MINIATURIZED NIR/MIR SPECTROMETER

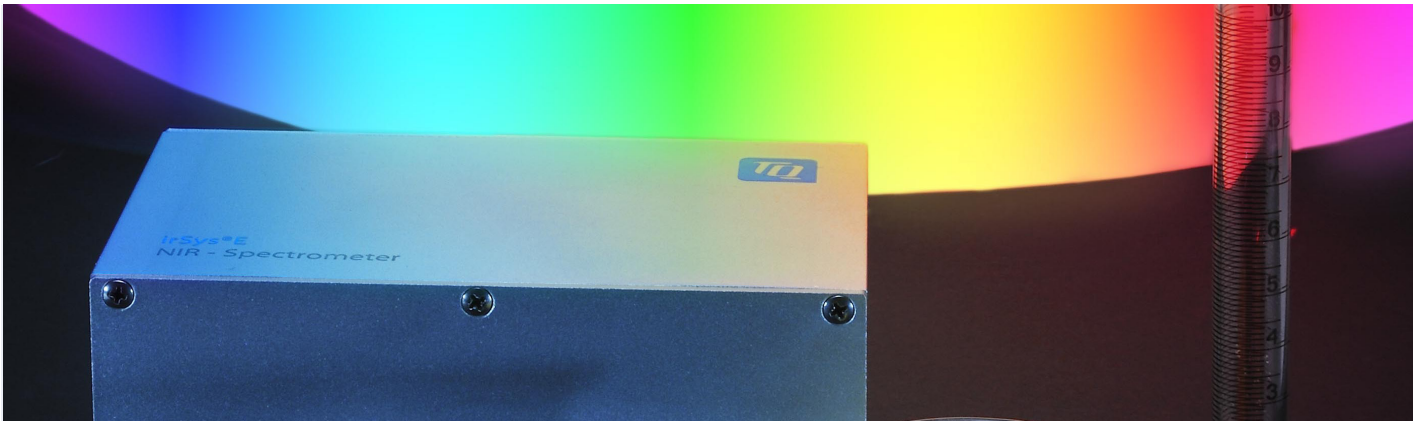

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Photo acknowledgments:
Fraunhofer ENAS, TQ Systems

General Description

The micro mirror spectrometer described here, is realized in a simple optical set-up according to conventional scanning spectrometer. A scanning micro mirror, combined with a diffraction grating, is the essential element. It periodically disperses polychromatic radiation into its spectral components, which are measured by a single element detector. There is radiation coupling either directly or by using fiber optics, which allows an easy attachment of substance samples. Detectors can be thermoelectrically cooled depending on the application. Lowest noise preamplifiers enable high-precise measurements over a wide dynamic range. Via USB or RS-485 interface data can be transferred to a personal computer or laptop where application software allows graphical presentation and further processing. The firmware can be customized to meet different requirements. The MOEMS-based spectrometer is developed in cooperation with TQ Systems GmbH, Chemnitz (former: COLOUR CONTROL Farbmesstechnik GmbH, Chemnitz).

Key Features

- Fast and efficient measurement
- Compact and portable
- Shock resistant and light weight

Suggested Applications

- Process measurement
- Environmental sensing
- Quality control

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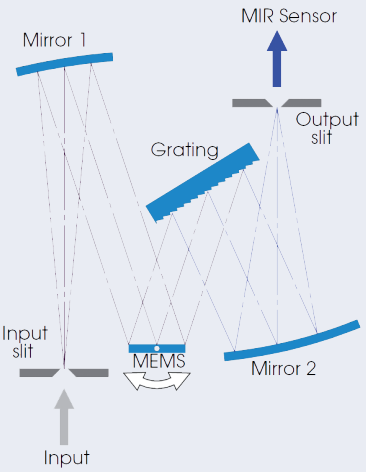

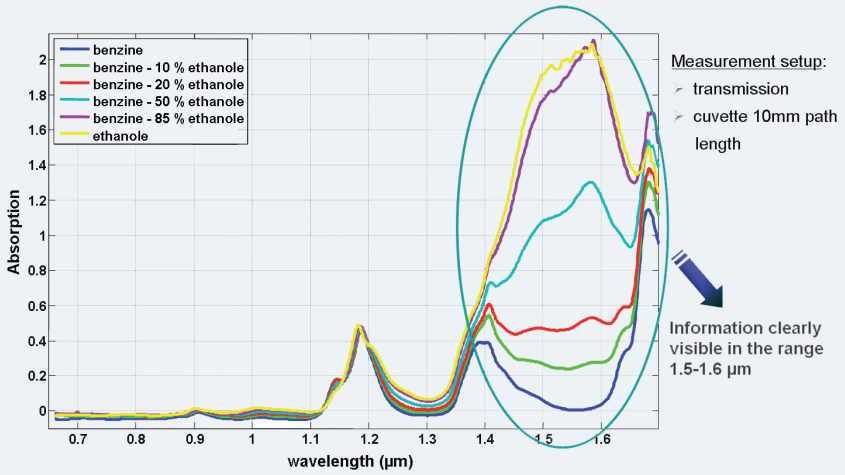

Specifications:

Parameter	NIR*	MIR*
Wavelength range	0.66 – 1.73 µm	2.3 – 3.1 µm
	0.91 – 2.1 µm	2.4 – 3.1 µm
	0.91 – 2.39 µm	2.4 – 3.4 µm
		2.4 – 4.0 µm
		2.45 – 4.85 µm
Spectral resolution	8 nm	14 nm
	11 nm	21 nm
	11 nm	21 nm
		21 nm
		21 nm
SNR single measurement	7000:1	1200:1
	2500:1	2200:1
	1000:1	1300:1
		700:1
		200:1
Wavelength accuracy	< 1 nm	< 3 nm
Primary measuring time	4 ms	4 ms
Overall size	138 x 89 x 66 mm	138 x 89 x 66 mm
Power supply	24 V / 2.9 W (no TE cooling) ... 5 W (2 sensors TE cooled)	

** Further versions with different specifications available*

Picture description:

page 1: NIR-spectrometer for spectral analysis of fluidics.

page 2 (left): Working principle of the NIR-spectrometer.

page 2 (right): Spectral analysis of benzine (application example); in cooperation with Siemens AG.

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