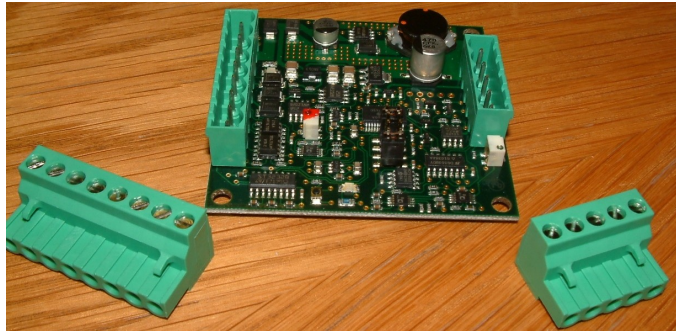# SST O2I-Flex - From box to application
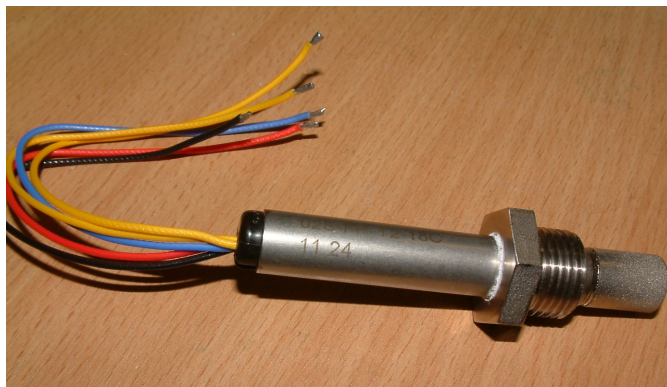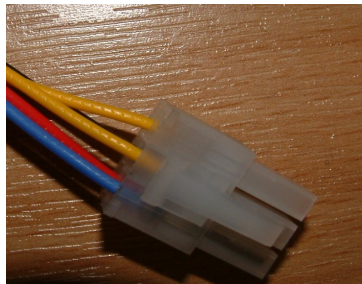
A quick start guide to using the SST O2I-Flex interface board.
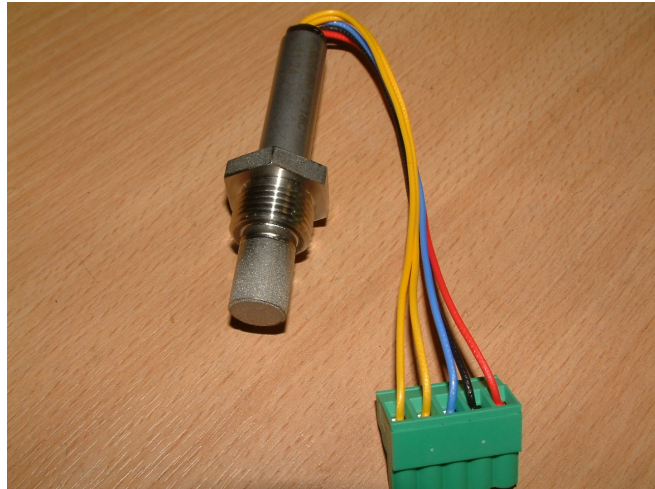
Connecting the PCB

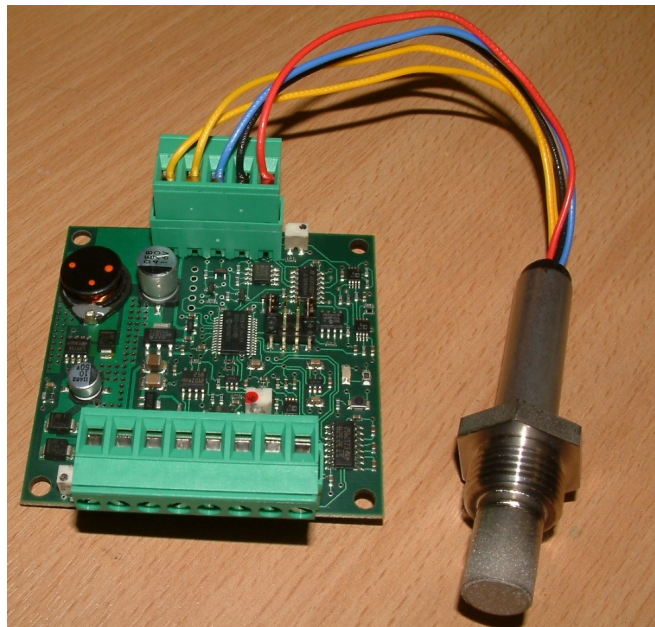**1. Unpack interface board and connectors**

