



User Manual

On-line Residual Chlorine Analyzer

CL-9500



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Thank you for purchasing our products. In order to continuously improve the quality of the controller and improve its functions, our company reserves the right to modify the content and icon display at any time. The actual display may be different from the operation manual, so the actual situation shall be subject to the machine.

When using the controller, please follow the function and installation method described in the operation manual.

Our company will not be responsible for any indirect or indirect loss or damage caused by improper use of the product by any person or entity. If you have any problems or find any omissions or errors in the operation manual, please contact our sales.

Precautions Before Use:

1. Please read this operation manual thoroughly before installation to avoid safety issues and instrument damage caused by incorrect operations.
2. Install the analyzer away from high-temperature, high-humidity, and corrosive environments, and avoid direct sunlight.
3. Special cables must be used for electrode signal transmission. It is recommended to use the cables provided by our company; ordinary wires shall not be used as substitutes.
4. When using the power supply, avoid power interference. Especially when using a three-phase power supply, correctly use the ground wire (if power surge interference occurs, separate the power supply of the analyzer from that of control devices such as dosing pumps and mixers, i.e., use an independent power supply for the analyzer).
5. The output contacts of this analyzer are used for alarm and control functions. For safety and protection reasons, be sure to connect an external relay with sufficient current-carrying capacity to protect the safe use of the instrument.



1. Overview

This type of Residual chlorine controller is a new controller. This meter has a high degree of intelligence and flexibility. It can measure Residual chlorine value and temperature at the same time. It is widely used in urban sewage treatment plants, water supply and other industries and can continuously measured the Residual chlorine value of solution.

2.1. Features

- Multilingual Support: Standard Chinese interface at the factory, switchable to English interface.
- Multiple Temperature Compensation Modes: Three temperature compensation modes available—PT1000, NTC10K, and manual temperature compensation.
- 4-20mA Output: Adopts isolation technology with strong anti-interference ability.
- Three Groups of Relays: High and low points can be freely switched, and hysteresis can be adjusted arbitrarily to avoid frequent on-off of relays.
- Password Management Function: Prevents misoperation by non-professional personnel.
- Menu Prompt Function: Greatly facilitates user operation.

2.2. Instrument Technical Parameters

- Measurement Range: 0–20 ppm, 0.0-20.0 ppm, 0.00-20.00 ppm
- Accuracy: $\leq \pm 0.1$ ppm
- Resolution: 0.01 ppm
- Stability: ≤ 0.1 ppm /24 hours
- Temperature Compensation: 0–100 °C, manual/automatic (PT1000/NTC10K)
- Signal Output: 4-20mA isolated protection output, maximum load 500 Ω
- Alarm Output: Three groups of relays corresponding to high/low point alarms (3A/250 V AC), normally open contact relays
- Power Supply: AC220V or DC24V
- Power Consumption: ≤ 7 W
- Environmental Conditions: (1) Temperature 0~50 °C (2) Humidity $\leq 85\%$ RH
- Overall Dimensions: 96×96×132mm (Height × Width × Depth)
- Cutout Dimensions: 92.5×92.5mm (Height × Width)
- Protection Level: IP65

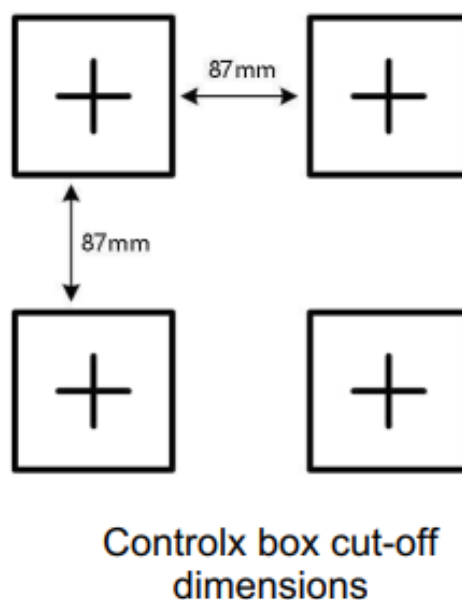
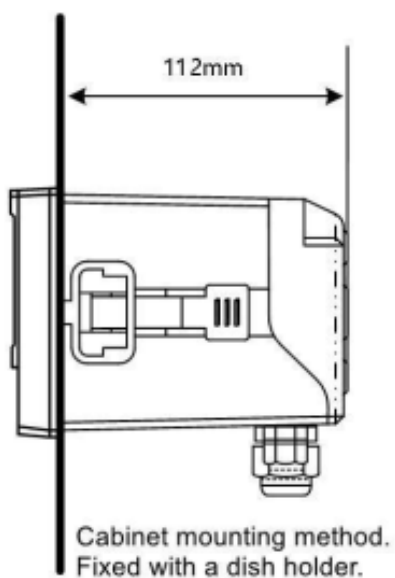
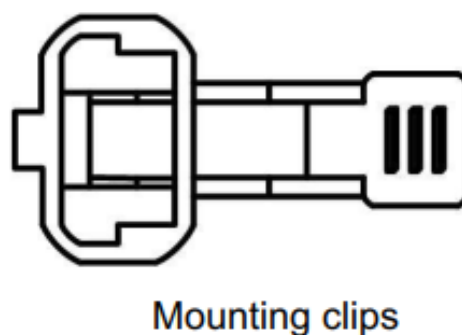
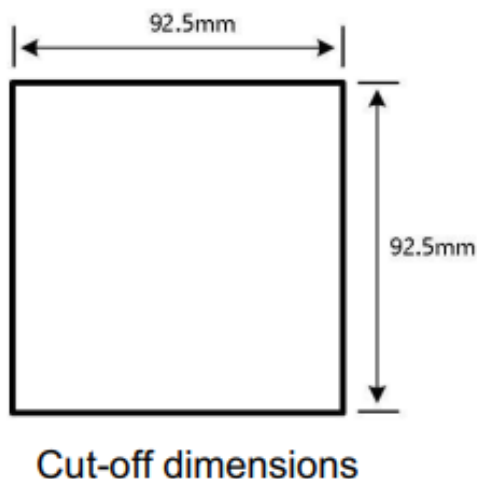


