# Online Universal Controller

# User Manual


Before using the instrument, please read this User Manual carefully and keep it properly for future reference.

V25.1.1

# Table of Contents

# 1 Instrument Overview

Thank you for choosing our online universal controller. We are dedicated to providing you with the highest quality service and support. Before using this instrument, please read the User Manual carefully to ensure proper use and maintenance. Our company is committed to continuously improving and developing our products, regularly upgrading our technology. The information in this manual may subject to change without prior notice.

Note: The company reserves all rights to interpret the information in this manual.

This smart online controller is widely used for water quality monitoring in diverse applications and processes. It is commonly found in sewage treatment plants, waterworks, water stations, and groundwater monitoring sites, as well as in industries such as electronics, electroplating, textile printing and dyeing, chemicals, food processing, and pharmaceuticals. It features a digital, modular design, with various functions handled by specialized modules. Designed with built-in recognition for over twenty types of sensors, it allows flexible combinations and offers strong expansion capabilities.

This instrument is manufactured in strict compliance with ISO 9001:2015 quality management standards and undergoes thorough testing and calibration to ensure it meets all specifications outlined in the manual.

# 2 Technical Specifications

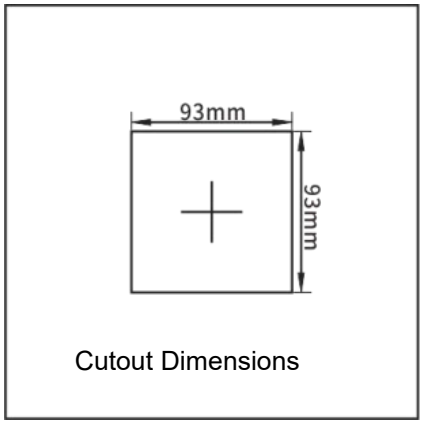
| | |
|---|---|
| **Display** | 78*78mm CTP ultra-clear touchscreen |
| **Operating Voltage** | AC 90-220V, 50/60Hz<br>DC 12V-36V |
| **Dimensions** | 100*100*150mm |
| **Cutout Dimensions** | 93*93mm |
| **Installation Method** | Panel-mounted or wall-mounted |
| **Weight** | 0.56Kg |
| **Waterproof Rating** | IP65 |
| **Number of Sensors** | Supports up to 4 sensors simultaneously |
| **Language** | Chinese/English (customizable) |
| **Power Consumption** | <5W |
| **Current Output** | 2 channels, 4–20mA |
| **RS485 Output** | Single output, supports Modbus-RTU/JSON protocols |
| **Relay Output** | 2 normally open channels (10A 250VAC); one can be configured as a timer relay |
| **Data Storage** | Stores up to 100,000 records by default (customizable) |
| **Operating Environment** | Temperature: 0-60℃, Humidity: ≤90% RH |

# 3 Instrument Installation

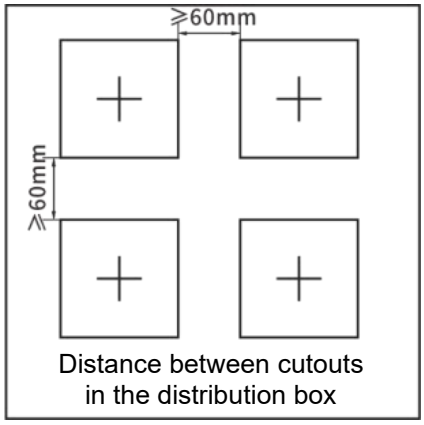
Install the instrument in a clean, dry, well-ventilated area that is free from vibration and corrosive gases.

## 3.1 Panel Mounting

### 3.1.1 Assembly Cutout Dimensions

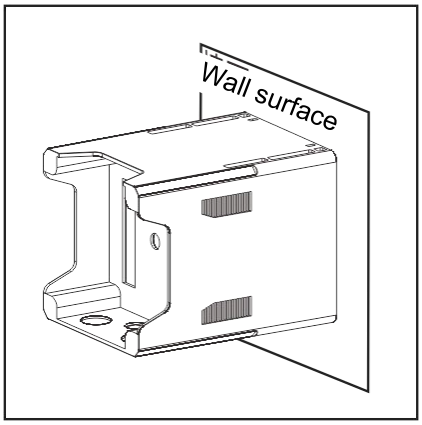



Cutout Dimensions

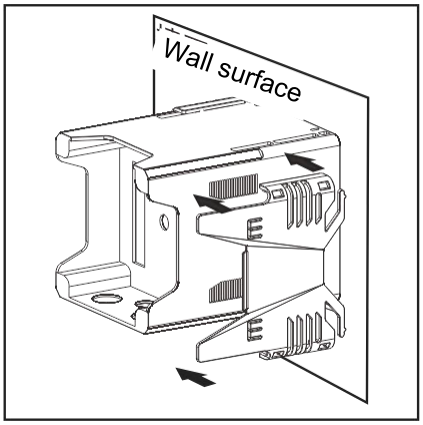



Distance between cutouts in the distribution box

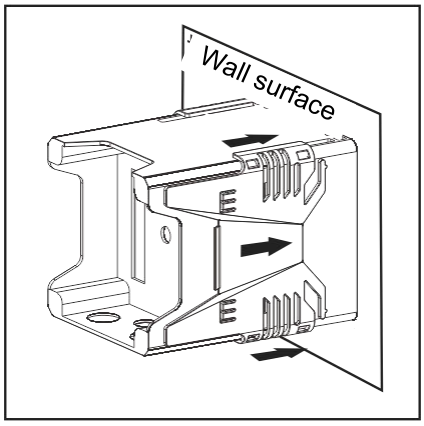
### 3.1.2 Assembly Steps



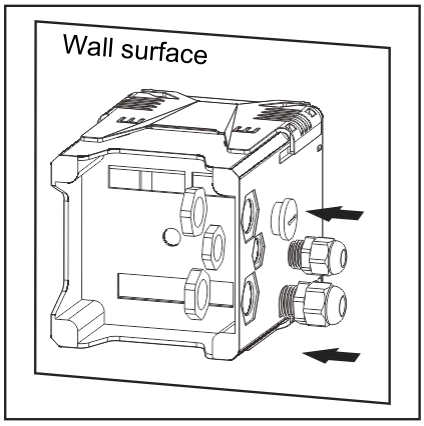

Step 1



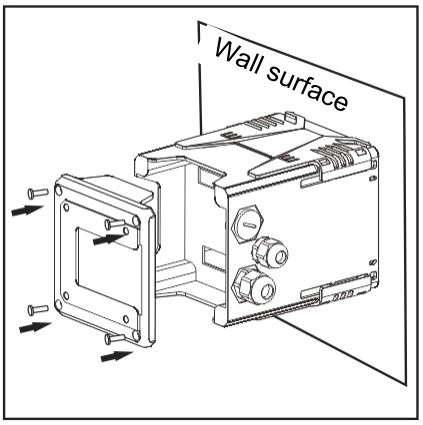

Step 2



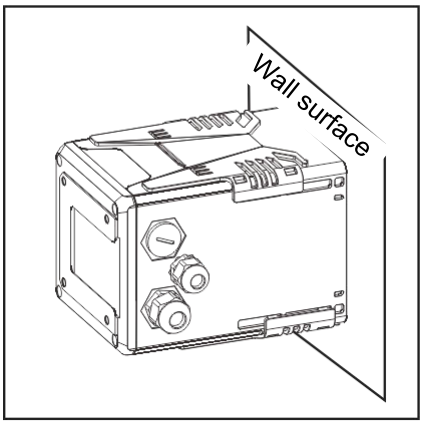

Step 3




Step 4

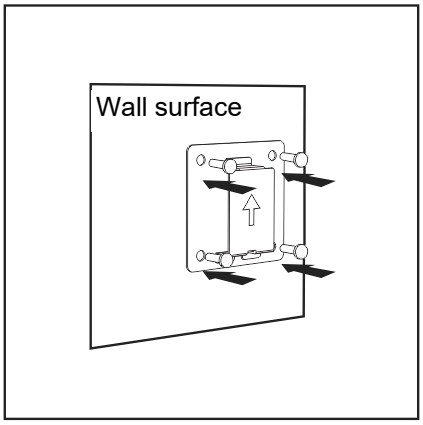


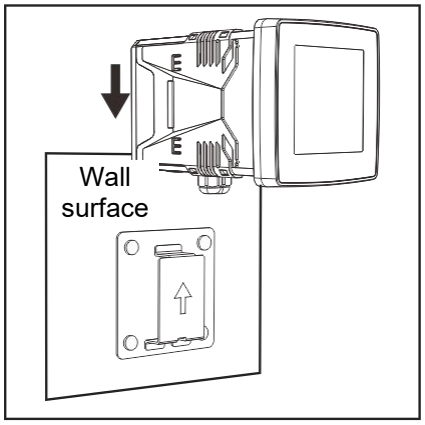

Step 5




Step 6

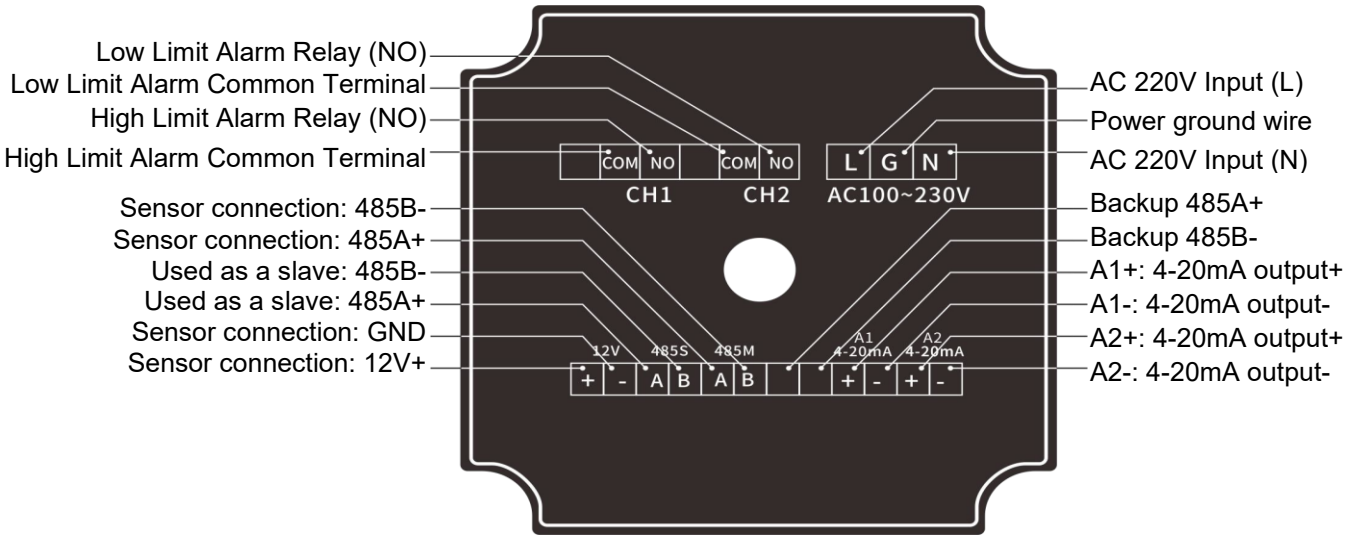
## 3.2 Wall Mounting



## 3.3 Wiring Instructions

### 220V Wiring

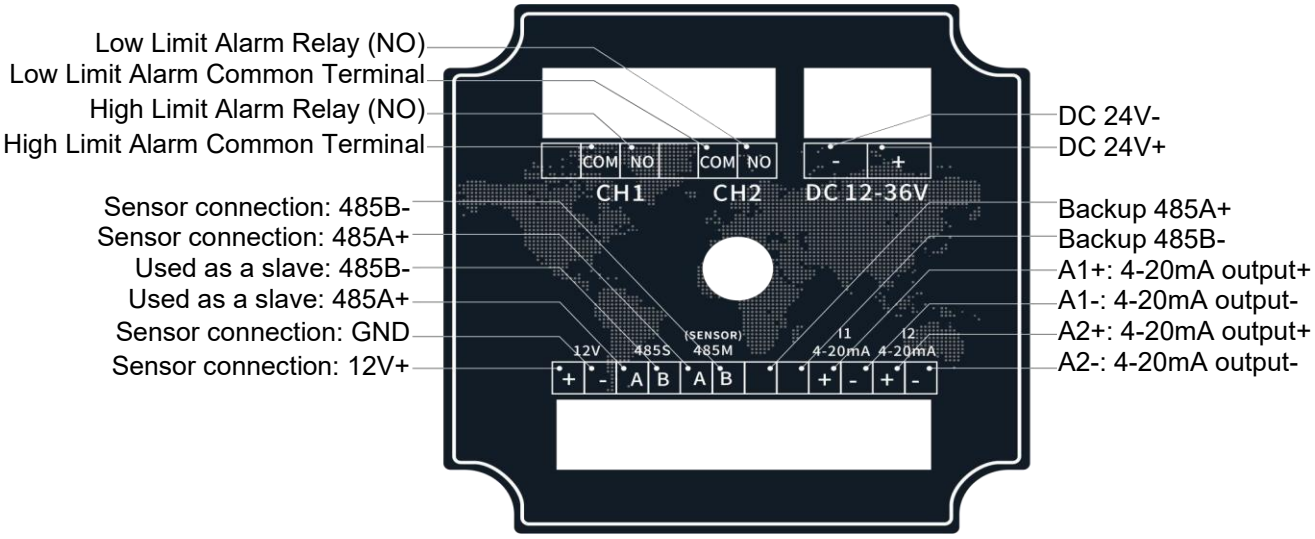



Please use the attached 3-pin plug for the 100~230V AC power input, and the 6-pin plug for the sensor input. Be sure to pay attention to the orientation when inserting the plugs into their sockets.