2. If your oxygen sensor has a connector, cut it off and strip back the wires.

3. Screw sensor wires into connector as shown.

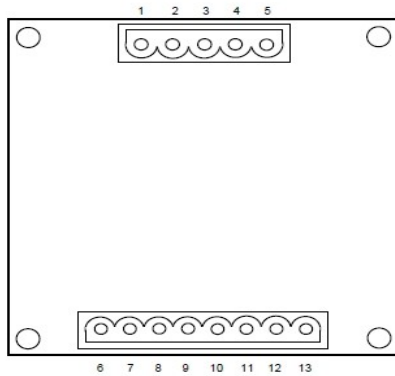**4. Plug sensor connector into interface board**

5. Connect power, and input/output connections to interface board. See FIG 1 on page 3 for guidance.
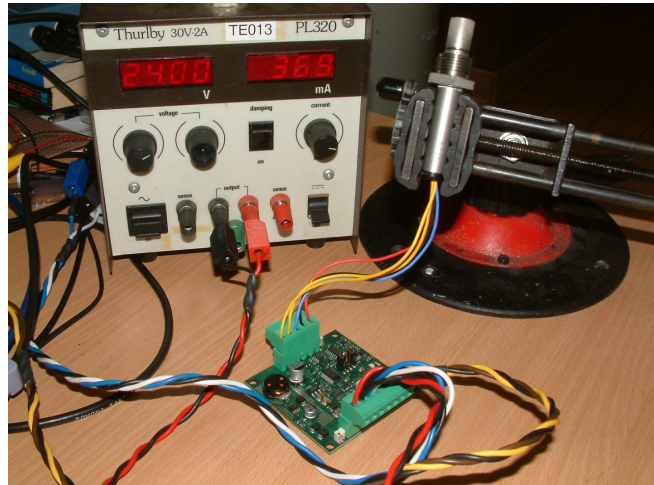
O2I-Flex Oxygen Interface

ELECTRICAL CONNECTIONS

PIN	Description
1	Sensor Heater GND (Yellow, H)
2	Sensor Heater + (Yellow, H)
3	Sensor Sense (Blue, S)
4	Sensor Common (Black, C)
5	Sensor Pump (Red, P)
6	$24V_{DC} \pm 10\%$
7	GND
8	4-20mA Output
9	$0\text{-}10V_{DC}$ Output
10	Calibrate
11	Cycle
12	RS232 Tx
13	RS232 Rx

Figure 1

6. Apply 24V to the PCB.

7. Check what sensor type you have. Porous lid, or full porous cap.

Full Porous Cap

Porous Lid

Setting the heater voltage.

8: Adjust heater voltage via heater voltage adjust potentiometer. See Fig 2. Heater voltage is measured across the two yellow sensor wires (Pins 1 & 2 of the O2I-Flex).
Porous lid type: heater = 4.0V
Full Porous cap type: heater = 4.35V

If you have extended the heater cables, the heater voltage should be increased and measured as close as possible to the sensor.

