Paramagnetic oxygen analyzer

PM 2000+

precise and maintenance-free

Plus auto-calibration

Brief description

The **PM 2000+** is a precise oxygen analyser for continuous monitoring purposes at an amazing price.Build in a modular housing system, with a modern micro-controller technology, it is specially designed forprocess and ambient air measurements. The analyser is equipped with an auto-calibration functionality and a self-diagnosis capability and has an RS232 interface. With the programmable auto calibration function it is capable to fulfil a fully automatic calibration by means of the integrated relays. The measuringunit is thermostat temperature controlled to 55°C. The operation and parameterisation is carried out by means of a user friendly 4 keys and a 16-digit LCD display and also through RS232 interface

Measuring principle

The measurement is based on the paramagnetic characteristic of oxygen. It generates a partial pressure within a strong and non-homogeneous magnetic field which moves a rotatable glass dumbbell within the measuring cell. This small rotation is measured by the projection of a light source on a photodiode via a small mirror on the dumbbell. A small current through a wire around the dumbbell forces the dumbbell to its initial position. This current is amplified and is directly proportional the oxygen concentration.

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Housings

PM 2000+
19” 3 HU rack or table model with or without sample test gas filter and flow display on the front panel (option).
Single or multiple channel versions.
WxHxD: 482 x 133 x 245 mm
IP protection class: 20

PM 2100+
1/2 19” portable model optional with filter on the rear.
WxHxD: 235 x 155 x 280 mm
IP protection class: 52

PM 2200+
wall-mounted housing Rittal,
Single or multiple channel versions.
WxHxD: 380 x 410 x 210 mm
IP protection class: 52

Specifications

Measurement range output	free settable by input of parameters between 0- 100% O2
Measurement range	Standard range 0-25%, 0-100%, others on request
Measurement signal	4-20mA or 0-20mA (max. apparent ohmic resistance 500 Ohm)
Status output	2 alarm relays, 1 malfunction relay
Output connection	pump relay, maintenance sample gas relay, zero gas relay, test gas relay for the autocalibration
Display	LCD digital multifunction display, indication of measured value: 100.0 %O2; Flow 99l/h, alarms, malfunction, parameters, total 16 digits

Options

- pressure compensation (electronic or backpressure regulator)
- test gas pump
- sample gas filter
- external flow display (rotameter)
- flow sensor with alarm setting
- NDIR sensors for CO2, CH4 and CO

Design

Materials of gas conducting parts	PVDF, glass, steel 1.4571, gold, viton, platinum-iridium, epoxy resin, nickel
Gas connections	PVDF bulkhead connection, for hose with inside ø 4mm

Power supply

Voltage	100 - 240VAC 50/60Hz

Operating conditions

Flow	10-90 l/h
Gas conditioning	necessary for humid and/or corrosive gases, pre-filter required
Operating gas pressure	10-1000 hPa (0.01-1bar)
Operating temperature	5-45°C
Calibration	2-point calibration: with gases as desired, menu-controlled, time controlled. fully automatic AUTOCAL or semiautomatic calibration
Storage and transport temperature	-25°C to +65°C
Relative humidity	0-75% RH
Background gas influence	slight (for guideline data see operating instructions)

Measuring details — PM 2000+

Detection limit	0,01 % O2
Repeatability	<= ± 0,03 % O2 (time base for gas switch >= 5 min)
Zero point drift	<= ± 0,1 % O2 / week (offset) may be higher during the first days after putting into operation or after longer period of storage or transport
Temperature influence at zero	< ± 0,05 % O2 /°C
Temperature influence span	< ± 0,20 % of measured value / °C
Pressure influence on zero	no influence
Pressure influence span	1% air pressure change causes 1% change in reading without backpressure regulator (option) or pressure compensation (option)
Flow error	<= 0,1 Vol.-% O2 within 10…90 l/h with the in-build flow regulator (option)
T90-time	<= 6s at 90 l/h and gas change from nitrogen to air