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Portable Dissolved Oxygen Meter

SISCO-RYG

User Manual

Catalogue

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Foreword

Dear users

 Thank you very much for purchasing our SISCO-RYG portable handheld oxygen gen. Before you use it, please read this manual in detail, which will be of great help to the use and maintenance of this instrument, and can avoid the improper operation and maintenance unnecessary trouble.

Please follow the operating instructions and precautions of this instruction manual.

In order to ensure the effective after-sales guarantee provided by this instrument, please

do not use and protect the method not specified in this manual raising this instrument.

Any failure and loss caused by the instructions specified are not covered by the manufacturer's

warranty, and the manufacturer shall not assume any relevant responsibility. Please keep all the

documents properly. If you have any questions, please contact our company for after-sales

service The department of affairs.

When receiving the instrument, please carefully open the package and check whether

the instrument and accessories are damaged by delivery. If any damage is found, please

contact our after-sales service department and keep the package for sending back.

When the instrument fails, please do not repair it by yourself. Please contact our after-sales service department.

1 Product overview

The SISCO-RYG multi-function handheld instrument is independently developed by the company. Instrument with operating keyboard and backlight display, simple interface, comprehensive function, simple operation, support direct connection and automatic identification of most of our sensors (such as optical dissolved oxygen / four-electrode conductivity / turbidity / chlorophyll / BGA / oil / sludge concentration, COD, ammonia nitrogen, etc.), using instrument can easily perform data measurement, data storage, parameter setting, sensor calibration and other functions, and support data export; pursuing high cost performance is us

Consistent pursuit.

SISCO-RYG fluorescence method handheld dissolved oxygen sensor is independently developed by our company, which adopts the international leading fluorescence life technology, based on the quenching principle of the active fluorescence of specific substances in physics. The significant advantages of the fluorescence method of measuring dissolved oxygen are no oxygen consumption, no flow rate limit, no preheating, no electrolyte, no maintenance and frequent calibration, and the response time of the sensorls as low as 20 seconds, far better than the national standard requirements;

SISCO-RYG has automatic temperature and air pressure compensation and salinity input compensation, supports automatic locking of dissolved oxygen detection value and setting filter mode; provides the dissolved oxygen detection with high accuracy and stability

More efficient application in the aeration tank, sewage plant and other water body unstable working conditions.

1.1 Introduction of instrument and sensor

Display screen

Keyboard

Lithium battery

Usb interface

Sensor connection port
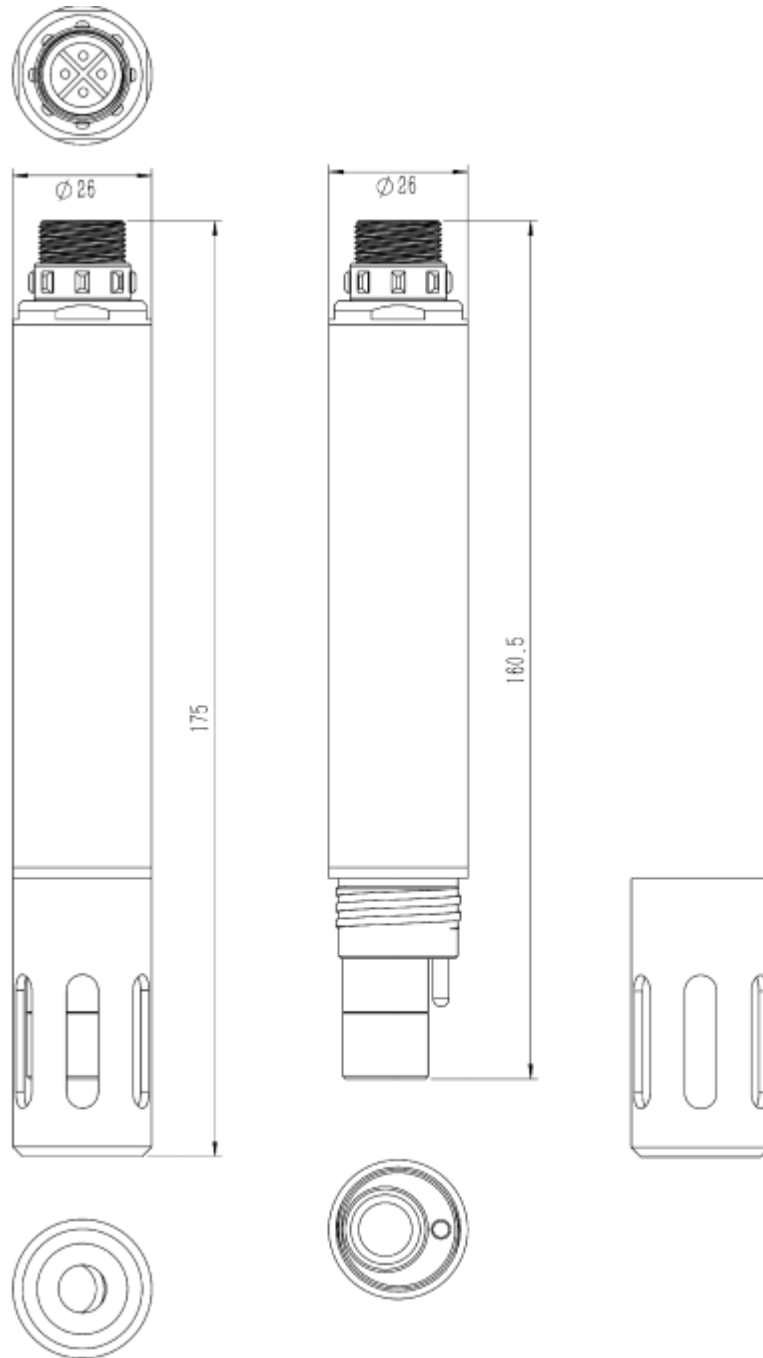
1.2 Technical parameters

