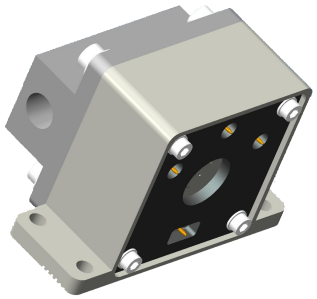
Brief Introduction

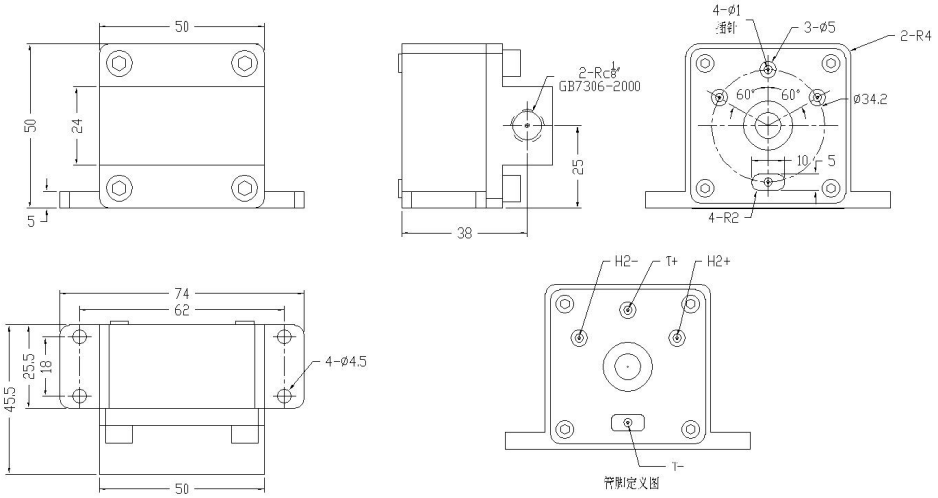
FC8001+ H2 detection module, based on fuel cell sensor, relied on numerous patented technology, combined with purpose-designed gas chamber, works as the core part of Photoacoustic spectroscopy, is specialized in the detection of hydrogen in the fields of electric power, nuclear power, industrial safety, environmental monitoring,



Application

Energy; Electric Power; Petrochemical; Mining; Others... …

Dimensions



Notes：1 All dimensions in mm

2 All tolerances ±0.15mm unless otherwise stated

Key Features

- Industrial gas sensor with numerous of patents;
- Selective detection of H2;
- Free from poisoning & electrolyte leakage. Purpose-designed for hydrogen detection in harsh environment;
- Precise control of internal environment, free from environmental influence;
- High stability, long-term sensitivity drift down to 2%/year
- Wide detection range, up to 60000ppm;
- Long service life of over 10 years.
- Free from influence of oil vapor
- Free from influence of H2O

- Maintenance free, free from calibration periodically

Technical Specification

Items	Technical Specification
Principle	Micro Fuel Cell
Model	FC8001+
Detection gas	H2
Volume of Gas Chamber	1ml
Detection Range（μL/L）	0~40000
Overload（μL/L）	60000
Sensitivity（uV/ppm）	1±0.5 （25±3℃）
Resolution（μL/L）	0.1
Detection Limit（μL/L）	1 (in oil)
Response Time（T80）	<15min
Long-term Sensitivity Drift	2% /year
Output Signal	linear
Repeatability	<5% of signal
Operating Temperature Range（℃）	-40 ~ 60
Operating Humidity Range	5 ~ 95% （non-condense）
Operating Pressure Range （kPa）	50 ~ 150
Service Life	>10years
Storage Life	5years

Cross Sensitivity

S/N	Interference Gas	Concentration of Interference Gas (ppm)	Output of FC8001+（ppm）
1	CO	1000	＜20
2	C_2H_4	100	＜10
3	C_2H_2	100	＜3
4	CH_4	1000	0
5	C_2H_6	1000	0
6	CO_2	10000	0
7	O_2	10000	0

8	N_2	10000	0

Calculation of Concentration

The sensor will be shipped together with its calibration datasheet, please calculate the concentration as follows：

The sensor is integrated with a temperature sensor in resistance for temperature compensation.

The sensor directly generates two kinds of signal: one is temperature in KΩ and the other is voltage in uV.

- Definition：

  R: Temperature in KΩ

  t: Temperature in ℃

  V: Voltage collected on-line in uV

  V0: Zero voltage (in clean air) of the sensor at current temperature in uV

  C: Current concentration in ppm

- Transfer temperature from KΩ into ℃ as follows:

  t= - 0.1241 * LN(R*1000) * LN(R*1000) * LN(R*1000) + 4.7186 * LN(R*1000) * LN(R*1000) - 74.172 * LN(R*1000) +380

  R: Temperature in KΩ

- Collect and store the zero voltage (in uV) in clean air；
- Calculation of the current concentration (C) in ppm:

  C = (V – V0) * EXP [N2 / (273.2 + t) - N1/100]

  note: N1, N2, refers to parameters of the sensor on the calibration datasheet;

  the voltage range is -2000uV to 20000uV;

  the resistance range is 0.5 to 120KΩ;

  please refresh the zero voltage before every test.

Note

- Avoid exposure to organic or corrosive solvent;
- Avoid exposure to dirty environment;
- Protect from excessive vibration and shock；
- Protect from negative pressure at the membrane of the sensor；

- It is recommended to install the sensor vertically, with gas in from the bottom and out from the top;
- It takes about 30-60 minutes for one test cycle and it will be better to calculate the concentration with the maximum output;
- It is recommended that the circulating air pump should work continuously for more than 3 minutes during purging and the flow of the air pump should be less than or equal to 500ml/min;
- Only air can be used for zero voltage test or purging;
- The sensor works best at a constant temperature between 30 to 40℃.

普 晟 PRO SENSE **ProSense Technologies Co., Ltd.**

Add: Building4, Lianjian S&T Park, LonghuaDistrict,Shenzhen,China;
Tel: +86 755 3669 0079 Website: http://www.szprosense.com
Email: sales@szprosense.com