

KWS-670

Portable Optical Dissolved Oxygen Meter

Operation Manual



Catalogue

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1. Overview

KWS-670 adopts the advanced fluorescence quenching principle to measure the dissolved oxygen concentration in water bodies without any loss. It has the advantages of being pollution-free, having a long service life, good stability, and low maintenance difficulty.

This product is convenient for users to carry around, enabling them to monitor dissolved oxygen (with barometric pressure and salinity compensation) and temperature on-site. It can also calibrate the dissolved oxygen measurement probe.

The display uses a liquid crystal display, which provides clear readings and is easy to use. It is powered by a built-in lithium battery, eliminating the need to replace the battery, and it can conduct continuous measurements on-site.

2. Performance Indicators

Dissolved Oxygen Sensor	
DO Range	0~20 mg/L
Accuracy	< ±0.5 mg/L
Measurement Repeatability	< 0.3mg/L
Zero Offset	< 0.5 mg/L
Resolution	0.01mg/L
Temperature Measurement Range	0~60℃
Temperature Resolution	0.1℃
Temperature Measurement Error	< 0.5℃
Power Supply	3.7VDC
Operating Temperature	0~40℃
Storage Temperature	-20~70℃
Dimensions	φ30 *165 mm
Anti - interference	It is not interfered by the following substances: H ₂ S, pH, K ⁺ , Na ⁺ , Mg ²⁺ , Ca ²⁺ , NH ₄ ⁺ , Al ³⁺ , Pb ²⁺ , Cd ²⁺ , Zn ²⁺ , total Cr, Fe ²⁺ , Fe ³⁺ , Mn ²⁺ , Cu ²⁺ , Ni ²⁺ , Co ²⁺ , CN ⁻ , NO ₃ ⁻ , SO ₄ ²⁻ , S ²⁻ , PO ₄ ³⁻ , Cl ⁻ , anionic surfactants, crude oil, Cl ₂ .
LCD Display	
Display Screen	Graphic dot - matrix LCD, 128×64 with LED backlight
Controller Size	80×160×30 mm
Power Supply	Built - in 3.7V rechargeable lithium battery

3.Functions of the Buttons

There are 5 buttons and 2 indicator lights on the control panel of this product (as shown in Figure 1). Their respective functions are as follows:

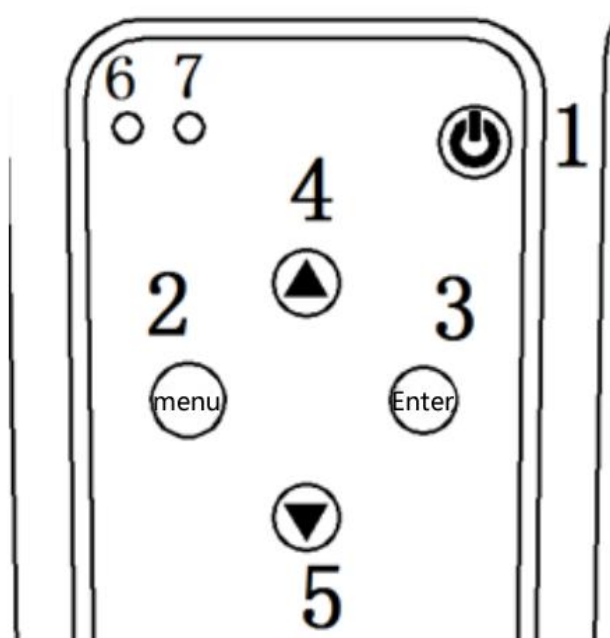


Figure 1

1.Power Switch:

- ① When the device is off, press and hold the button for 2 seconds. Release the button when the LCD screen lights up, indicating successful startup.
- ② When the device is on, press and hold the button for 2 seconds. Release the button when the LCD screen turns off, indicating successful shutdown.

2.Menu Button:

- ① Press and hold the button for 2 seconds to enter the main menu.
- ② Press the button briefly to cancel the settings and return to the previous - level menu.

3.Confirm Button: Confirm the settings or enter the next - level menu.

4.Increase Button (▲): Move up or increase the value in the menu interface.

5.Decrease Button (▼): Move down or decrease the value in the menu interface.