The SISCO-RYG handheld dissolved oxygen sensor		
1	Determination principle	Optical fluorescence method
2	range	From 0 to 20 mg / L or 0 to 200% saturation
3	accuracy	± 1% or ± 0.3mg / L
4	response time	20s
6	temperature sensor	NTC
7	operating temperature range	0~ 50℃ (non-icing)
8	Temperature accuracy	±0.2℃
9	levels of protection	IP68
10	Maximum operational pressure	6bar
11	Sensor interface	Match the Y600-A multifunctional handheld instrument
12	Probe size	Φ26×175mm
13	Probe cable length	5 m (default), customizable
14	Probe weight	204g
15	calibration	One-point or two-point calibration
16	The life of the fluorescent cap	Guarantee for one year of use (under normal use)
The SISCO-RYG multifunction handheld instrument		
1	size	220 x 96 x 44mm
2	weight	460g
3	source	2,18650, rechargeable batteries
4	operating temperature range	0~50℃
5	Storage temperature range	-30~70℃
6	show	54.38 x 54.38mm LCD, with a backlight
7	data storage	support
8	atmospheric pressure compensating	Instrument built-in, automatic compensation of 50~115kPa
9	levels of protection	IP67
10	timed shutdown	support

2 Installation

2.1 Configure

The SISCO-RYG list is as follows:

standard layout	quantity	unit	remarks
The SISCO-RYG multifunction handheld instrument	1	short for Taizhou	Standard with 5m cable
The SISCO-RYG handheld dissolved oxygen sensor	1	individual	
rechargeable battery	2	jié	3350mAh/3.7V
USB, connecting line	1	root	Micro USB
spire lamella	1	root	
bolt driver	1	grasp	Used to open the battery cover

Carefully check the products and accessories before installation. If there is any damage, please contact the after-sales service department.

2.2 Install the battery

Follow the following steps for the instrument to install the battery:

(1) Unscrew the screw on the battery cover and open the battery cover.

Note: the screw can not be removed, screwed until it can not move

The battery cover can be opened;

(2) Put the battery into the battery compartment according to the positive and negative

electrode identification in the instrument battery compartment, as shown in the figure
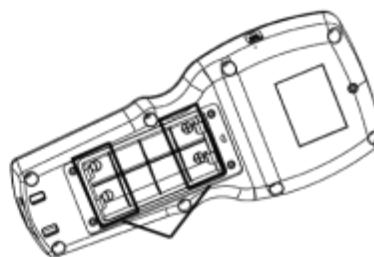
below,and pay attention to the positive and negative electrode

To pretend to be.

(3) Close the battery cover and turn the screw.
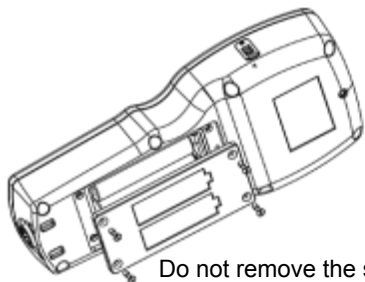
Do not remove the screws, open the battery cover by controlling it until it does not move.

The positive and negative terminals of the two batteries are facing each other, Please pay attention to the correct installation.

8

2.3 Connect the probe

As shown in the figure below, align the positioning red slot of the sensor cable connector

at the red slot of the instrument connector and insert gently in,

Then rotate clockwise, until the "click" sound is heard, and the connection is successful.