2. Assembly & Installation

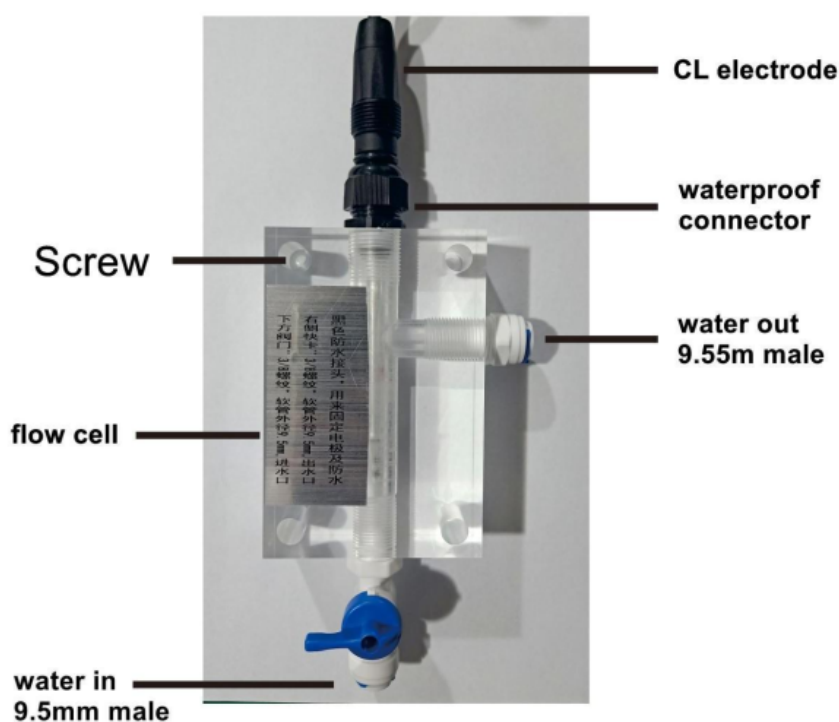
2.1. Main Unit Fixation (Panel Mounting)

Note: For panel mounting, first reserve a 92.5mm×92.5mm square hole on the distribution box panel. Insert the controller directly from the distribution box panel, and sleeve the fixing device attached to the controller from the rear into the fixing slot.

