

**Generic AR8100**

# Smart Sensor Digital Oxygen Meter User Manual

MODEL: AR8100

## 1. Introduction

The Smart Sensor AR8100 is a portable digital oxygen meter designed for precise detection of O<sub>2</sub> levels and temperature. It features a highly sensitive electrochemical sensor, providing accurate and rapid measurements. Equipped with an LCD display, the device offers clear readings and includes both acoustic and optical alarm indicators for enhanced safety. This manual provides essential information for the proper use, setup, operation, and maintenance of your AR8100 oxygen gas monitor.

## 2. Safety Information

Please read and understand all safety precautions before operating the device.

- Do not attempt to repair or modify the device yourself. Refer all servicing to qualified personnel.
- Ensure the device is used within its specified operating temperature and humidity ranges to prevent damage and ensure accurate readings.
- Keep the device away from strong electromagnetic fields, corrosive substances, and excessive vibrations.
- Regularly check the device for any signs of damage or malfunction. Do not use if damaged.
- The sensor has a limited lifespan (approximately 2 years). Replace the sensor as recommended to maintain accuracy.
- Always ensure proper ventilation when using the device in enclosed spaces.

## 3. Product Overview

### 3.1. Package Contents

Upon unpacking, please verify that all items listed below are present and in good condition:

- 1 x AR8100 Oxygen Gas Monitor
- 1 x User Manual
- 1 x Hand Strap
- 1 x 3.7V Rechargeable Lithium Battery (pre-installed or separate)
- 1 x Charger

- 1 x USB Cable (for charging)
- 1 x Certificate (if included)
- 1 x Plastic Box (carrying case)
- 1 x Gift Box (outer packaging)

# AR8100



**Figure 3.1:** The AR8100 Oxygen Detector shown alongside its complete package contents, including the user manual, hand strap, charging cable, a protective plastic carrying box, and the retail gift box.

## 3.2. Device Components and Display

The AR8100 features a clear LCD display and intuitive controls for easy operation.



**Figure 3.2:** Front view of the Smart Sensor AR8100 Oxygen Detector, highlighting its large LCD screen displaying O<sub>2</sub> percentage and temperature, along with the MODE, UNIT, Power, and Light/Alarm buttons.

- **LCD Display:** Large screen with backlight for clear readings of O<sub>2</sub> concentration and temperature.
- **O<sub>2</sub> Sensor:** Located at the top of the device for oxygen detection.
- **MODE Button:** Used to cycle through different display modes or settings.
- **UNIT Button:** Used to change measurement units (e.g., temperature units).
- **Power Button:** Turns the device ON/OFF.
- **Light/Alarm Button:** Activates backlight or adjusts alarm settings.
- **Charger Port:** For connecting the charger.
- **Alarm Indicator:** Visual indicator for alarms.
- **Speaker:** For acoustic alarms.

## 4. Setup

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### 4.1. Battery Installation and Charging

The AR8100 is powered by a 3.7V rechargeable Lithium-ion battery.

1. If the battery is not pre-installed, open the battery compartment cover (usually on the back) and insert the 3.7V Lithium-ion battery, ensuring correct polarity.
2. Close the battery compartment securely.
3. Before first use, fully charge the device. Connect the charger to the device's charging port and plug it into a power outlet.
4. The charging indicator light will typically show the charging status. Once fully charged, disconnect the charger.
5. A full charge provides approximately 100 hours of continuous operation with the backlight off.

## 5. Operating Instructions

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### 5.1. Powering On/Off

- To power on the device, press and hold the **Power Button** until the LCD screen illuminates.
- To power off the device, press and hold the **Power Button** again until the screen turns off.

### 5.2. Oxygen and Temperature Measurement

Once powered on, the device will automatically begin measuring oxygen concentration and ambient temperature.

- The O<sub>2</sub> concentration (in % VOL) will be displayed prominently on the LCD screen.
- The temperature (in °C or °F) will also be displayed.
- The device features a highly sensitive sensor for precise and fast readings.

