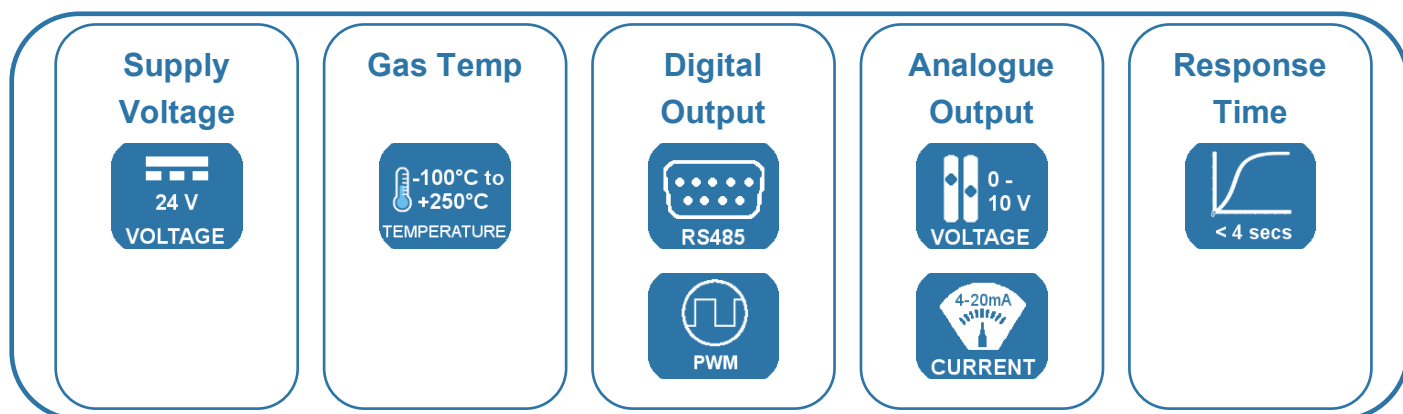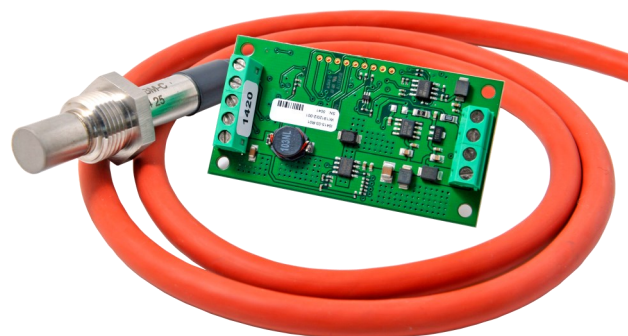# DATA SHEET

Zirconia O_2 Sensors
Oxygen Measurement System

📝 FEATURES

- Fast response zirconium dioxide (ZrO_2) sensor in conjunction with the OXY-LC oxygen sensor interface board
- Long life, non-depleting technology
- Integral heating element
- High accuracy
- Linear output signal

Supply Voltage	Gas Temp	Digital Output	Analogue Output	Response Time
24 V VOLTAGE	-100°C to +250°C TEMPERATURE	RS485 / PWM	0 - 10 V VOLTAGE / 4-20mA CURRENT	< 4 secs

⚙️ BENEFITS

- No reference gas required
- No need for temperature stabilisation
- Variety of probe mounting positions available; 28mm, 45mm & 55mm
- M18x1.5 screw mounting

🔧 TECHNICAL SPECIFICATIONS

Supply voltage
 RS485 output variant: $8—28V_{DC}$
 Analogue output variants: $20—28V_{DC}$
Supply current   600mA max. at $24V_{DC}$
  1.2A max. at $12V_{DC}$
Digital output   RS485 (Modbus RTU)
Analogue output   4—20mA; load 600Ω max
  or   0—10V_{DC}; load 10kΩ min
Pump impedance at 700°C[1]   < 6kΩ
Permissible gas temperature   -100°C to +250°C
Gas flow rate[2]   0—10m/s
Operating pressure limits[3]   260—1260mbar absolute
Mounting thread   M18 x 1.5

📈 OUTPUT VALUES

Oxygen range (analogue output)		0.1—25% O_2
	or	0.1—100% O_2
Oxygen range (Modbus RTU)		0.1—100% O_2
Accuracy after calibration		0.5% O_2
Accuracy after calibration		0.5% O_2
Output resolution		0.01% O_2
Response time (10—90% step)		< 4s
Initial warm up time (till stable output)		5—10mins
Output inactive start up delay (heater warm up)		
From OFF to ON mode:		60s
From Standby to ON mode (RS485 only):		20s