Once connected to a 100~230V power supply, the instrument will start automatically. Before connecting the power, make sure all wiring is correct. Incorrect wiring may damage the instrument. Do not draw power from the bypass of high-power equipment. Keep the power cable and signal cable separate.

Note: If RS-232 communication is required, please use a suitable RS-485 to RS-232 converter. Some of the RS-485 interfaces on this instrument support the MODBUS protocol. For more information, please contact the manufacturer or distributor.

## 24V Wiring

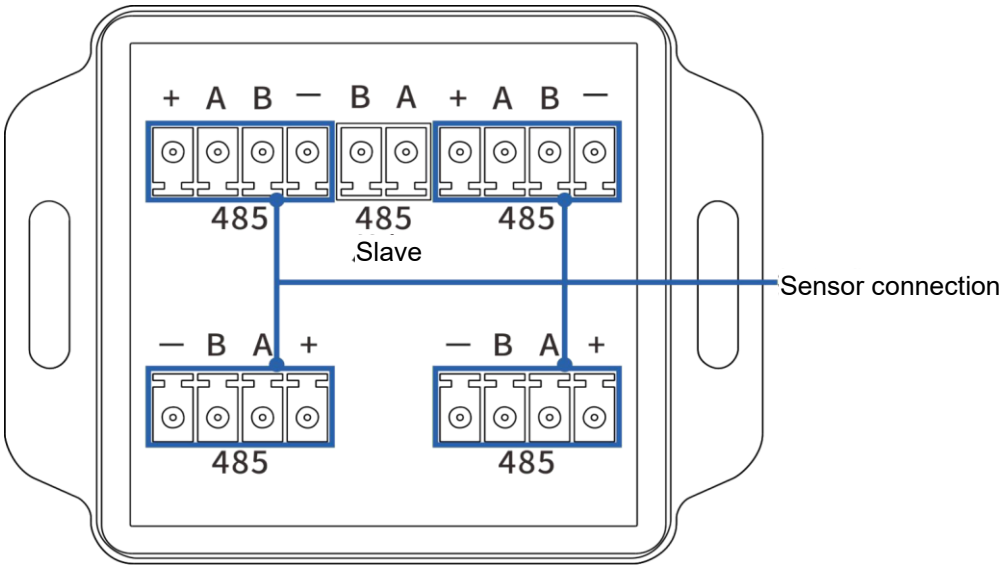



Please use the attached 2-pin plug for the 12~36V DC power input, and the 6-pin plug for the sensor input. Be sure to pay attention to the orientation when inserting the plugs into their sockets.

Once connected to a 12~36V power supply, the instrument will start automatically. Before connecting the power, make sure all wiring is correct. Incorrect wiring may damage the instrument. Do not draw power from the bypass of high-power equipment. Keep the power cable and signal cable separate.

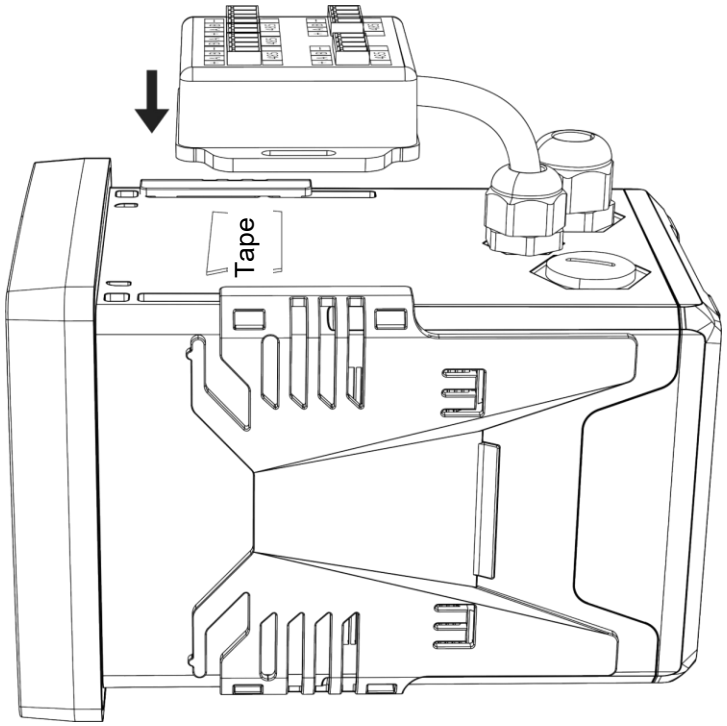
Note: If RS-232 communication is required, please use a suitable RS-485 to RS-232 converter. Some of the RS-485 interfaces on this instrument support the MODBUS protocol. For more information, please contact the manufacturer or distributor.

## 3.4 Docking Station Wiring and Mounting Wiring:

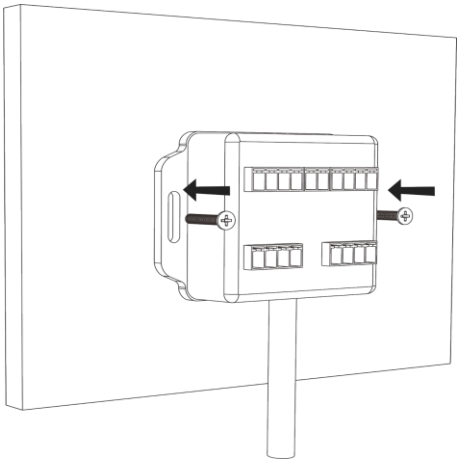



Mounting

1. Attach the docking station to the controller using traceless tape.



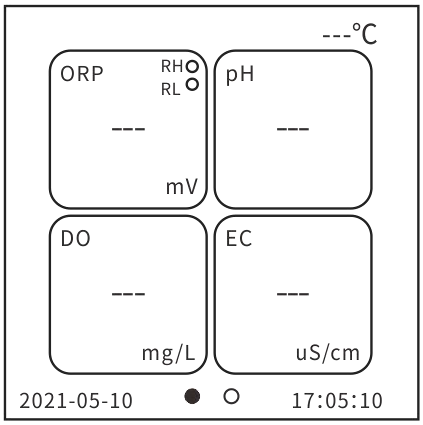
2. Screw mounting



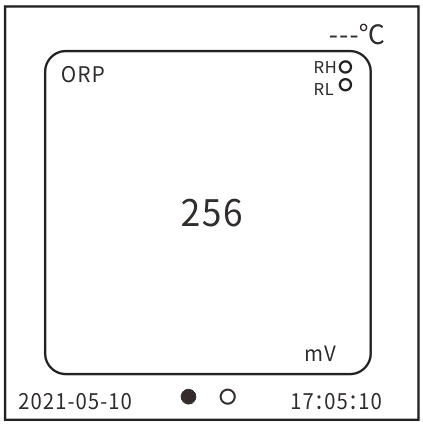
# 4 Instrument Operations

## 4.1 Powering On

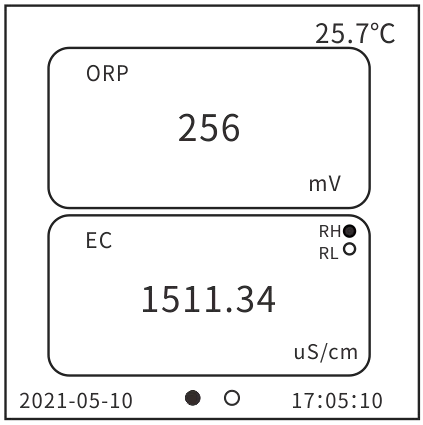
When the instrument is powered on, the Main Menu appears. This screen primarily displays the measured values, along with temperature, date, and time as secondary information. You can swipe left or right on the screen to switch between the Main Menu and the Settings menu. Note: By default, the temperature shown is from the first connected sensor that supports temperature measurement. If no sensor is connected, the Main Menu will display "**---**℃".



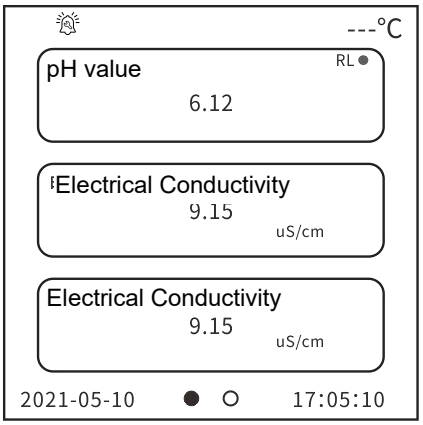

No sensor connected



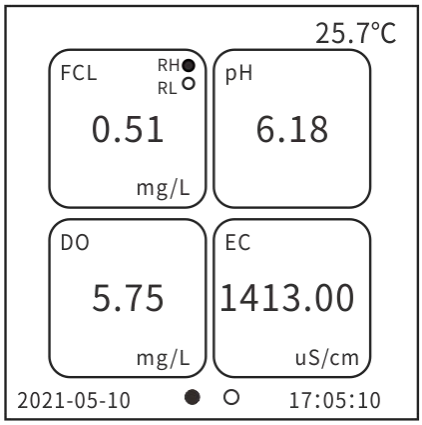

One sensor connected



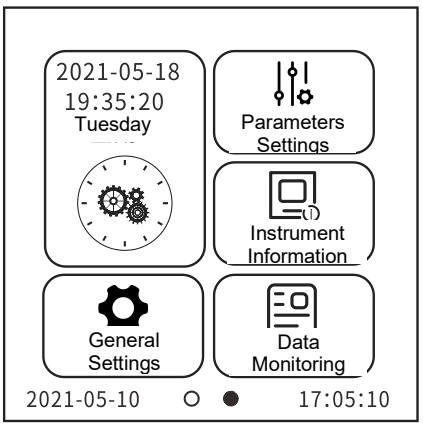

Two sensors connected




Three sensors connected




Four sensors connected




Settings Menu

Back to Previous Menu:

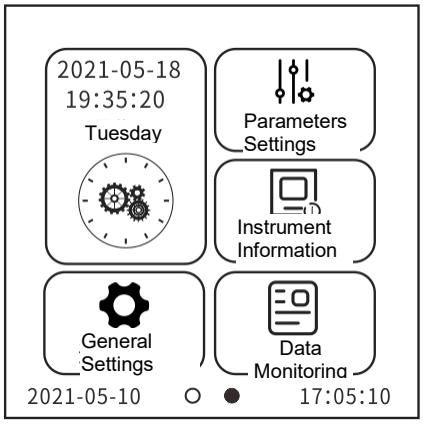
Back to Main Menu:

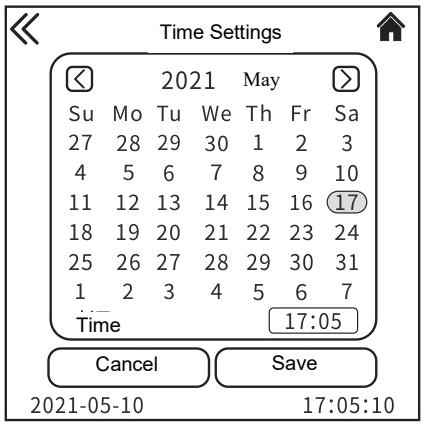
## 4.2 Instrument Settings

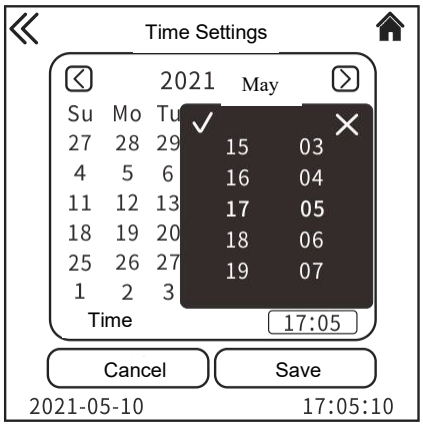
### 4.2.1 Time Settings

(1) Open the Settings menu and tap the Time block.

