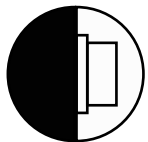
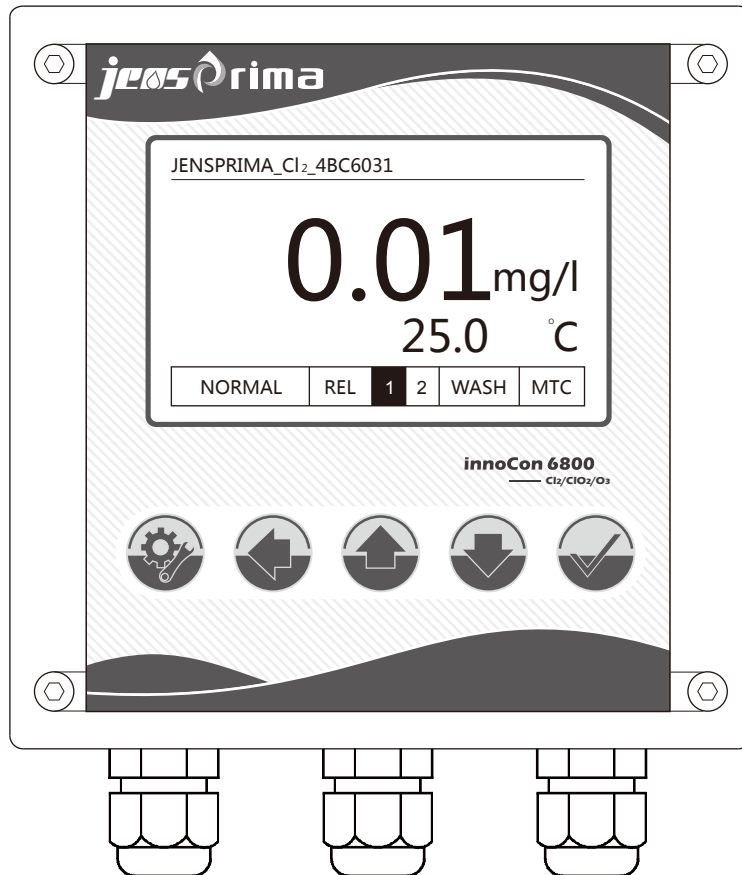


innoCon 6800CL
Online Cl₂/ClO₂/O₃ Analyzer
Operating Instruction



WALL MOUNTING

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Safety



- ✓ This manual introduces all the risks that may arise during the use of this equipment, and provides safety instructions.
- ✓ Please strictly follow the safety instructions during operation. Any operation in violation of the rules may endanger the operator.
- ✓ Please read the entire manual carefully before using the instrument.
- ✓ Please make sure this manual is available for all users at any time.
- ✓ Please make sure this manual is delivered to the third party along with innoCon 6800.

Qualifications of operator

A basic knowledge of electrical engineering is required for the installation and commissioning of this instrument, which means its installation and commissioning must be carried out or supervised by personnel with relevant expertise.

Legal requirements

- ✓ During the installation and operation of this instrument, please strictly follow the governing laws and regulations on safety, procedures and environmental protection of corresponding regions and countries.
- ✓ During the installation and commissioning of this instrument, please strictly follow all the laws and regulations of corresponding regions and countries.

Sensor

Please use sensors manufactured by **jensprima**; Damages to the instrument caused by the use of sensors not manufactured by **jensprima** within the warranty period will not be covered by the warranty.

Modification and updating

Only technicians authorized by **jensprima** can modify and update the instrument. **jensprima** is exempt from any damage to the instrument arising from modification or updating by unauthorized personnel.

Signs



This sign is used to caution the operator against any possible danger.



This sign is used to instruct the operator.

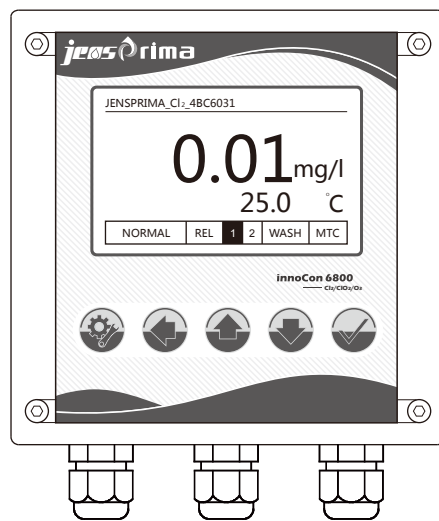
Product Introduction

General information

innoCon 6800CL controller is specially designed for water treatment and industrial process control. Used with innoSens 710 sensor and PA-711 flow cell, it can measure the concentration of residual chlorine, chlorine dioxide and ozone in the water. Its adoption of membrane free constant voltage sensor eliminates the need for membrane and reagent replacement. Furthermore, it is highly sensitive and stable, only requiring simple maintenance.

Application

Disinfection process, potable water, drink industry, swimming pool, etc.