2.2. Panel Mounting Reference Drawing

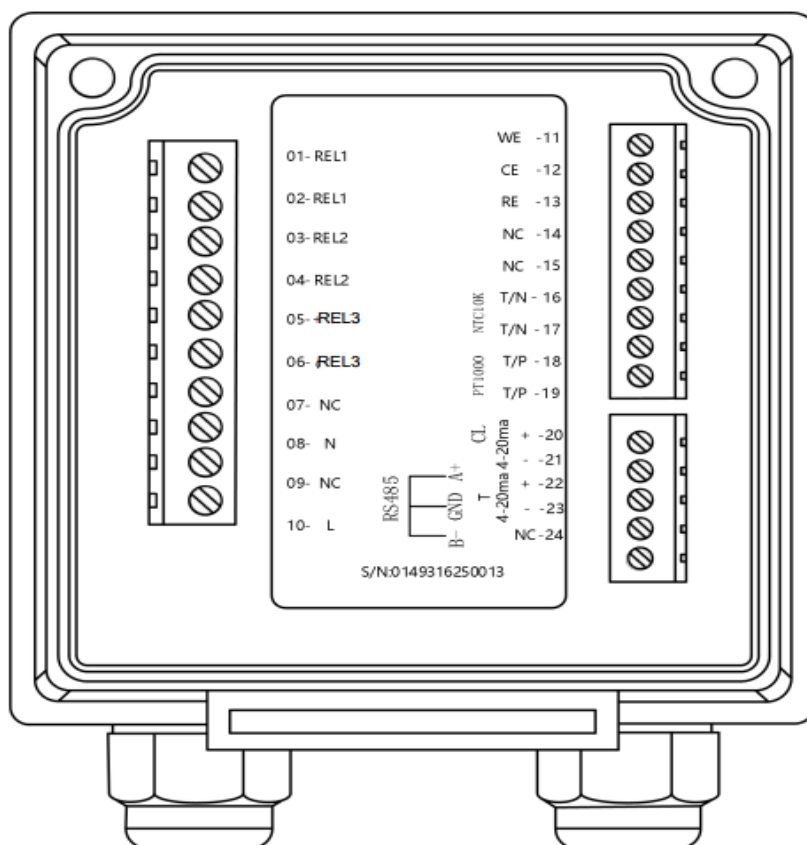


2.3. Assembly of Instrument Inductive Electrode and Electrode Flow Cell



3. Electrode & Electrical Wiring

3.1. Back Panel Wiring Diagram



3.2. Back Panel Terminal Description

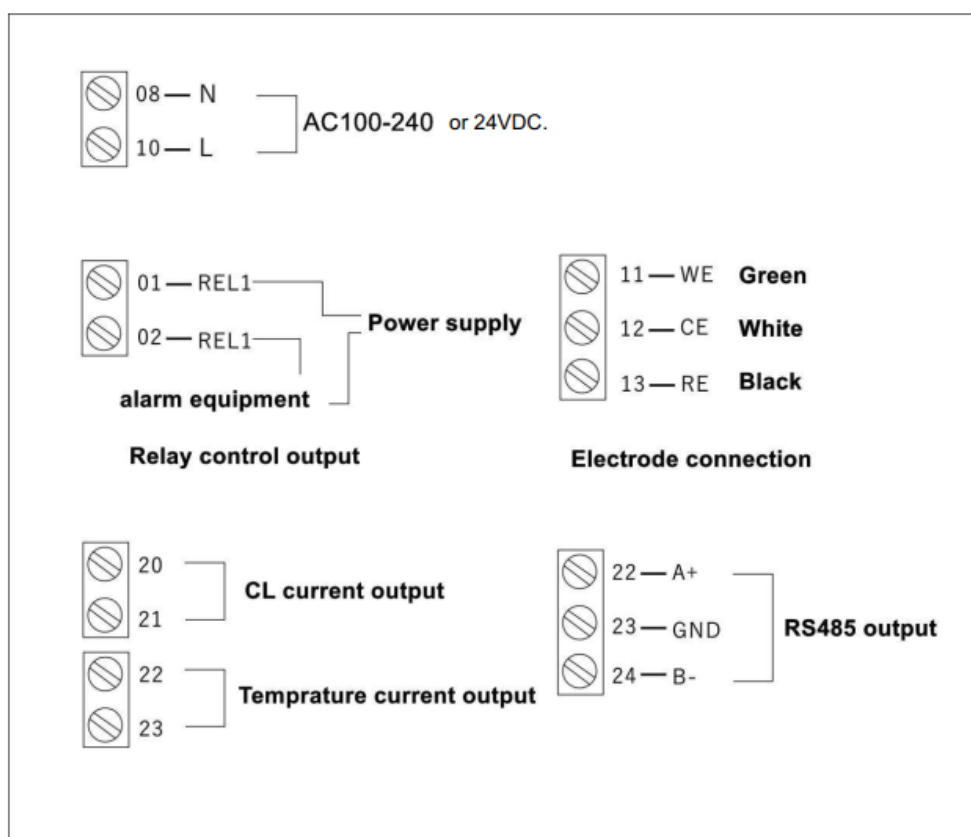
Terminal No.	Description
01 REL1	First alarm control, external relay
02 REL1	First alarm control, external relay
03 REL2	Second alarm control, external relay
04 REL2	Second alarm control, external relay
05 REL3	Third alarm control, external relay, can be connected to cleaning device relay contact
06 REL3	Third alarm control, external relay, can be connected to cleaning device relay contact
07 NC	Empty pin
08 AC/DC	AC power input 220V(N) / DC power input 24V+(DC24V only)
09 NC	Empty pin
10 AC/DC	AC power input 220V(L) / DC power input 24V-(DC24V only)
11 WE	Connect to the working electrode terminal of the residual chlorine electrode
12 CE	Connect to the counter electrode terminal of the residual chlorine electrode
13 RE	Connect to the reference electrode terminal of the residual chlorine electrode
14 NC	Empty pin
15 NC	Empty pin
16 T/N	NTC10K temperature resistor interface 1
17 T/N	NTC10K temperature resistor interface 2
18 T/P	PT1000 temperature resistor interface 1
19 T/P	PT1000 temperature resistor interface 2
20 CL-ma(+)	Positive terminal of residual chlorine current output
21 CL-ma(-)	Negative terminal of residual chlorine current output
22 T-ma(+)/RS485 A	Positive terminal of temperature current output / RS485 A interface
23 T-ma(-)	Negative terminal of temperature current output
24 NC/RS485 B	Empty pin / RS485 B interface

Note:

- AC: 220VAC 50Hz
- DC: 24VDC
- Power: 7W
- Relay: Withstand voltage 220VAC, maximum current 0.5A
- Current Output: Maximum withstand resistance 500Ω