(2) Select a specific date, then use the time picker and the slider to choose your desired time.




### 4.2.2 General Settings

In the Settings menu, select "General Settings."

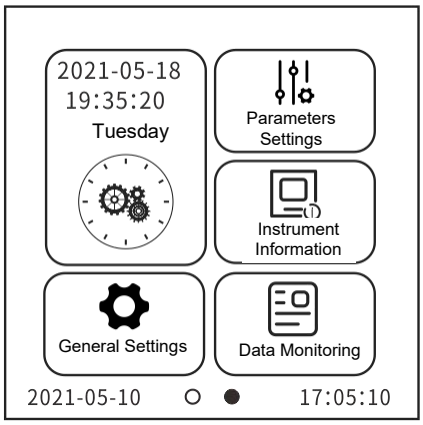
(1) Backlight Brightness: Adjust the backlight brightness by moving the slider left or right.

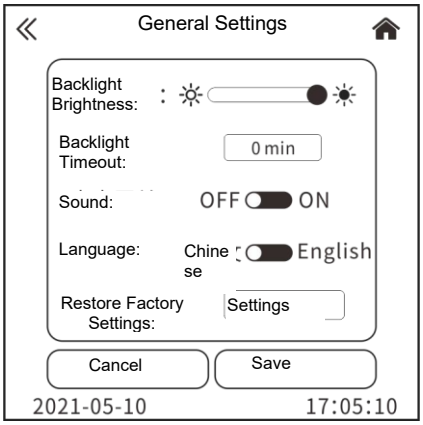
(2) Backlight Timeout: Set the duration for the backlight. Once the specified time is reached, the screen will turn off. Tap the screen to wake it up. Setting this to 0 min will keep the screen on at all times.

(3) Sound: Use the switch to turn the sound on or off.

(4) Language: Use the switch to select either Chinese or English.

(5) Restore Factory Settings: ① Relay Control: Reset parameters and default values to those of the first electrode; ② Communication Output: Restore to the initial value; ③ Advanced Functions: Restore to the initial value.



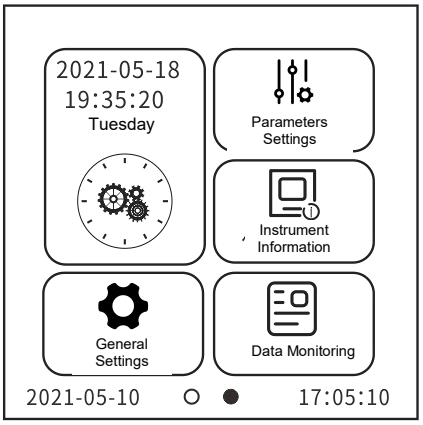



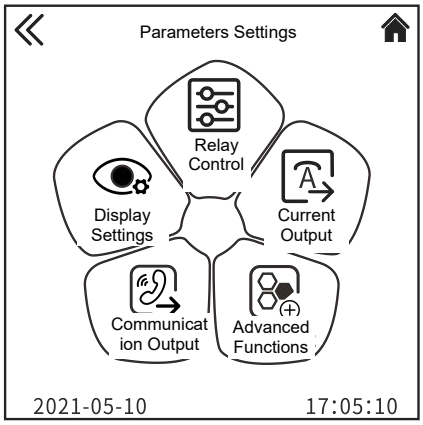

### 4.2.3 Parameters Settings

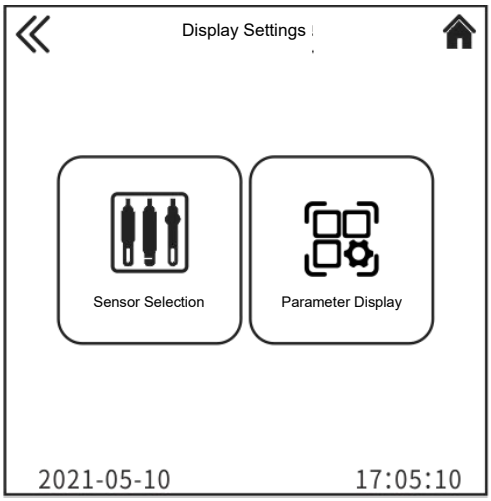
#### 4.2.3.1 Sensor Type Settings

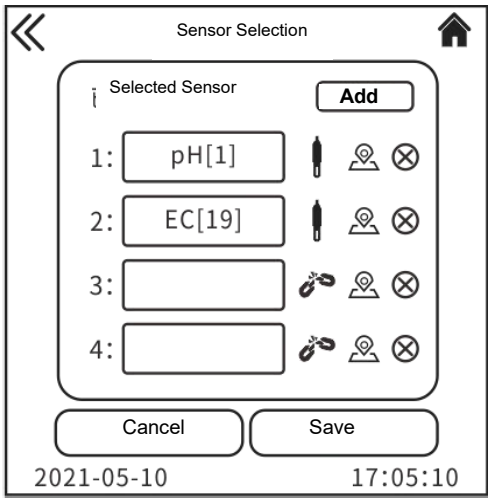
a. Selecting a sensor type

In the Settings menu, select "Parameter Settings," "Display Settings," and "Sensor Selection."



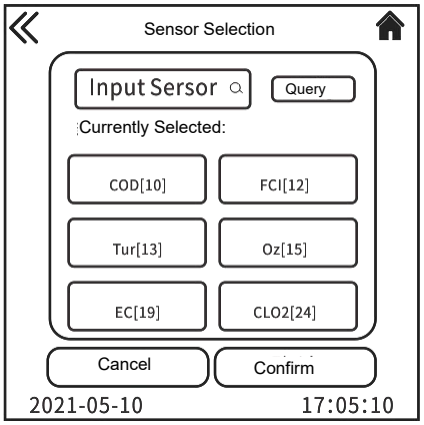



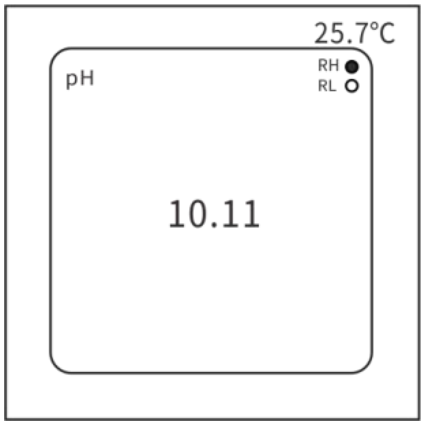

You can connect up to four sensors to the instrument simultaneously. On the Sensor Selection interface, tap ⊗ to remove the connected sensor and tap ADD to add a new sensor.

You can search for a sensor by entering its model or parameter in the search bar Input Sersor.

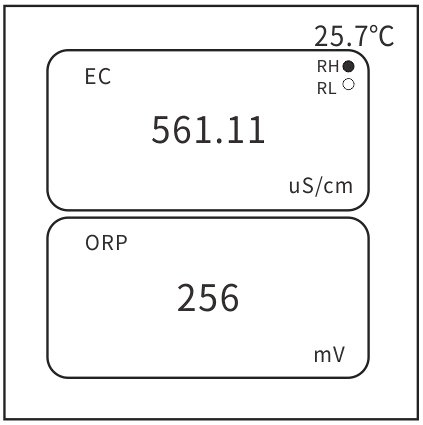
Use the "Query" button or swipe up and down to browse the list. Once you find the desired sensor, tap "Confirm" to select it, and then tap "Save" to complete the selection.



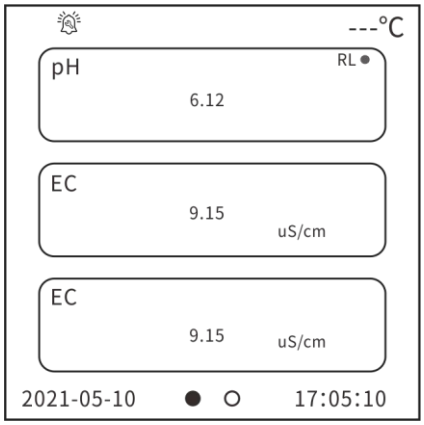

The Main Menu display automatically adjusts based on the number of selected sensors, as illustrated below:



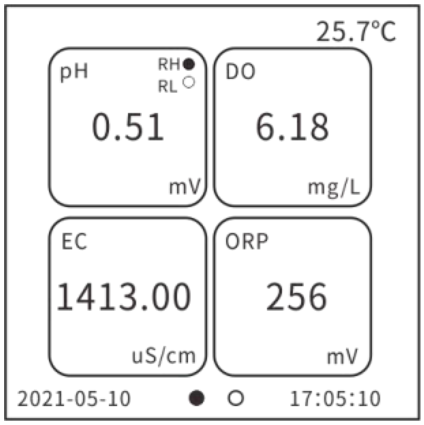

One sensor




Two sensors




Three sensors




Four sensors

Note:

By default, at least one channel must have a sensor type selected. If the sensor type is changed and saved, any previously stored historical data will be automatically cleared.

b. When connecting identical type of sensors

For example, when connecting four identical sensors: leave the first sensor at its default address. Change the second sensor's address to 101, the third to 102, and so on. To change a sensor's address, go to the Address Modification interface and tap "Confirm" to complete the modification. If none of the sensors use the default address, please refer to the address modification instructions for further guidance.

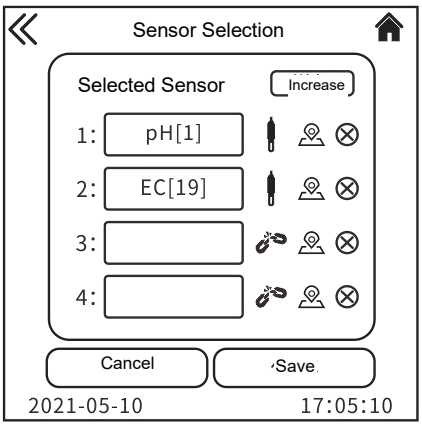
c. Modifying address

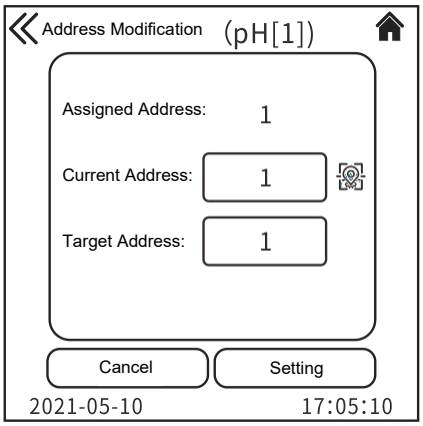
**Note: Before modifying a sensor address, ensure the sensor is connected to the controller’s 485 interface.**

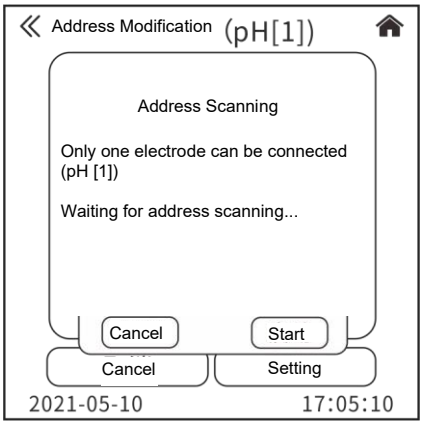
On the Sensor Selection screen, tap the "⚙" icon to access the Address Settings interface.

