

SwellPro

WQMS Multisensor Monitor User Manual



V1.0 –2022.10

Thank You

Thank you for purchasing WQMS Multisensor Monitor. The instrument can display the detection data of the sensor in real time, and can calibrate the sensor to reduce the detection error. In order to familiarize yourself with the instrument, please read the user guide carefully.

Download

Go to the SwellPro website: support.swellpro.com to obtain relevant teaching videos, software and user guide.

Contents

Thank You	2
Download	2
Contents	3
⚠Safety information	4
Product Overview	5
Instrument Diagram	5
Installation	6
Display Interface	7
Interface Description	8
SET	8
Curve	10
Records	12
Warning	13
System setting	14
Insrtuction	15
Calibration	15
pH Sensor	15
Turbidity Sensor	18
Ammonia Nitrogen Sensor	20
Dissolved Oxygen Sensor	22
Conductivity Senor	24
Real-time monitor	25
Appendix	27
Specification	27
Version Information	27

⚠ Safety information



Please read the safety information before using this product.

- Please install and operate in strict accordance with the user guide of the instrument.
- The installation and operation of instruments shall be carried out by specially trained personnel.
- Before the instrument is powered on, please ensure that the power supply is connected correctly, otherwise the instrument will be permanently damaged.
- Please observe the local safe operation and safety rules and regulations.
- Please pay attention to the safety information of all products used together.
- Please use the instrument in the specified environment.

Product Overview

The instrument can be connected with a variety of water quality detection sensors, which can be used to calibrate the sensor, and can also monitor the water quality in real time.