## HIGHLY SENSITIVE SENSOR



High precision



fast reaction



Small error

**Figure 5.1:** The AR8100 Oxygen Detector in operation, demonstrating its highly sensitive sensor and the clear display of oxygen percentage and temperature, emphasizing its high precision, fast reaction, and small error.

### 5.3. Setting Alarm Values

The AR8100 features an adjustable acoustic and optical dual alarm system.

1. Press the **MODE Button** to enter the alarm setting mode.
2. Use the **Light/Alarm Button** (or arrow buttons if present) to adjust the desired O<sub>2</sub> alarm threshold.
3. Press **MODE** again to confirm and exit the setting mode.
4. When the O<sub>2</sub> concentration exceeds the set alarm value, the device will trigger an acoustic alarm (80 dB) and an optical alarm (flashing light).

# SOUND/LIGHT ALARM



**Figure 5.2:** The AR8100 Oxygen Detector demonstrating its integrated sound and light alarm system, which provides both audible reminders and visual light reminders when oxygen levels exceed predefined thresholds.

## 5.4. Backlight and Unit Adjustment

- **Backlight:** Briefly press the **Light/Alarm Button** to toggle the LCD backlight ON or OFF. This improves readability in low-light conditions.
- **Unit Adjustment:** Press the **UNIT Button** to switch between different measurement units, particularly for temperature (e.g., Celsius and Fahrenheit).

## 6. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the device. Do not use abrasive cleaners or solvents.
- **Storage:** When not in use for extended periods, store the device in a cool, dry place between 0°C and 40°C (32°F and 104°F). Ensure the operating humidity is between 15% and 95% RH.
- **Battery Care:** Recharge the battery regularly, even if the device is not in use, to maintain battery health. Avoid fully discharging the battery for prolonged periods.
- **Sensor Lifespan:** The electrochemical sensor has an estimated lifespan of 2 years. Consider sensor replacement after this period to ensure continued accuracy.

## 7. Troubleshooting

If you encounter issues with your AR8100, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Device does not power on.	Low or depleted battery.	Charge the device fully. Ensure the charger is properly connected.
Inaccurate readings.	Sensor contamination or end of sensor lifespan. Device not calibrated.	Ensure the sensor area is clean. Consider sensor replacement if beyond 2 years. Contact support for calibration information.
Alarm not sounding/flashing.	Alarm value set too high. Alarm function disabled.	Check and adjust the alarm threshold. Ensure alarm function is enabled in settings.
LCD display is dim or blank.	Backlight off. Low battery.	Press the Light/Alarm button to activate backlight. Charge the device.

## 8. Specifications

Parameter	Value
Gas Type	Oxygen (O2)
Measuring Range	0~25% VOL
Resolution	0.1 %
Basic Error	Less than $\pm 0.1$ %
Response Time	Less than 50 seconds
Recovery Time	Less than 50 seconds
Measuring Principle	Electrochemical principle, 2-year lifespan
Alarm	Acoustic and optical dual alarm (80 dB sound level), adjustable alarm value
Operating Temperature	-10 ~ 50 °C (14 ~ 122 °F)
Operating Humidity	15~95 % RH, typical
Storage Temperature	0~40 °C (32 ~ 104 °F)
Product Weight	200 g (0.44 lbs)
Product Size	112 x 66 x 32 mm (4.41 x 2.60 x 1.26 inches)
Power Supply	Rechargeable Lithium-ion battery, 3.7 Volts
Battery Life	Approx. 100 hours continuous operation (backlight off)

Parameter	Value
Manufacturer	Xiaozhoukeji
Model Number	AR8100
Material	Plastic

## 9. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact the seller/manufacturer directly. Keep your purchase receipt as proof of purchase.

**Manufacturer:** Xiaozhoukeji

**Brand:** Generic