AG-4-CO-M5042-01

----- Pre-calibrated module Instruction Manual

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Product Introduction

The AG-4-CO-M5042 is an embedded type module equipped with the carbon monoxide gas sensor TGS5042, for accurately detecting carbon monoxide (CO) gas concentrations in various environments. The module has been pre-calibrated before leaving the factory and has good stability and selectivity. it includes a built-in temperature sensor for data correction via software algorithms, minimizing environmental impact on measurement accuracy. It uses digital communication (UART bus output) for gas concentration, which allows users to easily and quickly integrate the module into various systems, making it suitable for both indoor and outdoor air quality detection, as well as industrial gas detection.
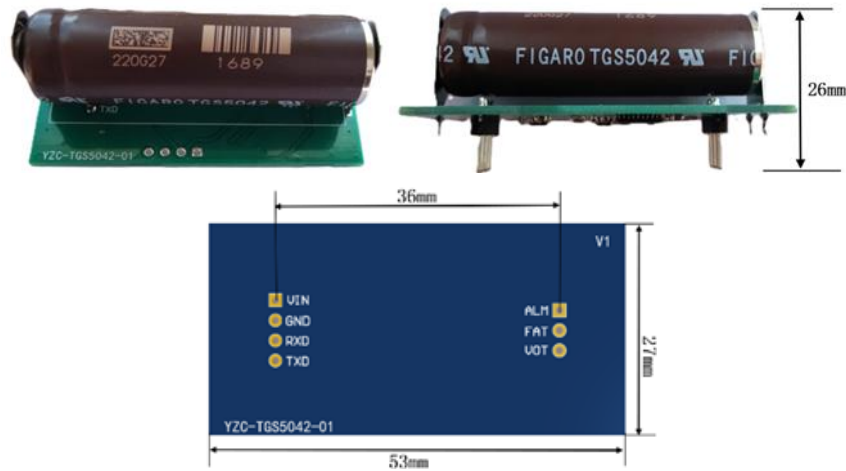
Technical Specification

Item	Specification
Model Number	AG-4-CO-M5042
Target Gases	CO
Sensing Principle	Electrochemical
Detection Range	0-1000ppm
Resolution	1ppm
Measurement Error	≤ ±5% FS
Operating Voltage	3.2 - 5.5V DC
Operating Current	≤ 100uA@5V
Temperature Range	-10°C - +55°C
Humidity Range	0% -99%RH
Pressure Range	900.0 to 1120 mbar
Storage	-10 to +55°C, 0% to 99%RH
Size	L*W*H=49mm*34mm*26mm
Expected Life	≥ 10 years

Application

* Residential and commercial CO detectors
* Ventilation control
* CO monitor for gas boilers, kerosene heaters, etc.

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Product Appearance and Dimensions

Pin Configuration

Pin Number	Name	Functional Description
1	VIN	power supply,3.2 - 5V DC
2	GND	Signal Ground
3	RXD	Serial transmit pin, Connected to the host TXD
4	TXD	Serial receive pin, Connected to the host RXD
5	VOT	Module onboard 3.0V reference power output (maximum output capacity 50mA)
6	FAT	Fault signal output pin (reserved)
7	ALM	Alarm signal output pin (reserved)

Note:

After the module is powered on, it needs to carry out a warm-up process for about 30 seconds, after the warm-up process is finished, the module enters the normal monitoring state.

After the module is powered on, the serial port of the module outputs a frame containing status and concentration data every 1s.

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Communication Protocol and Description

1. Serial communication adopts module active upload data mode, data upload interval 1s.
2. UART serial port:
   baud rate: 4800, data bits: 8bit, stop bits: 1bits, parity bit: no parity
3. The data frame is 5 bytes and has the following data format:

Frame Header	Status	Concertation(High)	Concertation(Low)	Checksum
0xAA	State	D（H）	D（L）	Sum

checksum Sum = 0xAA + State + D(H) + D(L)

The module state byte is defined as follows:

Normal Operating Monitoring	Module Circuit Failures	Preheating
0x80	0x81	0x82

Note: Concentration values are all 0 during the module warm-up period;
Concentration range 0-100, when the concentration value is 0xffff, it means over range;
Example:
  Module upload: 0xAA 0x80 0x01 0xF4 1F
  Indicates that the module is in normal monitoring state and the current gas concentration is 500ppm. 4.
4. The above communication protocols are only for module testing, and can also be customized according to customer requirements.

Application Notes

1. this module does not have power reverse connection protection and static electricity protection function, the user in the use of the module power supply should be connected correctly, and do a good job of static electricity protection measures.
2. exceeding the module power supply voltage range may cause damage to the module or the module cannot work properly.
3. When using the module, please follow the precautions for the corresponding model sensors.

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