When the sensor probe is about to be removed, first push the sensor cable connector inward, and then turn out counterclockwise.

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install:

Align the red slot with the red slot on the meter connector

Turn the knurled locking ring clockwise until you hear a "click"

take down:

Push the knurled locking ring on the connector inward first

Turn out counterclockwise
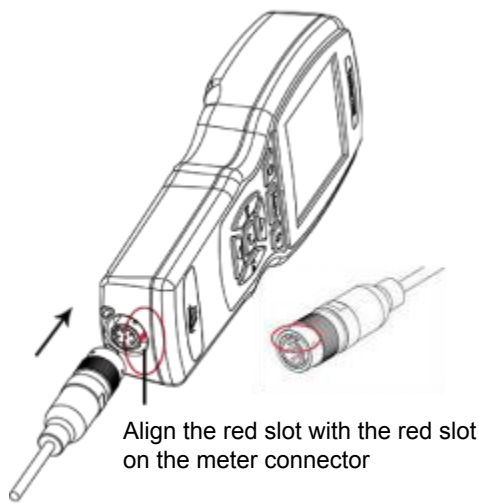
3 Operation

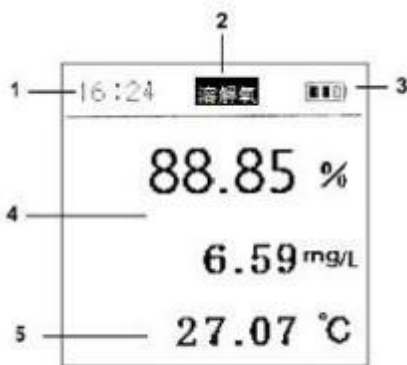Short press the power button to start up, the instrument supports hot plug, when there

is no electrode, the measurement interface will display " No

Sigr 　　　　　　　be is inserted again, the measurement interface
will 　　　　　　　　own in the figure below.

1	Time (time: points) 24 hours system
2	Probe type dissolved oxygen /DO
3	Battery status chart, indicating the battery level ⬛⬛⬛ ⬛⬛⬜ ⬛⬜⬜ ⬜⬜⬜ If out ⬜⬜⬜Now, directly charge the instrument usb or remove the rechargeable pool.
4	Probe reading:% of dissolved oxygen, mg / L
5	The temperature measured

Key

Short press: the
key is less than 2S

Long press: the
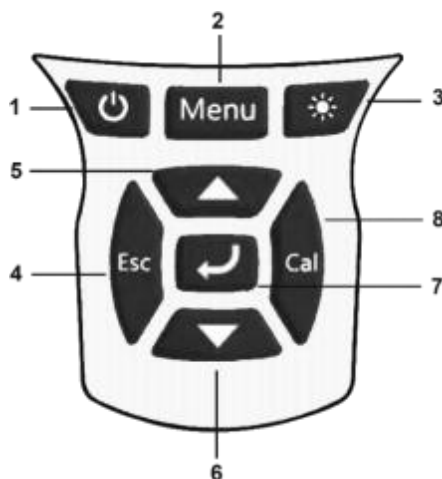
1	⏻	Short press	starting up
		Long press	shut down
2	Menu	Short press	Enter the menu interface
3	☀	Short press	Backlit on / off
4	Esc	Short press	Exit Settings; Return to the upper level interface
5	P u b l i c 9	Short press	Scroll up to increase menu option settings
6	▽	Short press	Scroll down to reduce the menu options when set

7		Short press	Go to the Select menu Confirm the settings and save the parameter values
8		Short press	Enter the calibration interface
		Long press	Enter the calibration and recovery interface
9	+	Short press	Save data once Note: only in the measurement interface

3.1 Menu

```
11:25          dissol          [|||]
——menu ─────────────────────────
Date / time
system
calibration
data logging
measurement
pattern
```
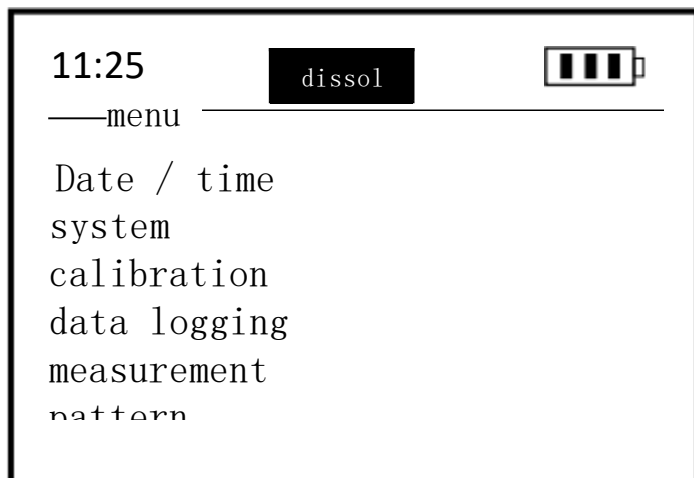
Press "Menu" and enter the menu interface. Through the "▲▼" key will highlight the menu options you choose, "↙" key will enter the selected sub-menu, and "ESC" key will exit the menu interface or the menu sub-interface.

