Online Suspended Solid Meter

User Manual

Catalog

1.Introduction

This Online Suspended Solid Analyzer is a brand-new online intelligent digital suspended solid analyzer ,it communicates with the sensor through RS485 Modbus RTU, which has the characteristics of rapid communication and accurate data. Complete functions, stable performance, easy operation, low power consumption, safety and reliability are the outstanding advantages of this suspended solid analyzer.

2.Applications

Municipal/industrial waste water,primary & secondary clarifiers,return activated sludge,waste water activated sludge,Mixed liquor,aeration basins,final effluent,pulp and paper,dairy industry,Mining industry,chemical process etc.

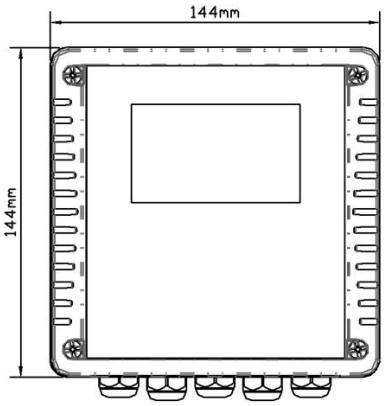
3.Technical Specification

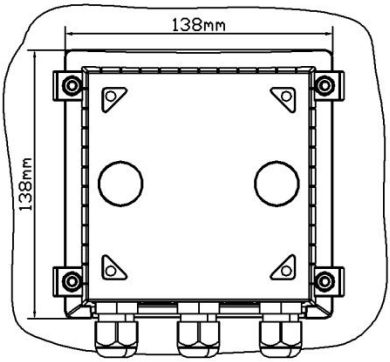
Model	TSG-2087S Online Suspended Soild Analyzer
Measure range	0~1000.00mg/L,0~99999.00 mg/L99.99~120.0 g/L
Power Supply	90 – 260V AC 50/60Hz
Current Output	4-20mA
Relay	5A/250V AC, 5A/30V DC
Communication	RS485 Modbus

Accuracy	±2%
Datalogger	Yes
Protection	IP65
Dimension	144×144×104mm
Hole size	138*138
Dimension	144×144×104mm
Note	It can work with any brand turbidity sensor that's with RS485

