OFS2

Any Oxygen (20.8 to 100%)
Flow Rate (±0 to 500 ±1 LPM)

Ultra fast and miniature - Oxygen and High Volumetric Flow rate sensor. OFS2 is powered by 8V to 35V / 14ma Unregulated DC Power Supply. 0 to 5Vdc proportional outputs are available. RS-232 output provides O_2 concentration, Volumetric Flow Rate, Temperature and operational hours. 4ms response time is ideally suited for flow rate measurement & closed loop control applications. Time constant, bi-directionally stable response enables crisp detection of Start of Breath and calculation of spirometry parameters. Thermal characteristics allow automotive, high altitude and other complex high Flow rate Oxygen Measurement application. 10hz square wave output, can serve to ease oxygen concentrator timing & control. Flow direction output can serve to detect wrong direction of Flow.

Specification:

Size	4.7” x 0.8” x 0.5” / 25g
Oxygen types	Controlled by J1.4 0V - O2 concentrator 5V - air mixtures with pure O2
Outputs	USART, LCD, Analog
Analog Flow output	0 to 5V DC Linearly proportional to ±0—500 LPM
Analog O2 output	0 to 5V DC Linearly proportional to 0—100% O2
Power Supply	Unregulated 8V to 35V DC / 14 ma
Display Switch	Performs Field Calibrations & Toggles between O2 & Flow on **DigiDISP**
O2 Accuracy	±1.5% @ –5 to +45°C; ±2% @ -45°C to –5°C, 45°C to +70°C
Flow Resolution	±1 LPM
O2 Range	20.8% - 95.7%, 20.8% - 100%
Max pressure	30 psig
Thermal change response	1°C per Minute
Thermal Gradient$_{max}$	50 K/ meter
Operating Temperature	-45 to 70°C
Survival Temperature	-85 to +85°C
RS232 transmit Rate	200 bytes per second @ 19200 bits/sec
Calibration Retention	More than **10 years**
Calibration	Factory. Optional field calibration is provided.
Flow I/O	**Bi-directional via 1/2” male barbs**
Response Time	4 mili-seconds
USART Frame content	O2 [%], Flow Rate[LPM], Temperature [°C], Cumulative hours of operation
10Hz Square wave output	J1.6 5V P-P
Flow Direction Indicator	J1.3—Open Drain

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Features

USART / RS-232 output—TTL level
DigiFLO Computer Download Program is available.
Linear Analog outputs
LCD display output

CONNECTORS

J1– Through Hole

Pin

1. (Square pad) 8 to 30V Unregulated DC Power Supply (+)
2. Flow Rate Analog Out. (0 to $5V_{DC}$ Linearly proportional to ±0- 500 LPM)
3. Direction of Flow. Open drain output: Open IN+ direction of flow; 0v IN- direction of flow.
4. Oxygen type indicator - If connected to GND (J1.9) - indicates 100% O_2 / Air mix; No Contact indicates Oxygen concentrator gas.
5. N/A
6. Dual Function pin
   - 10Hz 5V 50% DS Square wave output.
   - DigiDISP switch toggles Oxygen or Flow rate display on DigiDISP LCD
7. Oxygen Analog Out. (0 to $5V_{DC}$ Linearly proportional to 0- 100%)
8. USART TTL level TXD. Provides $\%O_2$, Volumetric Flow Rate, Temperature and operational Hours
9. 8 to 30V Unregulated DC Power Supply (-) - GND

J2 (RS232) – RS-232 I/O - Board Edge

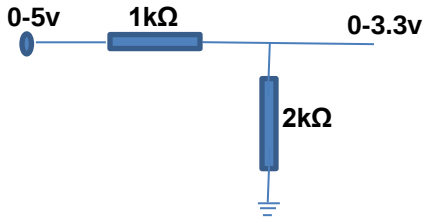
Connects to DigiRS232
For RS232 protocol see OFS2 User Interface document.

