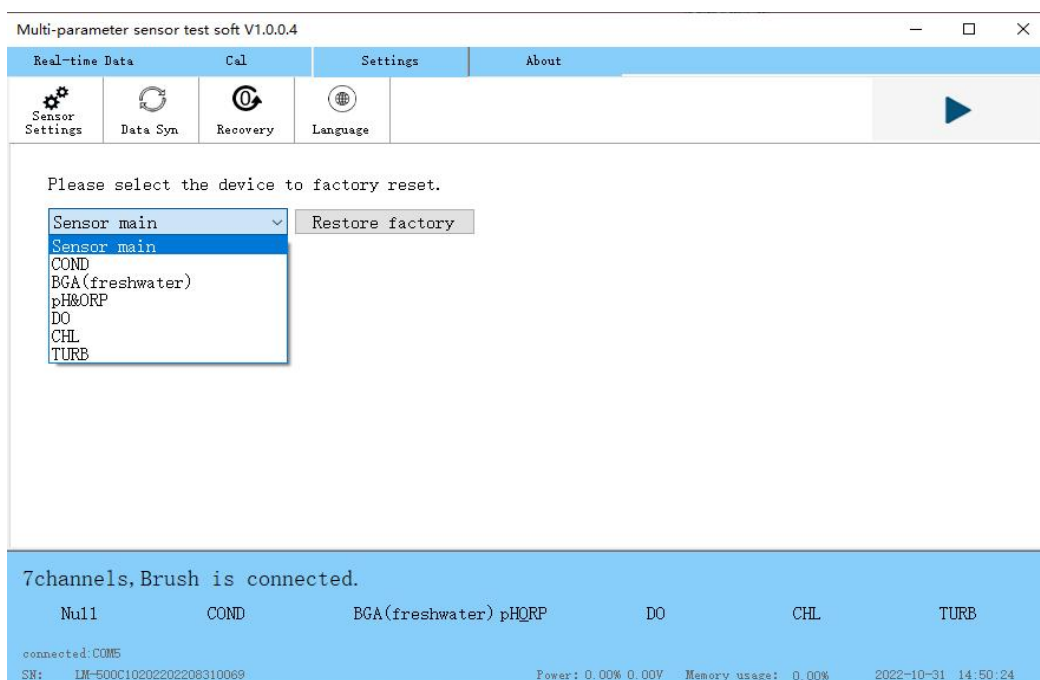
- ① Click the “ Get File Structure” button to read out of the list of internal files of the sensor;
- ② Select the date to download, click the download button on the right, and select the location to save the data in the popup window. Wait until the data is saved successfully.
- ③ The file is successfully saved to the specified location. The file is named with Device ID+Data date.



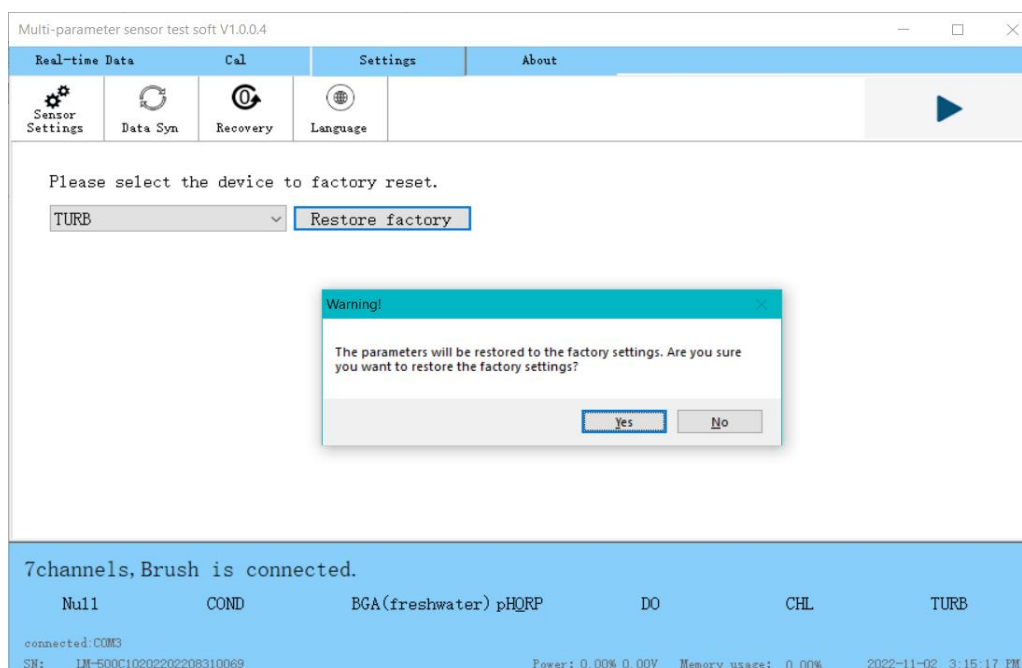
Picture 5.25 Data Synchronization

4. Factory reset

Select the parameters to be restored to factory defaults and click “Restore Factory Default”. A pop-up window is displayed “ Parameters will be restored to factory default, are you sure you wan to restore factory default?” Click “Yes” to confirm. When “Factory Settings restored successfully” Appears, the parameters will be restored to factory defaults. Picture 5.26 and 5.27.



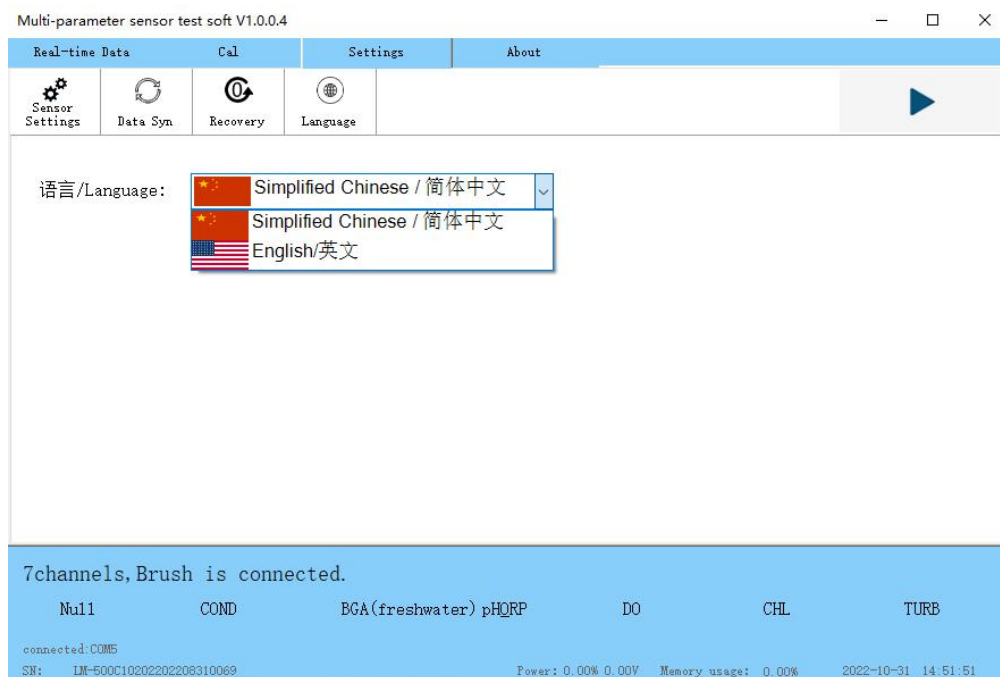
Picture 5.26 Factory Reset Parameters Setting Interface