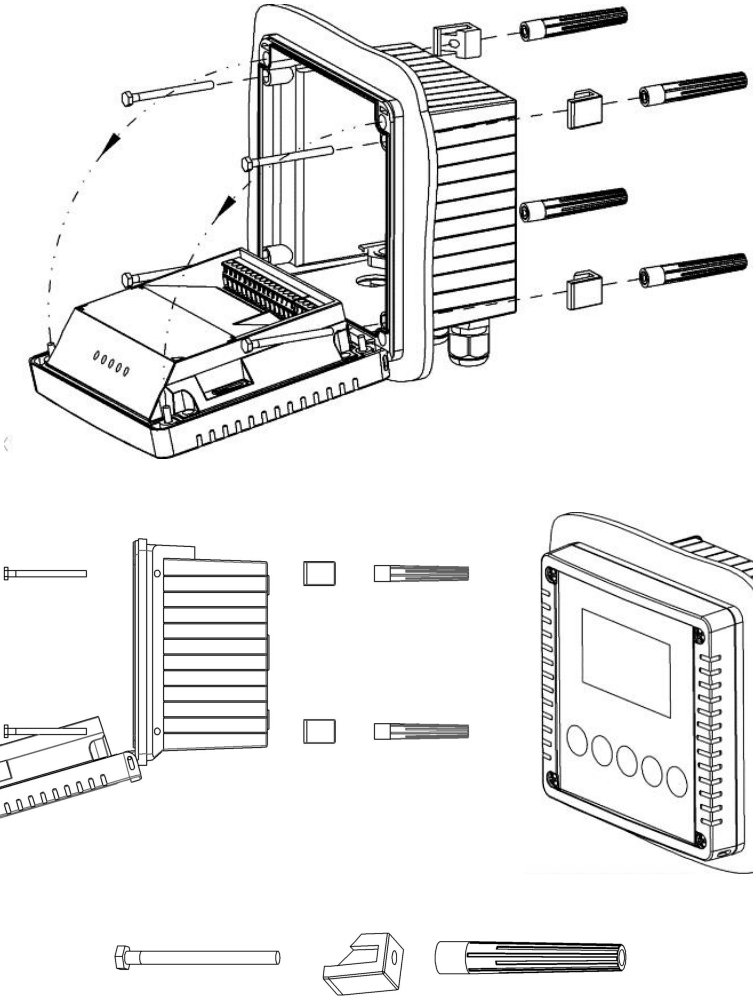
4.Installation and Wiring

4.1Dimension

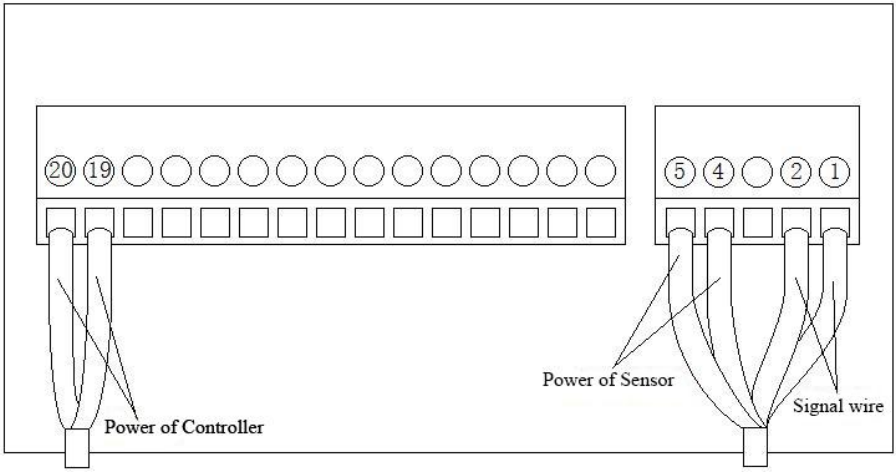


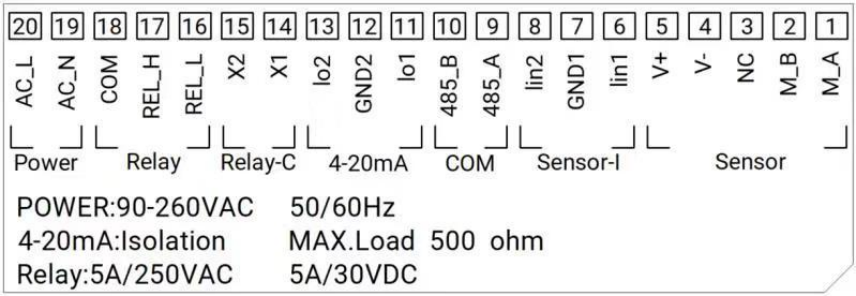


4.2Installation diagram



4.3Wiring

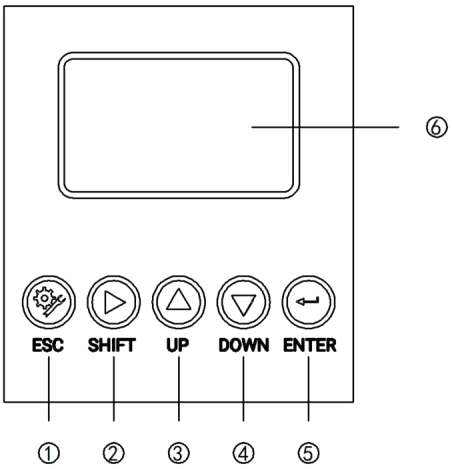




5.Operation Panel

5.1Operation Panel

Here are 2 modules in the main panel of the suspended solid analyzer:Display Screen and Button.utton module.