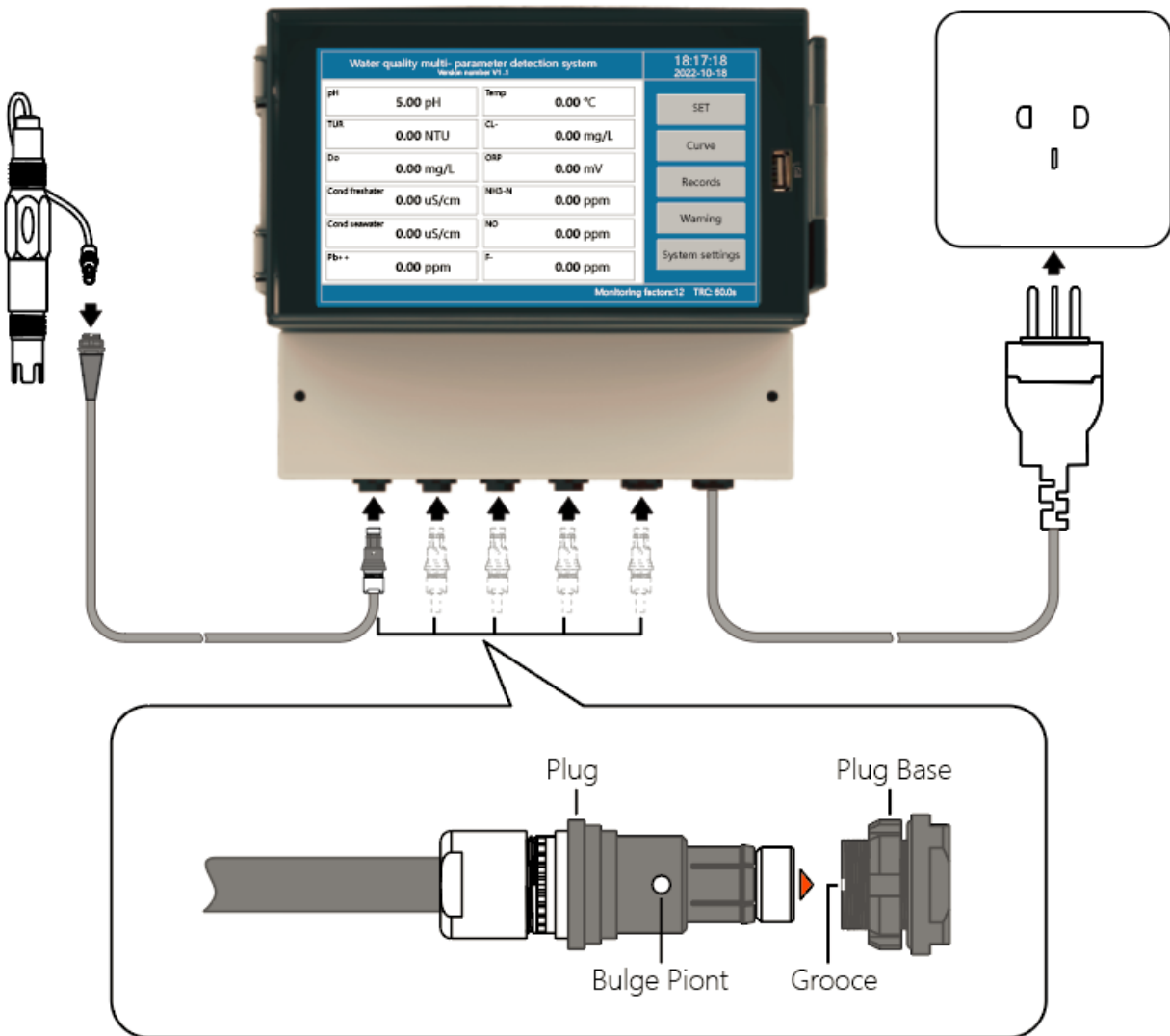
Instrument Diagram



1. Display interface
2. USB connector
3. Power cord

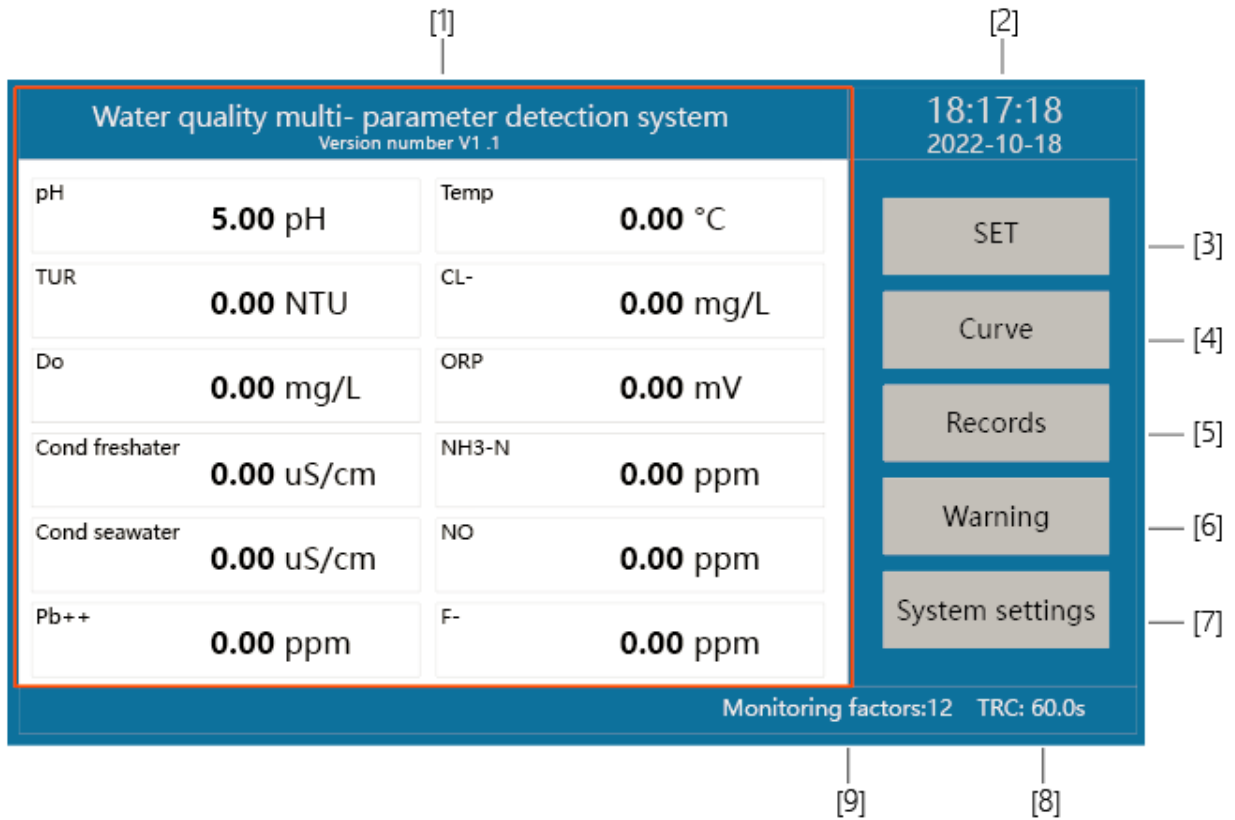
4. Connect to matching sensor(Turbidity, ammonia nitrogen, dissolved oxygen and conductivity sensors)

Installation



- ⚠ Insert waterproof plug into the base(The bulge point and groove need to be aligned)
- ⚠ When removing the sensor, if it is difficult to pull out the waterproof plug of the sensor, push the metal terminal of the waterproof plug forward, and then hold the black part and pull it out.

Display Interface



[1] Detection data: Real time detection data of the sensor.

[2] Date: System date and time

[3] SET: sensor calibration

[4] Curve: display sensor data in the form of curve

[5] Records: View the historical data of the sensor

[6] Warning: system alarm information

[7] System settings: system configuration and function settings

[8] TRC: the time interval for storing data

[9] Monitoring factor: Displays the number of connected sensors.

When " Δ " flashing, it indicates that the sensor is not connected or there is no signal.