The Assigned Address refers to the address allocated by the controller to the current sensor. The current sensor must be set to this address for proper communication. The Current Address refers to the existing address of the sensor, which can be identified by using the scan icon on the right. The Target Address refers to the new address assigned to the sensor by the controller as needed. By default, the Target Address is the same as the Assigned Address, but it can be changed if necessary.
However, if the Target Address is changed to other address, the controller may not be able to read data correctly.

If the Target Address does not match the Assigned Address, please modify it as instructed below.




(1) Tap and, in the pop-up Address Scanning box, tap "Start." The controller will automatically scan for the current sensor's address. Once the scan is complete, a message will appear indicating that the sensor address has been found.

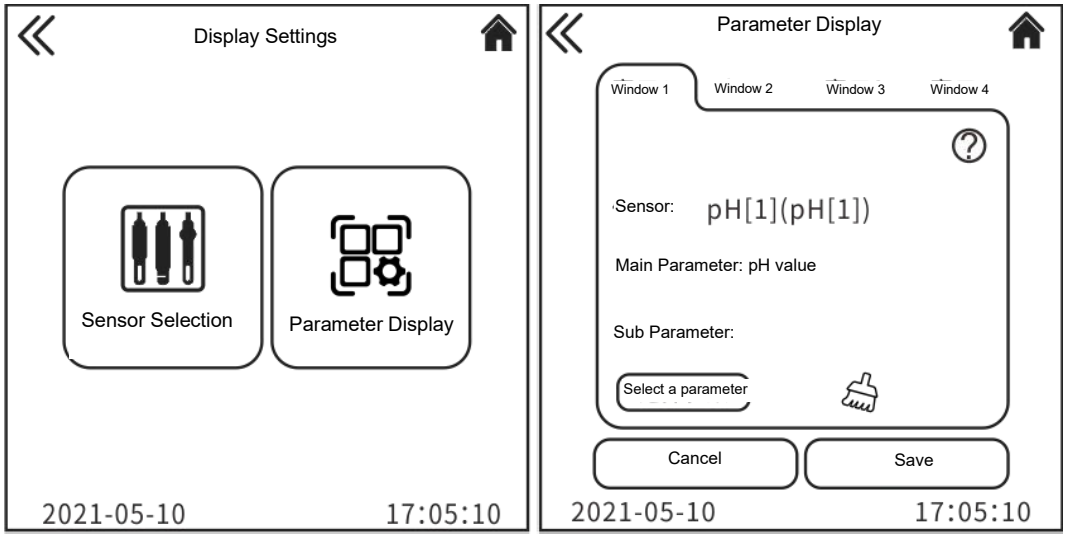
Tap "Cancel," and the scanned address will automatically populate the Current Address field on the Address Settings interface.

(2) Verify that the Target Address matches the Assigned Address, then tap "Confirm." A message will appear confirming the setting was successful. If the message indicates that the setting was unsuccessful, please try again.

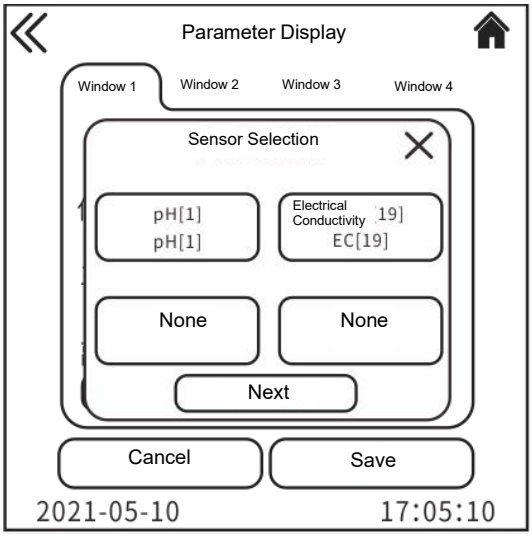
d. Parameter Display

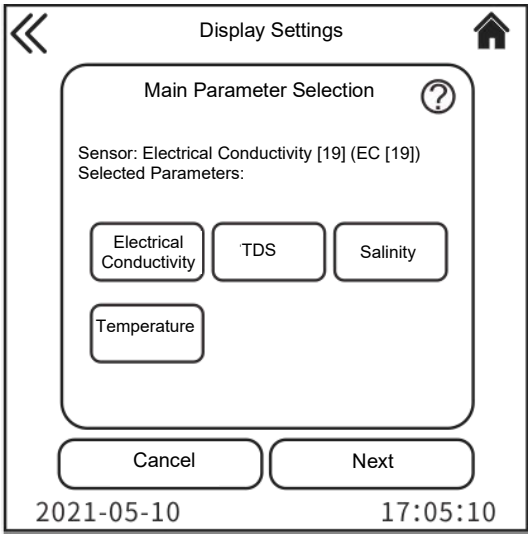
Note: **Whenever you change the sensor, you need to reconfigure which parameters are shown in the Parameter Display interface**.

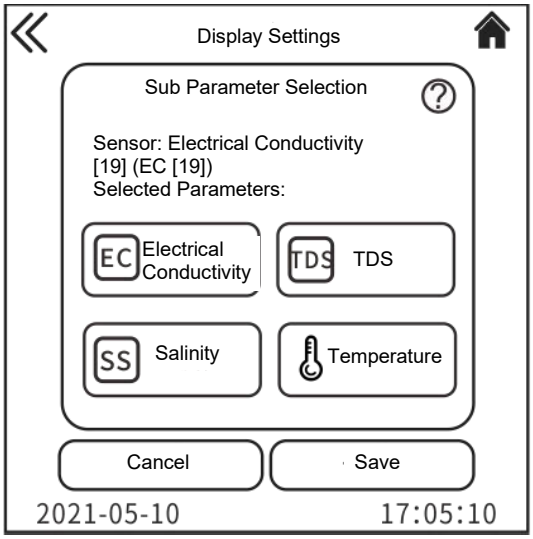
To do this, go to the Display Settings menu and select Parameter Display options.

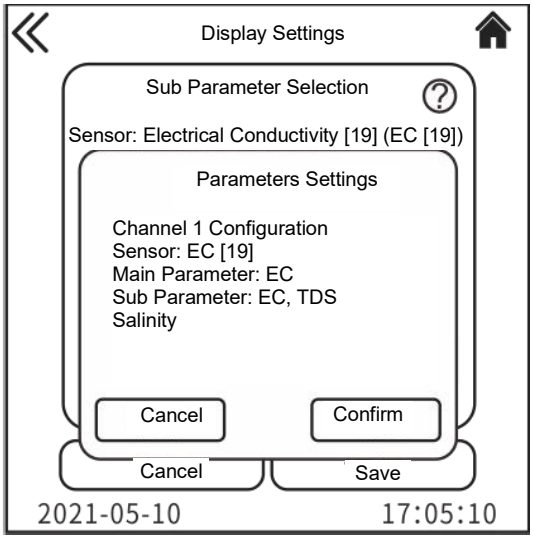



At the top of each window, you can choose which parameters to display. Using Electrical Conductivity (EC) as an example, tap the Select a parameter icon to open the Sensor Selection menu. Choose the main and sub parameters, then tap "Save" to apply your changes.

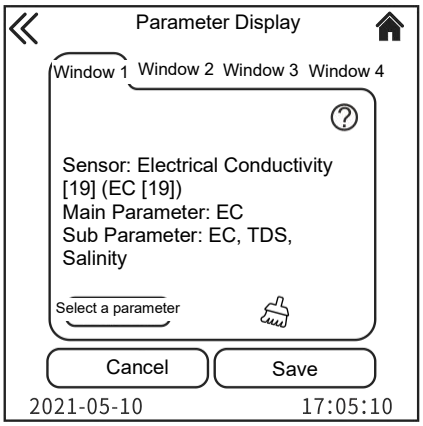


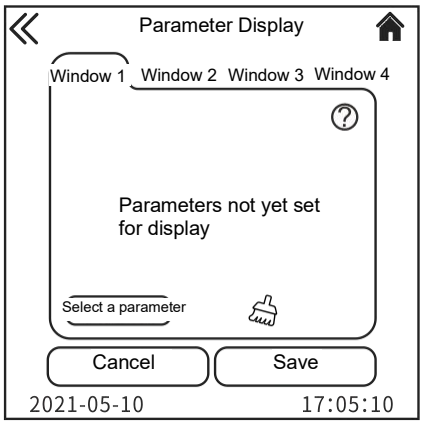




**Note: When one or two windows are connected to the Main Menu, up to four sub parameters can be displayed.**
**If three or four windows are connected, a maximum of two sub parameters can be shown.**



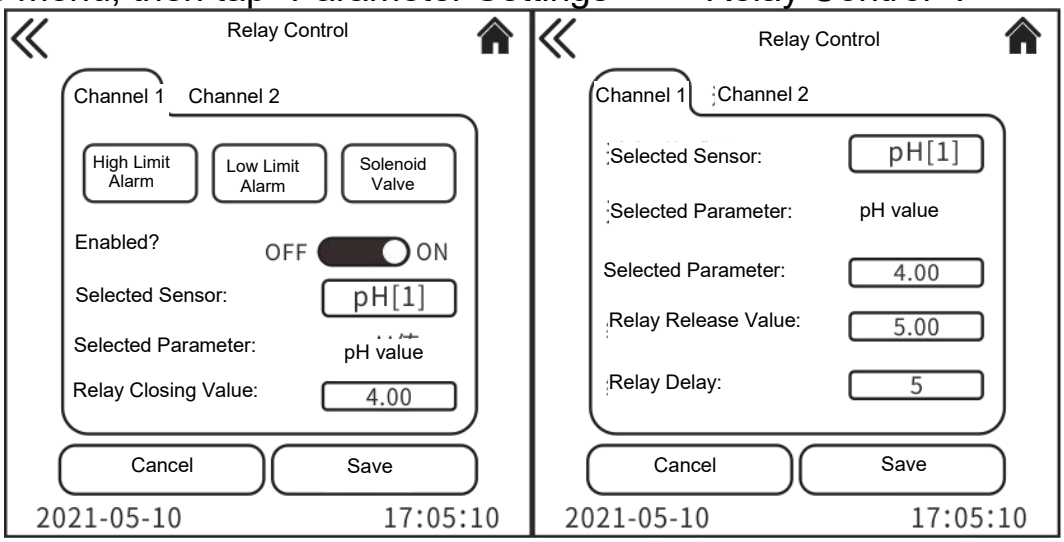
Tap the "🧹" icon to clear the display.

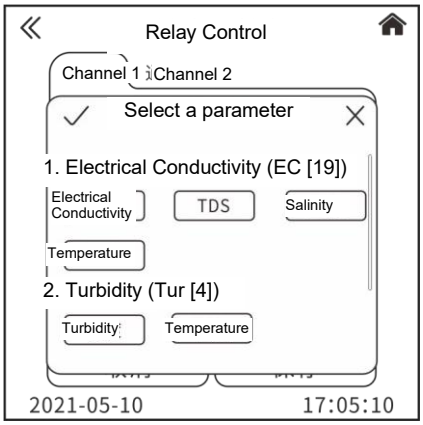



**Note: If you accidentally clear the display by tapping "🧹", select "Cancel" to cancel and return to the Parameter Display interface.**

4.2.3.2 Relay Control

(1) Swipe left or right on the Main Menu screen to access the Settings menu, then tap "Parameter Settings " → "Relay Control ".

