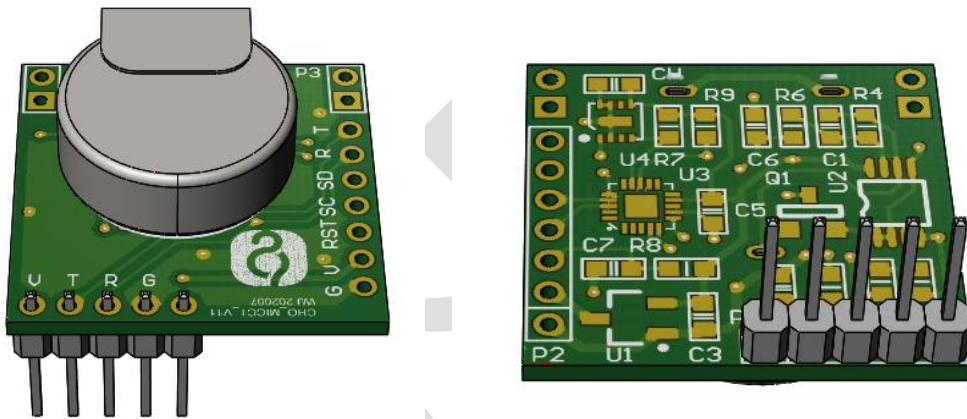


PS-H2-5000 Hydrogen Module



ProSense Technologies Co., Ltd.

Brief Introduction

PS-H2-5000 hydrogen module, works on the proven fuel cell technology, combines fuel cell technology with precise electronic technique, converting the hydrogen content into PPM directly. Once hydrogen arrives at working electrode (anode) it is oxidized instantaneously to generate an electrical signal which is proportional to the hydrogen concentration. The electrical signal is then acquired and processed by microprocessor into a PPM value and is output by standard digital signal. PS-H2-5000 is pre-calibrated in the factory and can be integrated into your system directly.

Typical Applications

Factory for Li Battery

Charging Station for Li Battery

Warehouse for Li Battery

Energy Storage System

Electrical Vehicle

... ..

Key Features

Low power consumption

High stability and repeatability

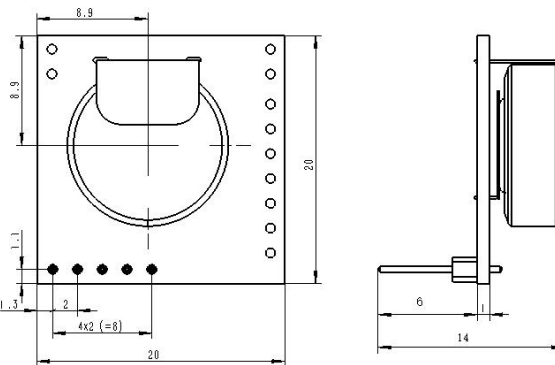
High precision

Fast response

Long service life

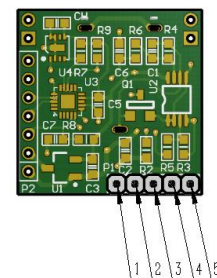
Anti-poisoning

Diagram



Definition of Pins

| PIN | DEFINITION |
|------|---------------|
| Pin1 | Vin(3.3 - 5V) |
| Pin2 | GND |
| Pin3 | TXD |
| Pin4 | RXD |
| Pin5 | Vin (5V) |



Technical Specification

| | |
|-----------------------------|----------------------------|
| MODEL | PS-H2-5000 |
| Detection Principle | Fuel Cell |
| Detectable Gas | H ₂ |
| Detection Range | 0-5000ppm |
| Overload | 10000ppm |
| Input Voltage | 4.5-7V |
| Response Time (T90) | <60S |
| Accuracy | ±3% FS (25±3℃) |
| Detection Limit | 10ppm |
| Repeatability | 3% |
| Linearity | Linearity |
| Operating temperature range | -40℃~70℃ |
| Operating pressure range | 1atm±10% |
| Operating Humidity Range | 10%—90%RH (non-condensing) |
| Lifetime | 10 years |
| Warranty Period | 12 months |
| Weight | 4g |
| Poisoned by Silicone | None |

Cross Sensitivity

| Interference Gas | Concentration of Interference Gas(ppm) | Concentration of H ₂ (ppm) |
|------------------|--|---------------------------------------|
| Alcohol | 1000 | <10ppm |

Communication Protocol

➤ General Settings

Module makes use of serial communication.

Communication configuration parameters are:

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

➤ Communication Command

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 follow:

| | | | | | | | | |
|-------|---------|-------------|-----------------|------------------------------|-----------------------------|---------------------------------|--------------------------------|--------------|
| 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 | H2=0x17 | Ppb=0x04 | 0x00 | 0x00 | 0x25 | 0xXX | 0xXX | 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,uchar ln)

*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 sensor on the module.
- Avoid moving or changing electronic elements on PCB.
- Avoid exposure to organic vapour, organic solvent、 high gas concentration.
- Protect from excessive vibration and shock.



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