# **CLG-6059T Residual Chlorine Analyzer**

# **User Manual**



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#### **Chapter 1 Product Overview**

New online residual chlorine analyzer can directly integrate residual chlorine and pH value into a complete machine, and centrally view and manage it on the touch screen panel display; the system integrates water quality online analysis, data remote transmission, database and calibration functions, which provides great convenience for the collection and analysis of residual chlorine data in water quality.

The water part adopts the company's latest application research results - constant flow flow analysis device, which requires less water samples and has strong real-time performance. When a small water sample flows through the pH and residual chlorine sensors, according to different technical characteristics and The response sequence is sorted, and all parameters are captured in real time when the water sample passes through the circulation device, and it can also be connected to the central control room or the upper computer through numerical communication.

#### Features

1.Realize intelligent online monitoring application through flexible configuration of intelligent instrument platform software and combined parameter analysis module;

2.Drainage integration system integration, constant flow circulation device, using a small number of water samples to complete a variety of real-time data analysis;

3.It has automatic online sensor and pipeline maintenance, rarely requires manual maintenance, creates a good operating environment for parameter measurement, integrates and simplifies complex on-site problems, and eliminates uncertain factors in the application process;

4.Built-in decompression device and patented constant flow rate technology are not affected by changes in pipeline pressure, ensuring constant flow rate and stable analysis data;

5. The optional remote data link allows customers to strategize and win thousands of miles away

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#### **Technical Indexes**

Measurement configuration		pH/Temp/residual chlorine			
Measuring range	Temperature	0-60℃			
	рН	0-14pH			
	Residual chlorine analyzer	0-20mg/L (pH: 5.5-10.5)			
Resolution and accuracy	Temperature	Resolution: $0.1^{\circ}$ C Accuracy: $\pm 0.5^{\circ}$ C			
	рН	Resolution: 0.01pH Accuracy: ±0.1 pH			
	Residual chlorine analyzer	Resolution: 0.01mg/L Accuracy: ±2% FS			
Communication Interface	RS485	•			
Power supply	AC 220V±10%				
Water flow	15L-30L/H				
Working Environment	Temp: 0-50℃;				
Total power	50W				
Inlet	6mm				
Outlet	10mm				
Cabinet size	600mm×400mm×230mm(L	×W×H)			

# **Chapter2 Appearance And Structure**

#### **Product Appearance**

Touch screen: real-time display of monitoring parameters, and can be operated by touch.

The instrument has a built-in electronic measurement and control unit. After the lower cover of the instrument is opened, it is the sensor wiring terminal. There is a USB socket on the side of the display screen, which can export data.



The internal wiring of the instrument is connected and the sensor is installed. When customers use it, they only need to unpack the electrode, remove the protective cap, and insert it into the flow cell. Plug in the power again, connect the inlet and outlet.

## **Chapter 3 Software Interface Operation Instructions**

#### **Overview:**

The software interface operating system includes: main page, historical data, calibration and other operation items. After the device is powered on, it will automatically enter the main measurement interface - real-time data interface.

The real-time data interface displays real-time measurement data, which can clearly and intuitively reflect various indicators of the current water quality, so that customers can timely and accurately understand the current water quality parameters and conduct scientific management. as the picture shows:



Click "Historical Data" to view the data records:

Historical data is a record of the measurement data for a period of time before the current measurement data of the equipment. This data provides a reliable guarantee for users to grasp the data measured by the equipment under unmanned operation and supervision, and it is also convenient for customers to inquire about the changes in water quality in a specified time period and provides a strong guarantee.

ome page	Curve	History Data	Calibrate	Systems			
			CL Cı	irve			Page
20							
16							_
12							_
8							
4							
0	15:09	15:12	15:16	15:19	15:22	15:26	

Click "Data Backup" on the "History Data" interface to pop up the data export interface. You can insert the USB flash drive, select the start time of the data to be exported, and click the corresponding export button to export the data to the USB flash drive.

Button function description:

Export data: Export all data to a USB stick.

Yesterday's report: Export yesterday's data to the USB flash drive.

Same day report: Export the current day data to the USB flash drive.

Last month's report: Export last month's data to a USB flash drive.

Monthly report: Export this month's data to the USB flash drive.

xport re	port			×
Filter	ing			
Start	ing Time:	2015-01	-01 12:00:0	00
End	Time :	2020-01	-01 12:00:0	00
Expor	t data 🛛 0	item		
Export data	Yesterday report	Daily Report	Lastmonth report	Monthly report

Click "History Curve" on the main toolbar to view historical data curves:

BOQU	Shanghai	boqu inst	rument co.,	1td	Date 2022-01-05 Time 19:16:58
Home page Curv	e History Da	ta Calibrate	Systems		
20. 00 Content	Coordinate Range V k 1Hour 18:5	alue Unit 2:55			
16.00 CL Temp	0.00°20.00 0.0°100.0 0.00°14.00	mg/L C			
12.00					
8.00					
4.00					
0.00					
18:16:57	18:31:57	18 ₩ ₩	3:46:57 Backup	19:01:5	57 19:16:57

The yellow list area on the left: displays the specific parameter data and recording time at the current cursor position, as shown in the figure below:

	Content	<b>Coordinate Range</b>	Value	Unit
	Absolute clock	1Hour	18:53:47	
	CL	0.00~20.00		mg/L
Í	Тетр	0.0~100.0		r
	pН	0.00~14.00		pН

Historical curve button function description:



•

Scroll backwards (left end of the X axis) half a page,



Scroll forward (the right end of the X axis) one main line position,



Scroll forward halfway (X-axis right end),



Scroll forward halfway (X-axis right end),





Set the curve start time

Button, you can select the time period and view the historical data curve, see the following figure:

Click "System", you can select the time setting and enter the menu, as shown below:



Enter the year, month, day, hour, minute, and second in the corresponding boxes, and click OK to set the current system time.