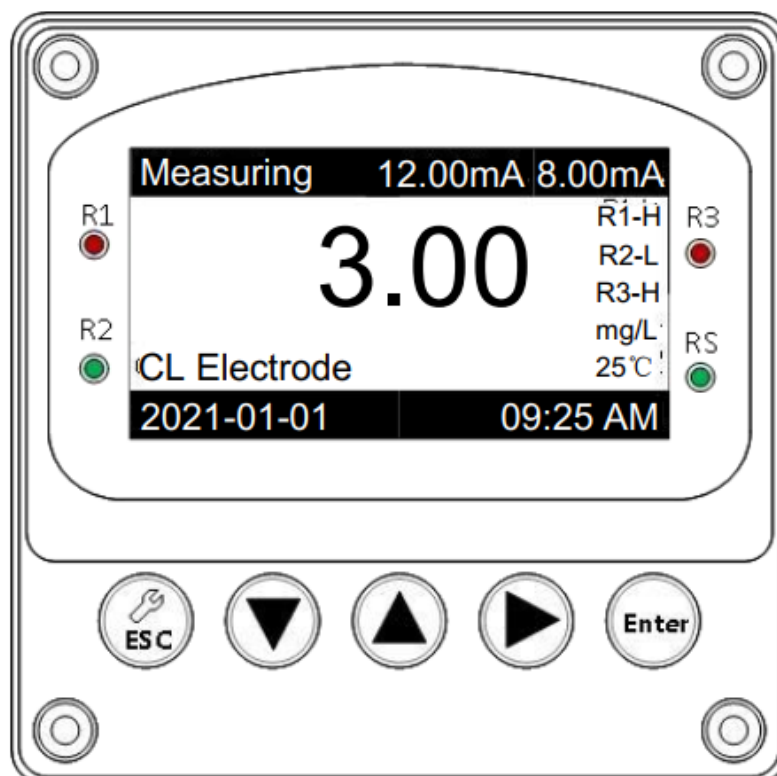


3.3. Electrical Wiring



4. Panel Introduction

4.1. Panel Overview



4.2. Key Instruction

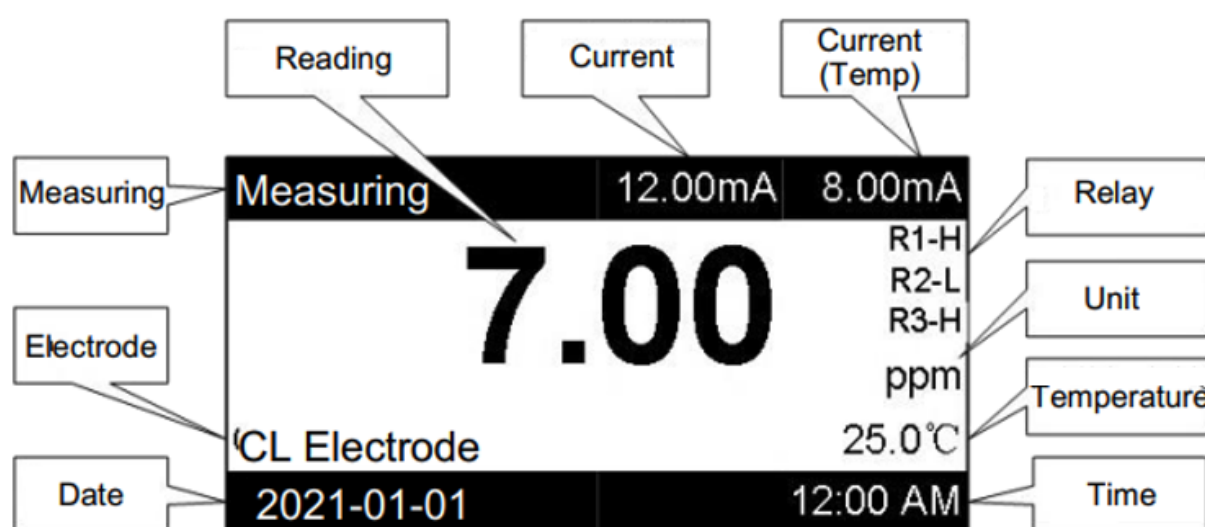
To prevent improper operation by non-users, password protection is enabled when entering parameter settings and calibration. The functions of each key are as follows:

-  : Trigger the setting interface in measurement mode; return to the previous menu in the setting interface.
-  : Used for menu switching and value adjustment in the setting interface.
-  : Used for menu switching and value adjustment in the setting interface.
-  : View historical alarm information in measurement mode; move the cursor in the setting interface.

Enter: View basic system parameters in measurement mode; enter the next-level menu in the setting interface; shortcut key for the system information interface.

4.3. Display Screen Instruction

The system measurement display mode is as follows:



Indicator Light Description:

- R1: Relay 1 action indicator, red light for high alarm, green light for low alarm.
- R2: Relay 2 action indicator, red light for high alarm, green light for low alarm.
- R3: Relay 3 action indicator, red light for high alarm, green light for low alarm.
- RS: RS485 communication indicator.



System Information	Alarm Information
Language: EN	1. 2021-01-01 13:12 R2-L
Type: CL	2. 2021-01-01 14:12 R2-L
Unit: ppm	3. 2021-01-01 15:12 R2-L
Filter: L	4. 2021-01-01 16:12 R2-L
ESC ▼ ▲ ▶ ENT	ESC ▼ ▲ ▶ ENT

System Information (left one): All setting parameters of the instrument are displayed in the system information. Press the Enter key to enter the system information interface.

Alarm Information (right one): Can store up to 30 relay alarm records. Press the key to enter the alarm information interface.

5. Menu Introduction

The instrument is divided into four first-level menus by function. Each first-level menu includes second-level or even multiple sub-level menus. Each menu is numbered for easy viewing and setting of instrument parameters. The sub-level menus will display the setting parameters of the next-level menu in the upper right corner of the screen according to the function, so users can know the instrument parameters without entering the next-level menu.

M

ain Menu (Four First-Level Menus)

1. System Settings: Including language, password, date, backlight.
2. Sensor Settings: Including display mode, electrode coefficient, digital filter, temperature mode, temperature setting (temperature adjustment), temperature compensation.
3. Output Settings: Including Relay 1, Relay 2, Relay 3, Current 1, Current 2 (ModBus RTU).
4. Restore Factory Settings: Including setting restoration, alarm restoration.

Menu Prompt Function

When entering a sub-level menu, the parameter settings of the next sub-level menu will be displayed in the upper right corner of the screen. For example, when entering the backlight of the system settings menu, the backlight parameter is set to 30 seconds.



Menu Overview

1 System Settings	1.1 Language	1.1.1 English 1.1.2 Simplified Chinese
	1.2 Password	1.2 Password Setting
	1.3 Date	1.3.1 Date Format 1.3.1.1 Year-Month-Day 1.3.1.2 Day-Month-Year 1.3.1.3 Month-Day-Year 1.3.2 Date Setting 1.3.2.1 Year 1.3.2.2 Month 1.3.2.3 Day 1.3.2.4 Hour 1.3.2.5 Minute
	1.4 Backlight	1.4.1 30 Seconds 1.4.2 60 Seconds 1.4.3 120 Seconds 1.4.4 Always On
2 Sensor Settings	2.1 Display Mode	2.1.1 20.00ppm 2.1.2 20.00mg/L 2.1.3 20.0ppm 2.1.4 20.0mg/L 2.1.5 20ppm 2.1.6 20mg/L
	2.2 Calibration	2.2.1 Zero Calibration 2.2.2 Slope Calibration
	2.3 Digital Filter	2.3.1 Low 2.3.2 Medium 2.3.3 High
	2.4 Temperature Mode	2.4.1 ATC °C 2.4.2 MTC °C 2.4.3 ATF °F 2.4.4 MTF °F
	2.5 Temperature Setting (Temperature Adjustment)	Temperature Setting (Temperature Adjustment)
	2.6 Compensation Setting	2.6.1 Temperature Compensation 2.6.2 Air Pressure Setting 2.6.3 Salinity Setting 2.6.4 Current Coefficient
3 Output Settings	3.1 Relay 1	3.1.1 Relay 1 Mode 3.1.2 Relay 1 Trigger Value 3.1.3 Relay 1 Hysteresis Value

