



HALO 3 CO₂

Trace Level Carbon Dioxide Analyzer

GASES & CHEMICALS

CEMS

ENERGY

ATMOSPHERIC

SEMI & HB LED

SYNGAS

LABORATORY

The HALO 3 CO₂ offers best-in-class performance including:

- Low detection limit down to 10 ppb
- Wide dynamic range
- Freedom from drift
- No spectral interferences
- Compact standalone footprint or rack mountable
- Low Cost of Ownership
- Simple operation

Advancing Accurate, Consistent & Drift-Free CO₂ Measurements

The removal of contaminants prior to cooling and distillation is essential to the cryogenic air separation process. If not detected quickly, impurities such as CO₂ (carbon dioxide) can freeze in the downstream cryogenic equipment causing damage and product spoilage. Tiger Optics' HALO 3 CO₂ analyzer affords fast, accurate response and clean-up, with no possibility of drift.

Based on powerful Cavity Ring-Down Spectroscopy (CRDS), with a proprietary laser-locked cell, the HALO 3 is free of drift, guaranteeing consistent and reliable trace CO₂ detection in nitrogen and other inert gases. Highly specific to the target molecule, CRDS also prevents crossinterferences 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, on-line service.

Compact and portable, the HALO 3 CO₂ gives you unsurpassed speed of response and ease of use. In sum, the HALO 3 CO₂ analyzer serves a range of applications where trace gas measurement is extremely critical, such as syngas production, fixed bulk gas continuous monitoring, gas cylinder quality control, auto-load truckfill and a multitude of other challenging applications. The HALO 3 CO₂ builds on Tiger Optics' longstanding leadership for trace monitoring of critical compounds in pressurized gases.

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21ST CENTURY SPECTROSCOPY

HALO 3 CO₂

Trace Level Carbon Dioxide Analyzer



Performance	
Operating range	See table below
Detection limit (LDL, 24 h peak-to-peak variation)	See table below
Sensitivity (3σ)	See table below
Precision (1σ, greater of)	± 0.75% or 1/3 of Sensitivity
Accuracy (greater of)	± 4% or 1/2 of LDL
Speed of response	< 3 minute to 95%
Environmental conditions	10°C – 40°C 30% – 80% RH (non-condensing)
Storage temperature	-10°C – 50°C

Gas Handling System and Conditions	
Wetted materials	316L stainless steel (optional Hastelloy®) 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	Up to 1.8 slpm
Sample gases	Most inert, toxic, passive and corrosive matrices
Gas temperature	Up to 60°C

Performance, CO ₂ :	Range	LDL	Sensitivity
In Nitrogen Low range	0 – 12 ppm	10 ppb	7 ppb
In Nitrogen High range	0 – 1500 ppm	300 ppb	250 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	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

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