Varian Cary[®] 50 UV-Vis Spectrophotometer

Introduction

Cary spectrophotometers are manufactured according to a Quality system that is certified to the ISO-9001. The specifications listed below represent the average results of the final acceptance tests performed in the factory. With a sample of over six hundred Cary 50 instruments, the specifications are indicative of the performance of Cary instruments. These specifications are not guaranteed. The guaranteed specifications are listed in a separate brochure and are based on the ± 4 sigma statistical confidence level.

Design overview

Dual beam, Czerny-Turner monochromator, 190–1100 nm wavelength range, approximately 1.5 nm fixed spectral bandwidth, full spectrum Xe pulse lamp single source with exceptionally long life, dual Si diode detectors, quartz overcoated optics, scan rates up to 24000 nm/min, 80 data points per s maximum measurement rate, non-measurement phase stepping wavelength drive, room light immunity, central control by PC with Microsoft[®] Windows[®] operating system.

Czerny-Turner	
Holographic, 27.5 x 35 mm, 1200 lines/mm, blaze angle 8	.6° at 240 nm
Beam splitter	
2 silicon diode detectors	
≤ 1.5	
≥ 1.65	
At 198 nm (12 g/L KCI, TGA and BP/EP method)	≤ 0.53%
At 220 nm (10 g/L Nal ASTM method)	≤ 0.02%
At 370 nm (50 mg/L NaNO ₂)	≤ 0.018%
190–1100	
± 0.07 at 541.94 nm, ± 0.24 at 260.54 nm	
± 0.01	
Using NIST 930D filters at 1 Abs	± 0.0007
At 0.2, 0.5 and 0.75 Abs (14.2% w/v KNO ₃ , TGA method)	± 0.01
0.292 to 0.865 Abs (60.06 mg/L K ₂ Cr ₂ O ₇ , BP method)	± 0.01
0.955 Abs (600.06 mg/L K ₂ Cr ₂ O ₇ , BP method)	± 0.012
3.3	
± 9.9999 Abs, ± 200.00 %T	
Using NIST 930D filters, at 465 nm, 2 s SAT	
Maximum deviation at 1 Abs	< 0.004
Standard deviation for 10 measurements	< 0.00050
Using NIST 930D filters, at 546.1 nm, 2 s SAT	
Maximum deviation at 0.5 Abs	< 0.003
Standard deviation for 10 measurements	< 0.00030
	Czerny-TurnerHolographic, 27.5 x 35 mm, 1200 lines/mm, blaze angle 8Beam splitter2 silicon diode detectors≤ 1.5≥ 1.65At 198 nm (12 g/L KCI, TGA and BP/EP method)At 220 nm (10 g/L Nal ASTM method)At 370 nm (50 mg/L NaNO2)190-1100± 0.07 at 541.94 nm, ± 0.24 at 260.54 nm± 0.01Using NIST 930D filters at 1 AbsAt 0.2, 0.5 and 0.75 Abs (14.2% w/v KNO3, TGA method)0.292 to 0.865 Abs (60.06 mg/L K2Cr2O7, BP method)3.3± 9.9999 Abs, ± 200.00 %TUsing NIST 930D filters, at 465 nm, 2 s SATMaximum deviation at 1 AbsStandard deviation for 10 measurementsUsing NIST 930D filters, at 546.1 nm, 2 s SAT

NOTICE: This document contains references to Varian. Please note that Varian, Inc. is now part of Agilent Technologies. For more information, go to **www.agilent.com/chem.**

Varian Cary® 50 UV-Vis

Photometric noise (Abs, RMS)		
500 nm, 1 s SAT	At 0 Abs	≤ 0.000063
	At 1 Abs	≤ 0.00014
	At 2 Abs	≤ 0.0018
260 nm, 1 s SAT	At 0 Abs	≤ 0.00015
Baseline flatness (Abs)	200 to 850 nm, smooth 21 filter applied, baseline corrected	± 0.0006
Compartment size (WxDxH)	130 mm x 523 mm x 123 mm. Note that sample compartment ca measurement due to room light immunity of Cary 50.	n be left open during
Access	Top and front	
Instrument dimensions (WxDxH)	500 mm x 590 mm x 205 mm	
Instrument weight (kg)	21	

Recommended environmental conditions

Instrument storage	5–45 °C at 20–80% relative humidity, non-condensing, altitude < 2133 m.
Instrument operation	Below 853 m altitude: 10–35 °C, 8–80% relative humidity, non-condensing.
	Between 853 and 2133 m altitude: 10–25 °C, 8–80% relative humidity, non-condensing.
Instrument electrical requirements	Instrument draws maximum of 26 W of power from the host PC power supply. The power rating is +5 V DC <1 A, +12 V DC <1.5 A, -12 V DC <0.25 A. The Cary 50 interface card fits into a standard ISA slot in the host PC and requires a standard PC internal hard disk power supply connector. Operation of motor driven accessories may increase the +12 V requirement by a further 2 A (24 W maximum). The host PC must be certified to standard IEC 60950 or equivalent.

Operational

Fixed at 1.5
0.0125 to 999
24000
24000
0.15-5.0
Maximum number of cycles: 999, Maximum cycle time (min): 999
(Kinetic studies) points per min per cell
1 cell = 4800, 6 cell = 6, 12 cell = 3, 18 cell = 2
6 cells, 0.0375 SAT 0.38 s dwell time = 40 to 50
12 cells, 0.0375 SAT 0.38 s dwell time = 20 to 30
18 cells, 0.0375 SAT 0.38 s dwell time = 10 to 20
Temperature probe inside cuvette (using the Temperature Probe Accessory)
Approximately 5.0 µL

Varian customer support policies

Warranty	Twelve (12) months, though this may vary according to location.
Hardware support period	Five (5) 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 fix non-conformances or safety problems will be issued free of charge. Software upgrades to add additional functionality will require an additional fee.
Further details	
	For further details on the following: • PC configurations • GLP, 21 CFR Part 11 and Validation functionality • Accessory specifications and application information • Part numbers and other ordering information please consult your Varian office or supplier, or our Web site at www.varianinc.com

Varian, Inc. reserves the right to revise these specifications without notification.



 $\mathsf{GC} \bullet \mathsf{LC} \bullet \mathsf{MS} \bullet \mathsf{GPC/SEC} \bullet \mathsf{AA} \bullet \mathsf{ICP} \bullet \mathsf{UV-Vis-NIR} \bullet \mathsf{FT-IR} \bullet \mathsf{Fluorescence} \bullet \mathsf{Dissolution} \bullet \mathsf{NMR} \bullet \mathsf{MRI} \bullet \mathsf{FTMS} \bullet \mathsf{Consumables} \bullet \mathsf{Data} \mathsf{Systems}$

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