Online Optical Dissolved Oxygen Meter

Model:DOG-2082YS User Manual

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Catalog

1. Introduction

The DOG-2082YS Optical Online Dissolved Oxygen Meter is a brand-new online intelligent digital and optical dissolved oxygen controller ,it communicates with the optical dissolved oxygen sensor through RS485 ModbusRTU, 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 dissolved oxygen controller.

The dissolved oxygen controller works with digital and optical dissolved oxygen sensor ,which can be widely used in industrial application such as thermal power generation, chemical industry, metallurgy, environmental protection, pharmaceutical, biochemical, food and tap water.

2. Technical Features

1) Extremely quickly and precision optical dissolved oxygen sensor.

2) It's suitable for harsh application and free-maintenance,save cost.

3) Speical light source technology for long working life

4) Provide two ways of 4-20mA output for DO and temperature.

5) Digital Optical DO Sensor provide precision ,quickly response and online measurement.

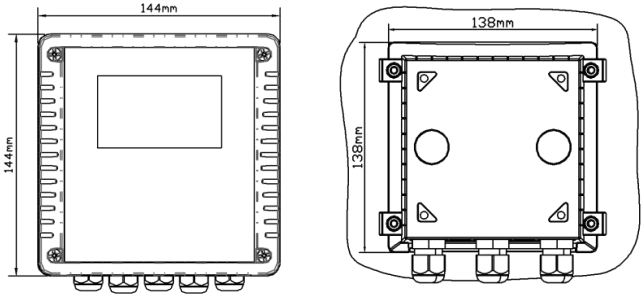
6) With data recording function,user easy to check history data and history curve.

3. Technical Specification

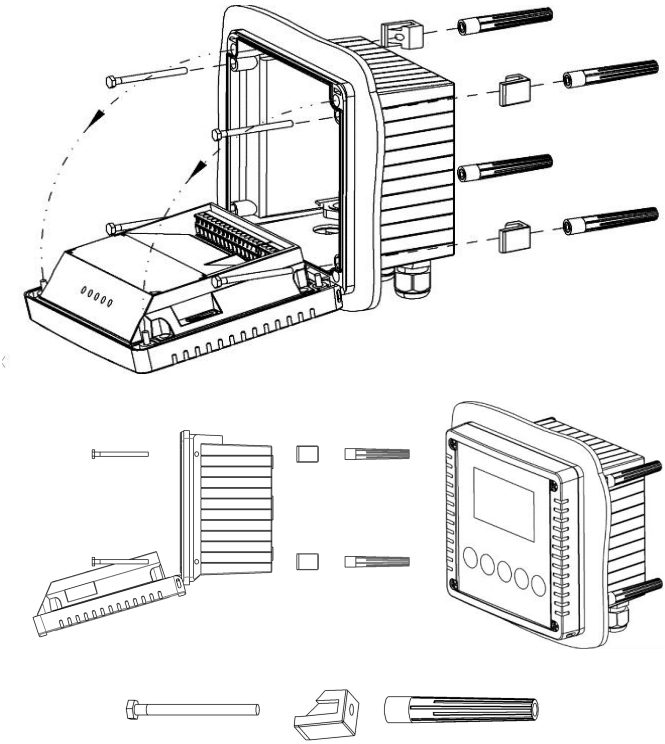
Product	DOG-2082YS Optical Dissolved Oxygen Meter
Measure range	0~20.00 mg/L, 0~200.00 %, -10.0~100.0℃
Shell	ABS
Power supply	90 – 260V AC 50/60Hz
Current output	2 roads of 4-20mA output (DO .temperature)
Relay	5A/250V AC 5A/30V DC
Size	144×144×104mm
Communication	RS485 Modbus RTU
Accuracy	±1%FS,±0.5℃
Protection	IP65

