

MEASURES OXYGEN CONCENTRATION.

DESCRIPTION

This meter is useful for monitoring soil respiration, aeration, and gaseous O₂ levels in laboratory studies.

It has a galvanic cell sensor with a lead anode, a gold cathode, an acid electrolyte and a Teflon membrane. The current flow between the electrodes is proportional to the oxygen concentration being measured. An internal bridge resistor is used to provide a millivolt output. Being a galvanic cell type sensor, a small amount of oxygen is consumed in the reaction in order to produce the current flow and subsequent mV output. The oxygen consumption was measured to be 2.2 micromols (μmol) O₂ per day when the O₂ concentration was 20.95% (3240 mmol) at 23 degrees Celsius.

The mV output responds to the partial pressure of oxygen in air. The standard units for partial pressure are kilopascals (kPa). However, gas sensors that respond to partial pressure are typically calibrated to read out in mole fraction of the gas in air, which has units of moles of oxygen per mole of air. These units can be directly converted to % O₂ in air or ppm O₂ in air.

Gas sensors read out in percent because this value does not change with temperature or pressure. The concentration of oxygen in our atmosphere is 20.95% and this value, to four significant digits, has not changed for decades. This means that we are surrounded by calibration gas for this sensor, provided you are not breathing on the sensor when it is being calibrated. Our exhaled breath is about 17% oxygen.



Each meter can store up to 99 manually recorded measurements. In automatic mode, measurements are made every 30 seconds and averages are stored every 30 minutes. Daily averages are also calculated and the past 99 days are recorded. The AC-100 communication cable must be purchased to download data to a PC.

(SMPL) 99 Sample Measurements	(LOG) 99 Log Measurements	(LOG) 99 Daily Total Measurements
Viewable on meter LCD & downloadable		Downloadable Only

RECOMMENDED ACCESSORIES



AC-100
Communication cable is required for data download to a computer.

SPECIFICATIONS

MEMORY

- 99 manually stored data points
- Automatically store 99 consecutive 30 minute averages
- 99 daily averages

RANGE

- 0 to 100% O₂

RESPONSE TIME

- 14 seconds

ACCURACY

- < 0.02% O₂ drift per day

REPEATABILITY

- ± 0.001% O₂ (10 ppm)

DISPLAY

- 4.2 by 2.8 cm

OPERATING ENVIRONMENT

- 0 to 50° C
- < 90% non-condensing relative humidity up to 30° C
- < 70% relative humidity from 30 to 60° C
- 60 to 150 kPa

GAS EFFECT

- CO₂, CO, NO, NO₂, H₂S, H₂, CH₄ - No effect
- NH₃, HCl, C₆H₆ (Benzene) - <1%

CABLE

- 2 meters of twisted-pair wire
- Shielded w/ Santoprene casing
- Longer cable lengths are available in multiples of 5 meters

INPUT POWER

- Standard 3 V coin cell battery

MASS

- Meter: 80 g
- Sensor and wire: 175 g

DIFFUSION HEAD

- 3.5 cm tall by 3.5 cm diameter
- 125 mesh screen
- Creates air pocket

FLOW-THROUGH HEAD

- 3.2 cm long by 3.2 cm diameter
- 1/8" barbed adapters
- For hose connections

WARRANTY

- 1 year against defects in materials and workmanship

MEASUREMENTS

