



HALO LP H₂O

Trace Level Moisture Analyzer

GASES & CHEMICALS

CEMS

ENERGY

SEMI & HB LED

ATMOSPHERIC

LAB & LIFE SCIENCE

Designed for trace level moisture analysis, the HALO LP H₂O offers:

- Low parts per billion (ppb) moisture detection capability in NH₃, PH₃, AsH₃, GeH₄ and SiH₄
- Absolute measurement (freedom from calibration gases)
- Wide dynamic range—over four orders of magnitude
- Low cost of ownership and operational simplicity
- Clean technology—no external calibration gases required
- Compact analyzer footprint
- User-programmable alarms immediately notify on high events

Simple Trace Moisture Detection in Hydride Gases

Semiconductor and High Brightness LED manufacturers rely on ultra-high purity process gases, such as ammonia and phosphine, to build the high-tech products such as smartphones, LED TVs and light bulbs, and CPU and memory chips that consumers desire. Residual moisture in these critical gases degrade device performance, reduce yield, and negatively impact product and corporate profitability. The HALO LP H₂O analyzer is designed to provide users with a simple, cost-effective, and compact analyzer for ensuring trace levels of moisture in NH₃, PH₃, AsH₃ and other hydrides are within the required specifications.

Operating at low pressure, this analyzer allows users to measure moisture in hydride gases with unmatched accuracy, reliability, and speed of response. Evidenced by our global installed base of over 2000 sensors, users enjoy the freedom from requirements such as periodic sensor maintenance, span calibrations, purifier replacement and pump rebuilds that are commonplace with other technologies. As a result, Tiger Optics' HALO LP H₂O is relied upon as an industry leader in the detection of trace moisture levels in ammonia and phosphine for electronic manufacturers and specialty gas suppliers worldwide.

Tigeroptics
a Process Insights Brand

HALO LP H₂O

Trace Level Moisture Analyzer



Performance		Dimensions	H x W x D [in (mm)]
Operating range	See table on next page	Standard sensor	8.73 x 8.57 x 26.4 (222 x 218 x 670)
Detection limit (LDL, 3σ/24h)	See table on next page	(incl. shutoff valves)	
Precision (1σ, greater of)	± 1% or 1/3 of LDL	Sensor rack	8.73 x 19.0 x 26.4 (222 x 483 x 670)
Accuracy (greater of)	± 4% or LDL	(fits up to two sensors)	
Speed of response	< 3 minutes to 95%	Weight	
Environmental conditions	10°C to 40°C	Standard sensor	33 lbs (15.0 kg)
	30% to 80% RH (non-condensing)	Electrical and Interfaces	
Storage temperature	-10°C to 50°C	Platform	Max series analyzer
Gas Handling System and Conditions*		Alarm indicators	2 user programmable
Wetted materials	316L stainless steel (corrosive gas version optional)		1 system fault
	10 Ra surface finish		Form C relays
Gas connections	1/4" male VCR inlet and outlet	Power requirements	90 – 240 VAC, 50/60 Hz
Leak tested to	1 x 10 ⁻⁹ mbar l / sec	Power consumption	40 Watts max. (excluding vacuum pump)
Inlet pressure	10 – 125 psig (1.7 – 9.6 bara)	Signal output	Isolated 4–20 mA
Outlet pressure	<10 Torr (13 mbar)	User interfaces	5.7" LCD touchscreen
Flow rate	Up to 1.0 slpm		10/100 Base-T Ethernet
Sample gases	Hydrides & inert matrices		USB, RS-232, RS-485
Gas temperature	Up to 60°C		Modbus TCP (optional)
		Data storage	Internal or external flash drive
		Certification	CE Mark

*Vacuum source required

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Trace Level Moisture Analyzer

Standard Model

Performance, H ₂ O:	Range	LDL (3σ)	Precision (1σ) @ zero
In Ammonia	0 – 20 ppm	9 ppb	3 ppb
In Phosphine [†]	0 – 10 ppm	9 ppb	3 ppb
In Nitrogen	0 – 6 ppm	1.0 ppb	0.3 ppb
In Argon	0 – 4 ppm	0.8 ppb	0.25 ppb
In Hydrogen [†]	0 – 6 ppm	1.0 ppb	0.3 ppb
In Helium	0 – 3 ppm	0.6 ppb	0.2 ppb
In NO [†]	0 – 100 ppm	16 ppb	6 ppb
In Germane [†]	0 – 18 ppm	20 ppb	7 ppb
In 5% SiH ₄ /95% N ₂ mixture [†]	0 – 6 ppm	20 ppb	7 ppb

Arsine Model

Performance, H ₂ O:	Range	LDL (3σ)	Precision (1σ) @ zero
In Arsine [†]	0 – 10 ppm	5 ppb	2 ppb
In Nitrogen	0 – 6 ppm	1.0 ppb	0.3 ppb
In Argon	0 – 4 ppm	1.0 ppb	0.3 ppb
In Hydrogen [†]	0 – 6 ppm	1.0 ppb	0.3 ppb
In Helium	0 – 3 ppm	1.0 ppb	0.3 ppb

[†]Low leak rate vacuum pump (safety certified for service in relevant gas) required
 Contact us for additional analytes and matrices.
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