



# HALO H<sub>2</sub>O

## Trace Level Moisture Analyzer for Nitrous Oxide

GASES & CHEMICALS

CEMS

ENERGY

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SEMI & HB LED

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### Designed for trace level moisture analysis in nitrous oxide, the HALO H<sub>2</sub>O offers:

- Low parts per billion (ppb) moisture detection capability in medical N<sub>2</sub>O
- 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

The HALO H<sub>2</sub>O analyzer provides users with the unmatched accuracy, reliability, speed of response and ease of operation that users of Tiger Optics analyzers have come to expect. Featuring Tiger Optics' powerful Cavity Ring-Down Spectroscopy-based moisture sensor in a compact and economical package, this versatile analyzer allows users to measure trace moisture in nitrous oxide (N<sub>2</sub>O) and other gases.

Users can also expect significant cost savings, with no need for periodic sensor maintenance, span calibrations, purifier replacements, and pump rebuilds. As a result, the HALO H<sub>2</sub>O analyzer is ideally suited to many applications where moisture measurement is extremely critical. These applications include process control, continuous quality control, and cylinder analysis for medical and calibration gases and more.

**Tiger**optics

21<sup>ST</sup> CENTURY SPECTROSCOPY

# HALO H<sub>2</sub>O

## Trace Level Moisture Analyzer for Nitrous Oxide



Performance	
Operating range	See table below
Detection limit (LDL, 3 $\sigma$ /24h)	See table below
Precision (1 $\sigma$ , greater of)	$\pm$ 0.75% or 1/3 of LDL
Accuracy (greater of)	$\pm$ 4% or LDL
Speed of response	< 1 minute to 90%
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
Gas connections	1/4" male VCR inlet and outlet
Leak tested to	1 x 10 <sup>-9</sup> mbar l / sec
Inlet pressure	10 – 125 psig (1.7 – 9.6 bara)
Flow rate	Up to 1.8 slpm
Sample gases	Most inert, toxic, passive and corrosive matrices
Gas temperature	Up to 60°C

Dimensions	H x W x D [in (mm)]
Standard sensor	8.73 x 8.57 x 23.6 (222 x 218 x 599)
Sensor rack (fits up to two sensors)	8.73 x 19.0 x 23.6 (222 x 483 x 599)

Weight	
Standard sensor	28 lbs (12.7 kg)

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 per sensor
User interfaces	5.7" LCD touchscreen 10/100 Base-T Ethernet 802.11g Wireless (optional) RS-232 Modbus TCP (optional)

Performance, H <sub>2</sub> O:	Range	LDL (3 $\sigma$ )	Precision (1 $\sigma$ ) @ zero
In Nitrogen	0 – 20 ppm	2.2 ppb	0.8 ppb
In Nitrous Oxide (N <sub>2</sub> O)	0 – 20 ppm	7.5 ppb	2.5 ppb

Contact us for additional analytes and matrices.  
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