Analytical Industries Inc

Process Oxygen Analyzers (Exd)

GPR-18 Series and GPR-28 Series

Explosion-proof oxygen analyzers for petrochemical industry processes containing hydrogen and other flammable gases. This trace and percent oxygen analyzer is supplied in a rugged Exd enclosure and, when supplied with flame arrestors, this oxygen meter is suitable for hazardous areas. The oxygen sensitivity of the field-proven electrochemical sensor allows it to measure oxygen from as low as 0-1 ppm up to 0-25% O_2.

Highlights

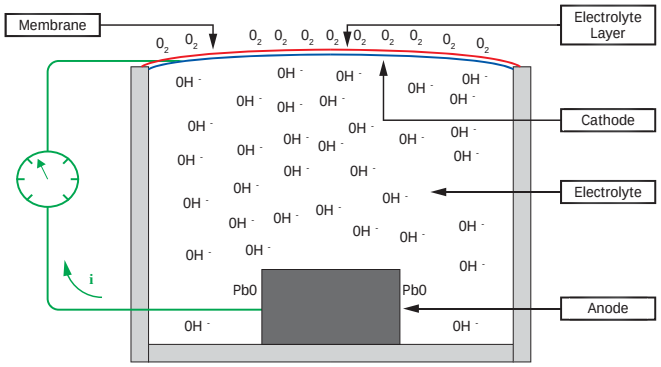
- High quality galvanic sensor technology
- Long sensor life 24 to 36 months for low maintenance
- No need for frequent electrolyte top-up
- Excellent stability
- Accuracy ±2% of selected range
- Sensitivity < 0.5% of range
- 4 standard measurement ranges
- Flame arrestors fitted (standard)

Applications

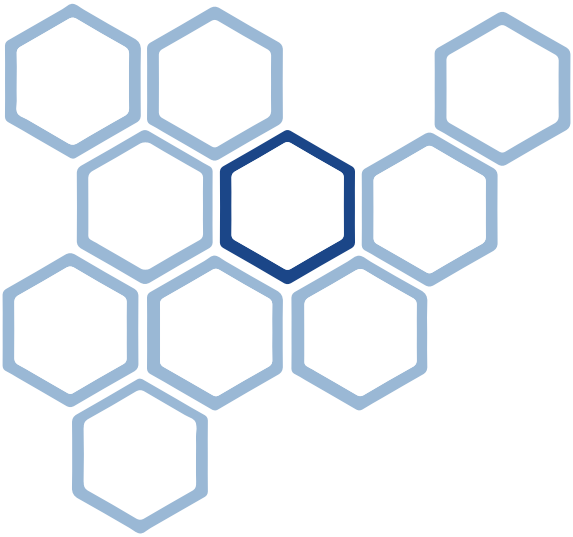
- Ensuring natural gas quality
- Hydrocarbon feedstock monitoring
- Ethylene pipeline quality
- Petrochemical catalyst monitoring
- Sodium benzoate production

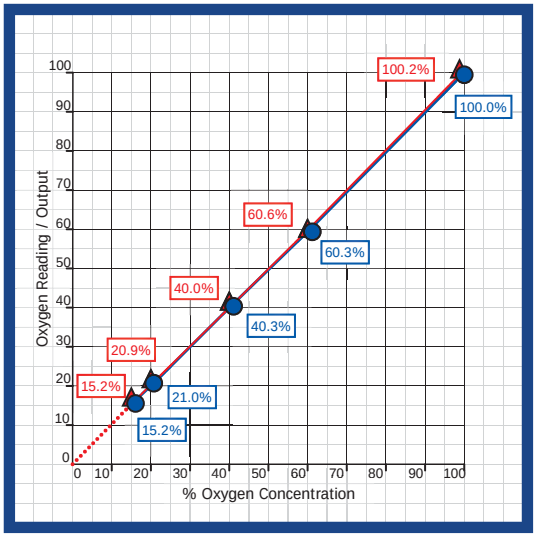
Sensor Technology

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.