① SET/ESC

② SELECT/SHIFT

③ UP

④ DOWN

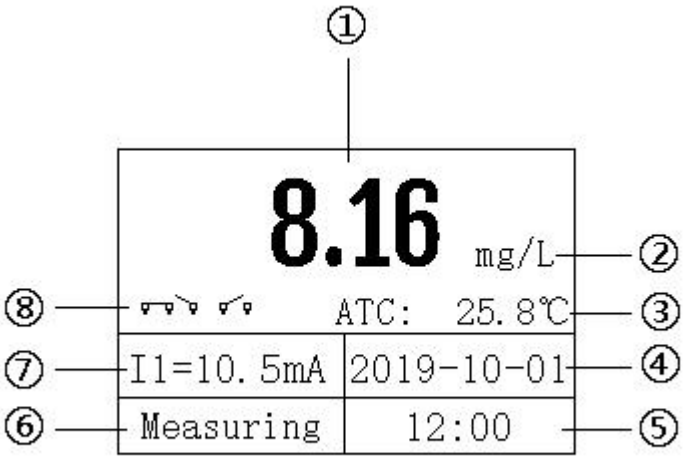
⑤ ENTER

⑥ SCREEN

5.2 Measurement interface

Enter the main measurement interface after the start-up .

When the instrument is working normally, the display shows the following content.



①Measured value

②Units of measurement

③Temperature

④Real data (Year/Month/Day)

⑤Real time(Hour/Second)

⑥Measurement status

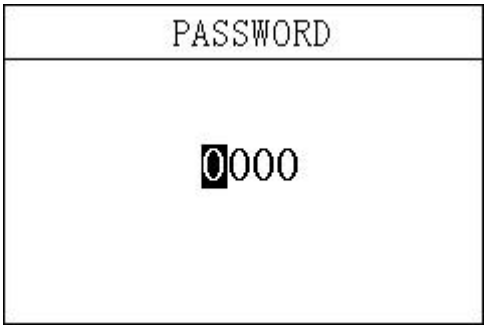
⑦4-20mA corresponding value of Suspended Solid

⑧Relay switch status

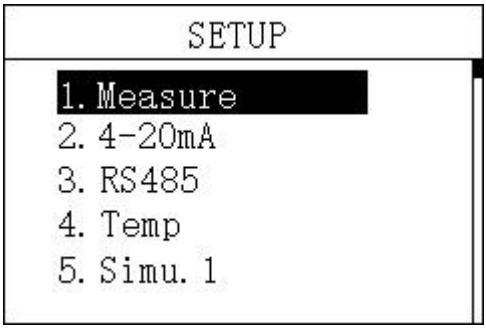
6.Parameters Set

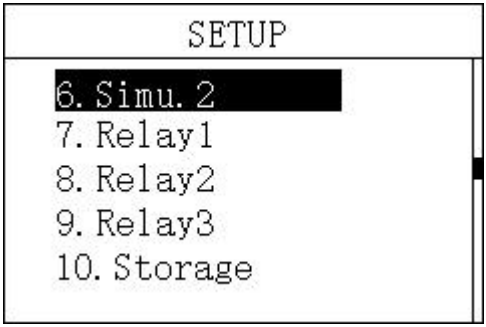
6.1 Password

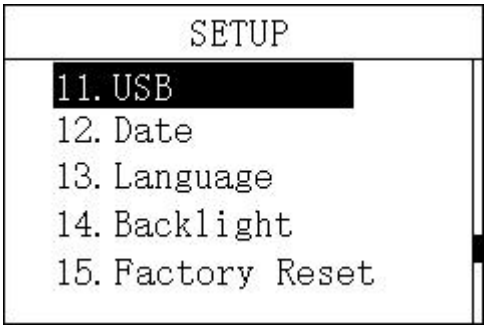
Press "ESC" to enter the password input interface.



Enter the password "3700" to enter the setup menu.