Unpacking and inspection

1. innoCon 6800CL controller
2. PA-711 flow cell (additional purchase)
3. Manuals in Chinese and English
4. innoSens 710 sensor (additional purchase)

Features

- ✓ Latest broad power supply input, most effective anti-interference design
- ✓ Etched case made of flame retardant plastic, providing better safety and texture
- ✓ Large backlit LCD display for readings, temperature and status of relays
- ✓ Menu in both Chinese and English, simple operation
- ✓ Password protection to prevent unauthorized operation
- ✓ Fast, complete and updated tips on calibration steps to minimize operational mistakes
- ✓ Enclosure rating compliant with NEMA4X/IP65, various mounting methods
- ✓ 2 groups of relays to be set at Hi/Lo output
- ✓ Auto cleaning relay output
- ✓ 2 lines of 4-20mA current/RS485 Modbus output
- ✓ Factory settings restored with one button press

Specifications



The controller has to be connected to a potentiostatic sensor innoSens 710 and a flow cell PA-711.

Specifications of innoCon 6800CL controller

Parameter	Cl ₂ /ClO ₂ /O ₃
Range	0~2.000mg/l, 0~20.00mg/l (ppm)
Resolution	0.001mg/l / 0.01mg/l
Accuracy	±2% F.S.
Temperature sensor	Pt 1000/NTC 10K
Temp. compensation	-10.0~120.0°C
Ambient temperature	0~70.0°C
Stored temperature	-20~70.0°C
Cutout size	Large LCD backlit display
Analog Output 1	4 to 20mA for Cl ₂ /ClO ₂ /O ₃ , load < 600Ω
Analog Output 2	4 to 20mA for temperature, load < 600Ω
Communications	RS485 Modbus RTU
Relay	2 sets of ON/OFF relay and one set of Wash relay, Hi/Lo alarm points can be set independently, with hysteresis function, 5A/250VAC, 5A/30VDC
Wash Relay	Wash interval: 1-999hour, Wash time: 1-999second
Language	Chinese/English
Power	90-260VAC,50/60Hz±24VDC(optional)
Enclosure rating	IP65
Installation	Wall /Piping/Panel mounting
Size	144 x 144 x 110mm
Cutout size	138 x 138mm
Weight	0.85Kg

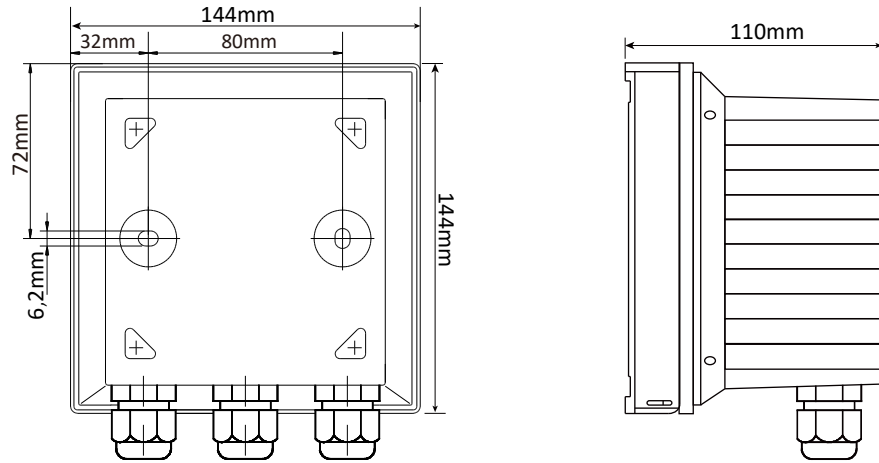
innoSens 710 electrode

Working temperature	0~60°C
Max. pressure	6bar
Material	Glass
Cabel	3m

Installation

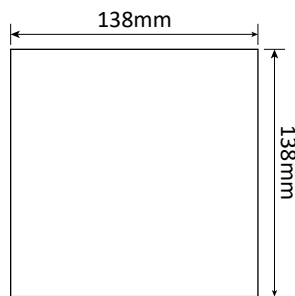
The instrument can be flush mounted, pipe mounted and wall mounted.

Size

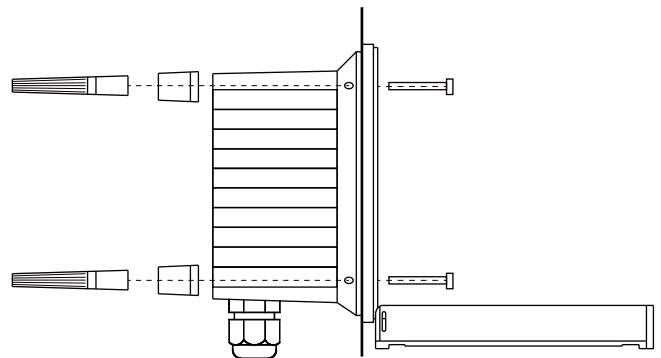


Flush mounting

Make a hole of 138 x 138mm on the instrument case, put the instrument into the case from the front of the panel of the case, insert screws from the back cover, and then lock the fastening block to the fastening bar from the back of the panel.

