Guangdong Threenh Technology Co., ltd.

TS1060 SPECTRO-DENSITOMETER

(Advanced Edition)

7 measurement apertures

Multi-platform software support

Netmetric network calibration

The 3nh TS1060 Spectro-Densitometer Advanced Edition is the flagship model in the spectro-densitometer series, designed as a high-precision color measurement device for high-end printing enterprises, precision electronics manufacturers, research institutes, and quality inspection agencies. The instrument employs plane grating spectrophotometric technology and is equipped with a dual-array 40-set silicon photodiode sensor, delivering density repeatability of 0.001D and supporting density scanning. It is certified with Grade 1 metrology compliance.

The TS1060's advantages lie in "flagship precision, ultimate performance": inter-instrument agreement is optimized to ΔE*ab ≤ 0.18, reaching an industry-leading level to ensure highly consistent measurement data across multiple machines and plants; 7 measurement apertures provide full coverage for all measurement needs from routine to extreme; 20,000-record large-capacity storage combined with professional software enables comprehensive data management and quality traceability. Whether for research-grade precision measurement or authoritative inspection, the TS1060 delivers industry-leading accurate data, making it the preferred device for users with the highest quality requirements.

Color density measurement

Colorimetric Value Measurement

Color Change Fastness Measurement

Own the core tech: Top performance, budget price.

ISO9001 CE RoHS

KEY FEATURES

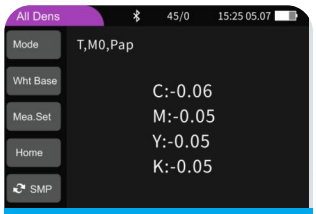
1. Excellent Repeatability and InterInstrument Agreement — Stable and Reliable Data

Density repeatability: ≤ 0.001D. Colorimetric repeatability: ΔE*ab ≤ 0.02 (after warmup and calibration, average of 30 measurements of a white plate at 5second intervals — M3 condition excluded). Interinstrument agreement: ΔE*ab ≤ 0.18 (average of BCRA Series II 14 color tiles — M3 condition excluded)

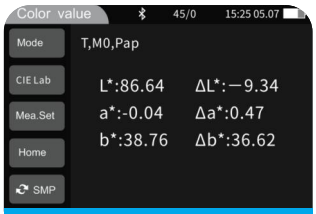
For group enterprises and multiplant operations, this ensures highly consistent measurement data across different devices, workshops, and factories, achieving unified quality standards. For quality inspection agencies, it ensures that inspection reports issued by multiple devices have equivalent authority and comparability.

2. Flagship-Grade Optical System — Research-Level Measurement Precision

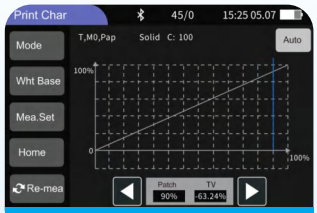
Employing plane grating spectrophotometric technology combined with a dual-array 40-set silicon photodiode array sensor, the TS1060 achieves research-grade spectral acquisition and analysis precision. Density repeatability reaches ≤ 0.001D, accurately capturing extremely subtle density changes and color differences. Supports density scanning for continuous multi-point density measurement of printed materials, generating density distribution curves for comprehensive evaluation of printing uniformity.



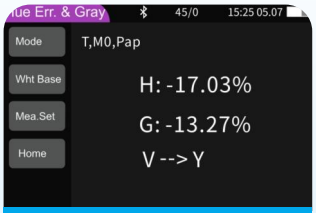
Density Value Capture



Colorimetric Value Capture



Step Wedge Tone Measurement Chart



Hue error and grayness measurement

3. Seven Measurement Apertures — FullScenario Coverage with One Instrument

Equipped with Φ11mm, Φ10mm, Φ6mm, Φ5mm, Φ3mm, Φ2mm, and Φ1.5mm measurement apertures. The smallest 1.5mm aperture can precisely measure microtext, fine graphics, precision electronic components, and other tiny areas. One instrument covers all measurement scenarios from micro areas to large color patches, eliminating the need to purchase multiple devices with different apertures and significantly reducing investment costs and management complexity.

4. Grade 1 Metrology Certification — Authoritative and Traceable Data

Guaranteed Grade 1 metrology certification ensures measurement data is authoritative and traceable, meeting the requirements of stringent scenarios such as quality inspection, research experiments, ISO quality system certification, and high-end customer audits. Helps enterprises successfully pass large client factory inspections and enhance brand image and market competitiveness.

- Grade 1 Metrology Compliant →
- ISO Certified →
- Audit-Ready →
- Third-Party Tested

5. Multi-Platform Software Support — More Efficient Data Management

The device stores up to 20,000 measurement records. Supports multi-platform synchronization across Android, iOS, Windows, WeChat Mini Programs, and HarmonyOS. Automatically generates professional reports, simplifies data analysis, and allows one-click report export.

HarmonyOS

6. Netmetric Network Calibration — Ensuring Data Consistency

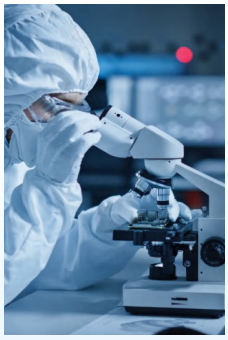
Supports Netmetric network calibration, allowing users to correct cumulative errors from longterm instrument use, as well as systematically calibrate all instrument groups within the enterprise and across the supply chain — significantly reducing interinstrument measurement errors. For group enterprises with multiple factories and production lines, this enables unified quality standards management and significantly reduces communication costs and quality risks in crossplant collaboration.

