PM₇₀₀ Process Oxygen Analysers



PM710

Bench/Panel Mount 190H x 237W x 410D (mm) 8.5kg



PM720

IP66/NEMA 4X Wall Mount/Weatherproof 460H x 380W x 160D (mm) 16.5kg



PM730

Rack Mount 4U - 19 inch Houses 1 or 2 Analysers 178H x 484W x 410D (mm) 10.1kg (single unit)

Technical Specifications

Measurement range Autoranging from 0.01 to 100% O₂

Detection limit 0.01% O₂

Display resolution 2 decimal places (0.01 to 99.99%)

5 digit High Visibility LED Display type

Response time 90% of reading (T90) less than 6 seconds

Linearity Better than ±0.1% O₂ Zero point drift Better than ±0.1% per week Better than ±0.03% O₂ Repeatability

Pressure compensation Automatic compensation option

Temperature influence at zero < ±0.05% O₂/°C

Temperature influence span < ±0.20% of measured value /°C

No influence Barometric pressure influence on zero

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** -10 to +45°C

Sample Connections 1/8" OD Compression fittings

Communications RS232/485

Power Requirements

Power Supply 230/115 Vac. 50/60 Hz at 40VA

Options

High/Low Alarms 2 volt free changeover contacts. Rated 240V, 3A **Analogue Outputs** Scaleable 4-20mA (0-20mA), 0-10V, 0-100mV all isolated Integrated absolute pressure compensation, 800-1100 mBar **Pressure Compensation** Sample Stream Options Internal sample pump, Flow alarm, Pressure regulator Ex-Proof Sensor Housing Use this option for explosive gas mixtures (e.g. H₂,Butane, CO, H₂S etc)

Systech Illinois have over 30 years experience of providing analysis solutions for a wide range of industries. From our manufacturing plants in the UK and U.S we produce gas analysers for industrial process industries, headspace analysers for monitoring gas flushing of food products and our range of permeation analysers.

Systech Instruments Ltd (UK) 17 Thame Park Business Centre, Wenman Road, Thame, Oxfordshire OX9 3XA Tel: +44 (0)1844 216838 Fax: +44 (0)1844 217220 E-mail: sales.uk@systechillinois.com E-mail: sales.usa@systechillinois.com Email: sales.ap@systechillinois.com

www.systechillinois.com

Illinois Instruments, Inc (U.S) 2401 Hiller Ridge Road Johnsburg, Illinois 60051 U.S.A Tel: +1 815 344 6212 Fax: +1 815 344 6332

www.systechillinois.com

Illinois Instruments (Thailand) 26/6 Ladprao 23, Jatujak Bangkok 10900 **Thailand** Tel: +66 (0)2030 5851 Fax: +66 (0)2030 5850

www.systechillinois.com

Systech Illinois (China) Room 1107-1108 Forte Building No. 910 Quyang Rd, Hongkou district, Shanghai, China 200437 Tel: +86 21 65533022 Fax: +86 21 65539651 Email: info@systechillinois.cn www.systechillinois.cn

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Paramagnetic analysers for high purity oxygen with full percent range capability



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

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Heat Treating / Annealing Steel Production Alloys and Powdered Metals

Pharmaceutical

Inert Packaging Vessel Blanketing Fermentation

Process

Combustion Analysis Food Packaging Glass Fibre Optics Inert Gas Welding Lamp Manufacturing

General

Controlled Environments R&D **Glove Boxes** Oxygen Deficiency

Unmatched in High Performance On-Line Oxygen Analysis

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

Ceramics Contact Lens Manufacturing Air separation

Sampling Systems

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

Unmatched Performance

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

Utilising the well proven magneto-dynamic (dumb-bell) transducer in the PM700 Systech 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 analyser to suit your needs.

Cabinetry & Mounting

Three different configurations to match your needs.

- NEMA 4X / IP66 waterproof and weatherproof
- 19 in. 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
- Analogue outputs (three channels)
- High / low alarms
- Fault alarms

reliability and performance. All Systech Illinois sensors are easily

Now you can match sensor to

application for the best possible

Sensor Selection

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.

PM720



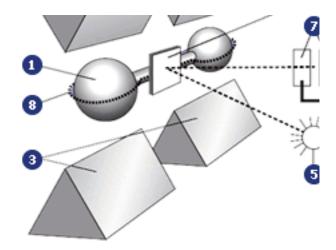


PM710



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.



- Glass dumbbell
- 6 Light source
- 2 Pole shoe (N) Pole shoe (S)
- Photo diodes
- Measuring cell
- 6 Mirror
- Wire loop

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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