# HCO series ultrasonic oxygen concentration sensor

Features and applications

· Measurement by ultrasonic principle

· High precision and stable measurement

· Small size and quick response

· Full temperature compensation

· low cost

· long lasting

· No need to check regularly

Product description

HCO series oxygen concentration sensor is an ideal economical and practical oxygen concentration detection module based on ultrasonic principle. It has the characteristics of high precision, low cost, high reliability and easy to use, and has the functions of concentration, flow and temperature detection. Widely used in agriculture, industry, commerce, environmental testing and other fields, especially in the oxygen generator industry.

Specifications

|	
Concentration measurement range	21%~95.6% (other ranges can be customized)
Concentration resolution	0.1%
Concentration detection accuracy	±1.5% FS@(5~55°C) (1% customizable)
Flow detection range	0-10L/min
Flow detection accuracy	±0.2L/min@ (5~55°C)
Digital output	USART
Operating Voltage	5V or 12V optional
communication method	Blind or inquiries (default blind)
Detection cycle	500ms
Oxygen requirement	No corrosion, no condensation
Operating temperature	5~55°C (other temperature ranges can be customized)
Storage temperature	-40~85°C
Relative humidity	0~99% (non-condensing)
Working current	<30mA
Intake direction	Press the arrow to indicate

Interface definition

12V version

P2		P4	
PIN1	NC	PIN1	Vcc 12V
PIN2	USART RX	PIN2	NC
PIN3	USART TX	PIN3	GND
PIN4	GND		

5V version

P2	
PIN1	Vcc 5V
PIN2	USART RX
PIN3	USART TX
PIN4	GND

Dimensions

14.1±0.3

1.6±0.1
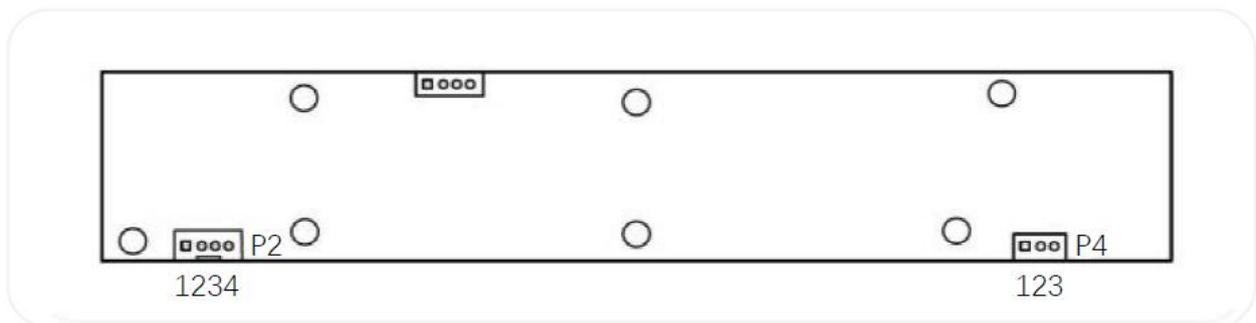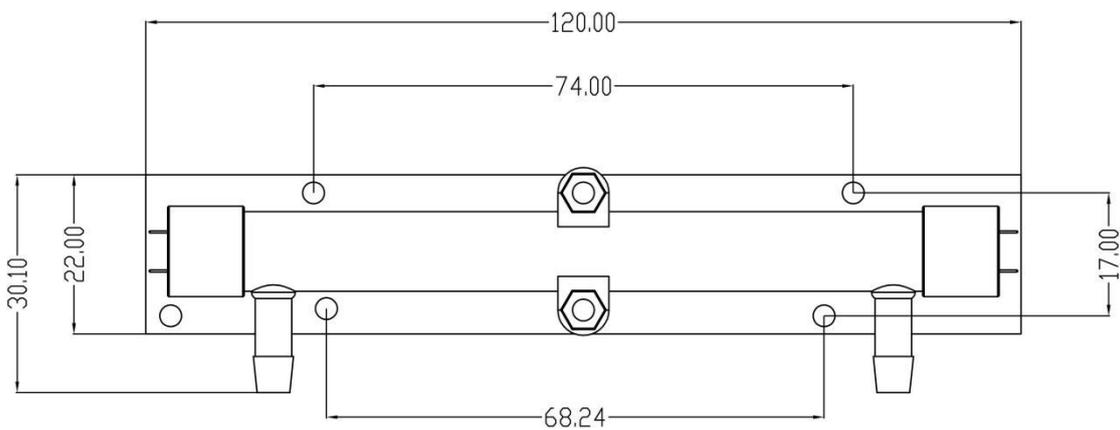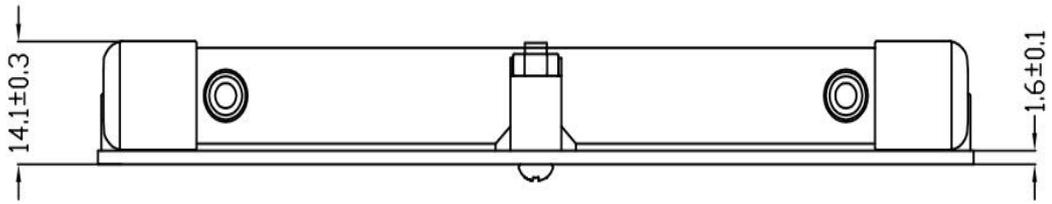
Unit (mm)

