



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
**MATERIALS MANAGEMENT DIVISION**  
**Powai, Mumbai 400076.**

Ref. No. (PR.1000038659)

Rx No. 6100001687

Technical Specification for Ultraviolet Visible Spectrophotometer with Peltier Temperature Accessory

**PC based UV-VIS Spectrophotometer with following specifications.**

Sr No.	Detailed Specification	Qty	Compliance (Yes/No)
1	<p>Optical system: Czerny-Turner mount Single monochromator Fully symmetrical double beam type.</p> <p>Monochromator: Plane Czerny turner type with 1200grooves/mm</p> <p>Light Source: D2 Lamp &amp; Halogen lamp</p> <p>Wavelength Range: 190 to 900 nm</p> <p>Wavelength Accuracy: <math>\pm 0.2</math> nm (at 656.1 nm)</p> <p>Wavelength Repeatability: <math>\pm 0.05</math> nm</p> <p>Spectral Bandwidth: 0.1, 0.2, 0.5, 1, 2, 5, 10 nm  L2, L5, L10 nm (low stray light mode) M1, M2 nm (micro cell mode)</p> <p>Stray light: 1 % (198 nm KCL 12 g/L aqueous solution)  0.005 % (220 nm NaI 10 g/L aqueous solution)  0.005 % (340 nm NaNO<sub>2</sub> 50 g/L aqueous solution)</p> <p>Photometric Range: -4~4 Abs</p> <p>Photometric Accuracy: <math>\pm 0.0015</math> Abs (0 to 0.5 Abs)  <math>\pm 0.0025</math> Abs (0.5 to 1 Abs)  <math>\pm 0.3</math> %T  Tested with NIST SRM 930D</p> <p>Photometric Repeatability: <math>\pm 0.0005</math> Abs (0 to 0.5 Abs)  <math>\pm 0.0005</math> Abs (0.5 to 1 Abs)  Tested with NIST SRM 930D</p> <p>Scanning speed: 10~4000 nm/min  (8000 nm/min in preview mode)</p> <p>Slew speed: 12,000 nm/min</p> <p>RMS Noise: 0.00003 Abs(0 Abs,  wavelength: 500 nm,  measurement time: 60 sec, SBW :2</p>	1 No.	

Baseline stability:	0.0003 Abs/hour		
Baseline flatness:	± 0.0002 Abs (200 - 850 nm)		
Detector:	Photomultiplier tube,		
<b>Peltier cooled cell Holder:</b>			
Temperature Control System: Heating/cooling system utilizing Peltier effect.			
Heat radiating system: Water Cooled.			
Stirring System: Magnetic stirrer (with variable stirring speed control)			
Temperature Setting range: -10 to 110deg C			
Temperature Control range: 0 to 100 deg C (for cooling water temp. at 20 deg C)			
Temperature Control Accuracy: ±0.1 deg C (Cell holder sensor)			
Temperature Accuracy: With cell holder sensor: ±0.5 deg C (20 deg C to 40 deg C), ±1deg C (Other range) With optional temp. sensor: ±0.2deg C			
Interface with PC: USB 2.0			
10mm Path Quartz cell 1 Pair			
<b>Suitable Water Chiller</b>			
<b>Measurement modes:</b>			
Quantitative Analysis Wavelength scan (Abs, %T, %R, Sample, Reference), Time scan (Abs, %T, %R, Sample, Reference), Fixed wavelength (Up to 8 wavelengths), Abs/%T monitor			
<b>Data Processing:</b>			
Peak picking, Peak height, Peak area, Peak width, Derivatives, Smoothing, Data truncation, Arithmetic, Baseline correction, Subtraction, Deconvolution, Vertical axis conversion, Horizontal axis conversion			
<b>Other standard functions:</b> Validation Software, Enzyme activity calculation, Film Thickness measurement, Color analysis.			