

Gas Analyser Probe

Model : UGA

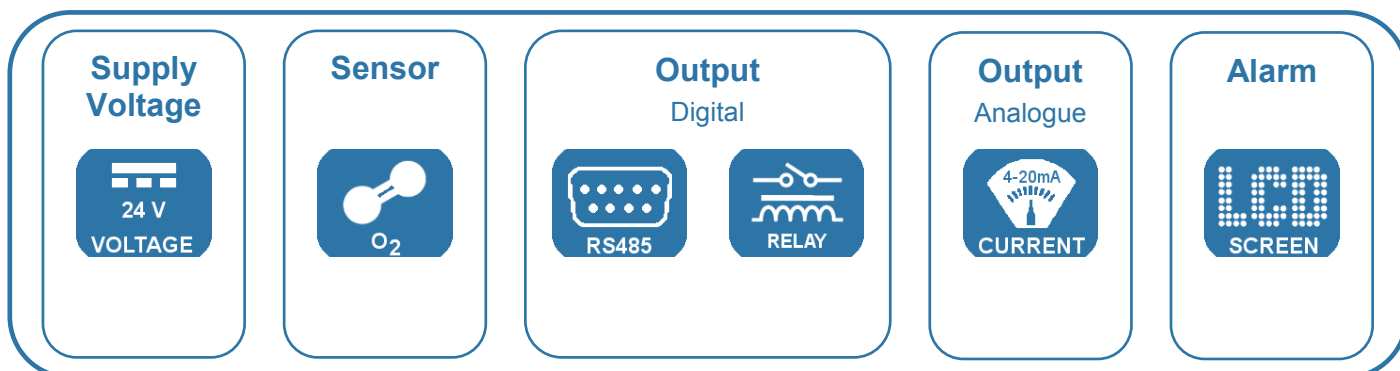
OXYGEN ANALYSER

A compact zirconium dioxide analyser to measure percentage level (0—25%) oxygen in combustion processes.

The probe is manufactured from 316 stainless steel and can handle sample temperatures up to 700°C with an insertion length of 435mm.

The sample gas is extracted to the sensing chamber and returned to the flue via the Pitot effect, so there is no need for instrument air.

The analyser operates without the need for an air reference.



FEATURES

- The UGA provides customers with a single gas flue or ventilation monitoring system
- Barometric pressure and temperature sensors included
- RS485 MODBUS RTU as standard
- User configurable relay outputs
- Easy to swap sensor module, no special tools
- Calibrate in fresh air

APPLICATIONS

- Combustion control of boilers fuelled by natural gas, light oil, diesel, coal and biomass
- Excess air analysis
- Boiler trim control
- Incineration furnaces
- Power generation
- Combined cycle gas turbines (CCGT)
- Ceramic furnace monitoring

TECHNICAL SPECIFICATIONS

Performance

Measurement technology	Zirconium Oxide (ZrO ₂)
Gas	Oxygen
Measurement range	0.1—25% vol. O ₂ %
Output resolution	0.01 mA or 0.01% O ₂
Accuracy (0.1—25%)	< 0.25% vol. O ₂ (typical) ^b
Response time (T90)	< 30 seconds
Repeatability	< 0.25% vol. O ₂

Operating Conditions

Electronics	
Ambient temperature	-20 to +55°C (-4 to +131°F)
Ambient relative humidity	0-95% RH
Gas composition	Combustion gas from natural gas, biogas or oil
Sample gas temperature^a	+700°C (1292°F)
Sample gas flow rate	4m/s minimum recommended
Compensated pressure	750—1260mbar absolute

NOTES

- a) Temporary excursions up to 750°C for 30 minutes will not damage the probe.
 b) Refer to *UGA User Guide* for conditions.