4. Installation and Wiring

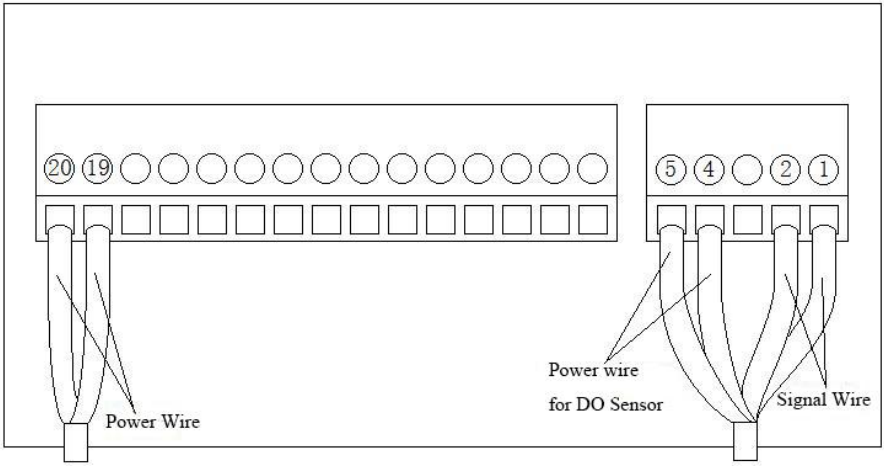
4.1 Dimension

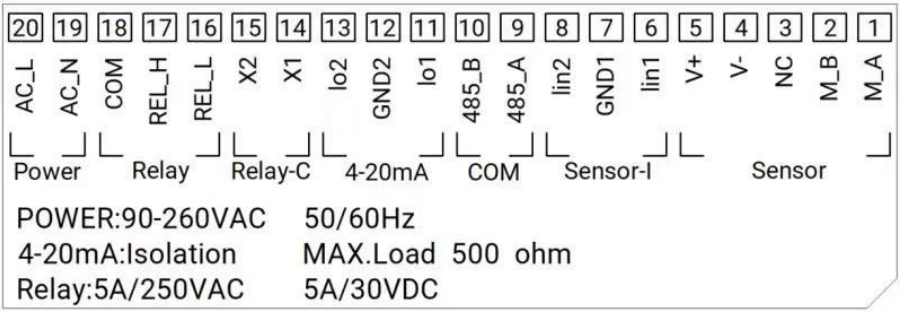


4.2 Installation diagram



4.3Wiring

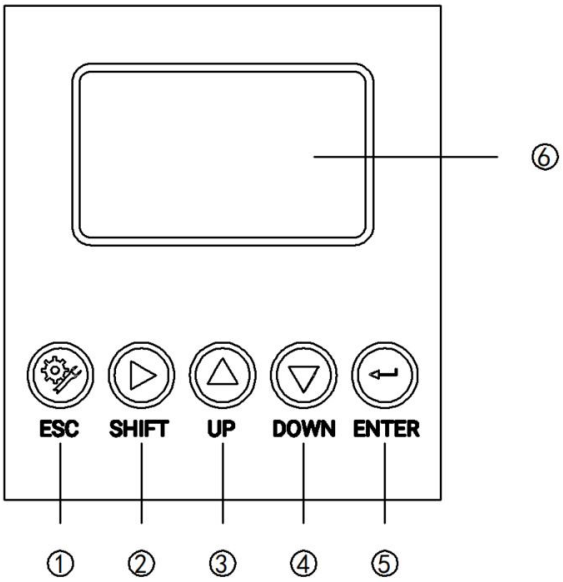

20 19
5 4 2 1
Power Wire
Power wire
for DO Sensor
Signal Wire


20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
AC_L
AC_N
COM
REL_H
REL_L
X2
X1
Io2
GND2
Io1
485_B
485_A
Iin2
GND1
Iin1
V+
V-
NC
M_B
M_A
Power
Relay
Relay-C
4-20mA
COM
Sensor-I
Sensor
POWER:90-260VAC 50/60Hz
4-20mA:Isolation MAX.Load 500 ohm
Relay:5A/250VAC 5A/30VDC

5. Operation Panel

5.1 Operation Panel

Here are 2 modules in the main panel of the dissolved oxygen meter:Display Screen and Button module.



