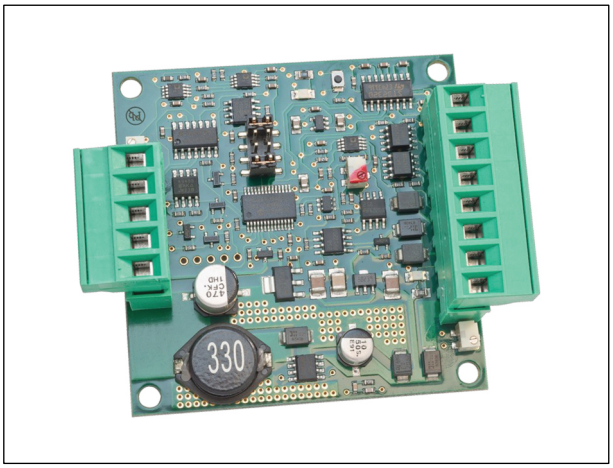
OXY-PCB Series

PRELIMINARY

Zirconia Oxygen Sensor Interface Board

FEATURES

- Oxygen rage from 0,1 to 25 %O2 and 0,1 to 100 %O2
- Provides the electronics necessary to power and control OXY series zirconium dioxide sensors
- Externally triggered automatic or manual calibration
- Removable polarised screw terminals for easy wiring
- High accuracy linear output



SPECIFICATIONS

Maximum Ratings

Supply voltage [1]	$24V_{DC}$ ± 10%
Supply current at $24V_{DC}$	600 mA
Load	
Current output	100…600 Ω
Voltage output	> 10 kΩ
Temperature limits	
Storage	-10…70 °C
Operating	-10…70 °C
Oxygen pressure limits [1]	1…1000 mbar

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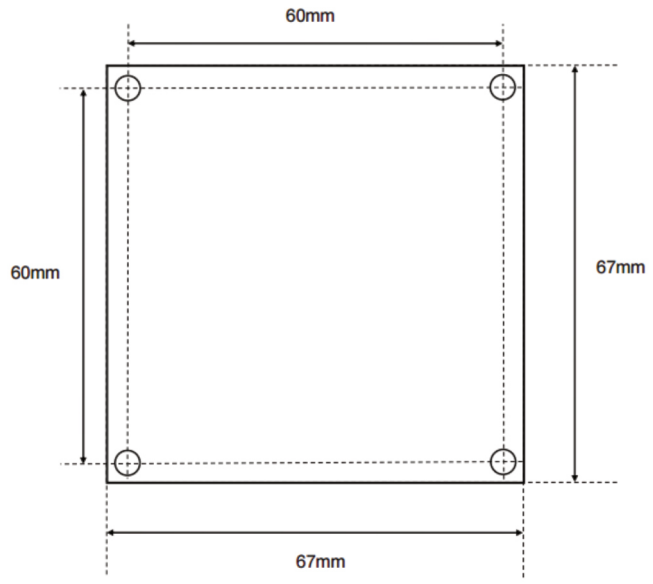
PERFORMANCE CHARACTERISTICS

Characteristics		Min.	Typ.	Max.	Unit
Oxygen range (analogue output) [2,3]		0,1		25	%02
	or	0,1		100	
Oxygen range (RS232) [2]		0,1		100	%02
Accuracy after calibration [4,5]			1		%02
Repeatability after calibration [4]			0,5%		%02
Output resolution	0-10 V_{DC}		0,01		V
	4-20 mA		0,01		mA
	RS232		0,01		%02
Response time (10 to 90 %)				4	s
Initial warm up time (till stable output)			5-10		min
Output inactive start up delay (heater warm up)			60		s

OUTLINE DRAWING



4 x M4 Mounting holes . 60x60mm pitch

Dimension in mm
Tolerances ± 1 mm

Notes:

1 Sensor and interface for correct barometric pressure compensation.
2 Prolonged operation below 0,1 %O2 can damage the sensing element
3 Range selectable by altering the position of the jumper links on the PCB, refer to PCB Layout on page
4 Assuming barometric pressure (BP) remains constant
5 As the O2 sensor measures the partial pressure of oxygen (PPO2) within the measurement gas deviation in the BP from that present during calibration will cause readout errors proportional to the change, e.g. if the sensor reads 21% O2 at 1013.25mbar and the BP increases by 1%, the sensor readout will also increase by 1% to 21.21% O2

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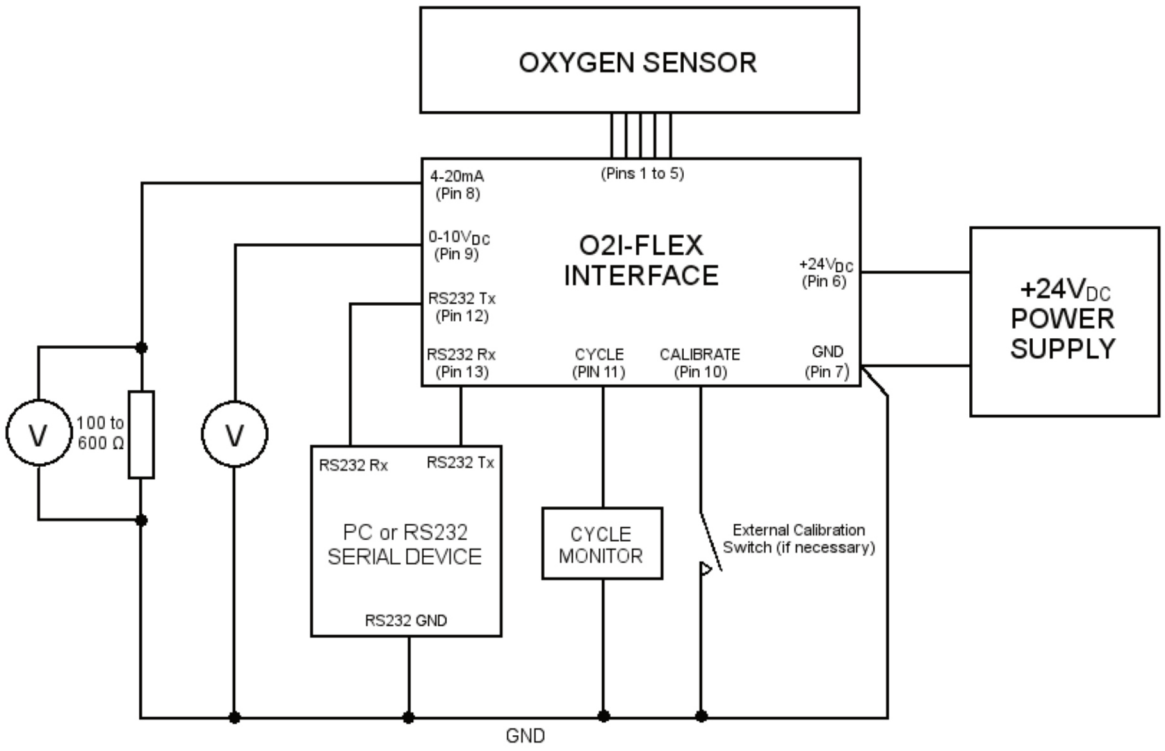
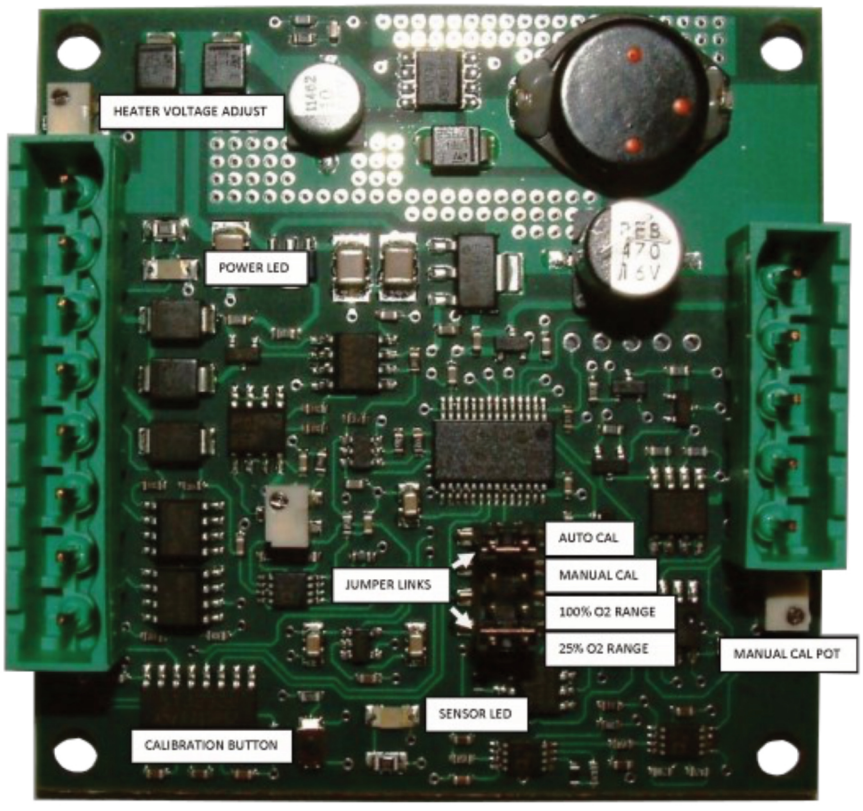
CIRCUIT DIAGRAM AND PCB LAYOUT