Picture 5.27 Factory Reset Setting Interface

5. Language

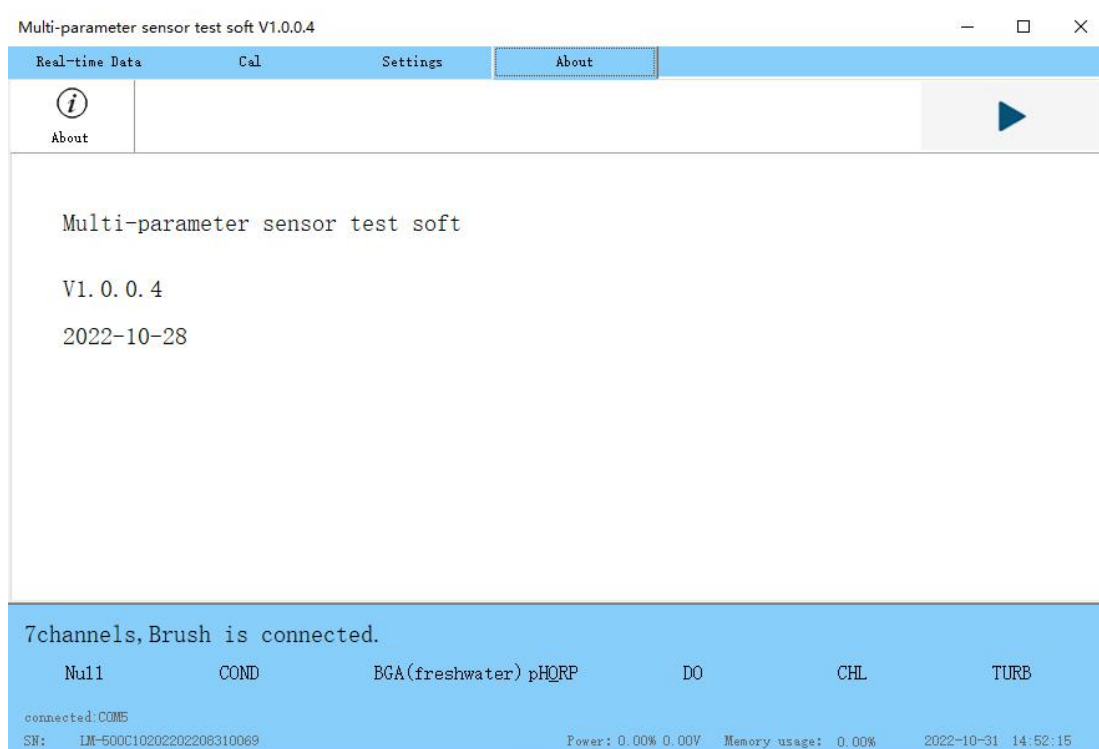
The software supports both Chinese and English Languages. To change, click the drop-down box in the language selection area and select Chines or English. After successful selection, the software will automatically restart the display and switch to the corresponding language version (the default Chinese interface is opened for the first time), as shown in Picture 5.28.



Picture 5.28 Language Switching Interface

5.2.3.4 About

The relevant information of software can be viewed here, as shown in Picture 5.29.



Picture 5.29 Software Information

6. Product Maintenance and Service

In order to obtain the best measurement results, it is necessary to regularly maintain the sensor. Maintenance includes sensor cleaning, sensor checking whether it is damaged, and regular calibration. During maintenance and detection, you can view the status of sensors.

6.1 Sensor Maintenance

It is recommended to clean the sensor at regular intervals (usually 3 months, depending on the site environment) to ensure the accuracy of the measurement. When cleaning, first unscrew the protective cap, then remove the attachment with a soft brush (pay attention to avoid scratching the electrode surface), then clean with clean water, and finally install the protective cap.

Before replacing a sensor electrode, slowly unscrew the electrode to be replaced. Then, install a new electrode that meets the conditions to the specified position (contact the manufacturer for specific conditions to avoid damage to the electrode due to inconsistent conditions) .

The steps of sensor disassembly and installation are as follows:

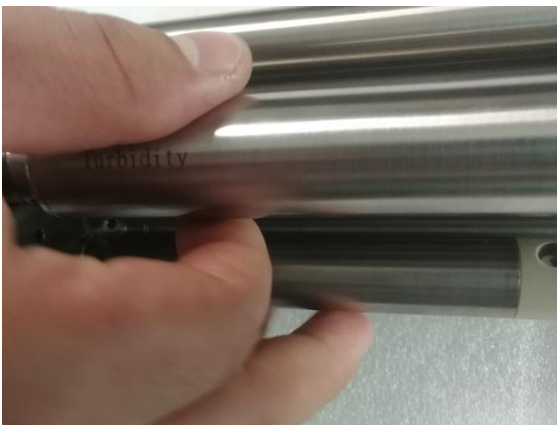
1. Remove the protective cover



2. Loose the nut using a special tool



3.Pull out the sensor



4. Replace the new sensor





5. Note that the semi-circular **pin** of the sensor corresponds to the semi-circular **socket** of the multi-parameter base during replacement.



6.2 Sensor Calibration

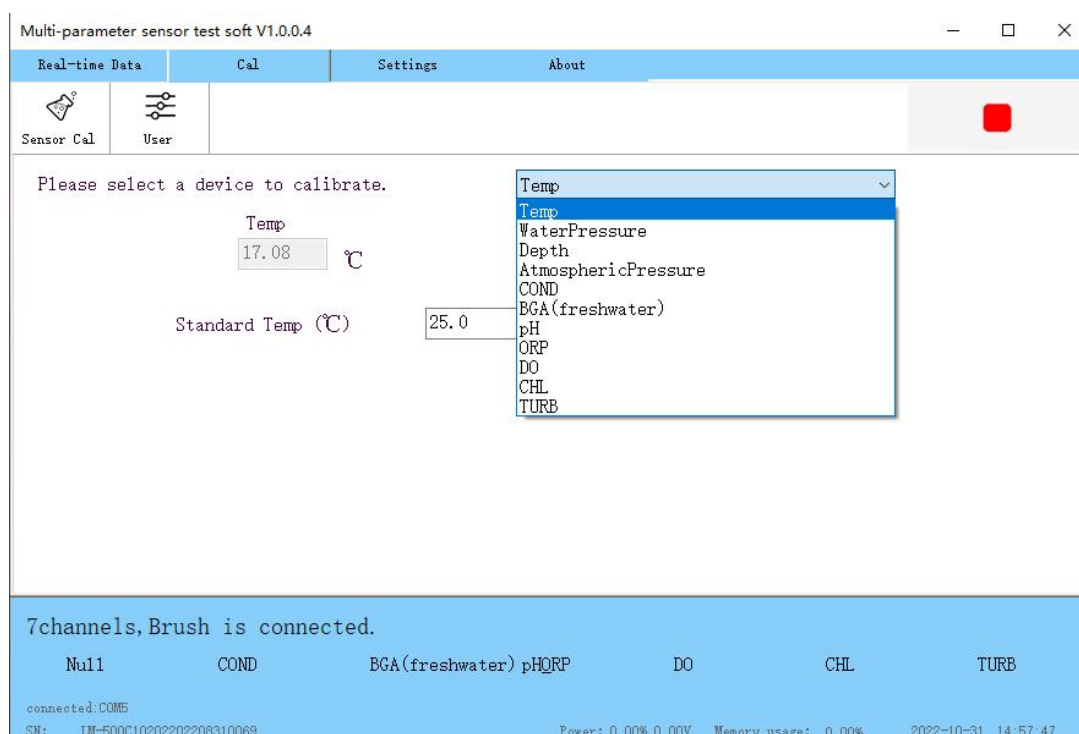
1. Basic Procedure:

- ① Rinse the probe part of the multi-parameter sensor with clean water;
- ② Secondary rinse with a small amount of standard solution to be calibrated;
- ③ Add the standard solution, make sure the solution is at least 1cm past the measuring part of the sensor;
- ④ Connect the sensor to a computer and follow the steps through the software program to complete the calibration;

2. Enter the main interface of “Multisensor” software and click “Calibration” in the menu bar to enter the main interface of calibration..



3. Select the sensor to be calibrated from the drop-down box of calibration parameters in the calibration interface and then complete the calibration according to the corresponding calibration steps of different sensors.



