

Gas Sensor Module

4-IN-1 Module Specification

深圳市新世联科技有限公司

4-in-1 Module Specification

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1. Overview 4-in-1 Gas Sensor Module

High Integration • High Precision • Plug & Play

This high-performance all-in-one gas sensing module combines a powerful microprocessor with a precision ADC to deliver accurate and stable gas concentration monitoring. Integrating four gas sensors onto a single board, it enables simultaneous detection of four different gases with unified output, solving long-standing issues such as incompatible interfaces, complex calibration, and limited sensor interchangeability. The module comes factory-calibrated and ready to use — no secondary development or re-calibration required. Simply plug in to start real-time data

transmission and monitoring. Ideal for portable or fixed gas detectors, industrial safety systems, and other smart sensing applications, this module simplifies system development and accelerates your path to modular, intelligent gas detection.



2. Key Features

- Supports hot-plugging with power on, enabling easy maintenance and installation
- Factory-calibrated for immediate use with no additional calibration required
- Communicates via UART (TTL level), ensuring strong compatibility
- Customizable communication protocol for flexible integration
- Integrated detection of CO, H₂, S, O₂, and combustible gases in one module
- Features real-time temperature reading and compensation algorithm for high accuracy

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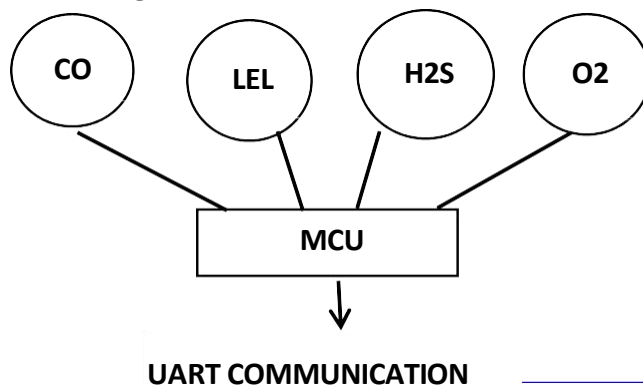
- PC software available, enabling real-time module monitoring and data access on desktop

3. Application Areas

- Smart public toilet gas detection project
- Smart agricultural gas detection project
- Smart pipe gallery and tunnel project
- Smart manhole cover gas detection project
- Tunnel highway and road gas detection project
- Smart breeding gas detection project
- Smart granary gas detection project
- Underground garage gas detection project
- Scientific research projects, environmental monitoring projects
- Industrial intelligent gas detection projects such as inspection robots, etc.
- Automotive electronics, smart fire protection, detection instruments

4. Working Principle

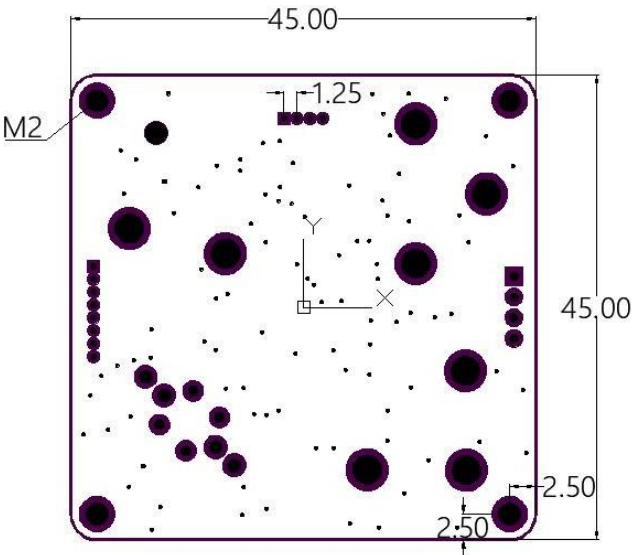
The signals from the four gas sensors are individually amplified and filtered before being processed by the built-in microprocessor for analytical computation. The module then outputs stable digital signals. Different types of sensors are equipped with dedicated amplification and filtering circuits to ensure optimal accuracy and signal integrity.



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5. Size and Interface Definition



Code	Name	Function	(MIN) V	(TYP) V	(MAX) V
1	VCC	Power supply input	3.3	5.0	5.5
2	TXD	Transmit Data	-0.3	3.0	3.3
3	RXD	Receive Data	-0.3	3.0	3.3
4	GND	Ground connection	-0.3	0.0	\

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6. Specification

Working Voltage	DC 3.3V~5.5V
Consumption	< 0.5W
Working Temp.	-20°C ~ 50°C
Working Humidity	10%-95%RH (no-condensing)
Sampling Method	Diffusion type (Flow-through type available upon request)
Target Gas	CO、H ₂ S、O ₂ 、LEL
Principle	EC/Catalytic
Format	UART Baud Rate 9600, Data Bit: 8; Stop bit: 1; Parity Bit: None
Pre-heating Time	30s
Service Life	Sensors 2 year; Module Board 8 years
Size	45mm*45mm
Weight	500g

Channel	Sensor Type	Gas type	Range	Definition
1	EC	CO	0~1000ppm	1ppm
2	Catalytic	LEL	0~100%LEL	0.1%LEL
3	EC	H ₂ S	0~100ppm	0.1ppm
4	EC	O ₂	0~30%VOL	0.1%VOL

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