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# SPECTRO 320

Optical Scanning Spectrometer

## ***ADDENDUM TO RELEASE 5***



- Entire measuring range from 190 to 5000 nm in a single scan
- Optional cooled silicon and extended InGaAs detectors (2150 nm)
- Immediate measurement using default parameter sets stored in the spectrometer
- Multiple subranges, each with separate scan parameters
- Standard SCPI command language for simple programming
- More powerful grating motor for enhanced speed range
- SPECTRO 320D double monochromator now with switchable DFI (direct fiber input) and PLG input
- Improved dynamic range and reduced noise thanks to new 16-bit ADC and preamplifier integrated in the detector housing

### **The SPECTRO 320 R5 sets new standards**

With the introduction of Release 5 of the SPECTRO 320 Optical Scanning Spectrometer, this successful model is now entering its fifth generation. Equipped with totally new electronics and firmware, the SPECTRO 320 R5 features numerous improvements that increase not only the accuracy of this high-end spectrometer but also its efficiency and flexibility.

The new SPECTRO 320 R5 models can also accommodate up to three different detectors and gratings, which can now all be switched between automatically during a scan. This makes it possible to cover the entire spectral range from 190 to 5000 nm in just a single measurement.

In addition to the proven photomultipliers and silicon, InGaAs, PbS and PbSe detectors, there are now other detectors available:

- A cooled silicon detector with 3 times the sensitivity of the standard silicon detector.
- A cooled extended InGaAs detector with a cut-off wavelength of 2150 nm. This detector is more sensitive than the PbS detector and is operated without a complex chopper and lock-in amplifier.

What's more, the opto-mechanical input port for the SPECTRO 320 D double monochromator has been completely redesigned. As a result, it is now far quicker and easier to change over from the standard fiber input for Instrument Systems' PLG-xxx plug-in fiber adapters to the optional direct fiber input (DFI) than it used to be.

## ADDENDUM TO SPECTRO 320 R5

### State-of-the-art electronics: Perfection is to be found in the detail

Innovative electronic solutions for more accurate test results and greater performance.

The entire analog and digital circuitry has been redeveloped and further optimized for the SPECTRO 320 R5:

- 16-bit analog-to-digital converter with a sampling rate 3 times higher than before and improved dynamic range. The accuracy of measurements carried out on NVIS displays and the UV-B spectrum is further increased.
- Ultra-high-impedance preamplifiers integrated in all of the detector housings (except PbS and PbSe) reduce the level of noise and susceptibility to external interference sources to a minimum.
- The more powerful grating motor ensures uniform scanning over an enormous speed range and consequently an optimal signal-to-noise ratio.
- In monochromator mode, the SPECTRO 320 R5 now offers the same wavelength accuracy as it does for spectral measurements.
- All spectrometer models are supplied with the same extended-range power supply unit that can be used with line voltages between 90 and 230 V.

### Completely new: The firmware

New firmware for productive working without time-consuming settings.

The firmware of the SPECTRO 320 R5 is based on an embedded operating system with file management. This has eliminated various restrictions that applied to the previous models:

- Entire measurement with 3 detectors and 3 gratings now possible in a single scan.
- Implementation of a standard SCPI command language for controlling the SPECTRO 320 R5 via in-house programs and direct from LabView™.
- No more restriction on the number of data points. This allows a wide spectral range to be measured even when data point intervals are small.
- Significant increase in the transmission rate via the RS-232 interface.

Measurement parameter sets optimized for the respective application and all calibration data are stored in the SPECTRO 320 R5 itself, which means they are immediately available for repeat measurements. This allows users without detailed knowledge of how to set the spectrometer's parameters to perform pre-configured tests. Unintentional changing of the settings is prevented by a super user mode.

### Flexibility for individual spectra

Better test results through optimum measurement parameter settings in subranges.

Irrespective of whether a particular measurement to be carried out requires the spectrometer to cover its entire wavelength range or just a narrow spectral band, the new SPECTRO 320 R5 enables the user to define subranges within the spectral range, each of which can be scanned using a separate set of measurement parameters. This new functionality makes it possible to carry out measurements in any number of freely definable subranges of the spectrum using different detectors, scanning speeds, bandpass filters, step widths, etc. The users can, for instance, scan low-intensity subspectra at a low speed and with a large bandpass and high-intensity ranges quickly and with a small bandpass. The advantage of this is an ideal relationship between measurement time and the degree of accuracy required.

