The Portable FTIR Gas Analyzer

The Gasmet DX4040 is a truly portable FTIR gas analyzer. The Gasmet DX4040 FTIR gas analyzer combines a Fourier transform infrared 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 carrying harness.

The Gasmet DX-4040 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. Analysis results of up to 25 pre-calibrated compounds are displayed on screen of a PDA (Personal Digital Assistant). The communication between the analyzer module and the PDA is wireless (with Bluetooth protocol).

The standard application libraries of monitored gases can be easily changed by the operator, and the gas concentration data can be linked to GPS coordinates of the measuring site provided by a GPS antenna built into the PDA device.

Furthermore, with the optional Calcmet 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 Gasmet Dx-4040 provides a very cost-effective, easy-to-use solution for multi-component gas analysis in ambient air.
**General parameters**

**Measuring principle:** Fourier transform infrared, FTIR

**Performance:** Simultaneous analysis of up to 25 gas compounds (PDA), 50 gas compounds with optional Calcmet 4040 Pro software

**Response time, T90:** Typically < 120 s, depending on the gas flow and measurement time

**Operating temperature:** Ambient temperature
  - Short term 0 - 40°C
  - Long term 5 - 30°C
  - Non-condensing

**Storage temperature:** -20 - 60°C, non condensing

**Power supply:** 12 VDC or 115 / 230 VAC
  - Approximately 2.5 hours operation time with battery

**Spectrometer**

**Resolution:** 8 cm⁻¹

**Scan frequency:** 10 scans / s

**Detector:** Peltier cooled MCT

**Source:** SiC, 1550 K

**Beam splitter:** ZnSe

**Window material:** ZnSe

**Wave number range:** 900 - 4 200 cm⁻¹

**Sample cell**

**Structure:** Multi-pass, fixed path length 9.8 m

**Material:** 100 % rhodium coated aluminum

**Mirrors:** Fixed, protected gold coating

**Volume:** 0.4 liters

**Temperature:** Ambient

**Measuring parameters**

**Zero point calibration:** 24 hours

**Zero point drift:** < 2 % of measuring range per zero point calibration interval

**Sensitivity drift:** none

**Linearity deviation:** < 2 % of measuring range

**Temperature drifts:** < 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:**

**Digital Interface:** 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**

**Gas temperature:** Ambient temperature (0 – 50°C), non-condensing

**Flow rate:** 120 – 360 liters per hour

**Gas filtration:** Filtration of particulates included in the sample probe

**Sample gas pressure:** Ambient

**Sample pump:** Flow 2 l/min, for ambient air only

**Electronics**

**A/D converter:** Dynamic range 95 dB

**Signal processor:** Two 32-bit floating point DSP’s 120 MFLOPS speed

**Analysis software (PDA)**

**Operating system:** Windows Mobile 6.0

**Analysis software:** Calcmet Lite

**Options**

**Software:** Calcmet 4040 Professional for additional analysis functions (identification of unknowns etc.). Laptop PC + Windows XP required. For more information read Calcmet 4030 Std and Pro Technical data.

**Enclosure**

**Material:** Aluminium

**Weight:** 11.5 kg

**Dimensions:** 410 mm x 392 mm x 168 mm

**CE label:** According to EMI guideline 89/336/EC

All technical information may change without notice.