

Ultrasonic Oxygen Sensor Module Gasboard7500E



Introduction

Gasboard 7500E ultrasonic oxygen sensor is an economical gas sensor used to detect oxygen concentration and gas flow in binary gases. Adopting ultrasonic detecting technology, Gasboard7500E has better performance than electro-chemical and other oxygen sensors. It has function includes data display, online monitor, and has been widely used in home and medical oxygen generator, large oxygen generator. Also, we can offer ODM service as per customer's demand.

Main feature

- ✧ Cutting-edge ultrasonic technology adopted, oxygen concentration and flow measurement
- ✧ Small size, stable, high accuracy, low cost
- ✧ No need of routine calibration
- ✧ Long life span(>5years)
- ✧ Customization available
- ✧ Pass EMC test, able to reduce interference and get engineers

Application

- ✧ PSA oxygen generator/ concentrator
- ✧ CPAP/ APAP ventilator
- ✧ Respiratory devices
- ✧ Anesthetic machine
- ✧ Vaporizer

Gasboard7500E Specification List

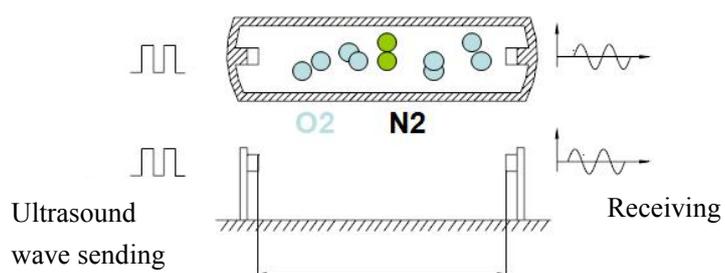
Method	Ultrasonic
Measurement range	O2: 0 ~ 100%; Gas flow: 0 ~ 10L/min
Resolution	O2: 0.1%; Gas flow: 0.1L/min
Accuracy	O2: $\pm 1.8\%FS@ (10\sim 45)^{\circ}C$ Gas flow: $\pm 0.2L/min@ (10\sim 45)^{\circ}C$
Repeatability	O2: $\pm 1\%$; Gas flow: $\pm 2\%$
Response time	0.5s
Working temperature	10-50 $^{\circ}C$
Storage temperature	-20 $^{\circ}C$ -60 $^{\circ}C$
Relative humidity	5-85%RH(non-condensing)
Max pressure	150Kpa
Power supply	12.0 \pm 0.5VDC
Working current	< 50mA , Pmax 0.6W, Average and peak current value is influenced by the voltage
Dimensions	120x22x13.6mm (L*W*H)
Weight	25g (LED excluded)
Analogue output	0-5V
Communication	UART-TTL
Sample gas	no water vapor(no condensing); no dust(<1 μm)

Principle of measurement

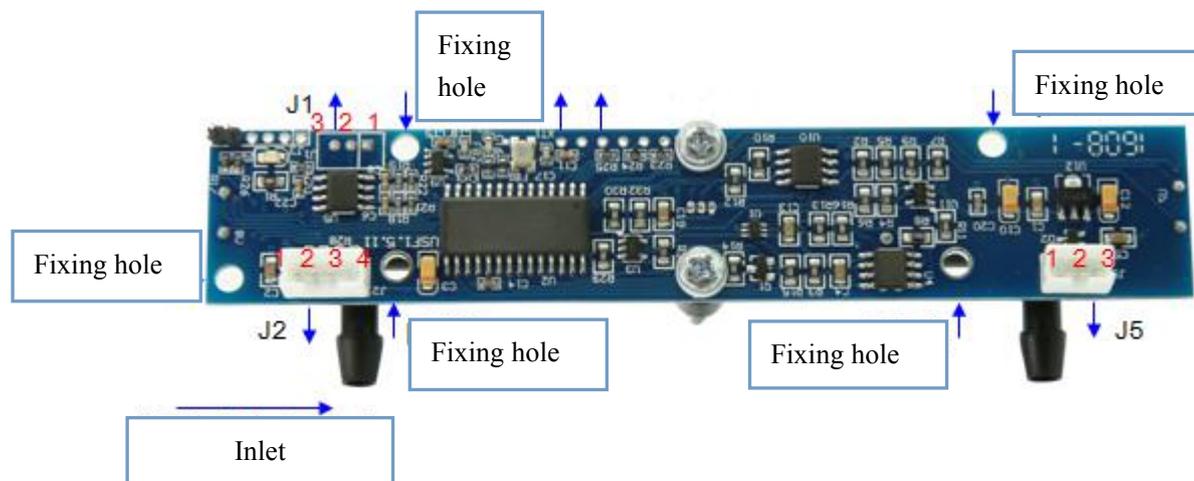
Ultrasonic flow detection theory: When the ultrasonic wave transmits in the fluid, it will carry flow velocity under the influence of fluid velocity. Fluid velocity can be measured by detecting the received ultrasonic signal to obtain the fluid flow rate.

