

Oxygen Pen

800047

Instruction Manual

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INTRODUCTION

The Sper Scientific Oxygen Pen (Model 800047) is designed to read oxygen in the air.

At standard temperature and pressure, oxygen is a colorless, odorless, tasteless diatomic gas with the molecular formula O_2 .

Applications for the meter include O_2 monitors and detectors, environmental studies, IAQ, food storage and refrigeration, bio-technology (oxygen incubators and anaerobic cultivators), security systems, air conditioning, oxygen shortage alarm systems, fire alarms, and fuel cell systems.

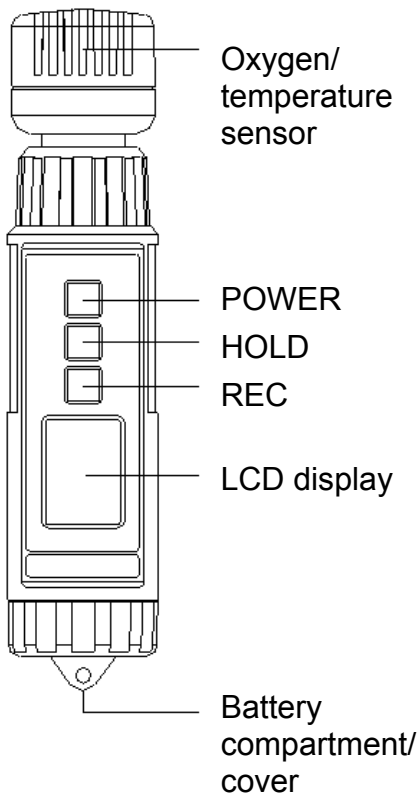
FEATURES

- Dual display with O₂ and air temperature measurement
- Highly reliable, galvanic cell type O₂ sensor with temperature compensation, withstands acidic gases (i.e., CO₂)
- Microprocessor circuit ensures high accuracy
- Durable and compact ABS-plastic housing
- Data hold
- Auto-power-off
- Low battery indicator

MATERIALS SUPPLIED

- Meter
- 4 AAA batteries
- Instruction Manual
- Soft Carrying Case

FRONT PANEL DESCRIPTION



CALIBRATION

For best results, perform the calibration procedure in a large and ventilated environment:

Note...

The oxygen value of air (20.9%) is used for calibration.

1. Press **POWER** to turn the meter **on**.
2. Wait at least 3 minutes until the displayed reading becomes stable and shows no fluctuation.
3. Press **HOLD** and **REC** simultaneously until “CAL” appears on the primary display of the LCD. (The secondary display will show 20.9.)
4. Release **HOLD** and **REC**. “CAL” will flash on the LCD for several

CALIBRATION

seconds, then the meter will return to Normal Mode, display a value that is $\pm 0.1\%$ of 20.9 O₂, and complete the calibration procedure.

MEASUREMENT PROCEDURES

O₂ and Air Temperature Measurement

1. Press **POWER** to turn the meter **on**.

Note...

Press **POWER** again to turn the unit **off**.

2. Point the oxygen/temperature sensor toward the intended measurement area.
3. The O₂ value appears on the primary display as %O₂. The temperature value appears on the secondary display as °C or °F.

Hold Function

1. During measurement, press **HOLD** to freeze the current readings on the display. “Hold” will appear on the LCD.

MEASUREMENT PROCEDURES

2. Press **HOLD** again to release the hold function.

Record Data

The data record functions holds one maximum and one minimum reading in memory. To record:

1. Press **REC** to start recording. “REC” will appear on the LCD.
2. With “REC” on the display, press **REC**. “REC MAX” and the maximum value will appear on the LCD.

Note...

To delete the maximum value, press **HOLD**. The display will show “REC” only and the meter will resume executing the memory function.

MEASUREMENT PROCEDURES

3. Press **REC** again. “REC MIN” and the minimum value will appear on the LCD.

Note...

To delete the minimum value, press **HOLD**. The display will show “REC” only and the meter will resume executing the memory function.

4. To exit the data record function, press **REC** for at least 2 seconds. The display will return to the current reading.

Note...

The maximum and minimum values will NOT be saved when you exit the memory function or when the meter is turned **off**.

MEASUREMENT PROCEDURES

Setting the Temperature Unit

1. Press **POWER** to turn the meter **off**.
2. Press and hold down the **HOLD** button. While **HOLD** is still being pressed, press **POWER** until the temperature unit ($^{\circ}\text{C}$ or $^{\circ}\text{F}$) appears on the display. Release the **HOLD** button. The temperature unit will change from $^{\circ}\text{C}$ or $^{\circ}\text{F}$ (or $^{\circ}\text{F}$ or $^{\circ}\text{C}$).


Note...

The meter will default to the last temperature unit selected when turned **off** and then **on** again.

Auto Power Off

1. To save battery life, the meter will automatically turn **off** after 10 minutes of inactivity. Press **REC** to disable this function.

BATTERY REPLACEMENT

The low battery icon  will appear on the left side of the LCD to indicate the need for battery replacement. To replace:

1. Press **POWER** to turn the meter **off**.
2. Rotate the battery cover located on the bottom of the unit to loosen and remove.
3. Remove the old batteries and replace with 4 new AAA 1.5V batteries, ensuring correct polarity.
4. Replace the battery cover and rotate to tighten into place.

SPECIFICATIONS

	O ₂	Air Temperature
Accuracy	± (1% reading + 0.2% O ₂) (Following calibration)	± 0.8°C, ± 1.5°F
Range	0 ~ 30% O ₂	0 ~ 50°C, 32 ~ 122°F
Resolution	0.1% O ₂	0.1°C, 0.1°F
Response Time	≤ 15 seconds	
Environment Pressure Range	0.9 to 1.1 atmosphere	
Expected Lifetime (O₂ Sensor)	≥ 2 years	
Sensor	Galvanic cell type	Thermistor

SPECIFICATIONS

Circuit	Custom one-chip of microprocessor LSI circuit
Sampling Time	Approximately 1 second
Operating Temperature	0 ~ 50°C; (For best results: 23 ± 5°C)
Operating Humidity	< 80% RH
Battery	4 DC 1.5 V (UM4/AAA) batteries
Power Current	Approximately DC 4.0 mA
Weight	6 oz (175 g)
Dimensions	7 x 1 ½ x 1 ½" (180 x 40 x 40 mm)
LCD Dimensions	28 x 19 mm

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WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of **one (1) year** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will void the warranty.

To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD
8281 E. Evans Rd., Suite #103
Scottsdale, AZ 85260

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperscientific.com, or return your warranty card within 10 days of purchase.

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