## **Chapter4 Calibration And Setting**

#### **Instrument Calibration**

Click the "Calibration" button on the main toolbar of the touch screen, input password "7320" which will display the calibration selection interface:

POOL		Chang	hoi									4.4	Date	2022-01-05
<b>BUUU</b> 博取仪器			nai	DC	oqu	1118	stri	Ime				ια	Tine	19:23:17
Home page	Curve	Log On								1				
		Usern	iame:	A	Imin							•		Back
		Passw	ord:										D	
		1	2	3	4	5	6	7	8	9	0	<-	S	
		A	в	с	D	E	F	G	н	ΞĒ.	J	Del		
		к	L	м	N	0	Р	Q	R	s	т	Cap		
		U	v	w	×	Y	z		ок		Can	cel		
				,	,									
		_												

After the password is entered correctly, as shown in the following figure:

BOQU		Shanghai bo	qu instr	ument co.	ltd	Date Time	2022-01-05 19:23:40
傳取仪器 Home page	Curve	History Data	Calibrate	Systems			
			CL C-14				
		l l	CL Call	oration			
			pH Calib	oration			

#### **1.Residual Chlorine Calibration**

BOOU		Date Time	2022-01-05 19:24:00				
Home page	Curve	History Data	Calibrate	Systems			
		Communica	tion	2.00			Back
	C	0.00	mg/L	Current	0. 00	nA	
	Z Calil	ero pration		Zero qualified			
	Input C	L Value	0.00	Slope qualified	S	ave	

**Zero calibration**: First clean the sensor, put it in distilled water or boiled cold water, wait for 3 minutes, when the current value is stable, click "zero pass".

**Slope calibration**: Then clean the sensor, put it in the standard solution or water sample of known concentration, input the standard solution value, wait for 3 minutes, when the current value is stable, click "Slope Qualified", and then click Save the result to complete the calibration .

Note: Zero and standards are calibrated at the factory. Generally do not need to be calibrated by the customer.

#### 2. pH Calibration

Click "PH Calibration" to enter the pH calibration interface. As shown below:



After entering the calibration merrace, mst enter the standard inquid type, o is the international standard, 1 is the Chinese standard.

Zero calibration: first put it into the standard solution of 7.00, wait for 1 minute, and after the potential value is stable, click zero to pass.

Slope calibration: Clean the electrode again, put it in the standard solution of 4.00 or 10.00, wait for 1 minute, and after the potential value is stable, click on the slope qualified to complete the calibration.

### **Chapter 5 Fault And Handling**

No.	Fault	Handling
1	No display on touch screen	Check whether the power supply has electricity; Whether the power cord is in good contact; Whether the connection of the nine-pin socket behind the touch screen is firm;
2	Large difference in measurement data	Please take the corresponding electrode and recalibrate it.

### **Chapter 6 Precautions**

When using it for the first time, put the instrument securely, connect the inlet and outlet pipes, and then turn on the power. The protective cap at the front of the electrode needs to be removed. Electrodes are consumables that need to be cleaned regularly and are recommended to be replaced at least once a year.

Secondly, if the electrode does not touch the water sample for a long time, the instrument should be powered off and the electrode should be cleaned to avoid damage to the electrode.

## **Chapter 7 Communication Of RS485 MODBUS**

#### 1. Parameter setting for communication

- (1) Common baud rate:19200, 9600, 4800, 2400.Default use 9600
- (2) Data bit:8
- (3) Parity check: no check, odd check, even check. The default is no check
- (4) Stop bit:1
- (5) Instrument address:default is 5.

#### 2. Communication Instruction Format

Data Read Command:

Address + function code + register start address + register read number + CRC check code (hexadecimal) Sample: 05 03 00 00 06 c4 4c (Read one data)

Address	function code	register start address	register read number	CRC check code
05	03	0000	0006	c4 4c

Data Return Command:

Address+ function code+Data length+Data 1+.....+Data 3+ CRC check code(hexadecimal)

Sample: 05 03 04 00 00 61 13 d7 ae

Address	Function code	Data length	Data 1	Data 3	CRC check code
05	03	0B	00 00 61 13		CRC

The data is a floating-point number, and the decoding order is ABCD. The decoding is sequential, and the high and low bytes are not reversed.

For example, the calculation using software is as follows:

<u> 16(IEEE-754)</u> to10	×
IEEE-754 Hexade	cimal number to decimal floating point number
Hexadecimal :	00006113
	\$00 \$00 \$61 \$13 Conversion
Decimal Floating:	3.4823668136936E-

Register 40001: Residual Chlorine Register 40003: Temperature Register 40005: pH