Analytical Industries Inc

Analyzers for Ultra High Purity Gases

PI2-UHP 50/100 and PI2-MS 500/1000

PPM

Based on our second generation of Pico-Ion oxygen sensors, the PI2 range of trace oxygen analyzers provides accurate and stable measurements of oxygen down to low parts per trillion. Offering low cost of ownership through minimal maintenance with high-performance and an easy to operate HMI.

Highlights

- Measuring trace O_2 in ultra-pure Ar, H_2, He and N_2
- LDL to less than 100 ppt
- Low cost of ownership
- User friendly and easy to operate and maintain
- Fast recovery from process upsets
- Integrated bypass sample system as standard
- Optional auto calibration system with true zero feature via O_2 scrubber

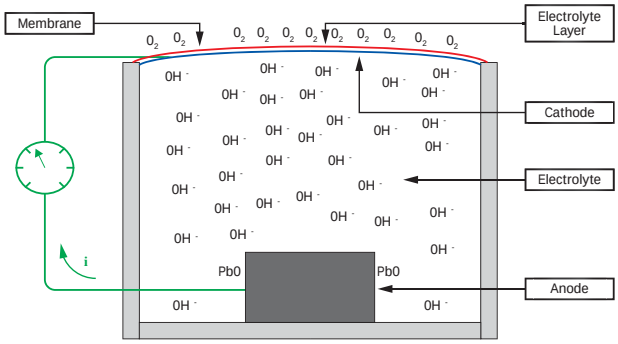
Applications

- Quality checking of ultra-high purity gases produced by cryogenic air separation
- Validating high purity gases used in electronics and semi-conductor manufacture
- Commissioning UHP gas lines and processes

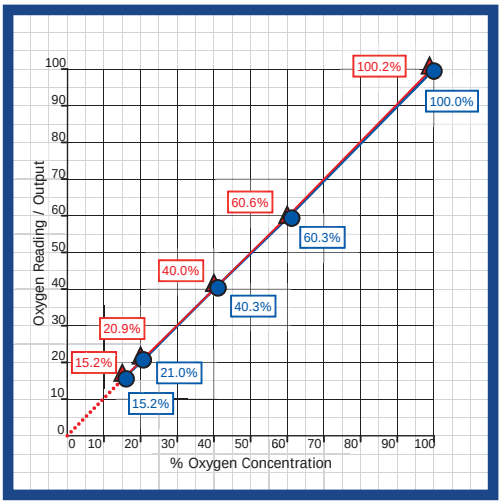
Second generation, no-maintenance Pico-Ion sensor technology

A high-performance, low ppb oxygen sensor with stable output requiring no maintenance or frequent electrolyte additions. The innovative design of the gas chamber maximizes the rate of oxygen reaction while the refined proprietary sensor design provides a high signal output per unit area to enhance sensitivity as well as a significantly higher output. Further advantages are:

- Lower detectable limit (LDL) of less than 100ppt
- High signal to noise ratio
- Excellent stability
- Response time of less than 15 seconds
- Minimizes the temperature dependence
- Fast recovery from higher oxygen levels during process upset conditions
- Approximately 12 months of continuous use



Sensor Construction



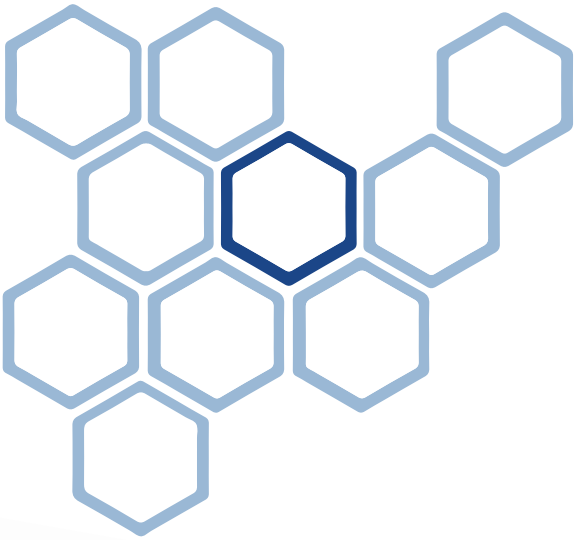
Typical sensor output

Recovery time

	O_2 Level	Duration	O_2 Target	Recovery on N_2
PI2-MS 1000 PI2-MS 500	9 ppm	2 minutes	10 ppb	10 minutes
	Air	30 seconds	1 ppm	45 minutes
PI2-UHP 100 PI2-UHP 50	9 ppm	1 minute	10 ppb	15 minutes
	9 ppm	1 minute	1 ppb	60 minutes

Simple, intuitive HMI

The analyzer is operated by proprietary easy-to-use menu-driven software and a large graphical LCD with four control keys. The analyzer can be operated remotely via USB, RS232 or RS-485 and allows the operator to obtain the data, change settings, calibrate and diagnose the instrument.



Technical Specifications

	PI2-MS 1000	PI2-MS 500	PI2-UHP 100	PI2-UHP 50
Measurement range	0-1, 0-10, 0-100, 0-1000 ppm	0-0.5, 0-1, 0-10, 0-100, 0-1000 ppm	0-100 ppb, 0-1, 0-10, 0-100 ppm	0-50, 0-100 ppb, 0-1, 0-10 ppm
Accuracy	< 3% of reading or ±5 ppb at constant conditions		±3% of reading or ±0.5 ppb at constant conditions	
Response time	T90 <15 seconds			
Recovery time	See separate table on inside pages			
Sensitivity (LDL)	< 5 ppb	< 2.5 ppb	< 250 ppt	< 100 ppt
Linearity	< 1% of scale			
Sensor	GPR-12-2000 MS-2	GPR-12-2000 MS-2E	GPR-13-2000 UHP-2	GPR-13-2000 UHP-2E
Sensor life at 25ºC (77°F) and 1 atm	12 months (Up to 24 months for the MS versions)			
Calibration interval	30 days			
Inlet pressure	1.4-3.4 barg (20-50 psig) with atmospheric vent, max 10.3 barg (150 psig)			
Flow rate	0.5 - 1.0 Nl/m (1-2 SCFH)			
Gas connections	1/4" compression tube fittings		Inlets: 1/4" face seal fittings; Vent and pneumatic valves: 1/4" compression tube fittings	
Wetted parts	Stainless Steel			
Display	Graphical LCD 12 x 7cm (5 x 2.75"); resolution 0.1 ppb MS version, 0.01 ppb UHP version			
Enclosure	Bench top, painted sheet metal (35 x 25 x 34cm (13.9" x 9.9" x 13.4"))			
	Options: panel or 19" rack mount, wall mount (30.5 x 30.5 x 20.3cm (12" x 12" x 8"))		Bench top Options: panel or 19" rack mounting	
Compensation	Barometric pressure and temperature; heated sample system and sensor housing			
Signal output	4-20 mA isolated, 0-1V and 0-5V			
Range ID	1-5V DC or 4-20mA, optional relay contacts			
Communications	Choice of USB, RS232			
Alarms	2-off user-adjustable alarms form C relay contacts non-latching			
Operating temperature	0° to 45°C (32°F to 113°F)			
Power	100-240 V AC			

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