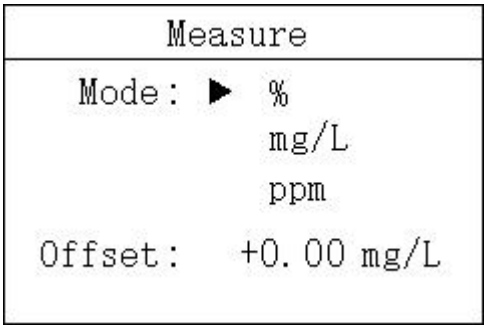






6.2 Unit Set

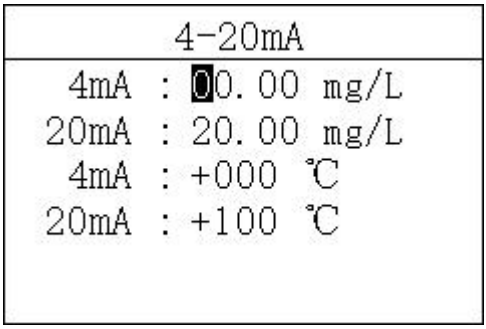
in this menu, the user can change the measurement method % / mg/L /ppm, and at the same time can adjust the offset to make the measurement accurate.



6.3 Set of output

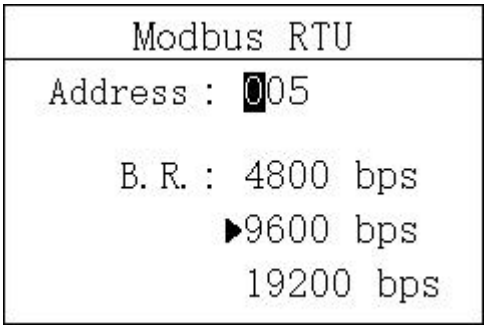
6.3.1 Set of 4-20mA

In this menu, the user can change the corresponding value of 4-20mA and set the corresponding effective range.



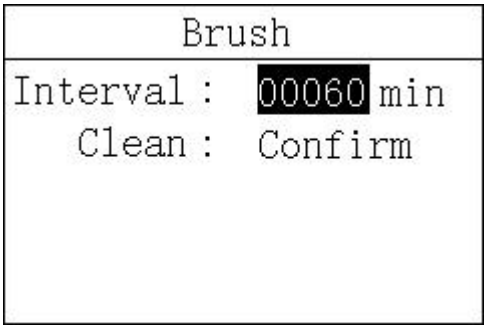
6.4 Set of RS485 Modbus RTU

In this menu, users can change the communication address and rate.



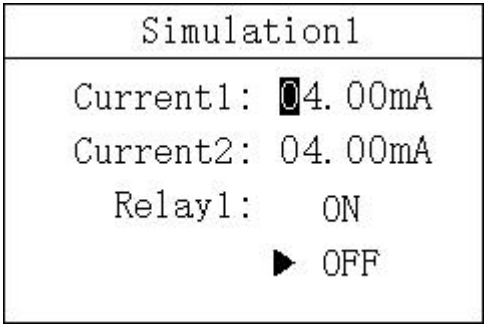
6.5 Brush set

The default is 60 minutes, and Not recommended to modify

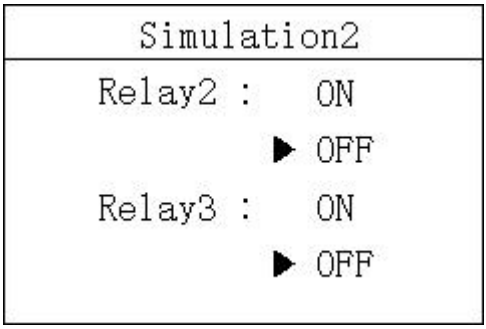


6.6 Test 4-20mA output

In this menu, the user can simulate the 4-20mA current output. The current output can be simulated by measuring IO1 (measured value), the release relay can be closed, and the relay can be simulated and verified by measuring the relay port.