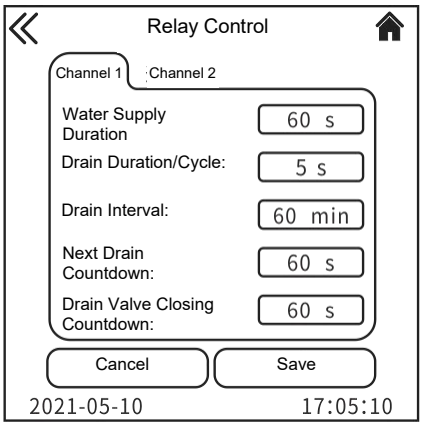





①.Channel 1/2: Select the relay channel;
②.Enable: Enable or disable this relay channel;
③.Selected Sensor/Selected Parameters: The sensor type and parameters assigned to the current relay;
④.Relay Closing Value: A high limit alarm relay closes when this threshold is exceeded and a low limit alarm relay closes when its limit drops below this threshold.
⑤.Relay Release Value: A high limit alarm relay closes when its limit drops below this threshold and a low limit alarm relay closes when this threshold is exceeded.
⑥.Relay Delay: It refers to the delay before the relay activates. If the measured value returns to normal within this period, the relay will not activate.

**Note: When setting the relay, follow these rules: For a high limit alarm relay, the closing value must be greater than the release value; and for a low limit alarm relay, the closing value must be lower than the release value.**

(2) Select a solenoid valve to be controlled by the relay.




①. "Water Supply Duration": The length of time water is supplied during the water supply step.

②. "Drain Duration/Cycle": The duration for which the water sample is flushed each time the drain step is performed.

③."Drain Interval": The time between each drain cycle.

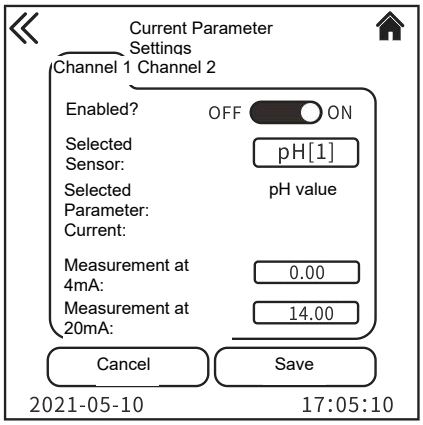
④."Next Drain Countdown": Time remaining until the next drain cycle starts.

⑤."Drain Valve Closing Countdown": Time remaining until the drain valve closes.

**Note: The solenoid valve function is only available for Channel 1.**

4.2.3.3 Current Output

Swipe left or right on the Main Menu screen to access the Settings menu, then tap "Parameter Settings 参数设置" → "Current Output电流输出".




①. Channel 1/2: Select the relay channel;

②. Enable: Enable or disable this relay channel;

③. Selected Sensor/Selected Parameters: The sensor type and parameters assigned to the current relay;

④. Current: The electric current measured at the displayed concentration.

⑤. Electrode Value Upper Limit: Measured value at 20 mA output.

⑥. Electrode Value Lower Limit: Measured value at 0/4 mA output.

4.2.3.4Data Output

Swipe left or right on the Main Menu screen to access the Settings menu, then tap"Parameter Settings 参数设置" → "Data Monitoring 数据监测".

Use this setting to send sensor data from the instrument to your PC. Data is transmitted in Modbus protocol by default.

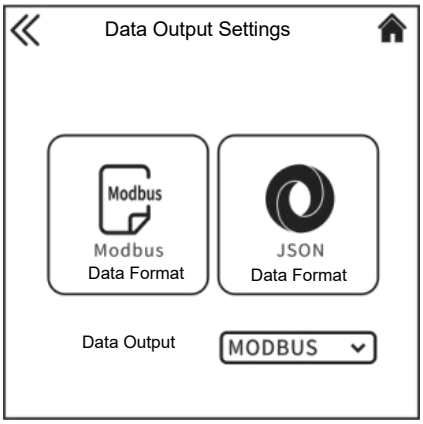
Wiring: Connect one end of the RS-485 module to the instrument's 485S (slave) port, and the other end to your PC. Then, launch your debugging tool or other relevant software.

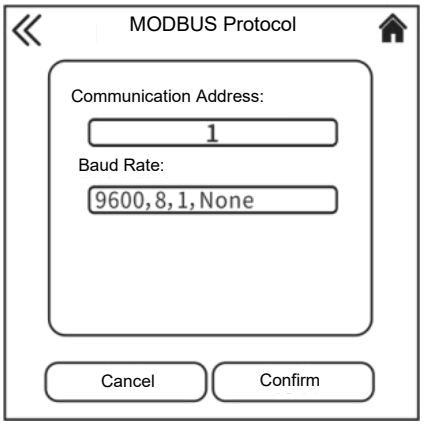
Swipe left or right on the Main Menu screen to access the Settings menu, then tap "Parameter Settings","Current Output" and "Data Format Selection".

To use the Modbus protocol, tap the "Modbus" button. The default communication address is 1, and the default baud rate is 9600. Adjust these settings as needed; if they are already consistent, no changes are necessary.

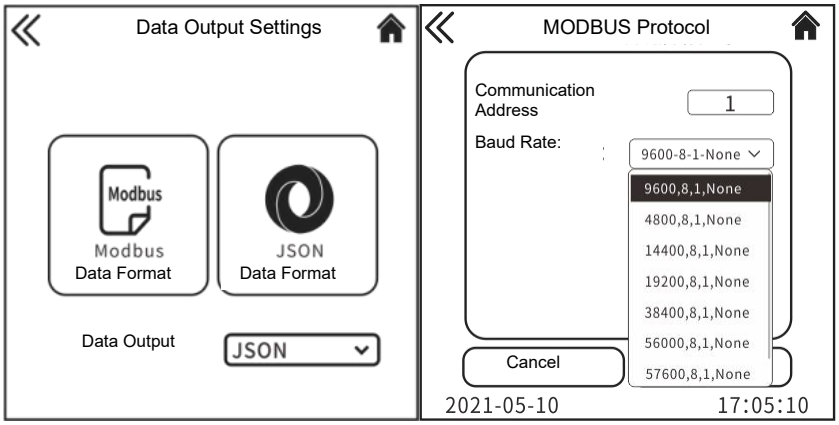
The PC uses the Modbus protocol to send commands and request data from the instrument. If you receive a response, the connection is successful. If not, check your wiring for errors.

For details on the Modbus protocol, refer to the "Communication Protocols" section.




If you select the JSON format and tap the JSON button, data will be uploaded automatically. The default communication interval is 1 minute, and the default baud rate is 9600. Adjust these settings as needed; if they are already consistent, no changes are necessary. You can view received data on the PC using the debugging tool.

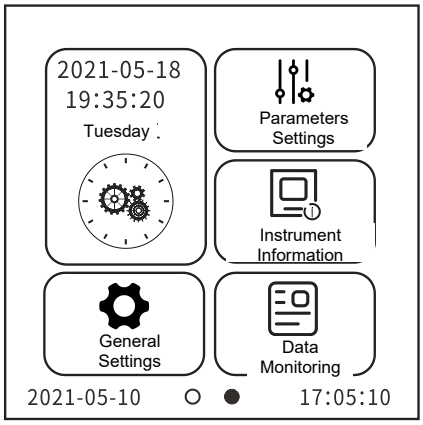


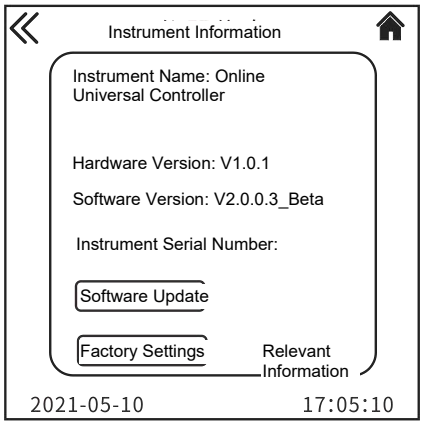

### 4.2.3.5 Instrument Information

(1) Swipe left or right on the Main Menu screen to access the Settings menu.

(2) Tap "Instrument Information  " to view instrument details.

(3) For further information, please scan the QR code to download the "User Manual" and "Sensor Calibration Guide."

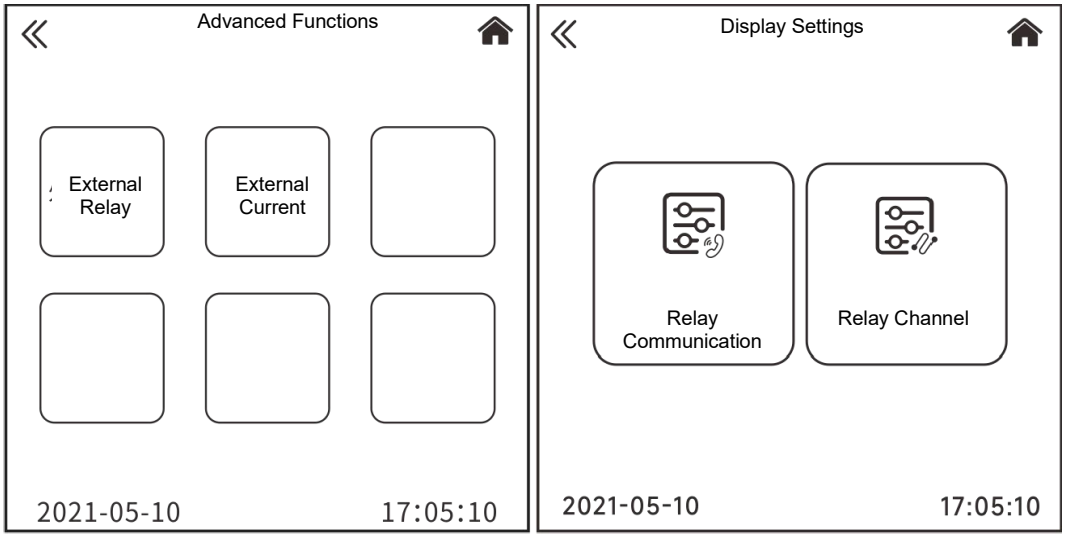


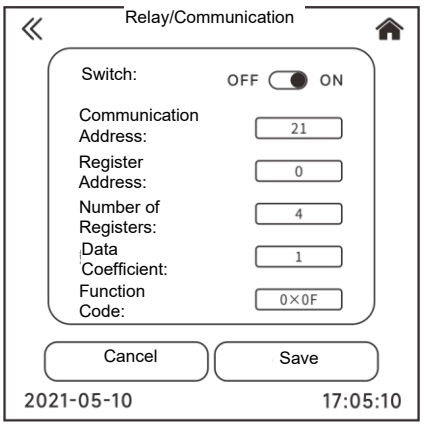



### 4.2.3.6 Advanced Functions

Swipe left or right on the Main Menu screen to access the Settings menu, then tap "Parameter Settings 参数设置" → "Advanced Functions 扩展功能".

