

# DB200381 Oxygen Sensor

Specification

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Original Approvals			
Responsibility	Name	Position	Date
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# 1 Introduction

This document describes the specification for the DB200381 non-magnetic oxygen sensor intended to be installed within JFD's range of electronic rebreathers.

# 2 Specification

Output in ambient air	6.5 to 9.0 mV
Electrical output	30 to 60 $\mu$ A
Output connector	Flying leads or solder pads
Input	Open input Hydrophobic membrane
Input O ring	Not applicable
Output range	0 to 2500 mbar PPO <sub>2</sub>
Pressure range	600 to 10000 mbar
Repeatability	< 1% volume oxygen at constant temperature and pressure
Linearity error	0.1 to 0.4 bar: < 30 mbar > 0.4 to 2.0 bar: < 60 mbar > 2.0 to 2.3 bar: < 100 mbar
Warm up time	< 30 minutes after sensor installed
Zero offset voltage	< 0.5% oxygen reading in 100% nitrogen @ 25 °C after 36 seconds
Cross interference	< 0.5% volume oxygen response to 5% CO <sub>2</sub> balance N <sub>2</sub>
Response time	< 10 seconds for 90% final value
Operating humidity	0 to 99% RH (non-condensing)
Influence of humidity	-0.03% relative per % R.H. at 25 °C
Influence of mechanical shock	< 1% after fall from 1 m
Operating temperature range	0 to 50 °C
Storage temperature range	-30 to +70 °C
Temperature compensation error	0 to 50 °C, 5 % relative error
Shelf life in original packaging	> 6 months
Operation life	> 2 years in air
Long term output drift	< 1% volume oxygen per month
Required load	10 K Ohms
Weight	< 30 g
Dimensions	See Section 2.1 below
Magnetic signature	< 3.5 nT
Orientation	<0.2% oxygen in any orientation
Packaging	Gas barrier bag
Marking	JFD logo and part number (DB20381). Serial number in format to be agreed between JFD and supplier. Any other markings as required by relevant legislation.

## 2.1 Dimensions

To be as shown in Figure 1 below. Any external circuitry to be flush with back of sensor body, except for solder joints which may protrude.

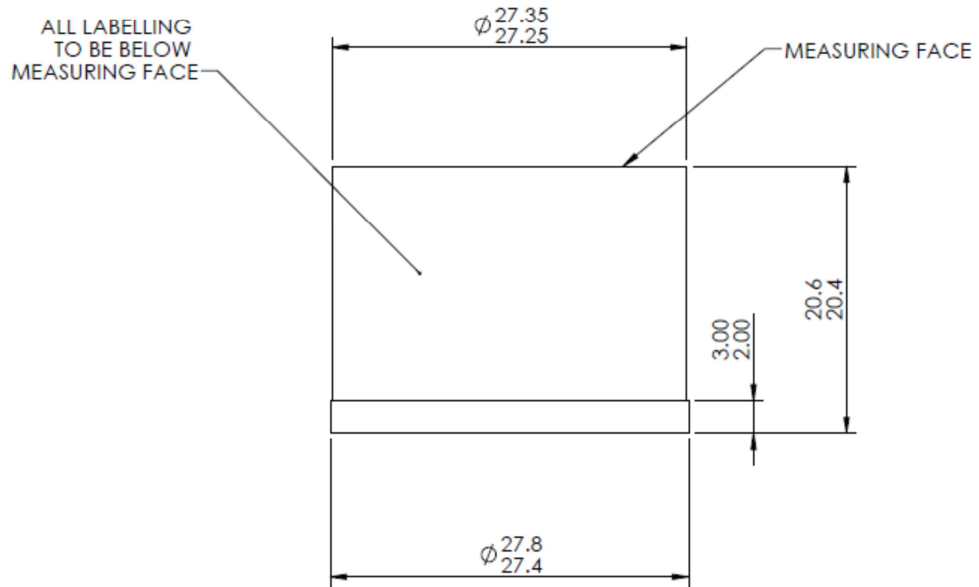


Figure 1 – Sensor Dimensions

## 2.2 Supplier Testing

All sensors to be supplied to JFD with results of testing the following parameters in accordance with this specification:

- Output in air
- Zero offset voltage
- T90 response time
- Linearity error (0 – 100% oxygen at ambient pressure)