Simulation Test 1

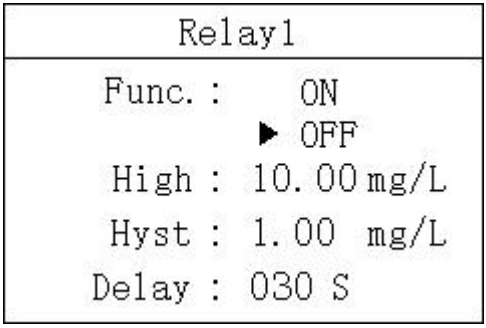


Simulation Test 2

6.7 Relay Setting

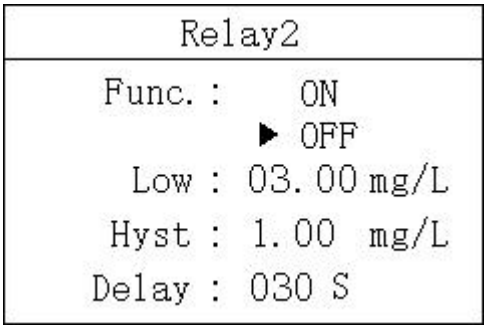
6.7.1 Set of Relay 1

In this menu, the user can switch the relay 1 function, set the parameter alarm upper limit value, alarm return difference value, and alarm delay time.



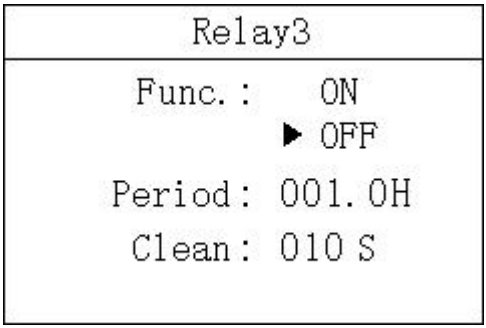
6.7.2 Set of Relay 2

In this menu, the user can switch the relay 2 function, set the parameter alarm upper limit value, alarm return difference value, and alarm delay time.



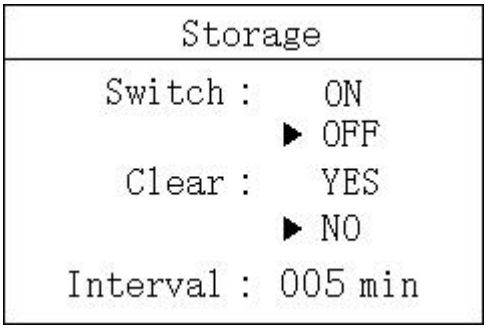
6.7.3 Set of Relay 3

In this menu, the user can set the relay 3 function, set the cleaning time and cleaning cycle.



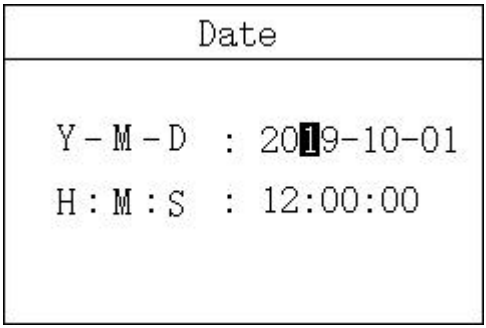
6.8 Set of Storage

In this menu, the user can set the storage function (default off), clear storage memory and recording interval.



6.9 Set of time

In this menu, users can change date and time according to different time zone.

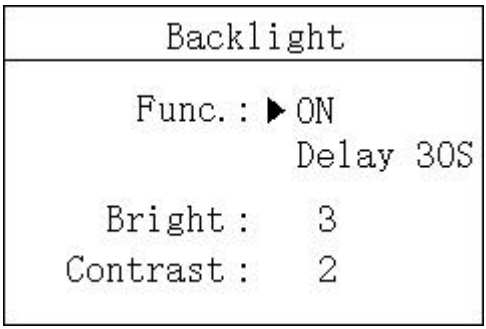


6.10 Select Language

User can choose English or Chinese according to need.