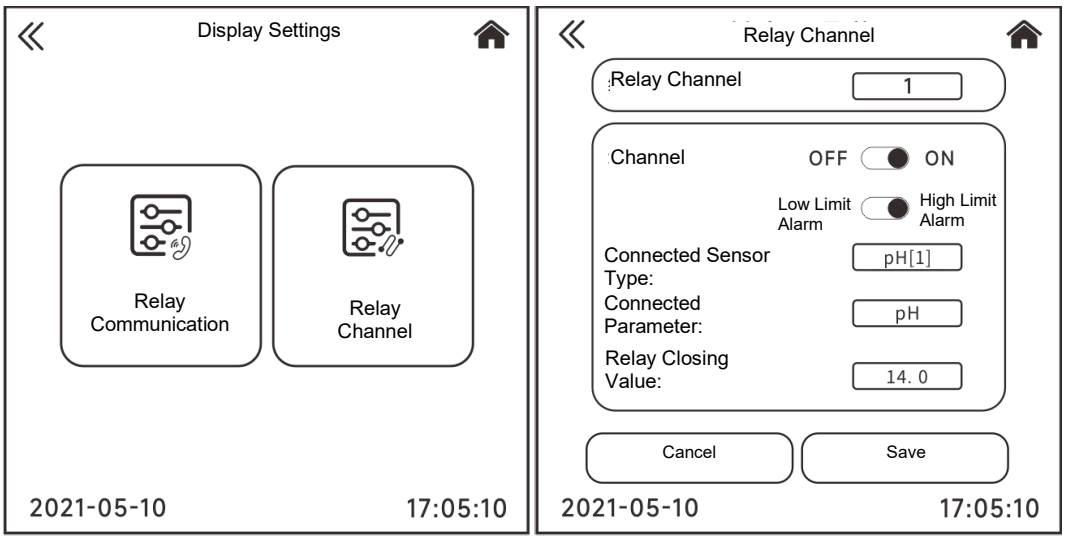
(1) External Controller - Relay Communication

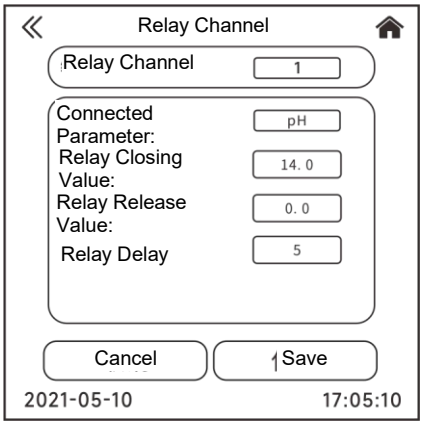



The external relay switch is Off by default. The default communication address is 20, and the register address is 0. The number of registers matches the number of active relays (up to 4). The data coefficient defaults to 1, and the function code defaults to 0x0F.

(2) External Controller - Relay Channel




①. Relay Channel: Select the relay channel.

②. Channel: Enable or disable the relay for this channel and choose high or low limit alarm.

③. Connected Sensor/Connected Parameters: Displays the sensor type and parameters currently assigned to this relay.

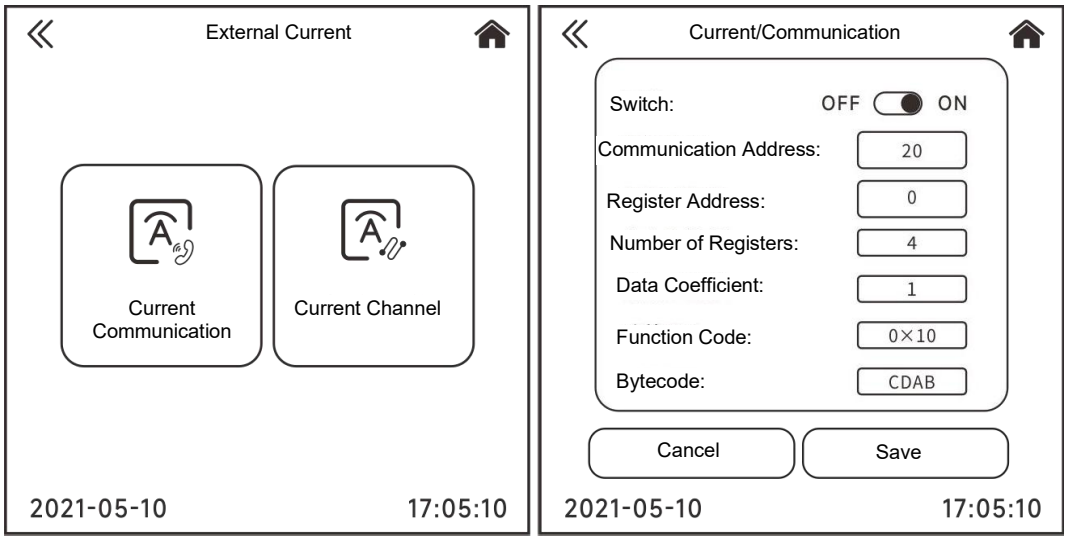
④. Relay Closing Value: A high limit alarm relay closes when this threshold is exceeded and a low limit alarm relay closes when its limit drops below this threshold.

⑤. Relay Release Value: A high limit alarm relay closes when its limit drops below this threshold and a low limit alarm relay closes when this threshold is exceeded.

⑥. Relay Delay: It refers to the delay before the relay activates. If the measured value returns to normal within this period, the relay will not activate.

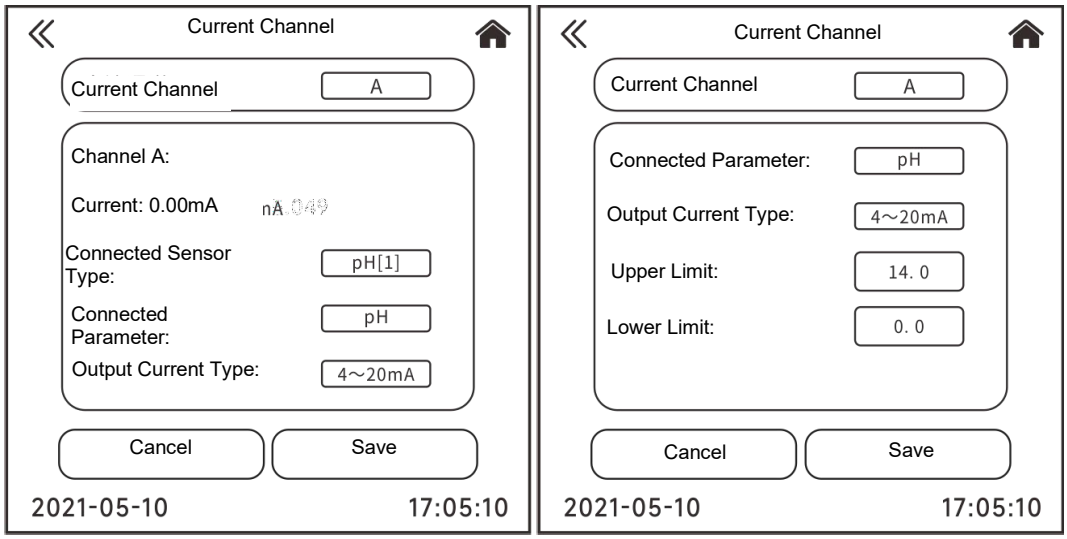
**Note: When setting the relay, follow these rules: For a high limit alarm relay, the closing value must be greater than the release value; and for a low limit alarm relay, the closing value must be lower than the release value.**

(3) External Current - Current Communication




The external current switch is Off by default. The default communication address is 21, and the register address is 0. The number of registers matches the number of active relays (up to 4). The data coefficient defaults to 1, and the function code defaults to 0x10. The bytecode is CDAB by default.

(4) External Current - Current Channel



①. Current Channel: Select the current channel.

②. Connected Sensor/Connected Parameters: The sensor type and parameters assigned to the current relay;

③. Output Current Type: 4~ 20mA/ 0~ 20mA

④. Electrode Value Upper Limit: Measured value at 20 mA output.

⑤. Electrode Value Lower Limit: Measured value at 4 mA output.

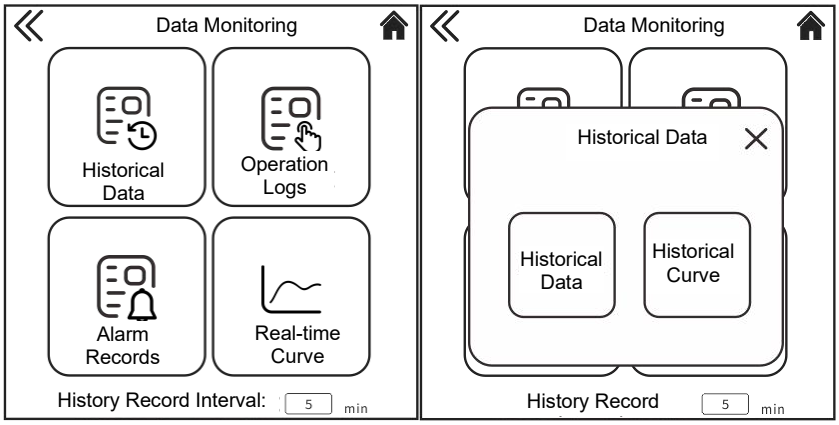
### 4.2.4 Data Monitoring

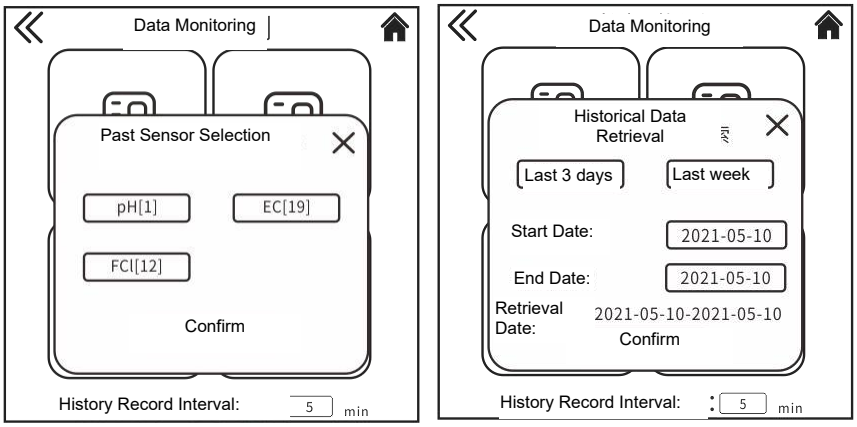
History Records

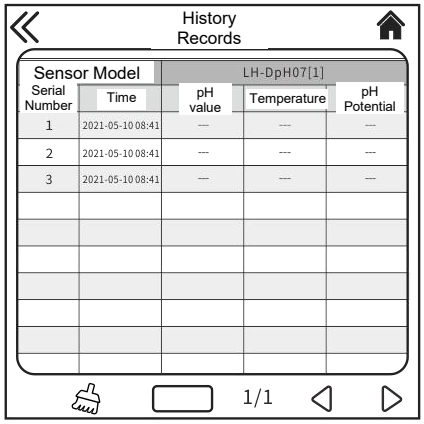
(1) The history log records and displays past sensor connection data. You can set the logging interval from 1 to 100 minutes.

(2) To view historical data, go to "Settings > Data Monitoring > History Records". Select which parameters to display (all are selected by default), and choose a time range: today (default), last 3 days, last week, or a custom date range. Scroll through the table to view all recorded sensor data.

(3) Clear History Records: Tap the clear icon "🗑" to delete all history records.



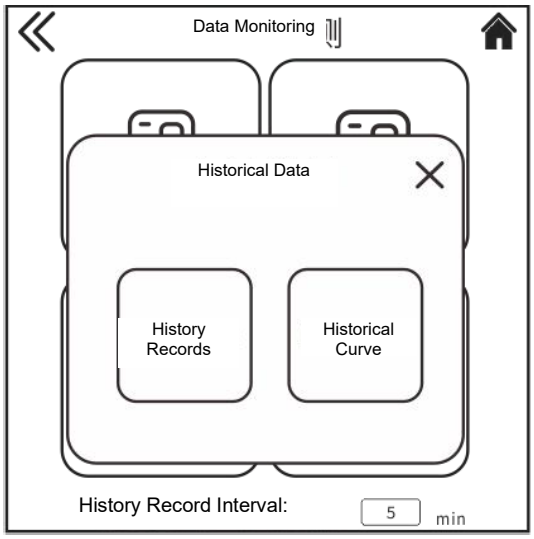

## Historical Curve

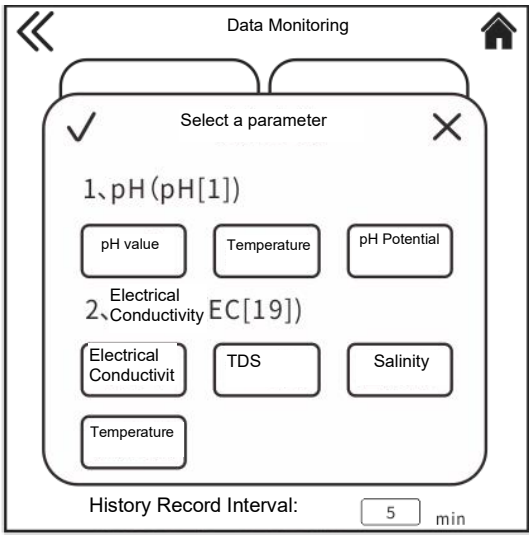
(1) The Historical Curve displays the data trend for a connected sensor.

