Dr. Gröbel
UV-Elektronik GmbH
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UV-VIS Spectrometer

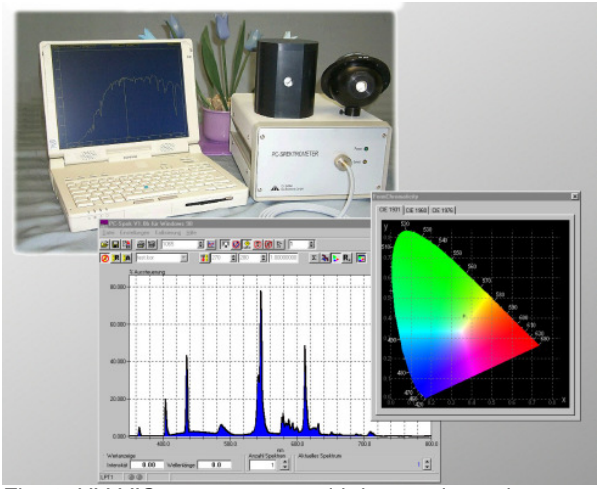

Fig. 1: UV-VIS spectrometer with integrating spheres

The UV-VIS spectrometer is a modular measuring system for the fast and precise measurement of UV-VIS spectra. The basic instrument consists of a quartz light guide, a polychromator without moving parts and a silicon multichannel detector. We also offer a wide range of accessories like light sources, diffusors and measuring cells.

The device is calibrated on a PTB-traceable lamp and allows exact spectroradiometric measurements for the evaluation of irradiances and illuminances, biological impact of radiation and colour measurements. A high UV sensitivity is achieved by a low stray-light design. A shutter enables the automated measurement and compensation of the dark current. Control and data calculations are done by a PC or notebook that is connected to the spectrometer via its USB interface. An exceptionally high dynamic range of the spectra of up to 10^5:1 is reached by a special multiple measurement procedure. The spectral resolution of the spectrometer permits the clear resolution of the two Hg lines at 577 and 579 nm.

Applications

- Spectroradiometry
- On-line process control, quality approval
- Testing of light sources (Lamps, LED)
- Colour measurements, colour tests, sunlight simulations
- Measurement of the global radiation
- Testing of optical materials and parts, e.g. light guides
- Qualitative and quantitative analysis in chemistry, pharmacy and biology

Software

- Transmission and reflection measurement
- Dark current compensation
- Calibration of irradiances
- Automated selection of measuring time and multiple measurements for high dynamic range
- Integration over spectral ranges
- Weighting of measured irradiances, e.g. for erythema, pigmentation, illuminance and custom weighting functions
- Calibration by the customer
- Option colour measurement: calculation of colour coordinates, colour temperature, colour rendering index, normalized light simulations

Accessories

- Halogen lamp, deuterium lamp, Xe-flashlamp
- Cuvette holder
- Reflector head for colour measurements
- Integrating spheres $BaSO_4$, PTFE, gold
- Dip probes, flow cells
- Colour measurement software
- Calibration lamp

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Technical Data

Light guide

Length:	1.5 m (standard)

Polychromator

Dispersion:	24 nm/mm, linear
Focal length:	140 mm
F-number:	f/2
Spectral range:	200 to 800 nm (standard)
Maximum:	250 nm
Spectral resolution:	0.6 nm / photodiode
FWHM:	1.2 nm
Dimensions:	145 x 260 x 315 mm
Weight:	6.8 kg

Detector system

Type of detector:	silicon photodiode array
Number of diodes:	1024
Size of diodes:	25 x 2500 µm
Length of detector:	25.6 mm
Measuring range:	200 to 1000 nm
Irradiance at saturation:	180 mlx*s (typical)
Digital resolution:	12 bit
Dynamic range:	10^5:1 with 3 measurements
Uniformity of sensitivity:	+/- 3% (typical)
Dark signal:	< 0.45% (20 °C; t_I = 0.6 sec)
Interface:	USB

Fig. 2: Reflector head for colour measurements

Data recording

Integration time:	0.002 to 60 s
Grafics display:	up to 2 images/second (continuous measurement)
Trigger:	1x in and 1x out

Computer

Laptop Acer Aspire 5050 Series or comparable
Windows XP
We recommend ordering a laptop with pre-installed and tested software form us to ensure correct function.

Options

- Cooled detector
- Spectral range 400 to 1000 nm
- Additional trigger in and out lines

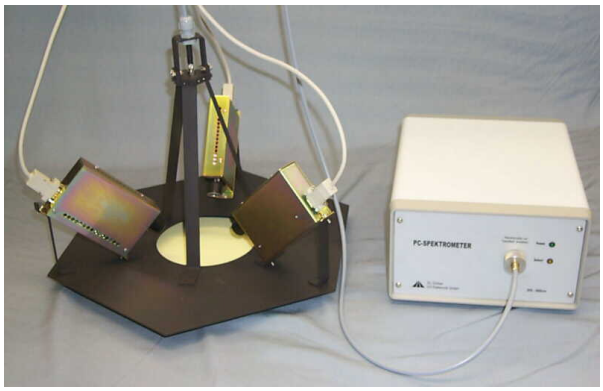

Fig. 3: Spectrometer with 3-fold flash unit

Part numbers

UV-VIS spectrometer	840320
Diffusor for *cos*-correction	940110
Colour measurement software	940151
Calibration lamp 1kW	860300
Gas analyser GASANA	840200

(For description see separate product sheet.)

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