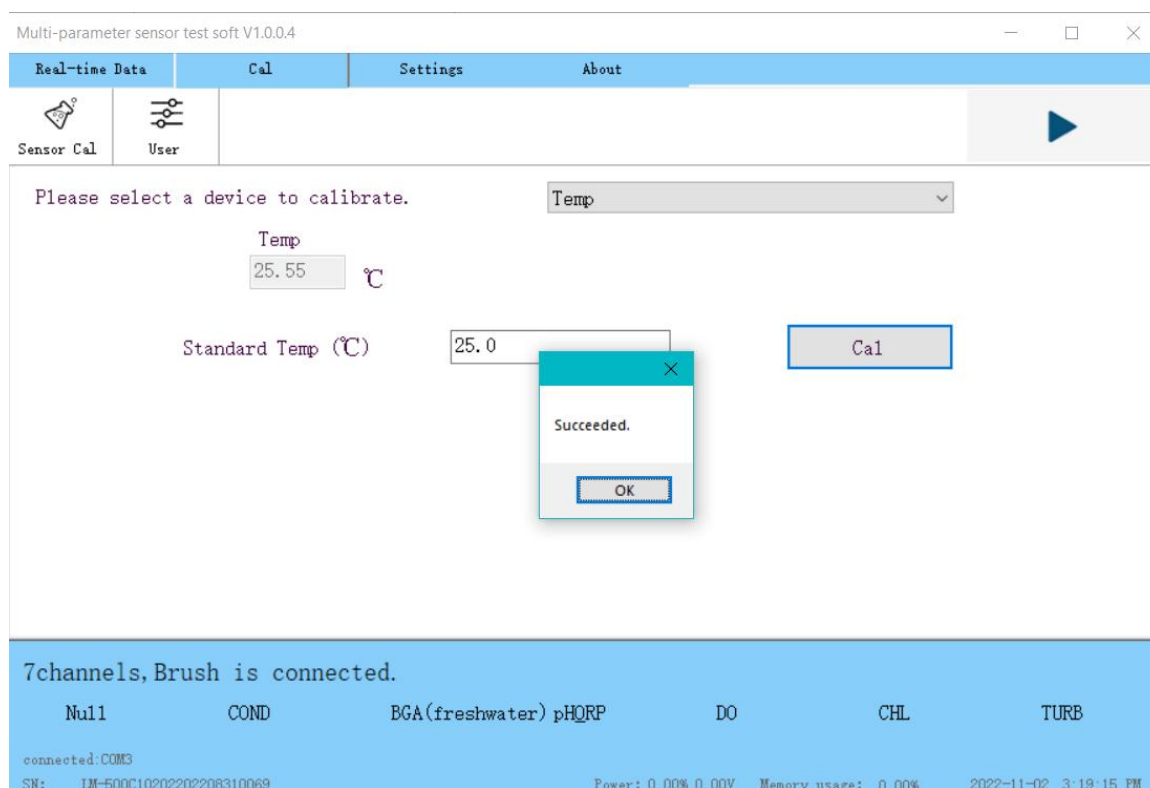
6.2.1 Temperature Calibration

Select "Temperature (Temp)" from the calibration parameter drop-down list box to enter the temperature



calibration interface, as shown below:

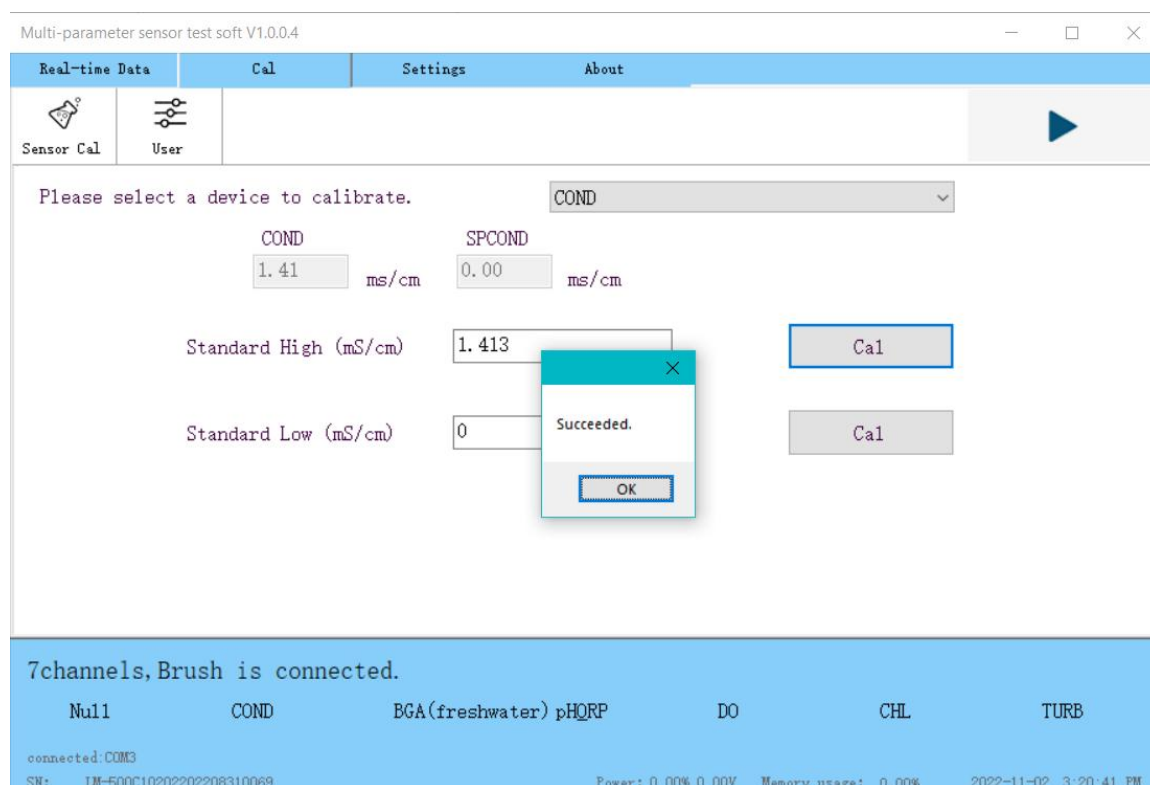
During calibration, enter the temperature value and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful.



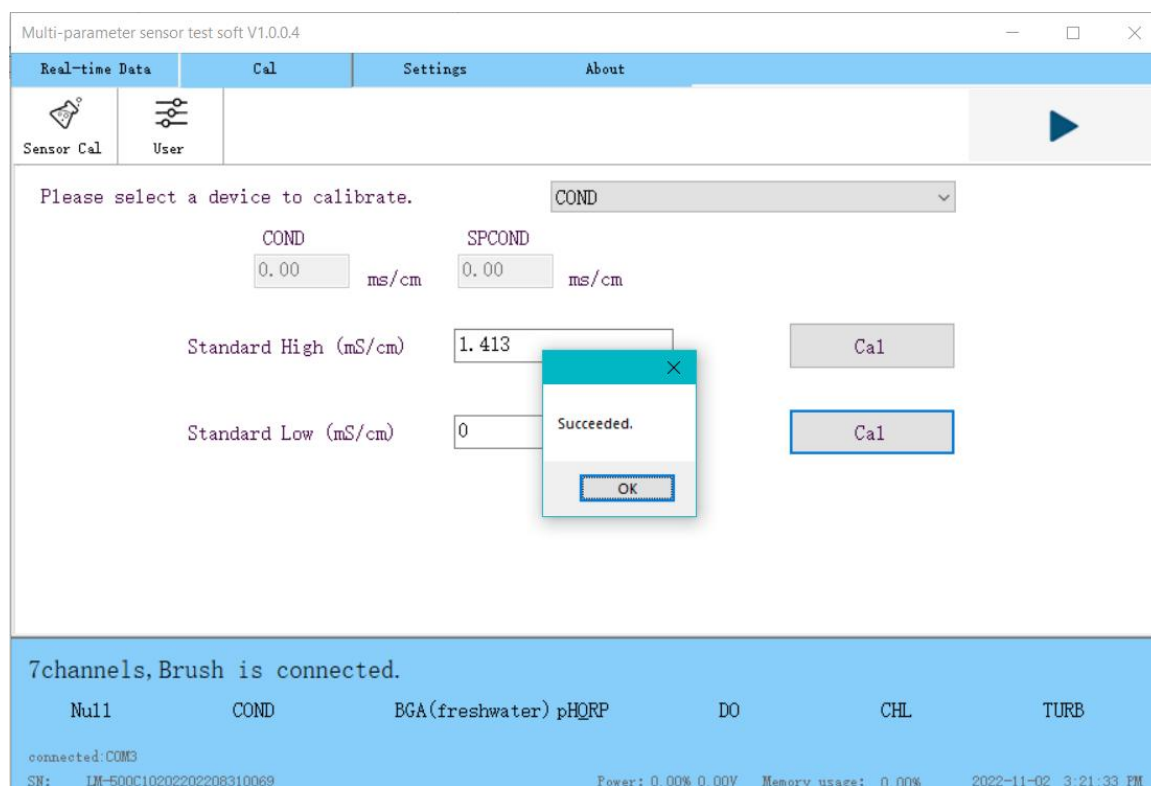
6.2.2 Conductivity Calibration

Select “Electrical conductivity (COND)” from the calibration parameter drop-down list box to enter the electrical conductivity calibration interface, as shown below:

During calibration, enter the value of Standard High and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful.



During calibration, enter the value of Standard Low and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful.