① SET/ESC

② SELECT/SHIFT

③ UP

④ DOWN

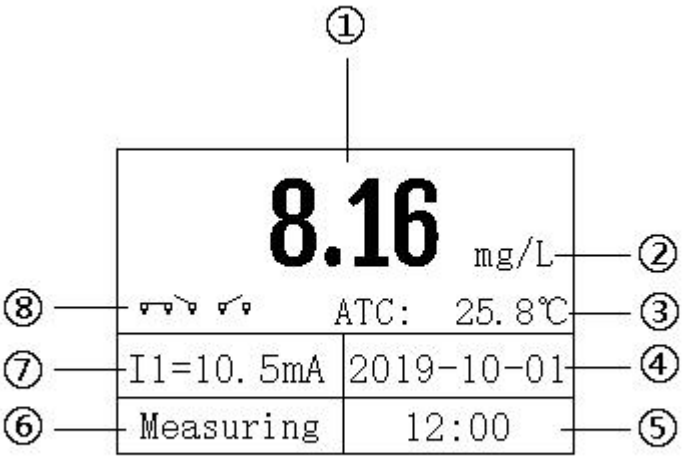
⑤ ENTER

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)

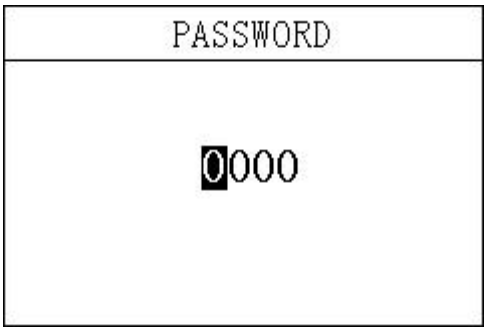
⑥Measurement status

⑦4-20mA corresponding value of Dissolved Oxygen

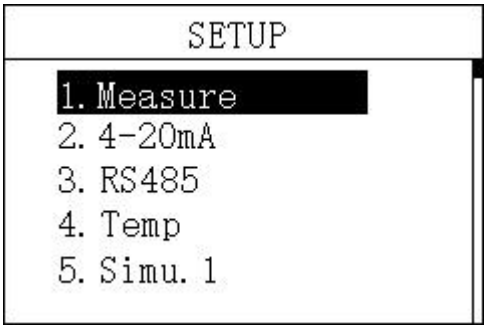
⑧Relay switch status

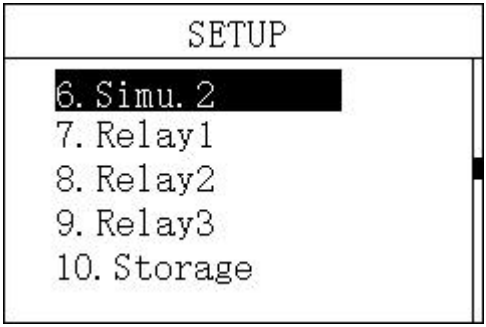
6. Parameters Set

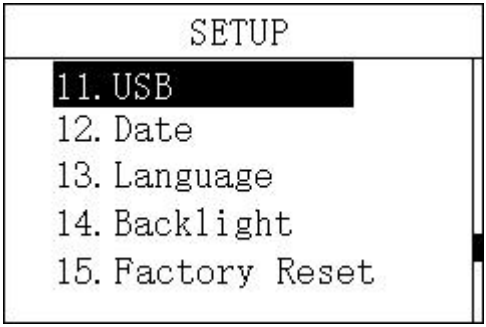
Press "ESC" to enter the password input interface.



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

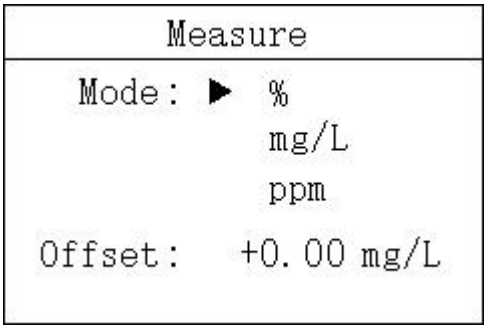






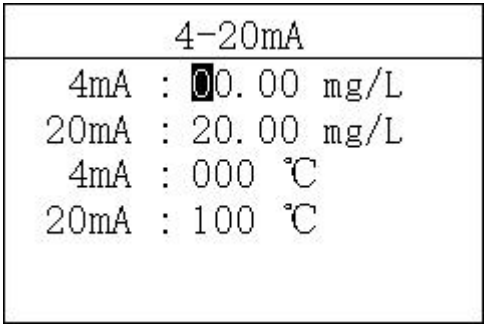
6.1 Unit Set

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.



