



# HALO 3 CH<sub>2</sub>O

## Trace Formaldehyde Analyzer

GASES & CHEMICALS

CEMS

ENERGY

SEMI & HB LED

ATMOSPHERIC

LAB & LIFE SCIENCE

### 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 CH<sub>2</sub>O Measurements

Formaldehyde (CH<sub>2</sub>O) 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 CH<sub>2</sub>O for diverse applications. The low detection limit allows monitoring for compliance with SAE J2719, ISO 14687 or similar purity standards and protects fuel cell electric vehicles (FCEVs) from damage.

Based on powerful Cavity Ring-Down Spectroscopy (CRDS), with a proprietary laser lock cell, the HALO 3 CH<sub>2</sub>O is free of drift, guaranteeing consistent and reliable trace CH<sub>2</sub>O detection

in nitrogen, hydrogen and other inert gases. Highly specific to the target molecule, 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 CH<sub>2</sub>O 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.

# HALO 3 CH<sub>2</sub>O

## Trace Formaldehyde Analyzer



Performance		Dimensions	H x W x D [in (mm)]
Operating range	See table below	Standard sensor	8.73 x 8.57 x 23.6 (222 x 218 x 599)
Detection limit (LDL, 3σ/24h)	See table below	Sensor rack	8.73 x 19.0 x 23.6 (222 x 483 x 599)
Precision (1σ, greater of)	± 0.75% or 1/3 of LDL	(fits up to two sensors)	
Accuracy (greater of)	± 4% or LDL		
Speed of response	< 3 min to 95%	<b>Weight</b>	
Environmental conditions	10°C to 40°C 30% to 80% RH (non-condensing)	Standard sensor	
Storage temperature	-10°C to 50°C	34 lbs (15.4 kg)	
<b>Gas Handling System and Conditions</b>		<b>Electrical and Interfaces</b>	
Wetted materials	316L stainless steel 10 Ra surface finish	Platform	Max series analyzer
Gas connections	1/4" male VCR inlet and outlet	Alarm indicators	2 user programmable 1 system fault
Leak tested to	1 x 10 <sup>-9</sup> mbar l / sec		Form C relays
Inlet pressure	10 – 125 psig (1.7 – 9.6 bara)	Power requirements	90 – 240 VAC, 50/60 Hz
Flow rate	<1 slpm	Power consumption	40 Watts max.
Sample gases	Nitrogen and hydrogen	Signal output	Isolated 4–20 mA per sensor
Gas temperature	Up to 60°C	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

Performance, CH <sub>2</sub> O:	Range	LDL (3σ)	Precision (1σ) @ zero
In Nitrogen	0 – 40 ppm	5 ppb	1.7 ppb
In Hydrogen	0 – 40 ppm	6 ppb	2.0 ppb

Contact us for additional analytes and matrices.  
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**Tiger Optics**  
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