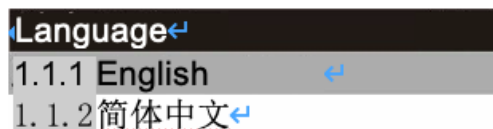


	3.2 Relay 2	Same as Relay 1
	3.3 Relay 3	Same as Relay 1
	3.4 Current 1	3.4.1 Current 1 Mode
		3.4.2 Current 1 4MA Setting
		3.4.3 Current 1 20MA Setting
		3.4.4 Current 1 4MA Calibration
		3.4.5 Current 1 20MA Calibration
	3.5 Current 2 (Optional)	Same as Current 1
	3.5 ModBus RTU (Optional)	3.5.1 ModBus Address
		3.5.2 Baud Rate
		3.5.3 Parity Check
		3.5.4 Stop Bit
4 Restore Factory Settings	4.1 Setting Restoration	Setting Restoration
	4.2 Alarm Restoration	Alarm Restoration

5.1. System Settings

Menu 1.1 Language

The instrument supports two languages: Chinese and English, which can be freely switched. For example: Select Simplified Chinese and press the **Enter** key to confirm, the entire display interface of the instrument will change to Simplified Chinese.



Menu 1.2 Password

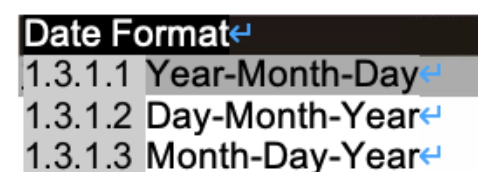
The default password of the instrument is 0000. Customers can change the password as needed. After changing the password, users need to enter the new password to enter the setting menu next time.



Menu 1.3 Date

This menu consists of two sub-menus:

- 1.3.1 Date Format: The instrument supports three date format options, users can choose the appropriate date format according to needs.



2. 1.3.2 Date Setting: Enter the date setting menu to set year, month, day, hour, minute, etc. After successful setting, the system time of the instrument will be automatically changed to the set time.

Menu 1.4 Backlight

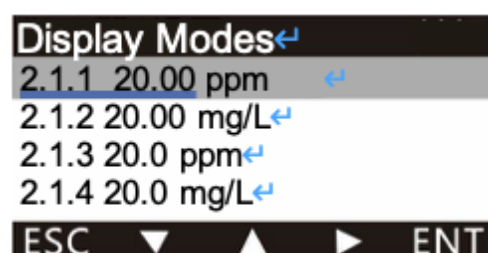
The instrument supports four backlight time options, users can set the corresponding backlight time according to needs. After the instrument reaches the backlight time, the screen will dim.



5.2. Sensor Settings

Menu 2.1 Display Mode

The instrument supports 6 display modes, each representing different measurement accuracy and measurement unit selection.



Note:

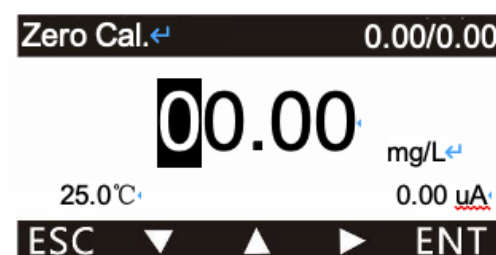
- 20.00ppm: Measurement range 0.00-20.00ppm, unit ppm.
- 20.00mg/L: Measurement range 0.00-20.00mg/L, unit mg/L.
- 20.0ppm: Measurement range 0.0-20.0ppm, unit ppm.
- 20.0mg/L: Measurement range 0.0-20.0mg/L, unit mg/L.
- 20ppm: Measurement range 0-20ppm, unit ppm.
- 20mg/L: Measurement range 0-20mg/L, unit mg/L.

Menu 2.2 Calibration

This menu has two sub-menus:

1. **2.2.1 Zero Calibration:** Distilled water or purified water without residual chlorine is required as the calibration solution. First, clean the probe with clean water and dry it;

Insert the probe into the calibration solution, observe the nA value on the calibration page, wait for the nA value to stabilize around 0.0nA and press the Enter key to confirm. After successful calibration, return to the calibration interface; if calibration fails, it will stay on the zero calibration interface.



2. 2.2.2 Slope Calibration: Put the electrode into the flow cell, pass the water sample for at least 15 minutes until the value stabilizes.

Use a portable or laboratory instrument to sample and measure the actual value, then press the key

to adjust the value to be the same as the residual chlorine value of the water sample, press the Enter key to confirm and complete the calibration.



Menu 2.3 Digital Filter

The measured value of the instrument is filtered by averaging, supporting three digital filter modes.

- Low: Take the average value every 5 seconds.
- Medium: Take the average value every 10 seconds.
- High: Take the average value every 20 seconds.

Note: The change rate of the low point is higher than that of the high point.



Menu 2.4 Temperature Mode

The instrument supports two temperature compensation types: PT1000 and NTC10K, and can freely set two temperature display modes: Celsius and Fahrenheit.

- 2.4.1 ATC°C: PT1000/NTC10K temperature probe, Celsius display mode, automatically identifies PT1000/NTC10K.
- 2.4.2 MTC°C: Manual mode, Celsius display mode.
- 2.4.3 ATF°F: PT1000/NTC10K temperature probe, Fahrenheit display mode, automatically identifies PT1000/NTC10K.
- 2.4.4 MTF°F: Manual mode, Fahrenheit display mode.

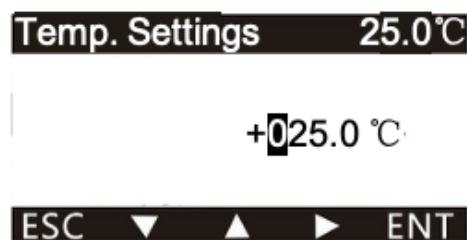


Menu 2.5 Temperature Setting

When the temperature mode is manual compensation, the temperature value herein can be directly modified according to the value measured by a standard thermometer.

