



## irSys<sup>®</sup> NIR-spectrometer

Forced by a steadily increasing number of industrial application fields and due to demands for shorter time of analysis, near infrared spectroscopy (NIRS) has been developed to a useful and essential method of analysis in the past years.

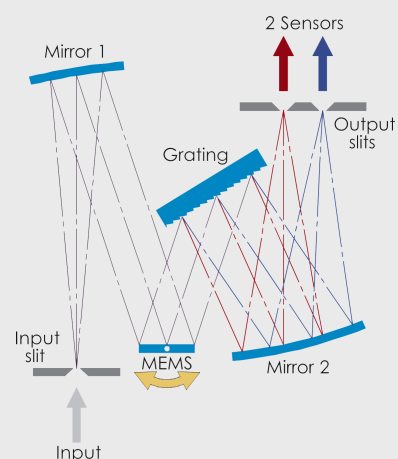
A variety of applications such as on-site analytics requires miniaturized and portable spectrometers at an affordable price. IrSys<sup>®</sup> opens up new opportunities to fill this gap by integration of micro system technology and optics.

### Advantages

- Compact, mobile and affordable
- Free configurable ( wavelength range, spectral resolution)
- Quick acquisition (2ms primary scan time) enables real time measurements
- High accuracy
- Flexible use (connection via fiber)
- A lot of accessories available
- Extensive development support for integration in custom specific systems, i.e. software customizing, automatic sample generation, light sources, automation technology

### Working principle

The spectrometer irSys<sup>®</sup> is based on the well known principle of scanning grating spectrometers. Main component is a micro mirror which periodically deflects radiation to a diffraction grating. The separated spectra are lead to an exit slit. Those spectra are acquired by a single element detector which can be cooled on demand. Radiation input comes either directly or from fiber optics. Extremely low noise amplifiers enable measurements within a large dynamic range. Using the integrated control logic spectral data are pre-processed. The data is transferred to a PC or laptop via USB or RS-485 connection.



User specific requirements can be integrated into spectrometer firmware.

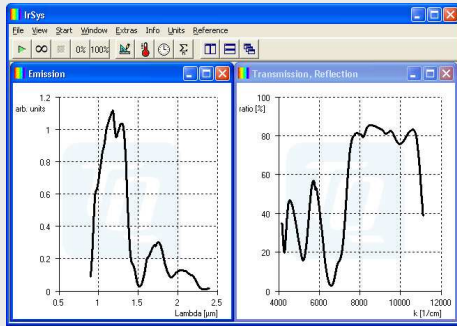
An application software serves as a visual data output and for simple data processing.

### Applications

- Identification of polymers during recycling process
- Process control during polymerization
- Layer thickness measurement
- Determination of stationary final point of different reactions (e.g. esterification)
- Identification and classification of raw materials
- Determination of moisture after evaporation or drying
- Measurement of fat or water content in milk, butter etc.
- Determination of alcohol in beer, wine or other spirits
- Identification of saturated fatty acids

### Software

irSys<sup>®</sup> application software controls spectrometer unit and visualizes obtained spectra. Spectra are shown accordingly to wavelength or wave number units. Simple spectral operations like offset correction or referencing are possible. Spectral data can be saved as an ASCII file either separated or in a common matrix.



Additional export options for adaption to 3rd party software can be delivered on request. Software is parameterized by a device specific INI file. For easy integration into user applications a simple DLL is provided, too.

Recommended operating systems: Windows XP / Windows 7.

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### Technical specifications irSys<sup>®</sup> 1.7

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#### Wavelength Range

660nm to 1.730nm

#### Detectors

Si and InGaAs detectors

#### Spectral Resolution

9nm (300µm slit)

#### SNR (single shot)

7.000:1

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### Technical specifications irSys<sup>®</sup> 2.1

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#### Wavelength Range

910nm to 2.100nm

#### Detectors

2 x InGaAs detectors

#### Spectral Resolution

12nm (300µm slit)

#### SNR (single shot)

1.000:1

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### Technical specifications irSys<sup>®</sup> 2.4

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#### Wavelength Range

910nm to 2.390nm

#### Detectors

2 x InGaAs detectors

#### Spectral Resolution

12nm (300µm slit)

#### SNR (single shot)

100:1

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### Common Technical Specifications

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#### Stray Light

-30dB

#### Slit Width (alternatives)

300µm (350µm, 250µm, 200µm, 150µm)

#### Scan Time

4ms

#### Wavelength Accuracy (after auto calibration)

±0,07nm

#### Recommended Fiber

400µm, 0.22NA

#### Measurement Throughput

80 spectra / minute

#### Temperature Range

5-45°C

#### Radiation Input

SMA905

#### Interfaces to Host

USB / RS-485

#### Dimensions

107mm x 75mm x 85mm

#### Weight

700g

#### Power Supply / Power Consumption

24V / 3.5W

#### Software

Win XP / Win 7

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### Accessories

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Plug-in switching power supply unit  
 USB cable with USB mini connector, USB driver  
 irSys<sup>®</sup> Software  
 User documentation

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