Note: 1. Standard solution (High) and (Low) depend on the situation. The high point of 1.413mS/cm and the low point of 0 mS/cm given in this manual are for reference only;

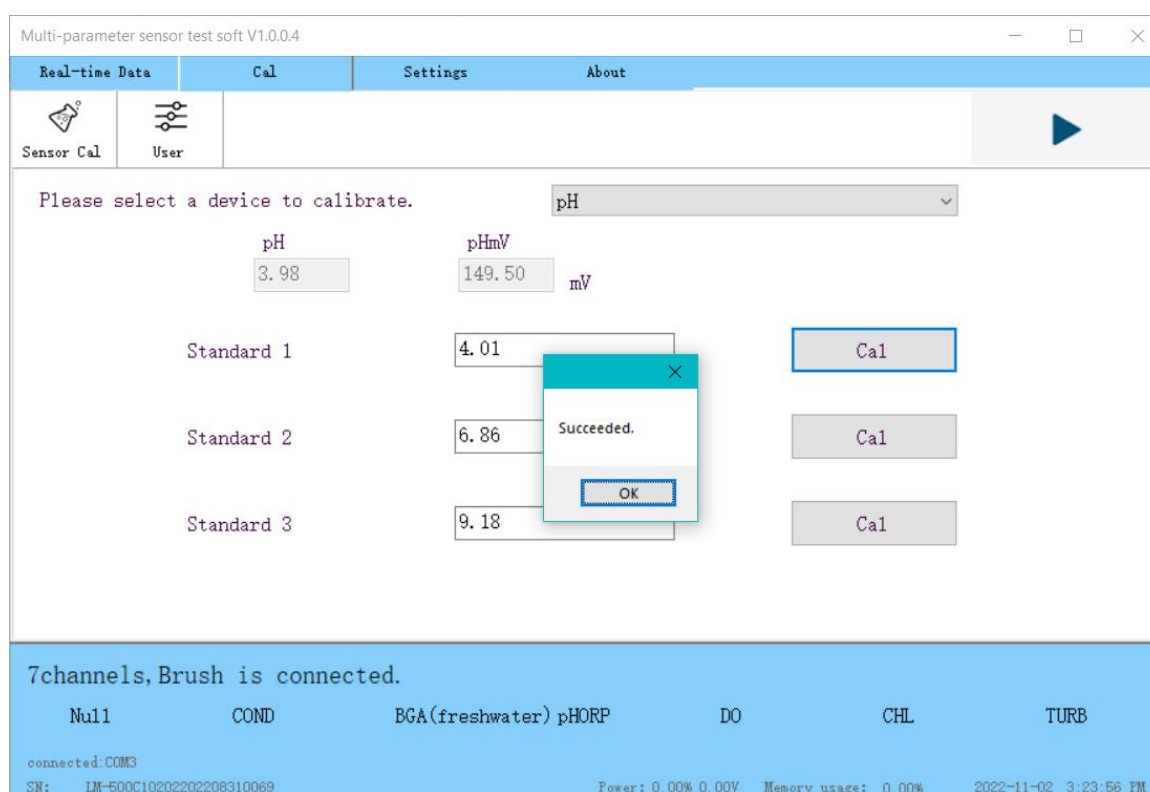


4. Standard solution(High) corresponds to factor calibration, and standard solution (Low) corresponds to offset calibration. User can choose single point calibration or two point calibration according to the actual situation.

6.2.3 pH Calibration

Select “pH” from the calibration parameter drop-down list box to enter the pH calibration interface, as shown below:

1. During calibration, enter the value of Standard 1 and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard 1” in this software is 4.01 acid solution.



2. During calibration, enter the value of Standard 2 and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard 2” in this software is 6.86 neutral solution.



Multi-parameter sensor test soft V1.0.0.4

Real-time Data Cal Settings About

Sensor Cal User

Please select a device to calibrate. pH

pH pHmV
6.98 12.87 mV

Standard 1 4.01 Cal

Standard 2 6.86 Cal

Standard 3 9.18 Cal

Succeeded.
OK

7channels,Brush is connected.

Null COND BGA(freshwater) pHORP DO CHL TURB

connected: COM3
SN: LM-500C10202202208310069 Power: 0.00% 0.00V Memory usage: 0.00% 2022-11-02 3:25:29 PM

3. During calibration, enter the value of Standard 3 and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard 3” in this software is 9.18 alkaline solution.

Multi-parameter sensor test soft V1.0.0.4

Real-time Data Cal Settings About

Sensor Cal User

Please select a device to calibrate. pH

pH pHmV
9.22 -104.75 mV

Standard 1 4.01 Cal

Standard 2 6.86 Cal

Standard 3 9.18 Cal

Succeeded.
OK

7channels,Brush is connected.

Null COND BGA(freshwater) pHORP DO CHL TURB

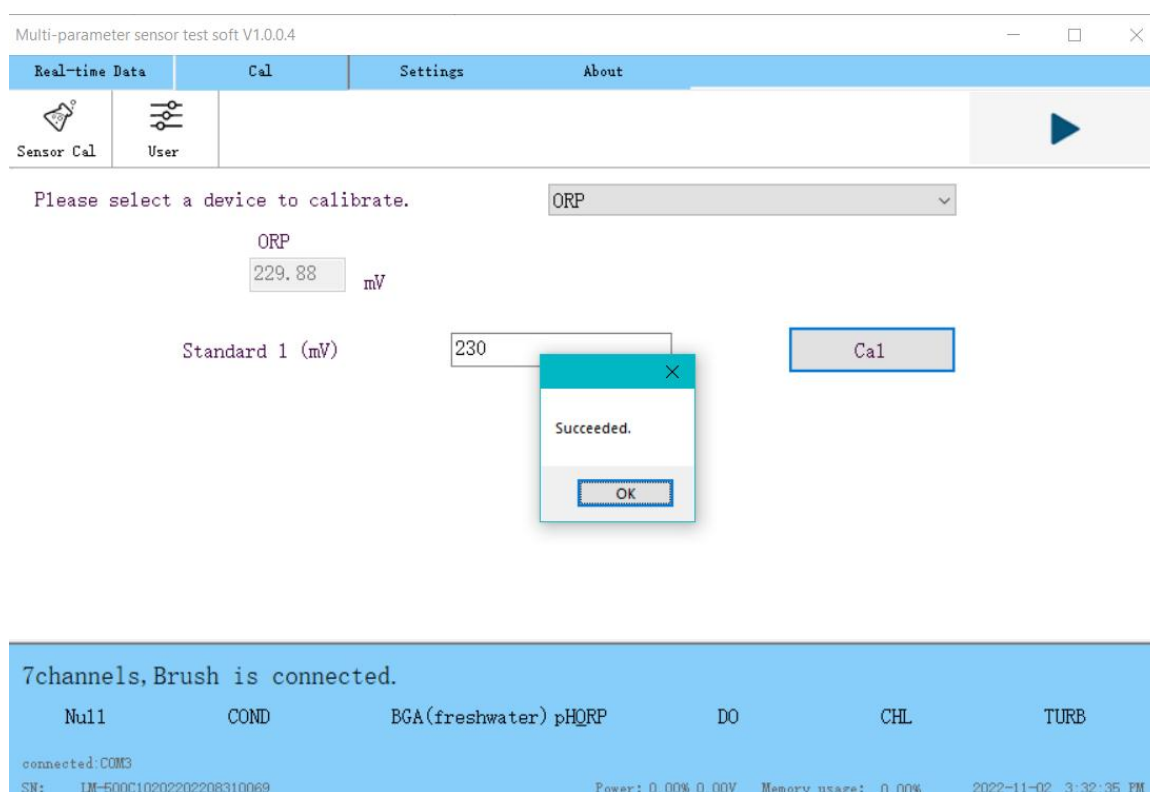
connected: COM3
SN: LM-500C10202202208310069 Power: 0.00% 0.00V Memory usage: 0.00% 2022-11-02 3:27:57 PM



6.2.4 ORP Calibration

Select “ORP” from the calibration parameter drop-down list box to enter the ORP calibration interface, as shown below:

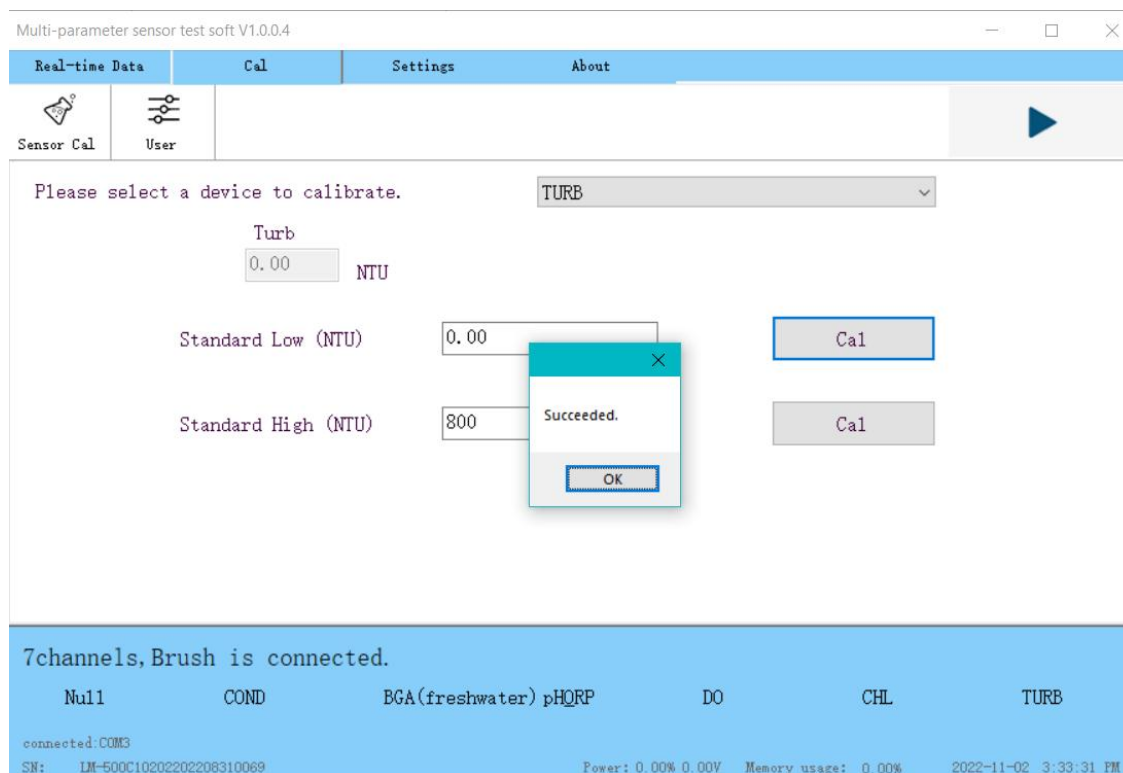
During calibration, enter the value of Standard 1 and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard 1” in this software is 230mV standard solution.



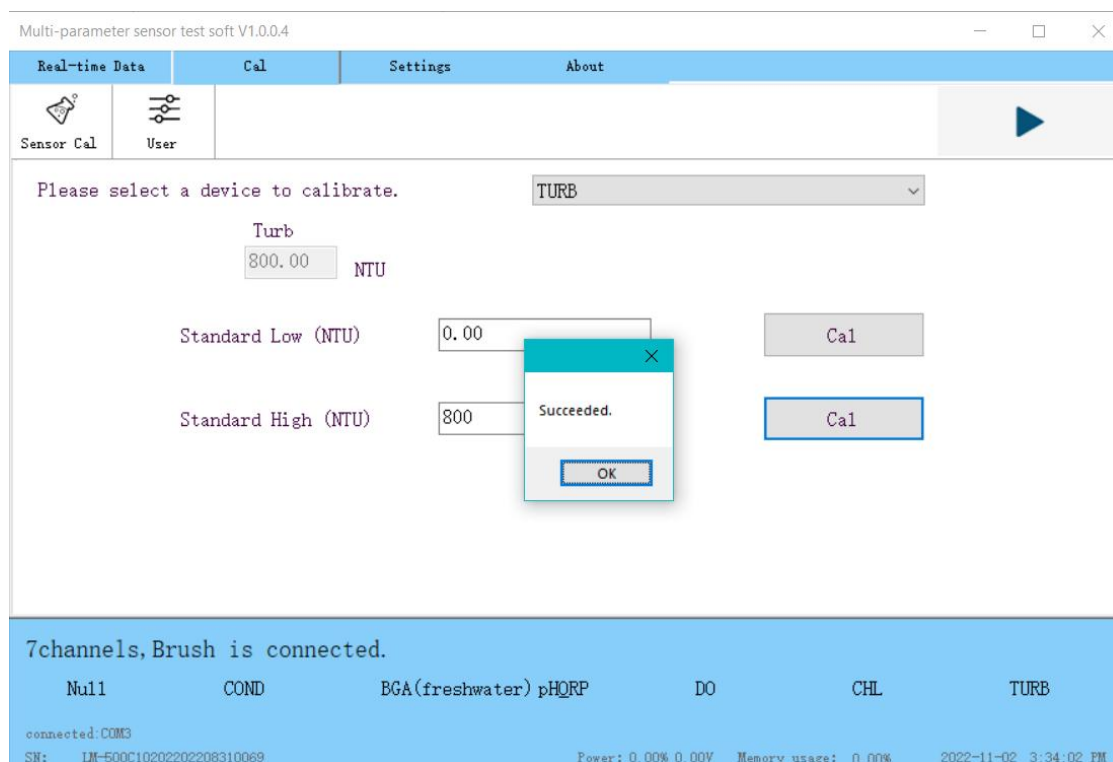
6.2.5 Turbidity Calibration

Select “TURB” from the calibration parameter drop-down list box to enter the turbidity calibration interface, as shown below:

1. During calibration, enter the value of Standard Low and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard Low” in this software is ONTU standard solution.



2. During calibration, enter the value of Standard High and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard High” in this software is 800NTU standard solution.



Note:

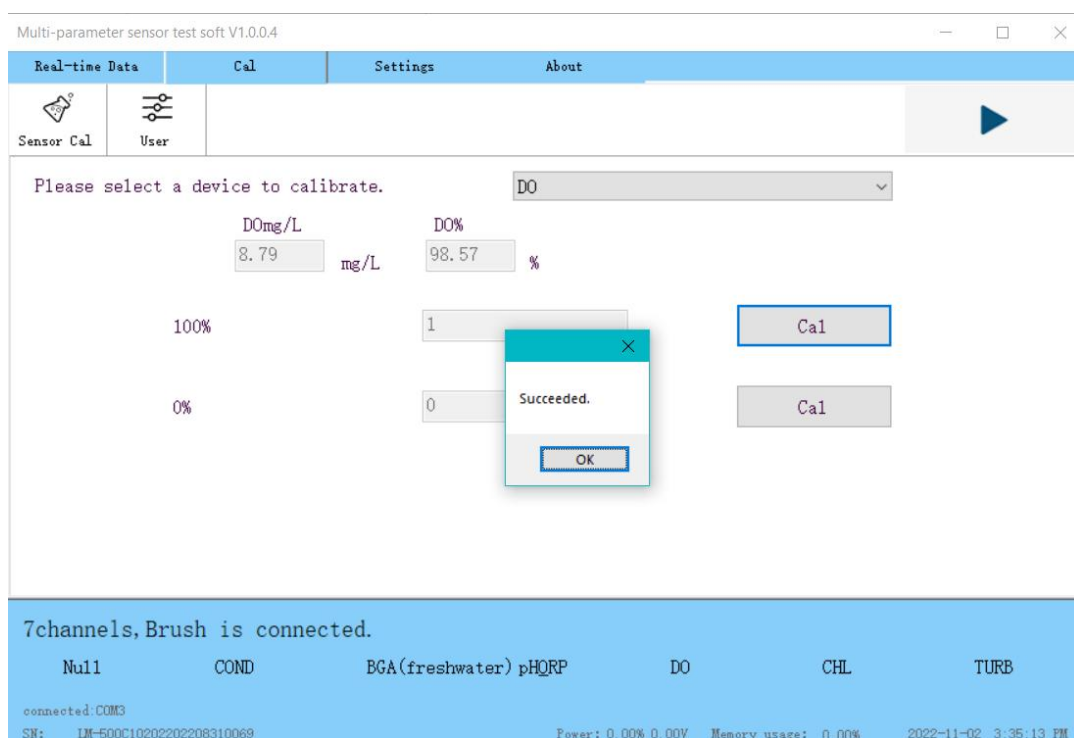


1. Standard solution (High) and (Low) depend on the situation. The high point of 800NTU and the low point of 0NTU given in this manual are for reference only;
2. Standard solution(High) corresponds to factor calibration, and standard solution (Low) corresponds to offset calibration. User can choose single point calibration or two point calibration according to the actual situation.