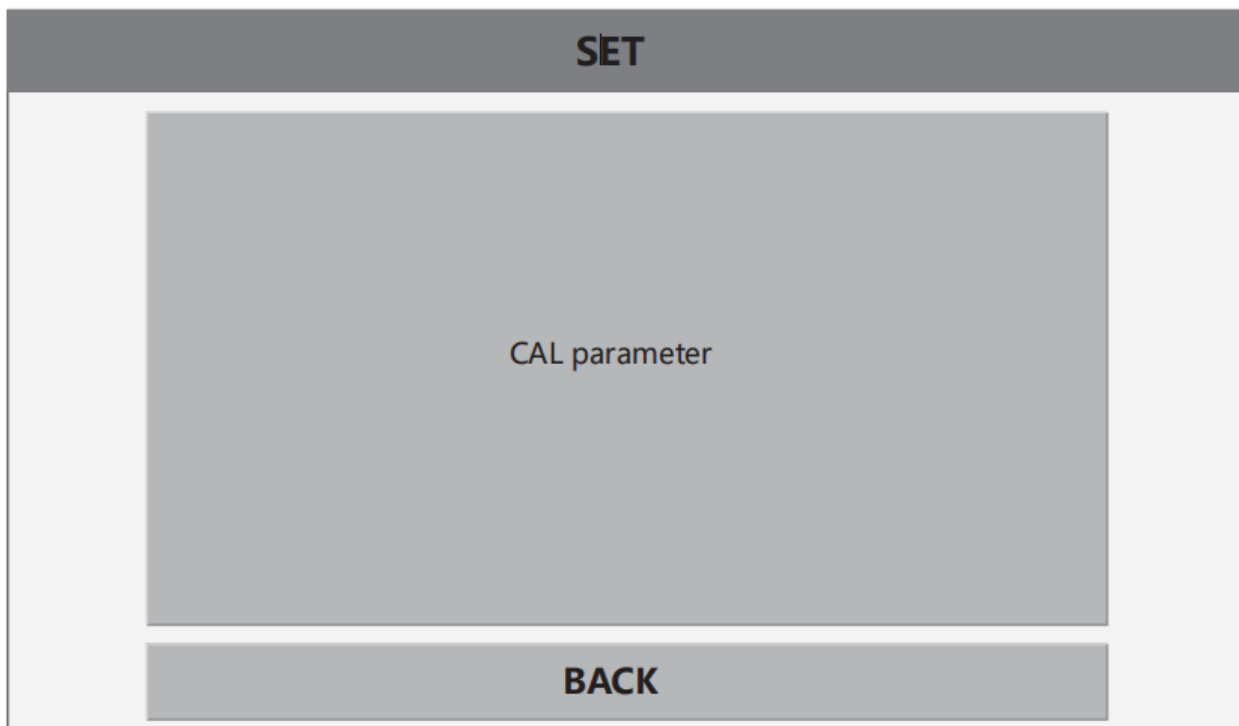
Interface Description

After the instrument is powered on, the system will start automatically. You can view the detection data of the sensor through the interface and use other functions through the touch screen.

⚠ When the system starts, the interface will prompt "Press and hold the screen to enter system configuration". Do not operate. The configuration has been completed at the factory.

SET

Click "SET" to enter the following page for parameter calibration.



CAL parameter: used to calibrate the sensor.

Cal parameters

Click "CAL parameter" to enter the following page:

CAL parameter

pH	Temp
TUR	CL-
Do	ORP
Cond freshater	NH3-N
Cond seawater	NO
Pb++	F-
BACK	

Take the "pH" sensor as an example: Click "pH" to enter the following page.

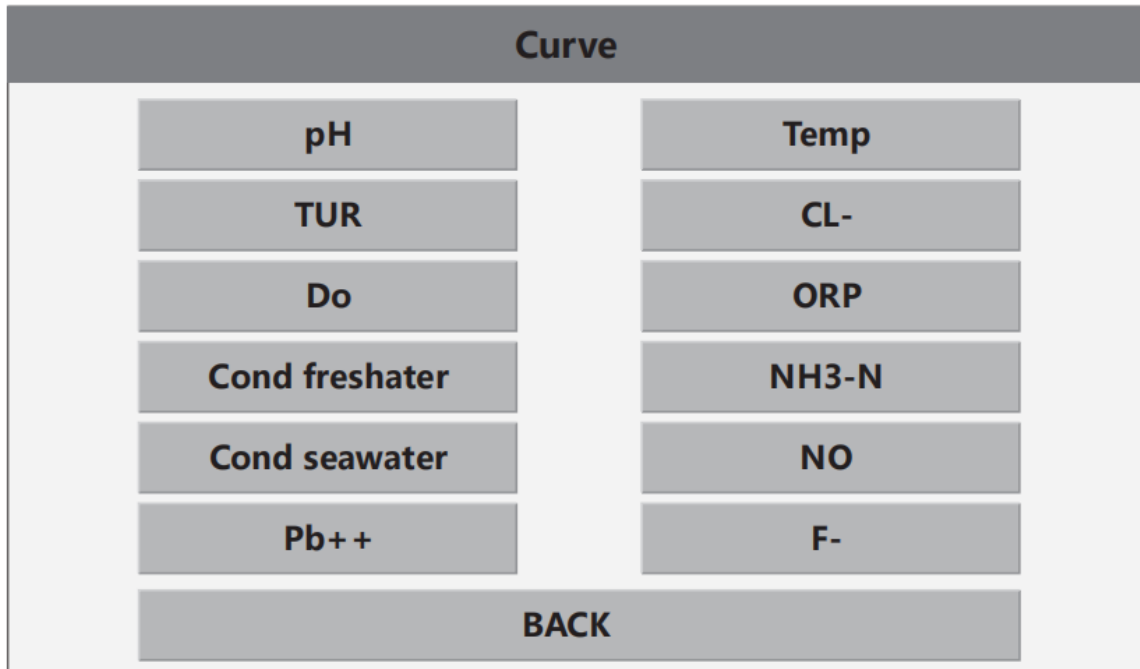
pH freshwater calibration parameter

Up range	<input type="text" value="14.00"/>	ENT	Coefficient	<input type="text" value="1.00"/>	
Down range	<input type="text" value="0.00"/>	ENT	OFFSET	<input type="text" value="0.00"/>	
Signal	<input type="text" value="65287.000"/>	CAL 1	<input type="text" value="6.86"/>	CAL 2	<input type="text" value="4.01"/>
CAL slope	<input type="text" value="100.00"/>	Signal 1	<input type="text" value="6.86"/>	Signal2	<input type="text" value="4.01"/>
CAL display	<input type="text" value="84.00"/>	Point1	ENT	Point2	ENT
Factory geometry values			BACK		

