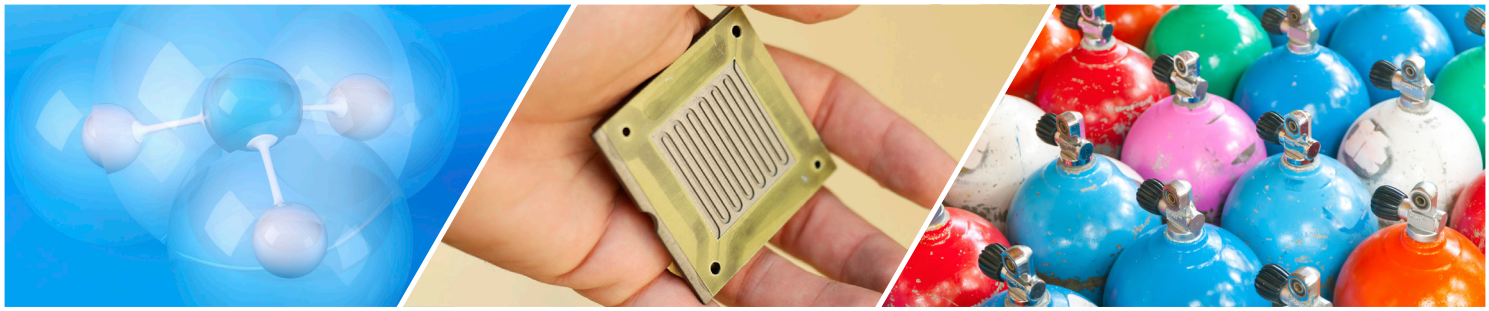

HALO 3 NH_3
Trace Ammonia Analyzer

GASES & CHEMICALS | CEMS | ENERGY | ATMOSPHERIC | SEMI & HB LED | SYNGAS | LAB & LIFE SCIENCE

Designed for trace ammonia 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
- Sub-part-per-billion (ppb) detection limit
- Wide dynamic range and no drift

Versatile, sensitive and hassle-free trace ammonia analysis

Ammonia (NH_3) is a key impurity in many applications, ranging from industrial process control to the anlaysis of fuel cell hydrogen. Tiger Optics delivers a powerful analytical tool for the measurement of NH_3, based on Continuous-Wave Cavity Ring-Down Spectroscopy (CW-CRDS). The HALO 3's low detection limit, drift-free operation, and compatibility with many different sample gases makes it an ideal tool for monitoring trace amounts of ammonia, for example, to ensure compliance with SAE J2719 or similar purity standards for hydrogen used for fuel cell electric vehicles (FCEVs).

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.

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HALO 3 NH_3
Trace Ammonia Analyzer

Performance	
Operating range	See table below
Detection limit (LDL,	See table below
24 h peak-to-peak variation)	
Sensitivity (3σ)	See table below
Precision (1σ, greater of)	± 0.75% or 1/3 of Sensitivity
Accuracy (greater of)	± 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
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	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	8.73 x 19.0 x 23.6 (222 x 483 x 599)
(fits up to two sensors)	
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
	Modbus TCP (optional)

Performance, NH_3:	Range	LDL (peak-to-peak)	Sensitivity (3σ)
In Nitrogen	0 – 7 ppm	0.5 ppb	0.4 ppb
In Hydrogen	0 – 6 ppm	0.4 ppb	0.3 ppb

*Analysis in some specialty gases and certain applications may require a vacuum pump for operation. Please contact us to discuss your specific requirements.

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

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