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EXPERT PAPER

An accurate and stable oxygen analyzer for safe area applications

The SERVOTOUGH Oxy 1800 unites high-precision Paramagnetic oxygen sensing with a simple, reliable analog design, delivering a gas analysis solution that is easy to operate and maintain.

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MEASURES:

- Oxygen
  (at percentage level up to 100%)

SENSING TECHNOLOGY

PARAMAGNETIC

SIMPLE OPERATION THAT PROVIDES POWERFUL ANALYSIS

The SERVOTOUGH Oxy 1800 provides a powerful yet simple solution for a wide range of safe area oxygen (O_2) gas analysis applications.

Combining Servomex's industry-leading Paramagnetic sensor technology with an uncomplicated analog electronics platform, it is a cost-effective analyzer that is simple to set up, operate and maintain.

Designed for use in modern industrial environments, the Oxy 1800 is suitable for internal or external safe area operation, using the ingress protection of an IP66/NEMA 4X-rated enclosure.

Calibration requires no special software or tools – only a standard flat-bladed screwdriver, a zero calibration gas and a span calibration gas are needed.

An internal switched mode power supply on the AC inlet enables the Oxy 1800 to be installed anywhere in

the world without modification to the internal wiring. It is also compliant with the latest European Low Voltage and EMC Directives.

Isolated (4-20mA) and non-isolated (0-1V DC) analog output signals allow the analyzer to be easily connected to distributed control systems, recorders, and annunciator panels as required. Analog outputs can be set to a range of pre-selected values, from 0-2.5 to 0-100% O_2.

As standard, the Oxy 1800 includes two configurable-measurement concentration level alarms. The alarms can be configured to operate on either low or high measurement alarm setpoints across the full working measurement range of the analyzer.

The Oxy 1800 is fitted with a stainless steel cell with Viton pipework as standard. It can be optionally fitted with stainless

steel or Hastelloy pipework, and the sampling system can be flow or pressure driven, with additional, value-adding feature options such as a back pressure regulator and sample flow alarm.

A special version of the analyzer is also available for solvent-bearing samples, using specially resistant cells and pipework.

This flexibility of sample gas options, together with the range of analog outputs, ensures the analyzer is easy to integrate into existing systems.

The long-life, non-depleting Servomex Paramagnetic sensor delivers measurements up to 100% O_2. It is contained in a temperature-controlled measurement chamber to minimize the effects of ambient temperature variations, improving accuracy. The small internal volume and gas flow characteristics of the Oxy 1800 ensure it provides a fast-response measurement.

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OPTIONAL FEATURES

- Back pressure regulator (to reduce the effects of ambient pressure fluctuation)
- Automatic flow control device (AFCD) (to regulate the sample gas flow over a variable range of inlet pressures)
- Flow alarm (enables preventative maintenance)
- Stainless steel or Hastelloy pipe work
- Solvent resistant cells and pipe work
- 60l/hr cells, both solvent resistant and stainless steel
- Enclosure purge or breather port

PARAMAGNETIC OXYGEN SENSING

Paramagnetic sensing technology is highly specific to O_2, delivering high levels of accuracy and a fast response to changing O_2 concentrations.

Paramagnetic cells each consist of two nitrogen-filled glass spheres, mounted on a thin wire suspension within a strong magnetic field. Light shines on a mirror, centrally-located on the suspension, and is reflected onto a pair of photocells.

Because O_2 is naturally Paramagnetic, it is attracted to the magnetic field, and so displaces the glass spheres, causing the suspension to deflect. This deflection is detected by the photocells which generate a signal to a feedback system. This, in turn, sends a current through the thin wire suspension, creating a motor effect which restores the position of the suspension.

The restoring current produced is directly proportional to the concentration of O_2 within the gas mixture, allowing an accurate and inherently linear percentage measurement of O_2 gas concentration to be made.

As this technology is non-depleting and requires no reference gas, Paramagnetic cells supplied with a clean dry non-condensing sample gas never need replacement, and the performance does not deteriorate over time, giving significant benefits to ongoing maintenance costs and sensor lifespan.

KEY APPLICATIONS

- Ambient air monitoring
- Waste water treatment
- Food storage
- Marine inerting applications
- Clean room/glove boxes
- Inert blanketing
- Gas cylinder storage
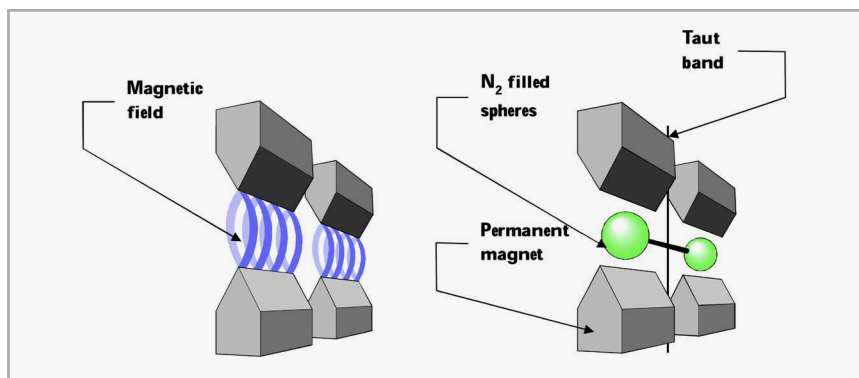
The Paramagnetic cell

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SERVOMEX ANALYZERS

HIGH·PERFORMANCE GAS ANALYSIS