

ES1-CO-100-01

ES1-CO-100 Carbon Monoxide Gas Sensor

EC Sense • Carbon Monoxide • Amperometric, 3-electrode

The EC Sense ES1-CO-100 is an electrochemical gas sensor for Carbon Monoxide detection, with a 0 – 100 ppm range, 30 nA/ppm ± 15 nA/ppm sensitivity and T50 < 10 s, T90 < 30 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            | 0 mV                                        |
| Range                   | 0 – 100 ppm                                 |
| Maximum Overload        | 1000 ppm                                    |
| Resolution              | 0.1 ppm (16-bit ADC)                        |
| Sensitivity             | 30 nA/ppm ± 15 nA/ppm                       |
| Response Time           | T50 < 10 s, T90 < 30 s                      |
| Repeatability           | < 1 %                                       |
| Linearity               | Linear                                      |
| Zero Current            | ± 100 nA                                    |
| Recommended Load        | 100 Ω                                       |
| Warm-Up Time            | < 60 s                                      |
| 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 | < 2 ppm                                     |
| Storage Life            | 12 months                                   |
| Warranty                | 12 months                                   |

Key Features

- Detects with high selectivity a wide variety of gases

- 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
- No leakage
- Small size
- RoHS compliant

## Typical Applications

- Industrial Safety
- Leakage Detection
- Gas Manufacturing Process Monitoring
- Emission Monitoring
- Power Transformer
- Fire Safety
- Garage
- Indoor Air Quality
- Medical & Health Care

## Calibration & Cross-Sensitivity

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