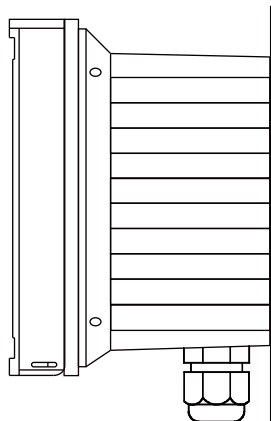


Cut size

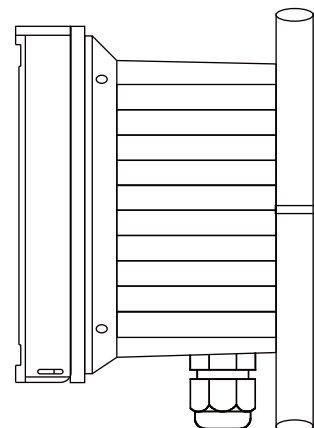


Holder for panel mounting

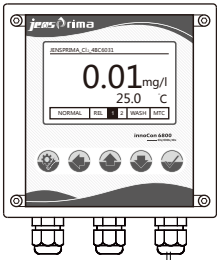
Installation requirements



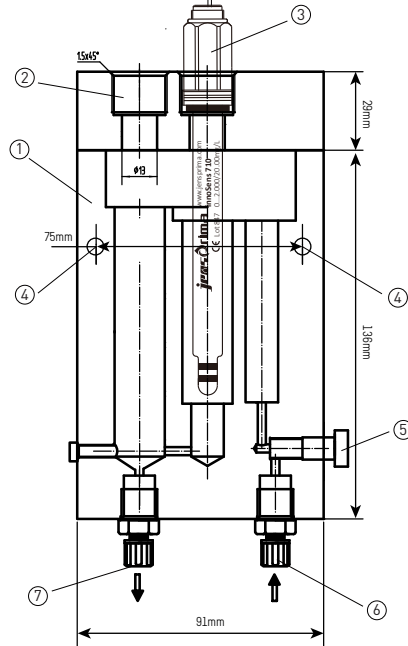
Wall mounting



Pipe mounting



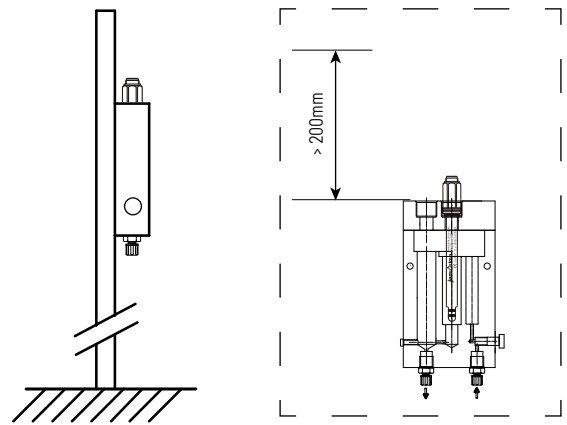
Installation of sensor



1. Flow cell body
2. Reserved hole
3. innoSens 710 electrode
4. Fixing holes
5. Flow control
6. Inlet (4x6 mm)
7. Outlet (6x8 mm)

Install requirement:

- 1) water inlet pressure: 0.2 ~ 1 bar
- 2) water inlet capacity: 10 ~ 30 litre/hour
- 3) water inlet temperature: 0 ~ 50°C



Installation requirements

innoCon 6800 controller

The instrument should be mounted as close to the sample water as possible to ensure the accuracy of measurement.

innoSens 710 electrode

Only when there is sample water passing through the flow cell continuously, can the sensor be inserted into the hole in the flow cell. At the same time, the sensor must be kept in the sample water. If there is no water flowing through the cell, the sensor must be taken out and put into its original protective bag, which should contain protective fluid.

PA-711 flow cell

PA-711 flow cell should be mounted near innoCon 6800CL controller and fixed on a hanging board, which should then be fixed on a bracket or a vertical wall. Connect the water inlet hose and outlet hose to respective connectors. The drain pipe should be placed vertically downwards and be configured to discharge without back pressure.

Inlet water requirements:

- Inlet water pressure: 0.2 - 1bar
- Inlet water velocity: 10 - 30L/h
- Inlet water temperature: 0 - 50 °C

Notes: If there are large floating particles in the sample water, a filter must be installed at the starting end of the water inlet hose to prevent the flow cell from being clogged. Adjust the water inlet valve of PA-711 flow cell until the flow cell is a little overflowed and at the same time there is no observable water pool in the drain pipe. After this, keep the valve where it is, so that the sample water will flow into the inlet hose at a stable velocity.

