ES4-AG1-10-01

ES4-AG1-10 All-Gas / VOC Sensor

EC Sense • VOC / All-Gas • Solid Polymer Electrochemical (3-electrode amperometric)

The EC Sense ES4-AG1-10-01 uses solid-polymer electrochemical technology and is essentially an "All-Gas" sensor — equivalent to VOC/TVOC detection. It responds to a broad spectrum of volatile and toxic gases including carbon monoxide, hydrogen, ammonia, hydrogen sulfide, sulfur dioxide, nitrogen oxides, ozone and phosphine, making it a low-cost electrochemical alternative to VOC sensors and PIDs. Calibrated with CO and Isobutene; 0 – 10 ppm range, 100 ppm maximum overload, T90 response under 30 s and a designed lifetime over 3 years. Standard ABS housing at about 6 g, easy to integrate via pin soldering into conventional gas-detection modules.

Specifications

Operating Principle	Amperometric, 3-electrode, 0 mV bias
Range	0 – 10 ppm
Maximum Overload	100 ppm
Resolution	0.01 ppm (16-bit ADC)
Sensitivity	40 nA/ppm ±10 (CO); 55 nA/ppm ±15 (Isobutene)
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 ℃ ~ +55 ℃
Operating Humidity	15–95% RH (non-condensing)
Operating Pressure	800 – 1200 hPa
Housing	ABS
Weight	< 6 g
Long-Term Drift	< 5 %/year
Expected Lifetime	> 3 years
Storage Life	12 months
Warranty	12 months

Key Features

- Highly selective detection of a wide variety of gases
- Long lifetime > 3 years
- No-poisoning

- Typical warm-up time in seconds
- Fast response time
- nA-level power consumption
- Linear output, no zero-line drift
- Wide operating range -40 ℃ to +55 ℃
- Standard ABS package, easy to assemble
- RoHS compliant

Typical Applications

- Industrial Safety
- Leakage Detection
- Gas Manufacturing Process Monitoring
- Emission Monitoring
- Sewage/Water Treatment Plant
- Biogas
- Garbage Disposal
- Food Industry
- Indoor Air Quality
- Garages
- Medical & Health Care

Calibration & Cross-Sensitivity

Calibrated with Carbon Monoxide (CO) and Isobutene (C4H8). Cross-sensitivity exists for H_2, NH_3, H_2S, SO_2, NO/NO_2, O_3, PH_3 and more — see the cross-sensitivity table in the datasheet.