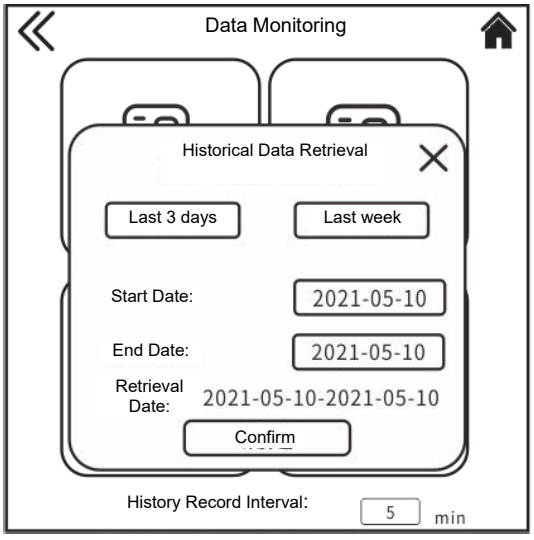
Only one parameter can be shown at a time.

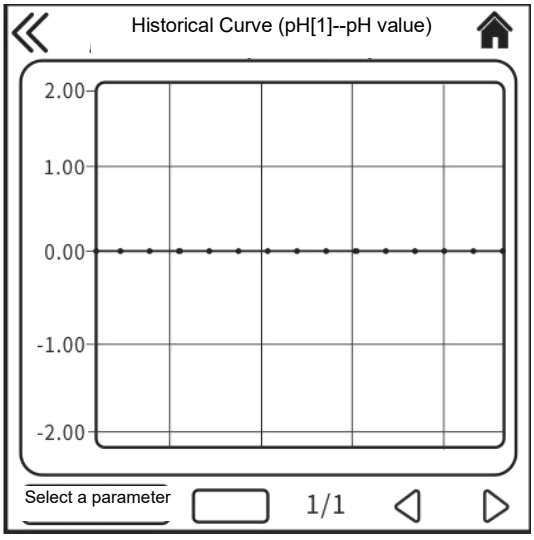
(2) To view a historical curve, go to "Settings > Data Monitoring > History Records". Select "Historical Curve" to display history records of a selected parameter, and choose a time range: today (default), last 3 days, last week, or a custom date range. Tap Confirm to view the curve.

(3) To switch parameters, click "Select Curve" on the curve display screen.



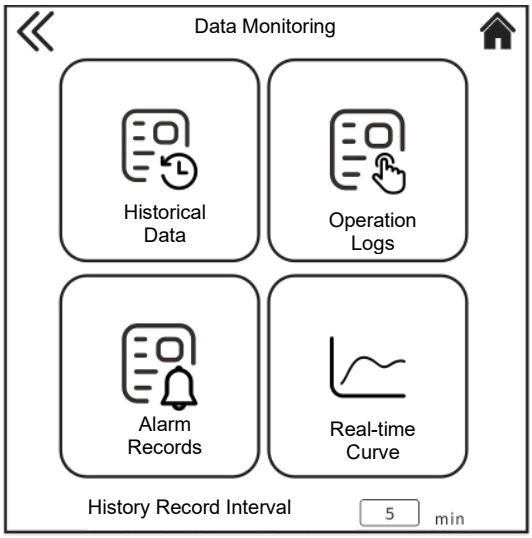

Operation Logs

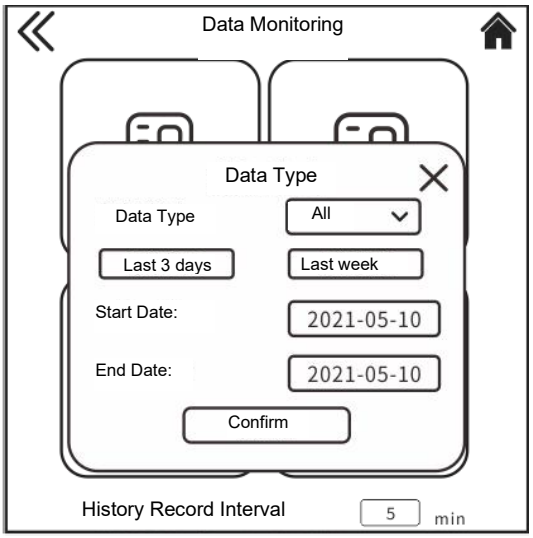
(1) Operation logs record system settings and general settings, and historical data. You can tap to maintain update history (such as sensor modifications) and event changes (such as the time of sensor updates).

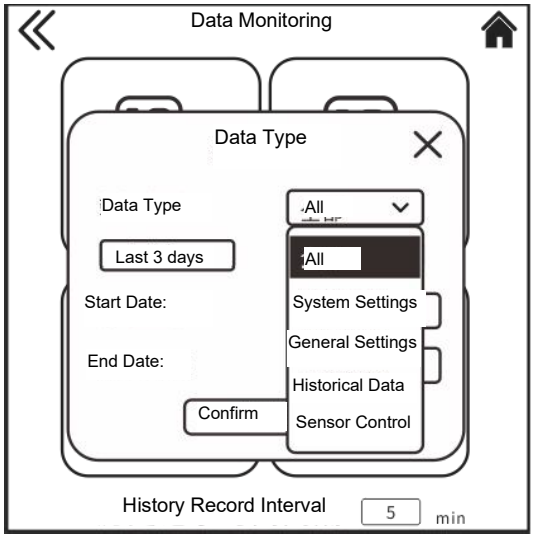
(2) Swipe left or right on the Main Menu screen to access the Settings menu, then tap "Data Monitoring","Operation Logs", "Log Data Type" and "Select Log Time".

(3) Navigate pages: Click the Next or Previous icons to move between pages. If there are many alarm messages, you can enter a specific page number in the text box to go directly to that page.

(4) Clear logs: Click the clear icon "" to delete all log entries. This will remove all records from the table.



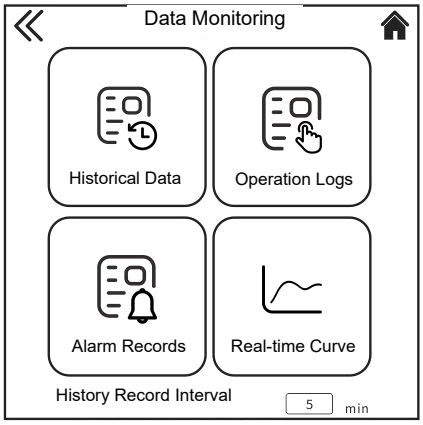

Alarm Records

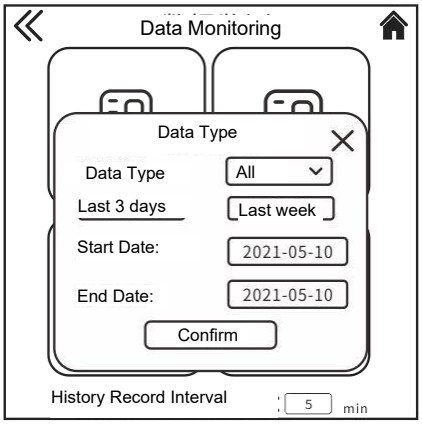
(1) Alarm records log events such as power-on status, sensor connections, and over-limit alarms, including the current power-on time.

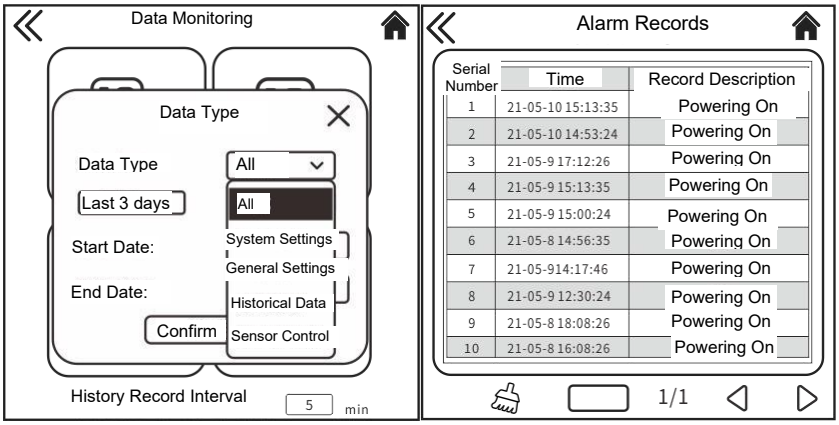
(2) Swipe left or right on the Main Menu screen to access the Settings menu, then tap "Data Monitoring","Alarm Records, "Alarm Data Type" and "Select Alarm Time".

(3) Navigate pages: Click the Next or Previous icons to move between pages. If there are many alarm messages, you can enter a specific page number in the text box to go directly to that page.

(4) Clear logs: Click the clear icon "" to delete all log entries. This will remove all records from the table.



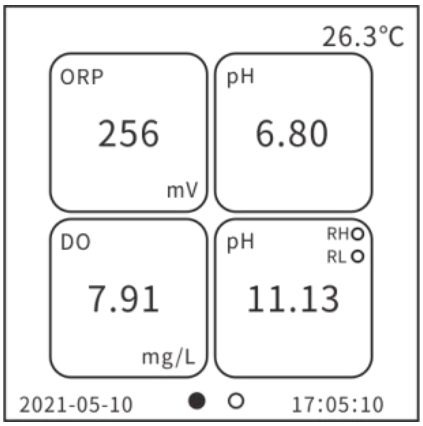



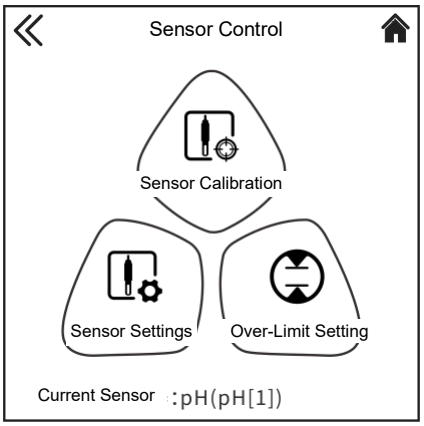


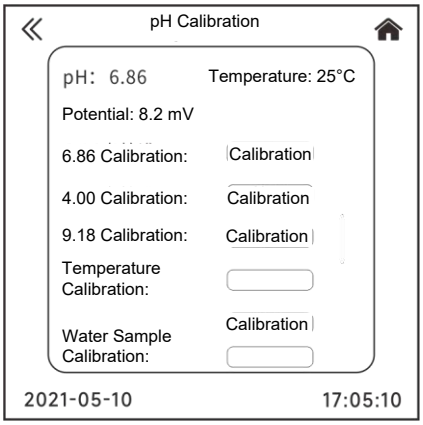

## 4.3 Sensor Control (Example: pH)

(1) Sensor Calibration (Example: pH)

On the Main Menu, select the data block for the sensor you want to calibrate. In the Sensor Control screen, choose "Sensor Calibration." For example, pH calibration options include 6.86, 4.00, and 9.18, as well as temperature and water sample calibration. To calibrate with the 6.86 standard solution, tap "6.86 Calibration," then tap "Confirm." Wait approximately 3 to 7 seconds. For temperature calibration, tap "Temperature Calibration," enter the desired temperature (up to ±10℃ from the current measured value), and tap "Confirm."



