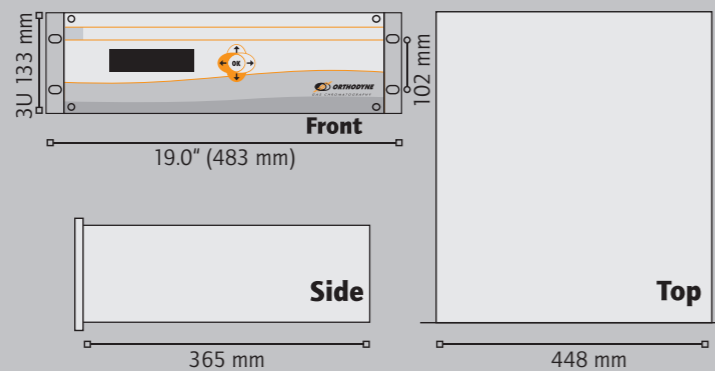


SPECIFICATIONS OPM5000

Measuring range	0 – 100 % O ₂
Power supply	115 – 230 VAC
Measurement signal	0 – 1 V
Response time T90 with gas flow 150 ml/min.	< 3 s
Max. gas flow for direct gas supply	100 ml/min. typical
Gas flow (pressure compensated)	240 ml / min. (100 ml/min. for the cell and 140 ml/min. by pass)
Gas flow (flow compensated)	100 ml / min.
Ambient temperature	0 – 45 °C
Storage temperature	0 – 45 °C
Relative humidity	90% without condensation
Heating temperature	55°C
Warm-up (stability) time	< 1h / 24h
Temperature sensor	Incorporated for the heating
Safety temperature sensor	Incorporated for 80°C
Linearity	< ± 0.1 % O ₂
Zero point drift	< ± 0.1 % O ₂ a week
Repeatability	< ± 0.02 % O ₂
Temperature effects (zero point)	< ± 0.03 % O ₂ / °C
Temperature effects (sensitivity)	< ± 0.1 % of measured value / °C

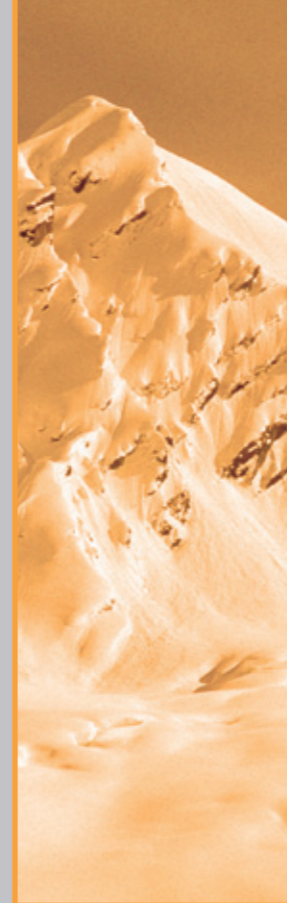
Dimensions

Standard rack mount 3U
Height > 133 mm | Depth > 365 mm | Width > 483 mm



sales@
www.orthodyne.be

Line 5000



OPM5000

Paramagnetic analyser

Analysis of O₂ in % level



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 **ORTHODYNE**
GAS CHROMATOGRAPHY

OPM5000

Paramagnetic analyser

The OPM5000 is an analytical system that measure percentage of Oxygen in % level.

GENERAL

OPM5000 percentage oxygen analyser manufactured by Orthodyne meets the requirements of industrial gas production. It includes the Paramagnetic sensor technology with built-in metallic reference.

PRINCIPLE

Oxygen is one of few gases showing significant paramagnetic properties which can be used for its measurement using the following method.

A small glass dumbbell filled with nitrogen is placed in an inhomogeneous magnetic field within the measuring cell. The system's position of rest is defined by a light beam, a mirror on the dumbbell and a photo detector. The dumbbell is diamagnetic and tends to turn away from the magnetic field. The paramagnetic oxygen molecules of the sample gas, however, are drawn into the magnetic field, either displacing the dumbbell or forcing it to turn in the opposite direction. The turning is stopper by an opposite magnetic field generated by means of a coil around the dumbbell, the signal of the photo detector (deviation of the dumbbell from its position at rest) determining the necessary current intensity. The difference between the current when pure nitrogen is flowing and the current when sample gas is flowing across the measuring cell is proportionate to the concentration of oxygen in the sample gas.

The paramagnetic measurement is not dependant on pressure. Both the pre-pressure of the measurement gas during supple as well as the pressure at the gas outlet have an influence on the result of the measurement. Compensation measures are necessary, in particular for measurements above concentrations normally found in the air of a room (backpressure regulator, pressure measurements at the outlet with calculated compensation, etc.).

The OPM5000 measuring cell has a small measuring volume of approx. 3cm and it is heated and regulated at a fixed temperature of 55°C.

CROSS INTERFERENCE

The selectivity of the measuring system is based on the extraordinarily high susceptibility of oxygen. The susceptibilities of other gases are relatively so low that the presence of foreign gases can be ignored in most cases.

Significant measuring errors occur where the sensor has been calibrated with nitrogen as reference gas, but the sample gas consists mainly of other gases with considerable magnetic susceptibility.

The Oxygen sensor shows a measured value even if the sample gas contains no oxygen, i.e. it displays a cross-sensitivity to another gas. Such gases often occur as process gases but are not available as test gases for calibration, especially not as a mixture.

APPLICATIONS

- Air separation plants.
- Specialty gas laboratories.
- Process control.
- Steel industry.
- Cryogenic truck loading station.
- Basic research.
- Materials research.
- Monitoring of atmospheres.

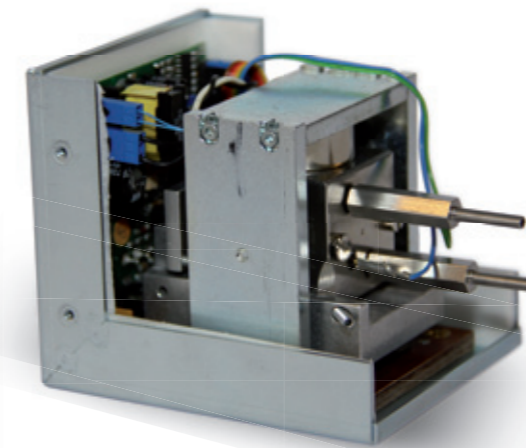
OPM PERFORMANCES

- Excellent response time.
- Keyboard for intuitive operation.
- Extremely high linearity.
- From 0 to 100% O₂ in a single range.
- Reliability and reproducibility.
- Built-in bypass.
- Almost maintenance-free.
- Less sensitive to reducing gases thanks to its special sensor.

TYPE OF CONFIGURATION

- OPM5001 : 1 Paramagnetic sensor.
- OPM5002 : 2 Paramagnetic sensors.
- OPM5003 : 3 Paramagnetic sensors.*.
- OPM5004 : 4 Paramagnetic sensors.*.

* OPM5003 and OPM5004 will be assembled inside a rack of 365mm depth and 6U height.and 6U height.



PAROX CELL 1200

- Built-in metallique reference paramagnetic cell
- Technique and technology for innovative solutions



USER-FRIENDLY INTERFACE

- Display of operation parameters
- Visual indication of the flow
- Alarm relays

EXTERNAL COMMUNICATIONS

- Analog & digital output

Line 5000 - OPM5000 - Oxygen % analyser