Technical Datasheet

MGT Series – Typ Optical Oxygen with Base Range 0-100%

Applications

- ✓ Inert gas processing chambers (glove boxes)
- ✓ Exhaust gas measurement
- ✓ Inert gas monitoring
- ✓ Monitoring fruit ripening and transport
- ✓ Oxygen concentrators
- ✓ Incubators
- ✓ Portable equipment
- ✓ Microelectronics(OLED/capacitor/HID)
- ✓ Lithium battery
- ✓ University and research
- ✓ Glove Boxes
- ✓ Metal heat treatment/welding
- ✓ Chemicals/Pharmaceuticals
- ✓ Air Separation Unit

Features

- ✓ High-accuracy measurement
- ✓ Low drift
- ✓ Factory calibrated
- ✓ Long life
- ✓ Fast response (t63<2s)
- ✓ Temperature compensation
- ✓ Stainless steel sintered filtration (membrane filtration optional)

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MGT Series – Typ: Optical Oxygen Transmitter with Base Range 0-100%

Specifications

Overview

The Optical oxygen analyzer is cost-effective and suitable for stable and continuous measurement of the percentage oxygen content of most gases.

Measuring principle	Optical
Display	1.8”color LCD,160*128 pixel, English menu, Status LED Light (NAMUR NE107)
Keypad	Magnetic keypad
Range	0~100% O2
Accuracy*	**Accuracy* @ -10°C – 60°C** ±0.02% O2 at 1% O2 ±0.5% O2 at 20% O2 ±2% O2 at 100% O2 **Accuracy* @ 10°C – 40°C** ±0.1% O2 at 1% O2 ±1% O2 at 20% O2
Resolution*	±0.01% O2 at 1% O2 ±0.1% O2 at 20% O2 ±0.5% O2 at 100% O2
Detection limit	0.01% O2 (100ppm)
Response time (t63)	<2 sec.
Drift	typ. <1% O2/year **
Max. number of measurements	>500 million ***
Lifetime	typ. >5 years ***
Warm-up time	3 min (reduced accuracy during warm-up)
Analog Output(Galvanic)	4~20mA, maximum load 500Ω
Relay Output(Galvanic)	2 Relay(2A, 230V AC/DC freely set), 1 Relay(System alarm)
Communication	RS485 (MODBUS RTU Slave)
Power	19 ~ 28V DC Power, 0.5A
Ambient Temperature	-10~60□(recommend 10□~40□)
Process pressure(Max.)	3Bar
Sample gas flow	30Nl/h (recommend)
Process Connection	NPT1/2" thread or KF40 flange
Housing Material	Aluminium alloy, Stainless steel
Size	Φ110*240*107 mm
Weight	1.5Kg
Explosion-proof !! OPTIONAL !!	Ex d IICT4 optional (special housing)

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* given for factory calibration. Units of %O2 given for 1013 mbar ambient air pressure.

** at 21% O2, 25°C, 1013 mbar ambient gas pressure, protected from direct sunlight. The drift can be significantly increased after the exposure to elevated temperature >60°C or to specific chemicals (refer to section 3).

*** at 21% O2, 25°C, 1013 mbar ambient gas pressure, protected from direct sunlight.

Cross-Sensitivity and chemical

The following table shows the compatibility and possible cross sensitivities to some important chemical substances at a given concentration range. An “X” under “OK” indicates compatibility. “Cross-Sensitivity” indicates that the oxygen measurement is influenced by this substance. “Damage” indicates that this substance might physically damage the Optical oxygen analyzer (marked in red).

Substance	Concentration	OK	Cross-Sensitivity	Damage	Comment
Moisture	0~100%	X			
CH_4	<20%	X			
Cl_2			X	X	
CO	<20%	X			
CO_2	<20%	X			
H_2S	<1%	X			
NO	<1%	X			1.
NO_2			X	X	2.
N_2O	<1%	X			
Inorganic acid/sbases	<1%	X			
Methanol, Ethanol, Isopropanol, Formic Acid, Acetic Acid	<0.1%v	X			3.
Methanol, Ethanol, Isopropanol, Formic Acid, Acetic Acid	>0.1%v		X		4.
Ethylene oxide			X		5.
Other volatile organic compounds			(X)	(X)	6.

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Cross-Sensitivity and chemical

Comments:

NO may form NO2 in presence of oxygen.

Ca. 5-10 times more sensitive to NO2 than to oxygen. Slow degradation over time.

0.1%v in gas corresponds approximately to the vapor pressure above a 0.5-1% solution in water at 25°C.

Recalibration after conditioning at constant substance levels might be possible.

Exposure to EtO (e.g. for sterilization) will cause increased drift. Recalibration after exposure is possible.

Can result in erroneous oxygen readings and significantly enhanced drift. Interference depends on the compound. Substances with high vapor pressure or high reactivity are expected to be more problematic.