3.2 Menu Date / Time

```
11:25          dissolv         [|||]
—Date /        ed ─────────────────
               oxygen

Date: 19 / 9 / 19
Time: 15:10:07
preserve
```
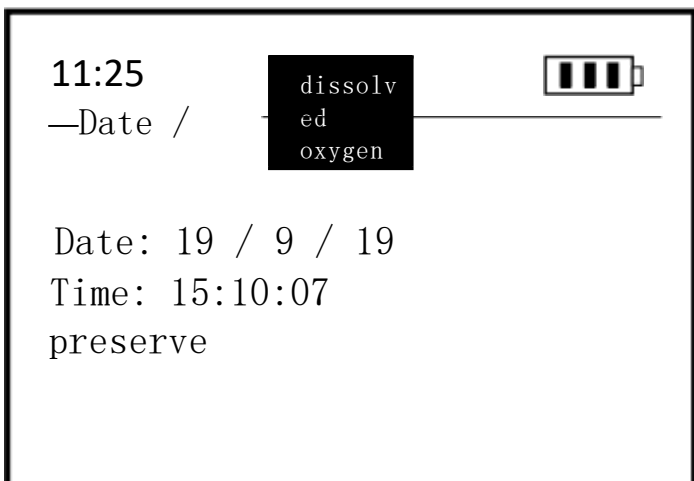
The Date / time menu, which sets the date and time of the instrument. Adjust the current value through the ▲ key and ▼ key, and press "↙" to automatically jump to the next value. After all set, select "↙" to save, there will be prompt " Save successfully!"。

3.3 Menu system
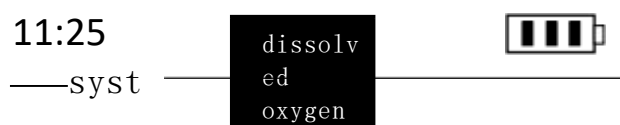
```
11:25          dissolv         [|||]
——syst         ed ─────────────────
               oxygen

auto shut off
pressure
salinity
Probe information
Table head information
□self-cleaning
  Probe filter
```

The system menu can query and set all parameters, count information, including automatic shutdown, air pressure calibration, salinity setting, probe information, instrument information,

automatic cleaning and probe filter. Select up and down through the ▲▼ button and press ↙ to enter the selected submenu.

Check the automatic cleaning will open a brush cleaning, which is only useful for the probe with a brush.

3.31 The menu system will be shutdown automatically

11:25 `dissolv` [battery]

—auto shut off

```
         T
urn-
off
for   5
min  10
min  15
min
```

Automatic shutdown can set four power states: "off" means that the power is often on, "5 minutes" means that the instrument is automatically off after 5 minutes and no operation, "10 minutes" means that the instrument will be shutdown automatically after 10 minutes without operation, "15 minutes" means that the instrument is automatically off after 15 minutes without operation.

With the ▲▼ key selection, the ↙ key is selected. This setting does not save the power, the default 10 minutes automatic shutdown.

3.32 Menu system air pressure

11:25 `dissolved oxygen` [battery]

—aer:
before
one:
import
:
preserve

kPa
101.6
001.0

You can calibrate the atmospheric pressure, in kPa, which affects the dissolved oxygen values."Current" means the current measured atmospheric pressure value, "input" means the local real-time atmospheric pressure to be calibrated, the value is adjusted through the ▲ key and ▼ key, press "↙" to automatically jump to the next value, select the save value and press "↙".

3.33 Salinity of the menu system

11:25 `dissolv` [battery]

—salinity

unit: PPT
before one: 0.0
import: 005.0
preserve

The sample salinity can be set, and if the salinity increases, the dissolved oxygen value will decrease, and the instrument can compensate for the deviation of the dissolved oxygen value caused by the salinity value. Adjust the salinity value through the ▲ key and the ▼ key, press "↙" to automatically jump to the next value, and save the value to select "↙". This value can be saved, the default salinity is 0 in ppt. Usually freshwater is 0-0.5ppt and seawater is 35ppt.

