

# Trace Oxygen Analyzer for Process Industries

## **GPR-1800 IS, GPR-1800 AIS**

The GPR-1800 series of intrinsically safe trace oxygen analyzers are designed for use in demanding process environments where the low detection limit down the AII's industrial oxygen sensors can be well utilized. Typical for Analytical Industries gas analyzers, they are simple to use as well as easy and cost-effective to maintain thanks to the use of their maintenance-free galvanic oxygen sensors. The innovative liquid drain manifold, which is available as an option, protects and extends the sensor's life span in processes where liquids may be present in the sample gas.



### **Highlights**

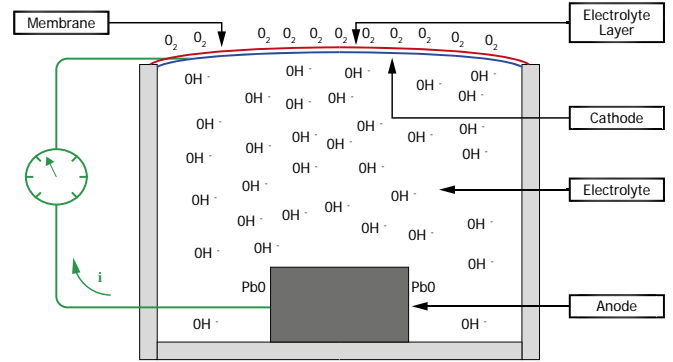
- Four measurement ranges provided
- LDL of 50 ppb
- Measures in CO<sub>2</sub> with XLT sensor
- Sensor life of up to 24 months
- Simple, intuitive HMI
- Barometric pressure and temperature compensation
- Two user configurable alarms
- Optional Modbus
- Range of sampling options available

### **Applications**

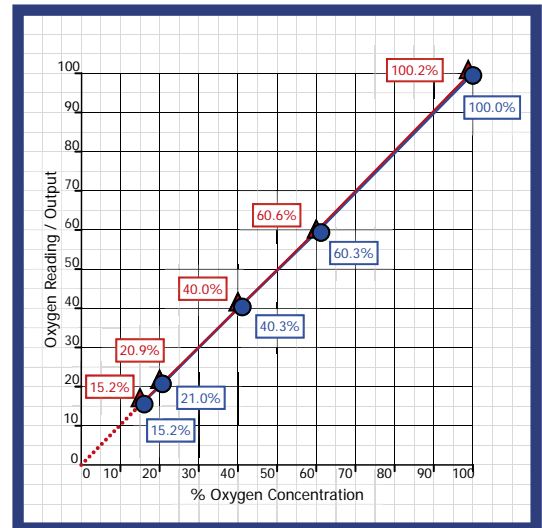
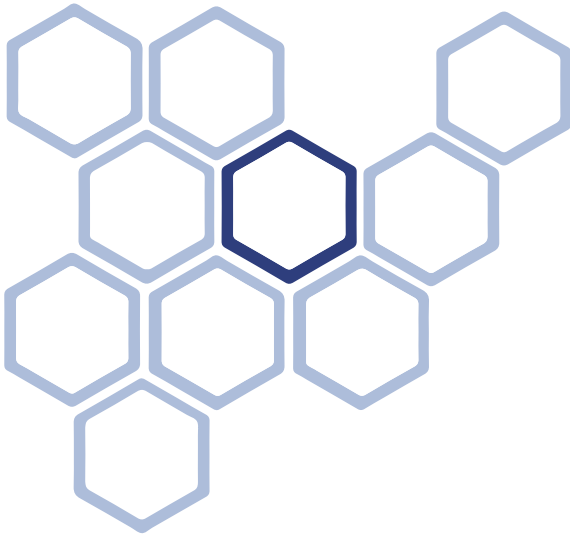
- Monitoring blanketing gas for storage or transport of hydrocarbons
- Monitoring the quality of transmission natural gas
- Pharmaceutical reactor and centrifuge safety

