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**Analyzers by AP2E*

CEMGAS NO_x LASER ANALYZER ADVANTAGES AND BENEFITS:

- Interference Free Gas Measurement
- Direct Measurement
 - Sample Conditioning
 - No Moisture Removal
 - Low Temperature Sampling
- Low Maintenance
- Pre-Calibrated
 - Prime Measurement
 - No Re-Zero
- Clean Sample Technology
 - Low- Pressure
 - Low-Flow



NO molecule



NO₂ molecule

CEMGAS 5000 NO/NO₂/NO_x Laser Analyzer*

Direct NO/NO₂/NO_x Laser Measurements

Low Pressure Sampling - Extremely High Resolution Laser

The CEMGAS 5000 NO/NO₂/NO_x Laser Analyzer is a low-cost, pre-calibrated laser infrared spectrometer for the analysis of NO_x gases (NO + NO₂) for process control & combustion optimization and ambient, compliance emissions monitoring.

It's patented low pressure sampling system and Optical Feedback Cavity Enhanced Absorption Spectroscopy (OFCEAS) IR technology, allows for enhanced specificity, selectivity, accuracy and stability.

The touch screen interface features real time display/recording of results and the on-board PC allows for both local/remote control, allowing for off site measurements.

With a minimum Level of Detection of 10 ppb for NO₂, and response times less than 2 seconds, this analyzer allows for compliance with 40 CFR 60 of the EPA's NAAQS regulations.

DIRECT MEASUREMENT.

No sample pre-treatment.

Enables direct measurement. The low pressure in the sampling system minimizes any risk for chemicals absorption/desorption and/or condensation in the line.

CLEAN SAMPLE TECHNOLOGY

The low pressure sampling system enables low flow rates 3-9L/h (0.11-0.33 cfm) without degrading response time. Accumulation of contaminants in lines and filters are greatly reduced.

EASE-OF-USE AND INTEGRATION

The CEMGAS is pre-calibrated for the CEM's application. Initially packaged in a standard 19" rack, it includes a touch screen interface and on-board PC for local control and real-time display of results. Digital outputs are Ethernet protocol; RS485, RS232 and ModBus. Analog outputs are optional.

PRIME MEASUREMENT.

No Re-zero; No Drift

CEMGAS Laser 5000 technology is a prime measurement. The zero information is contained in the signal, enabling automated and intrinsic re-zero of the analyzer.

ROBUST LOW MAINTENANCE

In addition to containing no moving optical components, the IR sources (telecom laser) are characterized by MTBF's of 5-10 years. Designed and built strictly for industrial and on-board mobile applications.

NO INTERFERENCE

Provides exceptional selectivity, enabling simultaneous multi-component measurement without interference, regardless of the matrix.

SAFE

ATEX compliant configuration available.

SAMPLING SYSTEM

Flow Rate: 3-9 L/h (0.11-0.33 cfm)
 Max. Temp: 600°C (1,110 F)
 Max. Humidity: H₂O (g) < 65% vol.—Standard
 H₂O (g) > 65% vol.—Study Required
 Pressure: 1atm. ± 100 mBar @ sampling point
 Sampling Line: Ambient Temp. > 10°C and H₂O < 65% vol.
 →simple polytube (no heating)
 Ambient Temp. < 10°C or H₂O > 65% col.
 →80°C heated line.

ANALYZER

Size: Standard 19" 4U rack.
 550 mm (21.9 in) depth
 Weight: 20 kg (44lbs)
 Options: Wall mounted.
 ATEX compliant integration.
 Display/Control: 5.7" diagonal color touch screen
 PC OS: Windows® XP®
 Software: WinProceas ©

INSTALLATION REQUIREMENTS

Operating Temp: 15-35°C (59-95°F) - Standard
 10-40°C (50-104°F) - Optional
 Power Requirements: 200W - 110 - 220VAC - 50-60Hz
 Compressed Air: 1-6 bar (oil free). Not provided.
 Air Cleanup Panels are available.

SAMPLING PROCESS



The Sonic Probe allows for extremely low intake flow rate which enables extremely low fouling of the sampling probe filter and reduced maintenance requirements. No moisture or particulate cleanup required.



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DATA I/O

Standard: Ethernet protocol; RS 485,
 RS 232; ModBus
 Optional: Analog I/O; TDR I/O.
 Other I/O's on request

ANALYTICAL SPECIFICATIONS

Response Time: < 2 seconds
 (with sample transfer time)
 Zero Drift: none

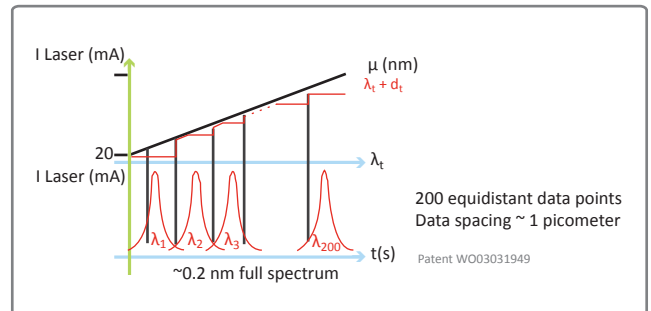
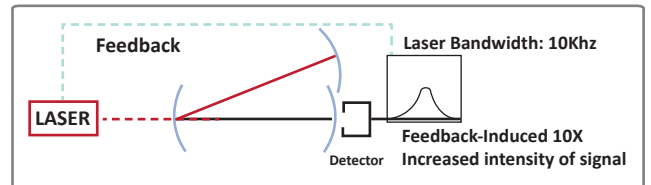
Gas	Range ^a		LOD ^b	
	min	max	min	max
NO	100ppm	100%	100ppb	1000ppm
NO ₂	100ppm	100%	10ppb	1000ppm

^a adjustable range on request

^b limit of detection 3 Sigma

PRINCIPLE OF OPERATIONS

Optical Feedback Cavity Enhanced Absorption Spectroscopy



SPECTRA - 200 equidistant data points over 0,2 nm

