

# DX4000 FTIR gas analyzer



## Multicomponent FTIR Gas Analyzer

Gasmeter On-site Series includes portable multicomponent gas analyzers for demanding applications. The Gasmeter DX4000 incorporates a Fourier transform infrared, FTIR spectrometer, a temperature-controlled sample cell, and signal processing electronics. The analyzer offers versatility and high performance for all users.

The Gasmeter DX4000 is designed for short term on site measurements with wide dynamic ranges. It is an ideal tool to measure trace concentrations of pollutants in wet, corrosive gas streams. The sample cell can be heated up to 180 °C. Sample cell absorption path length is selected according to the application.

The Gasmeter DX4000 allows simple calibration using only single component calibration gases. The user can easily configure the analyzer for a new set of compounds.

### General parameters

<b>Measuring principle:</b>	Fourier transform infrared, FTIR
<b>Performance:</b>	Simultaneous analysis of up to 50 gas compounds
<b>Response time, T<sub>90</sub>:</b>	Typically < 120 s, depending on the gas flow and measurement time
<b>Operating temperature:</b>	Short term 0 - 40 °C long term 5 - 30 °C non-condensing

<b>Storage temperature:</b>	-20 - 60 °C, non-condensing
<b>Power supply:</b>	100-115 or 230 V / 50 -60 Hz
<b>Power consumption:</b>	Average 150 W, maximum 300 W

### Spectrometer

<b>Resolution:</b>	8 cm <sup>-1</sup> or 4 cm <sup>-1</sup>
<b>Scan frequency:</b>	10 scans / s
<b>Detector:</b>	Peltier cooled MCT
<b>Source:</b>	SiC, 1550 K
<b>Beamsplitter:</b>	ZnSe
<b>Window material:</b>	ZnSe
<b>Wave number range:</b>	900 - 4 200 cm <sup>-1</sup>

### Sample cell

<b>Structure:</b>	Multi-pass, fixed path length 5.0 m
<b>Material:</b>	100 % rhodium coated aluminium
<b>Mirrors:</b>	Fixed, protected gold coating
<b>Volume:</b>	0.4 liters
<b>Connectors:</b>	Inlet Swagelok 6 mm Outlet Swagelok 8 mm
<b>Gaskets:</b>	Viton® O-rings
<b>Temperature:</b>	180 °C, maximum
<b>Window material:</b>	BaF <sub>2</sub>

### Measuring parameters

<b>Zero point calibration:</b>	24 hours, calibration with nitrogen (5.0 or higher N <sub>2</sub> recommended)
<b>Zero point drift:</b>	< 2 % of measuring range per zero point calibration interval
<b>Sensitivity drift:</b>	None
<b>Linearity deviation:</b>	< 2 % of measuring range
<b>Temperature drifts:</b>	< 2 % of measuring range per 10 K temperature change
<b>Pressure influence:</b>	1 % change of measuring value for 1 % sample pressure change. Ambient pressure changes measured and compensated

### Electrical connectors:

<b>Digital interface:</b>	9-pole D-connector for RS-232 Analyzer is connected to an external computer via RS-232C cable. The external computer controls Gasmeter. Remote control connection for Portable sampling unit
<b>Power connection:</b>	Standard plug CEE-22
<b>PSS connection:</b>	Remote connection of PSS (Portable Sampling System)

### Gas inlet and outlet conditions

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

### Electronics

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

### Analysis software (for external PC)

<b>Operating system:</b>	Windows 7 (32-bit)
<b>Analysis software:</b>	Calcmeter for Windows

### Options

<b>Sample cell:</b>	Multi-pass, fixed path length 2.5 m or 9.8 m
<b>Pressure measurement:</b>	Inside sample cell
<b>Analog signals (ext PC):</b>	ADAM 5000/TCP module (for analog inputs, outputs, relays)
<b>Sample cell gaskets:</b>	Kalrez®
<b>Trolley:</b>	Wheeled cart for the analyzer and laptop computer

### Enclosure

<b>Material:</b>	Aluminium
<b>Dimensions (mm):</b>	390 * 445 * 164
<b>Weight:</b>	13.9 kg
<b>CE label:</b>	According to EMI guideline 89/336/EC

