

Oxygen Meter | MO-200

Measure gaseous O₂ in the laboratory and porous media



Heated Detector

The protective membrane in front of the oxygen sensor can be heated to prevent water from condensing on the membrane and blocking the diffusion path. The heater is typically used when sensors are deployed in soil or compost where relative humidity is close to 100 %.

Rugged Housing

Housed in a polypropylene body and electronics are fully potted, ideal for long-term deployment in porous media, including acidic environments (mine tailings). Two head options are available: a diffusion head that creates a small air pocket for measurement in porous media and a flow-through head with two adapters for tubing that allows measurement of gas flowing in lines.

Internal Temperature Sensor

All oxygen sensors have an internal thermistor (type-K thermocouple is available upon request) that allows for temperature monitoring and correction of signal for temperature effects.

Simple Calibration

Voltage output is linearly proportional to absolute amount of oxygen. Calibration is accomplished by measuring the voltage under ambient conditions (atmosphere is 20.95 % O₂) and deriving a linear calibration factor (slope). A zero offset can be measured with N₂ gas (recommended for measurements below 10 % O₂).

Output Options

Analog and digital output options are available. Analog version is an un-amplified voltage output. Digital version is SDI-12 communication protocol. Sensor is available attached to a hand-held meter.

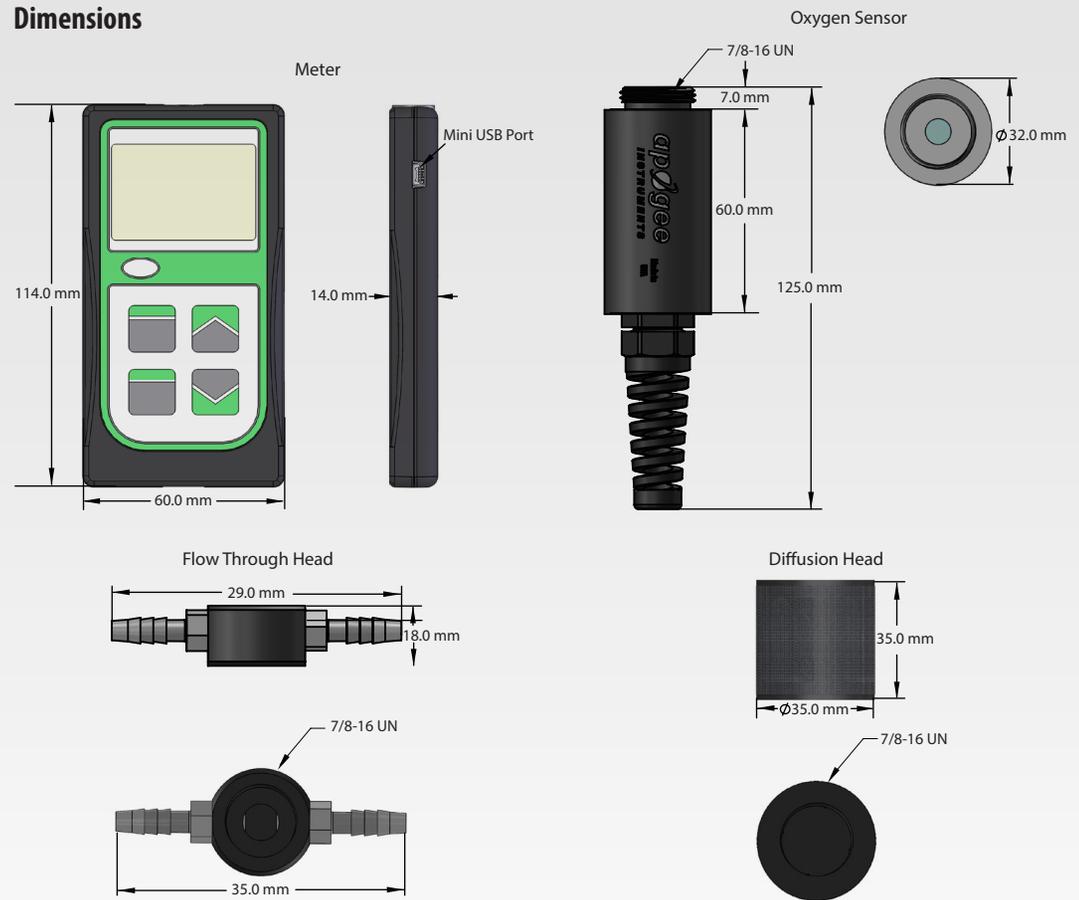
Typical Applications

Applications include: measurement of O₂ in laboratory experiments, monitoring gaseous O₂ in indoor environments for climate control, monitoring of O₂ levels in compost piles and mine tailings, monitoring redox potential in soils, and determination of respiration rates through measurement of O₂ consumption in sealed chambers or measurement of O₂ gradients in soil/porous media.





Dimensions



MO-200

Measurement Range	0 to 100 % O ₂
Measurement Repeatability	± 0.1 % at 20.9 % O ₂
Non-linearity	Less than 1 %
Oxygen Consumption Rate	2.2 μmol O ₂ per day at 20.9 % O ₂ and 23 C (galvanic cell sensors consume O ₂ in a chemical reaction with the electrolyte, which produces an electrical current)
Response Time	14 s (time required to read 90% of saturated response)
Operating Environment	0 to 50 C; less than 90 % non-condensing relative humidity up to 30 C; less than 70 % non-condensing relative humidity from 30 to 50 C; 60 to 140 kPa
Meter Dimensions	126 mm length, 70 mm width, 24 mm height
Sensor Dimensions	32 mm diameter, 68 mm length
Diffusion Head (Accessory)	35 mm diameter; 35 mm length; 125 mesh screen
Flow Through Head (Accessory)	32 mm diameter, 91 mm length, 0.25 in barbed nylon connectors
Mass	210 g
Cable	2 m of two conductor, shielded, twisted-pair wire; additional cable available; santoprene rubber jacket (high water resistance, high UV stability, flexibility in cold conditions)
Influence from Various Gases	Sensors are unaffected by CO, CO ₂ , NO, NO ₂ , H ₂ S, H ₂ , and CH ₄ . There is a small effect (approximately 1 %) from NH ₃ , HCl, and C ₆ H ₆ (benzene). Sensors are sensitive to SO ₂ (signal responds to SO ₂ in a similar fashion to O ₂). Sensors can be damaged by O ₃ .
Warranty	4 years against defects in materials and workmanship