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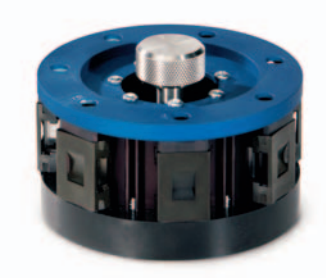
Find the *Thermo CVC-C01* at our website: ***Click HERE***

Product Specifications

Ensure the accuracy and reliability of your data with hands-free performance verification for your Thermo Scientific spectrophotometer in accordance with US or European pharmacopeia regulations and GxP procedures. Save time and money by automating qualification and testing.

Thermo Scientific Accessories for Automated Performance Verification

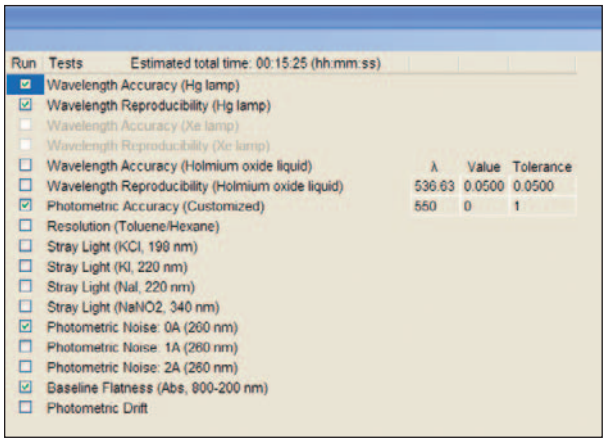
NIST/NPL-traceable standards for automated performance verification



Thermo Scientific Calibration Validation Carousel Accessory (CVC)



Thermo Scientific Mercury Lamp Accessory



Simplify your qualification procedures (IQ, OQ, PQ, RQ) with automated performance verification accessories. Automated accessories provide a rapid, accurate and reliable way to verify your spectrophotometer's performance in accordance with the United States or European Pharmacopeia and GxP procedures. See Thermo Scientific Application Note No. 51111 *U.S. and European Pharmacopoeias and UV-Visible Spectrophotometers* for more information on these requirements.

Automated performance verification saves time and money by reducing the amount of hands-on time required to complete qualification and testing. Automating testing can save more than four hours of your analyst's time (see Table 1), improving the efficiency of your laboratory. Combining a Thermo Scientific CVC and mercury lamp accessory automates testing over the entire UV to near-infrared region from 254 to 810 nm.

To perform testing, the user simply selects the desired tests from the software menu, presses the test button to run them, and returns to collect the results when the tests are complete. Thermo Scientific software generates a full report, which can be signed electronically and printed for insertion into your compliance log book. See Thermo Scientific Technical Note No. 51686 *Performance Verification of the Evolution 300 UV-Visible Spectrophotometer in the Regulated Laboratory* for information on performing verification testing.

Automated Testing Includes Parameters for:

- Wavelength Accuracy
- Wavelength Repeatability
- Photometric Accuracy
- Photometric Repeatability
- Stray Light
- Resolution
- Photometric Noise
- Photometric Stability or Drift
- Baseline Flatness
- Bandwidth Accuracy

Advantages of Automated Performance Testing

Automated testing reduces the potential for human and transcriptional errors by:

- Automatic detection of serial numbers associated with standards
- Eliminating the need to copy standard values from certificates
- Eliminating the need to analyze standards individually
- Eliminating the need to match standards to data
- Eliminating the need for manual calculations
- Eliminating the need for manual transcription and reporting of results

