Spectrocolorimeter KS-510

The KS–510 addresses dual demands for ”high precision + full–aperture coverage,” delivering repeatability of ΔE*ab ⩽ 0.025 and inter–instrument agreement of ΔE*ab ⩽ 0.3. Equipped with a dual–path silicon photodiode array and a full–spectrum LED light source, it ensures highly accurate and efficient optical performance.

Eight measurement apertures (3mm/5mm/10mm/11mm flat and conical types) accommodate samples of common sizes across diverse scenarios. With Grade 1 metrology certification and non–contact automatic calibration, it supports multi–system collaboration and stores up to 15,000 test samples—ideal for industrial settings that demand both precision and adaptability.



ΔEab≤0.025
Repeatability

ΔEab≤0.3
Inter–instrument Error

8
Measurement Apertures

Metrology Certification
Authoritative and Reliable

ISO9001 CE RoHS

Own the core tech: Top performance, budget price.



SAY GOODBYE TO VISUAL COLOR JUDGMENT, STEP INTO THE DIGITAL COLOR MEASUREMENT ERA.

KS–510 Spectrocolorimeter — where every color is backed by data. Automatically determines Pass/Fail results, reducing risks of human error.

I. HIGH PRECISION WITH FULL-SCENARIO ADAPTABILITY

1. Performance with Reliable Data
Repeatability ΔE*ab ⩽ 0.025, inter–instrument agreement ΔE*ab ⩽ 0.3, ensuring color consistency in batch production.
Dual–optical path design monitors light source energy fluctuations, effectively reducing interference and enhancing stability and repeatability.

2. Internationally Standardized D/8° SCI/SCE Integration
Compliant with D/8° illumination/viewing geometry and SCI/SCE integration technology, it meets color management requirements across industries such as coatings, textiles, and plastics, adhering to international standards including CIE, ISO, and ASTM.

3. Authoritative Metrology Certification
Grade 1 metrology certification is guaranteed, with each instrument factory–verified and measurement data traceable to national metrology institutes, ensuring authoritative and reliable test results.





II. WIDE MEASUREMENT RANGE

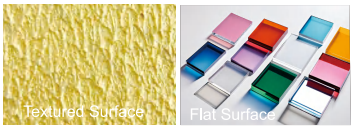
1. Full–Specification Adaptability
Equipped with 8 measurement apertures (3mm flat + 3mm conical, 5mm flat + 5mm conical, 10mm flat + 10mm conical, 11mm flat + 11mm conical), supporting measurements on flat, curved, and textured surfaces of various sample types.

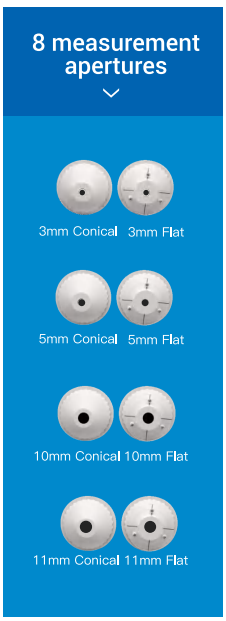
2. Multiple Color Spaces & Observation Light Sources
Provides CIE LAB, XYZ, Yxy, LCh, CIE LUV, sRGB, HunterLab, βxy, and DIN Lab99 color spaces, along with multiple observation light sources including D65, A, C, D50, D55, D75, F1, F2 (CWF), F3, F4, F5, F6, F7 (DLF), F8, F9, F10 (TPL5), F11 (TL84), F12 (TL83/U30), U35, NBF, ID50, and ID65, meeting specialized measurement requirements under diverse conditions.

3. Industry Applications
Features switchable measurement modes to flexibly address diverse needs across industries such as plastics & electronics, paints & inks, textile & apparel dyeing, printing, and ceramics.









III. POWERFUL HARDWARE

Silicon Photodiode Array

Dual-row 18-set silicon photodiode array features a large-area design that prevents saturation under strong light while maintaining high sensitivity in low-light conditions. With a spectral response range of 400—700 nm at 10 nm intervals and a reflectance measurement range of 0—200%, it accurately captures visible light information.

Nano-Integrated Spectral Device

Equipped with nano-level light-splitting capability, it precisely separates light of different wavelengths, ensuring high data accuracy across all bands.

Full-Band Balanced LED Light Source

The instrument's illumination covers the full 400—700 nm spectrum, providing sufficient spectral distribution in the visible range and avoiding the spectral deficiencies of white LEDs, thus guaranteeing measurement accuracy.

Advanced Hardware Architecture

With an optical resolution of <10 nm in the visible range, it supports simultaneous measurement of SCI (Specular Component Included) and SCE (Specular Component Excluded) spectra, balancing speed, accuracy, and stability.

IV. USER-FRIENDLY OPERATION



1. Ergonomic Design and Easy Measurement

Designed with an ergonomic exterior, it features a large touchscreen, optimized grip areas, and strategically positioned measurement buttons to accommodate different usage habits.