## 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



Typical sensor output

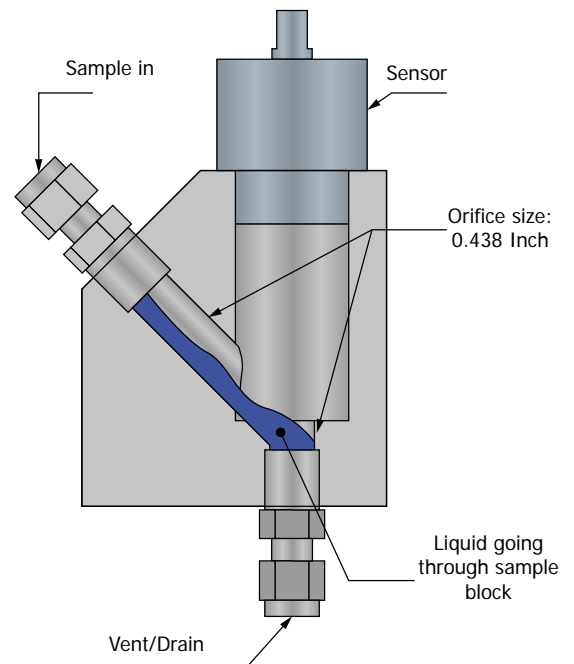
## The Analytical Industries' XLT sensor

For applications with a background gas containing more than 0.5% CO<sub>2</sub>, 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 CO<sub>2</sub>. 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.

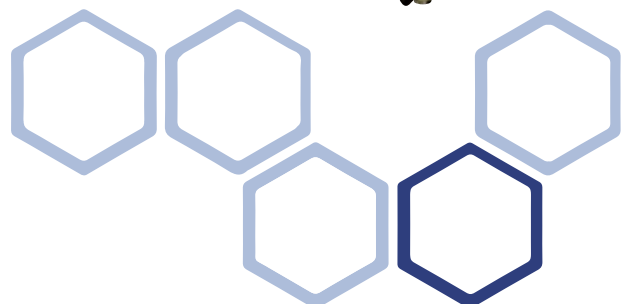


## GPR-1800 IS

A 4-20 mA loop powered ppm O<sub>2</sub> transmitter, with sampling system, designed to detect trace oxygen in natural gas and process applications. The analyzer is fully certified for use in hazardous areas and can be supplied with our modular sampling system. Also available with an optional liquid drain manifold to protect the sensor from damage by entrained liquids.

## GPR-1800 AIS

In addition to the features offered with the GPR-1800 IS, the GPR-1800 AIS and AIS-LD provides two user-configurable alarms, barometric pressure and temperature compensation and the option AC power supply. A Modbus output is available with the 24 V DC powered version.



## Technical Specifications

	GPR-1800 IS	GPR-1800 AIS
Measurement range	0-10, 0-100, 0-1000 ppm, 0-1%, 0-25% (for calibration only)	
Accuracy	< 2% of selected range at constant conditions	
Response time	T90 < 10 seconds T90 < 2 minutes (for Liquid drain models)	
Sensitivity (LDL)	0.05 ppm	
Linearity	<1% of scale	
Sensor model	GPR-12-333 or GPR-12-333-LD XLT-12-333 or XLT-12-333-LD for gases containing > 0.5% CO <sub>2</sub>	
Sensor life at 25°C (77°F) and 1 atm	24 months in < 1000 ppm O <sub>2</sub>	
Calibration interval	30 days	
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 (with liquid drain option)	
Wetted parts	Stainless steel	
Display	Graphical LCD 7 x 3.5cm (2.75 x 1.375"); resolution 0.01 ppm	
Enclosure	UL: NEMA Type 3R ATEX: NEMA 4x	
Compensation	Temperature	Barometric pressure and temperature
Signal output	4-20mA Loop current	4-20 mA or 1-5V
Communications	NA	Optional Modbus RTU (AIS 24 V version only)
Alarms	NA	Two user configurable alarms: magnetic coil relays rated 3A at 100 VAC
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)	
Power	18-24 V DC 2wire loop power	12-28 V DC or 110-220 V AC
Liquid Drain	Liquid Drain option available for both models	
Approvals	cUL <sub>US</sub> : Class I, Division 1, Groups C & D DC Powered only  T <sub>amb</sub> -20° to +50°C ATEX: II 2 G Ex d [ib] ib IIB T4 Gb	



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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: Trace Oxygen Process Analyzers\_partnumber\_V2\_UK\_1018