J3 (DISPLAY)—Board Edge

Connect to DigiDISP

Connecting to a 3.3v Microcontroller

0 to 5v UART and / or Proportional analog outputs need to be reduced to a 0 to 3.3v range. This can be accomplished via a resistor circuit as follows:



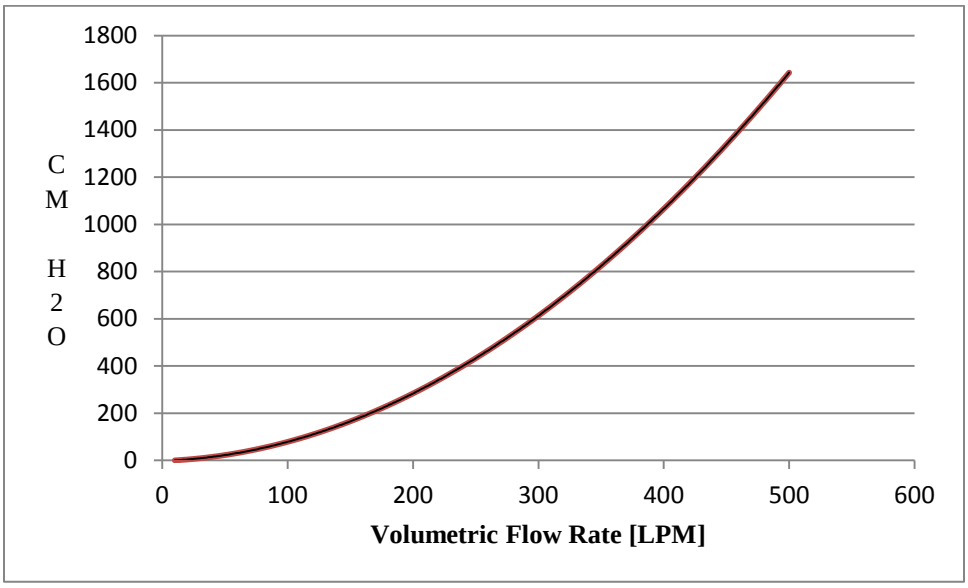
Connecting to a computer via a COM port

Via DigiRS232 OFS2 can be connected to a computer COM port, such that OFS2 measured Oxygen content, Flow rate, Temperature and hours of operation can be stored in a file. DigiFLO program is available.

RS232 & Field Calibrations

See OFS1 User Interface document.

Sensor Pressure Drop Vs. Flow Rate

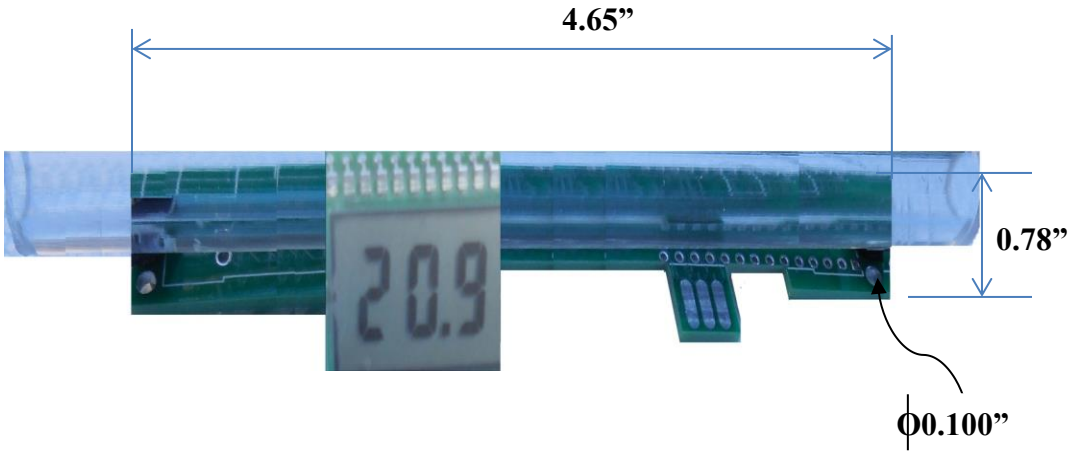


OFS2 Directions of Flow

IN+  IN-

OFS2 Dimensions Drawing

Mounting holes spacing: 0.58” x 4.5”



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