Guangdong Threenh Technology Co., ltd.

Worry-free color control, suitable for multiple industries.



PS411

SPECTROPHOTOMETER

The PS411 focuses on comprehensive scene size adaptability and features an eight–aperture deluxe configuration to overcome limitations in complex sample measurements. Equipped with high–precision sensors and a dual optical path system, it ensures stable data output. This makes it suitable for quality control in industries with high demands for sample size compatibility, such as textile and apparel, as well as paint and ink.

- Guaranteed Class 1 Accuracy
- 41 Evaluation Light Sources
- 8 Measurement Apertures
- Over 30 Measurement Parameters

ISO9001 CE RoHS

Website & social media

I. PERFORMANCE ADVANTAGES (RELIABLE DATA, PRECISION-CENTRIC)

Repeatability & Inter-Instrument Consistency

Repeatability ΔEab ⩽ 0.025, instrument interchangeability ΔEab ⩽ 0.3. Multi-device synchronized measurement ensures data consistency, meeting color matching and accurate color transfer requirements.

Internationally recognized D/8 SCI+SCE composite technology

Objectively restores true color while minimizing surface texture interference. Supports both separate and synchronized rapid measurement (approx. 1 second) of SCI/SCE.

II. ROBUST HARDWARE CONFIGURATION (TECHNICAL SUPPORT, STABLE OUTPUT)

40mm large integrating sphere + nano-spectroscopic components

Nanoscale spectroscopic capability enables more accurate color signal capture, delivering dual excellence in measurement precision and stability.

Composite full-spectrum LED light source

With evenly distributed spectral coverage across the 400—700nm wavelength range and free from spectral gaps, it enhances measurement reliability.



1

High-Performance Dual-Array Sensor

Featuring 18 sets of dual-column silicon photodiode arrays with fast response and high sensitivity, combined with an integrating sphere for efficient and precise data processing.

2

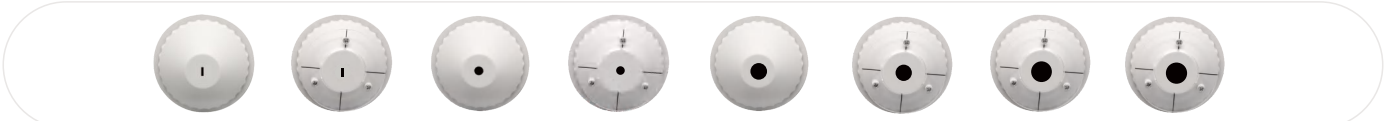
Dual Optical Path System + Self-Developed Algorithm

Superior anti-interference capability compared to single optical path systems, further ensuring measurement accuracy and long-term stability.

3

Eight-Aperture Comprehensive Compatibility

Includes 8 apertures: 3mm / 6mm / 11mm / 1×3mm (platform + nozzle tip), easily accommodating regular, curved, tiny, and various sample forms.



III. USER-FRIENDLY OPERATION EXPERIENCE (EFFICIENT AND EFFORTLESS)



High–Definition Camera with Real–Time Viewfinder Positioning

Visually monitor themeasurement area to ensurethe test point is centered onthe target, guaranteeing resultvalidity.



Smart Color Card Number Matching

Supports quick color card number matching, saves manual color–finding time, and improves production color–matching efficiency.



Contact–Based Intelligent Whiteboard Calibration

Equipped with a dedicatedcalibration base, it enablesautomatic calibration withoutfrequent manual adjustments,maintaining the instrument inoptimal condition.

IV. COMPATIBILITY AND EXPANDABILITY (MULTI-SCENARIO COVERAGE, FLEXIBLE ADAPTATION)

Comprehensive Chromaticity Metrics and Light Sources

Supports over 30 light sources and 40 measurement metrics, covering spectral graphs/data, color difference values/graphs, color simulation, and other result presentations, meeting diverse needs across industries.

Multi–Platform Connectivity and Data Management

Equipped with USB and Bluetooth interfaces, compatible with Android, iOS, Windows, WeChat Mini Program, HarmonyOS, and other platforms, enabling fast data transfer, sharing, and remote management for streamlined quality traceability and statistical analysis.

Software Download Address: http://www.3nh.com/en/client_en_14.html



V. OPTIONAL ACCESSORIES

Product Name	Material Code	Image	Function
Powder Test Box	2.006.01.0011		Easy to use, designed specifically for measuring powdered targets.
Mini Printer	1.609.01.0020		Portable and convenient, capable of continuous printing without connecting to a computer. All measured parameters are easy to store.