3.34 Menu system probe information

```
11:25        dissol        ▮▮▮▯
—Probe

 SN: YL5019081516
Hardware version:
1.1
Software version:
2.0
ID: 01
```
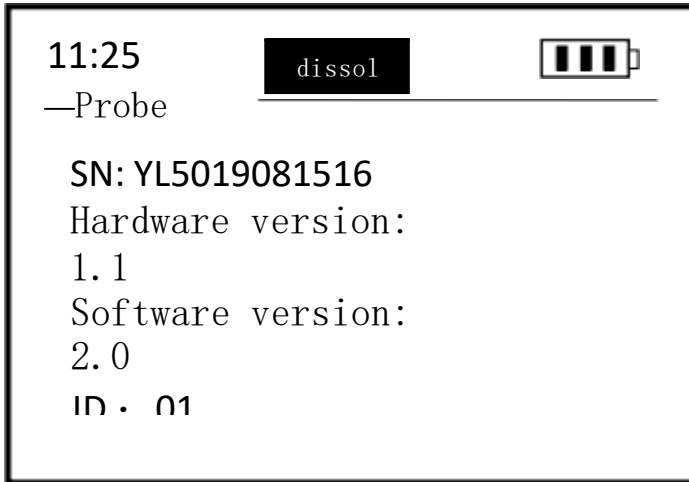
You can view some information about the probe, including SN, hardware version number, software version number, and Modbus ID address. The Modbus ID address can be changed on the instrument. Change the address through the ▲ keys and ▼ keys. After setting it up, select Save and press "↙".

3.35 Menu system header information

You can view some information about the instrument, including SN, hardware version number, and software version number.

3.36 Menu system probe filter

```
11:25 dissolved oxygen ▮▮▮ —Probe
filter

         normal
         filtering
```
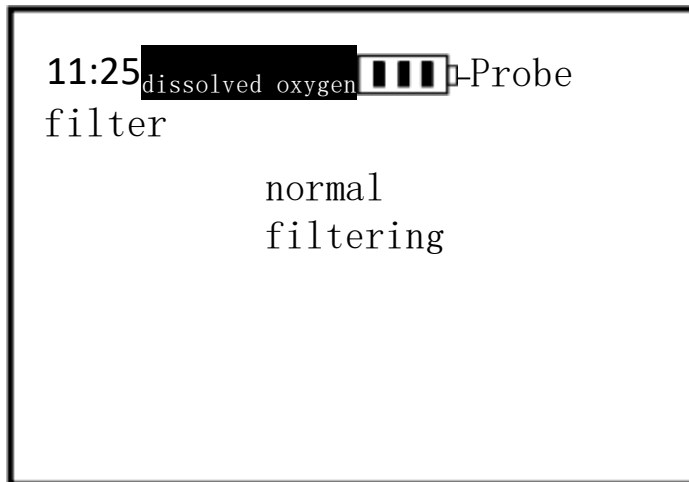
The probe selection of "filter" mode increases the data filtering processing, which can make the probe data more stable and suitable for some special environments, such as sewage plant, aeration tank, etc., but the sensitivity of the data will be appropriately reduced."Normal" model

There is no filtering processing.

3.4 Menu calibration

DO calibration

The dissolved oxygen electrode supports both one-point calibration and two-point calibration. The dissolved oxygen has no zero-point calibration.

pay attention to

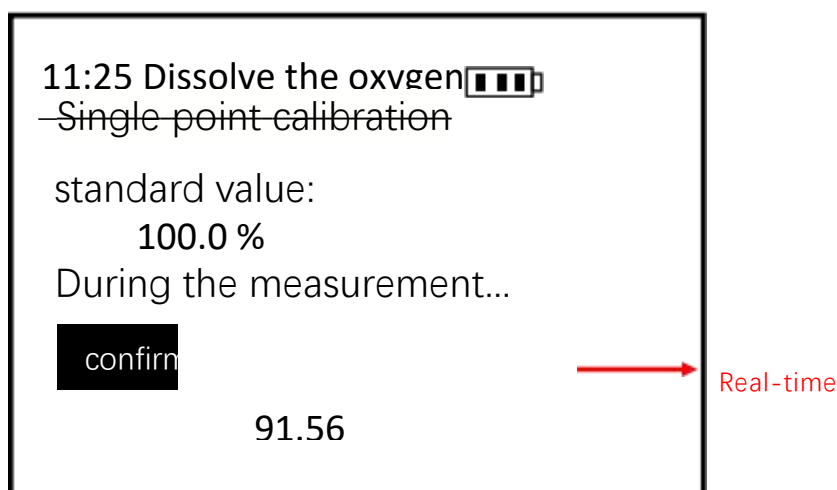1. Before calibration, remove the fluorescent cap shield of dissolved oxygen electrode with wet sponge;

2. The probe needs to be cleaned with deionized water, especially the fluorescent film, but can not be picked or scraped with hands or sharp objects.

