

Gasmeter™ CR4000 FTIR Gas Analyzer



Multicomponent FTIR Gas Analyzer

Gasmeter In-lab Series includes quantitative multicomponent gas analyzers for laboratory research applications. The Gasmeter CR4000 incorporates a Fourier transform infrared, FTIR spectrometer, a temperature controlled sample cell, and signal processing electronics. Liquid nitrogen cooled MCT detector has the highest performance available.

The Gasmeter CR4000 is designed for highest sensitivity and speed. It is an ideal tool for example for emissions measurements, catalyst research applications, or to measure any compounds in wet corrosive gas mixtures. The longer path lengths of the sample cell provide low detection limits. The gold coated sample cell can be heated up to 180 °C.

CR-models scanning and analysis speed can be configured according to customers need.

General parameters

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|---------------------------------------|---|
| Measuring principle: | Fourier transform infrared, FTIR |
| Performance: | Simultaneous analysis of up to 50 gas compounds |
| Response time, T₉₀: | Typically < 120 s, depending on the gas flow and measurement time |
| Operating temperature: | 5 - 30°C, non-condensing |
| Storage temperature: | -20 - 60°C, non-condensing |
| Power supply: | 100-115 or 230 V / 50 -60 Hz |
| Power consumption: | 300 W |

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Spectrometer

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|---------------------------|--|
| Resolution: | Recommended 8 cm ⁻¹ or 4 cm ⁻¹ |
| Scan frequency: | 10 scans / s or faster |
| Detector: | Liquid N ₂ cooled MCT |
| Source: | SiC, 1550 K |
| Optics material: | ZnSe (beamsplitter and windows) |
| Wave number range: | 600 - 4200 cm ⁻¹ |

Sample cell

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|-------------------------|---|
| Structure: | Multi-pass, fixed path length 2.5 m |
| Material: | 100 % rhodium coated aluminium |
| Mirrors: | Fixed, protected gold coating |
| Volume: | 0.4 liters |
| Connectors: | Inlet Swagelok 6 mm Outlet Swagelok 8 mm |
| Gaskets: | Viton® O-rings |
| Temperature: | 180 °C, maximum |
| Window material: | ZnSe |

Measuring parameters

| | |
|--------------------------------|--|
| Zero point calibration: | 24 hours, calibration with nitrogen (4.0 or higher N ₂ recommended) |
| Zero point drift: | < 2 % of measuring range per zero |

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| | |
|-----------------------------|---|
| Sensitivity drift: | point calibration interval |
| Linearity deviation: | None |
| Temperature drifts: | < 2 % of measuring range |
| Pressure influence: | < 2 % of measuring range per 10 K temperature change |
| Pressure influence: | 1 % change of measuring value for 1 % sample pressure change. Ambient pressure changes measured and compensated |

Electrical connectors

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|---------------------------|--|
| Digital interface: | 9-pole D-connector for RS-232 CR4000 is connected to an external computer via RS-232C cable. The external computer controls Gasmeter. |
| Power connection: | Standard plug CEE-22 |

Gas inlet and outlet conditions

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|-----------------------------|--|
| Gas temperature: | Non-condensing, the sample gas temperature should be the same as the sample cell temperature |
| Flow rate: | 120 - 600 liters per hour |
| Gas filtration: | Filtration of particulates (2 µm) required |
| Sample gas pressure: | Ambient |
| Sample pump: | External, not included |

Electronics

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|--------------------------|---|
| A/D converter: | Dynamic range 95 dB |
| Signal processor: | 32-bit floating point DSP 120 MFLOPS |
| Computer: | External, not included |

Analysis software (for external PC)

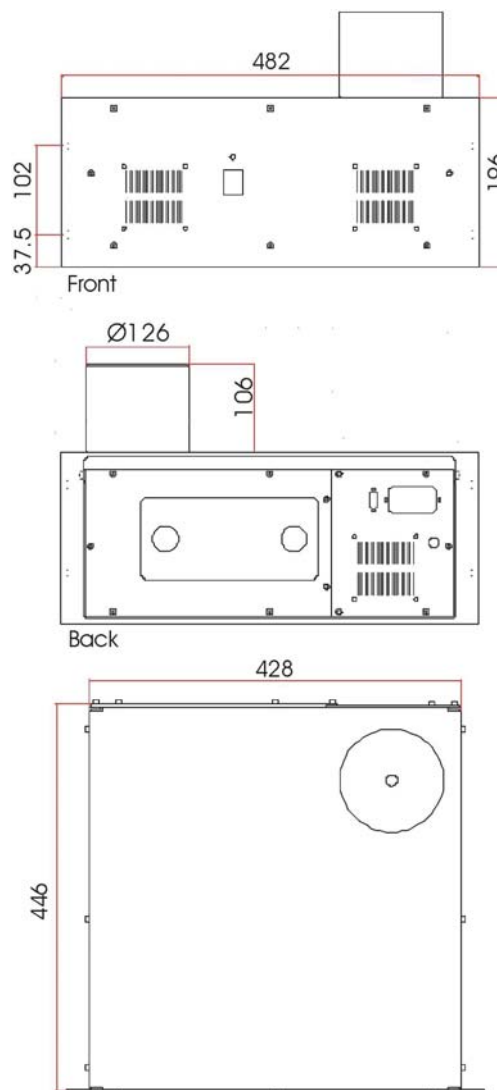
| | |
|---------------------------|---------------------|
| Operating system: | Windows XP |
| Analysis software: | Calcmet for Windows |

Options

| | |
|---------------------------------------|--|
| Sample cell: | Multi-pass, fixed path length 5.0 m or 9.8 m |
| Pressure measurement: | Inside sample cell |
| External PC: | Gasmeter PC |
| Sample cell gaskets: | Teflon [®] coated Viton [®] or Kalrez [®] |
| Enclosure: | 19" rack |
| Liquid N₂ detector: | 33 hours Dewar |

Enclosure

| | |
|-------------------------|--------------------------------------|
| Material: | Aluminium |
| Dimensions (mm): | 512 * 473 * 311 |
| Weight: | 22 kg |
| CE label: | According to EMI guideline 89/336/EC |



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