Analytical Industries Inc

Premium Portable Oxygen Analyzers

GPR-1200 & GPR-3500

Analytical Industries offer portable oxygen analyzers for applications where trace oxygen or gas purity must be controlled at defined measurement points using advanced high accuracy instruments. The Model GPR-3500, packaged in a compact yet rugged enclosure, with stainless steel wetted parts, integrated flow meters and needle valves, offers purity measurement for inert gases, carbon-dioxide and oxygen. Customers who use the GPR-1200 compact portable oxygen analyzer value the 4-way valve that allows a gas sample to be trapped in the sensor for faster oxygen measurement times when moving from point to point. This feature also effectively helps to protect trace oxygen sensors from premature depletion due to exposure to ambient oxygen levels. Longer sensor life-times allow very economical operation and low cost of ownership for this market leading portable oxygen analyzer range.

Highlights

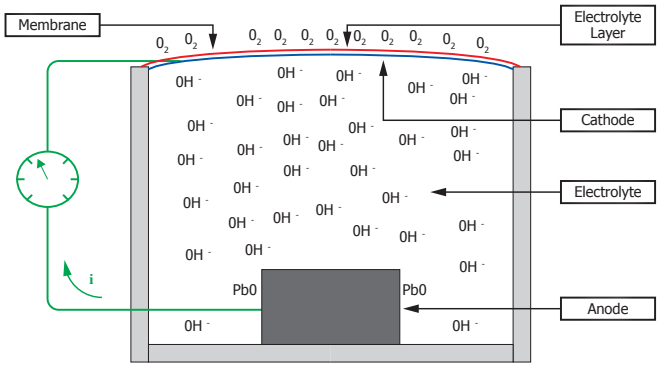
- Measurement ranges from 0-10 ppm up to 0-100% O_2
- Accuracy of better than 2% of range
- 24-32 months sensor life span (in normal use).
- Up to 30 days battery life
- Internal pump option
- 0-1V output
- XLT sensor options for CO_2 backgrounds
- Rugged industrial enclosures

Applications

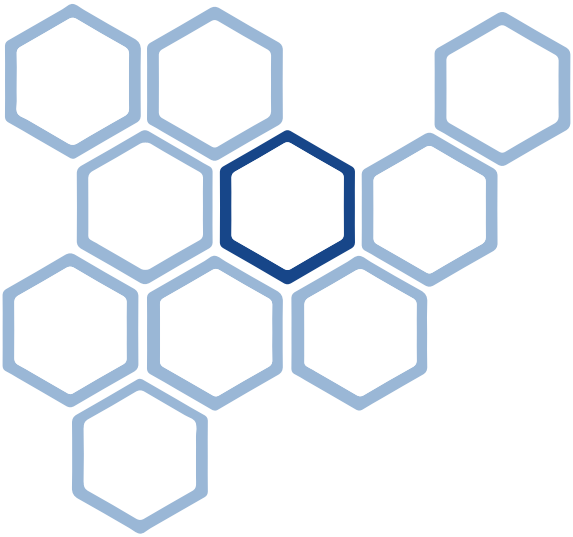
- Servicing oxygen and nitrogen generators
- Spot checks of oxygen in tankers during delivery
- Semi-conductor pipeline validation
- Headspace checks in fermenters and brew tanks
- Leak checking processes

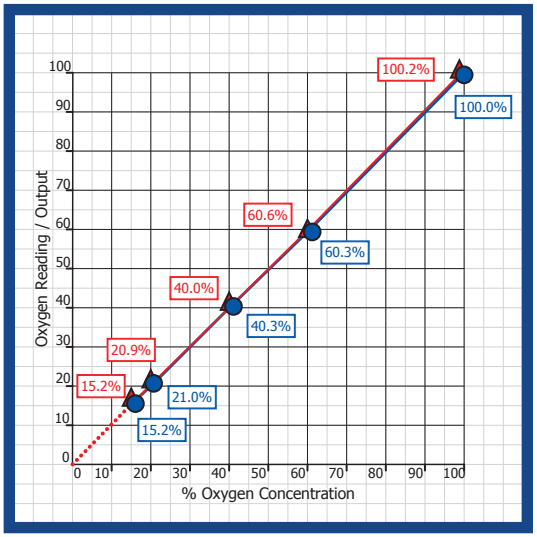
Sensor Technology

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_2, 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_2. 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.