6.Red LED Indicator: When the red light is on, it indicates that the device is being charged.

7.Green LED Indicator: When the green light is on, it indicates that the charging is completed.

4. Installation

1. Insert the aviation plug of the measurement probe into the bottom of the handheld liquid crystal display and tighten it (as shown in Figure 2).

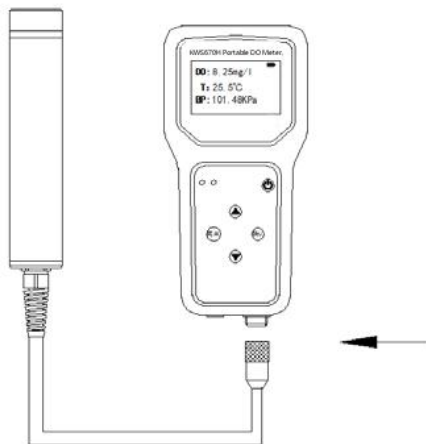


Figure 2

2. Connect the measurement probe to the swing rod and tighten it. Then, put the protective cover over the measurement probe until the probe is firmly locked in place (as shown in Figure 3).

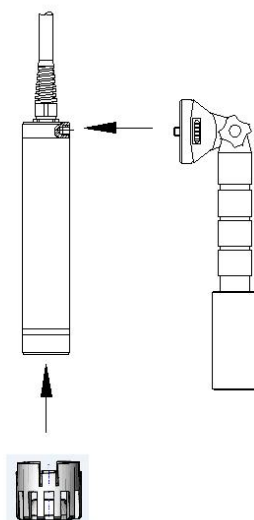


Figure 3

3. Turn on the power of the display, extend the swing rod, and place the measurement probe into the water. Press the "▲" button to start the detection. The screen will start to flash, and the message "Detecting" will appear at the bottom of the screen. Shake the swing rod in the water. After waiting for about 2 minutes until the dissolved oxygen data stabilizes, automatic recording can be carried out.

5.Charging

Use the matching magnetic charging cable to charge the display (the location of the interface is shown in Figure 4).

Notes: Since the charging current of the built - in lithium battery is 700 mA, the charging plug should have a current output of 1 A or higher. If you use a computer USB port (with a maximum current of 500 mA) to charge the device, it may keep charging but never reach full capacity. The location of the charging indicator light is shown in Figure 5.

Magnetic charging interface

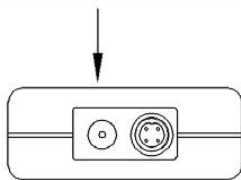


Figure 4

The red LED indicator light (while charging) The green LED indicator light (charging complete)

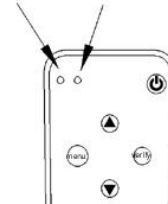


Figure 5

6.Menu Operation

1.Press and hold the "Power Switch" button for 2 seconds to turn on the device and enter the measurement interface. The description of the display screen on the measurement interface is as follows (as shown in Figure 6):

- ① ☐ Current system time;
- ② ☐ Dissolved oxygen value;
- ③ ☐ Temperature value;
- ④ ☐ S: saturation
- ⑤ ☐ Status indicator bar: It provides status prompts according to the measurement situation.
- ⑥ ☐ Battery level: The power level of battery. If the battery is low, please charge it in time.

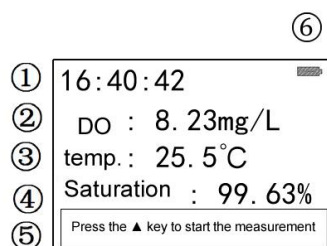


Figure 6

2. On the measurement interface, press and hold the "Menu" button for 2 seconds to enter the main menu (as shown in Figure 7). Then, use the up and down buttons to select the desired function, and press the "Confirm" button to enter the next - level menu. (Press the "Settings" button briefly to return to the previous - level menu.)