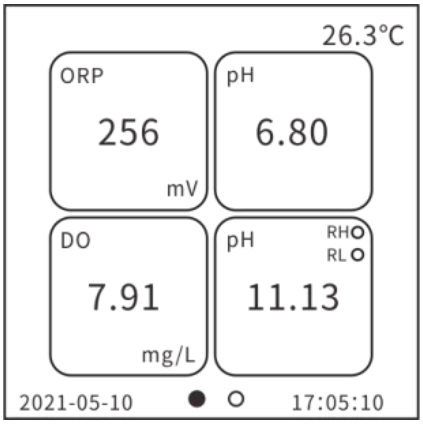



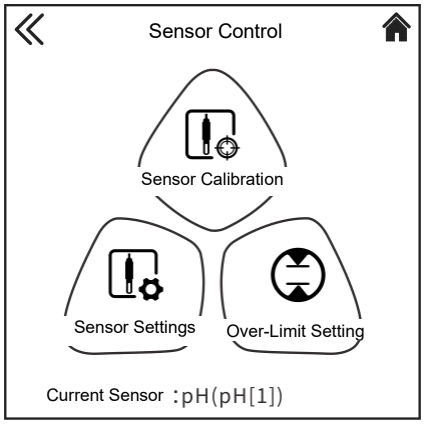


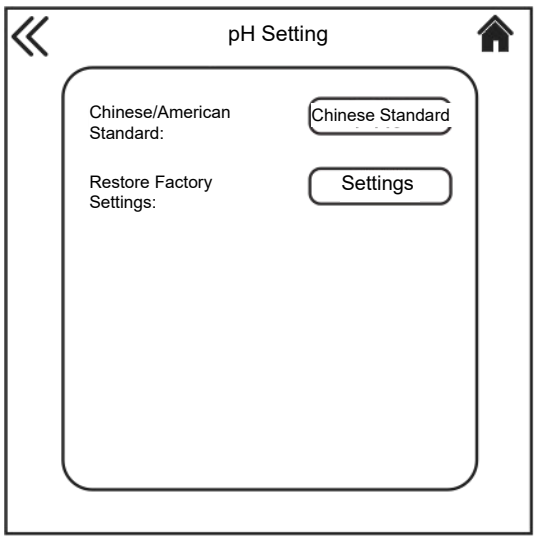

Note: Calibration procedures may vary between sensor models. For detailed instructions, please refer to the Sensor Calibration Guide.

(2) Sensor Calibration Setting (Example: pH)

To calibrate a sensor, select its data block on the Main Menu and perform calibration on the Sensor Control screen. Under "Sensor Settings," you can switch between Chinese Standard and American Standard, or restore factory settings.



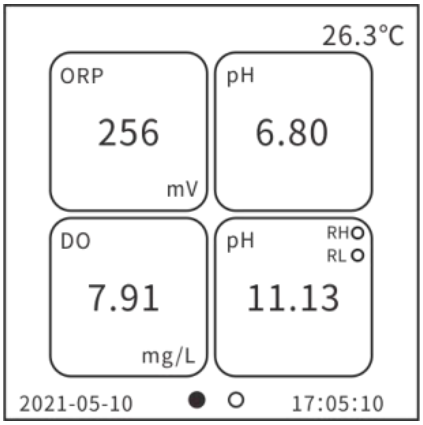



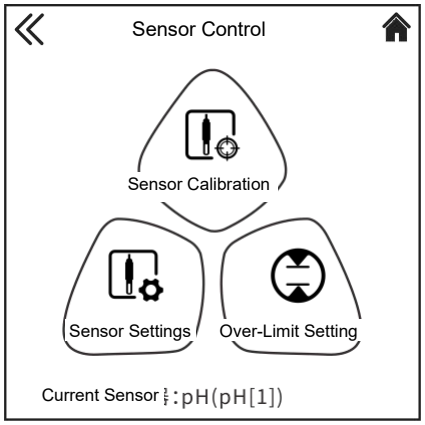


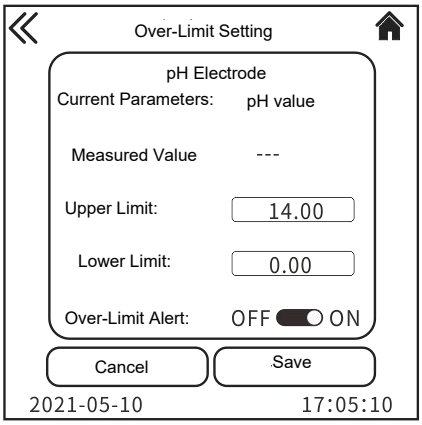

Note: The available settings may vary slightly depending on the sensor model.

(3) Sensor Over-Limit Settings (Example: pH)

To calibrate a sensor, select its data block on the Main Menu and perform calibration on the Sensor Control screen. Under "Sensor Over-Limit Settings," you can adjust the upper and lower limits for current parameters and enable the Over-Limit Alert if desired.






Note: If the measured value exceeds the upper limit or drops below the lower limit, the value on the Main Menu will turn red. The Over-Limit Alert is enabled by default.

# 5 Communication Protocols

## 1. Communication Protocol Format

Baud Rate: 9600bps (default)
Parity Check: None
Data Bits: 8

| **Address 1 byte** | Function Code 1 byte | Data 0~252 bytes, depending on specific commands | CRC16 Check 2 bytes |
|---|---|---|---|

Stop Bit: 1

## 2.Data Frame Format

Serial Link RTU Data Frame Format
CRC16 Check: 2 bytes, low 8-bit first, high 8-bit last

## 3. Supported Commands

This controller supports the following function codes: Read Holding Registers (0x03) and Write Single Register (0x06). The data formats for each function code are described below.

### (1) 03 (0x03 Read Holding Register)

Description: It is used to read a block of holding registers. You can read between 1 and 125 registers.

**Request Code Format:**

| **Definition** | Address | Function Code | Starting Address | Number of Registers | CRC Check |
|---|---|---|---|---|---|
| **Data** | ADDR | 0x03 | Rstart | num | CRC 16 |
| **Number of Bytes** | 1 | 1 | 2 | 2 | 2 |

**Response Code Format:**

| **Definition** | Address | Function Code | Number of Data | Data | CRC Check |
|---|---|---|---|---|---|
| **Data** | ADDR | 0x03 | num*2 | Data | CRC 16 |
| **Number of Bytes** | 1 | 1 | 1 | num*2 | 2 |

### (2) 06 (0x06 Write Single Register)

Description: It is used to write a single holding register. Only applicable for parameters stored in a single register.

**Request Code Format:**

| **Definition** | Address | Function Code | Register Address | Data | CRC Check |
|---|---|---|---|---|---|
| **Data** | ADDR | 0x06 | RAddr | num | CRC 16 |
| **Number of Bytes** | 1 | 1 | 2 | 2 | 2 |

Response Code Format (same as Request Code Command):

| **Definition** | Address | Function Code | Register Address | Data | CRC Check |
|---|---|---|---|---|---|
| **Data** | ADDR | 0x06 | RAddr | num | CRC 16 |
| **Number of Bytes** | 1 | 1 | 2 | 2 | 2 |

**Channel data. If no channel data is available or the connection is lost, 0xFFFF will be displayed.**

### 4. Register Function List

| **Register Address** | Register Name | Data Type | Length (bytes) | Read/Write Mode | Description of Function |
|---|---|---|---|---|---|
| **0x0D00** | Main Parameter for Channel 1 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D02** | Main Parameter for Channel 2 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D04** | Main Parameter for Channel 3 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |

| | | | | | |
|---|---|---|---|---|---|
| **0x0D06** | Main Parameter for Channel 4 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D08** | Default Temperature | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D0A** | Sub Parameter 1 for Channel 1 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D0C** | Sub Parameter 2 for Channel 1 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D0E** | Sub Parameter 3 for Channel 1 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D10** | Sub Parameter 4 for Channel 1 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D12** | Sub Parameter 1 for Channel 2 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D14** | Sub Parameter 2 for Channel 2 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |

| | | | | | |
|---|---|---|---|---|---|
| **0x0D16** | Sub Parameter 3 for Channel 2 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D18** | Sub Parameter 4 for Channel 2 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D1A** | Sub Parameter 1 for Channel 3 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D1C** | Sub Parameter 2 for Channel 3 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D1E** | Sub Parameter 3 for Channel 3 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D20** | Sub Parameter 4 for Channel 3 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D22** | Sub Parameter 1 for Channel 4 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D24** | Sub Parameter 2 for Channel 4 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0D26** | Sub Parameter 3 for Channel 4 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | (ABCD) |
| **0x0D28** | Sub Parameter 4 for Channel 4 | Flaot | 4 | Read Only | Endianness: Big-endian Byte Order: Big-endian (ABCD) |
| **0x0DA0** | Sensor Model for Channel 1 (Default Address) + Connection Status | Uint16 | 2 | Read Only | Data High Bit: The default sensor output address for the channel. If not set, the value is 0. Data Low Bit: The sensor connection status for the current channel. |
| **0x0DA1** | Sensor Model for Channel 2 (Default Address) + Connection Status | Uint16 | 2 | Read Only | |
| **0x0DA2** | Sensor Model for Channel 3 (Default Address) + Connection Status | Uint16 | 2 | Read Only | |
| **0x0DA3** | Sensor Model for Channel 4 (Default Address) + Connection Status | Uint16 | 2 | Read Only | |
| **0x0DA9** | Software Major Version Number | Uint16 | 2 | Read Only | Example: 1.0.2.23 1: Major version number 0: Minor version number |
| **0x0DAA** | Software Minor Version Number | Uint16 | 2 | Read Only | |

| | | | | | |
|---|---|---|---|---|---|
| **0x0DAB** | Software Feature Version Number | Uint16 | 2 | Read Only | 2: Feature version number<br>23: Revision number |
| **0x0DAC** | Software Revision Number | Uint16 | 2 | Read Only | |
| **0x0Db0~0x0Db7** | Set Serial Number | Uint16 | 2 | Read/Write | |
| **0x0DB8** | Instrument Type (Lohand, Neutral, Henglan) | Uint16 | 2 | Read/Write | 0: Lohand, 1: Neutral, 2: Henglan |
| **0x0DB9** | Set Mode | Uint16 | 2 | Read/Write | 0: Production Mode<br>1: Factory Mode |
| **0x0dc0** | Set Time - Year | Uint16 | 2 | Write Only | Set the year simultaneously |
| **0x0dc1** | Set Time - Month | Uint16 | 2 | Write Only | Set the month simultaneously |
| **0x0dc2** | Set Time - Date | Uint16 | 2 | Write Only | Set the date simultaneously |
| **0x0dc3** | Set Time - Hour | Uint16 | 2 | Write Only | Set the hour simultaneously |
| **0x0dc4** | Set Time | Uint16 | 2 | Read | Set the minute simultaneously |
| | - Minute | | | Write Only | |
| **0x0dc5** | Set Time - Second | Uint16 | 2 | Write Only | Set the second simultaneously |

## 5. Function Description

(1) To read data from a single channel (i.e., to read one register)

Send the following command: 01 03 0D 00 00 02 C6 A7.

The system will respond with: 01 03 04 40 e2 1e 9b 07 ce.

Valid data section: 40 e2 1e 9b

**The Data Value** (40 e2 1e 9b) is the turbidity reading in hexadecimal format, which corresponds to a decimal value of 7.066236.

(2) To read data from all channels (i.e., to read multiple registers)

Send the following command: 01 03 0D 00 00 14 47 69.

The system will respond with: 01 03 28 40 e2 0f fc 43 b2 81 6b 3b e3 a1 6e 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 41 dc 28 5d 8b ac

The **Channel 1 Data Value** 40 e2 0f fc(H) is in hexadecimal format, which corresponds to a decimal value of 7.064451.

The **Channel 2 Data Value** 43 b2 81 6b(H) is in hexadecimal format, which corresponds to a decimal value of 357.0111.

The **Channel 3 Data Value** 3b e3 a1 6e(H) is in hexadecimal format, which corresponds to a decimal value of 0.006946.

The **Channel 4 Data Value** 00 00 00 00(H) is in hexadecimal format, which corresponds to a decimal value of 0.000000.

# After-Sales Service

This product comes with a one-year warranty from the date of purchase and lifetime maintenance (excluding accessories and sensors). Please keep your warranty card properly.

Note:

**The following are not covered by free maintenance:**

1. Damage caused by improper installation or use not following the instructions;
2. Damage resulting from unauthorized disassembly or repair;
3. Damage due to force majeure, such as earthquakes, fires, and other natural disasters;
4. Products beyond the warranty period.

**We are committed to providing excellent service. For any questions, please contact our technical support team.**