



GENERAL-PURPOSE SPECTRO-DENSITOMETER -THE QUALITY CONTROL POWERHOUSE FOR ALL INDUSTRIES.



PS528

Spectro-Densitometer

The 3nh PS528 is a general-purpose spectro-densitometer, designed as a quality control tool for industries such as ink printing, film processing, textile dyeing & printing, and plastics & electronics. The instrument adopts a 45/0 annular uniform illumination optical system combined with high-precision nano-spectrophotometric components, enabling precise measurement of key printing indicators including optical density, dot area, dot gain, and trapping. It helps enterprises upgrade from experience-based judgment to data-driven quality control.



Key Measurement Capabilities

CMYK Density value / Density difference / Dot area / Dot gain / Trapping / Print characteristics / Print contrast



High Precision, Stable & Reliable

Density repeatability $\leq 0.01D$, Colorimetric repeatability $\Delta E^*ab \leq 0.02$



Data in 1 Second

Single measurement in approx. 1 second, Supports average measurement mode (2-99 times)



Wide Application Range

Ink Printing, Film Processing, Textile Dyeing & Printing, Plastics & Electronics

Versatile, precise, and efficient

– your go-to partner for quality improvement.



CMYK Density value, Density difference

Hue error ,Grayness

Trapping ,Print characteristics ,Print contrast

Dot area ,Dot gain

Whiteness , Yellowness , Metamerism Index

Staining fastness,Color change fastness,Strength

Hiding power,555 Hue classification,Blackness

PRODUCT INTRODUCTION

The PS528's greatest advantages lie in **"multi-purpose versatility, precision and efficiency"**, equipped with 5 measurement apertures covering everything from large color patches to fine details, 1-second fast measurement significantly improves inspection efficiency, and density repeatability of 0.01D ensures stable and reliable measurement results. It provides professional and accurate measurement data for rapid on-site spot checks in production, making it a powerful tool for cost reduction, efficiency improvement, and quality enhancement.

KEY FEATURES

1. Professional Density Measurement Covering the Entire Printing Process

Accurately measures CMYK density value, density difference, dot area, dot gain, trapping, print characteristics, print contrast, hue error and grayness, plate inspection, and other key indicators. Simultaneously supports colorimetric data such as $L^*a^*b^*$ and Lc^*h^* , meeting quality control needs across the entire process—from ink incoming inspection to plate-making and printing workshops. Provides comprehensive data-driven quality control for printing production.



• CMYK Density value measurement



• Color density measurement



• Hue error & grayness measurement



• Print characteristics measurement

2. Five Apertures for Flexible Adaptation

Equipped with $\Phi 11\text{mm}$, $\Phi 10\text{mm}$, $\Phi 6\text{mm}$, $\Phi 5\text{mm}$, and $\Phi 3\text{mm}$ measurement apertures, allowing flexible selection based on sample size. Meets diverse measurement needs from large color patches to fine details, covering multiple application scenarios with one instrument.



• Five apertures: $\Phi 11$, $\Phi 10$, $\Phi 6$, $\Phi 5$, $\Phi 3$ mm

3. High Precision, Stable and Reliable

16 sensor sets acquire spectral data across the 400–700 nm visible range at 10 nm intervals, accurately measuring dark inks, light inks, and special colors. Density repeatability $\leq 0.01D$, colorimetric repeatability $\Delta E^*ab \leq 0.02$, ensuring highly consistent measurement results and avoiding misjudgment due to instrument fluctuations. Guarantees unified quality control standards, identifies issues before shipment, and reduces customer complaints.



• Measures 400–700 nm visible spectral data

4. Fast Measurement for Improved Efficiency

Single measurement takes only about 1 second. Supports average measurement mode (2–99 times) to effectively eliminate measurement errors caused by sample non-uniformity. 10,000-record storage capacity meets batch inspection data traceability requirements.



• Fast measurement in ≈ 1 second

5. Multi-Platform Software Support for Convenient Data Management

Supports multi-platform synchronization across Android, iOS, Windows, WeChat Mini Programs, and HarmonyOS. Automatically generates reports, simplifies data analysis, and allows one-click report export.



• PC software for extended functionality

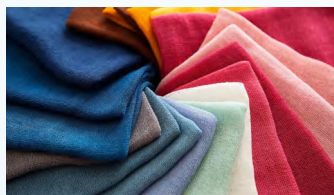
KEY FEATURES



- **Ink Printing:** Optical density, dot gain, trapping, print contrast, and other indicator measurement and quality control



- **Film Processing:** Film density inspection, plate quality control



- **Textile Dyeing & Printing:** Dyeing fastness, color difference evaluation, color formula management, printing quality control



- **Plastics & Electronics:** Color inspection of plastic parts, appearance quality control

TECHNICAL SPECIFICATIONS

Product Model	PS528
Illumination Geometry	45/0 (45° annular uniform illumination, 0° reception); Compliant with ISO 5–4, CIE No.15
Features	General-purpose spectro-densitometer, widely used for color measurement and quality control in ink printing, film processing, textile dyeing & printing, plastics & electronics, and other industries. Especially suitable for optical density, dot gain, and other indicator measurement in ink printing.
Illumination Light Source	Combined LED light source + UV light source
Spectrophotometry Method	High-precision nano-spectrophotometric device
Sensor	Silicon photodiode array (dual-array 16 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	CMYK Density value, density difference, dot area, dot gain, trapping, print characteristics, print contrast, hue error and grayness, plate inspection
Measurement Apertures	Φ11 mm, Φ10 mm, Φ6 mm, Φ5 mm, Φ3 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 0.01D; 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 0.25 (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	10,000 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	/
Accuracy Assurance	Guaranteed 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

GUANGDONG THREENH TECHNOLOGY CO., LTD.



Spectrophotometers



Colorimeters



Haze Meters



Gloss Meters



Test Charts



Light Booths

★ CONTACT US



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