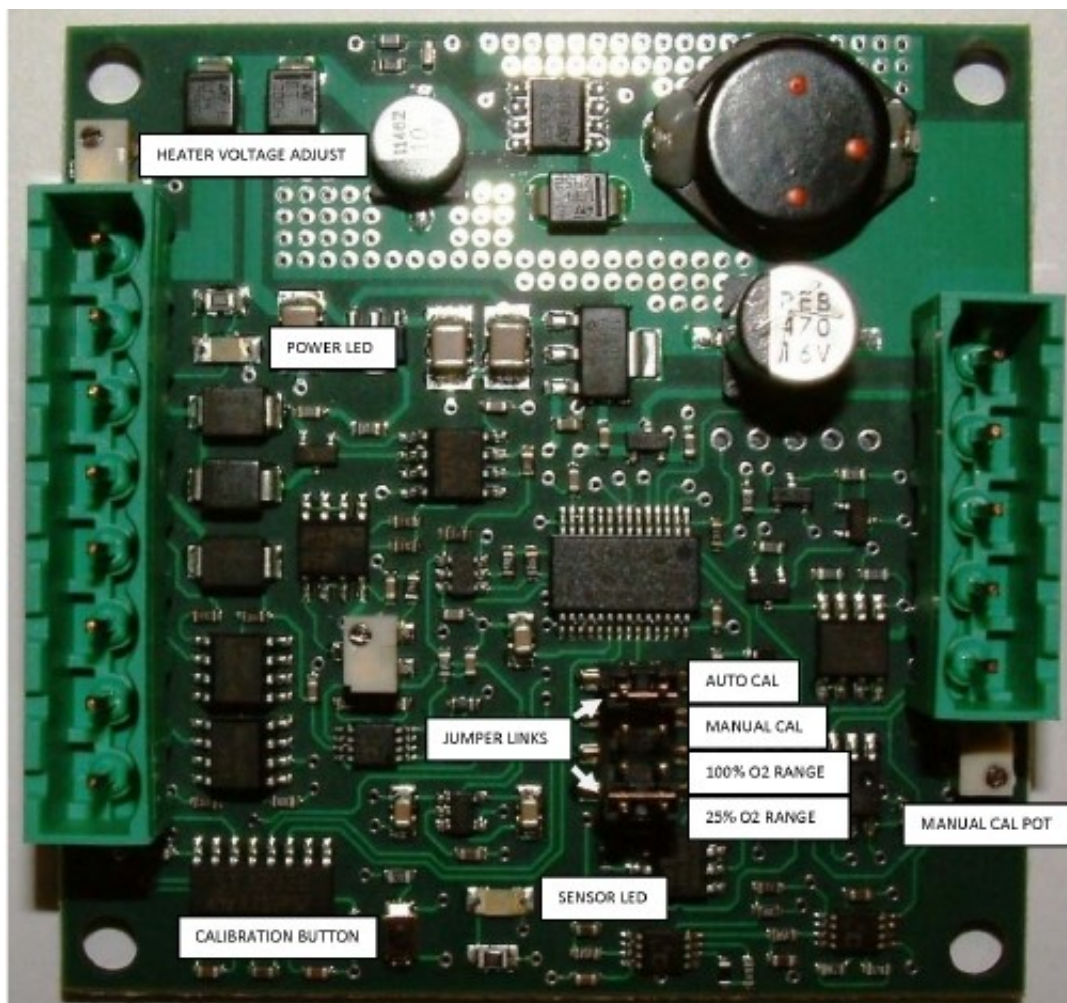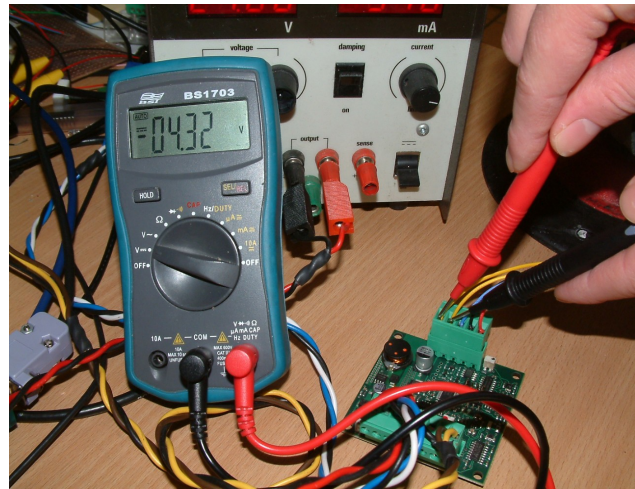Cables should not be extended to more than 1m.

