SPER SCIENTIFIC DIRECT

Portable Dissolved Oxygen Analyzer

Operation Manual

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Introduction

First of all, thank you for using the Portable Dissolved Oxygen Analyzer.

Please read this manual carefully before installation. The correct sensor installation and

parameter setting will maximize the performance and advantages of the product and bring you the best possible user experience.

This instrument is an analytical measurement and control instrument with highly precision, which should be installed, operated and repaired by trained professionals or anyone who understand and have expertise in this technique.

Please contact the after-sales department when there are any difficulties occur during installation or being in use.

After unpacking the box, please check the packing list and the actual product you have received. If there are any part missing or damaged, please contact our company in time.

We solemnly guarantee that:

1. If there are any quality problem occurs within one year from the date of purchase, you will be served with product maintenance for free.
2. No matter where the product you buy from, the manufacturer hereby guarantees that you will be served with lifetime technical maintenance and service.
3. Damage to the product caused by the following reasons shall not be covered by the warranty:

   A Damage caused by mistaken connection to high voltage power supply or water immersion;

   B Damage caused by unauthorized modification and misuse;

   C Incidental losses caused by improper selection of model;

   D Damage caused by the working conditions which exceeds that specified by the product;

   E All physical damage caused by improper force;

   F Failure to store and transport in accordance with the specified storage or transportation conditions

⚠ When this symbol appears in the manual, it refers to that it is related to safety, installation, product function and use which should be paid special attention to.

Advancing with the times is the law of development for enterprises, and the products will be upgraded in stages. There are no prior notice for any general changes. Please refer to the actual product.

Chapter 1 Product Overview

1.1 Product Information

The portable dissolved oxygen analyzer consists of a portable handheld operator and the a fluorescent dissolved oxygen sensor. Adopt the principle of advanced fluorescent method, no membrane and electrolyte, basically no maintenance, no oxygen consumption during measurement, no flow rate/stirring requirements; and its own NTC temperature compensation function, the measurement results are good and stable. Handheld operator IP67 protection level, it uses ergonomic curve design with rubber washers, making it suitable for hand-held operation and easy to control in moist environment. It is calibrated before leaving factory, there is no need for calibration in one year, and the process can be completed on-site; It is equipped with digital sensor, which can bring convenience and fastness during on-site use, and it can connect with the handheld operator immediately. Its USB interface makes the built-in battery easy to be charged and data realizable to be exported. It is widely used in on-site portable monitoring of DO in water in aquaculture, surface water, scientific research universities and other industries and other fields.

The external dimension of the portable handheld operator is shown in Figure 1.

Figure 1 External dimension of the portable handheld operator

The external dimension of the fluorescence dissolved oxygen sensor is shown in Figure 2 below.

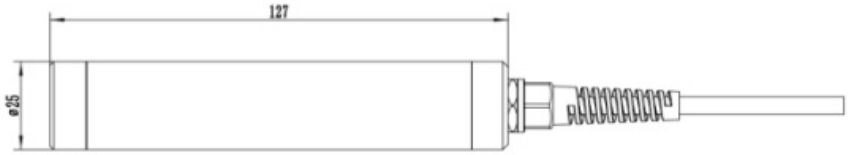


Figure 2 External dimension of the dissolved oxygen sensor

Technical parameters are shown as below:

Measurement Range	DO:0-20mg/L or 0-200% saturability Temperature: 0-45°C
Measurement Accuracy	DO: ±3% or ±-0.3 mg/L of the measured value, whichever is greater Temperature: ±0.5°C
Resolution	0.01mg/L
Material of Casing	DO Sensor: SUS316L, Portable handheld operator: ABS+PC
Storage Temperature	-15 to 60°C
Operating Temperature	0 to 45°C (not freeze)
Weight	Weight of DO sensor: <0.25KG, Weight of portable handheld operator: 0.5KG
Level of Protection	DO: 1P68, Portable handheld operator: 1P67
Length of Cable	Standard cable length is 3 meters (which is extendable)
Display	3.5 Inch color display, adjustable backlight
Data Storage	More than 10 million pieces of data

1.2 Safety Information

Please read this manual thoroughly before unpacking, setting up or operating the instrument.

Pay special attention to all hazard and warning statements. In the event of mishandling, it may cause serious injury to the operator or damage to the equipment.

This equipment must be used and installed only in accordance with the detailed

instructions in this manual.

1.2.1 Use of Danger Information

For all the hazards occurred, this manual will use signal specific term (Danger, Caution, Note) that correspond to the degree of danger.

⚠ Danger

Refers to a potentially or imminently dangerous state that, if not prevented, could be life-threatening or cause serious injury.

⚠ Caution

Refers to a potentially dangerous state that may cause mild or moderate injury.

Important Note: Information that requires special emphasis.

Tip: Information in the text that supplements the points

1.2.2 Warning and Prevention Labels

Read all the labels and identifiers attached to the instrument carefully, otherwise it may cause personal injury or damage to the instrument.

