CEMGAS 5000 CH4 Laser Analyzer*

Direct CH4 Laser Measurements - Low Pressure Sampling - Extremely High Resolution Laser

The CEMGAS 5000 CH4 Laser Analyzer is your innovative, cost effective solution to meeting the updated EPA’s methane regulatory compliance requirements.

It is a complete pre-calibrated laser infrared spectrometer for the measurement of low level CH4 in combustion process and pure gas. It’s patented Optical Feedback Cavity Enhanced Absorption Spectroscopy (OFCEAS) IR technology allows for enhanced specificity, selectivity, accuracy and stability.

Pre-calibrated for your application and equipped with a patented low-pressure sampling system, this instrument allows for low-cost installation and low flow rates (3-9 L/h) without degrading response time.

With response times less than 2 seconds and zero drift the CEMGAS 5000 CH4 Laser Analyzer a complete, reliable, robust, low-cost and easy-to-use solution for methane analysis.

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.

**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

<table>
<thead>
<tr>
<th>Gas</th>
<th>Rangea</th>
<th>LODb</th>
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</thead>
<tbody>
<tr>
<td>CH₄</td>
<td>50ppm</td>
<td>1ppb</td>
</tr>
<tr>
<td>Optional</td>
<td>100%</td>
<td>1000ppm</td>
</tr>
<tr>
<td>N₂O</td>
<td>50ppm</td>
<td>2ppb</td>
</tr>
<tr>
<td>NH₃</td>
<td>50ppm</td>
<td>1ppb</td>
</tr>
</tbody>
</table>

* 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**

1750 Brielle Avenue, Unit B-2
Ocean, NJ 07712
P: 732-493-6370
F: 732-493-6180
www.cemtekinstruments.com