The feature of ultrasonic flow measurement is no obstructing fluid flow, etc.

Ultrasonic concentration detection theory: when the binary gas mixture composition has molecular weight difference, sound travel speed varies from different gas composition.



I/O definitions



Pin	Pin definition	Function description
J1	Pin1 : Vout1	0-5Vout put pin , 0-99.9% oxygen concentration
	Pin2 : Vout2	0-5Vout put pin , 0-10L/min oxygen flow
	Pin3 : GND	Public power supply output pins
J2	Pin1 : Vout	+5V/10mA , power supply output
	Pin2 : Rx	UART-Rx input pin (5V)
	Pin3 : Tx	UART-Tx output pin (5V)
	Pin4 : GND	Public power supply output pins
J5	Pin1 : Vcc	12VDC , external power supply input pin
	Pin2 : no	No definition
	Pin3 : GND	Public power supply input pins

Interface description

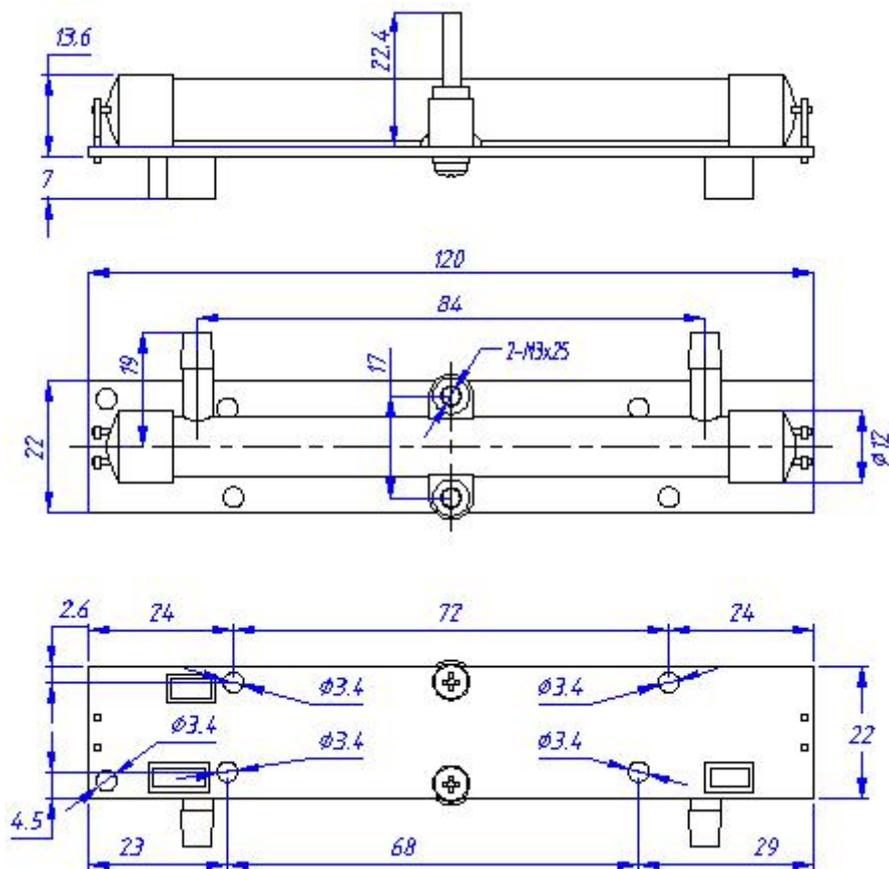
Linear output interface J1: Output voltage 0 ~ 5V, with the flow and O2 corresponding linear measurements. When the voltage is 0 V DC, the corresponding output is 0, when the voltage is 5V, the corresponding output is full scale.

Serial port signal pin J2:TTL level (5V) can be connected with the external control panel TTL electrical level serial portal and cannot be connected directly with the computer serial port. If it is connected with computer, then you need to take special serial converter (TTL→RS232). With the serial port, the user can read real-time measurement results (gas concentration and temperature) and do the maintenance.

Power supply interface J5: external power supply is 12 VDC.

