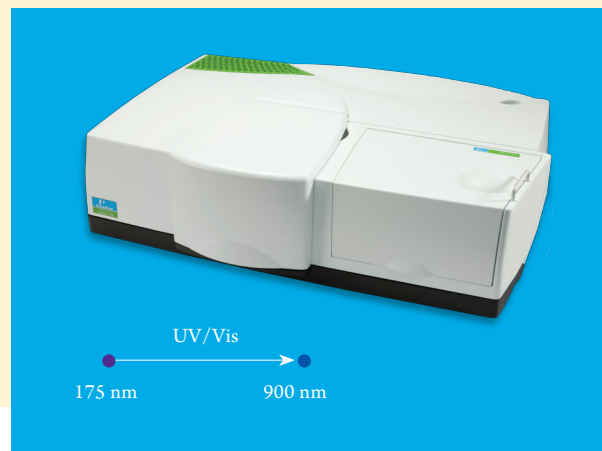


UV/Vis Spectroscopy

Technical Specifications for the LAMBDA 850 UV/Vis Spectrophotometer



LAMBDA 850 with 150 mm Sphere Installed

Introduction

PerkinElmer® UV/Vis and UV/Vis/NIR spectrophotometers are built to the highest ISO-9001 manufacturing standards. This document presents confirmed performance specifications for the LAMBDA 850 based on factory tests.

The instrument will meet or achieve better than the confirmed specifications, under normal conditions of use as described in the user manual.

The LAMBDA™ Series of spectrophotometers is the industry standard for high performance, flexibility and convenience. Each model includes the same range of modular components and snap-in accessories to tackle a range of tough applications. Whatever specifications your laboratory requires, the LAMBDA Series provides best-in-class accuracy, precision and reproducibility.

Choose the LAMBDA 850 for ultra-high UV/Vis performance between 175 nm and 900 nm. For applications such as sun protection, reflectance properties of flat panel display screens, paint films, transmission and reflectance characterization of glass, solar cells, and more.

Technical Description and Specifications

Principle	Double beam, double monochromator, ratio recording UV/Vis spectrophotometer with microcomputer electronics, controlled by Windows® XP, Windows® 7 or compatible personal computer.
Optical System	All reflecting optical system (SiO ₂ coated) with holographic grating monochromator with 1440 lines/mm UV/Vis blazed at 240 nm, Littrow mounting, sample thickness compensated detector optics.
Beam Splitting System	Chopper (46+ Hz, Cycle: Dark/Sample/Dark/Reference, Chopper Segment Signal Correction).
Detector	Photomultiplier R6872 for high energy in the whole UV/Vis wavelength range.
Source	Pre-aligned tungsten-halogen and deuterium.
Wavelength Range	175 nm - 900 nm N ₂ purge required below 185 nm
Resolution	≤ 0.05 nm
Stray Light	
At 200 nm (12 g/L KCl USP/DAP method)	> 2 A
At 220 nm (10 g/L NaI ASTM® method)	≤ 0.00007 %T
At 340 nm (50 mg/L NaNO ₂ ASTM® method)	≤ 0.00007 %T
At 370 nm (50 mg/L NaNO ₂ ASTM® method)	≤ 0.00007 %T
Wavelength Accuracy	± 0.080 nm
Wavelength Reproducibility	
Deuterium lamp lines	≤ 0.020 nm
Standard deviation of 10 measurements	≤ 0.005 nm
Photometric Accuracy	
Double Aperture Method 1 A	± 0.0006 A
Double Aperture Method 0.5 A	± 0.0003 A
NIST® 1930D Filters 2 A	± 0.0030 A
NIST® 930D Filters 1 A	± 0.0030 A
NIST® 930D Filters 0.5 A	± 0.0020 A
K ₂ Cr ₂ O ₇ -Solution USP/DAP method	± 0.0100 A
Photometric Linearity	
Addition of filters UV/Vis at 546.1 nm, 2 nm slit, 1 second integration time	
At 1.0 A	± 0.006 A
At 2.0 A	± 0.017 A
At 3.0 A	± 0.020 A
Photometric Reproducibility	
1 A with NIST® 930D Filter at 546.1 nm	
Standard deviation for 10 measurements	≤ 0.00016 A
0.5 A with NIST® 930D Filter at 546.1 nm	
Standard deviation for 10 measurements	≤ 0.00008 A
0.3 A with NIST® 930D Filter at 546.1 nm	
Standard deviation for 10 measurements	≤ 0.00008 A
2 nm slit, 1 second integration time	

Technical Description and Specifications

Photometric Range	8 A
Photometric Display	Unlimited
Bandpass	0.05 nm - 5.00 nm in 0.01 nm increments. Fixed resolution, constant energy or slit programming.
Photometric Stability After warm-up at 500 nm, 0 A, 2 nm slit, 2 second integration time, peak to peak	≤ 0.0002 A/h
Baseline Flatness 190-860 nm, 2 nm slit, 2 second integration time, no smoothing applied	± 0.0008 A
Photometric Noise RMS 0 A and 190 nm 0 A and 500 nm 2 A and 500 nm 4 A and 500 nm 6 A and 500 nm 2 nm slit, 1 second integration time	≤ 0.00010 A ≤ 0.00005 A ≤ 0.00020 A ≤ 0.00100 A ≤ 0.00500 A
Primary Sample Compartment Dimensions (W x D x H)	200 mm x 300 mm x 220 mm
Secondary Sample Compartment Dimensions (W x D x H)	480 mm x 300 mm x 220 mm
Purging Optics Sample Compartment	YES YES
Instrument Dimension (W x D x H)	1020 mm x 740 mm x 300 mm
Instrument Weight	~ 77 kg
Digital I/O	RS 232 C
Light Beam	90 mm above the base plate 120 mm beam separation 3 mm - 12 mm beam height
Instrument Requirements Power Temperature Recommended Humidity	The LAMBDA 850 instrument should only be used indoors, and will meet performance specifications under the following conditions: 100 VAC - 240 VAC, 50/60 Hz; 250 VA 15 °C - 35 °C 80% maximum, non-condensing

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