



# HALO H2

## Trace-Level Hydrogen Analyzer

GASES & CHEMICALS

CEMS

ENERGY

ATMOSPHERIC

SEMI & HB LED

SYNGAS

LAB & LIFE SCIENCE

### Designed for trace-level hydrogen analysis, the HALO H2 offers:

- Low parts-per-billion (ppb) detection capability
- Extremely fast 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, including oxygen

### Leading Choice for Ultra-high Purity Gas Users

Detect gas quality upsets before they damage your process. Using Tiger Optics' HALO H2 hydrogen analyzer, you can verify H<sub>2</sub> impurity levels with part-per-billion accuracy, drift-free stability and instantaneous response. You will 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 oxygen to cleanly and safely convert hydrogen to moisture, the HALO H2 offers a fully laser-based solution for continuous quality control of your process.

**Tiger**optics

21<sup>ST</sup>

CENTURY SPECTROSCOPY

# HALO H2

## Trace-Level Hydrogen Analyzer



Performance	
Operating range	See table below
Detection limit (LDL, 24 h peak-to-peak variation)	See table below
Sensitivity (3 $\sigma$ )	See table below
Precision (1 $\sigma$ , greater of)	$\pm$ 0.75% or 1/3 of Sensitivity
Accuracy (greater of)	$\pm$ 4% or 1/2 of LDL
Speed of response	< 3 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	
Wetted materials	316L stainless steel 10 Ra surface finish
Leak tested to	1 x 10 <sup>-9</sup> 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 slpm ( $\pm$ 20%)
Sample gases	Most inert matrices
Gas temperature	Up to 60°C
Utility gas supply*	Mixture of 1% O <sub>2</sub> , 99% N <sub>2</sub> ~15 sccm, 20 – 125 psig

Dimensions	H x W x D [in (mm)]
Standard sensor	8.73 x 19.0 x 23.6 (222 x 483 x 599)
Weight	
Standard sensor	45 lbs (20.4 kg)
Electrical	
Alarm indicators	2 user programmable 1 system fault Form C relays
Power requirements	90 – 240 VAC, 50/60 Hz
Power consumption	200 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

Performance, H <sub>2</sub> :	Range	LDL (peak-to-peak)	Sensitivity (3 $\sigma$ )
In Nitrogen	0 – 500 ppm	10 ppb	8 ppb
In Argon	0 – 200 ppm	8 ppb	6 ppb
In Helium	0 – 125 ppm	5 ppb	4 ppb
In Oxygen	0 – 250 ppm	50 ppb	4 ppb
In Clean Dry Air (CDA)	0 – 450 ppm	50 ppb	7 ppb

\*O<sub>2</sub>/N<sub>2</sub> supply (maximum 10 ppm H<sub>2</sub>O and H<sub>2</sub> impurity) is required for sample conditioning via catalytic conversion (except for use in O<sub>2</sub> and CDA). Contact us for additional analytes and matrices.  
U.S. Patent # 7,277,177 • U.S. Patent # 7,255,836

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