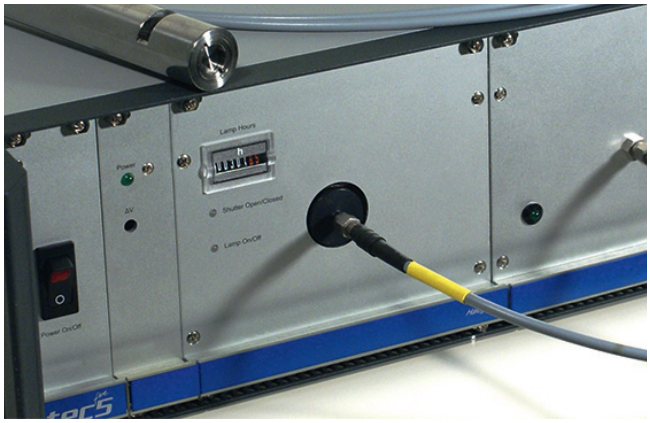
MultiSpec® UV-NIR: UV-NIR Detector Array Spectrometer Systems

MultiSpec UV- NIR is part of the modular MultiSpec instrument family of fast simultaneous read-out spectrometer systems. Based on flexible 19“ chassis technology, it is the perfect tool for process applications. The integrated spectrometers are high-sensitive modules without moving parts and with outstanding long-term stability. The detector array design allows acquisition of whole spectra in milliseconds. Multiplexing technology offers multichannel operation. The standardized SMA connectors on the front allow easy coupling of fiber optics with all types of probes and cells.

Features

- Modern detector array technology without moving parts
- Available spectral range: 190 – 2170 nm
- Fast, precise, robust
- Drift-free operation due to internal referencing
- Standard fiber-optic connection
- Electrical and optical multiplexer technology
- Longlife, high stability light sources

MultiSpec UV-NIR



Spectrometer Module

The MultiSpec systems are based on the monolithic spectrometers from Carl Zeiss. The high sensitivity and the extreme stability of these modules combined with tec5 15/16-Bit electronics allow for very accurate measurements with high dynamic range. The modules are available with various wavelength ranges and resolutions. Multiple spectrometers with different wavelength ranges can be controlled in parallel to cover a maximum range of 190 – 2170 nm.

Plug-In Cassette Design

MultiSpec systems follow a modular concept. All the components, such as spectrometers or light sources, are integrated into cassettes, which can be changed easily.

Multiplexing – Multi Channel Systems

The electronic spectral sensor multiplexer MUX-8A (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. Variations and drifts of the light source are compensated perfectly by using 1 channel as reference channel. The tec5 multiplexer has no moving parts and is fast and reliable.

For NIR applications an optical multiplexer based on piezo technology is available. Fast switching time, low coupling looses, very good reproducibility and a high lifetime are characteristic of this unit.

Process Communication

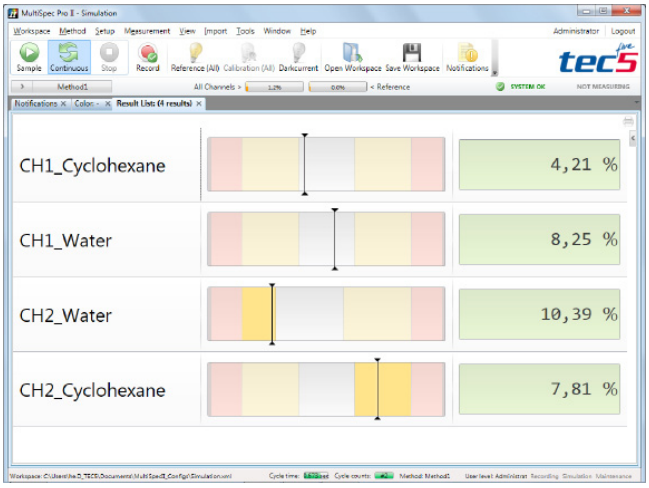
The MultiSpec systems can be equipped with an OPC interface or various add-on I/O-boards (4-20mA, digital I/Os, Profibus) for process communication to transfer results and status information (e.g. system error, system warning, out-of-range signal) to a process control system. Additionally, a remote control from an SPS or PLS is available to trigger for maintenance measurement cycles or to stop continuous data aquisition.

Technical Data

Spectrometer Cassettes - Standard Versions			
Spectral sensor (Specifications depend on applied module)	PGS NIR	MCS	MMS
Spectral Range	960 - 2170 nm	190 - 1100 nm	190 - 1100 nm
Number of Pixels	256 or 512	512 or 1024	256
Resolution (Rayleigh)	5 – 16 nm	< 3 nm	3 – 10 nm
Pixel Dispersion	1.5 – 5 nm	1.5 – 5 nm	0.8 – 3.3 nm
Wavelength Accuracy	< 0.6 nm	< 0.3 nm	0.2 – 0.3 nm
Light Source	Halogen lamp: 360 nm – 2500 nm; Shine-through lamp: 190 nm – 2500 nm; Xenon flash lamp: 200 nm – 1100 nm		
Optical Interface	Standard SMA connectors		
Operating Electronics (Specifications depend on applied module)			
Intensity Resolution	16 Bit	15 / 16 Bit	15 Bit
Integration Time	Variable from 0.1 ms – 6 s (depending on type and size of array)		
Miscellaneous			
Power Supply	110 / 220 V; 50 / 60 Hz		
Dimensions [mm³] (Std.-enclosure)	180 x 427 x 411 (3HE/84TE)		
Weight	12 – 15 kg		
Operating Temperature	5 °C – 40 °C (35°C with PGS NIR and MCS CCD)		

MultiSpec® Pro II Process Software

MultiSpec Pro II is an improved new software bundle for laboratory and process applications. Incorporating current program environments and visualization schemes, a number of data acquisition modes, data processing and output options are provided. Three packages are offered, which range from a basic data acquisition tool to a process software, including status information and user management. Optional modules, including color determination, prediction of chemometric models and a number of process communication interfaces facilitate the adaption to required applications. The software package supports all tec5 spectrometer systems and electronics.



Technology for Spectroscopy

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