After pressing the Enter key, the temperature display of the instrument will be the set value.

When the temperature mode is automatic compensation, the temperature adjustment is divided into two parts: the upper part is the temperature adjustment value, and the lower part is the adjusted temperature display value. After pressing the Enter key, the temperature display of the instrument will be the adjusted value.



5.3. Output Settings

Output settings mainly include Relay 1, Relay 2, Relay 3, Current 1, Current 2 (optional), ModBus RTU (optional). The following takes Relay 1 and Current 1 as examples.

Menu 3.1 Relay 1

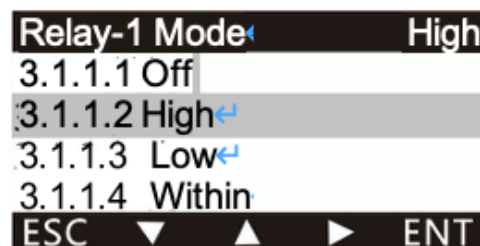
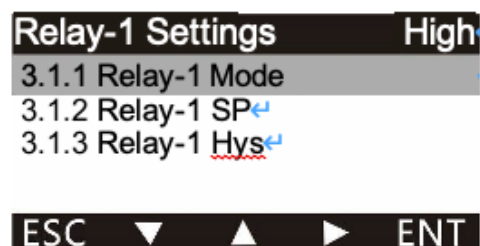
Relay 1 includes 8 sub-menus:

3.1.1 Relay 1 Mode:

- 3.1.1.1 Off,
- 3.1.1.2 High Point,
- 3.1.1.3 Low Point,
- 3.1.1.4 Within Range,
- 3.1.1.5 Outside Range,
- 3.1.1.6 Time Control,
- 3.1.1.7 Temperature High Point,
- 3.1.1.8 Temperature Low Point.

3.1.2 Relay 1 Trigger Value.

3.1.3 Relay 1 Hysteresis Value.



3.1.1 Relay 1 Mode Details

- **3.1.1.1 Relay 1 Off Mode:** Users can select the Relay 1 off mode according to needs, press the Enter key to confirm.
- **3.1.1.2 Relay 1 High Point Mode:** Users can select the Relay 1 high point mode according to needs, press the Enter key to confirm.



Example of high point mode action:

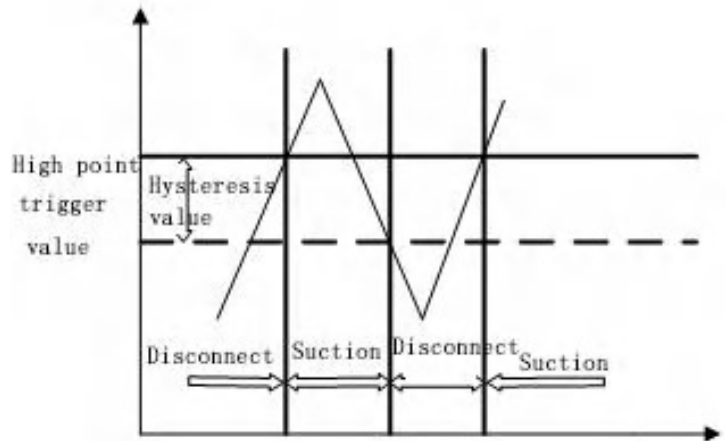
Relay 1 Mode = High Point;

Relay 1 Trigger Value = 5.00;

Relay 1 Hysteresis Value = 1.00.

The working state of the relay is:

the relay pulls in when the display value is higher than 5.00, and disconnects when it is lower than 4.00.



Disconnect value = Trigger Value - Hysteresis Value in high point mode.

- 3.1.1.3 Relay 1 Low Point Mode: Users can select the Relay 1 low point mode according to needs, press the Enter key to confirm.

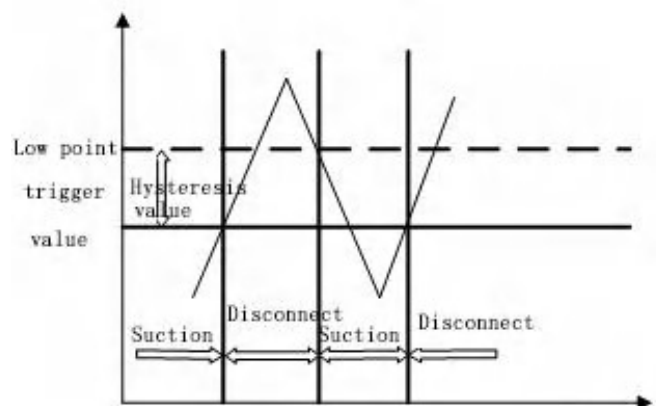
Example of low point mode action:

Relay 1 Mode = Low Point;

Relay 1 Trigger Value = 2.00;

Relay 1 Hysteresis Value = 1.00.

The working state of the relay is: the relay pulls in when the display value is lower than 2.00, and disconnects when it is higher than 3.00.



Disconnect value = Trigger Value + Hysteresis Value in low point mode.

- 3.1.1.4 Relay 1 Within Range Mode: Users can select the Relay 1 within range mode according to needs, press the Enter key to confirm.

Example of within range mode action:

Relay 1 Mode = Within Range; Relay 1 Trigger Value 1 = 5.00; Relay 1 Trigger Value 2 = 8.00;

Relay 1 Hysteresis Value = 1.00.

The working state of the relay is: the relay pulls in when the display value is lower than 8.00, disconnects when it is lower than 4.00; pulls in when the display value is higher than 5.00, disconnects when it is higher than 9.00.



Disconnect value = Trigger Value 1 - Hysteresis Value = Trigger Value 2 + Hysteresis Value
in within range mode.