Figure 2

© 2010 SST Sensing Ltd
AN0042 Rev 1

10: Switch off power to the PCB. Connect desired output. Current/Voltage or RS232.   Current can be measured with an ammeter or a voltmeter as shown in Figure 3 below.
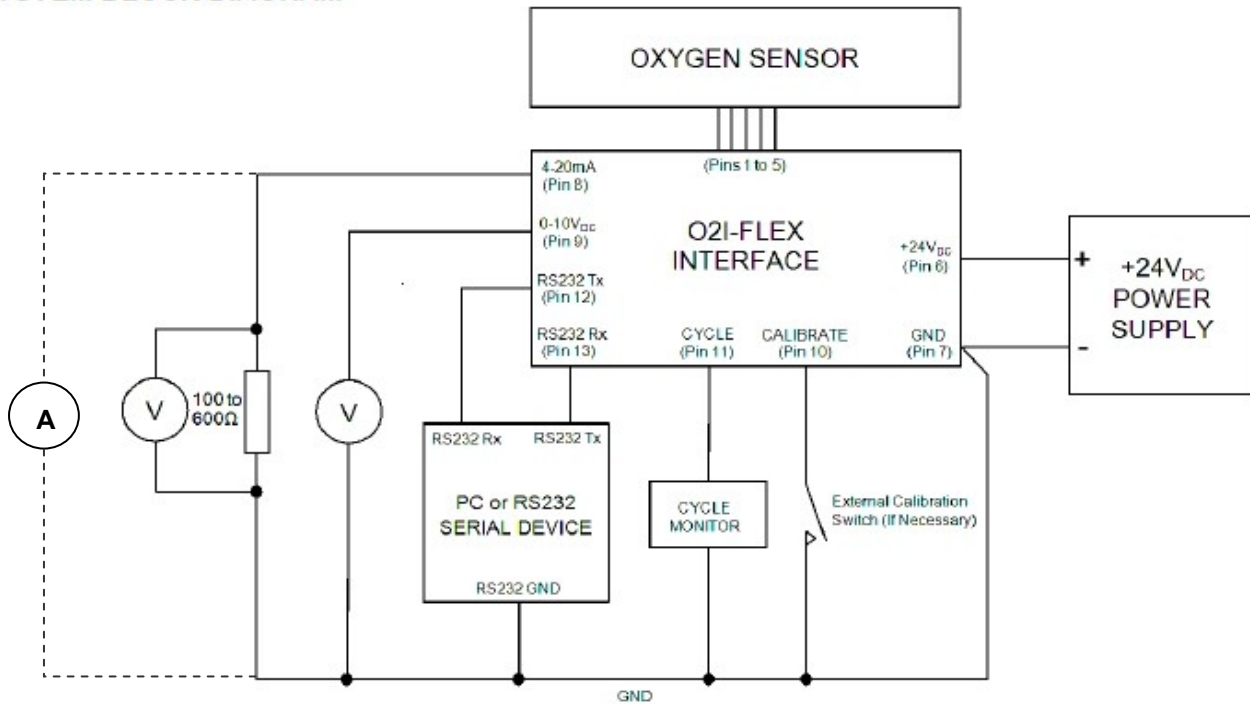
SYSYEM BLOCK DIAGRAM

Figure 3

Calibrating the system in normal air.

