Agilent Cary 100/300 Series UV-Vis

Guaranteed specifications

Design overview

Double beam, dual chopper, ratio recording, Czerny-Turner 0.278 m monochromator UV-Vis spectrophotometer, centrally controlled by a PC. The Agilent Cary 300 has double dispersion, the Agilent Cary 100 has single dispersion. High light throughput optical system with all reflective optical design, high speed accurate scanning. Optional centrally controlled accessory system. High performance R928 photomultiplier tube, tungsten halogen visible source with quartz window, deuterium arc ultra violet source.

Agilent Cary 100/300 Series UV-Vis spectrophotometers are manufactured according to a quality management system certified to ISO 9001. These guaranteed specifications are based on the ±4 sigma statistical confidence level of the final acceptance tests performed at the factory. Typical specifications are not reported in this document.

Performance specifications

	Agilent Cary 100	Agilent Cary 300
Monochromator	Czerny-Turner 0.278 m	Czerny-Turner 0.278 m plus pre-monochromator
Grating	30 x 35 mm, 1200 lines/mm, blaze angle 8.6° at 240 nm	
Beam splitting system	Chopper (30+ Hz)	Chopper (30+ Hz)
Detectors	R928 PMT	R928 PMT
UV-Vis limiting resolution (nm)	≤ 0.24	≤ 0.24
Stray light (%T)		
At 198 nm (12 g/L KCl, TGA & BP/EP method)	≤ 1%	≤ 1%
At 220 nm (10 g/L NaI ASTM method)	≤ 0.02%	≤ 0.0005%
At 370 nm (50 mg/L $NaNO_2$)	≤ 0.005%	≤ 0.0002%
Wavelength range (nm)	190–900 nm	190–900 nm
Wavelength accuracy (nm)	± 0.2 nm	± 0.2 nm
Wavelength reproducibility (nm)		
Peak separation of repetitive scanning of a UV-Vis line source	< 0.08 nm	< 0.08 nm
Standard deviation of 10 measurements	< 0.02 nm	< 0.02 nm
Photometric accuracy (Abs)		
Using double aperture method at 0.3 Abs	± 0.0006 Abs	± 0.0006 Abs
Using NIST 930D filters at 1 Abs	± 0.003 Abs	± 0.003 Abs
At 0.5 Abs	± 0.002 Abs	± 0.002 Abs
Standard solution methods:		
At 0.2, 0.5 & 0.75 Abs (14.2% w/v KNO_3, TGA method)	± 0.01 Abs	± 0.01 Abs
0.292 to 0.865 Abs (60.06 mg/L $K_2Cr_2O_7$, BP method)	± 0.01 Abs	± 0.01 Abs
Photometric range (Abs)	3.7 Abs	5.0 Abs
Photometric display		
(Abs)	± 9.9999 Abs	± 9.9999 Abs
(%T)	± 200.00%	± 200.00%
Photometric reproducibility (Abs) Using NIST 930D filters, at 590 nm, 2 nm SBW, 2 s SAT		
Maximum deviation at 1 Abs	< 0.0008 Abs	< 0.0008 Abs
Standard deviation for 10 measurements	< 0.00016 Abs	< 0.00016 Abs
Photometric reproducibility (Abs) Using NIST 930D filters, at 546.1 nm, 2 nm SBW, 2 s SAT		
Maximum deviation at 0.5 Abs	< 0.0004 Abs	< 0.0004 Abs
Standard deviation for 10 measurements	< 0.00008 Abs	< 0.00008 Abs
Photometric stability (Abs/hour)		
After 2 hour warm up, 500 nm, 2 nm SBW, 1 s SAT	< 0.0003 Abs/hour	< 0.0003 Abs/hour

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Performance specifications

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Photometric noise (Abs, RMS) 500 nm, 2 nm SBW, 1 s SAT		
At 0 Abs	< 0.000085	< 0.00006
At 1 Abs	< 0.0002	< 0.0002
At 2 Abs	< 0.0003	< 0.0003
At 3 Abs, 1.6 Abs RBA	< 0.00037	< 0.00037
At 4 Abs, 1.6 Abs RBA	–	< 0.003
At 5 Abs, 1.6 Abs RBA	–	< 0.008
Baseline flatness (Abs) 200 to 850 nm, smooth 21 filter applied, baseline corrected	± 0.001	± 0.001
Sample compartment beam separation (mm)	110 mm	110 mm
Compartment size (width x depth x height) Extended sample compartment fitted	139 mm x 389 mm x 129 mm	139 mm x 389 mm x 129 mm
Access	Top and front	Top and front
Instrument dimensions (width x depth x height)	640 mm x 650 mm x 320 mm	640 mm x 650 mm x 320 mm
Purging	Sample compartment	Sample compartment
Instrument weight	45 kg	45 kg

Operational

Spectral bandwidth (nm)	0.20–4.00 nm, 0.1 nm steps, motor driven	0.20–4.00 nm, 0.1 nm steps, motor driven
Signal averaging (seconds)	0.033 to 999	0.033 to 999
Maximum scan rate (nm/min)/(cm^{-1}/min*)/(Å/min)		
*Maximum rate is depdendent upon range	3000/37046/30000	3000/37046/30000
Slew rate (changing between wavelengths, nm/min)	3000	3000
Data interval (*Interval range is dependent upon scan range)		
(nm)	0.02-1.67	0.02–1.67
cm^{-1}*	5.541-20.6	5.541–20.6
Å	0.2-16.7	0.2–16.7
Repetitive scanning	1800	1800
Maximum number of cycles	999	999
Maximum cycle time (min)	9999	9999
Data collection rate (kinetic studies) points per min per cell		
1 cell	1800	1800
6 cell	5	5
12 cell	5	5
14 cell	3–4	3–4
6 cells, 0.033 SAT 0.34 s dwell time	50	50
12 cells, 0.033 SAT 0.34 s dwell time	40–50	40–50
14 cells, 0.033 SAT 0.34 s dwell time	30–40	30–40
Temperature monitors	Cell block, up to 4 temperature probes inside cuvettes or elsewhere	

Recommended environmental conditions

	Agilent Cary 100/300
Instrument storage	5–45 °C at 20–80% relative humidity, non-condensing, altitude < 2133 m.
Instrument operation	Below 853 m altitude: 10–35 °C, 50–80% relative humidity, non-condensing. Between 853 and 2133 m altitude: 10–25 °C, 50–80% relative humidity, non-condensing.
Instrument electrical requirements	Mains supply of 100/120/220/240 ± 10%, 230 +14% -6%, 230 +6% - 14% volts AC, 50 or 60 Hz ± 1 Hz with 400 VA power consumption.

Support policies

Type	Policy
Warranty	12 months, though this may vary according to location
Hardware support period	Seven (7) years from date of last unit manufacture. After this time, parts and supplies will be provided if available
Software support	Telediagnostic capability is available for some instrument models. Availability of Telediagnostic support may vary according to location. Software upgrades to add additional functionality will attract a fee.

Further details

More information
For further information please consult your Agilent office or supplier, or our Web site at www.agilent.com

www.agilent.com/chem

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