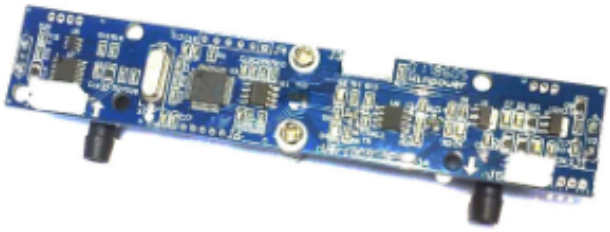
OCS-3F 2.1Ultrasonic Oxygen Concentration/Flow Sensor Data Sheet

The OCS-3F 2.1ultrasonic oxygen sensor is a new type of gas sensor. It can be used to measure the concentration and flow of the oxygenerator. It uses UART digital output, analog voltage output, LED lights and other means to send the test results.



Specification

Range of Concentration	21%~95. 6%
Resolution	0.1%
Accuracy	±1.5%FS@(5 - 55) ºC
Range of Flow	0~10L/min
Resolution	0.1L/min
Accuracy	±0.2L/min or 5% reading, which is bigger@(25 ± 2) ºC
Response Time	0. 5s
Warm-up Time	Sensor works as soon as power on; 10s to within specified accuracy;
Digital Output	9600bps UART 5V TTL / 3.3V CMOS compatible
Analog Output	0-2.5V（need customization）
LED Output	GREEN： Concentration >82% YELOW：82%>Concentration>50% RED： 50%> Concentration (Settings are adjustable according to customer's requirement)
Direction	Unlimited
Operating Temperature Range	0~50℃
Operating Humidity Range	5～85%RH
Maximum Pressure	150 kPa
Power Supply	+12V DC/50mA
Dimensions	120.5mm x 22mm x 22mm (L x W x H)
Weight	25g

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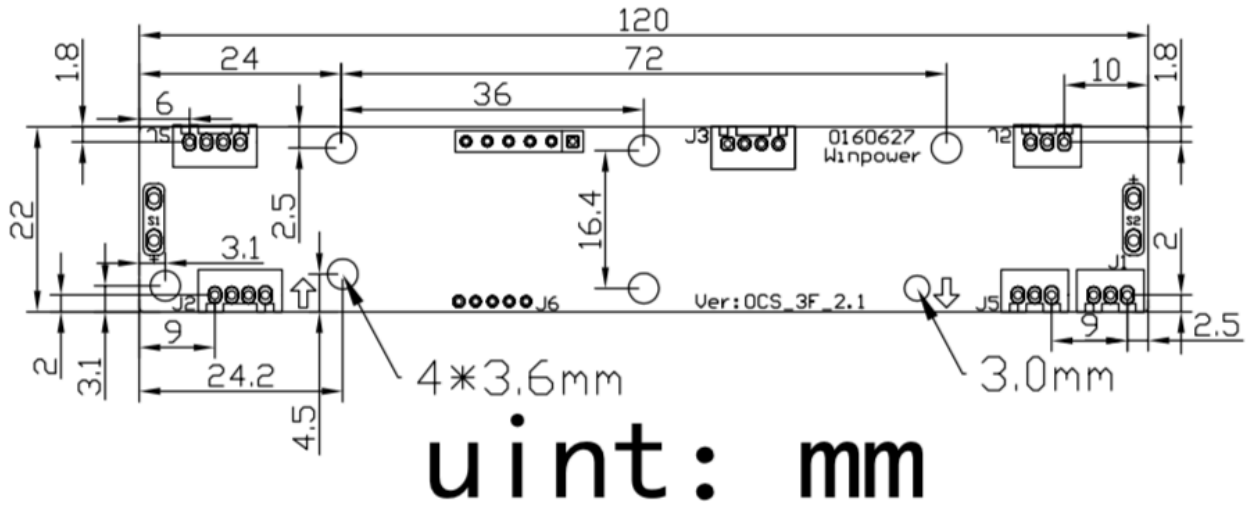
Connectors



The arrangement of connectors are showed as above. The function of each connector described below:

NO.	Function
J1	Analog Output
J2	Digital Output (UART)/Power Input/Power Output
J3	LED Output
J5	Power Supply

Pins

J1 ---- Analog Output

Pin 1	0-2.5V (0-99.9% O2)
Pin 2	0-2.5V (0- 10L/min)
Pin 3	GND

J2 ---- Digital Output

Pin 1*	+5V/10mA power output, or +12V power input
Pin 2	RXD
Pin 3	TXD
Pin 4	GND

*: The pin1 of J2 could either be the +12VDC power input, or the +5VDC power output. When there is external +12VDC applied to pin1, this pin acts as the power input. When there is no external voltage applied to pin1, it acts as the +5VDC output. The exchange is completed automatically. The customer can use just one connector to fulfill both power supply and digital output functions.

