

Electrochemical Ethanol Module

SC03-C₂H₅OH

Technical Information

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Electrochemical Ethanol Module SC03-C2H5OH

Product Description

SC03-C2H5OH electrochemical ethanol module is a general-purpose, miniaturized module. Using the electrochemical principle to detect C2H5OH existing in the air has good selectivity and stability. SC03-C2H5OH is a general-purpose gas module designed and manufactured by combining mature electrochemical detection technology with sophisticated circuit design. It has digital output and analog voltage output, and is suitable for various application circuit schemes.



Module Features

- ✧ High sensitivity, high resolution, low power consumption, long service life
- ✧ Provide UART data output mode
- ✧ High stability, excellent anti-interference ability, temperature compensation, excellent linear output

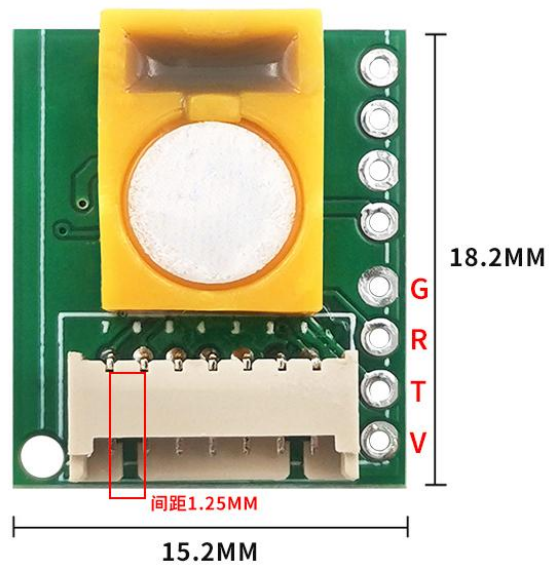
Main Application

Alcohol detectors, etc.

Technical Indicators

Product Model	SC03-C2H5OH
Detection gas	Ethanol (alcohol)
Interfering gases	Carbon monoxide and other gases
Output data UART	output (3V TTL level)
Working voltage	3.7V~5.5V
Warm-up time	≤5 seconds
Response time	≤5 seconds
Recovery time	≤10 seconds
Range	0~500 mg/100mL (blood alcohol concentration)
Resolution	≤0.1 mg/100mL (blood alcohol concentration)
Recovery time (T10)	<5s
Working temperature	-20°C~50°C
Working humidity	15%RH-90%RH (non-condensing)
Storage temperature	0~25°C
Service life	5 years (0°C~35°C in air)
Module size	length 18.2mm x width 15.2mm x height 6.5mm

Module Dimensions



Pin Definition

Pin name	Pin name
Pin1	NC
Pin2	NC
Pin3	GND
Pin4	(voltage input 3.7V~5.5V)
Pin5	UART (RXD) 0~3.3V data input
Pin6	UART (TXD) 0~3.3V data output
Pin7	NC

Protocol

1 General settings

Baud rate	9600
Data bits	8 bits
stop bit	1 bit
Check Digit	none

2 Communication commands

Communication is divided into active upload type and question and answer type. The factory default is active upload, and the concentration value is sent every 1S.

The display format of actively uploaded data is as follows:

Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8
Start bit	gas name (C2H5OH)	unit (mg/100 ml)	decimal places none	concentr ation high	concentr ation low	full range high	full range low	check value
0xFF	0x17	0x00	0x00	0x00	0x25	0x00	0x00	0x25

Notes:

1. Blood alcohol concentration 1mg/100mL = blood alcohol concentration 0.001%BAC = exhaled alcohol concentration 2.369PPM = Alcohol concentration in exhaled breath and blood concentration 0.0044mg/L
2. Blood alcohol concentration (mg/100ml)=(high concentration *256+ low concentration)/10.

3 Checksum calculation

Checksum = (Inverse(Byte1+Byte2+...+Byte7))+1

The reference routine is as follows:

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/*****

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```

* Function name: unsigned char FucChecksum(unsigned char *i,unsigned char ln)

```

```

* Function description: sum check (invert the sum of 1\2\3\4\5\6\7 of the sending and receiving protocols + 1)
* Function description: Set the element 1 to the penultimate element of the array
Negate +1 after addition (the number of elements must be greater than 2)

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*****/

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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);
}

```

Notice Matter

1. Electrolyte leakage will cause damage, do not disassemble the sensor at will;

2. The sensor should avoid contact with organic solvents (including silicone rubber and other adhesives), coatings, pharmaceuticals, oils and high-concentration gases;
3. All electrochemical sensors cannot be completely encapsulated with resin materials, nor can they be immersed in an oxygen-free environment, otherwise the sensor will be damaged.
performance of the device;
4. All electrochemical sensors cannot be used in environments containing corrosive gases for a long time, and corrosive gases will damage the sensors;
5. When measuring the gas zero point, it must be carried out in a clean atmosphere;
6. When testing and applying the sensor, avoid vertical air intake from the front;
7. The air inlet surface of the sensor shall not be blocked or polluted;
8. The waterproof and breathable membrane above the sensor is strictly prohibited to be opened or damaged;
9. The sensor should not be subjected to excessive shock or vibration;
10. Please do not use if the shell is damaged or deformed;
11. After long-term use in a high-concentration gas environment, the sensor recovers slowly to its initial state;
12. When the sensor is stored, the working electrode and the counter electrode should be in a short-circuit state;
13. It is forbidden to encapsulate the sensor with hot melt adhesive or sealant whose curing temperature is higher than 80°C;
14. Prohibited to store and use in high concentration alkaline gas for a long time.