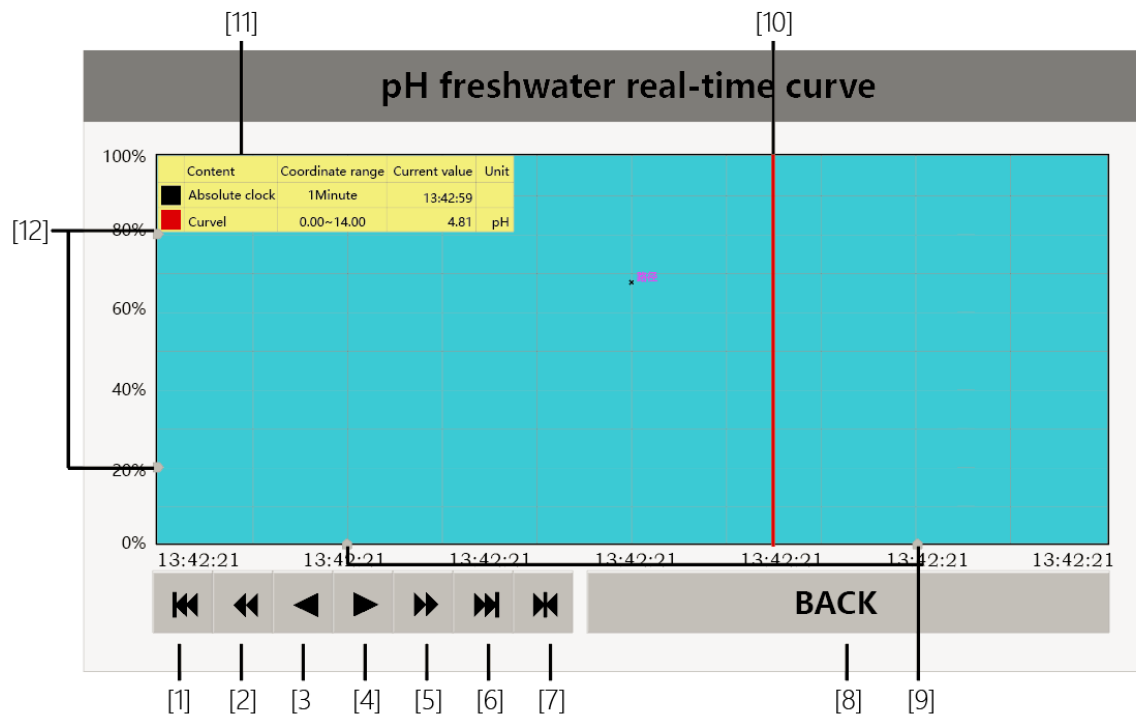
⚠The "Up range", "Down range", "coefficient", "OFFSET" and "Factory geometry values" have been set at the factory, so please do not modify them.

Curve

The curve presents the sensor data in a graphical way to determine whether the data is stable. Click "Curve" to enter the following page:



Take the "pH" sensor as an example: Click "pH" to enter the following page:



[1] Backward 60s

[2] Backward 30 s

[3] Backward 12 s

[4] Forward 12 s

[5] Forward 30 s

[6] Forward 60 s

[7] Set time range

[8] Back button

[9] Y axis data display range

[10] The timeline can be dragged to display the corresponding data

[11] real-time data

[12] X axis data display range

Records

Click "Records" to enter to the following page:

Records

SN	Record time	pH	Temp	TUR	CL-	Do	ORP	Cond
1	2012-01-09 13:43:22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2012-01-09 13:42:22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2012-01-09 13:41:22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2021-04-09 13:40:23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2021-04-09 13:39:23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	2021-04-09 13:38:23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	2021-04-09 13:37:23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	2021-04-09 13:36:23	0.00	0.00	0.00	0.00	0.00	nan	nan

< >

Clear data Update data Recording Export data BACK

Click " Export data" to enter the following page, set the time range for data export, and click "Export data" to export the data to USB (Excel format) .

Export data

Data start time:

Data end time:

Export data

Export data BACK

System setting

Click "System setting" to enter the following page:

System settings

SET English

Storage interval:

Print setup

Print Interval: Print

Time setting

Time setting: SAVE

Communication settings

ID: BAUD: Data bit:

Check bit: Stop bit:

BACK

⚠ The "parameter setting" has been completed in the factory, please do not modify it.

Storage interval: the time interval for storing test data.

Print interval: unavailable.

Time setting: the date and time displayed in the interface.

ID: the output signal of the instrument, which is used to connect external instruments for communication.

Language: Chinese or English language can be switched

Insrtuction

Calibration

The sensor has been calibrated before delivery and can be used directly.

- ⚠ It is recommended to calibrate the sensor on or before the day of use.
- ⚠ Calibrate sensor every 30days.
- ⚠ It is recommended to purchase the third party's standard solution for calibration.

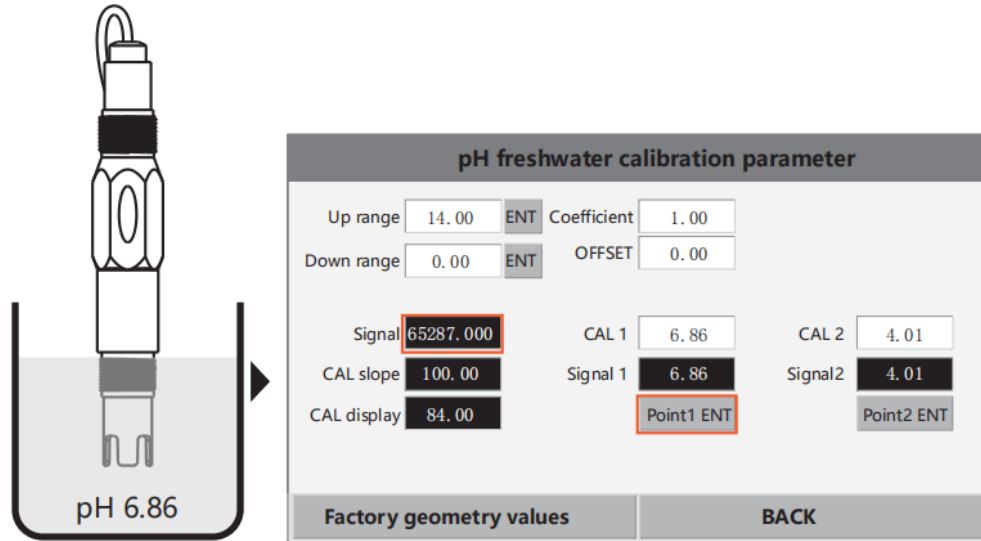
pH Sensor

Preparation: deionized water, pH6.86 and pH4.01 standard solution.

