DS4-HCHO-100

DS4-HCHO-100 Smart Formaldehyde Gas Sensor

EC Sense • Formaldehyde • Printed Solid-Polymer Electrochemical (smart digital output)

The EC Sense DS4 DS4-HCHO-100 is a smart Formaldehyde gas sensor based on printed solid-polymer electrochemical technology. It integrates a high-performance MCU and high-precision ADC, and ships factory-calibrated with Formaldehyde (HCHO) standard gas — ready to measure on power-up with no re-calibration. It covers a 0 – 100 ppm range at 0.1 ppm resolution, with response time < 3 s (T90 < 120 s) and ±5% F.S accuracy. Housed in the standard industrial Size-4 (20 × 16.6 mm cylindrical, 3-pin VCC / GND / IO), it provides a UART 3.3 V half-duplex single-bus digital output (9600 bps) that reports concentration directly for easy integration. Self-identification, user encryption code, sleep / wake and hot-plug support make it ideal for industrial emissions, fire safety, power and smart-city corridor monitoring.

Specifications

Target Gas	Formaldehyde (HCHO)
Operating Principle	Printed Solid-Polymer Electrochemical (smart digital output)
Range	0 – 100 ppm
Resolution	0.1 ppm
Accuracy	± 5% F.S
Repeatability	< ± 2%
Linearity	Linear
Response Time	< 3 s (T90 < 120 s)
Stabilization	< 2 min (no warm-up, measure on power-up)
Long-Term Drift	< 1% / month
Output Signal	UART 3.3 V half-duplex single-bus, 9600 bps, 8N1
Supply Voltage	3.3 – 12 V DC (recommended 5 V)
Operating Current	0.65 mA @ 5 V DC
Peak Current	1 mA @ 5 V DC
Sleep Current	0.35 mA @ 5 V DC
Power Consumption	≤ 5 mW @ 5 V
Operating Temp.	-40 ℃ ~ +55 ℃
Operating Humidity	15 – 95% RH (non-condensing)
Operating Pressure	Atmospheric pressure ±10%
Storage Temp.	0 ~ +20 ℃
Housing	ABS
Weight	4.56 g
Expected Lifetime	> 3 years (in air)

Warranty	12 months

Key Features

- Printed solid-polymer electrochemical technology, anti-poisoning, long lifetime
- Factory pre-calibrated, plug & play, no re-calibration required
- UART 3.3 V half-duplex single-bus digital output, outputs concentration directly
- Standard industrial Size-4, 20 × 16.6 mm cylindrical housing, 3-pin (VCC / GND / IO)
- Self-identification and user-defined encryption code
- Sleep / wake support, ultra-low power, ideal for battery & IoT
- No warm-up, measure on power-up (< 2 min stabilization)
- Lifetime & performance self-check with early fault warning
- Wide operating range -40 ~ +55 ℃, humidity resistant
- Hot-pluggable, supports offline secondary calibration

Typical Applications

- Industrial Emission Monitoring
- Fire Safety
- Gas Leak Monitoring
- Power Industry Gas Safety
- Smart City Underground Corridors
- Industrial Process Gas Analysis

Calibration & Cross-Sensitivity

Calibrated with Formaldehyde (HCHO) standard gas. Each sensor is factory-calibrated and ready to use without re-calibration. An open calibration protocol supports offline secondary calibration and one-click factory reset.