

Instructions Lambdapower Digital Sensor Interface

** For Professional Use Only **

** Not Suitable for Medical / Laboratory Applications **

1) Voltage Requirements

This unit is powered by 12VDC only. 24V version is available to pre-order

2) IP rating

Control module is splashproof and dustproof, IP53

3) Connections / Wiring colours

=====

Connector A) Power in, Red = +12VDC in; Black = 0V Ground in

Connector B) Digital output, Yellow=5V serial output, active low; Black = 0V Digital ground return

9600 Baud, Data Bits 7, 1 Stop bit, No Parity. One reading is available every 100ms

USB interface - uses CP210x chipset, use standard terminal software (eg. MuTerm)

You will require driver software for the USB device. Drivers are available for Windows (including legacy versions), Mac OSX, Linux, Android at:

<https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>

When installing in Windows versions 7 and later, be sure to install drivers in Administrator mode (right-click "run as administrator"). You may also need to launch the MuTerm software using Administrator mode (again, right click "run as administrator")

MuTerm is free and open-source and is available here:

<https://sourceforge.net/projects/muterm/>

YAT is also free and has a more sophisticated user interface:

<https://sourceforge.net/projects/y-a-terminal/>

Connector C) Analogue output, Green = 0-5V Analogue out, Black = 0V Analogue return

Outputs between 5V (ambient air ~20.9%) and 0V (0% oxygen)

4) Using the module

Output in static air may not quite reach FSD (full scale deflection) - this is due to this sensor's characteristics. For static applications you may apply an offset factor if desired. The sensor is primarily designed for positive pressure gasflow applications. Gasflow will in general raise the value. Cold gas will in general reduce the output. The heater control will somewhat mitigate this.

Resting voltage in ambient air may fail to quite reach 5V because of individual sensor characteristics. Use the resting voltage to calculate a scaling factor if desired in applications with low or stationary gasflow:

Theoretical scaling factor:

Oxygen% = Analogue Voltage * 4.180

Example practical scaling factor:

Oxygen% = Analogue Voltage * 4.202

Connector D) Six-Way connector for Lambdapower 69001 oxygen sensor - Red=Nernst Cell, White=Heater Control 0V, Green=Sensor calibration resistor, Yellow=Pump cell, Grey=Heater +ve, Black=Virtual Ground. This cable is pre-wired and should not be disturbed.

Draft instructions subject to change 2020-12-04 v0.9

Suggestions? Errors? Let us know at translate@lambdapower.eu