MASTER ALL COLORS WITH ONE INSTRUMENT.

The TS-23C spectrophotometer is a standard model that adopts a 45/0 optical geometry, featuring plane grating spectroscopy technology and a silicon photodiode array sensor (dual array of 40 elements) for stable performance. It provides full-spectrum analysis capability within the 400—700 nm wavelength range, accurately reproducing the true colors of plastics, textiles, and various paint coatings while minimizing metamerism for more reliable measurement results. The instrument's inter-instrument agreement is strictly controlled within ΔE*ab ⩽ 0.2, ensuring color consistency across production lines and global supply chains. Widely used in industries such as plastic electronics, paints and inks, textile printing and dyeing, printing, and ceramics, it enables precise color measurement and quality control.

ACCURATE COLOR REPRODUCTION

Transforms subtle color differences into precise data, providing a reliable basis for every decision.

RELIABLE MEASUREMENT PERFORMANCE

High repeatability accuracy

Utilizing plane grating spectroscopy technology paired with a dual-array 40-group silicon photodiode sensor, the instrument achieves fine spectral analysis across the full 400-700 nm wavelength range and highly sensitive light detection. This robust technical foundation supports an ultra-high repeatability accuracy of ΔE*ab ⩽ 0.022, capturing minute color variations in samples to meet the color-control demands of high-precision industries.

Inter-instrument agreement

Inter-instrument agreement is maintained within an extremely tight range of ΔE*ab ⩽ 0.2, ensuring consistent color standards across multiple production lines, workshops, and geographical locations. This makes the instrument ideal for group-wide quality-control requirements in large enterprises and supply-chain factories.

PROFESSIONAL OPTICAL SYSTEM

Optical Geometry

The 45/0 optical geometry (45° annular uniform illumination, 0° reception) eliminates directional dependence, significantly reduces interference from textures such as those on matte or grained materials, and delivers measurement results that closely match actual human visual perception.

Combined Full-Spectrum LED Light Source

The instrument employs a combined full-spectrum LED + UV light source to ensure uniform spectral distribution across the entire wavelength range from visible light to ultraviolet. This eliminates errors caused by spectral gaps and notably enhances measurement reliability.

Industry Standards Compliance

Conforms to multiple authoritative standards such as CIE, ISO, ASTM, and national standards, ensuring precise and standardized measurements.

COMPREHENSIVE COLOR ANALYSIS

Extensive Color Space Support

Supports CIE LAB, XYZ, Yxy, LCh, CIE LUV, sRGB, HunterLab, βxy, DIN Lab99, Munsell (C/2), and many other color spaces to meet various industry standard requirements.

8 Color Difference Formulas

Provides ΔEab, ΔEuv, ΔE94, ΔEcmc(2:1), ΔEcmc(1:1), ΔE00, DINΔE99, ΔE (Hunter), and other color difference formulas to accommodate color evaluation in different scenarios.

41 Illuminant/Observer Conditions

Covers 41 evaluation light sources to simulate color appearance under different lighting environments.

Complete Chromaticity Metrics

In addition to common color indices, it also offers whiteness index, yellowness index, metamerism index, blackness, tint (ASTM E313–00), Munsell (C/2), staining fastness, color change fastness, strength, color density CMYK, hiding power (partially achieved via PC software), and more.

USER-FRIENDLY OPERATION

Intuitive Display Interface

Equipped with a TFT true–color 3.5–inch capacitive touchscreen that displays spectral graphs/data, sample chromaticity values, color difference values/graphs, pass/fail results, color simulation, color deviation, and other outputs to meet diverse industry needs.

Portable Design

Ergonomically lightweight design ensures comfortable handling and easy portability for on–site workshop measurements, outdoor inspections, and similar scenarios.

Long–Lasting Battery

Built–in high–performance lithium battery supports up to 10,000 measurements over 8 hours, meeting demands for extended continuous operation.

High Measurement Efficiency

Single measurement time is about 1.5 seconds, balancing precision with measurement speed.

WIDE RANGE OF APPLICATIONS

Dual–Aperture Configuration

Includes dual apertures (10mm platform + 5mm platform) for flexible adaptation to large and small–size samples.

Multi–Industry Suitability

Used for precise color measurement and quality control in industries such as plastics & electronics, paints & inks, textile printing & dyeing, printing, ceramics, and more.