6.11 Backlight settings

In this menu, the user can change the backlight mode of the LCD screen. The backlight can be always on or delayed off (the default is delayed off), the backlight brightness can be changed (brightness level 1-5, brightness increases), and the contrast can be changed.

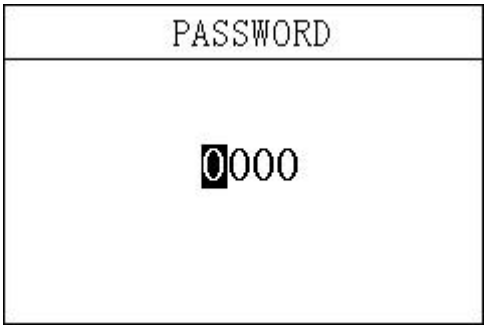


6.12 Factory reset

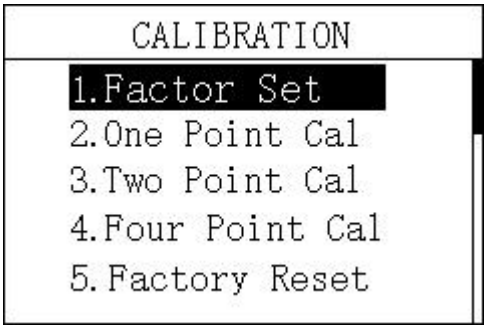
In this menu, the user can restore the current output and relay to the factory parameter

7. Calibration

Press "ESC" to enter the password input interface.



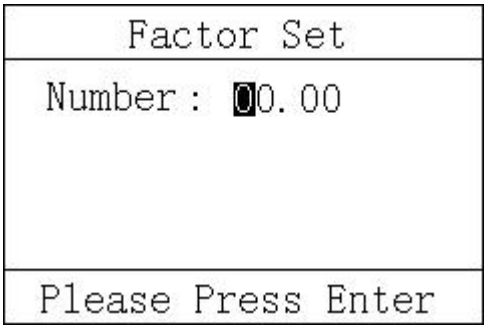
Enter the password "3900" to enter the calibration menu.



7.1 Factor Calibration

Select Factor Set and enter in to enter the factor calibration menu.

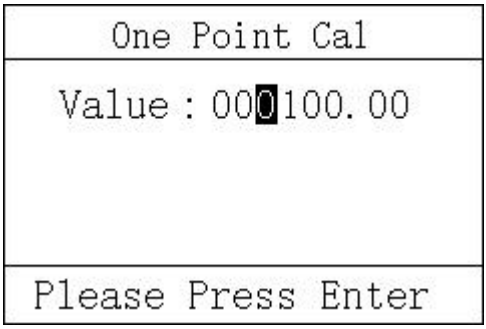
In this menu, the user can modify the factor value. The modification range is 0.1~10.



7.2 One Point Cal

Select One Point Cal to enter the one point calibration menu.

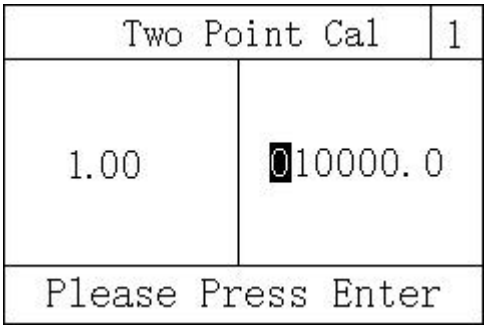
Enter the concentration value corresponding to the known solution and press Enter.