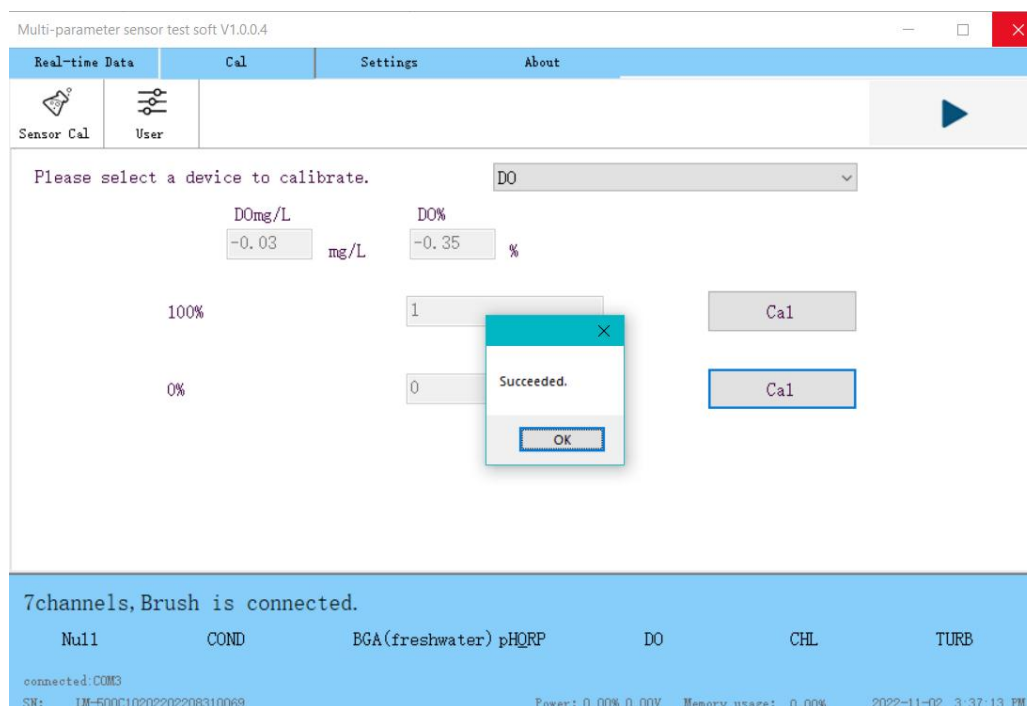
6.2.6 Dissolved Oxygen Calibration

Select “DO” from the calibration parameter drop-down list box to enter the dissolved oxygen interface, as shown below:

During calibration, the sensor is placed in a 100% saturated solution and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful.



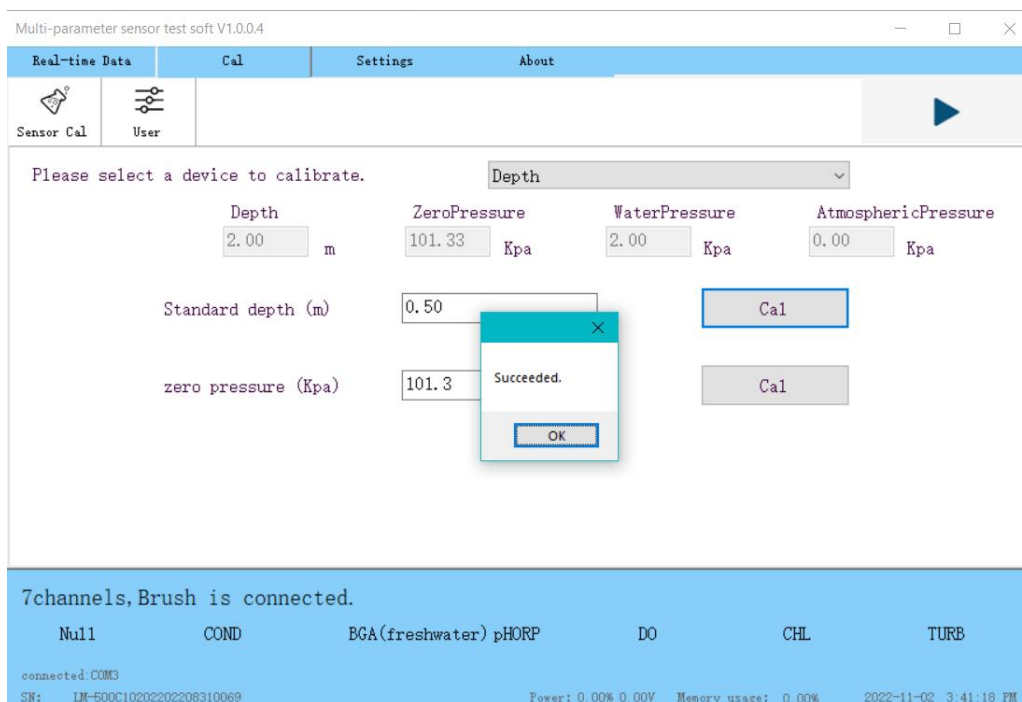
During calibration, the sensor is placed in a zero (0%) solution and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful.



6.2.7 Depth Calibration

Select “Depth” from the calibration parameter drop-down list box to enter the depth interface, as shown below:

During calibration, enter the value of Standard depth or Zero pressure and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful.

