

Process Oxygen Analyzers

GPR-2800 Series

The GPR-2800 series of process oxygen analyzers allows measurements of 0-1 up to 0-25% O₂ in hazardous areas. Combined with our modular sample system, the gas analyzer will suit most installations for demanding oxygen analysis and will meet the needs of process customers around the world. Analytical Industries' proprietary long-life oxygen sensor technology allows a maintenance-free sensor operation of up to 32 months for low cost of ownership. The industry-proven and well recognised electrochemical gas sensor quality ensures the reliability of oxygen content measurements even at high carbon dioxide background..



Highlights

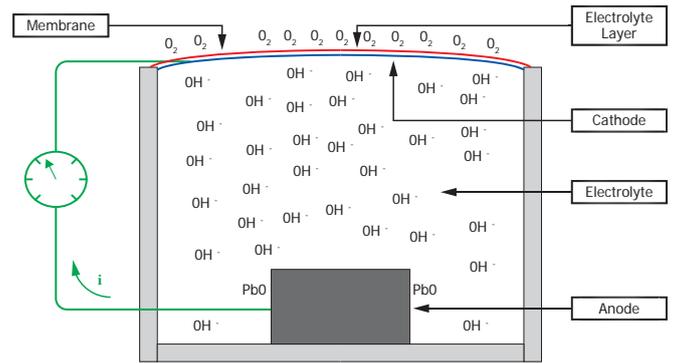
- UL or ATEX certified for use in hazardous areas
- Four measurement ranges 0-1%, 0-5%, 0-10% & 0-25% O₂
- Low maintenance with an average sensor life of up to 32 months (for GPR sensor)
- Sample in CO₂ backgrounds with XLT sensor
- Easy to use HMI
- Optional Modbus communications
- Optional liquid drain option for removing entrained liquids

Applications

- Blanket gas monitoring in hydrocarbon storage tanks
- Biogas monitoring (for safety)
- Monitoring the quality of gas used to fuel furnaces and burners in landfill sites
- Sewage sludge drying
- Landfill gas/biomethane monitoring
- Ambient monitoring for personnel safety

Sensor Technology

The sensors from AII have been designed to avoid potential weaknesses common in typical galvanic cell design. Our materials, construction and assembly methods have been continuously refined over decades. Each sensor type has been specifically engineered to provide the optimum balance between performance and longevity for individual applications. The result is confidence in the measurement and low maintenance. In the absence of oxygen, the sensor will produce zero output and the sensor is linear up to 100%, therefore only a span calibration is required in most cases (see graph).



Sensor Construction



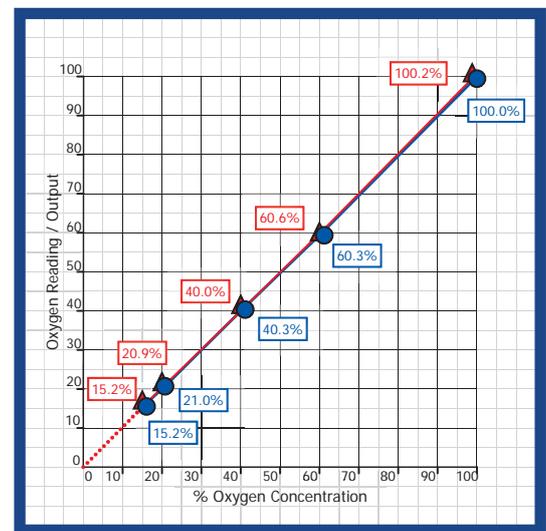
The Analytical Industries' XLT sensor

For applications with a background gas containing more than 0.5% CO₂, the specially designed XLT sensor should be selected. With most standard electrochemical sensors an alkaline electrolyte is used and this is neutralised over time when exposed to acidic gases, such as CO₂. To combat this, AII developed the XLT sensor with a special electrolyte formula which has the added benefit of being able to operate in temperatures as low as -10°C.

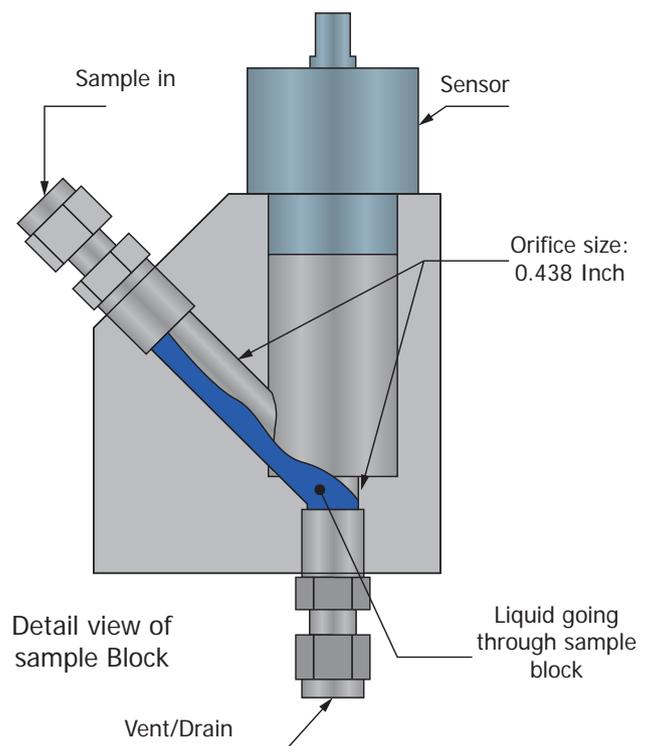
Liquid Drain

Samples (such as biogas) with entrained liquids can damage the sensor and cause analyzer and system upset. With the proprietary Analytical Industries' Liquid Drain System the problem can be easily handled. The sample gas enters the system from the top of the panel and flows down towards the sample block. The unique design allows the gas present in the sample to diffuse up to the sensor, while the unwanted liquids will flow out the vent/drain, protecting the sensor from liquid damage.

