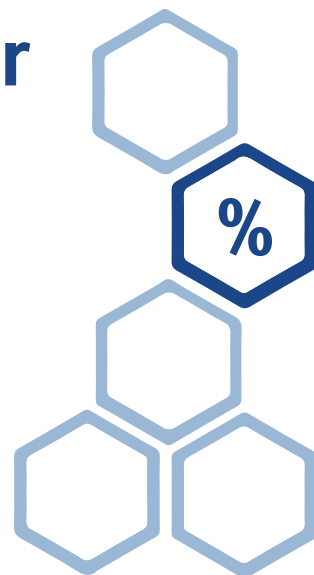


# UL and ATEX-Rated O<sub>2</sub> Analyzers For Natural Gas

## **GPR-1500 Series**

The GPR-1500 series of intrinsically safe trace oxygen analyzers are designed for use in the demanding environments of natural gas extraction, processing and transmission. Like all products from AII, they are simple to use as well as easy and cost-effective to maintain. The innovative liquid drain manifold available with the LD models protects and extends the sensor's life span in processes where liquids may be present in the sample gas.



### **Highlights**

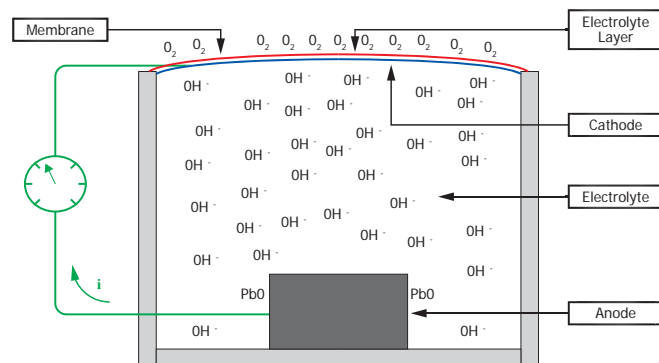
- Four measurement ranges provided
- LDL of 50 ppb
- Measures in CO<sub>2</sub> backgrounds with XLT sensor
- Sensor life of up to 24 months
- Simple, intuitive HMI
- Optional Modbus
- Range of sampling options available

### **Applications**

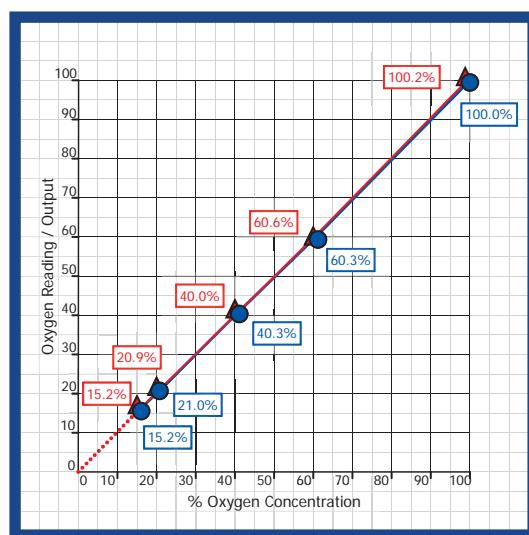
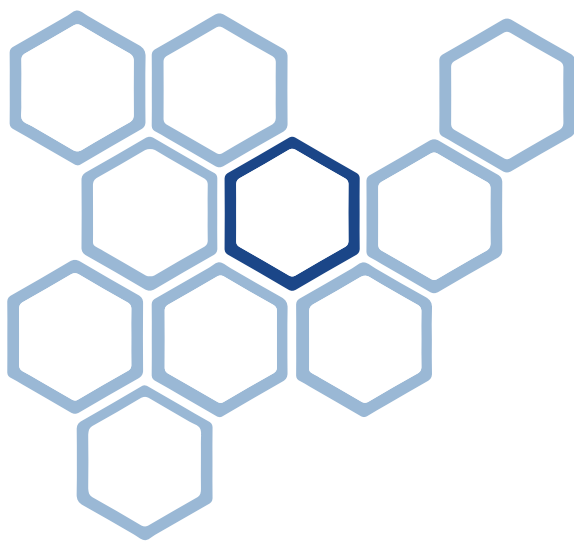
- Sub-atmospheric: system integrity and VRU systems
- Gas gathering: incoming gas quality, compression equipment & pipeline integrity
- Gas processing: incoming gas quality and catalyst bed poisoning
- Transmission: pipeline corrosion and safety
- Custody transfer: gas quality and safety

