

SPECIFICATION FOR APPROVAL

Product Name : Ultrasonic oxygen sensor

Specification : OCS-3F260

Customer : _____

CUST P/N: _____

Supplies : Winpower Technology Co.,Ltd.

Date : _____

CUSTOMER APPROVAL	CHK	APPD

DHW	CHK	APPD

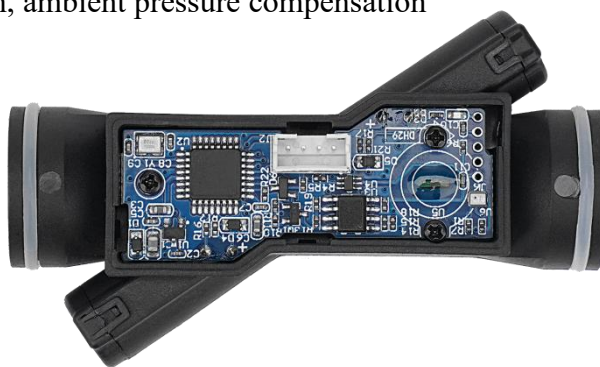
■The product specifications are for reference only and shall be signed for confirmation in case of batch supply.

Data Manual

OCS-3F260 is a multi-functional oxygen sensor developed on the basis of ultrasonic principle, with built-in humidity and ambient pressure compensation, which can be used for the detection of air and oxygen mixture, and built-in environmental pressure compensation to adapt to environmental altitude. The sensor has the characteristics of high precision, no zero drift, good consistency, high stability, long life, etc. The detection result is output by UART digital.

Feature

- Temperature and humidity compensation, ambient pressure compensation
- Strong anti-interference capability
- High precision
- Good long-term stability
- No user calibration required
- Service life is more than 5 years



Application

- Molecular sieve oxygen generator
- HFNC, space oxygen concentration detection

Precautions for use

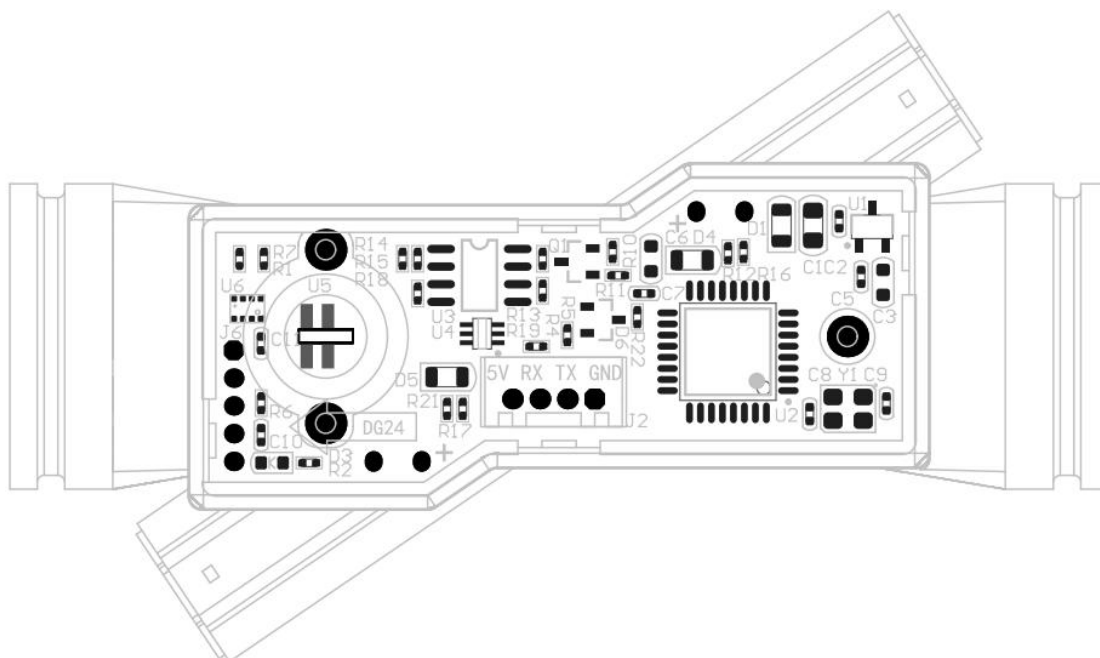
- Ensure that the detected gas is free of water, oil and dust.
- The sensor shall not be disassembled without the permission of the manufacturer.
- This sensor and data manual may be changed due to product technical improvement without prior notice. Please forgive me.
- The company has the final right to interpret the sensor data manual.
- If there are other special customization requirements, please consult: 86-0755-82415317 phc@winpower.com.cn