Note: This feature may impact the response time but is comparable to other sample systems designed to remove liquid carry over. Users selecting the Liquid Drain System are effectively protecting their process and reducing the cost of ownership and maintenance costs.



Typical sensor output



GPR-2800 IS (LD)

Analytical Industries GPR-2800 IS is a 24V loop powered transmitter designed to measure percentage levels of oxygen in process applications. The unit is supplied as standard with a flowmeter and needle valve with the option of adding our modular sampling system or Liquid Drain (LD) system for samples with entrained liquids.

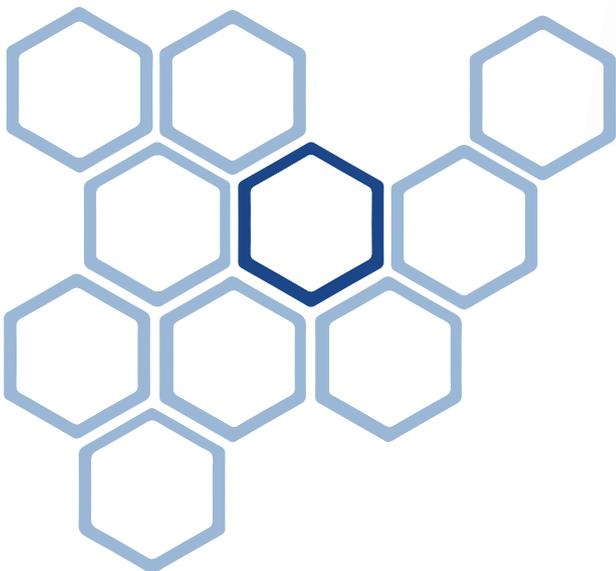
Ranges: 0-1%, 0-5%, 0-10% & 0-25% O₂



GPR-2800 AIS (LD)

Model GPR-2800 AIS is an analyzer that offers temperature and an additional barometric pressure compensation as well as two user configurable alarm relays. The standard signal output of 4-20 mA can be substituted with a 1-5V output. Other options are Modbus RTU communications (24V version only) and the ability to be mains powered.

Ranges: 0-1%, 0-5%, 0-10% & 0-25% O₂



Technical Specifications

	GPR-2800 IS	GPR-2800 AIS	GPR-2800 AIS LD	GPR-2800 IS LD
Measurement range	0-1%, 0-5%, 0-10% & 0-25% O ₂			
Accuracy	< 2% of selected range at constant conditions			
Response time	T90 < 10 seconds			
Sensitivity (LDL)	0.05%			
Linearity	<1% of scale			
Sensor model	GPR-11-32 XLT-11-24 for gases containing > 0.5% CO ₂		GPR-11-32-LD XLT-11-24-LD for gases containing > 0.5% CO ₂	
Sensor life at 25°C (77°F) and 1 atm	GPR sensors: 32 months in air XLT sensors: 24 months in air			
Calibration interval	30 days			
Operating temperature	GPR sensor: 5°C to 45°C (41°F to 113°F) XLT sensor: -10° to 45°C (14°F to 113°F)			
Inlet pressure	0.34-2 barg (5-30 psig) with atmospheric vent			
Flow rate	0.5-1.0 NI/m (1-2 SCFH)			
Gas connections	1/8" compression tube fittings		1/4" compression tube fittings	
Wetted parts	316 Stainless steel			
Display	Graphical LCD 7 x 3.5cm (2.75 x 1.375"); resolution 0.001%			
Enclosure	NEMA Type 3R suitable for rain in outdoor applications (UL) NEMA 4x (ATEX)			
Compensation	Temperature			
Signal output	4-20 mA	4-20mA or 1-5V DC		4-20mA
Communications	Optional Modbus RTU (AIS - 24 V models only)			
Alarms	None	Two user configurable alarms: magnetic coil relays rated 3A at 100 V AC		None
Power	18-24 V DC (IS models) 12-28 V DC or 110-220 V AC (AIS models)			
Area classification	UL: Class I, Division 1, Groups C and D ATEX: Ex II 2 G Ex d [ib] ib IIB T4 Gb T _{amb} -20°C to +50°C			

Related products

Trace Oxygen Process Analyzers

A range of analyzers sharing the same platform as the process analyzers for measuring PPM oxygen concentrations.



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Please note: Analytical Industries Inc. adopts a continuous development program which sometimes necessitates specification changes without notice. Please contact us for the latest version. Issue No: Process Oxygen Analyzers_partnumber_V2_UK_1018