Paints & Inks | Plastics & Electronics | Textile Printing & Dyeing | Printing | Ceramics

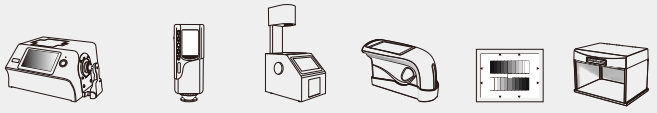
OPTIONAL ACCESSORIES

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.
Multi–function Testing Kit	/		Capable of holding liquids, powders, granules, etc., which facilitates measurement and improves accuracy and stability.
Positioning Plate	/		Ensures more precise measurement positioning.

PRODUCT SPECIFICATIONS

Product Model	TS-23C
Illumination Geometry	45/0 (45° annular uniform illumination, 0° reception)
Compliance Standards	CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO 7724-1, ASTM E1164, DIN 5033 Teil 7
Features	Standard-version spectrophotometer for precise color measurement and quality control in industries such as plastics & electronics, paints & inks, textile printing & dyeing, printing, ceramics, etc.
Light Source	Combined LED source
Spectroscopic Method	Plane grating spectroscopy
Sensor	Silicon photodiode array (dual array, 40 groups)
Wavelength Range	400—700nm
Wavelength Interval	10nm
Bandwidth (FWHM)	10nm
Reflectance Resolution	0.01%
Reflectance Measurement Range	0~200%
Measurement Aperture	Dual apertures: 10 mm platform + 5 mm platform
Color Spaces	CIE LAB, XYZ, Yxy, LCh, CIE LUV, sRGB, HunterLab, βxy, DIN Lab99, Munsell (C/2)
Color Difference Formulas	ΔEab, ΔEuv, ΔE94, ΔEcmc(2:1), ΔEcmc(1:1), ΔE00, DINΔE99, ΔE(Hunter)
Other Chromaticity Indices	WI (ASTM E313, CIE/ISO, AATCC, Hunter),YI (ASTM D1925, ASTM 313),Metamerism Index (MI), Blackness (My, dM), Tint (ASTM E313-00), Munsell (C/2),Staining Fastness, Color-Change Fastness, Strength, Color Density CMYK, Hiding Power (partly via PC software)
Measurement Time	Approx. 1.5 s
Display	Spectral graph/data, sample chromaticity values, color difference value/graph, pass/fail result, color deviation
Illuminants	D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, CWF, DLF, TL83, TL84, TPL5, U30, B, U35, NBF, ID50, ID65, LED-B1, LED-B2, LED-B3, LED-B4, LED-B5, LED-BH1, LED-RGB1, LED-V1, LED-V2, LED-C2, LED-C3, LED-C5 (41 illuminants in total, some via PC software)
Observer Angle	2°/10°
Display Precision	0.01
Repeatability	Spectral reflectance: MAV, standard deviation ≤0.1% (≤0.2% at 400—700nm) Colorimetric values: MAV, ΔE*ab ≤0.022 (after warm-up and calibration, average of 30 measurements on white tile at 5-s intervals)
Inter-instrument Agreement	MAV, ΔE*ab ≤0.2 (average of BCRA Series II 12 color tiles)
Measurement Mode	Single measurement, average measurement (2—99 times)
Dimensions (L×W×H)	169×73×87mm
Weight	Approx. 446g
Battery Capacity	Lithium battery, 10,000 measurements within 8h
Light Source Lifetime	3 million measurements over 5 years
Display Screen	TFT true-color 3.5-inch capacitive touch screen
Interfaces	USB, Bluetooth
Data Storage	1,000 standards, 20,000 samples
Languages	Simplified Chinese, English, Traditional Chinese, Russian
Software Support	Android, iOS, Windows, WeChat Mini-Program
Operating Temperature	0—40 °C, 0—85 % RH (non-condensing), altitude < 2000 m
Storage Temperature	-20—50 °C, 0—85 % RH (non-condensing)
Standard Accessories	Power adapter, data cable, built-in lithium battery, user manual, quality-control software (downloadable from official website), white/black calibration box, protective cover, measurement aperture
Optional Accessories	Mini printer, powder test box, multi-function testing kit, positioning plate

GUANGDONG THREENH TECHNOLOGY CO., LTD.



Spectrophotometers Colorimeters Haze Meters Gloss Meters Test Charts Light Booths

★CONTACT US

web:www.3nh.com

Email:3nh@3nh.com

Tel:0086-020-82880288

Add: 6-8th floors, Building B33, Low Carbon Headquarters Park, Xincheng Road No.400, Zengcheng District, Guangzhou, Guangdong Province, China