- **3.1.1.5 Relay 1 Outside Range Mode:** Users can select the Relay 1 outside range mode according to needs, press the **Enter** key to confirm.

Example of outside range mode action:

Relay 1 Mode = Outside Range; Relay 1 Trigger Value 1 = 5.00; Relay 1 Trigger Value 2 = 8.00;
 Relay 1 Hysteresis Value = 1.00.

The working state of the relay is: the relay disconnects when the display value is lower than 7.00, pulls in when it is lower than 5.00; disconnects when the display value is higher than 6.00, pulls in when it is higher than 8.00.

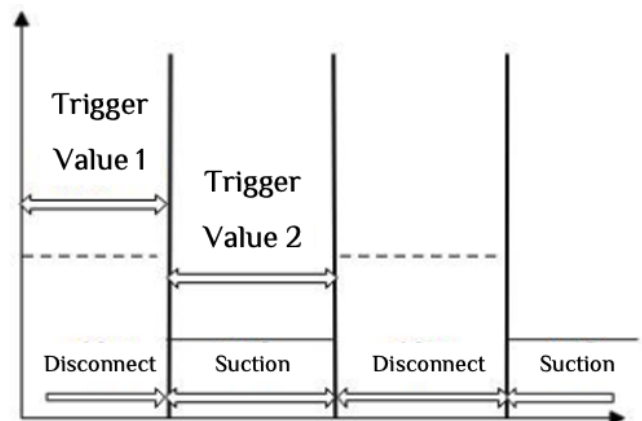
Disconnect value = Trigger Value 1 + Hysteresis Value = Trigger Value 2 - Hysteresis Value
in outside range mode.

- **3.1.1.6 Relay 1 Time Control Mode:** Users can select the Relay 1 time control mode according to needs, press the **Enter** key to confirm.

Example of time control mode action:

Relay 1 Mode = Time Control;
 Relay 1 Trigger Value 1 = 20 Sec;
 Relay 1 Trigger Value 2 = 10 Sec.

The working state of the relay is:
pulls in for 20Sec, disconnects after a
delay of 10Sec, pulls in again after 20Sec,
 and so on.



- **3.1.1.7 Relay 1 Temperature High Point Mode:** Users can select the Relay 1 temperature high point mode according to needs, press the **Enter** key to confirm.

Example of temperature high point mode action:

Relay 1 Mode = Temperature High Point; Relay 1 Trigger Value 1 = 30°C; Relay 1 Hysteresis Value 1 = 10°C.



The working state of the relay is: pulls in when the display temperature is higher than 30°C, disconnects when it is lower than 20°C.

Disconnect value = Trigger Value - Hysteresis Value in temperature high point mode.

- **3.1.1.8 Relay 1 Temperature Low Point Mode:** Users can select the Relay 1 temperature low point mode according to needs, press the Enter key to confirm.

Example of temperature low point mode action:

Relay 1 Mode = Temperature Low Point; Relay 1 Trigger Value 1 = 30°C; Relay 1 Hysteresis Value 1 = 10°C.

The working state of the relay is: pulls in when the display temperature is higher than 30°C, disconnects when it is lower than 40°C.

Disconnect value = Trigger Value + Hysteresis Value in temperature low point mode.

Menu 3.2 Relay 2

The setting of Relay 2 is the same as that of Relay 1, please refer to the setting of Relay 1.

Menu 3.3 Relay 3

The setting of Relay 3 is the same as that of Relay 1, please refer to the setting of Relay 1.

Menu 3.4 Current 1

This menu is divided into 5 sub-menus:

3.4.1 Current 1 Mode:

3.4.1.1 Off,

3.4.1.2 Main Data,

3.4.1.3 Temperature Data

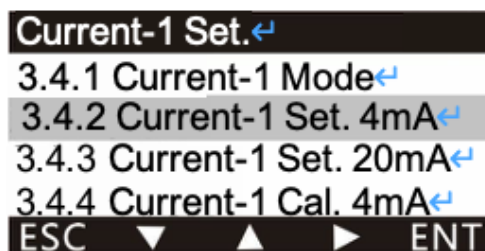
3.4.2 Current 1-4ma Setting:

3.4.3 Current 1-20ma Setting:

3.4.4 Current 1-4ma Calibration:

3.4.5 Current 1-20ma Calibration:

3.4.1 Current 1 Mode: Three modes available—Off, Main Data, Temperature Data. Users can freely select the output mode of Current 1, press the Enter key to confirm, and the system will automatically save the setting value.



3.4.2 Current 1-4ma Setting:

Users can freely set the 4ma setting value of Current 1.

Current-1 Set. 4mA 0.00mg/L

00.00 mg/L

ESC ▼ ▲ ► ENT

3.4.3 Current 1-20ma Setting:

Users can freely set the 20ma setting value of Current 1.

Current-1 Set. 20mA 20.00mg/L

20.00 mg/L

ESC ▼ ▲ ► ENT

3.4.4 Current 1-4ma Calibration: After entering the calibration interface, the current output value will be displayed on the screen. Use an ammeter to measure the output current value of Current 1, and adjust the current value on the screen to be the same as the current value measured by the ammeter.

Current-1 Cal. 4mA 4.09mA

04.09 mA

ESC ▼ ▲ ► ENT

3.4.5 Current 1-20ma Calibration: The setting of 20ma is the same as that of 4ma, please refer to 4ma calibration.

Note: The residual chlorine value set for 4-20ma corresponds to the current value one-to-one. The calculation formula is: $\text{outMa} = (20.00 - 4.00) / (\text{endMa} - \text{startMa}) * (\text{hold} - \text{startMa}) + 4.00$. Where:

outMa = output current value;

startMa = residual chlorine value set for 4ma;

endMa = residual chlorine value set for 20ma; hold = current measurement value.

