



Spectrophotometer PS301

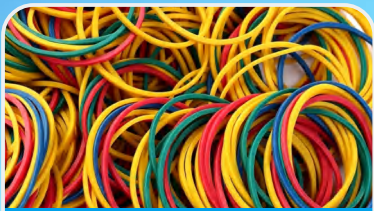
1mm micro-aperture – precisely locks onto colors in minimal areas.

Specifically designed for color difference detection of extremely small objects, micro areas, narrow edges, and miniature samples.

PS301 Spectrophotometer is a high-precision color measurement device specifically designed for micro-hole precision measurement and automated production line integration. It features a 1mm micro-aperture, enabling accurate color measurement of extremely small areas and fine color patches. The instrument integrates multiple electronic color cards, allowing rapid matching of physical colors to industry-standard color card numbers, thereby improving color matching and quality control efficiency.



Micro-sample color difference detection



Narrow-edge sample color difference detection



Spectrophotometer PS301

The PS301 features a dual-use design: it can be used as a complete instrument (host + probe) or with the probe alone, providing flexible adaptation to both manual and automated scenarios. Equipped with a dual-channel silicon photodiode array sensor and a nano-integrated spectral device, it delivers fast and stable measurements. Supporting RS485/USB communication and multi-unit coordination, and paired with PC software, it enables integration into assembly lines and robotic arms, providing real-time color data monitoring and synchronized feedback, offering an efficient quality control solution for multiple industries.



I. High Precision — Micro-aperture Design, Authoritative Data

1. 1 mm Ultra-Small Aperture:

Specifically designed for color difference detection of extremely small objects, micro areas, narrow edges, and miniature samples, accurately capturing detailed color information.

2. High-Precision Spectrophotometric Technology

Utilizes nano-spectrophotometric technology and a dual-channel silicon photodiode array (dual-row 18 sets). Repeatability $\Delta E_{ab} \leq 0.03$, inter-instrument agreement $\Delta E_{ab} \leq 0.4$, ensuring data repeatability and consistency.

3. International Standard Optical Geometry

D/8° SCI illumination, complies with CIE, ISO, ASTM, DIN, and other international standards.

4. Authoritative Metrology Certification

Factory-verified for metrology compliance, with traceable data.



II. Strong Industrial Integration – Automated Production Line Quality Control

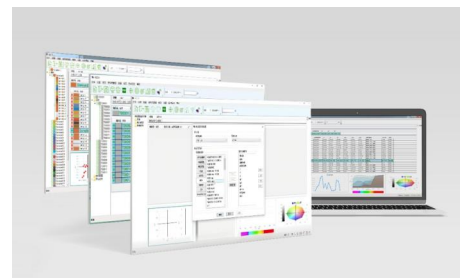
Flexible Dual-Use Deployment	The complete instrument is suitable for manual measurements; the probe alone can be integrated into automated equipment for online color measurement.
RS485/USB Communication	Supports multiple industrial protocols; comes standard with an RS485 adapter for multi-unit networking and coordination.
PC Software Support	Professional quality management software enables real-time data feedback, storage, analysis, traceability, and report generation.



Support manual/automated measurement



Supports RS485 / USB communication



Supports host computer software / PC software

III. User-Friendly Operation – Smart Interaction, Quick to Learn

Intuitive Interface: 3.5-inch TFT true-color capacitive touchscreen, simple operation without complex training.

Contact White Calibration + Alignment Guide Lines: Simplifies calibration and positioning, reducing human error.

Multi-Platform Compatibility: Supports Android, iOS, Windows, HarmonyOS, and WeChat Mini Programs for cross-device data synchronization.



IV. Wide Measurement Range – Adapts to Complex Industry Scenarios

Micro-Aperture Advantage: The 1 mm micro-aperture is suitable for color difference quality control and automated inspection of extremely small parts in industries such as plastics & electronics, paints & inks, textile & apparel dyeing, printing, and ceramics.

Rich Colorimetric Indices: Supports spectral reflectance, whiteness/yellowness (multiple standards), metamerism index MI, and color density CMYK, meeting professional needs in printing, textiles, plastics, etc.

Multiple Color Spaces & Observation Light Sources: Supports CIE LAB, XYZ, LCh, s-RGB, and other color spaces, as well as D65, A, D50, and other observation light sources, adapting to various industry standards.