## 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

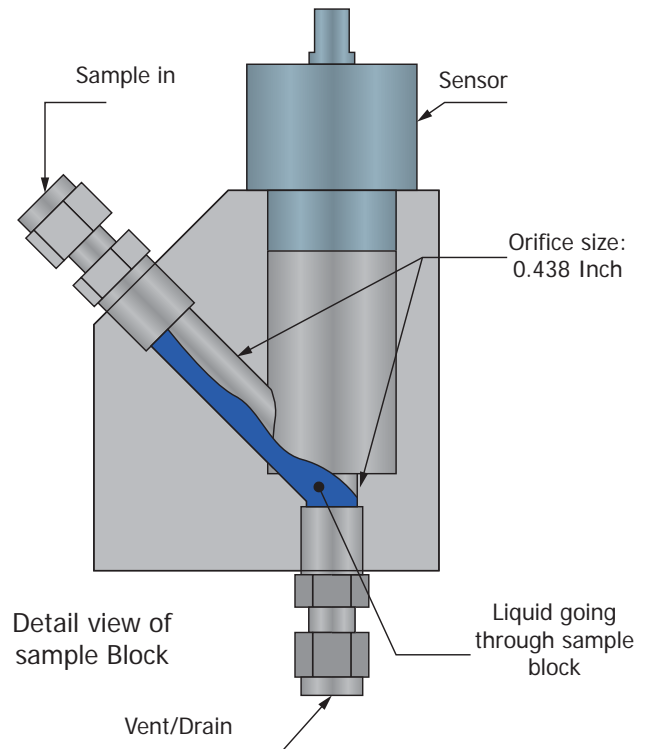
## The Analytical Industries' XLT sensor

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-1500 IS

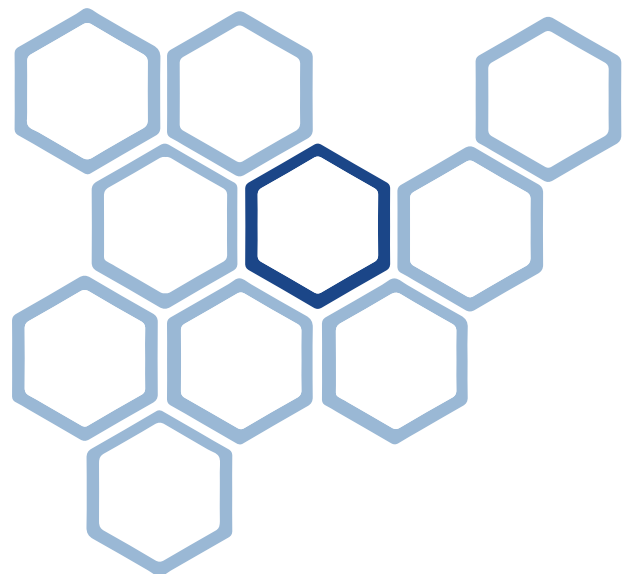
A 4-20 mA loop powered ppm O<sub>2</sub> transmitter, with sampling system, designed to detect trace oxygen in natural gas and process applications. The analyzer is fully certified for use in hazardous areas and can be supplied with our modular sampling system. Alternatively the Liquid Drain (LD) model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

## GPR-1500 AIS

All the features of the GPR-1500 IS, with the addition of two user-configurable alarms and the option to mains power the analyzer. Modbus is available with the 24 V DC powered version.

## GPR-1500 DK

This model has all the basic features of the GPR-1500 IS, but without the panel and extra Exd enclosure. Instead the flow-meter, needle valve and isolation/bypass valve are attached to the side the instrument on a small panel. The bypass valve allows the user to trap low levels of oxygen in the sensor to protect and prolong its life when not in use.



## Technical Specifications

GPR-1500 DK / GPR-1500-IS/AIS	
Measurement range	0-10, 0-100, 0-1000 ppm, 0-1% (0-25%)
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	XLT-12-333 or XLT-12-333-LD suitable for gases containing > 0.5% CO <sub>2</sub> Optional: GPR-12-333 or GPR-12-333-LD
Sensor life at 25°C (77°F) and 1 atm	24 months in < 1,000 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 (for DK and LD models)
Wetted parts	Stainless steel
Display	Graphical LCD 7 x 3.5cm (2.75 x 1.375"); resolution 0.01
Enclosure	UL: NEMA Type 3R
Compensation	Temperature Barometric pressure and temperature (AIS model only)
Signal output	4-20 mA Loop current 4-20 mA or 1-5V (AIS model only)
Communications	Optional Modbus RTU (AIS 24 V version only)
Alarms	2 off user configurable alarms: Magnetic coil relays rated 3A @ 100 VAC (AIS model only)
Operating temperature	XLT Sensor: -10° to 45°C (14°F to 113°F) GPR sensor: 5°C to 45°C (41°F to 113°F)
Power	18-24 V DC 2-wire loop power 12-28 V DC or 110-220 VAC (AIS model only)
Approvals	cUL <sub>US</sub> : Class I, Division 1, Groups C & D DC powered version only  ATEX II 2 G Ex d [ib] ib IIB T4 Gb T <sub>amb</sub> -20° to +50°C



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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: UL-Rated O<sub>2</sub> Analyzers For Natural Gas\_partnumber\_V2\_UK\_1018