For example: 4ma is set to 0.00ppm, 20ma is set to 20ppm, when the residual chlorine value is 10ppm, the current output is 12.00ma.

Menu 3.5 Current 2 (Optional)

The setting of Current 2 is the same as that of Current 1, please refer to Current 1.



Menu 3.5 ModBus RTU (Optional)

This menu is divided into 4 sub-menus:

1. **3.5.1 ModBus Address:** Users can set the ModBus address according to needs, the setting range is 1-255, press the Enter key to confirm.
2. **3.5.2 Baud Rate:** Users can set the baud rate according to needs, four modes available—2400, 4800, 9600, 19200, press the Enter key to confirm.
3. **3.5.3 Parity Check:** Users can set the parity check according to needs, three modes available—No Check, Odd Check, Even Check, press the Enter key to confirm.
4. **3.5.4 Stop Bit:** Users can set the stop bit according to needs, two modes available—1 bit, 2 bits, press the Enter key to confirm.

5.4. Restore Factory Settings

Menu 4.1 Setting Restoration

Press the **Enter** key to confirm, and all parameter settings of the instrument will be restored to the default values.

Factory Reset ←

4.1 Settings Reset ←

4.2 Alarm Reset ←

Menu 4.2 Alarm Restoration

Press the **Enter** key to confirm, and the alarm information of the instrument will be cleared.

ESC ▼ ▲ ► ENT

6. Appendix: Communication Protocol

MODBUS Communication Protocol

Communication Settings: 9600 N 8 1				
Communication Protocol: MODBUS RTU				
Communication Function Codes: 0x03 Read 0x06 Modify				
Function Code	Address	Name	Data Format	Description
03	1008-1009	Main Measurement Value	IEEE754 32-bit Floating Point	Residual Chlorine Value
03	1010-1011	Temperature Value	IEEE754 32-bit Floating Point	Temperature Value
03	1012	Main Measurement Unit	INT16	See Unit Table
03	1013	Temperature Measurement Unit	INT16	See Unit Table
03/06	3600	Device Address	INT16	Address Range 1-255
03/06	3601	Baud Rate	INT16	0:2400 1:4800 2:9600 3:19200



Communication Settings: 9600 N 8 1
 Communication Protocol: MODBUS RTU
 Communication Function Codes: 0x03 Read 0x06 Modify

Function Code	Address	Name	Data Format	Description
03/06	3100	Relay 1 Output Setting	INT16	0: No Output 1: Main Data High Point 2: Main Data Low Point 3: Temperature High Point 4: Temperature Low Point
03/06	3101-3102	Relay 1 Trigger Value	IEEE754 32-bit Floating Point	
03/06	3103-3104	Relay 1 Hysteresis Value	IEEE754 32-bit Floating Point	
03/06	3200	Relay 2 Output Setting	INT16	0: No Output 1: Main Data High Point 2: Main Data Low Point 3: Temperature High Point 4: Temperature Low Point
03/06	3201-3202	Relay 2 Trigger Value	IEEE754 32-bit Floating Point	
03/06	3203-3204	Relay 2 Hysteresis Value	IEEE754 32-bit Floating Point	
03/06	3300	Current 1 Output Setting	INT16	0: No Output 1: Measurement Value 2: Temperature Value
03/06	3301-3302	Current 1-4ma Corresponding Value	IEEE754 32-bit Floating Point	
03/06	3303-3304	Current 1-20ma Corresponding Value	IEEE754 32-bit Floating Point	

Example: Reading Measurement Value

Master Station Sending Command (Hexadecimal):

Device Address	Function Code	Register Address High	Register Address Low	Register Length High	Register Length Low	CRC Low	CRC High
01	03	03	0F	00	02	C4	L

Data Received by Master Station:

Device Address	Function Code	Data Length	4-byte Floating Point	CRC High	CRC Low
01	03	04	00 00 40 E0	CA	7B



Note: The floating-point data is in 32-bit IEEE 754 format. As shown in the above table, it is transmitted as two 16-bit register data. The latter 16-bit register (00 00) is transmitted first, and the former 16-bit register (40 E0) is transmitted later. Each 16-bit format is high byte first, low byte later. For example, if the current residual chlorine measurement value is 7.00, the hexadecimal display of the floating-point number is 40 E0 00 00, and the transmission order is 00 00 40 E0.

Abnormal Response Format Description

If the sensor cannot correctly execute the upper computer command, it will return the following format information:

Definition	Address	Function Code	CODE	CRC Check
Data	ADDR	COM+80 H	XX	CRC 16
Byte Count	1	1	1	2

a) CODE:

- 01 – Illegal Function Code
- 02 – Illegal Data Address Bit
- 03 – Illegal Data

b) COM: Received Function Code



Attached Table (Unit)

Code Unit	Code Unit
0 No Unit	1 PH
2 MV (Millivolt)	3 V (Volt)
4 $\mu\text{s/cm}$	5 ms/cm
6 Ω (Ohm)	7 K Ω (Kiloohm)
8 M Ω /cm (Megaohm/cm)	9 mg/L
10 ppm	11 % (Percentage)
12 ‰ (Per mille)	13 nA (Nanoampere)
14 mA (Milliampere)	15 NTU
16 FTU	17 EBC
18 JTU	19 mm/a (Millimeter/Year)
20 Mpy (Mils per Year)	21 mil/a (Mils per Year)
22 $\mu\text{A/cm}^2$ (Microampere/Centimeter ²)	23 mg/(dm·d) (Milligram/(Decimeter·Day))
24 Mdd (Milligram/(Decimeter·Day))	25 g/(m·h) (Gram/(Meter·Hour))
26 g/(m·d) (Gram/(Meter·Day))	27 °C (Celsius)
28 °F (Fahrenheit)	29 °K (Kelvin)
30 Year	31 Month
32 Day	33 Hour
34 Minutes	35 Second
36 Bar	37 ph-Tl



For other question, feel free to contact us.

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