J3 ---- LED Output

Pin 1	GND
Pin 2	Green: >=82% O2
Pin 3	Yellow: 50%~82% O2
Pin 4	Red: =<50% O2

J5 ---- Power

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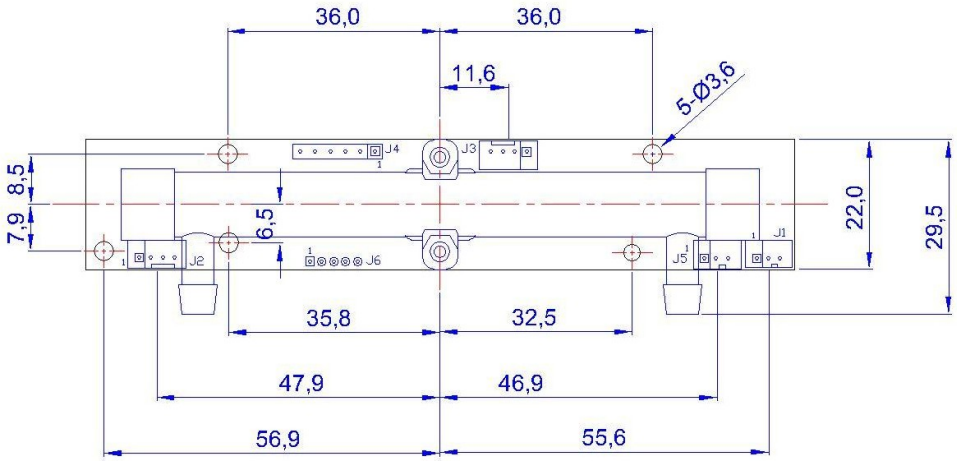
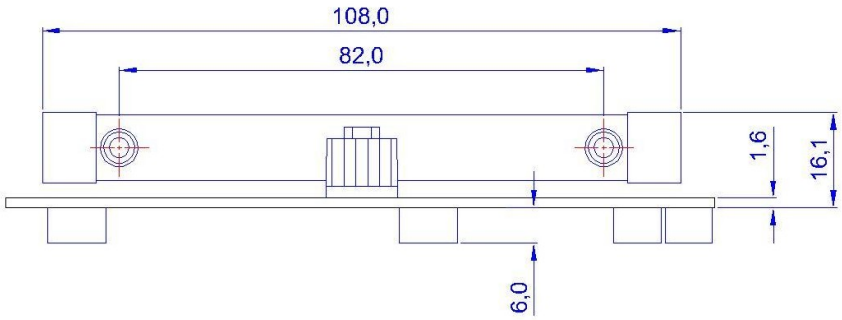
Pin 1	+12V Power
Pin 2	
Pin 3	GND

Dimensions





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UART communication parameters

Hardware

Connect sensor pin Vin-RXD-TXD-GND with 12V-TXD-RXD-GND.（Customers must use 3.3v/5vTTL level. RS232 level needs conversion）。

Software

BaudRate: 9600
DataBits: 8
StopBits: 1
Parity(check bits): NO

Mode 1 (Autosend model)

The sensor sends the data automatically in the period of 500ms. Autosend model is the default working mode of the sensor.
The data format is as follows:

0x16	0x09	0x01	0x01	0xF4	0x00	0x64	0x00	0xD2	0x00	0x00	0xB5
ACK	LB	CMD	Concent (High Byte)	Concent (Low Byte)	Flow (High Byte)	Flow (Low Byte)	Temperature (High Byte)	Temperature (Low Byte)	ST1	ST2	Checksum

Hex to Decimal:

	Decimal	**Hex**
Concent	= 50.0%	=0x01F4
Flow	=10.0 L/min	=0x0064
Temperature	=21.0 ℃	=0x00D2

Checksum:

C language:

```
char getCheckSum(char *getbuff)
{
char i, checksum;
for( i = 0; i < 11; i++)
{
checksum += getbuff [i];
}
checksum = 0x00 – checksum;
return checksum;
}
```

Mode 2 (QueryMode)

When the sensor can not receive query data for 4s continuously, it sends the data automatically in the period of 500ms.

		Byte count
Host sends	11 01 01 ED	**4**
The sensor answers	16 09 01 (Concent-High) (Concent-Low) (Flow-High)(Flow-Low)(Temperature-High)(Temperature-Low)) [ST1] [ST2] [CS]	**12**

Note: Query mode needs customization, if you need this mode, please communicate in advance.

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