Electrical Connections



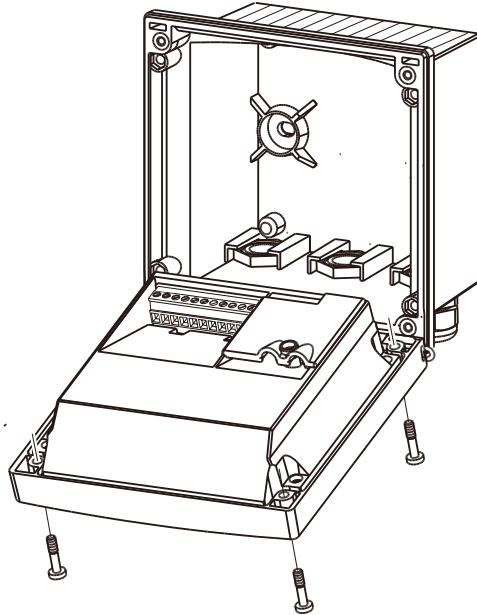
Danger:

Electrical connections must be carried out by technicians with special training.

Notes:

Power supply must be cut off prior to any connection, otherwise the instrument and the sensor are likely to be damaged.

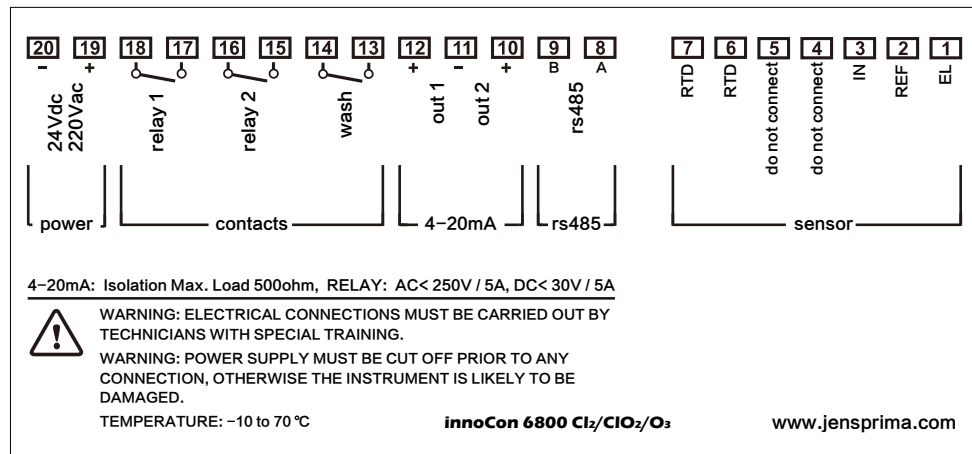
The connectors of the controller are located behind the instrument cover, and only technicians with special training can open the cover to perform connections for power supply, relay and signal output.



Terminals



It is not recommended to either extend the electrical wire of the sensor or cut the original electrical wire. If there is a need to extend the electrical wire, a super insulated electrical junction box is recommended rather than extension of the electrical wire.



Descriptions of Terminals

sensor

- 1 EL
- 2 REF
- 3 IN
- 4 do not connect
- 5 do not connect
- 6 RTD (GND)
- 7 RTD

Please connect GND of sensor with Terminal 6.

power (24Vdc or 90-260Vac)

- 19 + --live wire of power supply
- 20 - --neutral wire of power supply

Analog current output

- 10 + out 2 --Temperature
- 11 - out 1 -- Cl₂/ClO₂/O₃
- 12 +

RS485 output

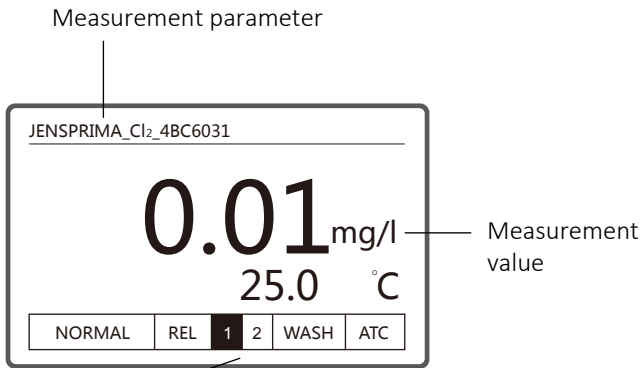
- 8 A rs485
- 9 B

contacts (AC<250V/5A, DC<30V/5A)

