



# HALO H2

## Trace-Level Hydrogen Analyzer

GASES & CHEMICALS

CEMS

ENERGY

SEMI & HB LED

ATMOSPHERIC

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
- Direct measurement in many matrices, including oxygen

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

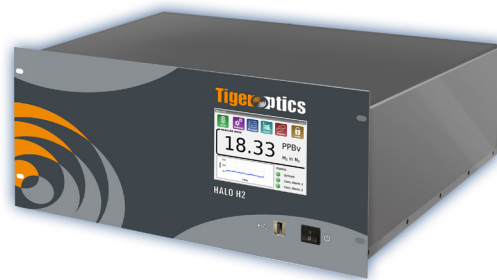
Detect gas quality upsets before they damage your process. Using Tiger Optics' HALO H2 hydrogen analyzer, you can verify H<sub>2</sub> impurity levels with part-per-billion accuracy, drift-free stability and instantaneous response. You will find our system exceptionally easy and fast to install, and 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.

# HALO H2

## Trace-Level Hydrogen Analyzer



### Performance

Operating range	See table on next page
Detection limit (LDL, 3 $\sigma$ /24h)	See table on next page
Precision (1 $\sigma$ , greater of)	$\pm 0.75\%$ or 1/3 of LDL
Accuracy (greater of)	$\pm 4\%$ or 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*	see below for required gas ~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)
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### Weight

Standard sensor	45 lbs (20.4 kg)
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### Electrical and Interfaces

Platform	Max series analyzer
Alarm indicators	2 user programmable 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 USB, RS-232, RS-485 Modbus TCP (optional)
Data storage	Internal or external flash drive
Certification	CE Mark

### Standard Model (requires 1% O<sub>2</sub>, 99% N<sub>2</sub> mixture or CDA utility gas)

Performance, H <sub>2</sub> :	Range	LDL (3 $\sigma$ )	Precision (1 $\sigma$ ) @ zero
In Nitrogen	0 – 500 ppm	8 ppb	3 ppb
In Argon	0 – 200 ppm	6 ppb	2.0 ppb
In Helium	0 – 125 ppm	4 ppb	1.5 ppb

### CDA Model (requires pure N<sub>2</sub> utility gas)

Performance, H <sub>2</sub> :	Range	LDL (3 $\sigma$ )	Precision (1 $\sigma$ ) @ zero
In Clean Dry Air (CDA)	0 – 5000 ppm	80 ppb	30 ppb

\*Utility gas supply purity requirements: <10 ppm H<sub>2</sub>O and H<sub>2</sub> impurities

Contact us for additional analytes and matrices.

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

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**Tiger Optics**  
A Process Insights Company

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