Options available across the range:

- Carry case for safe transportation
- Coalescing filters and sampling accessories
- ATEX versions available for GPR-1200 variants

GPR-1200 MS-2 (ATEX)

Designed for spot-checking ultra-high purity gases, the GPR-1200 MS-2 has a range of 0-1 ppm and LDL of 5 ppb O_2 – the lowest oxygen measurements available with a portable instrument. ATEX-approved version available.

Ranges available: 0-1, 0-10, 0-100 & 0-1,000 ppm O_2

GPR-1200 (ATEX)

The standard low ppm portable oxygen analyzer offers a range of 0-10 ppm and an LDL of 50 ppb O_2, with the option of the XLT sensor for measuring in CO_2 backgrounds, and an internal sample pump. ATEX approved version available.

Ranges available: 0-10, 0-100, 0-1,000 ppm, 0-1% & 0-25% O_2

GPR-3500 MOVR

For measuring 0-100% oxygen in general purpose areas, this analyzer offers temperature compensation and is supplied with an integral pressure regulator. The LDL is 0.5% O_2 and can be enhanced with a zero calibration).

Range Available: 0-100% O_2

For the full selection of all portable oxygen analyzer models offered by Analytical Industries Inc. please see our portables and hand-held data sheets available on www.aii1.com as well as the related instrument section at the end of this document.

Technical Specifications

	GPR-1200 MS-2	GPR-1200	GPR-3500 MOVR
Measurement range	0-1, 0-10, 0-100, 0-1000 ppm	0-10, 0-100, 0-1000 ppm, 0-1% 0-25%	0-100%
Accuracy	< 3% or 10 ppb (whichever is greater) at constant conditions	< 2% or 0.2 ppm (whichever is greater) at constant conditions	< 2% at constant conditions
Response time	T90 <10 seconds		T90 <13 seconds
Sensitivity (LDL)	5 ppb	0.05 ppm	0.1%
Linearity	< 1% of scale		
Sensor model	GPR-12-2000MS-2	GPR-12-333 XLT-12-333 for gas mixture with > 0.5% CO_2	GPR-11-120-OP
Sensor life at 25ºC (77°F) and 1 atm	24 months in < 100 ppm O_2	24 months in < 1000 ppm O_2	24 months in 100% O_2
Calibration interval	30 days		
Inlet pressure	0.34 – 2 barg (5-30 psig) with atmospheric vent		248.2 barg (3600 psig) with atmospheric vent
Flow rate	0.5 - 1.0 Nl/m (1-2 SCFH)		
Gas connections	1/8" compression tube fittings 1/4" compression tube fitting on outlet (GPR-3500-MOVR)		
Wetted parts	Stainless steel		
Display	Graphical LCD 7 x 3.5cm (2.75 x 1.375")		
Resolution	0.001 ppm	0.01 ppm	0.1 %
Enclosure	Painted aluminum NEMA 4X, 21.8 x 22.9 x 7.6cm (8.6 x 9 x 3")		
Weight	5.4kg (12lbs)		
Compensation	Barometric pressure and temperature		
Signal output	0-1V		
LED indicators	LOW BATT (72 hr. warning); CHARGE mode		
Operating temperature	GPR sensor: 5°C to 45°C (41°F to 113°F) XLT sensor: -10°C to 45°C (14°F to 113°F)		
Power	Rechargeable battery (lead acid)		
Battery life	Up to 30 days on a single charge (40 hours with pump running, if fitted)		
Area classification	General purpose (safe area)		General purpose only
	ATEX: Ex II 2 G Ex ib IIC T4 Gb T_{amb}: 5°C to +45°C		

Related instruments:

Portable oxygen analyzers

Suitable for trace oxygen measurements from 0.1 ppm through to purity applications at 100% oxygen, these rugged portable instruments share the same advanced sensor technology as the online process oxygen analyzers ensuring confidence in their reliability and accuracy.

Handheld devices

Compact and convenient handheld analyzers to measure oxygen concentrations for welding, diving and personnel safety applications.

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