11: Refer to Figure 4 below. Ensure Jumper Links are set to Auto Cal and 25% O2 Range. Power up the PCB and leave for 10 minutes to allow the sensor output to fully stabilise. Press and hold the calibration button for 12 seconds.
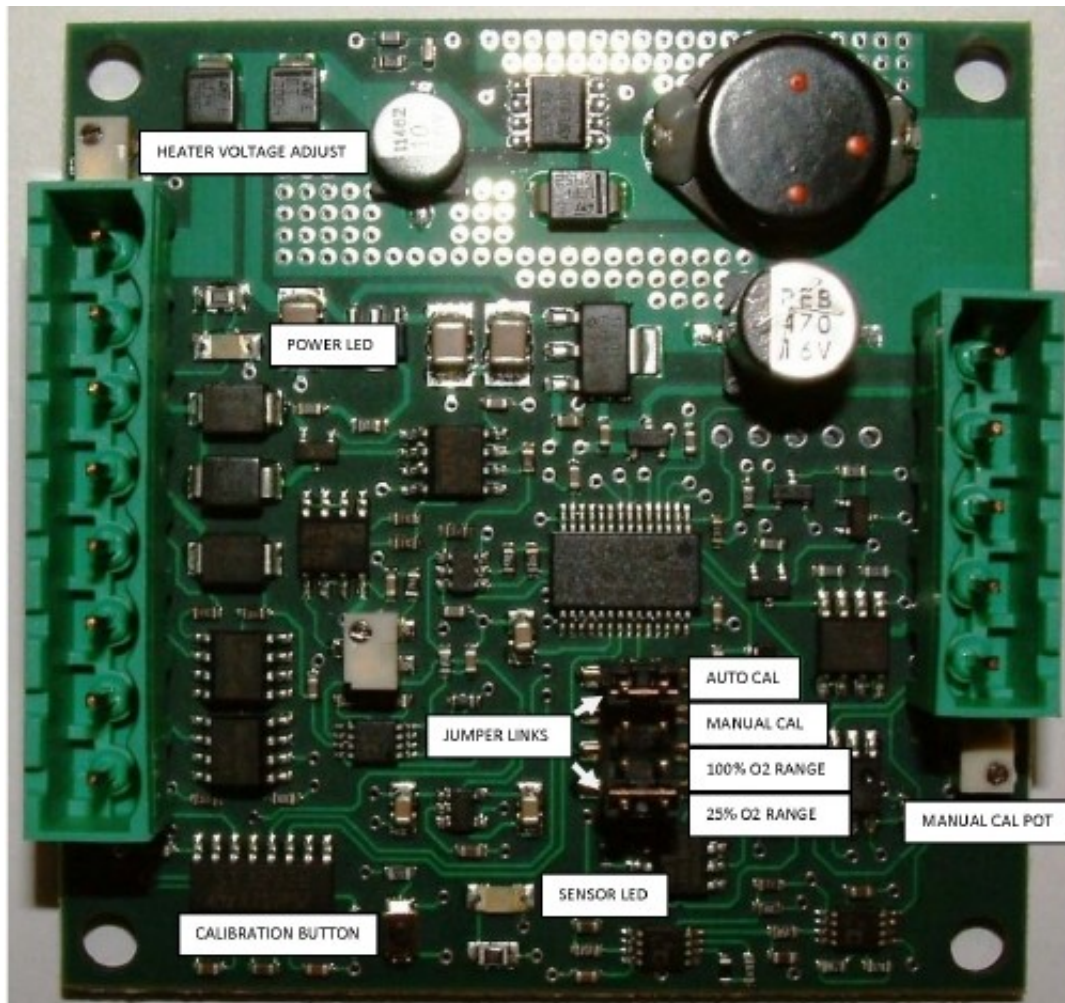

Figure 4.

12: The output (RS232/Voltage/Current) will now output a value equating to 20.7% Oxygen with an error of +/- 0.2%. After calibration _in normal air_ the voltage output should read 8.28V. The current output should read 17.25mA, and the RS232 will stream a five character ASCII code representing the O2%. In this case as we have calibrated in the 25% O2 range the RS232 will stream a value of approximately 20.70

13: The sensor and interface are now fully setup and ready to use. For best accuracy, it is recommended that a calibration in normal air should be completed each time the sensor is powered up. _Details of how to calibrate the system to other references are contained in the datasheets._

What if I don't have an RS232 port on my PC?

