SENSSET
SENSOR SEQUENCE

SSN-GOI-CO2

Infrared carbon dioxide sensor

PRODUCTS FEATURES

- High sensitivity, high resolution, low power consumption, fast response time
- Provide UART, analog voltage
- Temperature compensation, excellent linear output
- Excellent stability, long service life
- Anti-water vapor interface, not poisoning

1. Technical parameter

Table 1. characteristics

Parameter	Condition
Detection gas	Carbon dioxide
Working voltage	3.6 to 5 V DC
Average current	<85mA
Interface level	3.0 V
Measurement range	0 to 5% VOL (range optional)
Output signal	UART 0.4~2.0 V
Warm-up time	3 min
Response time	T_{90} < 60s
Operating temperature	-20~60°C
Humidity range	0%~95%RH (non-condensing)
Dimensions	Ø20mm x 21.4mm
Weight	35g
Protection class	IP54
Life	>5 years
Power supply terminal, a communication terminal	Ui: 7.5V DC, Ii: 265mA
Intrinsically safe parameters	Pi: 0.5W, Ci: 10 μF, Li: 0mH

Table 2. Common ranges and accuracy

Gas Name	Molecular Formula	Scale	Accuracy	Note
Carbone dioxide	CO2	0 to 2000 ppm	±(50ppm+5% of reading value)	Temperature compensation
		0 to 5000 ppm		
		0~1%Vol		
		0~3%Vol		
		0~5%Vol		

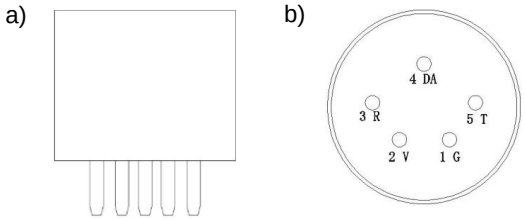

Figure 1.1. Sensor structure diagram a) side view b) bottom view

2. Mechanical Dimension and pin definition

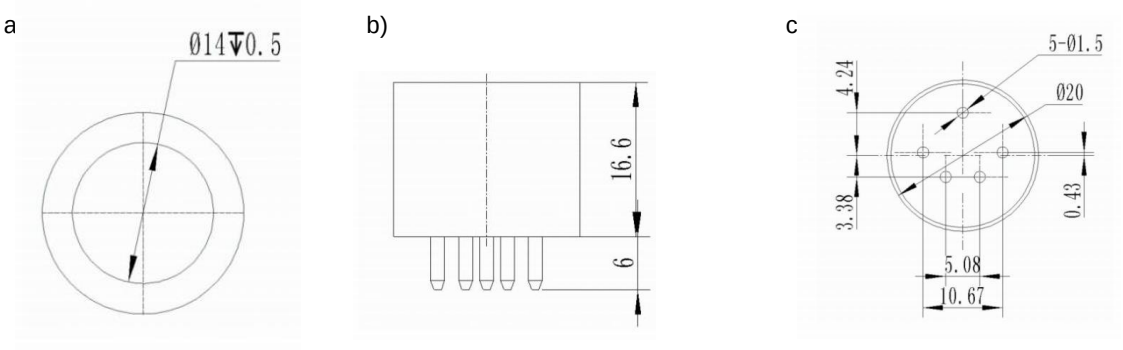

Figure 2.1. Mechanical dimensions in mm a) top view b) projection view c) bottom view

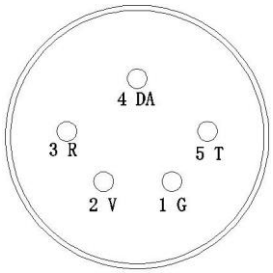

Figure 2.2. Bottom view

Table 3. Pin definition

Pin name	Pin description
Pin 2	Vin Positive voltage input
Pin 1	GND Voltage input negative electrode
Pin 4	DA (0.4~2V)
Pin 3	R(RXD) 0~3.0V Data entry
Pin 5	T(TXD) 0~3.0V Data output

3. Output method

Analog voltage output

The DA output voltage range (0.4V~2V), corresponding to the gas concentration (0~full scale). Connect the sensor Vin to 5V, GND terminal to the power ground, and DA terminal to the ADC input. After a warm-up time, the sensor outputs a voltage value from the DA terminal that characterizes the gas concentration.

When a self-test fault occurs, the sensor output voltage is 0V.

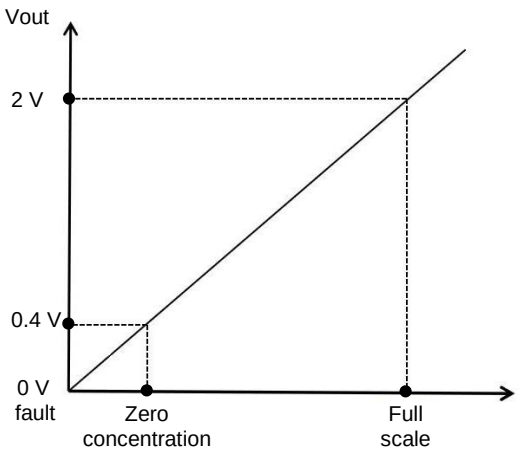

Figure 3.1. Correspondence of output voltage and gas concentration

4. Information about intrinsically safe and explosion-proof version of the sensor

This product complies with GB/T3836.1-2021 "Explosive Environment Part 1: General Equipment Requirements", GB/T3836.4-2021 "Explosive Environment Part 1: General Equipment Requirements", GB/T3836.4-2021 Environment Part 4: Equipment protected by Intrinsically safe “i”" and GB3836.20-2010 "Explosive Environment Part 20: Equipment with equipment protection level (EPL) of Ga Level" standard; the explosion-proof mark is Ex ia IIC T4 Ga, which is suitable for explosive environments in zone 0, Zone 1, and Zone 2; it has passed the inspection by the National Explosion-proof Electrical Product Quality Inspection Center and obtained an explosion-proof certificate. When using, please pay attention to the following：

- An intrinsically safe power supply must be used to power the sensor, otherwise it will affect the explosion-proof performance.
- It is forbidden to replace sensors in dangerous places.
- It is forbidden to disassemble or replace the sensor components so as not to affect the explosion-proof performance.
- Replacement of components or structures is not allowed, so as not to affect the explosion-proof performance.

5. Special Notes.

- The sensor should be calibrated periodically, with a recommended calibration interval of 6 months.
- Do not use the sensor for long periods of time in dense dust environments.
- Use the sensor within the power supply range of the sensor.
- Do not cut or weld sensor pins.

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Development, production and supply of high-tech sensors