



Hydrogen Leak Detection Module

(Model No.: ZE21-H2)

Manual

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Hydrogen Leak Detection Module ZE21-H2

Profile

ZE21-H2 is a special-purpose and miniaturization electrochemical module. It utilizes electrochemical principle which makes the module with high selectivity and stability. Built-in temperature sensor can do temperature compensation; and it has digital output and analog voltage output. It is a combination of mature electrochemical detection principle and sophisticated circuit design.



Features

High sensitivity, high resolution, low power consumption, long life, Uart output;

Main Applications

Hydrogen leakage and leak detection.

Technical Parameters table1

Model No.	ZE21-H2
Detection gas	Hydrogen leakage integrated gas
Interfering gases	Carbon dioxide &etc.
Output data	UART output (3.3V TTL)
Working voltage	5~10V DC
Preheating time	40 seconds
Response time	≤5 seconds
Recovery time	≤60 seconds
Detection range	0~20000ppm
Resolution	50ppm
Working temperature	-30℃~65℃
Working humidity	15%RH-90%RH(no condensation)
Storage temperature	30℃~65℃
Life span	3-5 years (in air)

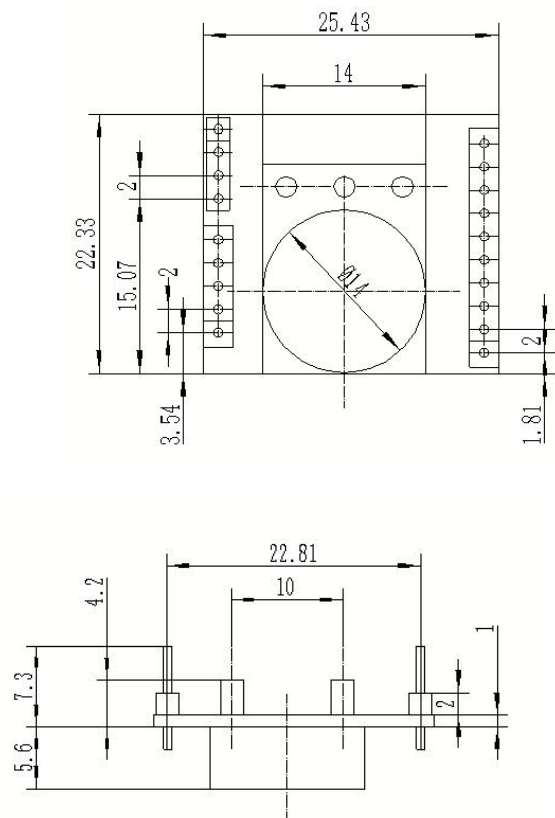
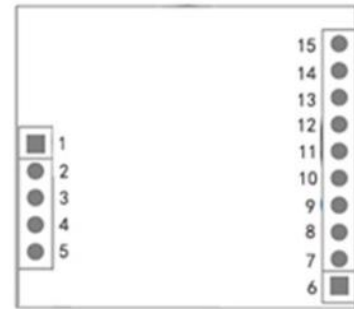


Fig1. Structure

Definition of pins

PIN15	Vin (voltage input 4~9V DC)
PIN5, PIN14	GND
PIN1	Internal power detection of the module
PIN3	Module status detection
PIN7	UART(RXD) 0-3.3V data input
PIN8	UART(TXD) 0-3.3V data output
PIN9	Reserved
PIN10	When the concentration exceeds 8000 ppm output 3.3V
PIN11, PIN12, PIN13	NC
PIN2, PIN4, PIN6	Reserved

table2.



Stable2. Pins

Precautions:

1. Under normal working state, the system is automatically awakened once every 1s.
2. PIN3 outputs low levels during the preheating of the module, and the preheating time is 20-30s. After the preheating is completed, the PIN3 outputs high level, when the data is sent by the module serial port, PIN3 outputs low levels.
3. PIN10 outputs high level when the sensor detects the gas concentration more than 8000 ppm, and the output stagnation serial output value is 3s.
4. Pay attention to the matching of the serial level. When RXD is not used, it is recommended to add resistance to PIN1.

4. Communication Protocol

1. General Settings

Table 3

Baud Rate	9600
Data Bits	8 bits
Stop Bits	1 bit
Check Bits	Null

2. Communication Commands

Default settings is initiative upload mode. Modules upload gas concentration value every other 1S. Command line as follow (0ppm concentration):

Table 4

Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8
Start Byte	Gas Name	Unit ppm	No. of decimal	Concentration (High Byte)	Concentration (Low Byte)	Full Range (High Byte)	Full Range (Low Byte)	Check sum
0xFF	0x06	0x03	0 byte=0x00	0x00	0x20	0x4E	0x20	0x89

Gas concentration value = High Byte*256+Low Byte

3. Check sum and calculation

Check = (invert(byte1+byte2+.....+byte7))+1

Please refer the following example:

```

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);
}
    
```

Cautions

1. DO NOT insert or extract the sensor on the PCB board.
2. DO NOT change or move the electronic part on the module.
3. Avoid sensor contact with organic solvent, coatings, medicine, oil and high concentration gases.
4. Excessive impact or vibration should be avoided.
5. Please keep the modules warming up for at least 5 minutes when first using.
6. Please do not use the modules in systems which related to human being’s safety.
7. Please do not use the modules in strong air convection environment.
8. Please do not expose the modules in high concentration organic gas for a long time.

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