

Technical specifications

Oxygen sensors

Hamilton Medical offers oxygen sensors for use with Hamilton Medical ventilators.

**Oxygen sensor for HAMILTON-G5/S1,
GALILEO, RAPHAEL**

1/box



Product specifications

Oxygen sensor model	PN 396008
Measuring range	0% to 100% O ₂
Response time 90%	6 seconds
Accuracy full scale (2) (3)	± 1%
Accuracy over operating range (4)	± 5%
Drift % signal/month (2)	< 1%
Linearity (2)	± 1%
Temperature coefficient	Compensated
Humidity noncondensing	0% to 99% relative humidity
Expected life (1)	60 months
Storage temperature (5)	0°C to 40°C

1. In air (20.9% O₂) at 25°C and 1 atm.
2. At a constant temperature, pressure and humidity < 1% volume O₂ when calibrated at 100%.
3. For optimal performance at higher oxygen levels, calibrate with 100% oxygen.
4. Calculated from the signal output value where above, and after any step change of 15°C or more once the sensor has reached equilibrium (approximately 1 hour).
5. Sensors may be stored in up to 55°C on a temporary basis only (up to one week); for example, during transport.

Technical specifications

**Oxygen sensor for HAMILTON-
C3/C2/C1/T1/MR1**
1/box



Product specifications

Oxygen sensor model	PN 396200
Measurement range	0% to 100% O ₂
Accuracy and repeatability	< 1% volume O ₂ when calibrated at 100% oxygen
Linearity error	< 3% relative
Response time	< 12 seconds to 90% of final value
Cross-interference	Meets ISO 80601-2-55 requirements
Effect of humidity	-0.03% relative per %RH at 25°C
Effect of mechanical shock	< 1% relative after a fall from a height of 1 meter
Temperature compensation	Built-in NTC compensation
Operating humidity	0% to 99% relative humidity, noncondensing
Long term output drift	< 1% volume oxygen per month Typically < -15% relative over lifetime
Storage temperature:	-20°C to +50°C
Prolonged lifetime	Maximum lifetime when stored between +5°C and +15°C
Warm-up time	< 30 minutes after replacement of sensor
Nominal sensor lifetime	≥ 1,000,000% volume oxygen hours

All specifications apply to standard conditions: 1013 hPa; 25°C dry, ambient air.

Technical specifications

**Oxygen sensor for HAMILTON-G5/S1,
GALILEO, RAPHAEL**
1/box



Product specifications

Oxygen sensor model	PN 396009
Measurement range	0% to 100% O ₂
Response time	< 6 seconds to 90% of final value
Accuracy	±1% full scale at constant temperature and pressure
Operating humidity	0% to 95% relative humidity
Temperature compensation error	= 5% of reading over the operating temperature range
Expected lifetime	36 months in air at 25°C, 25% relative humidity, ambient pressure

Technical specifications

Paramagnetic O₂-sensor - Upgrade kit
For HAMILTON-G5/S1 ventilators with SN
10291 or higher
1/box



Product specifications

Oxygen sensor model	PN 159715
Operating range	0% to 100% O ₂ with over range capability –15% O ₂ to +200% O ₂
Intrinsic error	< ± 0.2% O ₂
Linearity†	< ± 0.2% O ₂
Repeatability†	< ± 0.2% O ₂
Signal noise (peak to peak)†	< 0.2% O ₂
Zero stability (permanent drift from calibration value)†	< ± 0.4% O ₂ for the first 24 hours < ± 0.2% O ₂ for the subsequent week (additional) < ± 0.2% O ₂ per month thereafter (additional)
Temperature coefficient	Zero: < ± 0.5% O ₂ / 10°C Span: < ± 0.5% of O ₂ reading / 10°C
Pressure range	± 33 kPag (±5 psig), operating ± 66 kPag (±10 psig), proof ± 100 kPag (±15 psig), failure
Tilt	< ± 0.5% O ₂ equivalent for 15° change in orientation from the calibration point
Time to valid reading	Time to valid output (from startup when within environmental specifications): < 8 seconds Time to status output (from startup when outside of environmental specifications): < 8 seconds
Operating temperature	5°C to 50°C (41°F to 122°F)
Storage temperature (noncondensing conditions)	–30°C to +70°C (–22°F to 158°F)
Storage pressure	10 kPa–200 kPa (1.5 psi–30 psi)
Thermal time constant	Time required for O ₂ -signal to reach 66% of final reading after a 20°C step change in ambient temperature: 15 minutes
Ambient humidity	0% to 95% relative humidity
Altitude range (operating)	–500 m to +5,000 m (–1540 ft to +15,400 ft)

Where marked (†) testing has been conducted in accordance with the requirements of IEC 61207-1 1994.