

# DX4015 FTIR Gas Analyzer



## Multicomponent FTIR Gas Analyzer

Gasmeter On-site Series includes portable multicomponent gas analyzers for demanding applications. The Gasmeter DX4015 features a Fourier transform infrared (FTIR) spectrometer, a temperature-controlled sample cell with a built-in pump, and signal processing electronics. The sample cell can be heated to 50 °C. Sample cell absorption path length is selected according to the application. This analyzer offers versatility and high performance for different applications.

The Gasmeter DX4015 is designed for on-site measurements at low concentrations in ambient air. Typical usage areas include industrial hygiene and emergency response situations.

The Gasmeter DX4015 is factory calibrated using certified single component calibration gases. There is no need for the user to do any span calibrations after that. The user can also 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 12 VDC
<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 9.8 m
<b>Material:</b>	100 % rhodium coated aluminium
<b>Mirrors:</b>	Fixed, protected gold coating
<b>Volume:</b>	0.4 liters
<b>Connectors:</b>	Inlets Swagelok 6 mm Outlet Swagelok 6 mm
<b>Gaskets:</b>	Viton® O-rings
<b>Temperature:</b>	50 °C, maximum
<b>Valve:</b>	Manual Swagelok
<b>Window material:</b>	Ar coated ZnSe

### 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.
<b>Power connection:</b>	Standard plug CEE-22

### 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>	~2 liters per minute
<b>Gas filtration:</b>	Filtration of particulates (2 µ) required
<b>Sample gas pressure:</b>	Ambient
<b>Sample pump:</b>	Internal, for ambient air only

### 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 2.5 m or 5.0 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>Power connection:</b>	12 VDC
<b>Power supply cables:</b>	12 V cables with battery clips or cigarette lighter connector
<b>Trolley:</b>	Wheeled cart for the analyzer and laptop computer

### Enclosure

<b>Material:</b>	Aluminium
<b>Dimensions (mm):</b>	438 * 164 * 445
<b>Weight:</b>	14.9 kg
<b>CE label:</b>	According to EMI guideline 89/336/EC