Technical index

Gas concentration detection range	0%-100%(PSA oxygen generator oxygen detection concentration range of 21-95.6%)
Concentration resolution	0.1%
Concentration detection accuracy	$\pm 3\%FS @ (5 - 55) ^\circ C$
Gas flow detection range	0-260L/min
Flow resolution	0.1L/min
Flow detection accuracy	$<20L/min \pm 0.5L/min @ (5 - 55) ^\circ C$ $>20L/min \pm 3\%FS @ (5 - 55) ^\circ C$
Sample gas requirement	Water removal (no condensation); Dust filtration ($< 1 \mu m$)
Testing periodic time	$>100ms$
Preheating time	It can be measured by turning on the machine, and 10s reach basic accuracy
Digital output	9600bps UART 3.3V TTL
Inlet and outlet direction	Follow the direction indicated by the arrow
Working Temperature	$5\sim 55^\circ C$
Storage temperature	$-5\sim 65^\circ C$
Relative humidity	$5\sim 85\%RH$
Working power	DC 5V-12V, 50mA
Environmental pressure	70-110 kPa
Size	8cm*4.5cm*3cm
Weigh	23g
Withstand pressure	0-150Kpa, but the pipeline pressure will affect the flow accuracy of the sensor, and the flow reading will be low.

Interface definition description

Socket size(J2,4P*2.0mm)



The joint position and pin arrangement of the OCS-3F260 sensor are shown in the figure above, and the specific functions of each joint are shown in the following table:

Digital signal output connector J2

Pin1	power input
Pin2	RXD
Pin3	TXD
Pin4	GND

Communication protocol

Baud rate: 9600bps

Character length: 1 start bit, 8 data bit, 1 stop bit, no check.

Communication specification

1. All data in this agreement are hexadecimal data. E.g. "46" is decimal [70].
2. The protocol verification must include the bits 0x16, 0x09, 0x01 and CS. Only the data that passes the verification is considered correct and can be used normally.
3. Automatic reporting mode: The sensor reports data once every 500ms.
4. Response mode: The mainboard sends a query command, and the sensor replies immediately.
5. If the sensor does not receive the query command within 4 seconds, it will automatically enter the automatic reporting mode. If the sensor receives the mainboard's query command every 4 seconds, it will work in the response mode.

Sample program:

(The main board receives data from the sensor for data analysis)

temp_u8=0; //The value must be 8 bits of unsigned data and must be cleared first. Assume that serial port 2 on the mainboard receives sensor data

```
for(i=0;i<12;i++) temp_u8 += USART2_RXbuffer[i];
```

```
if((temp_u8==0)&&(USART2_RXbuffer[0]==0x16)&&(USART2_RXbuffer[1]==0x09)&&(USART2_RXbuffer[2]==0x01)) //The headers are correct and the sum is 0
```

```
{
```

```
    o2_concent = USART2_RXbuffer[3]*256 + USART2_RXbuffer[4]; //PSA oxygen generator mixed air oxygen concentration (o2_concent/10) %
```

```
    o2_flow = USART2_RXbuffer[5]*256 + USART2_RXbuffer[6]; //Gas flow (o2_flow/10) L/min
```

```
    o2_humi = USART2_RXbuffer[7]; //Gas humidity (o2_humi) °C
```

```
    o2_temp = USART2_RXbuffer[8]; //Gas temperature (o2_temp) °C
```

```
    o2_concent1 = USART2_RXbuffer[9]*256 + USART2_RXbuffer[10]; //Oxygen concentration of pure oxygen mixed air (o2_concent1/10) %
```

```
}
```

(The motherboard sends a **query command** to the sensor)

```
USART2_TXbuffer[0] = 0x11; //
```

```
USART2_TXbuffer[1] = 0x01; //
```

```
USART2_TXbuffer[2] = 0x01; //
```

```
USART2_TXbuffer[3] = 0xED; //
```

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