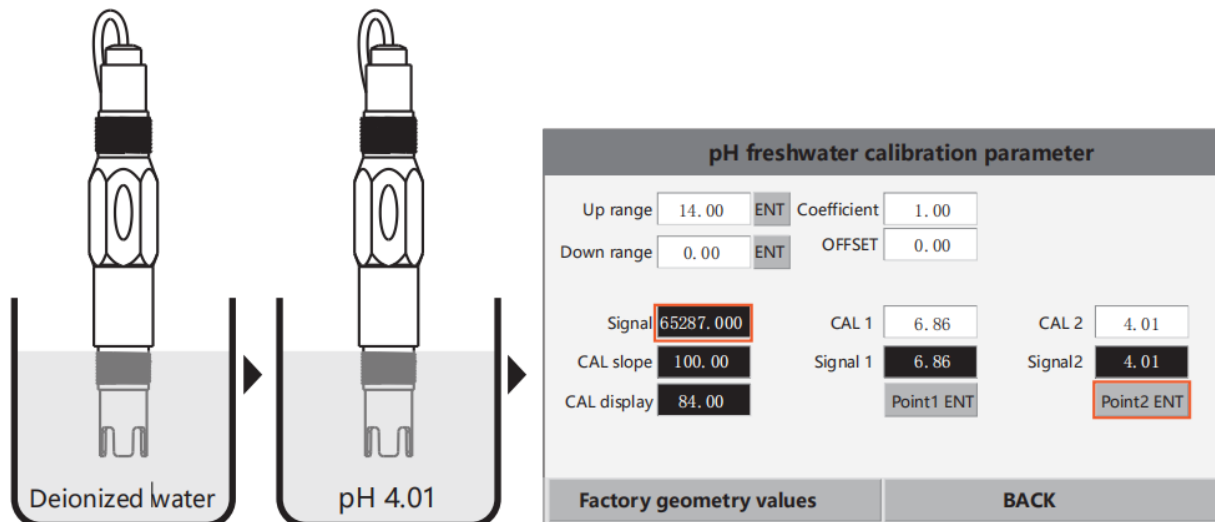
1. Connect the instrument and PH sensor, and then power on the instrument. Click "SET" - "Cal Parameters" - "pH" to enter pH sensor calibration page. As shown below:



2. Put the connected and energized pH sensor in pH6.86 standard solution for about 2 minutes, observe the value in the "real-time signal" on the page, and click the "Point1" button to confirm after the value is stable (value range change is less than ± 0.02). As shown below:



3. Put the pH sensor into deionized water for cleaning, and dry it with clean tissue. Then put the pH sensor into pH4.01 standard solution for about 2 minutes. Observe the value in the "Real time signal" on the display page, and click the "Point2" button to complete the calibration after the value is stable (value range change is less than ± 0.02). As shown below:



4. Put the pH sensor into deionized water for cleaning, and then dry it with tissue, and then put it into 3 mmol/l potassium chloride solution for storage.

Turbidity Sensor

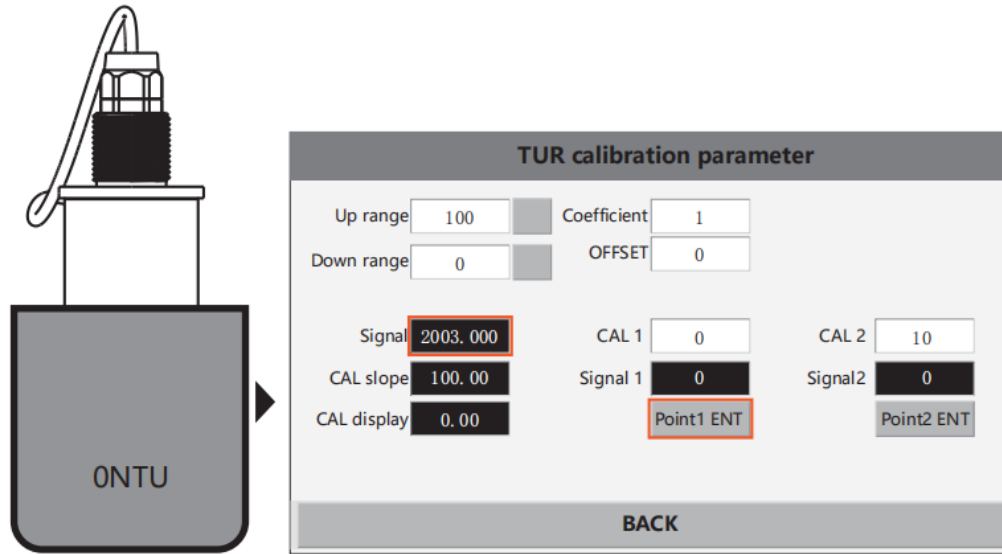
Preparation: deionized water, 0NTU and 10NTU standard solution.

⚠ Turbidity sensor is an optical sensor. Please use a light proof container during calibration.