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Product Specifications

Table 1: Timetable for Automated vs. Manual Performance Verification Testing*

PV Test Performed	Automated Standard	Total Automated Method Time (minutes)	Manual Standard	Manual Measurement Time (minutes)	Manual Calculation Time (minutes)	Total Manual Method (minutes)
Wavelength Accuracy	Mercury Lamp or Holmium Perchlorate Solution	5	Holmium Perchlorate Solution	10	15	25
Wavelength Repeatability	Mercury Lamp or Holmium Perchlorate Solution	8	Holmium Perchlorate Solution	36	32	68
Photometric Accuracy	Potassium Dichromate	2	Neutral Density Filter (Vis Only)	6	20	28
UV Photometric Accuracy	Potassium Dichromate		Potassium Dichromate	2		
Photometric Repeatability	Neutral Density Filter or Potassium Dichromate	<1	Neutral Density Filter	4	12	16
Stray Light	Potassium Chloride, Potassium Iodide or glass filters	1	Sodium Iodide	4	15	19
			Sodium Nitrite			
Photometric Noise	Clear Beam Filter	7	Clear Beam (0A)	7	13	20
			Neutral Density Filter (1A)			
Photometric Stability (Drift)	No External Standard	60	No External Standard	60	10	70
Baseline Flatness	No External Standard	12	No External Standard	12	5	17
Bandwidth Accuracy	Mercury Lamp	3	Mercury Lamp	10	15	25
	Total Time for Automated Method	**100 minutes**			**Total Time for Manual Method**	**288 minutes**
	Total Time for User	**2–3 minutes**			**Total Time for User**	**288 minutes**

Calibration Validation Carousel (CVC)

Each CVC is supplied with its own unique serial number matched to a data file containing the calibrated values of the standards and the instrument specifications. Standards within the CVC (Table 2 and 3) are traceable to the National Institute of Standards and Technology (NIST) in the United States or the National Physical Laboratory (NPL) in the United Kingdom. The ability to perform re-certifications in our factory provides an improved turnaround time for all our standards.

Table 2: Standard CVC Configuration

CVC	Position Standard	Test Performed
1	Open	Photometric Noise and Stability
2	Holmium Perchlorate Solution	Wavelength Accuracy and Repeatability
3	Neutral Density Filter	Noise at 1A Specification
4	Open	
5	Potassium Dichromate	Photometric Accuracy
6	220 nm Cut-off Glass Filter	Stray Light
7	340 nm Cut-off Glass Filter	Stray Light

Table 3: Pharmacopeia Compliant CVC Configuration

CVC	Position Standard	Test Performed
1	Open	Photometric Accuracy, Noise and Stability
2	Holmium Perchlorate Solution	Wavelength Accuracy and Repeatability
3	Hexane Blank	
4	Toluene in Hexane	Resolution
5	Potassium Dichromate	Photometric Accuracy and Repeatability
6	Potassium Iodide (USP) Potassium Chloride (EP)	Stray Light
7	Water Blank	Stray Light

Mercury Lamp Accessory

The mercury lamp is recommended by the U.S. Pharmacopeia as the preferred standard for testing wavelength accuracy. Mercury lamp accessories are not only a useful tool for testing wavelength accuracy, but also gives laboratory personnel the added benefit of performing an instrument wavelength calibration as it was performed at the factory. The calibration method uses mercury lamp lines from wavelength 253.65 to 810 nm and uses a unique calibration curve for every spectral bandwidth available. See Thermo Scientific Application Note No. 51171 *Wavelength Accuracy – Measurement and Effect on Performance in UV-Visible Spectrophotometry* for more information.

** Comparison testing was performed with a Standard CVC and mercury lamp accessory on a Thermo Scientific Evolution 300 UV-Visible spectrometer.*

Ordering Information

Accessories for the Thermo Scientific Evolution 201, 220, 260 Bio, 300 and 600 UV-Visible Spectrophotometers

Description	Part Number
Calibration Validation Carousel (CVC) – NIST-traceable	10010721
Calibration Validation Carousel (CVC) – NPL-traceable	10010621
Calibration Validation Carousel (CVC) – USP Configuration	840-212900
Calibration Validation Carousel (CVC) – EP Configuration	840-213000
Mercury Lamp Accessory – Evolution™ 200 Series	840-211300
Mercury Lamp Accessory – Evolution 300	10020201
Mercury Lamp Accessory – Evolution 600	10022101

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