- 17 relay1
- 18
- 15 relay2
- 16
- 13 wash relay
- 14

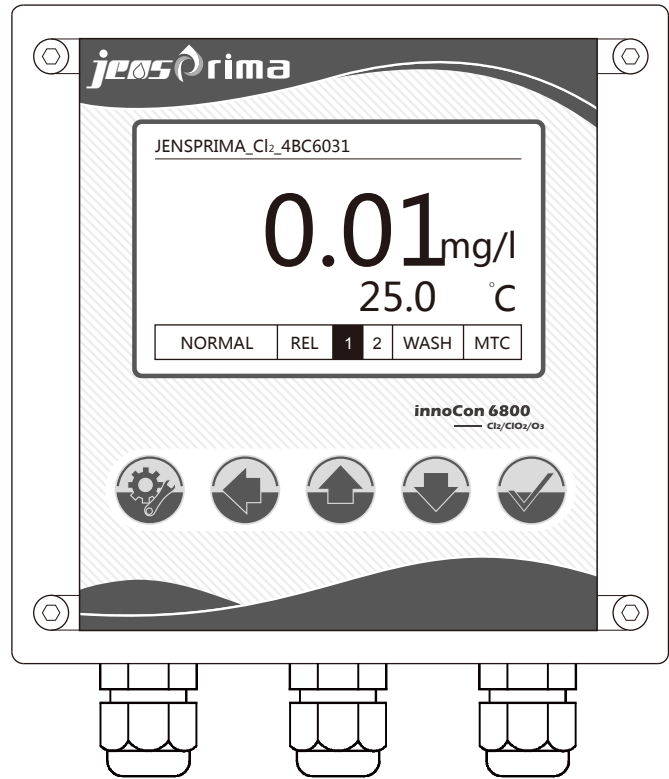
Display

Front view of the controller



Status

- NORMAL -- the system functions are normally
- REL 1,2 -- status of Relay 1 and 2
- WASH -- status of the washing relay
- ATC -- temperature compensation: ATC(automatic)
MTC(manual)



Function of buttons:

	Menu key Back key	In measurement mode, press and hold this button for 3 seconds to enter the configuration menu. Return to previous menu.
	Shift Key	
	Enter key	Accept the figure input or menu chosen. In measurement mode, press this button to turn on or off the backlight of the display.
	Arrows key	Press these buttons to browse through the menu, modify configurations and input figures.




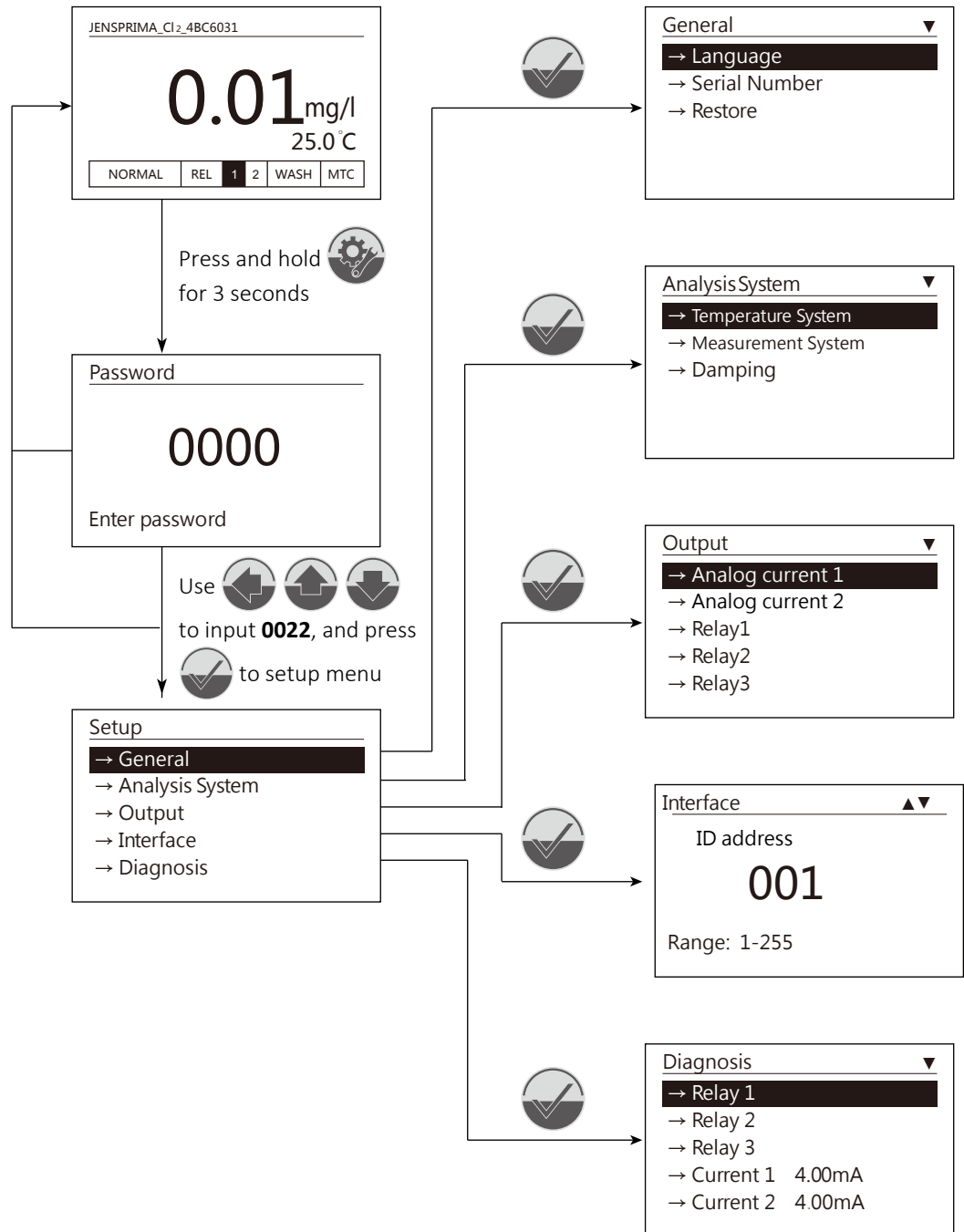
Entry into the setup mode is protected by password. The default password is **0022**.