Electrical Input / Output

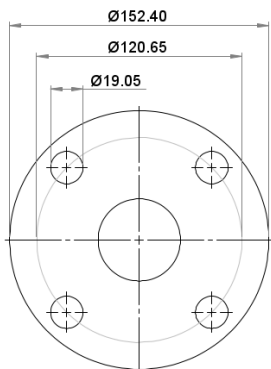
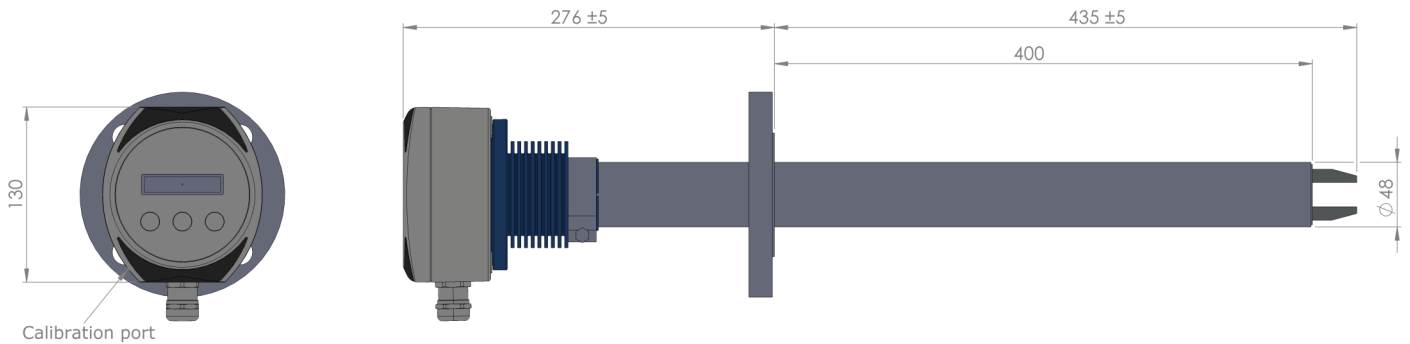
Power supply	24V _{DC} ±10% Limited Power Supply
Power consumption	700mA maximum @ 24V _{DC}
Analog outputs	Single or Dual 4—20mA
Output ranges (oxygen)	0—25% vol. O ₂
Output ranges (pressure)	750—1260mbar absolute
Relays (SPST, N/O as std.)	1 x system alarm (SPST) 1 x user configurable O ₂ set point alarm
Digital communications	RS485 Modbus RTU protocol
Display	16 character, 2-line, backlit

Mechanical Specifications

Time to first reading	60 seconds
Stabilisation time to stated accuracy	< 10 minutes
Dimensions	see Outline Dimensions
Calibration port	4mm push-fit connector
Weight:	
Head	1.6kg (3.5lbs)
Probe	3.9kg (8.6lbs)
Wetted materials	Stainless steel, Macor®, PTFE, aluminium, platinum, aluminium oxide, zirconium dioxide
Process connection	2" 150lbs ANSI flange
Gasket material	Milam PSS 1.3mm thick (supplied)
Housing material	Painted aluminium
Ingress protection	IP65

OUTLINE DIMENSIONS

All dimensions shown in mm. Tolerances = ±1mm.



Flange profile to match ANSI Class 150 lb.

Nominal pipe size	2"
External diameter	152.40 (6.000")
PCD	120.65 (4.750")
Flange thickness	19.05 (0.750")
No. of holes	4
Bolt hole diameter	19.05 (0.750")

NOTE: The flange is NOT pressure retaining.

ORDER INFORMATION

Part Number	Output Measurement
UGA-B0	Single analogue output; 0—25% O ₂
UGA-B2	Dual analogue outputs; 0—25% O ₂ and gas pressure (750—1260mbar)

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.
Do NOT use chemical cleaning agents.

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

INFORMATION

All sensors are tested at ambient environmental conditions unless otherwise stated. As customer applications are outside, 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.

General Note: Reserves the right to make changes to product specifications without notice or liability. All information is subject to our own data and considered accurate at time of going to print.