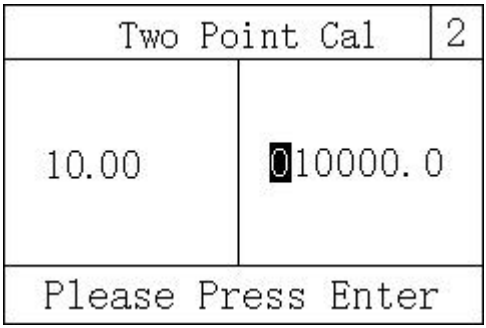


7.3 One Point Cal

The value changed on the right is the data value read on the left, and the values entered twice are two values that are not equal.

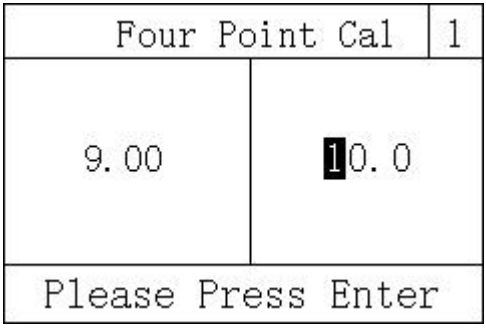
Press the Enter after changing the value

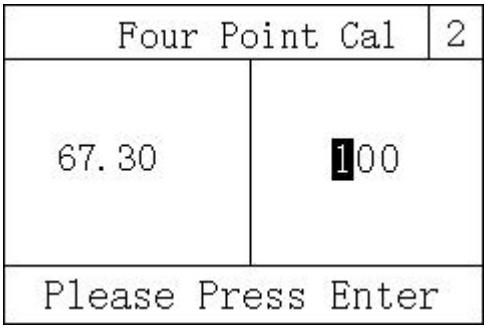


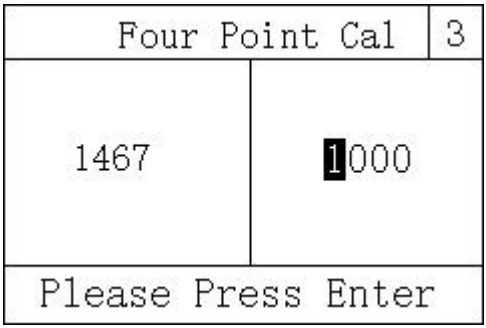


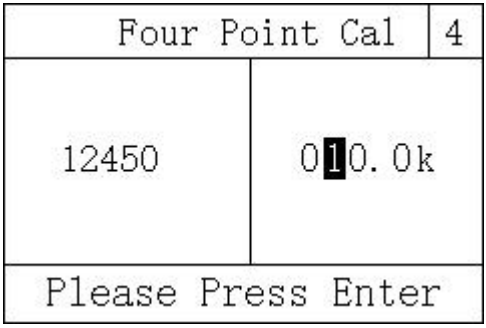
7.4 Four Point Calibration

Calibrate the 4 points separately, the operation method is the same as the two-point calibration, and the calibration value of the 4 times should be within the corresponding interval.



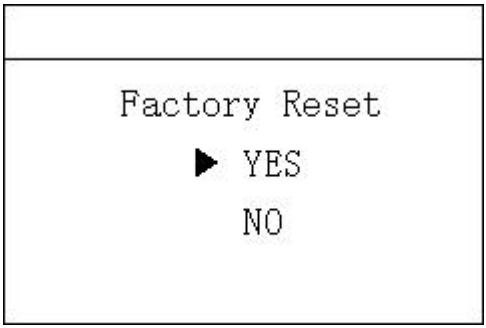






8. Factory Reset

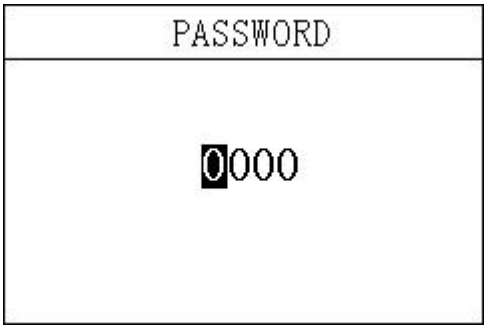
User can initialize calibration parameters to factory parameters