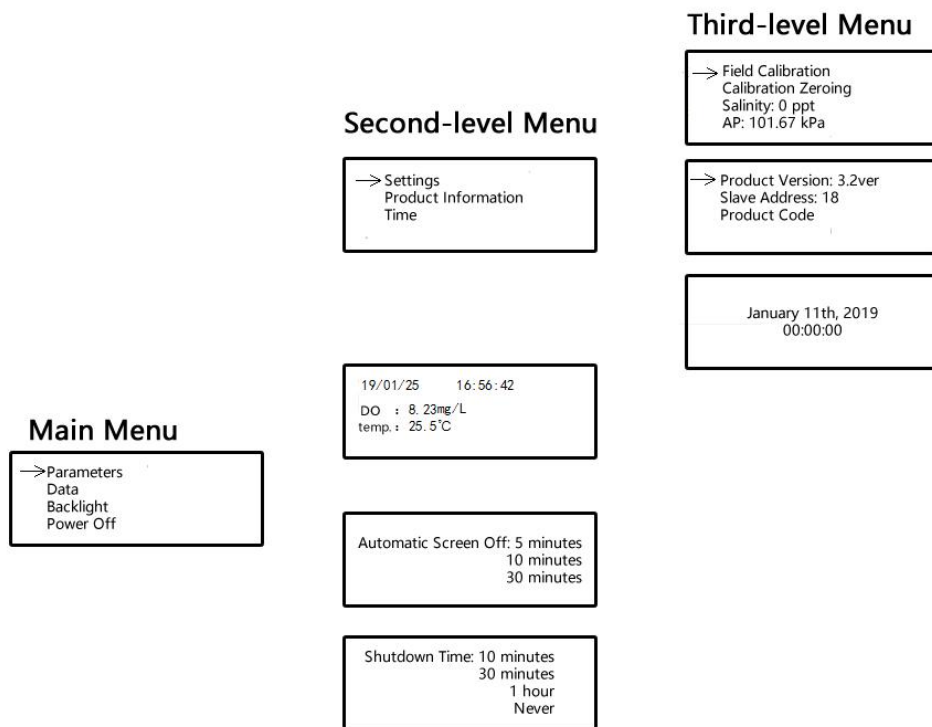


Figure 7

- ① Parameters: You can set the system time and the probe.
- ② Data: After each detection is completed, the dissolved oxygen and temperature data will be automatically recorded. You can use the "▲" and "▼" buttons to scroll up and down the pages. A maximum of 50 sets of data can be saved.
- ③ Backlight: Set the backlight of the LCD screen. The backlight will automatically turn off if there is no operation within the set time.
- ④ Shutdown: The device will automatically shut down if there is no operation within the set time.

7.Maintenance

- 1.Never touch the surface of the fluorescent membrane with sharp objects. During storage and transportation, use a rubber sleeve to cover the fluorescent membrane at the bottom of the probe to prevent the sensor membrane from cracking and getting damaged.
- 2.After long - term use, the probe may be clogged to varying degrees. Gently clean the bottom of the sensor with a clean cloth and clean water.

3.If there is a large deviation in the dissolved oxygen probe, after cleaning it, let it stand in the air for 15 minutes. Compare the displayed value with the air data at different temperatures in Appendix 1. If there is a large deviation, you can correct the product according to the on - site calibration operation method.

4.The display is equipped with a built - in 3.7V lithium battery, which does not need to be disassembled and replaced. Do not disassemble the product at will.

8.Appendix:

Table of Dissolved Oxygen Values in Air at an Atmospheric Pressure of 101.32 kPa							
Temp. (°C)	DO value (mg/L)	Temp. (°C)	DO value (mg/L)	Temp. (°C)	DO value (mg/L)	Temp. (°C)	DO value (mg/L)
0	14.63	11	11.04	22	8.77	33	7.17
1	14.23	12	10.79	23	8.58	34	7.06
2	13.84	13	10.55	24	8.42	35	6.94
3	13.47	14	10.32	25	8.26	36	6.83
4	13.11	15	10.09	26	8.11	37	6.72
5	12.78	16	9.88	27	7.97	38	6.61
6	12.45	17	9.67	28	7.83	39	6.51
7	12.15	18	9.47	29	7.69	40	6.41
8	11.85	19	9.29	30	7.55	41	6.31
9	11.57	20	9.10	31	7.42	42	6.21
10	11.30	21	8.92	32	7.29	43	6.12