Dimensions (unit: mm, tolerance±0.3mm)

Dimensions : 120mmx22mmx13.6mm , around 25g (LED excluded).



Instructions

Please confirm before starting to test:

- (1) Sample gas needs to be pretreated to make sure that the sensor entrance is clean, no water and no oil.
- (2) Connect the sensor vent pipe with outside air to ensure the safety of emissions and ensure no blocking phenomenon.
- (3) Make sure the sensor power supply is powered on.

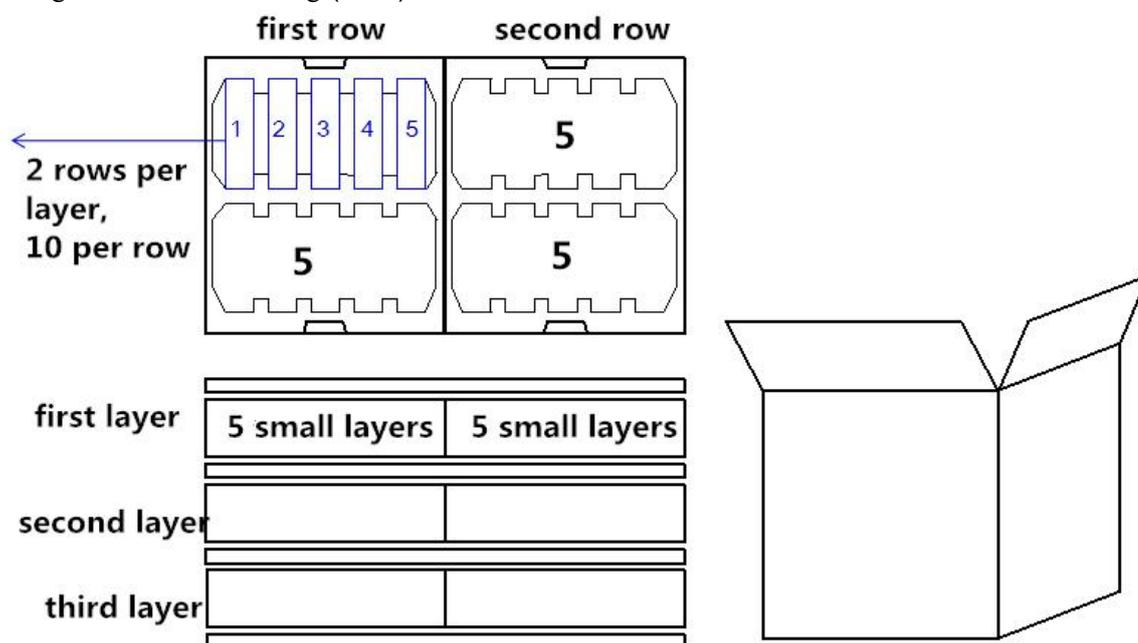


- Do not smoke near the sensor and do not use naked flame.
- The integrity of the pipeline must be ensured to avoid gas leakage due to pipeline rupture. Leakage of gas containing toxic and explosive gases may cause serious accidents.
- The inlet pressure of the sensor must be within the required range of the sensor to avoid pipeline loss or leakage caused by excessive pressure.
- When venting, please connect the vent pipe to the outdoor atmosphere and do not disperse it in the sampling device or in the room. Do not allow moisture to penetrate the sensor, otherwise it may cause electric shock or internal short circuit.
- Under the condition without the permission of the manufacturer or non-professional personal, do not disassemble the sensor, otherwise the sensor manufacturers do not provide warranty or maintenance services for the damage.
- Please read the instructions carefully before using the sensor to avoid personal injury or damage of the sensor.

Package

Package dimension : 395mm x 320mm x 470mm(L*W*H)

Weight : maximum 9.02Kg (full)



Note : Packing box is divided into three layers, and the layers are separated by pearl board.

Total number of sensor is $10 \times 2 \times 5 \times 3 = 300$

Mode selection guide

- 1) Gasboard 7500E: Ultrasonic oxygen sensor, serial response mode, without analog voltage output ;
- 2) Gasboard 7500E: Ultrasonic oxygen sensor, serial response mode, with analog voltage output ;
- 3) Gasboard 7500E: Ultrasonic oxygen sensor, serial blinding mode, without analog voltage output.

Note: The OEM version ultrasonic oxygen sensor needs to be confirmed with our product manager. Serial response mode means the MCU controller need to send query command, then the sensor will response; serial blinding mode means the sensor sends data in timing, then the MCU controller only needs to receive the measurement data.

After-sales services and consultancy

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