

HALO OK

Trace-Level Oxygen Analyzer

GASES & CHEMICALS

CEMS

ENERGY

SEMI & HB LED

ATMOSPHERIC

LAB & LIFE SCIENCE

Designed for trace-level oxygen analysis, the HALO OK offers:

- Industry-leading parts-per-trillion detection capability
- Unprecedented speed of response
- Wide dynamic range
- Absolute measurement (freedom from need for calibration gases)
- Low maintenance and cost of ownership
- Compact, portable package, ideal for both fixed and mobile cart installation
- Direct measurement in many matrices

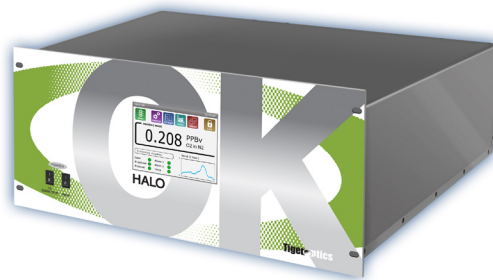
Leading Choice for Ultra-high Purity Gas Users

Detect gas quality upsets before they damage your process. Using Tiger Optics' HALO OK oxygen analyzer, you can verify oxygen impurity levels with part-per-trillion accuracy, drift-free stability and instantaneous response. You'll find our system exceptionally easy and fast to install, and effortless to maintain, with built-in zero verification. Its robust design—free of moving parts—results in an analyzer that has a high Mean Time Between Failure (MTBF) rate and a very low Cost of Ownership (CoO).

With its patented catalytic conversion technique, utilizing a minute amount of hydrogen to cleanly and safely convert oxygen to moisture, the OK offers a fully laser-based solution for Continuous Quality Control of your process. Based on powerful Cavity Ring-down Spectroscopy, the HALO OK aligns with the SEMI F-112 standard for moisture dry-down characterization of gas systems. Pair the new HALO OK with our HALO KA for ppt-level moisture measurement to enjoy the many advantages of profit-boosting CRDS technology for both critical contaminants.

HALO OK

Trace-Level Oxygen Analyzer



Performance		Dimensions	H x W x D [in (mm)]
Operating range	See table below	Standard sensor	8.73 x 19.0 x 23.6 (222 x 483 x 599)
Detection limit (LDL, 3 σ /24h)	See table below		
Precision (1 σ , greater of)	$\pm 0.75\%$ or 1/3 of LDL	Weight	
Accuracy (greater of)	$\pm 4\%$ or LDL	Standard sensor	45 lbs (20.4 kg)
Speed of response	< 3 minutes to 95%		
Environmental conditions	10°C to 40°C	Electrical	
	30% to 80% RH (non-condensing)	Alarm indicators	2 user programmable
Storage temperature	-10°C to 50°C		1 system fault
			Form C relays
		Power requirements	100 – 240 VAC, 50/60 Hz
		Power consumption	450 Watts max.
		Signal output	Isolated 4–20 mA
		User interfaces	5.7" LCD touchscreen
			10/100 Base-T Ethernet
			802.11g Wireless (optional)
			RS-232
			Modbus TCP (optional)
		Certification	CE Mark

Gas Handling System and Conditions	
Wetted materials	316L stainless steel
	10 Ra surface finish
Leak tested to	1 x 10 ⁻⁹ mbar l / sec
Gas connections	1/4" male VCR
Sample inlet pressure	10 – 125 psig (1.7 – 9.6 bara)
Sample flow rate	0.5 to 1.8 slpm (gas dependent)
Sample gases	Most inert matrices
Gas temperature	Up to 60°C
H ₂ supply requirements* [†]	~15 sccm, 20 – 125 psig

Performance, O ₂ :	Range	LDL [‡] (3 σ)	Precision (1 σ) @ zero
In Helium	0 – 0.5 ppm	50 ppt	17 ppt
In Argon	0 – 1 ppm	90 ppt	30 ppt
In Hydrogen	0 – 2 ppm	150 ppt	50 ppt
In Nitrogen	0 – 2.5 ppm	200 ppt	70 ppt
In Carbon Dioxide [§]	0 – 5 ppm	5000 ppt	300 ppt

Contact us for additional analytes and matrices or information about our optional purged enclosure.

*H₂ supply (maximum 10 ppm H₂O and O₂ impurity) is required for sample conditioning via catalytic conversion.

[†]For enhanced safety, a mixture of 3% H₂/97% N₂ can be used as an alternative to pure H₂. This option requires a special configuration that must be specified at the time of order.

[‡]LDL is dependent upon the quality of the sample gas and the integrity of the sampling system.

[§]Special configuration required, must be specified at time of order.

U.S. Patent # 7,277,177 • U.S. Patent # 7,255,836

BERNT
MESSTECHNIK
40472 Düsseldorf
Wahlerstr. 12
Tel: +49 211 6696998-0
info@berntgmbh.de

81245 München
Petzetstr. 8
Tel: +49 89 8110330
www.berntgmbh.de

76646 Bruchsal
Werner-von-Siemens-Str. 2 - 6
Tel: +49 7251 3084436

Tigeroptics
High-Performance Gas Analyzers

7/2019