![sisco logo]

11:25 dissolved oxygen ▮▮▮
—calibration
Zero point calibration
Single point calibration
Two point calibration
Fluorescence hat

Single point calibration

. "Standard value": Enter the target value to be calibrated, normally placed in a saturated dissolved oxygen environment, write 100%.

. Press ▲ and ▼ to adjust the value, and press ✓ to automatically jump to the next value.

```
11:25 Dissolve the oxygen ▮▮▮
—Single point calibration

standard value:
    100.0 %
During the measurement…

confirm                          ———→  Real-time

        91.56
```

. " In the measurement…": Select" Next step "and press" ✓ "to enter" measurement… ", which means that the dissolved oxygen electrode is put into the corresponding input worthy dissolved oxygen environment, and the bottom of the screen will show the real-time measurement value, unit%, and wait for the data to stabilize, as shown in the figure above.

. "OK": press "✓" under "OK", and the meter calculates the slope. If "successful", the calibration is successful, otherwise it shows failure. After success in the " calibration is completed!"Press the ✓ to exit the calibration.

Two point calibration

Enter the first calibration point for calibration, the process is the same as above, and press "✓" under "next"

Two-point calibration. As shown in the figure below.

. Or follow the prompts: "Standard value" -> " Measurement..."->" Determine ", enter the second target value to be calibrated. Put the electrode into the standard solution of the corresponding value, wait for the data to stabilize, press the "↙" key, and calculate the zero and slope automatically inside the instrument.

The calibration of dissolved oxygen is 100% (fully aeration water environment) and the second is 0% (saturated anhydrous sodium sulfite aqueous solution).

![sisco]

11:25 **dissolved oxygen** 🔋
—Two point calibration

the first point:
　　100.0 %
　　Success of 93.64　　　　　　　　——————▶　The first point

next step

Zero oxygen environment: prepare a beaker, add 200ml of deionized water or

distilled water, and then slowly add anhydrous sodium sulfite powder to the

beaker, add while stirring, until anhydrous sodium sulfite is insoluble, solid,

At this time, the standard solution is the zero oxygen.

Saturated oxygen environment: oxygen air to 200ml of water (for 10~15 minutes),

when the water environment is

Saturated oxygen environment.

＊If conditions do not permit, the air can be roughly considered saturated with oxygen environment.

Fluorescent cap parameter (the user uses this function according to the actual situation)

When replacing the new sensor fluorescent cap (if with calibration parameters), there will be 8 sets of parameters in K0-K7.

11:25 Dissolve the oxygen 🔋
—Fluorescence hat

Read the parameters

Write parameters

　　Select the read parameter, press the ↙ key key to enter the read fluorescent cap parameter interface, then K0-K7 8 will appear
Group data.

　　Select write parameter, press "↙" to enter the write fluorescent cap parameter interface, when K0-K7 8

3.5 Menu data record

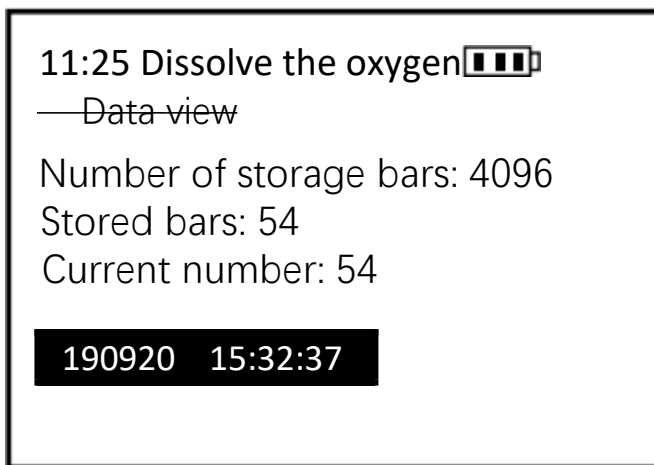**data storage**

SISCO-RYGThe multi-function handheld instrument can record 4,096 measurements. There are two ways to record the data, which can be counted by number

According to the record / data storage / deposit, press it once. Press the combination key "Enter + ▼" in the measurement interface can also realize the function of the certificate of deposit. Press data record / data store / automatic storage to represent automatic save data, "appear means start record data, select data record again / data store / automatic storage data record end," disappear. The interval between the number of deposits ⧖ ⧖

Set in data recording / data storage / time in minutes.