2. Non-Contact Automatic White Calibration

Supports non-contact automatic white calibration using a professional-grade standard whiteboard with reflectance R% ⩾ 95%, excellent surface uniformity, and high stability, ensuring repeatable and accurate data.



2. Precise Positioning and Calibration

The dual positioning system (stabilizing plate + camera viewfinder) allows clear observation of the measurement area. Through real-time camera imaging, it accurately determines whether the target area is centered, minimizing measurement errors.



4. Multi-Platform Compatibility and Data Interaction

Compatible with Android, iOS, Windows, HarmonyOS, and other systems. Users can operate the device directly via mobile apps, WeChat Mini Programs, or computers, enabling seamless cross-device data synchronization.

V. POWERFUL EXPANSION & COLLABORATIVE MANAGEMENT

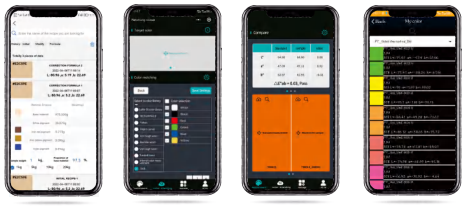
1. Cloud Storage & Collaborative Management

Enables synchronized storage of extensive color data via mobile apps and Mini Programs (up to 500 reference samples), allowing users to build a private cloud database. This eliminates the need to carry physical color cards and facilitates real–time data sharing with partners anytime, anywhere.



2. Professional Color Management Software

The included quality management software supports Android, iOS, Windows, WeChat Mini Programs, HarmonyOS, and color matching cloud platforms. It generates test reports, compares color difference data, and customizes color management workflows to meet industrial–grade quality control requirements.



SQCX

Computer–Side Quality Management Software

SQCX Quality Management Software possesses powerful data processing and analytical capabilities. It can control the instrument for measurement, modify instrument configurations, and operate on instrument data. Simultaneously, it significantly expands instrument functionalities, enabling complex data management, color detection, report generation, and more, making it an efficient tool for color quality management.

Color Matching Cloud – Grout Color Matching Software

Color Matching Cloud – Grout Color Matching Software is a task–oriented color formulation software designed for quick one–click color matching with multiple formula options. It features intelligent formula correction, automatic calculation of correction formulas, and seamless integration with third–party systems and equipment. Highly efficient, it significantly saves labor, material, and time costs.

MOBCC

MOBCC— Color Measurement App Software

Color Matching Cloud – MOBCC Color Matching Software synchronizes with massive storage via the app, enabling rapid color measurement, color data review and retrieval, analysis, and comparison. The app allows users to build a private color database in the cloud and find the closest color matches across multiple electronic color Chard sets.

Software Download Address:

http://www.3nh.com/en/client_en_14.html

Download Color Measurement App for iOS | Download Color Measurement App for Android | Download Color Matching Cloud for iOS | Download Color Matching Cloud for Android

VI. 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.

VII. PRODUCT SPECIFICATIONS

Product Model	KS-510 spectrocolorimeter
Optical Geometry	D/8(diffused illumination, 8-degree viewing angle), SCI/SCE (specular component included/specular component excluded) Mode
Meet The Criteria	CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO 7724-1, ASTM E1164, DIN 5033 Teil 7
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 Flat, 3mm Conical, 5mm Flat, 5mm Conical, 10mm Flat, 10mm Conical,11mm Flat, 11mm Conical
Locating Method	Stabilizer position+camera locating
Calibration	Non-contact automatic calibration
Specular Component	SCI/SCE
Color Space	CIE LAB,XYZ,Yxy,LCh,CIE LUV,s-RGB,HunterLab,βxy,DIN Lab99,Munsell(C/2)
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, WI (ASTM E313, CIE/ISO, AATCC, Hunter, Taube, Berger, Stensby), YI (ASTM D1925, ASTM 313), Metamerism Index MI,Staining Fastness, Color Change Fastness, Strength, Hiding Power, 555 Hue Classification, Munsell (C/2), Blackness (My, dM), Color Density CMYK, Tint (Some functions require PC software implementation)
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 (Partial functions require PC software implementation)
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 ≤ ΔE*ab 0.025 (after warm-up and calibration, based on the average of 30 white tile measurements at 5-second intervals) Spectral Reflectance: MAV/SCI, standard deviation ≤ 0.1% (≤ 0.2% within 400—700 nm)
Inter-instrument Error	Inter-instrument Agreement: MAV/SCI, ΔE*ab ≤ 0.3 (average of measurements from 12 BCRA Series II color 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 15000Pcs(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,Russian
Operating Environment	0~40℃, 0~85%RH (no condensing),Altitude < 2000m
Storage Environment	-20~50℃, 0~85%RH (no condensing)
Accuracy Assurance	Guaranteed to meet Class 1 measurement standards.
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