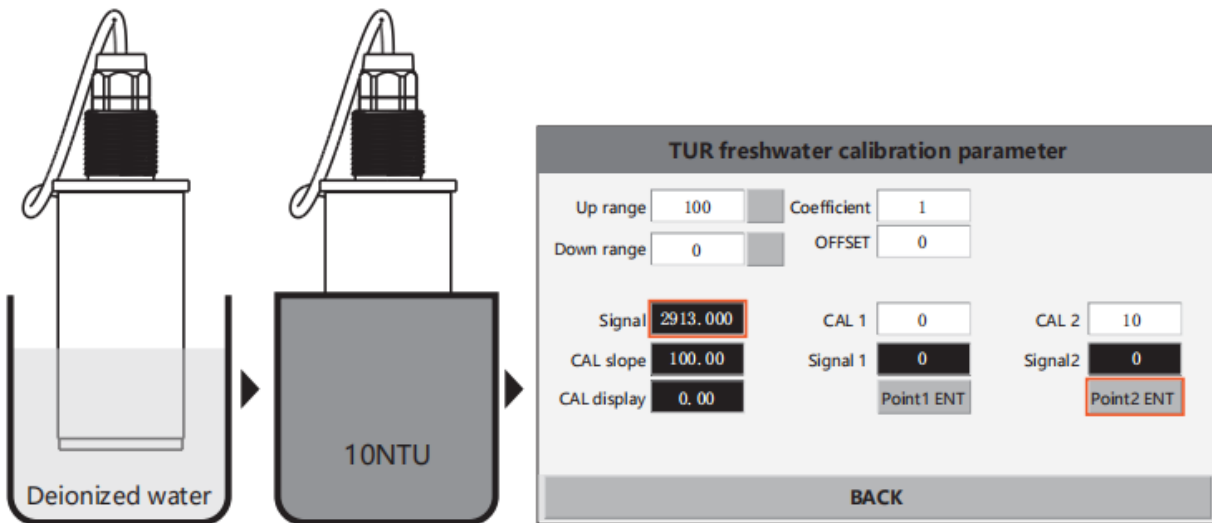
1. Connect the instrument and turbidity sensor, and then power on the instrument. Click "SET" - "Cal Parameters" - "TUR" to enter turbidity sensor calibration page. As shown below:



2. Put the connected and energized turbidity sensor in 0NTU standard solution for about 5 minutes, observe the value in the "real-time signal" on the page, and click the "Point1" button to confirm after the value is stable (value range change is within $\pm 5\%$). As shown below:



3. Put the turbidity sensor into deionized water for cleaning, and dry it with clean tissue. Then put the turbidity sensor into 10NTU standard solution for about 5 minutes. Observe the value in the "Real time signal" on the display page, and click the "Piont2" button to complete the calibration after the value is stable (value range change is within $\pm 5\%$). As shown below:



4. Put the turbidity sensor into deionized water for cleaning, and then dry it with tissue, and then store it.

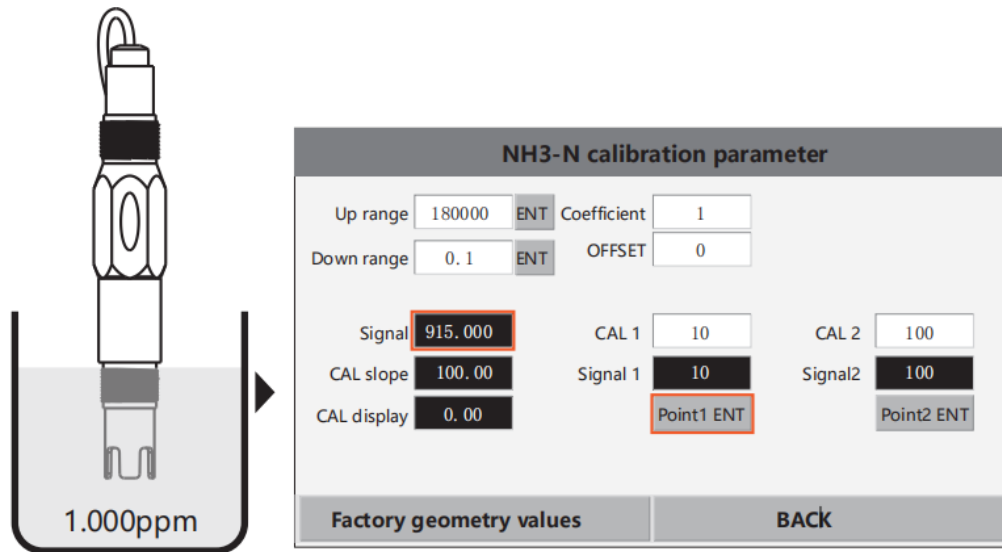
Ammonia Nitrogen Sensor

Preparation: deionized water, 1.000ppm and 10.000ppm standard solution.

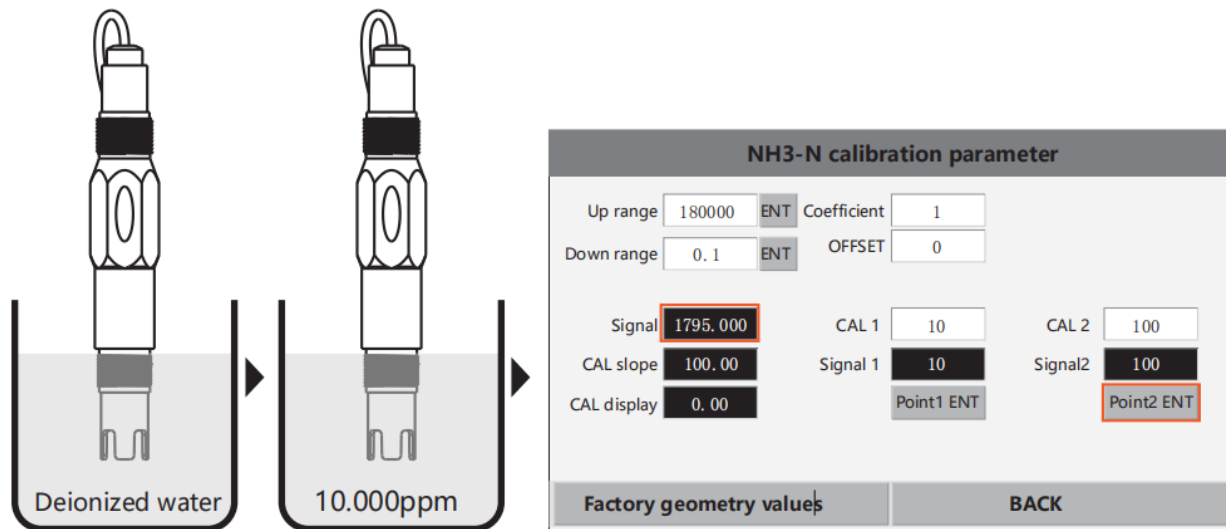
1. Connect the instrument and ammonia nitrogen sensor, and then power on the instrument. Click "SET" - "Cal Parameters" - "NH₃-N" to enter ammonia nitrogen sensor calibration page. As shown below:



