



Process Oxygen Analyzers

PM700

Paramagnetic analyzers for high purity oxygen with full percent range capability.

Unmatched Performance

Systemtech Illinois has long been recognised worldwide as a leader in oxygen analysis.

Utilizing the well proven magneto-dynamic (dumb-bell) transducer in the PM700, Systemtech Illinois offers the best in class of high performance oxygen analysis. These highly advanced instruments incorporate user-friendly software to provide accurate, reliable results.

Whatever your measuring range, the PM700 series has an analyzer to suit your needs.

Cabinetry & Mounting

Three different configurations to match your needs.

- NEMA 4X / IP66 waterproof and weatherproof
- 19in. rack mount
- Panel or bench mount

Operator Interface /Diagnostics

- User-friendly menu
- Read-only mode available
- Diagnostic capabilities
- Fault alarms

Outputs & Alarm Options

For charting, process control, or remote monitoring

- RS232 / 485
- Analog outputs (three channels)
- High / low alarms
- Fault alarms

Sampling Systems

- Bypass flowmeter
- Pressure regulator
- Sample pump
- Flow alarm

Sensor Selection

Now you can match sensor to application for the best possible reliability and performance.

All Systemtech sensors are easily calibrated to ambient air.

For ISO purposes and in specific applications, traceable calibration gases can be used to meet the most demanding quality assurance programmes.



Contact Details

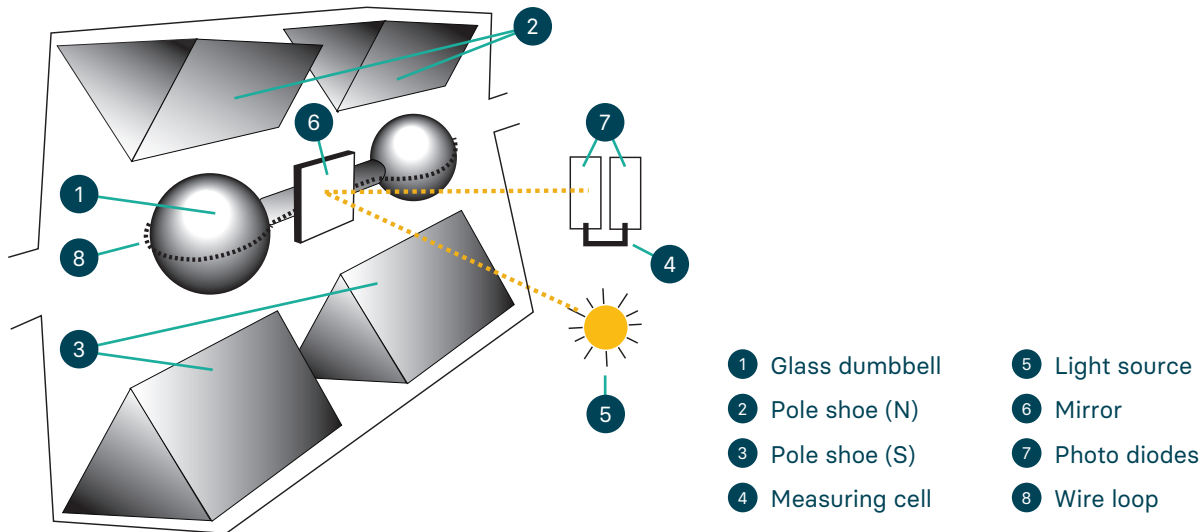
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Principle of Operation

The paramagnetic susceptibility of oxygen is significantly greater than that of other common gases, and for this reason the molecules of oxygen are attracted much more strongly by a magnetic field than the molecules of other gases. Most other gases are repelled by the magnetic field.



The principle of measurement (Faraday's method) is based on a sensor in which a dumbbell comprising two nitrogen-filled spheres is arranged in rotational symmetry within a magnetic field. If the sample gas contains oxygen it is drawn into the magnetic field. The nitrogen inside the glass spheres has the opposite magnetic polarization and is forced out of the field, causing the dumb-bell to rotate.

The degree of rotation is directly proportional to the oxygen concentration. A mirror reflects a beam of light onto a pair of photocells. When the dumb-bell starts to rotate, a potential difference is generated at the photocells. The resulting current is amplified and conducted around the dumbbell through windings. The current flow generates an electromagnetic counter moment which causes the dumb-bell to return to its original position.

The current needed to maintain the dumb-bell in its null position is directly proportional to the oxygen concentration.

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Features & Benefits

- Paramagnetic sensor with PID temperature control for best in class performance
- Optional barometric pressure compensation for purity analysis
- Auto calibration option
- Large autoranging LED display
- Specific to oxygen
- Excellent linearity and accuracy

Applications

Chemical / Petrochemical	Chemical Production High Purity Gas Production Hydrocarbon Refining Natural Gas Transmission
Curing	Electron Beam Ultraviolet
Electronics	Solder Powder Production Semiconductor Furnaces Gas Quality
Metals	Heat Treating / Annealing Steel Production Alloys and Powdered Metals
Pharmaceutical	Inert Packaging Vessel Blanketing Fermentation
Process	Ceramics Combustion Analysis Contact Lens Manufacturing Food Packaging Glass Fibre Optics Inert Gas Welding Lamp Manufacturing Air separation
General	Controlled Environments R & D Glove Boxes Oxygen Deficiency

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Technical Specification

Measurement range	Autoranging from 0.01 to 100% O ₂
Detection limit	0.01% O ₂
Display resolution	2 decimal places (0.01 to 99.99%)
Display type	5 digit High Visibility LED
Response time	90% of reading (T90) less than 6 seconds
Linearity	Better than ±0.1% O ₂
Zero point drift	Better than ±0.1% per week
Repeatability	Better than ±0.03% O ₂
Pressure compensation	Automatic compensation option
Temperature influence at zero	< ±0.05% O ₂ /°F
Temperature influence span	< ±0.20% of measured value /°F
Barometric pressure influence on zero	No influence
Barometric pressure influence span	1% air pressure change causes 1% change in reading without automatic compensation (option)

Operating Conditions

Sample Gas Pressure	0.1 to 5 BarG
Ambient Temperature	14 to 113°F (-10 to +45°C)
Sample Connections	1/8" OD Compression fittings
Communications	RS232/485

Power Requirements

Power Supply	230/115Vac, 50/60Hz at 40VA
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Weights & Dimensions

	Weight (lb)	Width (in)	Depth (in)	Height (in)
PM710 Bench/Panel Mount	18.73	9.33	16.14	7.48
PM720 IP66/NEMA 4X	36.37	14.96	6.3	18.11
PM730 Rack Mount 4U - 19 inch Houses 1 or 2 Analyzers	22.26	19.05	16.14	7

Options

High/Low Alarms	2 volt free changeover contacts. Rated 240V, 3A
Analog Outputs	Scaleable 4-20mA (0-20mA), 0-10V, 0-100mV all isolated
Pressure Compensation	Integrated absolute pressure compensation, 800-1100 mBar
Sample Stream Options	Internal sample pump, Flow alarm, Pressure regulator
Ex-Proof Sensor Housing	Use this option for explosive gas mixtures (e.g. H ₂ , Butane, CO, H ₂ S etc)

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