9. History Data

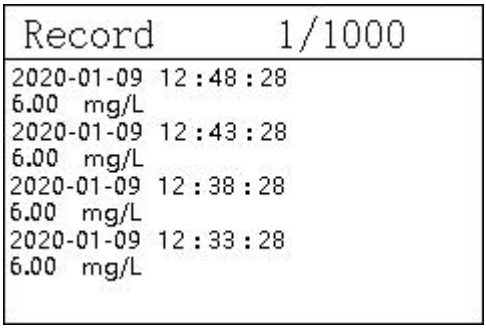
9.1History recording

Press "ESC" to enter the password input interface.



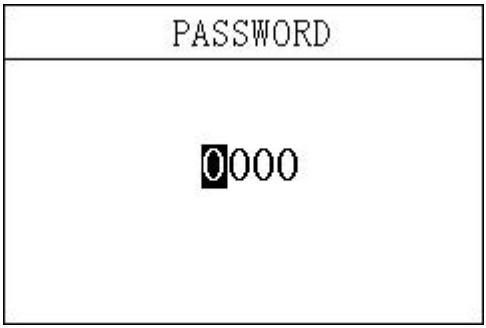
Enter the password "1300" to enter the history data menu.

Press the up and down keys to switch the display.



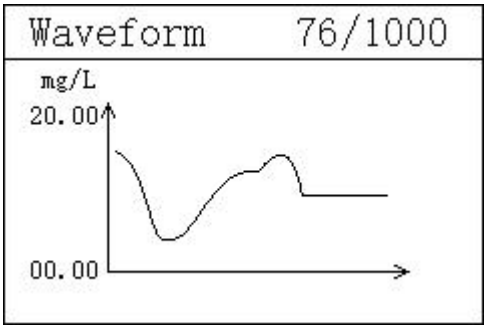
9.2 Wave display

Press "ESC" to enter the password input interface.



Enter the password "1400" to enter the Wave form menu.

Press the up and down keys to switch the display.



10. RS485 Communication

10.1 Communication parameters:

Baud rate: 4800, 9600, 19200 (default is 9600)

Serial data format: 8N1 (8 data bits, no parity, 1 stop bit)

Function code: 03

Device address: Dissolved oxygen controller defaults to 5

10.2 Register definition:

Register address	Register definition	R/W	Introduction
2,3	Suspended solid	R	×1 mg/L,FP32 AB CD,High and low bytes are not reversed
8	RTU Address	R/W	Modbus communication address, fault: 5
9	Baud rate	R/W	4800,9600,19200,fault9600

10.3 Examples of communication formats:

Data reading instruction:

Address+Function code+Register start address+Number of registers read+CRC check code（Hex）

Example Tx:05 03 00 02 00 02 64 4F

Address	Function code	Register start address	Number of read registers	CRC check code
05	03	0002	0002	644F

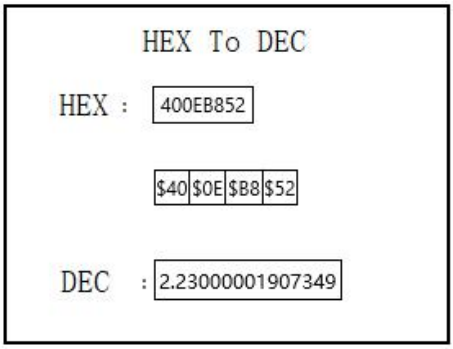
10.4 Data return instruction:

Address+Function code+Data length+Data+CRC check code（Hex）

Example Rx:05 03 04 40 0E B8 52 38 0D

Address	Function code	Data length	Value of suspended solid	CRC check code
05	03	04	400EB852	380D

The transmission data format is FP32 AB CD, the conversion sequence is 400EB852



Convert the hexadecimal number 400EB852 to decimal through a floating-point number converter, the result value is 2.23