Whenever you press , the control panel will exit the calibration mode or return to the previous menu. You can return to the measurement mode by pressing this button.


Configuration Mode

Enter configuration mode

In measurement mode, press and hold  (menu button) for 3 seconds to enter the password interface, and input the correct password to enter the configuration menu. The code is **0022**.



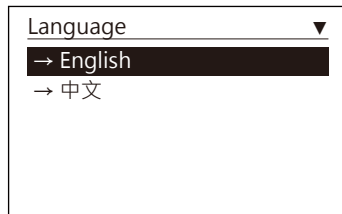
Entry into the setup mode is protected by password. The default password is **0022**.

Whenever you press , the control panel will exit the calibration mode or return to the previous menu. You can return to the measurement mode by pressing this button.

General

Language

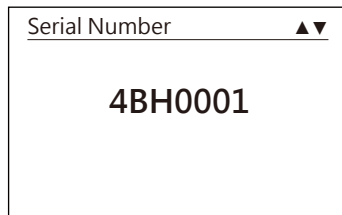
1. Enter the configuration menu, select “General”, and press “Enter”.
2. Select “Language”, press “Enter” and you will get a list of available languages.



3. Select a language, press “Enter”, and then all the menus will be in this language.

Serial Number

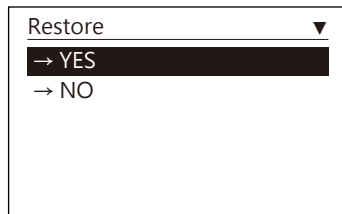
1. Enter the configuration menu, select “General”, and press “Enter”.
2. Select “Series Number”, press “Enter” and you will see the series number of this instrument.



3. Press “Menu” to return to previous menu.

Restore

1. Enter the configuration menu, select “General” and press “Enter”.
2. Select “Restore” and press “Enter”.



3. Press upward and downward arrows to select YES or NO, and press “Enter”.

Analysis System

Temperature System

1. Enter the configuration menu, select “Analysis System” and press “Enter”.
2. Select “Temperature system” and press “Enter”.

Temperature System ▲▼		
Temp. Unit :	°C	Optional : °C, °F
Sensor Type :	Pt-1000	Optional : Pt-1000, NTC-10K
Temp. Offset :	+0.0°C	Optional range : -5.0~5.0°C · 30.0~41.0°F
Manual Temp. :	+025.0°C	Optional range : -10~120°C · 14~248°F

3. Select your desired unit of temperature (°C or °F) and temperature offset (-5~5°C), press “Enter” to save the settings, and then return to previous menu.

Measurement System

1. Enter the configuration menu, select “Analysis System” and press “Enter”.
2. Select “Measurement system “ and press “Enter “.

Measurement System ▲▼		
Meas. Mode :	Cl ₂	Optional : Cl ₂ · ClO ₂ · O ₃
Meas. Range :	20.00	Optional : 2.000 · 20.00
Meas. Unit :	mg/L	Optional : mg/L · ppm
Offset :	+0.00mg/L	Optional range : -0.1~0.1mg/L · -1.00~1.00mg/L

3. After completion of setting, press “Enter” to save the settings, and then return to previous menu.

Damping

1. Enter the configuration menu, select “Analysis System”, and press “Enter”.
2. Select “Damping “ and press “Enter”.

Damping ▲▼	
<u>05</u>	
Range : 0-20	



Notes:

The larger the damping index is, the more steadily and slowly the figure changes.

3. Select a damping index (0-20), press “Enter” to save the settings, and then return to previous menu.

Output

Analog current 1 ((for Cl₂/ClO₂/O₃ current output))

1. Enter the configuration menu, select "Output", and press "Enter".
2. Select "Analog curent1" and press "Enter".

Analog Current1 ▲▼	
4.00mA :	+00.00mg/L
20.00mA :	+10.00mg/L
mA Offse:	+0.00mA

Optional ranges: : 0.00~19.00mg/L 、 0.000~1.9mg/L (ppm)
 Optional ranges: : 1.00~20.00mg/L 、 0.1~2.000mg/L (ppm)
 Optional ranges: : -1.00~1.00mA

3. After completion of setting, press "Enter" to save the settings, and then return to previous menu.

Analog current 2 (for temperature current output)

