

ES1-O2-25%-01

ES1-O2-25% Oxygen Gas Sensor

EC Sense • Oxygen • Amperometric, 3-electrode

The EC Sense ES1-O2-25% is an electrochemical gas sensor for Oxygen detection, with a 0 – 25% vol. range, 0.23 nA/ppm ± 0.04 nA/ppm sensitivity and T50 < 5 s, T90 < 10 s response. PPO housing at under 0.7 g in an ultra-compact SMD package — ideal for portable detectors and space-constrained modules Well suited to industrial safety, leakage detection and emission monitoring, with a designed lifetime of > 5 years.

Specifications

Operating Principle	Amperometric, 3-electrode
Bias Voltage	-400 mV to -600 mV
Range	0 – 25% vol.
Maximum Overload	30% vol.
Resolution	0.01% vol. (16-bit ADC)
Sensitivity	0.23 nA/ppm ± 0.04 nA/ppm
Response Time	T50 < 5 s, T90 < 10 s
Zero Current	(in air) -40 to -55 uA
Recommended Load	100 Ω
Warm-Up Time	< 15 min
Operating Temp.	-40 °C to +55 °C
Operating Humidity	15-95% RH non-condensing
Operating Pressure	800 to 1200 hPa
Storage Temp.	0 °C to 20 °C (Optimum temp. 4 °C to 6 °C)
Housing	PPO
Weight	< 0.7 g
Long-Term Drift	< 5 %/year
Expected Lifetime	> 5 years
Zero Drift in Clean Air	< 0.2% vol.
Storage Life	12 months
Warranty	12 months

Key Features

- Detects O2 from 0% to 30% vol.
- Long lifetime > 5 years
- No-poisoning
- Typical warm-up time in seconds

- Fast response time
- nA power consumption
- Linear output
- No zero line drift
- Better signal to noise ratio
- Wide temperature range of -40 °C to +55 °C
- Excellent sensitivity at low temperatures
- Excellent resistance to high humidity
- No leakage
- Small size
- RoHS compliant

Typical Applications

- Industrial Safety
- Leakage Detection
- Gas Manufacturing Process Monitoring
- Emission Monitoring
- Sewage/Water Treatment Plant
- Biogas
- Garbage Disposal
- Power Transformer
- Food Industry
- Fire Safety
- Medical & Health Care

Calibration & Cross-Sensitivity

Calibrated with Oxygen standard gas. Cross-sensitivity to other gases may exist — see the cross-sensitivity table in the datasheet.