Data view

```
┌─────────────────────────────────────┐
│  11:25 Dissolve the oxygen ▮▮▮▯     │
│  ── Data view                        │
│  Number of storage bars: 4096        │
│  Stored bars: 54                     │
│  Current number: 54                  │
│                                      │
│  ▐ 190920   15:32:37 ▌               │
│                                      │
└─────────────────────────────────────┘
```

Can store the number of bars

Indicates how many pieces of data can be saved;

The number of bars has been stored

Indicates how many pieces of data are currently being used;

The current number

It represents the currently selected data, as shown in the figure below, and reads the current 54th data information.

The result of the stored data is named after the storage time, 190920 15:32:37 indicates that Article 54 data is 20 September 201915

At 32 minutes and 37 seconds saved. Select other data time through ▲ and ▼ keys, and press "↙" key to view the specific data results of the time point.

11:25   ▐▮▮▮▌
Data removal
──Reset   Short press "Cal" and enter the
* Empty all the currently stored data. Please choose carefully.   calibration interface, specific

calibration

pay attention to
Be sure to press the "cal" shortcut key under the measurement interface to enter the calibration interface.

▐ dissolved ▌

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yes
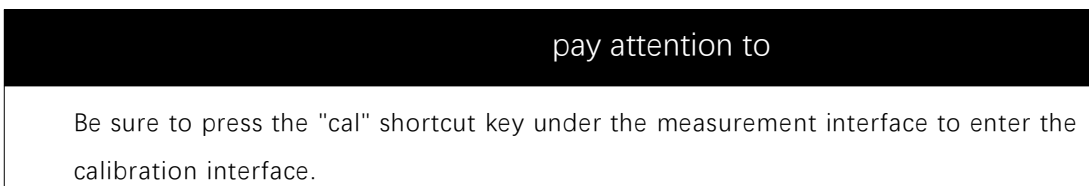
Long press "Cal" to enter the calibration recovery interface, select the user calibration parameter recovery k=1,
And b =0 (factory default value).

![sisco logo]

Connect to the computer

The handheld meter comes with a PC upper computer software called "Meter Read", SISCO-RYG

which is used to read the data stored in the meter.

(Software in U disk)

Follow the prompts to install the software and connect the provided USB cable to the

handheld instrument to the USB and port of the PC.this moment

The software string slogan can identify the port, and then choose the download data path, click

to download. The file format is.CSV 。

pay attention to
The instrument must be connected to the computer in the shutdown state before the software will recognize the port.

3.6 Menu measurement mode

11:2

dissolved oxygen

measurem

single measurement
continuous measurement

A single measurement refers to the data after itself

Dynamic locking, the measurement again will need to press "✓".

Continuous measurement data is always updated and will not lock fix.

4 Maintenance

4.1 Maintenance of the handheld instrument

In addition to cleaning the instrument surface, checking for damage, regularly

charging, or replacing the battery, the Y600-A multifunctional handheld

Instrument does not require other special maintenance. During the usual use and replacement of the battery, please pay attention to the battery compartment can not be flooded.

4.2 Sensor maintenance

Different from the principle of dissolved oxygen probe used by electrochemistry, the

fluorescent dissolved oxygen probe does not consume oxygen, no filling liquid, etc

To frequent maintenance, normal cleaning, user calibration can be done.

Maintenance task	Maintenance frequency is recommended
Clean the sensor	Recommended both before and after each test
Check the sensor and fluorescent cap for damage	Check ked every 30 days
Change the fluorescent cap	Replace it once a year
Calibration sensor	Frequent use is recommended every 30 days; occasional use is recommended before each use; or adjust according to actual field conditions.
Wetpreserve the fluorescent film	Check the sponge status every 30 days and timely rehydrate

Maintenance method:

(1) Clean the outer surface of the sensor: clean the outer surface of the sensor with tap

water, if there is still dirty residue, wipe with a wet soft cloth, for some stubborn dirt, you

can add some household washing liquid in the tap water and gently brush with a soft

brush

wash;

(2) Clean the outer surface of the fluorescent cap: remove the protective cover at the

front of the sensor, rinse the dirt on the fluorescent film of the sensor with water, and

then screw the protective cover; if necessary to wipe, use wet soft cloth and be careful of

strength and force direction; forbid

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Stop scraping with nails or sharp objects, if the fluorescent film layer causes scratches or scratches, the sensor will not work properly!

