Data Sheet

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Cary 3500 Flexible UV-Vis Spectrophotometer Specifications

Introduction

The Agilent Cary 3500 Flexible UV-Vis is a double beam spectrophotometer with advanced photometric performance in the 190 to 1,100 nm wavelength range, making it suitable for challenging measurements with minimal sample preparation. The Agilent Cary 3500 UV-Vis spectrophotometer series shares a common UV-Vis engine, which produces monochromatic light that is measured by the various interchangeable UV-Vis sample measurement modules. The engine is equipped with an advanced xenon flash lamp as a source that can collect 250 data points per second accurately and reproducibly. The xenon flash lamp comes complete with a 10-year replacement warranty (for Cary 3500 instruments purchased from Agilent or participating partners), eliminates the daily warm-up time, and drastically reduces the frequency and cost of lamp replacement. The engine provides excellent spectral resolution, with a spectral bandwidth that can be varied from 0.1 to 5.0 nm in 0.01 nm intervals.

The Cary 3500 Flexible UV-Vis spectrophotometer offers a unique, large sample compartment with a small footprint, suitable for analyzing liquid and solid samples. Multiple accessories can be fitted into the sample compartment, enabling measurement of a wide range of sample types and sizes such as liquid samples in long path length cuvettes (2, 4, 5, and 10 cm) and solid samples with a size down to 1 mm.

The Cary 3500 Flexible UV-Vis spectrophotometer satisfies the current United States Pharmacopeia USP <857>, European Pharmacopoeia (Ph. Eur. Chapter 2.2.25), and the Japanese Pharmacopeia (JP Chapter 2.24).

The accompanying Agilent Cary UV Workstation software comprises easy-to-use, application-specific modules for time-based kinetics, concentration measurements, wavelength scanning, and temperature-based measurements. Agilent Cary spectrophotometers are manufactured according to a quality system that is certified to ISO-9001.

Instrument overview

Parameter	Cary 3500 Flexible UV-Vis
Long-Life Xenon Flash Lamp Source	●
Permanently Aligned Beam	●
Variable Beam Geometry	●
190 To 1,100 nm Wavelength Range	●
150,000 nm/min Maximum Scan Rate	●
250 Data Points/Second Measurement Rate	●
Number of Cuvette Positions That Can Be Measured Simultaneously	2

Performance specifications

Parameter	Specification
Photometric System	Double beam with rear beam access
Monochromator	Double out-of-plane Littrow monochromator
Source	Full-spectrum xenon flash lamp with 10-year warranty
Source Flash Rate	250 Hz
Wavelength Range	190 to 1,100 nm
Detectors	Silicon photodiode detectors for simultaneous measurement of all channels
Limiting Resolution	0.1 nm
Stray Light (%T) At 198 nm (12 g/L KCl, BP/EP Method) At 220 nm (10 g/L NaI, ASTM Method) At 300 nm (Acetone) At 370 nm (50 mg/L $NaNO_2$)	 <1.0% <0.0005% <0.005% <0.0005%
Wavelength Accuracy (nm) Xe Emission Lines	±0.2
Wavelength Reproducibility (Standard Deviation) (nm)	<0.025
Photometric Accuracy (Abs), NIST 930E filter At 0.5 Abs At 1 Abs	 ±0.005 ±0.005
Photometric Range (Abs)	6.0

Parameter	Specification
Photometric Reproducibility (Abs) Using NIST 930E filters, 2 s SAT, 2 nm SBW 0.5 Abs 1 Abs	 <0.00008 Abs <0.00016 Abs
Photometric Stability (Abs/hour) After 30 min Warm Up, 500 nm, 5 nm SBW	<0.0003
Baseline Flatness 200 to 850 nm, 0.1 s SAT, 4 nm SBW, Baseline Corrected, Using a 21-Point Moving Average Filter for Smoothing	<0.001 Abs
Photometric Noise (Abs/2 nm SBW/RMS) (Neutral Density Glass Filters) At 500 nm, 0 Abs At 500 nm, 1 Abs At 500 nm, 2 Abs	 <0.00003 Abs <0.0001 Abs <0.0002 Abs
Operational	
z-Height	15 mm
Spectral Bandwidth	0.1 to 5 nm at 0.01 nm
Maximum Scan Rate	150,000 nm/min
Data Collection Rate	250 data points per second
Data Interval	0.01 to 10 nm

Installation requirements

For details about installation requirements, see the Agilent Cary 3500 UV-Vis Preparation Checklist.

Dimensions

Instrument	Weight		Height		Depth		Width	
	kg	lbs	cm	in	cm	in	cm	in
Agilent Cary 3500 Flexible UV-Vis	30.8	67.9	34.5	13.5	70	27.5	44.5	17.5

Recommended environmental conditions

Parameter	Specification
Instrument Conditions[1]	15 to 35 °C at 15% to 80% relative humidity, noncondensing, altitude 0 to 3,100 m
Electrical Requirements	Mains supply: 100 to 240 volts AC Frequency: 50 to 60 Hz Maximum power consumption: 150 VA

[1] The optimum analytical performance is achieved if the operational temperature is within ±5 °C of the temperature at which the instrument calibration routine was last run.

Customer support policies

Agilent is renowned for providing expert applications and service support. Agilent has a global network of factory trained specialists ready to provide support for hardware, software, or applications wherever you are located.

Services include

The Agilent Cary 3500 UV-Vis Flexible spectrophotometers carry a 10-year limited warranty on the Xenon flash lamp that arrives with the instrument for Cary 3500 UV-Vis Flexible instruments purchased form Agilent or participating partners.

- Full 12-month warranty support
- Seven-year hardware support period from date of last unit manufacture. After this time, parts and supplies will be provided if available.
- Preventive maintenance to deliver consistent operation and minimize downtime
- Troubleshooting, maintenance, and repair
- Software support services
- Comprehensive warranty extension and service contracts, including peripherals
- Classroom training and onsite training delivered by experts

Further information

- Cary 3500 Flexible UV-Vis Spectrophotometer
- Cary UV Workstation software
- Data Integrity Options for GMP Facilities for the Agilent Cary 3500 UV-Vis Spectrophotometer Series
- UV-Vis Spectroscopy & Spectrophotometer FAQs

Disclaimer

The content of this data sheet is based on pre-manufacturing instrument evaluation. Specifications and information are subject to change without notice.

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