

CompactSpec II: Process UV-VIS-NIR Spectrometer System

CompactSpec II and CompactSpec II EEx are fast and robust UV-VIS-NIR spectrometer systems in a stainless steel cabinet (IP54) with an industrial PC and TFT touch screen monitor. Based on fast and reliable detector array and highly stable lamp technology, it is optimized for demanding process applications. Real multi-channel operation can be

realized by diverse multiplexer options. The system is available with various spectral ranges and resolutions. Fiber optics in combination with probes or flow-through cells allow measurements in pipes and reactors, close to the line.

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
- Available in EEx p versions (ATEX certified)



CompactSpec II



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.

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 losses, 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 acquisition.

Systems

Product Information CompactSpec® II

Technical Data

Spectrometer Units	NIR PGS 1.7	NIR PGS 2.0	NIR PGS 2.2	MMS UV-VIS	MMS UV-VIS II	MMS UV
Wavelength Range				190–720 nm	250–785 nm	195–390 nm
Specified Range	960 – 1690 nm	1340 – 2000 nm	1000 - 2150 nm	220–720 nm	250–785 nm	220–390 nm
Spectral Resolution	5 nm	6 nm	16 nm	< 7 nm	< 7 nm	< 3 nm
Pixel Dispersion	1.5 nm	2 nm	5 nm	2.2 nm		0.8 nm
Wavelength Accuracy	0.6 nm			0.2 nm		
Thermal Drift	< 0.012 nm/K			< 0.006 nm/K		0.005 nm/K
Number of Pixels	512	256	256	256	256	256
Intensity Resolution	16 bit			15 bit (2 ¹⁵ counts = 32768 counts)		
Noise	typ. < 4 counts std. dev.; S/N: > 15.000			typ. < 1.5 counts std. dev.; S/N: > 20,000		
Integration Time	Adjustable of 0.1 ms–6 s			Adjustable of 1.5 ms–6 s		
Light Source	Xe flash lamp (>10 ⁸ flashes); Longlife halogen lamp (>12,000 h lifetime)					
Optical Interface	SMA connector					Optional with solarization proof fibers

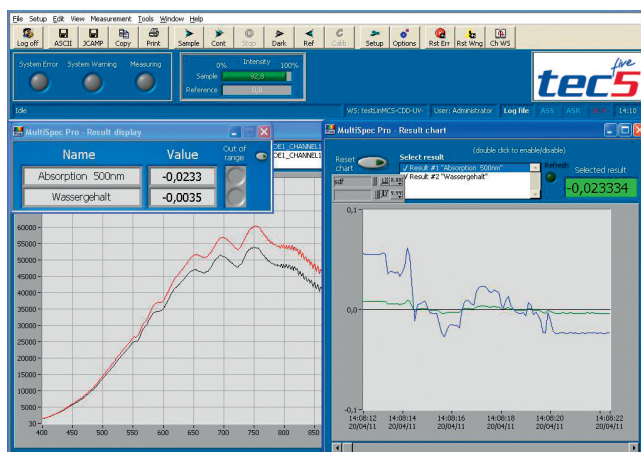
Other spectrometer modules (Carl Zeiss MCS, MMS and PGS series), lamps and fiber optical multiplexers are available on request.

Miscellaneous

Power Supply	230 VAC
Dimensions (H x W x D)	760 x 600 x 210 [mm]; 1000 x 600 x 220 [mm] (EEx version)
Weight	50 kg
Operating Temperature	5°C – 50°C With active Vortex Cooler, (requires 6 bar compressed air supply)
Environmental Protection	IP54

MultiSpec® Pro Process Software

MultiSpecPro offers a variety of data acquisition modes from data display/processing and output options that are optimized for process applications. MultiSpecPro comes as a base version with various add-on modules available for analysis, such as chemometric prediction, color measurement and process communication.



tec5_PL_Systems_CompactSpecII_e_2011/12

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