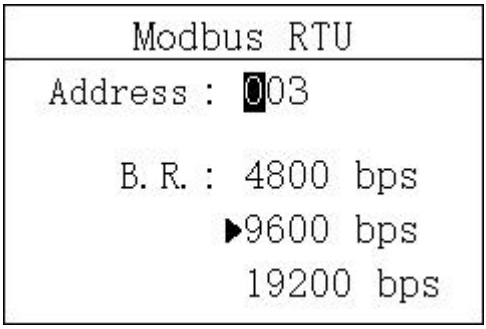
6.2 Set of 4-20mA

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



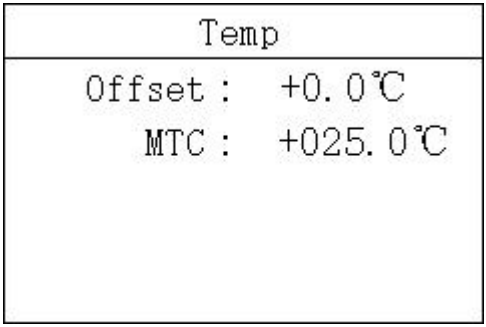
6.3 Set of RS485 Modbus RTU

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



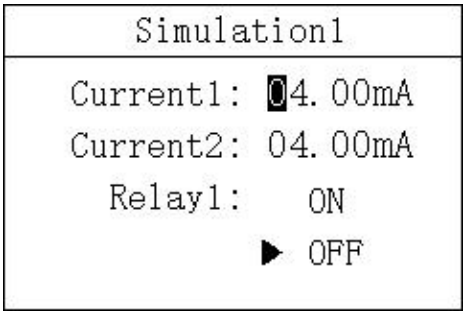
6.4 Temperature Set

In this menu, the user can set the temperature offset and manually set the temperature.

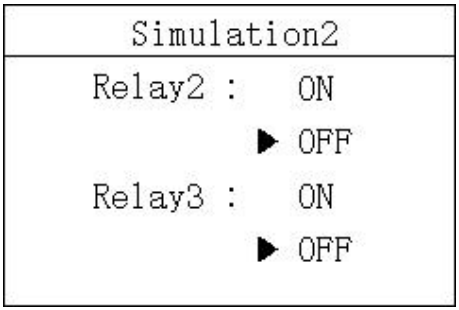


6.5 Signal Test

In this menu, the user can simulate the 4-20mA current output. The current output can be verified by simulating the measurement of the IO1 (measured value) and IO2 (temperature) ports. The release relay is closed. The relay is simulated and verified.



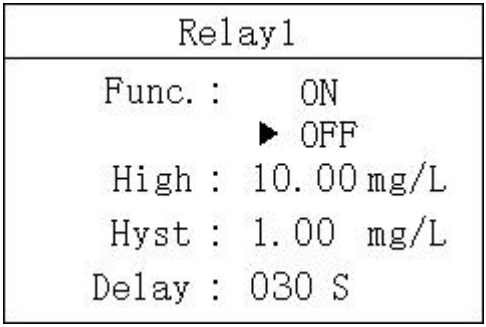
Simulation Test 1



Simulation Test 2

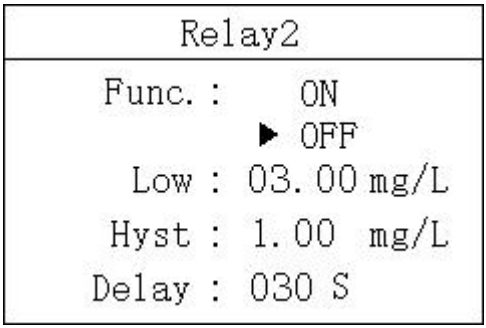
6.6 Set of Relay 1

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.



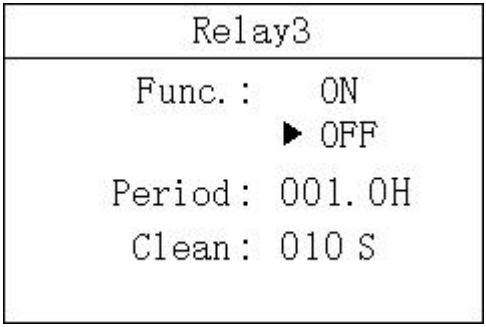
6.7 Set of Relay 2

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.