1. Enter the configuration menu, select "Output", and press "Enter".
2. Select "Analog curent2" and press "Enter".

Analog Current2 ▲▼	
4.00mA :	+000.0°C
20.00mA :	+100.0°C
mA Offset:	+0.00mA

Optional ranges: : -10.0~110.0°C 、 14.0~230.0°F
 Optional ranges: : 0.0~120.0°C 、 32.0~248°F
 Optional ranges: : -1.00~1.00mA

3. After completion of setting, press "Enter" to save the settings, and then return to previous menu.

Relay 1

1. Enter the configuration menu, select "Output", and press "Enter".
2. Select "Relay1" and press "Enter".

Relay 1 ▲▼	
ON/OFF :	ON
Action :	HI
Set point :	10.00mg/L
Hysteresis :	0.10mg/L

Options : ON/OFF
 Options : High /Low
 Optional ranges : 0~20.00mg/L 、 0~2.000mg/L (ppm)
 Optional ranges : 0~2.00mg/L 、 0~0.2mg/L (ppm)

3. After completion of setting, press "Enter" to save the settings, and then return to previous menu.

Relay 2

1. Enter the configuration menu, select "Output", and press "Enter".
2. Select "Relay2" and press "Enter".

Relay 2 ▲▼	
ON/OFF :	ON
Action :	LO
Set point :	+4.00mg/L
Hysteresis:	0.10mg/L

Options : ON/OFF
 Options : HI/LO
 Optional ranges : 0~20.00mg/L 、 0~2.000mg/L (ppm)
 Optional ranges : 0~2.00mg/L 、 0~0.2mg/L (ppm)

3. After completion of setting, press "Enter" to save the settings, and then return to previous menu.

Relay 3 (washing relay)

1. Enter the configuration menu, select "Output", and press "Enter".
2. Select "Relay3" and press "Enter".

Relay 3 ▲▼		
ON/OFF :	OFF	Options : ON/OFF
Period :	001Hour	Optional ranges : 1~999hour
Wash Time :	010Second	Optional ranges : 1~999second

3. After completion of setting, press "Enter" to save the settings, and then return to previous menu.

Interface

1. Enter the configuration menu, select "Interface", and press "Enter".

Interface ▲▼	
ID address	
001	
Range: 1-255	

2. Input the ID address (1~25), press "Enter" to save the settings, and then return to previous menu.

Diagnosis

1. Enter the configuration menu, select "Diagnosis", and press "Enter".


Diagnosis ▼		
→ Relay 1		Press "Enter" to test whether Relay1 is closed or open.
→ Relay 2		Press "Enter" to test whether Relay2 is closed or open.
→ Relay 3		Press "Enter" to test whether Relay3 is closed or open.
→ Current 1 4.00mA		Press "Enter" to output 4mA, 12mA, 20mA compulsorily.
→ Current 2 4.00mA		Press "Enter" to output 4mA, 12mA, 20mA compulsorily.

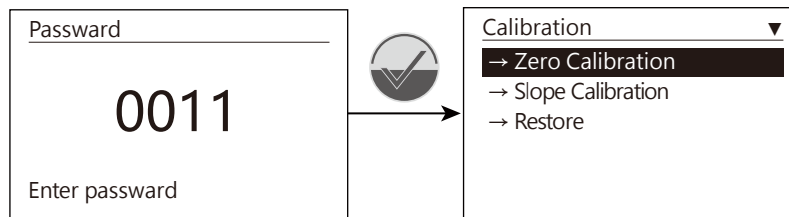
2. Press "Config" to return to previous menu.

Calibration Mode

To make the system accurate and reliable in measurement, a newly installed instrument must have its sensor calibrated before its first use. Users are generally recommended to calibrate the sensor every 3 to 5 months. Users are recommended to calibrate the instrument with DPD chemistry.

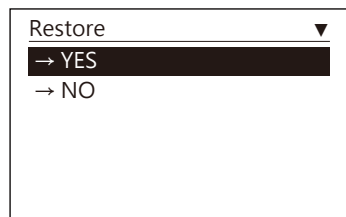
Enter Calibration Menu

In the measurement mode, press and hold the  for 3 seconds to enter the calibration menu. The password is **0022**.



Restore

1. Enter the calibration menu, select “Restore” and press “Enter”.



2. Press upward and downward arrows to select YES or NO, and press “Enter”.

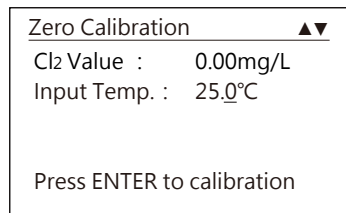
Zero Calibration

If the actual concentration of the residual chlorine in the sample water > 0.1ppm, zero calibration can be skipped and only restoration to its factory settings is needed. If the value < 0.1ppm, zero calibration is recommended.