(3) Clean the inner surface of the fluorescent cap: if water vapor or dust invade the inside of the fluorescent cap, the cleaning steps are as follows:

Remove the fluorescent cap;

Rinse the inner surface of the fluorescent cap with tap water;

For the dirt containing fat and oil, wash with the warm water added with the

household washing liquid;

Rinse the inner surface of the fluorescent cap with deionized water;

Gently dry all surfaces with a clean velvetless cloth and place them in a dry place to allow the water to evaporate completely.

(4) Daily preservation of the fluorescent cap: the fluorescent film needs to be kept with

wet water, so it should be protected with wet sponge when stored or not used

Cover on the fluorescent cap, please remove and properly keep the protective cover to avoid loss. Note: If the sponge in the protective cover is short of dry water

 Knot, can be supplemented with deionized water or pure water wet; if the improper

preservation of the fluorescent film in a dry state for a long time, will

Lead to inaccurate measurement and greatly shortening the fluorescence membrane life.

(5) Check the cable of the sensor: the cable should not be tightened during normal work,

otherwise there is a risk of breaking the wire inside the cable, and lead

 The starting sensor does not work properly;

(6) Check whether the shell of the sensor is damaged by corrosion or other reasons.

Soltic oxygen sensor fluorescent cap replacement

(1) If the sensor and controller are in the connected state when the fluorescent cap is replaced, please disconnect first;

(2) Remove the old fluorescent cap: hold the main axis of the probe with one hand, and

rotate the fluorescent cap gently with the other hand in the counterclockwise direction

It was completely removed. Note: Any tools cannot be used in this step.

(3) Check the 0-shaped sealing ring on the probe for damage: if there is any sign of

 damage, please carefully remove the damaged seal

Circle, then replace the new waterproof ring. Note: Do not use any tools when removing the damaged seals and replacing the new seals.

(4) Ensure that the O-shaped sealing ring installed on the probe is clean: if there is dust or

dirt, please wipe it clean with a dust-free cloth

pay attention to

(5) Install a new fluorescent cap: hold the spindle of the probe with one hand, and gently

rotate the other hand clockwise, and tighten the new

 Of the fluorescent cap (with a protective cover). Note: Any tools cannot be used in this step.

(6) Cable connection: align the positioning bump of the probe cable connector at the slot of the controller interface, and insert it gently.

(7) After replacing the new electrode cap, the characteristic parameters should be set to

the instrument. See 3.3 for specific operation. The specific value of the feature parameters

is given in

New Fnew new in packaging (if any).

Avoid exposure to sunlight on the inner surface of the fluorescent cap. Please do not scratch the fluorescent film with your hands;

Avoid any mechanical stress (pressure, scratches, etc.) on the fluorescent membrane during the use of the dissolved oxygen sensor

5 solutions to frequently asked questions

Table 51 lists the possible problems with the handheld meter and the solutions, if your problem is not listed or the solution cannot deal with your problem, please contact us.

abnormal phenomena	probable cause	resolvent
Hand-held instrument does not display measurements (with sensor connected)	Error with the instrument and cable connection	Reconnect the meters and the cables
	The instrument battery is out of power	Charge the instrument usb directly or remove the rechargeable pool directly
	Cable fault	Please contact us
	Probe anomaly	Please contact us
The dissolved oxygen measurements are too high, too low, or the values are continuously unstable	The outer surface of the fluorescent cap is attached by external objects	The outer surface of the fluorescent cap was cleaned and the probe was stirred during measurement to eliminate air bubbles
	The fluorescent cap was damaged	Change the fluorescent cap
	Fluorescent cap has exceeded its service life	

Table 5-1 List of frequently asked questions

6 Warranty description

(1) The warranty period of the whole machine is 1 year.

(2) This quality assurance company does not include the following conditions:

① Due to force majeure, natural disasters, social unrest, war (announced or unpublished), terrorism,

Damage caused by war or any governmental coercion;

② Damage caused by improper use, negligence, accident or improper application and

installation;

③ Freight for transporting the goods back to our company;

④ Freight for urgent or express delivery of parts or products within the scope of the

warranty;

⑤ Travel expenses for local warranty repair.

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(3) This quality assurance includes all the contents of the warranty provided by its products.

① This Quality Assurance constitutes a final, complete and exclusive statement of the quality assurance terms to no one or

The agent is authorized to develop other warranties in our name.

② The remedial measures such as repair, replacement or return of payment as

mentioned above are special cases that do not violate this quality guarantee, and the

remedial measures such as replacement or return of payment are aimed at the

company's products itself. Based on strict liability obligations or other legal theories, do

not be liable for any other damage due to product defects or negligence of operation,

including these circumstances

There is a causal relationship between the subsequent damage of the situation.