

MultiSpec

UV/VIS/NIR Detector Array Spectrometer Systems

MultiSpec is a modular instrument family of fast and simultaneous readout spectrometer systems for the UV/VIS/NIR. Based on flexible 19" chassis technology it is ideal for process applications. Various spectral ranges, resolutions, and PC-interfaces are available. The integrated

spectrometers are high-quality modules without moving parts and with outstanding long-term stability. An electronic multiplexer option makes real multi-channel operation possible. The standardized SMA connectors at the front side allow easy connection of fiber-optic accessories.



MultiSpec^{Remote}

- Available spectral range 200 – 1700 nm (- 2500*)
- Fast, precise, robust
- Modern detector array technology
- Wide dynamic range of up to 16 bit
- Various PC interfaces
- Analog and digital I/O for process communication
- Versatile software packages

Spectrometer Module

MultiSpec systems are based on the monolithic spectrometers from Carl Zeiss. The high light sensitivity and the extreme stability of these components allow together with the tec5 15/16-bit electronics very accurate measurements with high dynamic range. The modules are available for various wavelength ranges and resolutions. Two spectrometers with different wavelength ranges can be controlled in parallel.

Plug-In-Cassette Design

MultiSpec systems follow a modular concept. All components, such as spectrometers or light sources, are integrated in cassettes, which can be changed easily. System parameters (e.g. sensor type, sensor length, calibration coefficients) are stored within the cassettes and will be read out at system start. This keeps the necessary flexibility for future measuring demands and easy exchange during maintenance.

PC Interfaces

Different interfaces guarantee easy transfer from laboratory to process:

MultiSpec^{Desktop}: The Desktop version with PCI-Bus plug-in board or USB 2.0 interface is especially suitable for applications with high data transfer rates.

MultiSpec^{Remote}: The Remote version offers a RS-232/RS-485 interface. With RS-485 an external control by a host PC of up to 6 units over a distance of more than 1 km is possible.

MultiSpec^{StandAlone}: The StandAlone version with integrated embedded PC offers a powerful and compact unit. For process communication it provides Ethernet interface, analog 4...20mA outputs and digital I/O's.

Multiplexing – Multi Channel Systems

The electronic spectral sensor multiplexer (for Si-PDAs) provides important advantages. For multi-point applications spectra of up to 8 channels can be taken simultaneously, therefore, the costs per measurement point is reduced dramatically. With the 2-channel version sample and reference data are acquired at the same time for referencing of e.g. a Xe flashlamp. Variations and drifts of the light source are compensated perfectly. The tec5 multiplexer has no moving parts and is fast and reliable. For other PDAs an optical MUX is available.

Process Communication

The MultiSpec systems can be equipped with analog (4-20mA) and digital I/Os for process communication to transfer results and status information (e.g. system error, system warning, out-of-range signal) to a process control system. In addition, a remote control from an SPS or PLS is available to trigger a measurement cycle or to stop the continuous data acquisition for maintenance. Various add-on I/O-boards with and without opto-isolation are available. Other communication protocols (Profibus, Ethernet...) can be integrated on customer request.

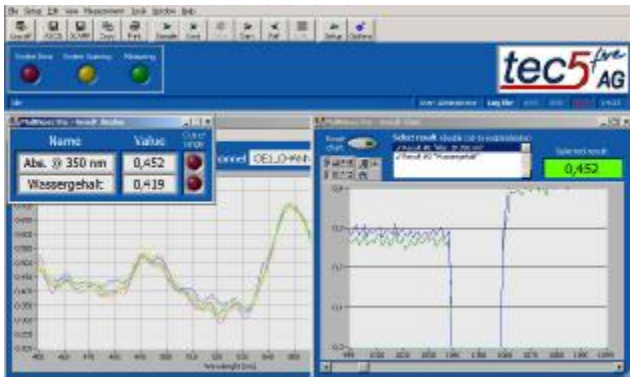
Accessories



Equipped with appropriate fiberoptics and probes the system can be adapted for your measurement task. For rough environment a 19" rack enclosure (or Ex-proof housing) is available. We assist you in finding the optimized solution.

Software Modules

- MultiSpec Pro Process Software with various data processing algorithms (e.g. color evaluation/chemometrics with The Unscrambler, NIRCal & GRAMS models) based on LabVIEW™
- 32 bit function library for LabVIEW™ and programmer interface for C++/ VB/ Delphi for the development of application specific software
- Instrument drivers for GRAMS/AI from Thermo Galactic (21 CFR part11 compliant)
- Film Thickness Meas. Software FTM-ProVis2000
- Additional modules on request



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Light Sources

The MultiSpec systems can be equipped with various light sources, depending on the application.

- Usable wavelength range:
 - Halogen lamp: 360nm – 2500nm
 - Deuterium lamp: 200nm – 600nm
 - Shine-through lamp: 200nm – 2500nm
 - Xenon flash lamp: 200nm – 1100nm
- Lamp and shutter control by PC
- 2 internal filter ports

Technical Data:

Spectral sensor

(Specifications depend on applied module)

Spectral range:	200 – 1700 nm (* - 2500 nm on request)
Resolution (Rayleigh):	2.5 - 18 nm
Pixel dispersion:	0.8 - 6 nm
Wavelength accuracy:	0.1 - 0.6 nm
Number of pixels:	128 / 256 / 512 / 1024

Operating Electronics

(Specifications depend on applied module)

Resolution:	15 / 16 Bit
Integration time:	variable from 1.5 ms – 6 s (depending on number and size of arrays)

Optical Interface

Standard SMA connectors

Other

Power supply:	110/220V, 50/60Hz
Dimensions (HxWxD) (Standard enclosure)	180 x 427 x 411 [mm] (3/4 HE / 84TE)
Weight:	12 kg – 15 kg
Operating temperature:	5 °C – 40 °C (32°C with MMS NIR 1.7tc)