Product model

HCO	X	X	X	X	-	X	XX

structure type		
Large model: 120*30*20 mm		A
Small section: 79*34*16 mm		M

Supply voltage	
5 Vdc	5
12 Vdc	6

flow	
With flow function	F
No flow function	N

Electrical connections	
PH-4A	H
PHB-4A (with buckle)	B

Use environment	
Plain	L
plateau	H

examination range	
21~95.6%	95
0~100%	100
0~35%	35

Precautions for use

1. The gas to be tested needs to be pretreated to ensure that the sensor inlet is dust-free, water-free and oil-free;

2. The sensor outlet is applied with external atmosphere to ensure safe and non-blocking discharge;

3. Do not smoke or use an open flame near the sensor;

4. In use to ensure the integrity of the pipeline to avoid gas leakage;

5. Non-professionals or without the permission of the manufacturer, please do not disassemble the sensor by yourself, otherwise the sensor will be damaged and the manufacturer will not guarantee it. Or repair service;

6. Please read the instructions carefully before use to avoid personal injury or sensor damage.

Installation requirements and recommendations

1. The correct installation sequence of the oxygen concentration sensor: gas storage tank - flow regulating device - oxygen concentration sensor - check valve - humidification cup

2. Oxygen concentration sensor working environment: 5~55°C, running at normal pressure

3. The oxygen concentration sensor outlet is recommended to install a check valve to prevent backlash when the compressor is stopped, and damage the ultrasonic probe.

4. Oxygen concentration sensor installation should avoid close to the compressor and keep away from electromagnetic interference

Protocol

1. Overview of the agreement

Baud rate: 9600bps, data bit: 8 bits, stop bit: 1 bit, parity: none;

The data of this protocol are all hexadecimal data, such as "46" is 70 in decimal;

[XX] represents single-byte unsigned data (0-255), double-byte data high byte first and low byte last;

The data received by the serial port must be divided by 10 squares as valid data;

The module automatically sends out one frame of data for about 0.3 seconds, and the entire data length is 12 bytes.;

2. Data format

Starter	length	Command character	Data 1	… …	Data n	Checksum
Head	Len	CMD	Data1	… …	Data_n	CS
16	09	01	XX	… …	XX	XX

16 09 01 (concentration) (flow) (temperature) 00 00 [CS]; CS is the check digit, CS = 0 - (all the previous bytes are added).

3. Application examples

Receive: 16 09 01 00 D2 00 00 00 C8 00 00 44

Decimal conversion decimal: D2 is 210; C8 is 200;

Degree = 0*256+210=210 (21.0%)

O2 flow value = 0*256+0=0 (0L/min)

O2 temperature value = 0*256+200=200 (20.0°C)

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