

SPECORD PLUS Series UV/Vis Spectrophotometer



Technical Data

SPECORD PLUS Series

General

- UV/Vis Spectrophotometer series for reliable, user-friendly and flexible analysis
- 4 models tailored to meet individual needs
- Optimal combination of instrument, software and accessories for a wide range of applications
- Unique and performance-enhancing accessories to maximize productivity

Optical System

| | |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spectrometer type | <ul style="list-style-type: none"> ▪ Monochromator with imaging grating and aspheric quartz coated optics ▪ Internal holmium oxide filter |
| Detector | <ul style="list-style-type: none"> ▪ Two photo diode detectors ▪ Cooled by Peltier element for SPECORD 210/250 PLUS |
| Sample position | <ul style="list-style-type: none"> ▪ Designated sample position for turbid samples ▪ Wide range of accessories for optimized solid, liquid and gas sample positioning |
| Light source | <ul style="list-style-type: none"> ▪ Combination of halogen and deuterium lamp ▪ Lamp change can be set to occur between 300 and 450 nm |

Models

| SPECORD PLUS Series | SPECORD 50 PLUS | SPECORD 200 PLUS | SPECORD 210 PLUS | SPECORD 250 PLUS |
|-------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Optical design | Double beam spectrophotometer with Split Beam Technology | Double beam spectrophotometer with fixed spectral bandwidth | Double beam spectrophotometer with variable spectral bandwidth | Double beam spectrophotometer with variable spectral bandwidth and double monochromator |
| Sample compartment dimensions (W x H x D) | 364 x 200 x 185 mm | | | |
| Instrument dimensions (W x H x D) | 590 x 290 x 690 mm | | | |
| Instrument weight | 21 kg | 22 kg | 22kg | 23 kg |

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Technical Specifications

All data can be checked within the scope of the validation of the instruments.

| SPECORD PLUS Series | SPECORD 50 PLUS | SPECORD 200 PLUS | SPECORD 210 PLUS | SPECORD 250 PLUS |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------|------------------------------------------|------------------------------------------|
| Mode | Energy, Absorption, Transmission, Reflectance | | | |
| Wavelength range | 190–1100 nm | 190–1100 nm | 185–1200 nm | 190–1100 nm |
| Photometric display range of the software in absorbance | -9 ... 9 | | | |
| Photometric measuring range in absorbance | -3 ... 3 | | | |
| Spectral bandwidth | 1.4 nm | 1.4 nm | variable 0.2/0.5/1/2/4 nm | variable 0.2/0.5/1/2/4 nm |
| Spectral resolution capability Toluene/Hexane at 20-25 °C | 1.6-1.8 | 1.6-1.8 | 2.3–2.5 | 2.3–2.5 |
| Wavelength accuracy (Deuterium line at 656.1 nm) | ±0.1 nm | | | |
| Wavelength accuracy (at 360.9 nm with holmium oxide filter) * | ±0.5 nm | | | |
| Wavelength reproducibility (at 360.9 nm with holmium oxide filter, RMS) * | ≤0.02 nm | | | |
| Zero point of transmission | ±0.05 % T (200-1000 nm; Slit 1.4 nm) | ±0.05 % T (200-1000 nm; Slit 1.4 nm) | ±0.05 % T (190-1150 nm; Slit 2 nm) | ±0.05 % T (200-1000 nm; Slit 2 nm) |
| Photometric accuracy VIS in absorbance (at 546 nm with neutral glass filter Hellma® F4) * | ±0.003 | | | |
| Photometric accuracy UV in absorbance (potassium dichromate) * | ±0.01 | | | |
| Photometric reproducibility in absorbance (at 546 nm with neutral glass filter Hellma® F4, RMS) * | ≤0.0005 | | | |
| Stray light | | | | |
| 198 nm (KCl) **: | ≤0.3 % T | ≤0.3 % T | ≤0.3 % T | ≤0.03 % T |
| 220 nm (NaI): | ≤0.03 % T | ≤0.03 % T | ≤0.03 % T | ≤0.005 % T |
| 240 nm (NaI): | ≤0.03 % T | ≤0.03 % T | ≤0.03 % T | ≤0.005 % T |
| 340 nm (NaNO ₂): | ≤0.02 % T | ≤0.02 % T | ≤0.01 % T | ≤0.005 % T |

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|----------------------------------------------|------------------------------------------|------------------------------------------|----------------------------------------|----------------------------------------|
| Baseline noise at 500 nm in absorbance (RMS) | ≤0.0001 | | | |
| Baseline deviation in absorbance | ±0.0005 (200–1000 nm; Slit 1.4 nm) | ±0.0005 (200–1000 nm; Slit 1.4 nm) | ±0.0005 (190–1150 nm; Slit 2 nm) | ±0.0005 (200–1000 nm; Slit 2 nm) |
| Long-term stability at 500 nm in absorbance | ±0.0005 1/h | | | |
| Registration speed | Up to 12000 nm/min | | | |
| Minimum integration time | 0.001 s | | | |
| Minimum data interval | 0.02 nm | | | |

* Taking into account the tolerances of the applied standards

** Merck® 1.08164.0001

Additional Technical Data

| SPECORD PLUS Series | SPECORD 50 PLUS | SPECORD 200 PLUS | SPECORD 210 PLUS | SPECORD 250 PLUS |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|
| Instrument operation | 15 ... 35 °C, rel. Humidity max 90 % at 30 °C | | | |
| Instrument electrical requirements | 85–264 V/AC 50–60 Hz | | | |
| Technical standards | <ul style="list-style-type: none"> ▪ Tested and designed to be compliant with the legal requirements for laboratory instrumentation and developed and produced in compliance with ISO 9001 ▪ SPECORD PLUS series instruments are certified to comply with the requirements of the EMC standards and bear the CE Mark | | | |

Control and Data Evaluation

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|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software | <ul style="list-style-type: none"> ▪ ASpect UV ▪ 21 CFR Part 11 Software Module (optional) ▪ Validation Software Modules – USP, Eur. Ph. and Analytik Jena specifications (optional) |
| Computer requirements | <ul style="list-style-type: none"> ▪ Operating system: PC – Windows 7, or higher ▪ PC: Desktop PC, Tower or Laptop; min Intel Pentium 4, 1 GB RAM, 20 GB HDD; CD ROM; USB 2.0; VGA 16-bit, 1024 x 768, 17" Color monitor; Windows-compatible printer |

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