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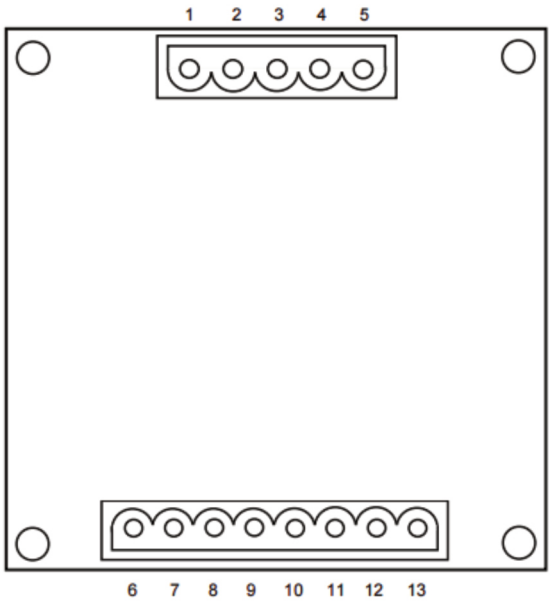
ELECTRICAL CONNECTION [6]



Pin	Connection
1	Sensor Heater GND (1)
2	Sensor Heater + (2)
3	Sensor Sense
4	Sensor Common
5	Sensor Pump
6	Supply Voltage
7	GND
8	Current output
9	Voltage output
10	Calibrate
11	Cycle
12	RS232 Tx
13	RS232 Rx

ORDERING INFORMATION

Series	Board Style		Output Version		Measurement Range		Heater Voltage	
OXY-	**PF-**	PCB Flexible	**M**	Multiple	**F**	Flexible	A	Adjustable

Order code: OXY-PF-MFA

For all devices MOQ of 10 pieces applies.

Notes:

6 Output pins 8, 9, 12 and 13 are all references to the supply GND (pin 7). Due to high current flow in the supply GND, when monitoring the 0—10V_{DC} output (pin 9) it is recommended that a separate GND wire for the measurement system is taken from pin 7. This removes errors due to voltage drops in the power supply connections.

Output pins 1 through 5, refer to appropriate OXY series oxygen sensor datasheet for wiring/pin designations.

Every oxygen sensor has two heater connections which should be connected to pins 1 & 2 of the OXY-PCB; the heater coil has no polarity. However when connecting to a sensor where the sensor housing is one of the heater connections, pin 1 of the OXY-PCB should be connected to the housing.