



HALO 3 CH₂O

Trace Formaldehyde Analyzer

GASES & CHEMICALS

CEMS

ENERGY

ATMOSPHERIC

SEMI & HB LED

SYNGAS

LABORATORY

Designed for formaldehyde analysis in laboratory and process applications:

- Accuracy traceable to the world's major national reference labs
- Industry-proven technology
- Freedom from the need for span calibrations
- No periodic sensor replacement/maintenance
- Low ppb detection limit
- Wide dynamic range and no drift

Advancing Accurate, Consistent & Drift-Free CH₂O Measurements

Formaldehyde (CH₂O) is a key impurity in fuel cell hydrogen, where it is responsible for the degradation of the proton exchange membrane, adversely affecting performance. Tiger Optics delivers a powerful analytical tool for the measurement of trace CH₂O for diverse applications. The low detection limit allows monitoring for compliance with SAE J2719 or similar purity standards and protects fuel cell vehicles (FCEVs) from damage.

Based on powerful Continuous-Wave Cavity Ring-Down Spectroscopy (CW-CRDS), with a proprietary laser lock cell, the HALO 3 CH₂O is free of drift, guaranteeing consistent and reliable trace CH₂O

detection in nitrogen, hydrogen and other inert gases. Highly specific to the target molecule, CW-CRDS also prevents cross-interferences from distorting your measurement. Plus, there is no need to perform costly and time-consuming zero and span calibrations, saving both time and money with continuous, online service.

The HALO 3 CH₂O gives you unsurpassed speed of response and ease of use. In sum, the HALO 3 analyzer serves a range of applications where trace gas measurement is extremely critical, such as sensor validation, gas standard preparation, and fuel cell hydrogen purity analysis.

Tigeroptics

21ST CENTURY SPECTROSCOPY

HALO 3 CH₂O

Trace Formaldehyde Analyzer



Performance	
Operating range	See table below
Detection limit (LDL, 24 h peak-to-peak variation)	See table below
Sensitivity (3 σ)	See table below
Precision (1 σ , greater of)	\pm 0.75% or 1/3 of Sensitivity
Accuracy (greater of)	\pm 4% or LDL
Speed of response	< 3 min 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
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)
Flow rate	1 slpm
Sample gases	Nitrogen and hydrogen
Gas temperature	Up to 60°C

Performance, CH ₂ O:	Range	LDL (peak-to-peak)	Sensitivity (3 σ)
In Nitrogen	0 – 180 ppm	15 ppb	9 ppb
In Hydrogen	0 – 200 ppm	17 ppb	10 ppb

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

Dimensions	H x W x D [in (mm)]
Standard sensor	8.75 x 8.5 x 23.6 (222 x 216 x 599)
Sensor rack (fits up to two sensors)	8.75 x 19 x 23.6 (222 x 483 x 599)
Weight	
Standard sensor	34 lbs (15.4 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

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