	If the label is marked on the instrument, refer to the instrument manual for operation and/or safety information.
	If the label is marked on the product, it indicates that there is a f use or current limiting device.
	If the label is marked on the product, it indicates that the device is susceptible to static electricity leakage and protective measures should be tak en to prevent damage.
	If the label is marked on the product, it indicates the location of the ground wire.

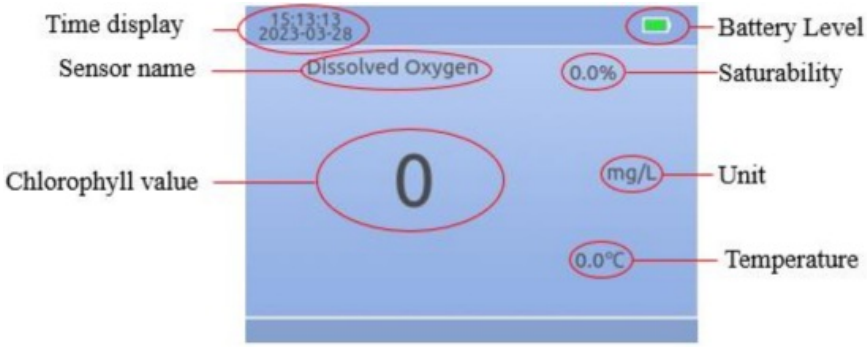
Chapter 2 Settings and Operation

Note The meter is in manual mode Press “Enter”when measuring. If modifying parameters involves the home screen display you need to go back to the home screen

and press “Enter” to refresh.

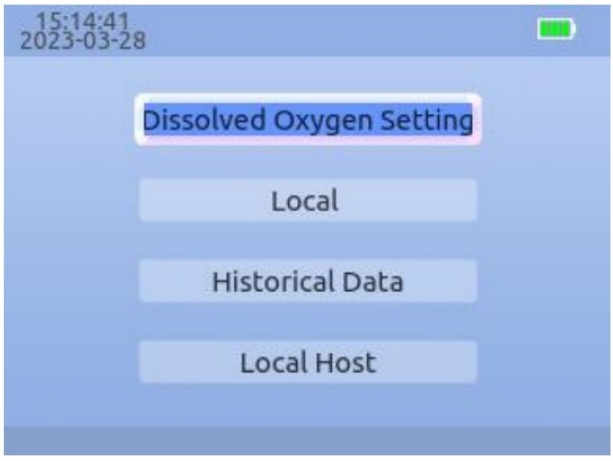
2.1 Boot Interface

Long press the blue power button to start it, enter the power on interface as follows.



Press the “Menu” button to enter the setting menu, you can set and check of function information “Dissolved Oxygen Setting”, “Local”, “Historical Data”, “Local Host”.

Note: After the handheld operator is turned on, the “Dissolved Oxygen Setting” menu needs to enter the operator password before it can be operated. The operation method is to press the “Menu” key to enter the setting menu, select “Local Host”, then select “Permission”, enter the password “666000”, return to the main interface and re-enter the setting menu to operate the “Suspended Solids Setting” menu, as shown below.



2.2 Probe Settings

The dissolved oxygen sensor has been calibrated at the factory and if you need to calibrate yourself, you can use “Air calibration (cal.)” and “zero calibration (cal.)”. At the same time, you can also input factor, deviation, salinity, etc. in the menu for correction. Select “Dissolved Oxygen Setting” and press “Enter” to enter the corresponding interface. The dissolved oxygen sensor has been calibrated before leaving the factory. If there is any need for self-calibration, you can use “Air calibration (Cal.)” and “Zero

calibration (Cal.)". At the same time, the calibration curve can be corrected by enter "Factor", "Deviation", "Salinity" and "Pressure" in the menu, you can also factory reset.

2.2.1 Air Calibration (Cal.)

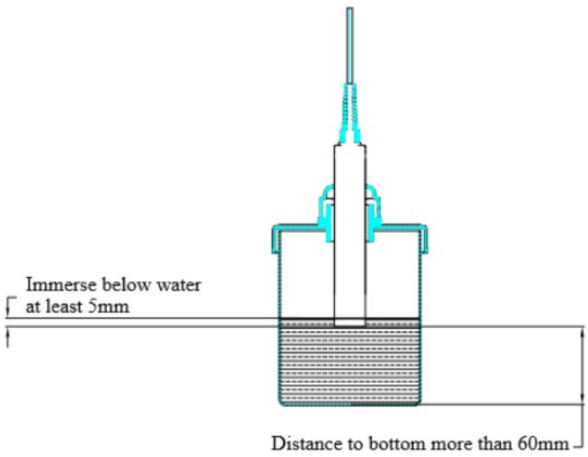
If the air calibration is required, dry the sensor, add a small amount of water (25~50mL) to the calibration kit and shake the bag for a few times. Then put the sensor into the calibration kit without touching the water and seal the calibration kit with your hand to make the sensor in a saturated air. The sensor should be away from light and high temperature and hard objects during calibration. Select "Air Calibration (Cal.)" to confirm and after entering the calibration menu, follow the interface prompt for confirmation operation in order to complete the air calibration step.