GPR-18 (ATEX)

For the majority of trace measurements containing hydrogen the GPR-18 oxygen analyzer is the best choice. With an LDL of 500 ppb O_2 and the ability to be easily calibrated with air this oxygen analyzer is suitable for most applications. For measurements in higher carbon dioxide concentrations the XLT sensor can be used. Available in two enclosures: UL certified or ATEX certified.

Ranges available: 0-10, 0-100, 0-1000 ppm & 0-1% O_2.

(0-25% range is purely for calibration purposes.)

Model for UL Class 1 Division 1

GPR-18 MS-2 (ATEX)

If the majority of measurements are expected to be below 1 ppm O_2 the GPR-1800 MS is the right oxygen analyzer. Available with the same features and options like the proven GPR-1800 in either UL or ATEX certified enclosures.

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

GPR-28 (ATEX)

For percentage level oxygen measurement, choose the GPR-28. With an LDL of 50 ppm O_2 and the ability to be calibrated with air this unit is suitable for most air-ingress applications. For measurements in higher carbon dioxide concentrations the XLT sensor can be used.

Ranges available: 0-1, 0-5, 0-10 & 0-25% O_2.

Model for ATEX II 2 G

Technical Specifications

	GPR-18 MS-2	GPR-18	GPR-28
Measurement range	0-1 ppm, 0-10, 0-100 ppm & 0-1000 ppm	0-10 ppm, 0-100, 0-1000 ppm & 0-1% (0-25% for calibration only)	0-1%, 0-5%, 0-10% & 0-25%
Accuracy	< 2% of selected range at constant conditions		
Response time	T90 < 20 seconds	T90 < 10 seconds	
Recovery time	O_2 Level: Air Duration: 30 Sec O_2 Target:10 ppm Recovery on N_2: 45 minutes	O_2 Level: Air Duration: 2 minutes O_2 Target:10 ppm Recovery on N_2: 60 minutes	O_2 Level: Air Duration: 30 sec O_2 Target: 0.1% Recovery on N_2: 30 seconds
Sensitivity (LDL)	< 0.5% of range		
Linearity	< 1% of scale		
Sensor model	GPR-12-2000MS-2	GPR-12-333 XLT-12-333 (> 0.5% CO_2 present)	GPR-11-32 XLT-11-24 (> 0.5% CO_2 present)
Sensor life at 25°C (77°F) and 1 atm	36 months; average O_2 < 100 ppm	24 months; average O_2 < 100 ppm	GPR-11-32 32 months in air; XLT-11-24 24 months in air
Calibration interval	1-3 months		
Inlet pressure	0.34-2 barg (5-30 psig), max 100 psig; with atmospheric vent		
Flow rate	0.5-1.0 Nl/m (1-2 SCFH)		
Gas connections	1/8" or 1/4" compression tube fittings		
Wetted parts	Stainless steel		
Display	3½ digit bright red LED; resolution 0.01 ppm GPR-18, 0.001 PPM GPR-18MS2, 0.001% GPR-28		
Enclosure - UL	Aluminum 30.4 x 29.2 x 26.7cm (12 x 11.5 x 10.5") wall mount, 22.7kg (50lbs)		
Enclosure - ATEX	Aluminum 40.6 x 45.7 x 27.9cm (16 x 18 x 11") wall mount, 31.8kg (70lbs)		
Compensation	Temperature		
Signal output	4-20 mA isolated and 0-1V		
Alarms	2 adjustable form C relay contacts non-latching; sensor and power failure		
Operating temperature	5°C to 45°C (41°F to 113°F)	GPR Sensor: 5°C to 45°C (41°F to 113°F) XLT Sensor: -10° to 45°C (14°F to 113°F)	
Power	100/120 or 220/240 V AC		
Certifications	Conforms to UL: Class 1, Division 1, Groups B, C, D NEMA4/7 hazardous areas (enclosures only) ATEX: EExd d IIB+H_2 T6		

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