2. Put the connected and energized ammonia nitrogen sensor in 1.000ppm standard solution for about 3 minutes, observe the value in the "real-time signal" on the page, and click the "Point1" button to confirm after the value is stable (value range change is less than ± 0.03). As shown below:



3. Put the ammonia nitrogen sensor into deionized water for cleaning, and dry it with clean tissue. Then put the ammonia nitrogen sensor into 10.000ppm standard solution for about 3 minutes. Observe the value in the "Real time signal" on the display page, and click the "Point2" button to complete the calibration after the value is stable (value range change is less than ± 0.03). As shown below:



4. Put the ammonia nitrogen sensor into deionized water for cleaning, and then dry it with tissue, and then store it.

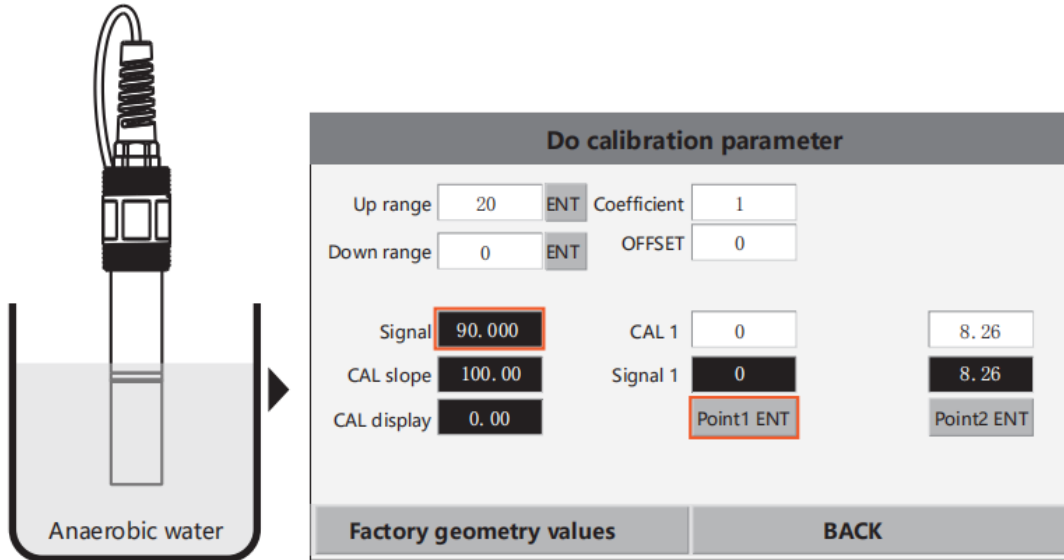
Dissolved Oxygen Sensor

Preparation: deionized water, anaerobic water, saturated air.

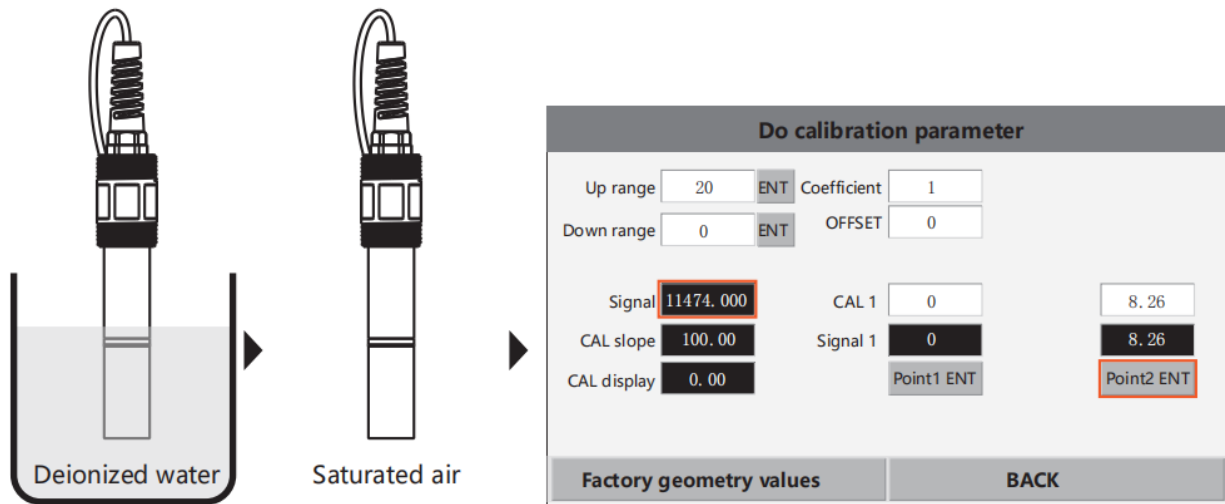
1. Connect the instrument and dissolved oxygen sensor, and then power on the instrument. Click "SET" - "Cal Parameters" - "Do" to enter dissolved oxygen sensor calibration page. As shown below:



2. Put the connected and energized dissolved oxygen sensor in anaerobic water for about 3 minutes, observe the value in the "real-time signal" on the page, and click the "Point1" button to confirm after the value is stable (value range change is less than ± 0.01). As shown below:



3. Put the dissolved oxygen sensor into deionized water for cleaning, and dry it with clean tissue. Then put the dissolved oxygen sensor into saturated air for about 3 minutes. Observe the value in the "Real time signal" on the display page, and click the "Piont2" button to complete the calibration after the value is stable (value range change is less than ± 0.1). As shown below:



4. Put the dissolved oxygen sensor into deionized water for cleaning, and then dry it with tissue, and then store it.

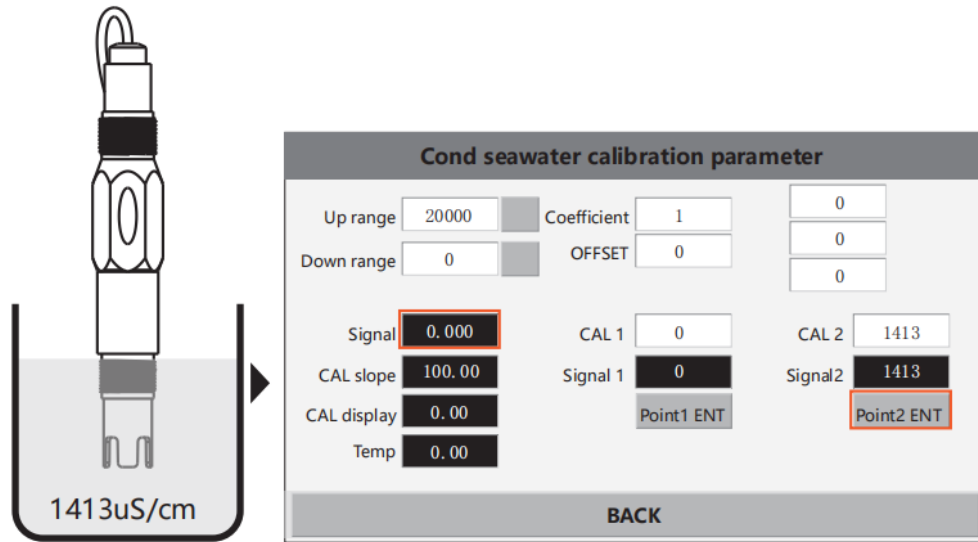
Conductivity Sensor

Preparation: 1413uS/cm (0.0100mol/L potassium chloride solution)

1. Connect the instrument and conductivity sensor, and then power on the instrument. Click "SET" - "Cal Parameters" - "Cond" to enter conductivity sensor calibration page. As shown below:



2. Put the connected and energized conductivity sensor in 0.0100mol/L potassium chloride solution for about 3 minutes, observe the value in the "real-time signal" on the page, and click the "Point2" button to confirm after the value is stable (value range change is less than ± 5). As shown below:



3. Put the conductivity sensor into deionized water for cleaning, and then dry it with tissue , and then store it.

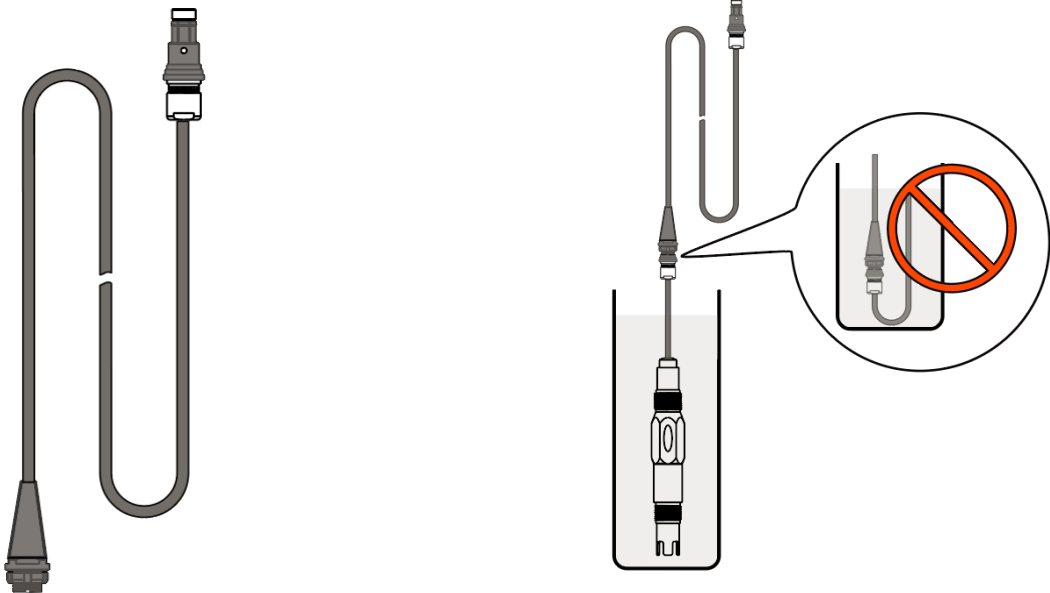
Real-time monitor

Sensor extension line: it can expand the use range of the sensor and facilitate long-term real-time monitoring of data

Connection method:



Extension line needs to be purchased separately



⚠ Do not immerse the plug in water for along time.

Appendix

Specification

Volume	235*210*120mm
Weight	about1400 gram
Display screen	7-inch touch screen
Connector	5
Input	100 – 240V, 50/60Hz
Supported sensors	pH, TUR, Do, Cond freshater, Cond seawater, Pb++, Temp, CL-, ORP, NH3-N, NO, F-

Version Information

SwellPro products are constantly improving, so as the product user manuals. It is recommended to visit support.swellpro.com to check and download the latest user manual.

1.0 WQMS Multisensor Monitor User Guide 1.0 Edition