

SPECIFICATION FOR APPROVAL

Product Name : Ultrasonic oxygen sensor

Specification : OCS-3MFL1.0

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.

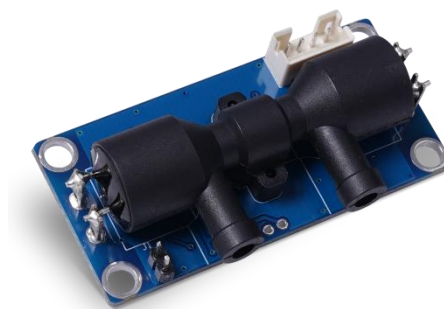


Data Manual

Ultrasonic oxygen sensor OCS-3MFL is the latest small volume gas sensor developed by Winpower Technology Co., LTD. It uses the ultrasonic principle to detect the oxygen concentration and flow rate in the output gas of the oxygen generator, and outputs the detection result with UART digital.

Feature

- ◆ High precision
- ◆ Strong anti-interference capability
- ◆ Good long-term stability
- ◆ No user calibration required
- ◆ Service life is more than 5 years
- ◆ Small in size



Application

- ◆ Conventional molecular sieve oxygen generator/Portable molecular sieve oxygen generator
- ◆ Clean gas flow detection

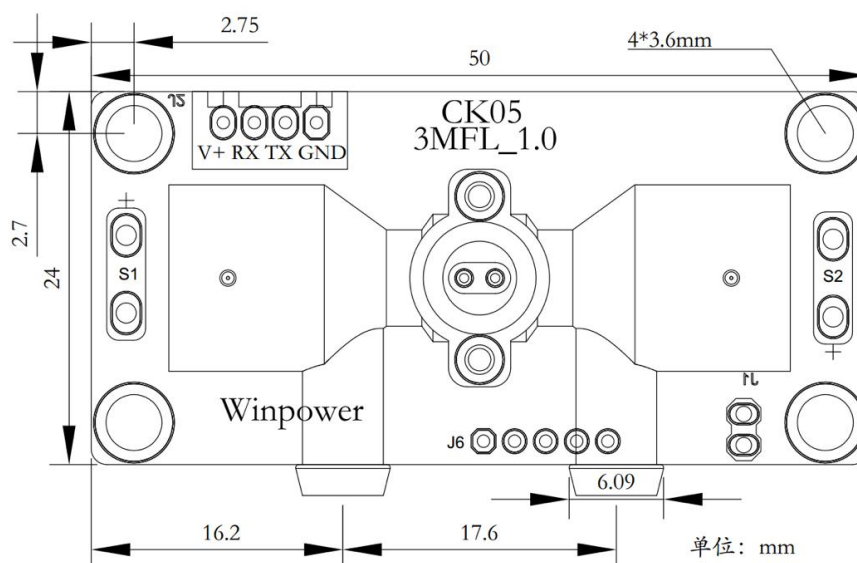
Precautions for use

- ◆ Ensure that the detected gas is free of water, oil and dust.
- ◆ Sensor installation position: air reservoir - pressure regulating valve - float flowmeter/ electronic flowmeter/ control knob - sensor - check valve - humidification bottle.
- ◆ The sensor shall not be disassembled without the permission of the manufacturer.
- ◆ The manufacturer will not guarantee or repair the sensor damage caused by non-measurement.
- ◆ 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	21%-95.6%,other concentrations can be customized
Concentration resolution	0.1%
Concentration detection accuracy	$\pm 1.5\%FS @ (5 - 55) ^\circ C$
Gas flow detection range	0-15L/min
Flow resolution	0.1L/min
Flow detection accuracy	$\pm 0.2L/min$ or reading 5% (whichever is larger) @ (5-55) $^\circ C$
Sample gas requirement	Water removal (no condensation); Dust filtration (< 1 μm)
Detection period	500ms
Warm-up time	It can be measured by turning on the machine, and 10s reach basic accuracy
Digital output	9600bps UART 3.3V TTV level
Gas inlet and outlet direction	Follow the direction indicated by the arrow
Working temperature	5~55 $^\circ C$
Storage temperature	-5~65 $^\circ C$
Relative humidity	5~85%RH
Working power	DC 5-12V, 50mA
Boundary dimension	50mm x 24mm x 16mm (L x W x H)
Weight	About 20g
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: splicing of telecommunication cables (4Pin 2.0mm)
(Tolerance $\pm 0.2\text{mm}$)



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 contain 0x16 0x09 0x01 and CS bits. The data after the verification is correct and can be used normally.
3. Automatic reporting mode: The sensor reports data every 500ms.
4. Response mode: The motherboard sends a query command, and the sensor responds immediately.
5. If the sensor does not receive the query command within 4 seconds, it automatically enters the automatic reporting mode. If it receives the query command from the motherboard every 4 seconds, the sensor operates in the response mode.

Sample program:

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

temp_u8=0;// 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))// All data packet headers are correct and the sum is 0
{
    o2_concent = USART2_RXbuffer[3]*256 + USART2_RXbuffer[4]; //oxygen concentration (o2_concent/10)%
    o2_flow = USART2_RXbuffer[5]*256 + USART2_RXbuffer[6]; //oxygen flow (o2_flow/10) L/min
    o2_temp = USART2_RXbuffer[7]*256 + USART2_RXbuffer[8]; //oxygen temperature (o2_temp/10) °C
}
```

(The motherboard sends query instructions to the sensor)

```
USART2_TXbuffer[0] = 0x11; //
USART2_TXbuffer[1] = 0x01; //
USART2_TXbuffer[2] = 0x01; //
USART2_TXbuffer[3] = 0xED; //
```

Package

Small box: Packing capacity 48PCS / layer * 5 layers = 240PCS Length, width and height: 42*30*24cm	Logistics box: length, width and height: 50*32*44cm Two small boxes inside: 240*2=480PCS	Net weight:5KG Gross weight: 7.2KG
		

Winpower Technology Co.,Ltd.

ADD : 2ndfloor, Block 12, 2ndfloor, Block 6, Baosheng Industry Zone A, No.6, Tangbian Road, Bainikeng Village, Pinghu, Longgang District, Shenzhen, Guangdong,China 518111

TEL : 86-0755-82415317

WEB : www.winpower.com.cn

E-mail: phc@winpower.com.cn