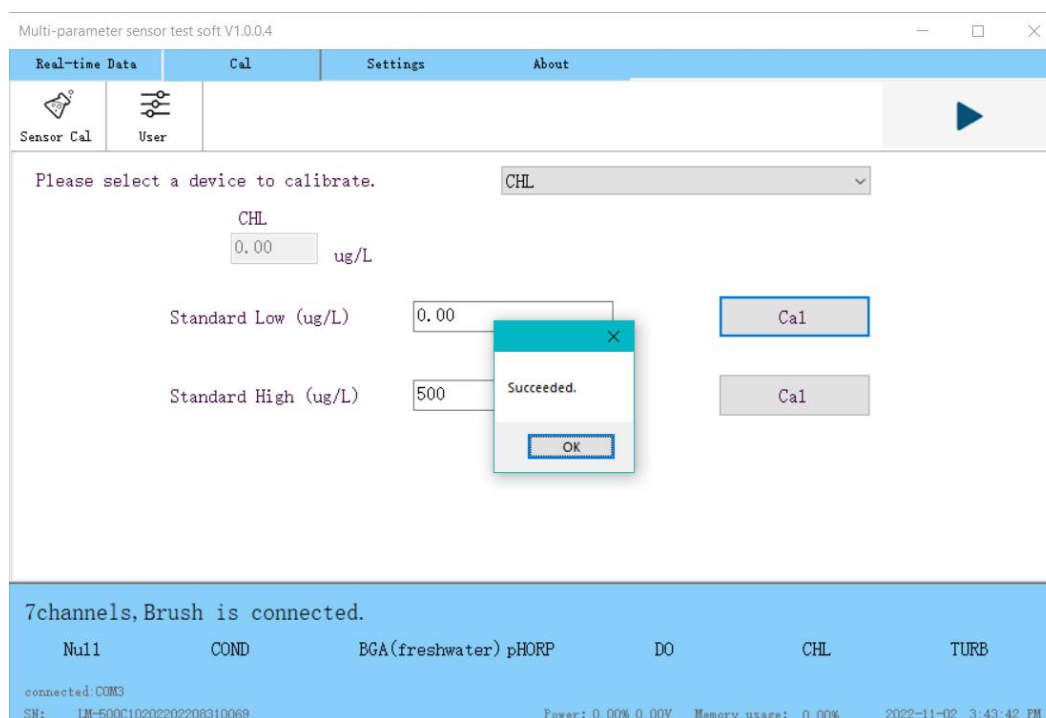




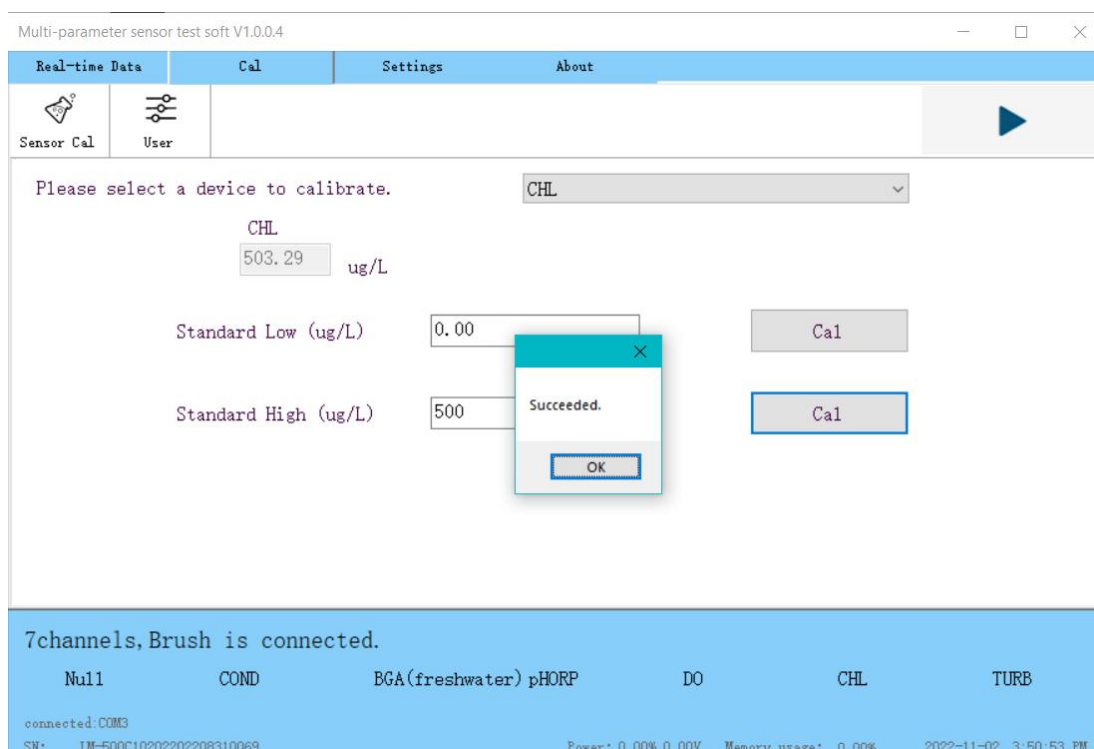
6.2.8 Chlorophyll Calibration

Select “CHL” from the calibration parameter drop-down list box to enter the chlorophyll interface, as shown below:

1. During calibration, enter the value of Standard Low and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard Low” in this software is 0ug/L standard solution.



2. During calibration, enter the value of Standard High and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard High” in this software is 400ug/L standard solution.



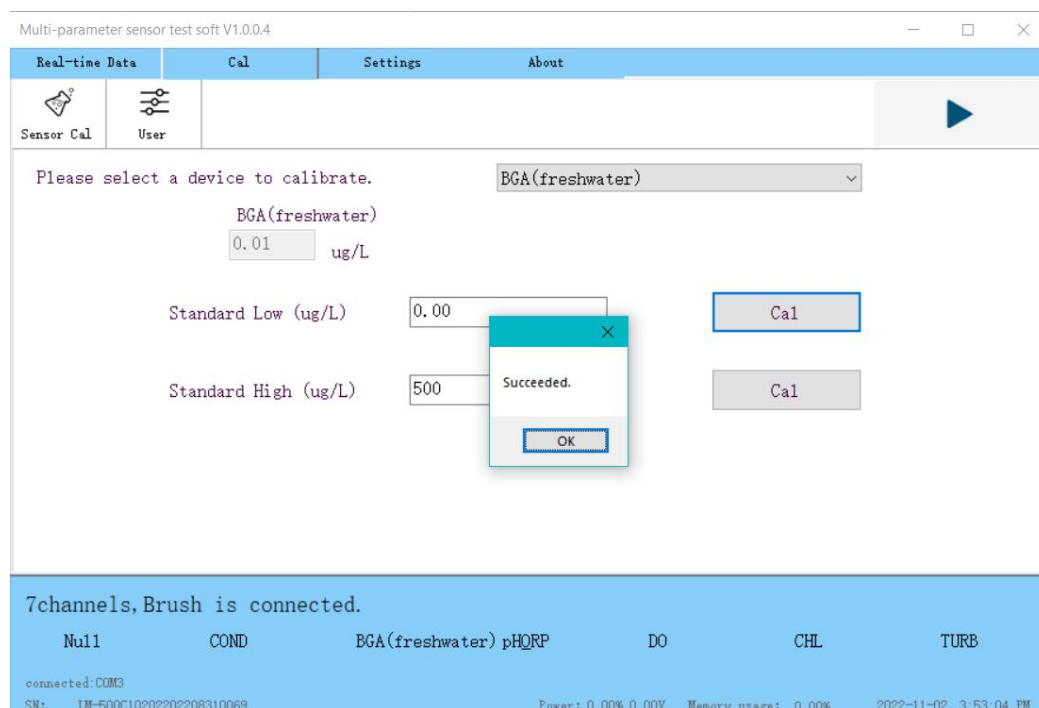
Note:

1. Standard solution (High) and (Low) depend on the situation. The high point of 400ug/L and the low point of 0ug/L given in this manual are for reference only;
2. Standard solution(High) corresponds to factor calibration, and standard solution (Low) corresponds to offset calibration. User can choose single point calibration or two point calibration according to the actual situation.

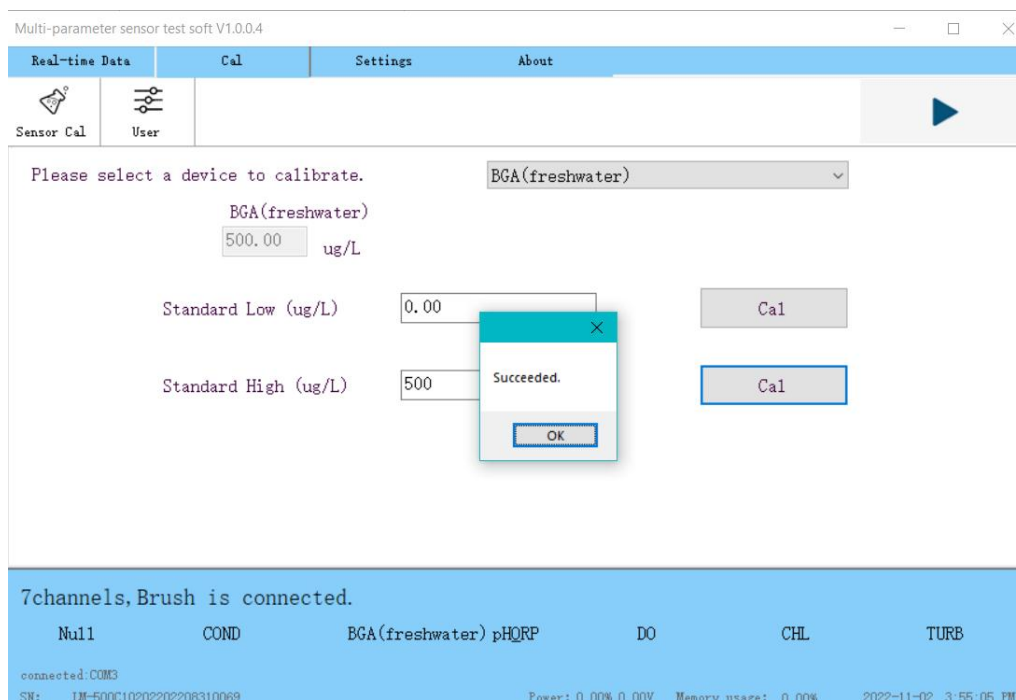
6.2.9 Blue-Green Algae Calibration

Select “BGA” from the calibration parameter drop-down list box to enter the chlorophyll interface, as shown below:

1. During calibration, enter the value of Standard Low and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard Low” in this software is 0ug/L standard solution.



2. During calibration, enter the value of Standard High and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard High” in this software is 100ug/L standard solution.



Note:

1. Standard solution (High) and (Low) depend on the situation. The high point of 100ug/L and the low point of 0ug/L given in this manual are for reference only;

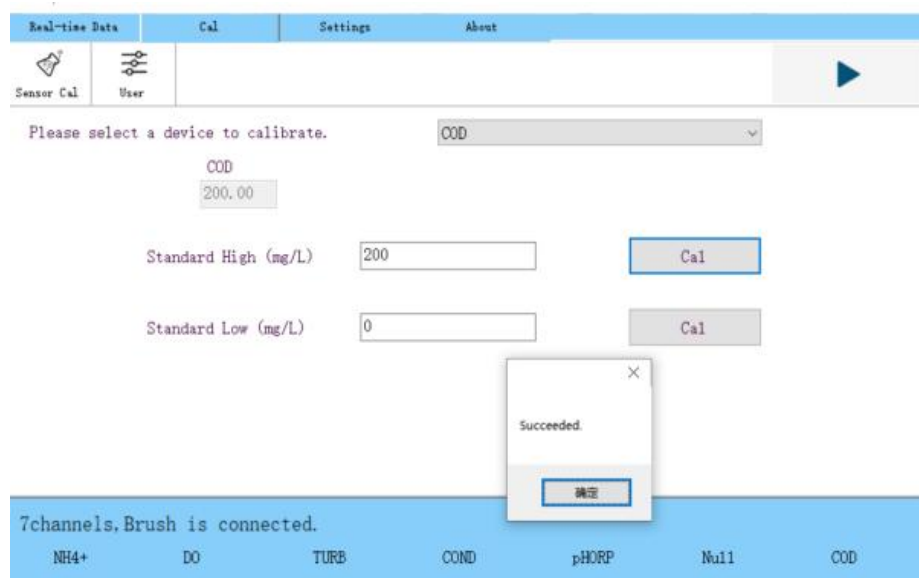


2. Standard solution(High) corresponds to factor calibration, and standard solution (Low) corresponds to offset calibration. User can choose single point calibration or two point calibration according to the actual situation.

