



**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% O <sub>2</sub>
Detection limit	0.01% O <sub>2</sub>
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 <sub>2</sub>
Zero point drift	Better than ±0.1% per week
Repeatability	Better than ±0.03% O <sub>2</sub>
Pressure compensation	Automatic compensation option
Temperature influence at zero	< ±0.05% O <sub>2</sub> /°C
Temperature influence span	< ±0.20% of measured value /°C
Barometric pressure influence on zero	No influence
Barometric pressure influence span	1% air pressure change causes 1% change in reading without automatic compensation (option)

<b>Operating Conditions</b>	
Sample Gas Pressure	0.1 to 5 BarG
Ambient Temperature	-10 to +45°C
Sample Connections	1/8" OD Compression fittings
Communications	RS232/485

<b>Power Requirements</b>	
Power Supply	230/115 Vac, 50/60 Hz at 40VA

<b>Options</b>	
High/Low Alarms	2 volt free changeover contacts. Rated 240V, 3A
Analogue 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 <sub>2</sub> , Butane, CO, H <sub>2</sub> S etc)

System 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.

Paramagnetic analysers for high purity oxygen with full percent range capability



**Features & Benefits**

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

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# 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

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

## 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

## 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 Systech Illinois 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.

PM720



PM730

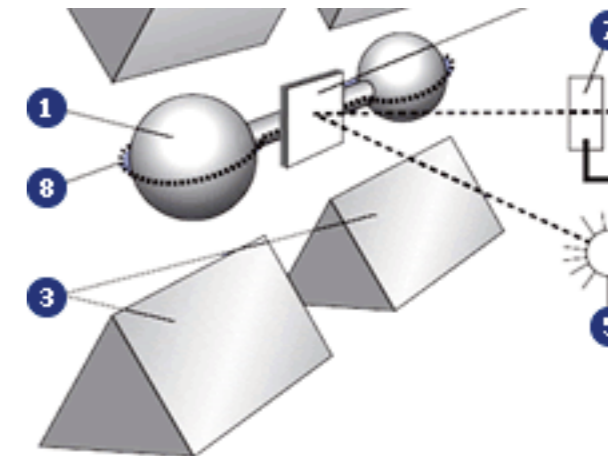


PM710



## 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.



- |                  |                |
|------------------|----------------|
| 1 Glass dumbbell | 5 Light source |
| 2 Pole shoe (N)  | 6 Mirror       |
| 3 Pole shoe (S)  | 7 Photo diodes |
| 4 Measuring cell | 8 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.