



LaserTrace 2.5 LP H₂O

Ultra-High Purity Analyzer

GASES & CHEMICALS

CEMS

ENERGY

ATMOSPHERIC

SEMI & HB LED

SYNGAS

LABORATORY

Designed for trace level moisture analysis in hydride gases and inerts, the LaserTrace 2.5 LP H₂O analyzers offer:

- Sub parts-per-billion detection capability
- Detection in NH₃, AsH₃ and PH₃ among other gases
- Rapid response time to upset events
- Absolute measurement (freedom from calibration gases)
- Up to two LP measurement points per electronics module
- Extremely low cost of ownership
- Large touch screen with simple software interface
- Multiple communication outputs available

Robust, Reliable, Proven

In semiconductor and LED manufacturing, the prevalent usage of ammonia, arsine, and phosphine dictate that contamination is controlled in these gases. Excessive levels of moisture lower chip yields, reduce LED output brightness, and negatively impact product performance.

The LaserTrace 2.5 LP H₂O extends the capabilities of the LaserTrace product family and advances moisture detection in these "critical to quality" hydride gases. Low pressure (LP) sensors, commonly located at the cylinders, downstream of purifiers, and at the point-

of-entry into process tools, provide assurances that the gases being distributed meet the required purity specifications.

The cost effective LaserTrace 2.5 LP H₂O is quick to install, simple to use, and effortless to maintain. Zero verification is built-in and there are no costly calibration gas requirements. And it's robust design – free of moving parts – results in an analyzer that has a high Mean Time Between Failure (MTBF) and a very low Cost of Ownership (CoO).

Tigeroptics

21ST CENTURY SPECTROSCOPY

LaserTrace 2.5 LP H₂O

Ultra-High Purity Gas Analyzer



Performance	
Operating range	See table below
Detection limit (LDL, 24 h peak-to-peak variation)	See table below
Sensitivity (3σ)	See table below
Precision (1σ, greater of)	± 1% or 1/3 of Sensitivity
Accuracy (greater of)	± 4% or 1/2 of LDL
Speed of response	< 1 minute to 95%
Environmental conditions	10°C – 40°C 30% – 80% RH (non-condensing)
Storage temperature	-10°C – 50°C

Gas Handling System and Conditions	
Wetted materials	316L stainless steel (optional Hastelloy [®]) 10 Ra surface finish
Gas connections	1/4" male VCR inlet and outlet
Leak tested to	1 x 10 ⁻⁹ mbar l / sec
Inlet pressure	10 – 125 psig (1.7 – 9.6 bara)
Outlet pressure	<2 Torr (2.7 mbar)
Flow rate	0.5 to 1.8 slpm (gas dependent)
Sample gases	NH ₃ , PH ₃ , AsH ₃ , and inert matrices
Gas temperature	Up to 60°C

Dimensions	H x W x D [in (mm)]
Electronics unit	14 x 19 x 14 (356 x 483 x 356)
Standard sensor	8.2 x 8.5 x 27.6 (208 x 216 x 701)
Sensor rack (fits up to 2 standard sensors)	8.75 x 19 x 28 (222 x 483 x 711)

Weight	
Electronics unit	35 lbs (15.9 kg)
Standard sensor	51 lbs (23.1 kg)

Electrical	
Alarm indicators	User programmable setpoints (1 per sensor) Form C relays
Power requirements	90 – 240 VAC, 50/60 Hz
Power consumption	200 Watts max.
Signal output	Isolated 4–20 mA per sensor
User interfaces	10.4" LCD touchscreen PS/2 for mouse and keyboard 10/100 Base-T Ethernet 2 USB ports, RS-232

Performance: H ₂ O	Range	LDL	Sensitivity
In Nitrogen	0 – 6 ppm	0.7 ppb	0.5 ppb
In Helium	0 – 3 ppm	0.4 ppb	0.3 ppb
In Argon	0 – 4 ppm	0.5 ppb	0.4 ppb
In Hydrogen ¹	0 – 6 ppm	0.6 ppb	0.5 ppb
In Ammonia	0 – 20 ppm	8 ppb	6 ppb
In Phosphine ¹	0 – 10 ppm	8 ppb	6 ppb
In Arsine ^{1,2}	0 – 10 ppm	4 ppb	3 ppb

¹ Low leak rate vacuum pump required

² H₂O in AsH₃ requires a dedicated sensor module

Contact us for additional analytes and matrices. • U.S. Patent # 7,277,177

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