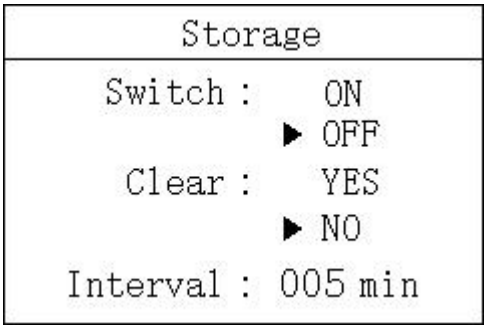
6.8 Set of Relay 3

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



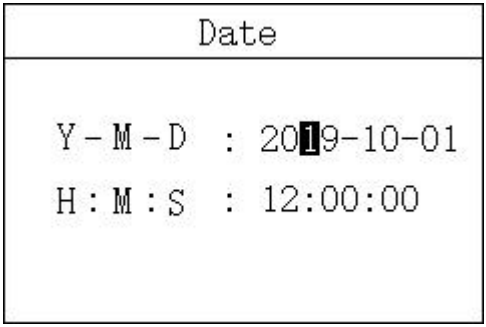
6.9 Set of Storage

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



6.10 Set of time

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

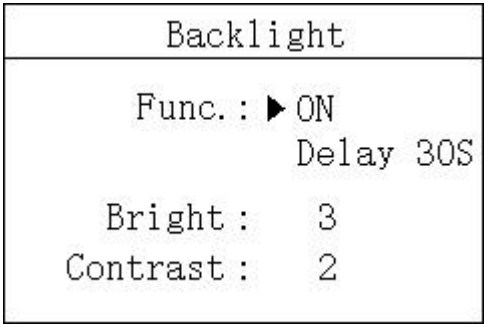


6.11 Select Language

User can choose English or Chinese according to need.

6.12 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.



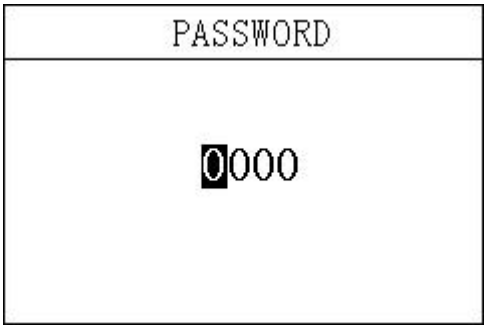
6.13Factory reset

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

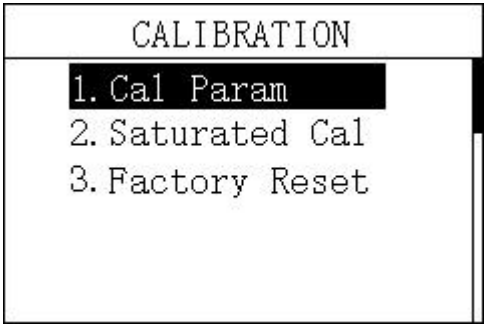
7. Calibration

7.1 Enter calibration menu

Press "ESC" to enter the password input interface.

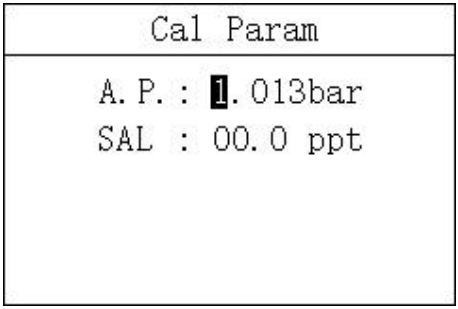


Enter the password "3900" to enter the calibration menu.

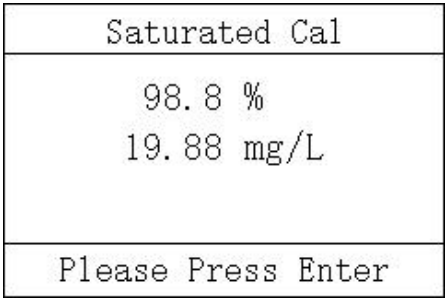


7.2 Set calibration parameter

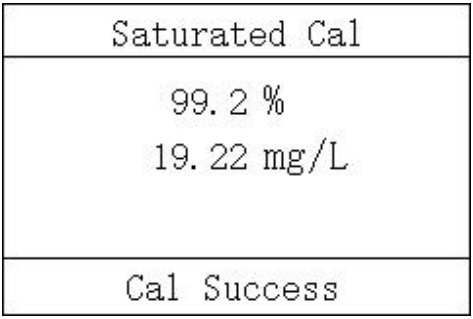
In this menu, the user can manually change the parameters of atmospheric pressure and salinity.