1. Enter the calibration menu, select “Zero Calibration” and press “Enter”.




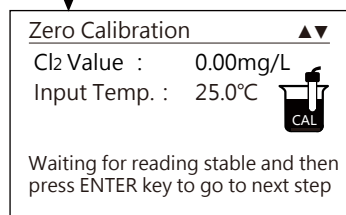
For zero calibration, it is recommended to restore the instrument to its factory settings.



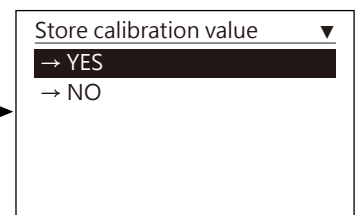
Measurement value
Enter the temperature of the standard solution (only during MTC), optional ranges: 0~60.0°C

Wash and dry the sensor, put it into the flow cell, and make a chlorine free solution flow through the constant current cell at a desirable velocity. Enter the temperature of the standard solution (only during MTC), and press “Enter” to perform calibration.

During calibration, the calibration LED  will glow automatically.



After the reading is stable, press “Enter” to perform calibration.



Slope Calibration

1. Put the sensor into the flow cell, enter the calibration menu, select "Slope calibration", and press "Enter".



During slope calibration, the sensor must be put back into the flow cell and the inlet valve should be adjusted according to inlet water requirements.

```

Slope Calibration ▲▼
Cl2 Value : 1.78mg/L
Input Temp. : 25.0°C
Input Buffer : 2.15mg/L

Input Buffer and Press ENTER
    
```

Enter the temperature of the present sample water (only during MTC) and the actual concentration of residual chlorine (measured with DPD method), and press "Enter" to perform calibration and access the next menu.



During calibration, the calibration LED will glow automatically.



```

Slope Calibration ▲▼
Cl2 Value : 1.78mg/L
Input Temp. : 25.0°C
Input Buffer : 2.15mg/L CAL

Waiting for reading stable and then
press ENTER key to go to next step
    
```

After the reading is stable, press "Enter" to perform calibration.

```

Store calibration value ▼
→ YES
→ NO
    
```

Maintenance

Reliability of the instrument depends on the reliability of its sensor. The sensor should be regularly calibrated and cleaned according to the ambient environment.

How to clean the sensor:

- a. Take the sensor out of the flow cell;
- b. Submerge its dual platinum ring in 5% HCL solution for 30 seconds, and wipe the ring with a soft cloth until it shines;
- c. Take the sensor out and clean it with running water.
- d. Put the sensor back into the flow cell.

During Long Water Shutoffs

Turn off the supply of sample water;
 Turn off power supply;
 Disconnect the sensor and store it in special protective liquid. Never store the sensor in a dry environment or distilled water.
 Store the glass sensor in a frost free room, with its tip facing downwards.

Communications Protocol (RS485)

The instrument is compliant with standard Modbus-RTU, with a fixed serial communication rate of 9600. All double-byte parameters fall into (-32767 ~ 32767), represented by hexadecimal numbers, with the highest order digit indicating the sign.

The host computer sends orders in the following format:

	Instrument ID address	Order	Starting point of data	Quantity of data	CRC16
Length	1 byte	1 byte	2 byte	2 byte	2 byte
Example	0x01	0x03	0x0001	0x0001	0xD5CA

This is the first data being accessed. Please refer to the following table.

The client computer responds in the following format:

	Instrument ID address	Order	Quantity of data	Data content	CRC16
Length	1 byte	1 byte	1 byte	N byte	2 byte
Example	0x01	0x03	0x02	0x02 0xBC	0xB895

When the instrument displays 01, it means the functional code can not be identified.
 When the instrument displays 02, it means the address is incorrect.
 When the instrument displays 03, it means the quantity of documents is incorrect.

Data addresses:

(00)	0x00	Measurement value	Reading value : x 0.001/x 0.01
(01)	0x01	Cl ₂ /ClO ₂ /O ₃ current	Reading value : x 0.01
(02)	0x02	Temperature value	Reading value : x 0.1
(03)	0x03	Temperature current	Reading value : x 0.01
(04)	0x04	Measurement range	Reading value : 0=20.00/1=2.000
(05)	0x05	Status	Reading value : 0x0000

Definition of status

Relay1 activation	0	//	0=release	1=closed
Relay1 status	1	//	0=low-capacity activation	1=high-capacity activation
Relay2 activation	2	//	0=release	1=closed
Relay2 status	3	//	0=low-capacity activation	1=high-capacity activation
Relay3 activation	4	//	0=release	1=closed
Relay1 ON/OFF	5	//	0=On	1=Off
Relay2 ON/OFF	6	//	0=On	1=Off
Relay3 ON/OFF	7	//	0=On	1=Off
Temp. sensor type	8	//	0=Pt1000	1=NTC10K
Temperature unit	9	//	0='C	1='F
Cl ₂ /ClO ₂ /O ₃ unit	10	//	0=mg/L	1=ppm
Temperature mode	11	//	0=automatic	1>manual