VI. PRODUCT SPECIFICATIONS

Product Model	Ps411
Optical Geometry	D/8 (Diffuse Illumination, 8° Directional Reception), SCI (Specular Component Included)
Meet The Criteria	Conforms to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO 7724–1, ASTM E1164, DIN 5033 Teil 7.
Features	Applications: Used for color quality control in industries such as plastics & electronics, paints & coatings, textiles & apparel printing/dyeing, and ceramics. Portable and equipped with built–in electronic color cards, it supports functional expansions via a mobile app for color card lookup and multiple operations.
Integrating Sphere Size	Φ40mm
Light Source	Combined full spectrum LED light source
Spectrophotometric Mode	Nano–integrated Spectral Device
Sensor	Large–area silicon photodiode array (double–row 18 group)
Wavelength Range	400~700nm
Wavelength Interval	10nm
Measurement range	0~200%
Measuring Aperture	Eight Apertures: 3mm platform + 3mm nozzle tip + 6mm platform + 6mm nozzle tip + 11mm platform + 11mm nozzle tip + 1×3mm platform + 1×3mm nozzle tip
Locating Method	Stabilizer plate positioning + camera viewfinder positioning
Calibration	Contacted White Tile Calibration
Specular Component	SCI/SCE
Color Space	CIE LAB,XYZ,Yxy,LCh,CIE LUV,s–RGB,HunterLab,βxy,DIN Lab99
Color Difference Formula	ΔE*ab,ΔE*uv,ΔE*94,ΔE*cmc(2:1),ΔE*cmc(1:1),ΔE*00,DINΔE99,ΔE(Hunter)
Measurement Indicators	Spectral Reflectance Factor, WI (ASTM E313, CIE/ISO, AATCC, Hunter, Taube, Berger, Stensby), YI (ASTM D1925, ASTM 313), Metamerism Index, Staining Fastness, Color Change Fastness, Strength, Hiding Power, 555 Hue Classification, Munsell (C/2), Blackness (My, dM), Color Density CMYK, Tint
Observer Angle	2°/10°
Illuminant	D65,A,B,C,D50,D55,D75,F1,F2(CWF),F3,F4,F5,F6,F7(DLF),F8,F9,F10(TPL5),F11(TL84),F12(TL83/U30), U35,NBF,ID50,ID65,LED–B1,LED–B2,LED–B3,LED–B4,LED–B5,LED–BH1,LED–RGB1,LED–V1,LED–V2
Displayed Data	Spectral Graph/Data, Sample Chromaticity Values, Color Difference Value/Graph, Pass/Fail Results, Color Simulation, Color Deviation
Measuring Time	About 1s
Repeatability	Chromaticity Values (MAV/SCI): Standard deviation within ΔE*ab 0.025 (under conditions: after warm–up calibration, 30 consecutive measurements of a white tile at 5–second intervals). Spectral Reflectance (MAV/SCI): Standard deviation within 0.1% (within 0.2% across 400–700nm).
Inter–instrument Error	MAV/SCI: ΔE*ab within 0.3(Average of measurements from 12 BCRA Series II tiles)
Displayed Accuracy	0.01
Measurement Mode	Single Measurement, Average Measurement(2–99times)
Reflectance Resolution	0.01%
Size	120*75*207mm
Weight	367g (calibration base excluded)
Battery	Lithium battery,3.7V,3200mAh,8000 cycles in 8 hours
Illuminant Life Span	More than 1.2 million measurements over 10 years
Display	3.5 inch TFT true color, Capacitive Touch Screen
Data Port	USB,Bluetooth
Data Storage	Standard 500Pcs, Sample 10000Pcs(One data is able to include SCI/SCE); PC mass storage
Software Support	Andriod,IOS,Windows,Wechat small program, Hongmeng
Language	Simplified Chinese, English, Traditional Chinese
Operating Environment	0~40℃, 0~85%RH (no condensing),Altitude < 2000m
Storage Environment	–20~50℃, 0~85%RH (no condensing)
Accuracy Assurance	Guaranteed First–Class Measurement Qualification
Standard Accessory	Power adapter, data cable, user manual, quality management software (download from official website), calibration box, protective cover, wrist strap, measurement apertures.
Optional Accessory	Micro Printer, Powder Test Box