APPLICATION INDUSTRIES

- **High-End Printing:** Precision measurement for fine art books, luxury packaging, and security printing.
- **Research Institutes:** Color science research and optical performance testing of materials.
- **Group Enterprises:** Unified printing quality standard management across multiple factories and production lines.
- **Precision Electronics:** Precision color inspection for mobile phones, tablets, and wearable devices.
- **Quality Inspection:** Measurement equipment for authoritative testing agencies and metrology institutes.
- **Brand Quality Control:** Global supplier quality management and incoming inspection for high-end brands.

High-End Printing

Precision Electronics


Research Institutes

QC

Corporate Groups

Brand QC

TECHNICAL SPECIFICATIONS

Product Model	TS1060
Illumination Geometry	45/0 (45° annular uniform illumination, 0° reception); compliant with ISO 5-4, CIE No.15
Features	High-precision spectro-densitometer, widely used for precise color measurement and quality control in ink printing, film processing, textile dyeing, plastics & electronics, and other industries. Especially suitable for accurate measurement of optical density, dot gain, and other indicators in ink printing.
Illumination Light Source	Combined LED light source + UV light source
Spectrophotometry Method	Plane grating spectroscopy
Sensor	Silicon photodiode array (dual-array 40 sets)
Measurement Wavelength Range	400nm-700nm
Wavelength Interval	10nm
Half Bandwidth	0-200%
Reflectance Measurement Range	10nm
Reflectance Resolution	0.01%
Measurement Conditions	Complies with ISO 13655: M0 (CIE Illuminant A), M1 (CIE Illuminant D50), M2 (UV-excluded illumination), M3 (M2 + polarizing filter)
Density Standards	ISO Status T、E、A、I、M
Density Range	0.0 D — 3.0 D
Density Indices	Density value, density difference, dot area, dot gain, trapping, print characteristics, print contrast, hue error and grayness, plate, density scanning
Measurement Apertures	Φ11 mm, Φ10 mm, Φ6 mm, Φ5 mm, Φ3 mm, Φ2 mm, Φ1.5 mm
Color Spaces	CIE LAB,XYZ,Yxy,LCh,CIE LUV,HunterLAB,s-RGB,βxy,DIN Lab99,Munsell
Color Difference Formulas	ΔEab, ΔEuv, ΔE94, ΔEcmc(2:1), ΔEcmc(1:1), ΔEcmc(1:c), ΔE*00, DINΔE99, ΔE(Hunter)
Other Colorimetric Indices	Spectral reflectance; Whiteness (ASTM E313-00, ASTM E313-73, CIE, ISO2470/R457, AATCC, Hunter, Taube, Berger, Stensby); Yellowness (ASTM D1925, ASTM E313-00, ASTM E313-73); Tint (ASTM E313-00); Metamerism Index MI; Staining fastness; Color change fastness; Strength (dye strength, tinting strength); Hiding power; 555 Hue Classification; Blackness (My, dM)
Observer Angle	2°/10°
Observation Light Sources	D65,A,C,D50,D55,D75,F1,F2(CWF),F3,F4,F5,F6,F7(DLF),F8 ,F9,F10(TPL5),F11(TL84),F12(TL83/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
Measurement Time	Approx. 1 s
Display Precision	Density: 0.001; Colorimetric: 0.01
Repeatability	Density: within 0.001D; Colorimetric: ΔE*ab within 0.02 (after warm-up and calibration, average of 30 measurements of white plate at 5-second intervals — except M3)
Inter-instrument Agreement	ΔE*ab within 0.18 (average of BCRA Series II 14 color tiles — except M3)
Measurement Modes	Single measurement, average measurement (2—99 times)
Positioning Method	Integrated physical positioning hole
Dimensions (L×W×H)	170 × 75 × 91.7 mm
Weight	Approx. 600 g
Battery	Lithium battery, 5,000 measurements within 8 hours
Light Source Lifespan	5 years or >3 million measurements
Display	TFT true color 3.5-inch capacitive touchscreen
Interfaces	USB, Bluetooth
Data Storage	20,000 records
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)
Network Calibration	Supports Netmetric
Accuracy Assurance	Guaranteed Grade 1 metrology compliance
Standard Accessories	Power adapter, data cable, built-in lithium battery, user manual, quality management software (download website:http://www.3nh.com/en/client_en_14.html), black/white calibration box, protective cover, polarization filter box
Optional Accessories	Micro printer, Netmetric

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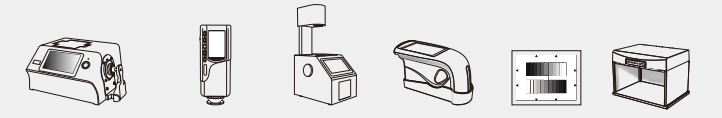

Spectrophotometers Colorimeters Haze Meters Gloss Meters Test Charts Light Booths

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The specifications and design may be changed without notice.