



HALO KA Max

The Ultimate Trace Gas Analyzer

GASES & CHEMICALS

CEMS

ENERGY

SEMI & HB LED

ATMOSPHERIC

LAB & LIFE SCIENCE

Maximizing ultimate low-detection-level performance and speed of response, the HALO KA Max offers:

- Parts per trillion (ppt) moisture detection capability in an array of gases
- Absolute measurement (freedom from calibration)
- Field proven lowest Cost of Ownership and ease of use
- Wide dynamic range—over four orders of magnitude
- Unprecedented speed of response at sub-ppb H₂O levels
- Compact footprint (two HALO KA Max fit in a 19" rack)

Enabling Ultimate Moisture Detection Performance in Semiconductor Manufacturing

As the International Roadmap for Devices and Systems (IRDS) drives the semiconductor industry beyond Moore's Law and sets the requirements for the next decade, Tiger Optics accepts the challenge with the HALO KA Max.

Building on Tiger Optics' customer-acknowledged and renowned time-based technology—Continuous-Wave Cavity Ring-Down Spectroscopy—users can verify moisture impurity levels down to 100 ppt in semi bulk gases, with drift-free stability and virtually instant response to moisture upsets.

The HALO KA Max, based on Tiger Optics' latest

platform, offers exceptional speed and further improved usability in an all-inclusive and compact form factor. The analyzer is fast to install, easy to use and effortless to maintain, with built-in zero verification. The HALO KA Max excels in trace-level H₂O detection in bulk gases and specialty gases used in semiconductor manufacturing.

Pair the HALO KA Max with the HALO OK for ppt-level oxygen measurement to enjoy the benefits of advancements in laser-based technology for both of these critical contaminants.

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Performance		Dimensions	H x W x D [in (mm)]
Operating range	See table below	Standard sensor	8.73 x 8.57 x 23.6 (222 x 218 x 599)
Detection limit (LDL)*	See table below	Sensor rack	8.73 x 19.0 x 23.6 (222 x 483 x 599)
Precision (1 σ , greater of)	\pm 0.75% or see table below	(fits up to two sensors)	
Accuracy (greater of)	\pm 4% or LDL		
Speed of response	< 2 minutes to 95%		
Environmental conditions	10°C to 40°C		
	30% to 80% RH (non-condensing)		
Storage temperature	-10°C to 50°C		
Gas Handling System and Conditions		Weight	
Gas connections	1/4" male VCR inlet and outlet	Standard sensor	28 lbs (12.7 kg)
Leak tested to	1 x 10 ⁻⁹ mbar l / sec		
Inlet pressure	10 – 125 psig (1.7 – 9.6 bara)		
Flow rate	~2 slpm in N ₂ (gas dependent)		
Sample gases	See table below		
Gas temperature	Up to 60°C		
		Electrical	
		Alarm indicators	2 user programmable
			1 system fault
			Form C relays
		Power requirements	90 – 240 VAC, 50/60 Hz
		Power consumption	40 Watts max.
		Signal output	Isolated 4–20 mA
		User interfaces	5.7" LCD touchscreen
			10/100 Base-T Ethernet
			USB, RS-232, RS-485
		Data storage	Internal or external flash drive

Performance, H ₂ O:	Range	LDL* [†]	Precision (1 σ) @ zero
In Nitrogen	0 – 5 ppm	100 ppt	40 ppt
In Helium	0 – 1 ppm	100 ppt	10 ppt
In Argon	0 – 2 ppm	100 ppt	20 ppt
In Hydrogen	0 – 4 ppm	100 ppt	30 ppt
In Oxygen	0 – 2.5 ppm	100 ppt	20 ppt
In Clean Dry Air (CDA)	0 – 4 ppm	100 ppt	30 ppt

*The Detection limit (LDL) is defined as 3 σ over 24h or the H₂O drydown limit, whichever is higher

[†]Lowest achievable H₂O level is dependent upon the quality of the sample gas and the integrity of the sampling system.

Contact us for additional analytes and matrices.

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Tiger Optics
 High-Performance Gas Analyzers

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