2.2.2 Zero Calibration (Cal.)

If you need to perform zero calibration (cal.), clean and wipe the sensor; place the sensor in anaerobic, and start calibration after the instrument data stable (or about 10 minutes); at the same time, avoid direct shooting of the sun; Select "Zero calibration (Cal.)" to confirm after entering the calibration menu, follow the interface prompts to perform confirmation operations in turn to complete the calibration steps.

Matters needing attention in dissolved oxygen sensor test:

1. Sensor black fluorescent film part, need to avoid encountering hard, sharp objects, avoid scratching black fluorescent film coatings;
2. When measuring the oxygen in the water, be careful that the probe should not be more than 5mm in the water, and the bottom of the container cannot be touched vertically, as shown in the figure below;
3. The sensor tilted 45 degrees and put it in the container to touch the bottom of the container is allowed;
4. When the dissolved oxygen probe sinks into the water, pay attention to avoiding solid obstacles, the plants in the water are already muddy, etc., otherwise the measured value will be abnormal;
5. Please be cleaned and stored after use;



2.3 Local Settings

After entering the “Local” menu, you can perform “Date Time”, “Display” and “Language”.

2.3.1 Date Time

After entering the “Local” menu, select “Date Time” and press “Enter” to set the time.

2.3.2 Display

After entering the “Local” menu, select “Display” and press “Enter” to set the “Adjust Bright” and “Screen Saver”.

2.3.3 Language

After entering the “Local” menu, select “Language” and press “Enter” to set “Language” to switch between “Chinese” and “English”.

2.4 Historical Data

After entering the “Historical Data” menu, you can retrieve the data by selecting the desired time period.

If you want to export data, select “Data Export” and press “Enter”. Wait about one minute and prompt “being waiting!” and click OK. Then prompt “OK!” and click OK to export all historical data stored in the machine. Then connect the handheld communicator to the computer with a USB data cable, then the computer will automatically jump out of a folder (2000M) and copy the format file inside to the designated location of the computer.

2.5 Local Host

After entering the “Local Host” menu, you can query “Device Information (Info.)” and set “System And Updates” and “Permission”.

2.5.1 Device Information (Info.)

After entering the “Local Host” menu, select “Device Information (Info.)” you can query to SN and version of the machine.

2.5.2 System And Updates

After entering the “Local Host” menu, select “System And Updates” you can “update” and “Restart”.

2.5.3 Permission

Select “Permission” enter the password “666000” to operate the menu of “Dissolved Oxygen Setting”.

Chapter 3 Maintenance

In order to obtain the best measurement results, it is very necessary to maintain the sensor regularly. Maintenance mainly includes cleaning, inspecting damage of the sensor. You can alsoview the sensor's status during maintenance and inspection.

3.1 Sensor Cleaning

It is recommended that the sensor should be cleaned at regular intervals (usually 3 months, depending on the site environment) to ensure the accuracy of the measurement.

Use water to clean the outer surface of the sensor. If there is still debris, wipe it with a damp soft cloth. Do not place the sensor in a direct sunlight or near radiation. In the entire life of the sensor, if the total sun exposure time reaches to one hour, it will cause the fluorescent cap aging and going wrong, and consequently leading to the wrong reading.

3.2 Inspection on the Damage of Sensor

According to the appearance of sensor to check if there is damage; if any damage is found, please contact after-sales service maintenance center in time for replacement to prevent malfunction of sensor caused by water from the damaged cap.

3.3 Preservation of Sensor

A When you are not using it, please cover the product's original protective cap to avoid direct sunlight or exposure. In order to protect the sensor from freezing, the DO probe should be stored in a place where it will not freeze.

B Keep the probe clean before storing it for a long time. Keep the equipment in a shipping box or a plastic container with electric shock protection. Avoid touching it with hand or other hard objects in case of scratching the fluorescent cap.

C It is forbidden that the fluorescent cap is exposed to direct sunlight or exposure.

3.4 Replacement of Fluorescent Cap

The sensor's measurement cap needs to be replaced when it's damaged. In order to ensure the accuracy of the measurement, it is recommended to change it every year or it is necessary to be replaced when the cap is found severely damaged during the inspection. Steps to replace the fluorescent cap: Unscrew the old cap from the sensor, and then screw the new cap on.

Note: When removing and assembling the fluorescent cap, pay attention to whether the sealing ring is misaligned. If there is a misalignment, it should be reassembled.

Version Number R2012.221125

Documents / Resources

	Sper Scientific Direct 860073 Portable Dissolved Oxygen Analyzer [pdf] Instruction Manual 860073 Portable Dissolved Oxygen Analyzer, 860073, Portable Dissolved Oxygen Analyzer, Dissolved Oxygen Analyzer, Oxygen Analyzer

References

- User Manual

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860073, 860073 Portable Dissolved Oxygen Analyzer, Dissolved Oxygen Analyzer, OXYGEN ANALYZER, Portable Dissolved Oxygen Analyzer, SPER SCIENTIFIC DIRECT

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