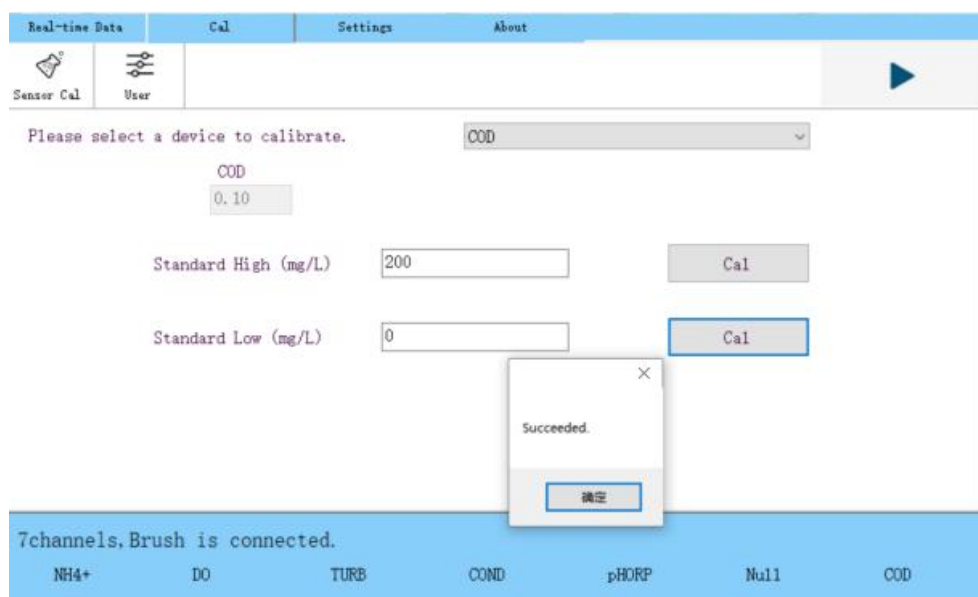
6.2.10 COD Calibration

Select “COD” from the calibration parameter drop-down list box to enter the COD interface, as shown below:

1. During calibration, enter the value of Standard Low and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard Low” in this software is 0mg/L standard solution.



2. During calibration, enter the value of Standard High and click Cal. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard High” in this software is 200mg/L standard solution.



Note:

1. Standard solution (High) and (Low) depend on the situation. The high point of 200mg/L and the low point of 0mg/L given in this manual are for reference only;
2. Standard solution(High) corresponds to factor calibration, and standard solution (Low) corresponds to offset calibration. User can choose single point calibration or two point calibration according to the actual situation.

6.2.11 NH4+ Calibration

Select “NH4+” from the calibration parameter drop-down list box to enter the NH4+ interface, as shown below:

1. During calibration, enter the value of “Standard High” and click “Cal”. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard High” in this software is 100mg/L standard solution.



The screenshot shows the 'Cal' tab of the software. At the top, there are tabs for 'Real-time Data', 'Cal', 'Settings', and 'About'. Below these are icons for 'Sensor Cal' and 'User'. The main area is titled 'Please select a device to calibrate.' with a dropdown menu set to 'NH4+'. Below this, the current reading is '100.00 mg/L'. There are two input fields: 'Standard High' with the value '100' and 'Standard Low' which is empty. Each has a 'Cal' button next to it. A 'Succeeded.' dialog box with a '确定' (Confirm) button is overlaid on the 'Standard Low' field. At the bottom, a status bar shows '7channels, Brush is connected.' and a row of parameter icons: NH4+, DO, TURB, COND, pHORP, Null, and COD.

2. During calibration, enter the value of “Standard Low” and click “Cal”. If the “Succeeded” dialog box is displayed, the calibration is successful. Standard solution concentration can be set by input. The default “Standard Low” in this software is 10mg/L standard solution.

This screenshot is similar to the previous one, but the 'Standard Low' input field now contains the value '10'. The 'Cal' button next to it is highlighted with a blue border. The 'Succeeded.' dialog box with the '确定' (Confirm) button is still present. The status bar at the bottom remains the same, showing '7channels, Brush is connected.' and the parameter icons.

Note:

1. Standard solution (High) and (Low) depend on the situation. The high point of 100mg/L and the low point of 10mg/L given in this manual are for reference only;
2. Standard solution(High) corresponds to factor calibration, and standard solution (Low) corresponds to offset calibration. User can choose single point calibration or two point calibration according to the actual situation.



Appendix I Product List

Sensors	Principle	Range	Accuracy	Resolution	Picture
pH S14-A	Electro chemistry	0.00~14.00	±0.1	0.01	
Turbidity S11-A	Scattered light	0.01~4000NTU;	0~10NTU: ±0.1NTU 10~100NTU: reading value±2% or±0.1NTU take the bigger one 100~4000NTU: reading value±5%	0-10NTU: 0.01NTU; 10-100NTU: 0.1NTU; 100-4000NTU: 1NTU	
Turbidity SL61-A	Scattered light	0~10NTU	±0.1NTU	0.01NTU	
Conductiv ity S16-A	Four electrode conductance cell	0-200mS/cm	0-100 mS/cm: ±0.5%; 100-200 mS/cm: ±1%	1μS/cm-100μS/cm (according to the range)	
NH4+ S200-C	Ion electrode	0~1000mg/L (0~10mg/L, 0~100 mg/L for optional)	±3% standard solution	0.01mg/L	
TSS S20-A	Scattered light	0.01~5000mg/L	0~10mg/L: ±0.1 mg/L 10~100 mg/L: reading value ±2% or ±0.1 mg/L 100~5000 mg/L: reading value±5%	0.01 mg/L	
TSS S20-B	Scattered light	0.1~25000mg/L	0~2500mg/L: reading value ±3% or ±0.001g/L take the bigger 2500~25000 mg/L: reading value±5% or±0.01g/L take the bigger	0.01 mg/L	
Chloroph yll S19-A	fluorescence	0~400ug/L or 0~100RFU	Degree of linearity: R ² >0.999	0.01ug/L	
Blue-gree n algae S21-A	fluorescence	0~100ug/L or 0~100RFU	Degree of linearity: R ² >0.999	0.01ug/L	



COD (self-cleaning) S33-A	Spectral UV absorption	0.1~1000mg/L (equiv. KHP)	$\pm 2\%$ or 0.5 mg/L take the bigger one(equiv. KHP)	0.1mg/L (equiv. KHP)	
COD S33-B	Non-spectral UV absorption	0.1~200mg/L (equiv. KHP)	$\pm 2\%$ or 0.5 mg/L take the bigger one(equiv. KHP)	0.1mg/L (equiv. KHP)	
ORP S15-A	Electro chemistry	-1999~+1999mV	± 20 mV standard solution	0.1mV	
DO S12-A	fluorescence	0-200% saturability 0-20mg/L	$< \pm 3\%$	0.001mg/L-0.01mg/ L (according to the range)	
Salinity S25-A	Four electrode conductance cell	Temp: 0~50℃ EC: 0~200mS/cm; salinity: 0~70ppt; total dissolved solids: 0~100g/L (the value is calculated from the conductivity, the default value is 0.65)	Temp: $\pm 0.2^\circ\text{C}$; conductivity: 0~100 mS/cm, $\pm 1\%$; 100-200 mS/cm, $\pm 2\%$; salinity: $\pm 1\%$	Temp: 0.1°C ; conductivity: 1μS/cm-100μS/cm(according to the rang); Salinity: 0.1ppt	
Residual chlorine S18-A	Electro chemistry	0~2ppm 0~20ppm	0.01	± 0.01 mg/L	
Multi-sen sor S600-C	(Standard): Temp, EC, pH, ORP, Turbidity, DO. Optional: Depth, Chlorophyll, BGA, NH4+, NO3-, K+,TSS, Salinity.	The same with above	The same with above	The same with above	



Multi-sensor S600-M (Mini)	(Standard): Temp, EC, pH, ORP, Turbidity, DO. Optional: Depth, Chlorophyll, BGA, NH4+, NO3-, K+,TSS, Salinity.	The same with above	The same with above	The same with above	
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