Note :The O2I-Flex communicates via RS232. However it is quite possible to communicate via USB if we use an RS232 to USB converter. See below.
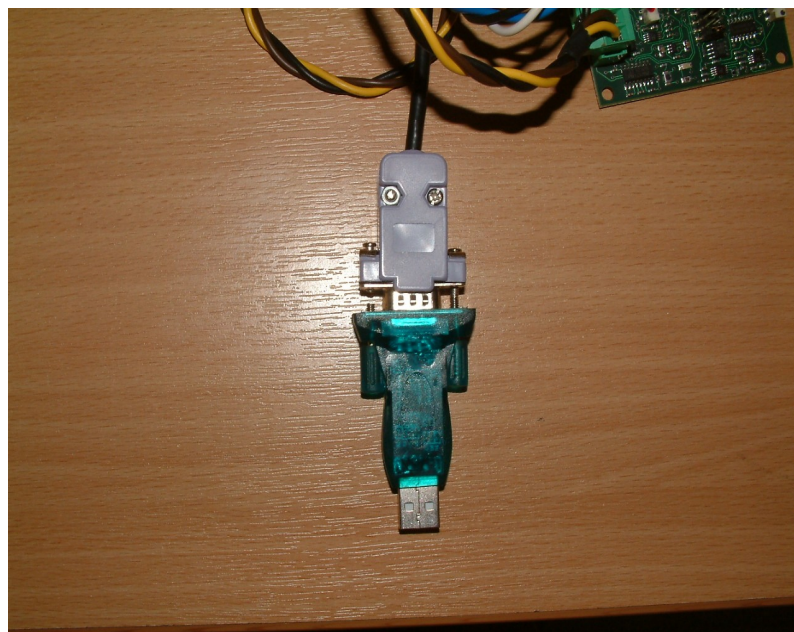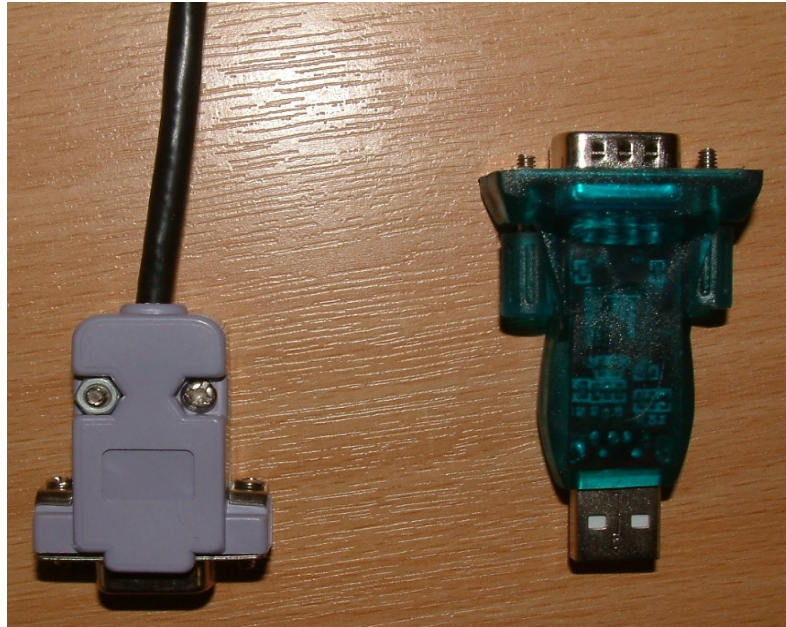
Please note that this document is intended as a quick start guide only and is not a replacement for the data sheets and application notes which may be located at the SST website www.sstsensing.com