

## MultiSpec® NIR: NIR Detector Array Spectrometer System

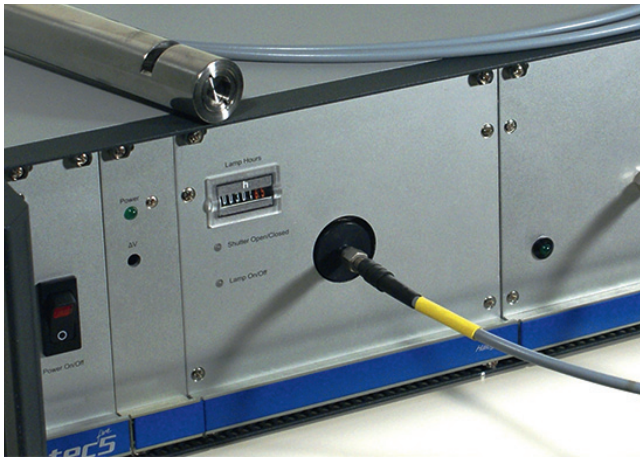
MultiSpec NIR is part of the modular MultiSpec instrument family of fast simultaneous read-out spectrometer systems. Based on flexible 19" chassis technology, it is the perfect tool for process applications. The integrated spectrometers are high-sensitive modules without moving

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

- (Extended) InGaAs technology
- Available spectral range: 960 – 2170 nm
- Fast, precise, robust
- Longlife halogen light source (>12,000 h)
- Standard fiber-optic connection
- Multi-component analysis
- Up to 8 measurement channels
- High reproducibility and long-term stability

### MultiSpec NIR



#### Spectrometer Modules

The MultiSpec system is based on the quasi-monolithic PGS spectrometer modules from Carl Zeiss. The high sensitivity and the extreme stability of these modules combined with tec5 16-Bit electronics allow for very reproducible and accurate measurements with a large dynamic range.

#### 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.

#### Light Source

The MultiSpec NIR systems is equipped with a highly stable longlife halogen lamp. The light source is software controlled and holds a shutter for automatic dark current correction. tec5 uses only pre-aligned lamps for easy replacement.

#### Multiplexer

The optional multiplexer module MUX-FSM is based on piezo technology and allows measurements of up to 8 channels. Fast switching time, low intensity reduction, a very good reproducibility and a high lifetime are characteristic of this module.

Alternatively, we offer a 2-channel optical multiplexer, which can be used for direct referencing of the light source to compensate for long-term variations.

#### 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 acquisition.

# Systems

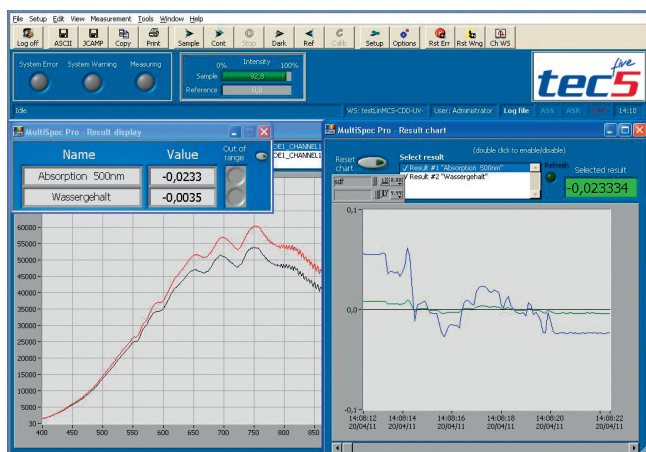
## Product Information MultiSpec® NIR

### Technical Data

Spectrometer Cassettes - Standard Versions			
ID-Nr.: 11 -0130211-	-11	-21	-41
	NIR PGS 1.7	NIR PGS 2.0	NIR PGS 2.2
Spectral Range	960 - 1690 nm	1340 - 2000 nm	1000 - 2150 nm
Number of Pixels	512	256	256
Resolution	5 nm	6 nm	16 nm
Detector	Thermoelectrically cooled InGaAs array		
Wavelength Accuracy	0.6 nm		
Temperature – induced Drift	0.012 nm/K		
Light Source	Longlife halogen lamp, >12,000 h lifetime		
Optical Interface	SMA connectors		
<b>Electronics</b>			
Intensity Resolution	16 Bit		
Integration Time	Variable from 0.1 ms – 1.5 s		
Readout time	3.4 ms		
PC Interfaces	Ethernet, Highspeed USB		
<b>Miscellaneous</b>			
Power Supply	110 / 220 V; 50 / 60 Hz		
Dimensions [mm <sup>3</sup> ] (Std.-enclosure)	133 x 448 x 435 (3HE/84TE)		
Weight	12 kg		
Operating Temperature	5°C – 35°C		

### Software Modules

- MultiSpec Pro Process Software with various data processing algorithms such as chemometric predictions based on models from The Unscrambler, GRAMS or SensoLogic
- 32-bit function library for LabVIEW™ and programmer interface for C++/ VB/ Delphi for the development of application specific software
- Additional modules on request



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**tec5**  
Technology for Spectroscopy

#### Headquarters

**tec5 AG** | In der Au 27  
61440 Oberursel, Germany  
Tel: +49 6171 9758-0  
info@tec5.com | www.tec5.com  
www.tec5uk.com | www.tec5usa.com