

# Gasetm™ DX4040 FTIR Gas Analyzer



## The Portable FTIR Gas Analyzer

The Gasetm DX4040 analyzer combines Fourier transform infrared (FTIR) spectrometer, rhodium-gold coated sample cell, built-in sample gas pump and signal processing electronics in a compact unit.

In battery use, operating time is 2.5 hours with one charge. AC power supply is also included. There is a filter for particulates inside the probe and no sample preparation is needed. The lightweight analyzer can be used with or without the durable Teflon coated backpack.

The Gasetm DX4040 is designed for on-site measurements of different compounds (both organic & inorganic) at low concentrations in ambient air. Typical usage areas include industrial hygiene and emergency response situations. The communication between the analyzer module and the PDA is wireless (with Bluetooth protocol).

In the standard configuration, concentrations of 25 gases of interest can be simultaneously monitored.

Furthermore, with the optional Calcmeter 4040 Professional software the analyzer can be connected to a laptop PC for extended analysis capability (e.g. identification of unknown compounds with library spectra).

There are no consumable parts that would need replacing on regular basis. In addition, due to FTIR technology, the calibrations remain very stable. Hence no span calibrations are needed. Also, cross-interferences (i.e. interference from other gases) are automatically compensated in the analysis algorithm during the calculation of the results.

To sum up, the Gasetm DX4040 provides a very cost-effective, easy-to-use solution for multi-component gas analysis in ambient air.

### General parameters

<b>Measuring principle:</b>	Fourier transform infrared, FTIR
<b>Performance:</b>	Simultaneous analysis of up to 25 gas compounds (PDA), 50 gas compounds with optional Calcmeter software
<b>Response time, T<sub>90</sub>:</b>	Typically < 120 s, depending on the gas flow and measurement time
<b>Operating temperature:</b>	Ambient temperature Short term 0 – 40 °C Long term 5 – 30 °C Non-condensing
<b>Storage temperature:</b>	10 – 35 °C, non-condensing
<b>Shipping temperature:</b>	-20 – 45 °C during 12 hours, non condensing
<b>Power supply:</b>	115 / 230 VAC
<b>Battery functioning time:</b>	Approximately 2.5 hour operation time with Bluetooth ON (dependent of ambient temperature).

### Spectrometer

<b>Resolution:</b>	8 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 aluminum
<b>Mirrors:</b>	Fixed, protected gold coating
<b>Volume:</b>	0.4 liters
<b>Temperature:</b>	Ambient

### Measuring parameters

<b>Zero point calibration:</b>	24 hours
<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>	Bluetooth protocol & RS-232
	The analyzer is connected to a PDA with Bluetooth connection (RS-232 optional). The PDA provides the analysis results.
	Option: sample spectra transfer to laptop (PC) for additional analytical capabilities

### Gas inlet and outlet conditions

<b>Gas temperature:</b>	Ambient temperature (0 – 50 °C), non-condensing
<b>Flow rate:</b>	120 – 360 liters per hour
<b>Gas filtration:</b>	Filtration of particulates included in the sample probe
<b>Sample gas pressure:</b>	Ambient
<b>Sample pump:</b>	Flow 2 l/min, for ambient air only

### Electronics

<b>A/D converter:</b>	Dynamic range 95 dB
<b>Signal processor:</b>	32-bit floating point DSP

### Analysis software (PDA)

<b>Operating system:</b>	Windows Mobile 6.1 Professional
<b>Analysis software:</b>	Calcmeter Lite

### Options

<b>Software:</b>	Calcmeter software with DX40XX Pro key. Laptop PC + Windows XP required. For more information read Calcmeter Technical data.
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### Additional information

<b>Enclosure:</b>	Polyurethane
<b>Weight:</b>	12 kg
<b>CE label:</b>	According to EMI guideline 89/336/EC