SENSEGOOD INSTRUMENTS PRIVATE LIMITED

Sensegood LiquidSpectro

Transmittance & Absorbance Liquid Spectrophotometer (400–700 nm)
Technical Specifications, Calibration Guide & Product Datasheet



1. Executive Overview & System Architecture

The Sensegood LiquidSpectro is a high-precision, transmittance-based visible spectrum liquid spectrophotometer developed by Sensegood Instruments Private Limited. Operating across the 400 nm to 700 nm visible spectral region, the instrument integrates a CMOS spectral sensor engine with a stabilized, high-CRI white LED light source. Designed specifically for standard 10 mm pathlength liquid cuvettes, the device delivers fast, repeatable, and highly accurate spectral Transmittance (%T), Absorbance (A), and comprehensive CIE color space metrics along with ΔE*ab and MATCH% with a compact benchtop form factor.

2. Technical Specifications Datasheet

2.1 Optical & Spectral Performance

Parameter	Technical Specification
Wavelength Range	400 nm – 700 nm (Visible Range)
Spectral Resolution / Pitch	1 nm pitch
Core Sensor Hardware	CMOS spectral sensor engine
Illumination Light Source	High-CRI broad-spectrum White LED (98+ CRI)
Optical Geometry	180° direct transmission path across 10 mm cuvette
Cuvette Compatibility	Standard 10 mm pathlength (Glass, Quartz, or PMMA/Plastic cuvettes)

2.2 Photometric Specifications

Parameter	Technical Specification
Measurement Modes	Transmittance (%T), Absorbance (A), CIE Color Metrics
Photometric Range	0.00 AU to 2.00 AU (1% T to 100.0% T)
Photometric Accuracy	± 0.5 AU
Photometric Precision	± 0.2 AU (10 consecutive reads on standard)
Measurement Speed	< 0.5 sec (single scan)
Baseline Correction	Automated dark and blank corrections

2.3 Colorimetry & Analytical Metrics

Parameter	Technical Specification
CIE Color Spaces	CIE L*a*b*, L*C*h°, L*u*v*, XYZ, Yxy, Hunter Lab, RGB, CMYK, Hex Code
Standard Illuminants	Simulated D65, D50, D55, D75, A, C
Standard Observers	2° and 10° CIE Standard Observers
Liquid & Color Indices	Whiteness Index (CIE, Hunter, Stensby), Yellowness Index (YI), Peak Wavelength (λmax), CCT, and more.
Color Difference (ΔE)	ΔE*ab, ΔL*, Δa*, Δb*, Match % with customizable Pass/Fail limits

2.4 Hardware, Physical & Environmental Specs

Parameter	Technical Specification
Display & Touch Screen	69 mm (2.7-inch) Color Touch TFT LCD for real-time spectral curves
Connectivity & Power	USB interface, 5V DC universal adapter
Power Consumption	Ultra-low power design (< 0.8 W average operation)
Enclosure Construction	High-impact ABS engineering polymer, polyamide
Dimensions & Weight	~ 15 cm x 8 cm x 8 cm; Weight: <0.5 kg
Operating Environment	10°C to 40°C; 0% to 85% RH (non-condensing)

3. Operational Measurement Protocol

To eliminate background noise, ambient light interference, and LED spectral variations, the instrument follows a strict 3-step measurement cycle:

- **Dark Reference Measurement:** Taken when no cuvette is placed in the holder.
- **Blank Reference Measurement:** Taken when a standard 10 mm cuvette filled with pure solvent (e.g., Deionized (DI) Water, methanol, etc.) is placed to capture maximum 100% transmission baseline. If you are not using the solvent and directly intend to measure the sample without dilution, then just use the empty cuvette while performing the blank measurement.
- **Sample Measurement:** Taken when the Sample Under Test (SUT) is inserted in the cuvette holder.

Document repository

https://sensegoodinstruments.com/support

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