✓ NOTES

1) The constant current source used in the pump circuit should be designed to drive a load of up to 6kΩ.
2) With baffle fitted to shield the sensor from direct cooling and pollution by the flue gas; refer to DS0122 ZrO_2 Screw Fit Probe Datasheet for fitment details.
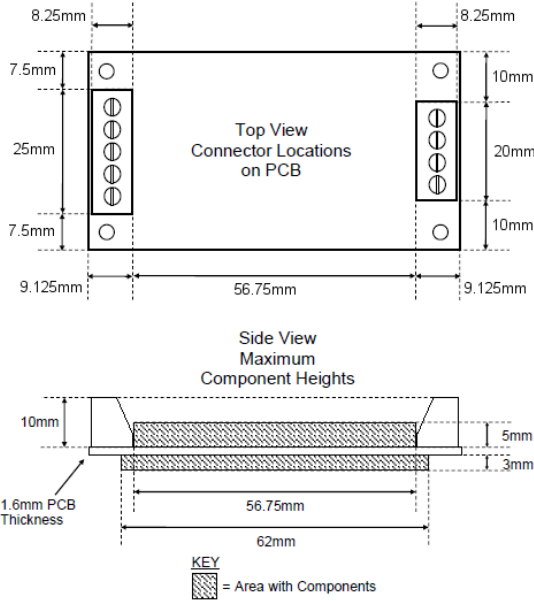3) Sensor and interface for correct barometric pressure compensation.

DESCRIPTION

The Oxygen Measurement System is a complete solution consisting of a zirconium dioxide oxygen sensor and interface PCB.

Dimensional overview given below; full specifications for each, including complete outline drawing and electrical interface details can be found:

- DS0122 ZrO_2 Screw Fit Probe Datasheet
- DS0058 OXY-LC Oxygen Sensor Interface Datasheet

Contact support@co2meter.com for details.

Interface Board layout

⚠️ Always handle the interface board using the correct ESD handling precautions.

Top View
Connector Locations on PCB

Side View
Maximum Component Heights

1.6mm PCB Thickness

KEY
▨ = Area with Components

Sensor layout

Full Porous Cap (Length 15mm)

Ø12   M18x1.5

X = 55mm for O2S-FR-T2-18BM-A
X = 45mm for O2S-FR-T2-18BM-B
X = 28mm for O2S-FR-T2-18BM-C

ORDER INFORMATION

Referring to the tables below will allow you to tailor a system to suit your specific requirements.

For example: Ordering part numbers *OXY-LC-A25-455* and *O2S-FR-T2-18BM-C* will create a system that has a 4—20mA analogue output from the board and a sensor probe that has a length of 28mm from the sensor tip to the beginning of the M18x1.5 screw mount.

Interface Board

PCB Part Number	O_2 Measure Range	Output Type	Heater Voltage
OXY-LC-485	0.1% and 100%	Modbus RTU	Configurable
OXY-LC-A25-455	0.1 to 25%	Current: 4—20mA	4.55V_{DC}
OXY-LC-V25-455	0.1 to 25%	Voltage: 0—10V_{DC}	4.55V_{DC}
OXY-LC-A100-455	0.1 to 100%	Current: 4—20mA	4.55V_{DC}
OXY-LC-V100-455	0.1 to 100%	Voltage: 0—10V_{DC}	4.55V_{DC}

Sensor

Sensor Part Number	Probe Length
O2S-FR-T2-18BM-A	55mm
O2S-FR-T2-18BM-B	45mm
O2S-FR-T2-18BM-C	28mm

ⓘ CAUTION

Do not exceed maximum ratings and ensure sensor(s) are operated in accordance with their requirements.
Carefully follow all wiring instructions. Incorrect wiring can cause permanent damage to the device.
Zirconium dioxide sensors are damaged by the presence of silicone. Vapours (organic silicone compounds) from RTV rubbers and sealants are known to poison oxygen sensors and MUST be avoided.
Do NOT use chemical cleaning agents.

Failure to comply with these instructions may result in product damage.

ⓘ INFORMATION

As customer applications are outside of CO2Meter's control, the information provided is given without legal responsibility. Customers should test under their own conditions to ensure that the equipment is suitable for their intended application.

For more information visit us,

www.co2meter.com/pages/terms-conditions

For technical assistance or advice, please email:
support@co2meter.com

Contact us: CO2Meter, Inc. 131 Business Center Drive Ormond Beach, FL 32174 USA

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