PM700 Process Oxygen Analysers

SYSTECH Illinois

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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Conforms to European Directives:
Electromagnetic Compatibility Directive 89/336/EEC Low Voltage Directive 73/23/EEC

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
- UL and CUL approved Ex-proof

Explosion Proof Version

- UL and CSA approved
- Split architecture version for: Class I, Groups B, C& D; Class II and Class III
- Nema 4/7 rated

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

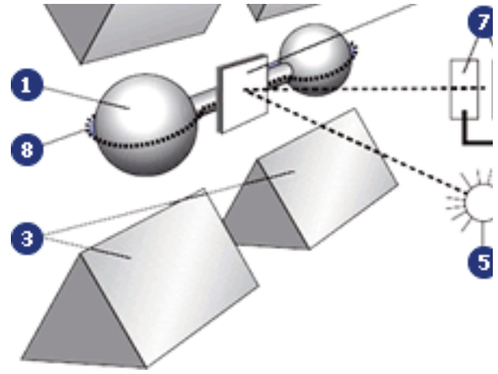
PM730

PM710

Ex-Proof

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
2. Pole shoe (N)
3. Pole shoe (S)
4. Measuring cell
5. Light source
6. Mirror
7. Photo diodes
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.

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% 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/°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)
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
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_2S 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

Series 700

Analizadores paramagnéticos para alta pureza de oxígeno, con capacidad de medir todo el rango de %

Modelo 710 Sobremesa / Panel.

Modelo 720 Pared, intemperie.

Modelo 730 Rack de 19", 4 Uds.

Cuando usted necesita una medida fiable y no muy cara de niveles en porcentage de oxígeno, la serie 700 de analizadores paramagnéticos le dara las respuestas correctas.

Forma parte de nuestra gama completa de analizadores de oxígeno, la serie 700 es el analizador a elegir para la medida de la pureza. La serie 700 puede usarse en corrientes de gas sucias y su sensor no se gasta. La serie 700 le proporciona un sistema de medir el oxígeno fiable y repetitivo, aumentado la eficiencia de su produción.

Aplicaciones

- **Producción de O_2 de alta pureza**
- **Gases corrosivos**
- **Corrientes de gas contaminadas**
- **Prueba de botellas**
- **Gases ricos en hidrocarburos**

Con la serie 700 usted puede .....

Estar seguro de la pureza

El sensor paramagnético de proporciona una medida fiable, repetitiva, y precisa de altas purezas, durante mucho mucho tiempo.

Probar rápidamente - Sensor paramagnético de rápida respuesta

Con un tiempo de respuesta de unos pocos segundos los resultados son inmediatos, por lo que no hay que tirar gases que están fuera de la especificación.

Adaptar el analizador a sus necesidades

Puede elegir entre monaje en rack, pared, panel o sobremesa.

Monitorizar de manera remota

Usando las salidas analógicas o las interfaces RS232/485, puede ver los resultados en otro lugar como la sala de control, o el panel principal de control.

Olvidarse de cursillos de manejo

Configuración sencilla y facilidad de manejo - no es necesario un entrenamiento especial para poder usar todas sus avanzadas funciones.

Esperar estabilidad

Con una deriva del cero menor de ± 0.05 % por semana y repetibiliad mejor del ± 0.2 %; usted puede creer en las medidas de la serie 700.

Tener un bajo costo de mantenimiento

El sensor de la serie 700 no se gasta - no hay que reemplazar periodicamente el sensor.

Si quiere calidad, fiablilidad y resultados siempre reproducibles.

La Serie 700, es la respuesta

SERIES 700 TIPOS DE MONTAJE

Series 710
Sobremesa / Panel
190H x 237A x 410F (mm)
8.5 Kg

Series 720
IP66/NEMA 4X
Pared / Intemperie
460H x 380A x 160F (mm)
16.5 Kg

Series 730
Rack de 19", altura 4 unidades
Pueden montarse 1 ó 2 analizadores
178H x 484A x 410F (mm)
10.1 Kg (solo un analizador)

ESPECIFICACION TECNICA

Rangos de medida:	Auto-rango de 0.01 % a 100 % O_2
Resolución de la indicación:	2 decimales (0.01 to 99.99 %)
Tipo de indicador:	LED de 5 dígitos de alta visibilidad
Tiempo de respuesta:	90 % de la lectura (T90) en menos de 2 segundos
Linearidad:	Mejor del +/ - 0.1 % O_2
Deriva del cero:	Menor de +/ - 0.05 % por semana
Repetibilidad:	Mejor del +/ - 0.02 % O_2
Compensación de la presión:	Compensación automática entre 800 y 1100 mBar opcional

CONDICIONES DE OPERACION

Presión de entrada del gas:	0.1 a 5 BarG
Temperatura ambiente:	-10 a +45 °C
Conexiones de entrada y salida:	Racores de compresión para tubo de 1/8" OD
Comunicaciones:	RS232/485
Gases con que no puede usarse:	Mezclas de gases explosivas (por ejemplo H_2, Butano, CO, SH_2 etc.)

ALIMENTACION ELECTRICA

Alimentación eléctrica:	230/115 Vca, 50/60 Hz a 40VA seleccionable en campo

CAJA Y MONTAJE

Caja;	Acero inoxidable
Instación:	Sobremesa, panel, pared o rack de 19"
Certificación:	CE Estos analizadores cumplen con las siguientes directivas Europeas Directiva de compatibilidad electromagéetica 89/336/EEC Directiva de bajo voltaje 73/23/EEC
Protección:	IP10 – 710 y 730 IP66 – 720

OPCIONES

Alarmas de alta y baja;	2 contactos conmutados de libre potencial. Para 240 V, 3A
Salidas analógicas:	Escalable 4-20 mA (0-20 mA), 0-10 V, 0-100 mV todas aisladas.
Compensación de presión:	Compensación integral de la presión barométrica, 800-1100 mBar.
Opciones de toma de muestra:	Rotámetro de by-pass, bomba interna de toma de muestra, alarma de caudal, regulador de presión...

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