7.3 Saturation Calibration

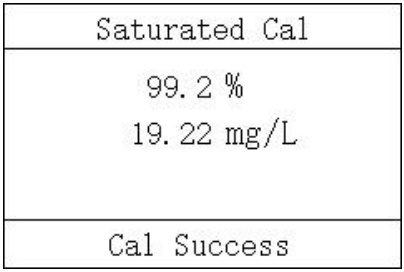


Pressure Enter When the value is stable



8. Factory Reset

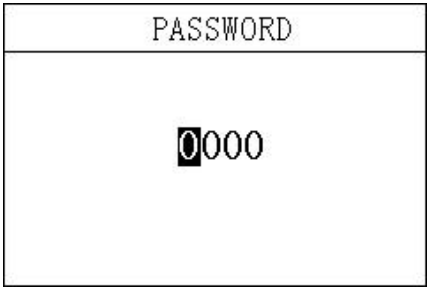
User can initialize calibration parameters to factory parameters



9. History Data

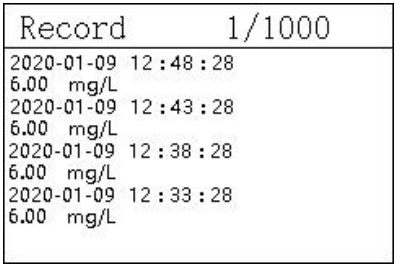
9.1History recording

Press "ESC" to enter the password input interface.



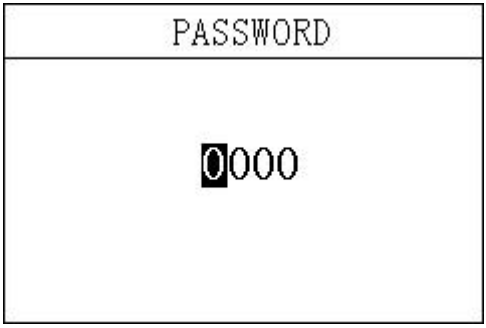
Enter the password "1300" to enter the history data menu.

Press the up and down keys to switch the display.



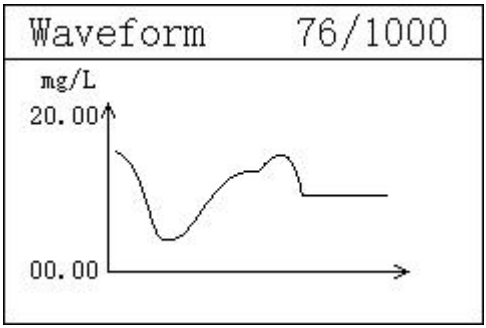
9.2 Wave display

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: Optical Dissolved oxygen controller defaults to 6

10.2 Register definition:

Register address	Register definition	R/W	Introduction
0	Temperature	R	×0.1℃,sint16
1	Dissolved oxygen	R	×0.01mg/L,uint16
2	nA	R	×0.01nA,uint16
3	saturation	R	×0.1%,uint16
8	RTU Address	R/W	Modbus communication address, Default is 6 for Optical Dissolved oxygen
9	Baud rate	R/W	4800,9600,19200,fault: 9600

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:06 03 00 01 00 01 D4 7D

Data reading instruction:

Address + function code + register start address + number of registers read + CRC check code (hexadecimal)

Example Tx:03 03 00 01 00 01 D4 28

Address	Function code	Register start address	number of registers read	CRC check code
06	03	0001	0001	D47D

Data return instruction:

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

Example Rx:06 03 02 00 DF 4C 1C

Address	Function code	Data length	Value of Dissolved oxygen	CRC check code
06	03	02	00DF	4C1C

The hexadecimal number DF is converted to decimal by a calculator (programmer mode) to get the value 223.

The actual value contains 2 decimal places, then the actual value is 223×0.01= 2.23