H2S-2-SF TX
Hydrogen Sulphide
Digital Transmitter Module
Low Range

Introduction

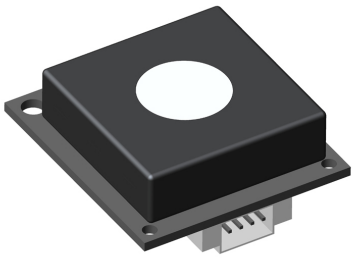
The H2S-2-SF TX Hydrogen Sulphide module combines our selective fuel cell H2S sensor with highly accurate advanced electronic control technology, converting H2S concentration into low range ppm. The module provides advantages of precision measurement, long-service life and ability to provide ppb detection where low level H2S measument is a requirement. The module comes precalibrated and ready to integrate directly into systems.

Typical Applications

- Industrial Detection
- Safety Monitoring
- Portable & wearable devices
- Smart homes & offices
- Smart toilets/public restroom monitoring
- Wastewater treatment & management
- Bioprocessing
- Environmental Monitoring
- Medical & health monitoring
- Food spoilage & storage

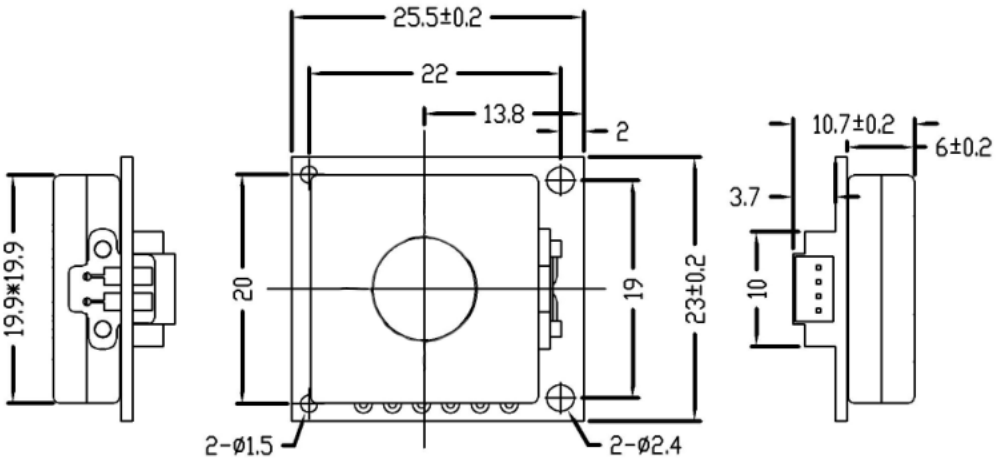
Key Features

- Mini size ideal for portable, fixed, low power and battery applications
- Long lifetime technology of 5 years with no risk of leakage
- Selective detection, high precision
- ppb resolution, low noise
- High sensitivity, fast response
- Wide temperature range



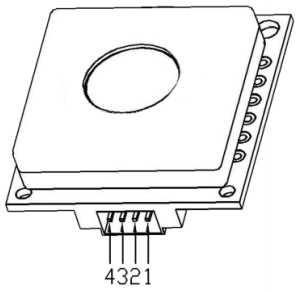
Dimensions

All dimensions are in millimetres mm.



Pin Outputs

PIN	DEFINITION
Pin 1	Vin(5V)
Pin 2	GND
Pin 3	RXD (0～3.3V data input)
Pin 4	TXD (0～3.3V data output)



Technical Specification

MODEL	H2S-2-SF TX, Part no: 2112B06010022
Detection Principle	Micro fuel cell
Detectable Gas	H_2S
Detection Range	0-2ppm
Overload	5ppm
Input Voltage	4.5 - 7V
Response Time (T90)	<15S
Resolution	0.001ppm
Operating Temperature range	-40℃～70℃
Operating Humidity Range	10％－90％RH（non-condensing）
Expected Operating Lifetime	5 years in air
Warranty Period	12 months from date of manufacture
Weight	4g

Communication Protocol

- **General Settings**

  The Module uses TTL serial communication.
  Communication configuration parameters are:

Baud rate	9600
Data bits	8 bits
Stop bit	1 bit
Parity bit	None

- **Communication Commands**

There are two communication types: active upload type and Q&A type. The default type is active upload and it sends gas concentration once every second. Commands are as follows:

0	1	2	3	4	5	6	7	8
Start	Gas	Unit ppb	No decimal byte	Concentration (High byte)	Concentration (low byte)	Full range (high byte)	Full range (low byte)	Check sum
0xFF	H2S=0x17	Ppb=0x04	0x00	0x00	0x25	0x07	0xD0	0x25

Gas concentration = concentration (high byte)*256 + concentration (low byte)

Switch to Q&A mode：

0	1	2	3	4	5	6	7	8
Start	Reserved	Switch command	Q&A	Reserved	Reserved	Reserved	Reserved	Checksum
0xFF	0x01	0x78	0x41	0x00	0x00	0x00	0x00	0x46

Switch to active upload mode：

0	1	2	3	4	5	6	7	8
Start	Reserved	Switch command	Active upload	Reserved	Reserved	Reserved	Reserved	Checksum
0xFF	0x01	0x78	0x40	0x00	0x00	0x00	0x00	0x47

To read gas concentration：

0	1	2	3	4	5	6	7	8
Start	Reserved	Command	Reserved	Reserved	Reserved	Reserved	Reserved	Checksum
0xFF	0x01	0x86	0x00	0x00	0x00	0x00	0x00	0x79

To return:

0	1	2	3	4	5	6	7	8
Start	Command	Concentration (High byte) （ug/m3）	Concentration (low byte) （ug/m3）	Reserved	Reserved	Concentration (High byte) （ppb）	Concentration (low byte) （ppb）	Checksum
0xFF	0x86	0x00	0x2A	0x00	0x00	0x00	0x20	0x30

Gas concentration = concentration (high byte)*256 + concentration (low byte)

Checksum calibration /

```
**************************************************************************
*Function name：unsigned char FucCheckSum(uchar *i,ucharln)
*Function description：checksum calibration[Take Not(Byte1+Byte2+…Byte7) +1]
*Note：Take Not(Byte1+Byte2+…ByteX (X>2)
**************************************************************************/ unsigned char
FucCheckSum(unsigned char *i, unsigned char ln)
{
    unsigned char
j, tempq=0; i+=1;
for(j=0; j<(ln-2); j++)
    {
        tempq+=*i;
        i++;
      }
      tempq=(~tempq)
      +1; return(tempq);
}
```

Notes

- Avoid changing or moving the sensor on the module.
- Avoid moving or changing electronic elements on PCB.
- Avoid exposure to organic vapours, organic solvents and high gas concentrations.
- Protect from excessive vibration and shock.
- See Operating Notes for more details.

By the nature of the technology used, any sensor can potentially fail to meet specification without warning. Euro-Gas makes every effort to ensure reliability of all sensors but where life safety is a performance requirement of the product and, where practical, Euro-Gas recommends that all gas sensors and instruments using sensors are checked for response to gas before use.