IV. Wide Measurement Range – Adapts to Complex Industry Scenarios



Multi-Unit Coordination: Supports simultaneous connection of multiple devices, unified control and data aggregation, suitable for multi-point inspection on assembly lines.

Data Synchronization & Traceability: PC software supports data storage, comparative analysis, and report export, facilitating quality traceability and process optimization.

Flexible Integration: Provides USB, RS485, RS232, Ethernet, and other standard communication interfaces, supporting external development and secondary development for integration into robotic arms and industrial systems.

VI. Smart Matching – Built-in Electronic Color Cards for Fast Standard Number Lookup

Built-in Multiple Color Cards: Integrates several industry-standard electronic color cards, eliminating the need for physical color card books.

Quick Physical Matching: After measuring a physical color, the instrument automatically finds the closest standard color card number, speeding up color verification and confirmation.

Workflow Enhancement: Suitable for color matching, incoming inspection, color number verification, and other scenarios, reducing manual comparison errors and accelerating workflows.



PRODUCT SPECIFICATIONS

Product Model	PS301 Spectrophotometer
Illumination Geometry	D/8° (diffuse illumination, 8° viewing), SCI (specular component included); complies with CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO 7724-1, ASTM E1164, DIN 5033 Teil 7
Features	Dual-channel silicon photodiode array sensor, built-in electronic color cards. For color difference quality control in plastics & electronics, paints & inks, textile & apparel dyeing, printing, ceramics, and other industries.
Illumination Light Source	Combined full-spectrum LED
Integrating Sphere Size	Φ20 mm
Spectrophotometry Method	Nano-integrated spectral device
Sensor	Silicon photodiode array (dual-row 18 sets)
Measurement Wavelength Range	400–700 nm
Wavelength Interval	10 nm
Measurement Aperture	1 mm
Specular Component	SCI
Color Spaces	CIE LAB, XYZ, Yxy, LCh, CIE LUV, s-RGB
Color Difference Formula	ΔE*ab
Other Colorimetric Indices	Spectral reflectance; WI (ASTM E313, CIE/ISO, ISO2470/R457, AATCC, Hunter, Taube, Berger, Stensby); YI (ASTM D1925, ASTM 313); Metamerism Index MI; Color density CMYK
Observer Angle	2°/10°
Observation Light Sources	D65, A, D50
Display	/
Measurement Time	Approx. 1 s
Repeatability	Colorimetric values: standard deviation ΔE*ab ≤ 0.03 (after warm-up and calibration, 30 measurements of white plate at 5 s intervals); Spectral reflectance: standard deviation ≤ 0.1% (≤ 0.2% for 400–700 nm)
Inter-Instrument Agreement	ΔE*ab ≤ 0.4 (average of measurements on 12 BCRA Series II color tiles)
Display Resolution	0.01
Reflectance Measurement Range	0–200%
Reflectance Resolution	0.01%
Measurement Modes	Single measurement, average measurement (2–99 times)
Positioning Method	Alignment guide lines
White Calibration Method	Contact white calibration
Dimensions	Host: 80 × 132 × 20 mm; Probe: φ43 × 73.5 mm
Weight	Host: 250 g; Probe (including calibration case): 240 g
Battery	Lithium battery, 3.7 V, 3200 mAh, supports 15,000 measurements within 9 hours
Light Source Lifespan	10 years or >3 million measurements
Display Screen	TFT true color, 3.5-inch, capacitive touchscreen
Interfaces	USB, Bluetooth, RS485 (probe)
Data Storage	500 standard samples, 10,000 test samples; mass storage via app/PC
Software Support	Android, iOS, Windows, WeChat Mini Program, HarmonyOS
Languages	Simplified Chinese, English, Traditional Chinese, Russian
Operating Temperature Range	0–40°C, 0–85% RH (non-condensing), altitude below 2000 m
Storage Temperature Range	–20 to 50°C, 0–85% RH (non-condensing)
Accuracy Assurance	Certified metrology compliance
Standard Accessories	Power adapter, USB cable, user manual, quality management software (download from official website), white calibration case, positioning plate, Bluetooth adapter, RS485 adapter
Optional Accessories	Micro printer

GUANGDONG THREENH TECHNOLOGY CO., LTD.



Spectrophotometers

Colorimeters

Haze Meters

Gloss Meters

Test Charts

Light Booths

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