



# LARGE APERTURE SPECTROPHOTOMETER PS809

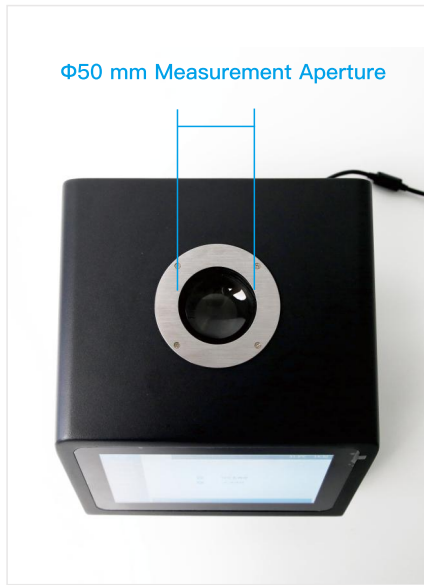
Designed for complex samples and large-area surface color measurement

The Large Aperture Spectrophotometer PS809 is a high-precision color measurement device specifically designed for complex samples and large-area surface color inspection. It adopts the D/8 (diffuse illumination, 8° viewing) optical geometry, conforming to CIE, ISO, ASTM and multiple national standards. Equipped with a  $\Phi 50$  mm measurement aperture and a  $\Phi 120$  mm integrating sphere, it achieves large-area uniform sampling, significantly improving the representativeness and stability of color measurement for non-uniform samples (e.g., textured surfaces, granules, fabrics, food, etc.).





The PS809 incorporates a nano-integrated spectral device and a silicon photodiode array, supporting simultaneous SCI/SCE measurement. It is widely used in industries such as plastics & electronics, paints & inks, textiles & apparel, printing, ceramics, and food. It is an ideal choice for precise laboratory analysis and industrial production quality control.

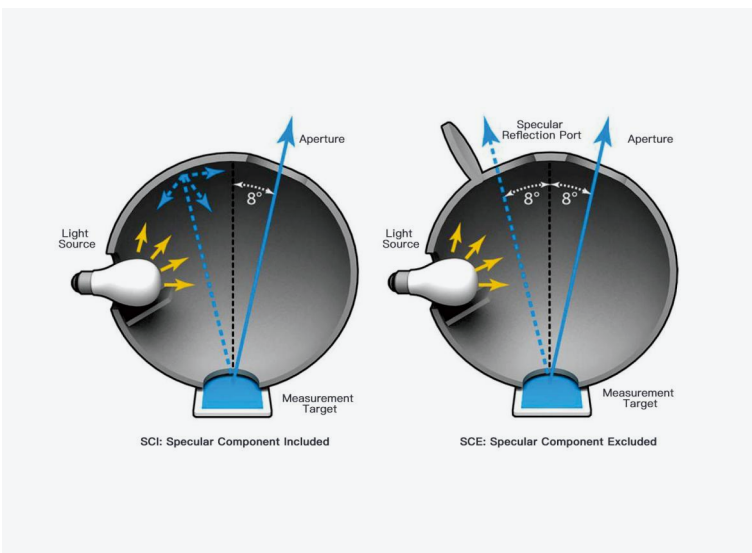


## KEY FEATURES

### I. Large Aperture Design – Tailored for Complex Samples

Φ50 mm Measurement Aperture: Paired with a Φ120 mm integrating sphere, it provides large-area uniform illumination and reception, effectively reducing measurement errors caused by uneven sample texture, particles, or color distribution. It is especially suitable for color testing of heterogeneous samples such as rough surfaces, fabrics, food, powders, and granules.

D/8 Optical Geometry with Simultaneous SCI/SCE Measurement: Uses diffuse illumination and 8° viewing, compliant with international standards. It can simultaneously acquire SCI (Specular Component Included) and SCE (Specular Component Excluded) data, meeting the analysis requirements of gloss effects in different applications and providing comprehensive data support for material appearance quality.



D/8 optical geometry



50 mm large aperture



Non-uniform sample measurement



SCI/SCE measurement

# HIGH REPEATABILITY OF 0.03ΔE

## One-shot color measurement for complex samples

the representativeness and stability of color measurement for non-uniform samples such as textured surfaces, granules, fabrics, and food.



## II. High-Precision Spectral Analysis – Reliable and Stable Data

**High Repeatability:** After warm-up and calibration, 30 consecutive measurements of a standard white plate at 5-second intervals give color value repeatability  $\Delta E^*ab \leq 0.03$ ; spectral reflectance standard deviation  $\leq 0.07\%$  ( $\leq 0.2\%$  for 400–700 nm band), ensuring accuracy and stability in identifying tiny color differences.

**Good Inter-Instrument Agreement:** The average of measurements on 12 BCRA Series II standard color tiles gives inter-instrument agreement  $\Delta E^*ab \leq 0.35$ , ensuring consistent color data transfer and alignment across multiple devices and laboratories, supporting group-wide quality control.

**Full-Band Accurate Acquisition:** Measurement wavelength range covers 400–700 nm, wavelength interval 10 nm, half-bandwidth 10 nm, reflectance range 0–200%, achieving high-fidelity capture of sample spectral information.



## III. Advanced Optical System – Comprehensive and Powerful Functions

**Nano-Integrated Spectral Device:** Uses advanced nano-integrated spectral technology combined with a dual-row 20-set silicon photodiode array, achieving high-speed, high-sensitivity spectral acquisition. Measurement time is approximately 1 second, greatly improving testing efficiency.

**Multiple Light Sources and Observation Conditions:** Built-in over 40 standard observation light sources (D65, A, C, F-series, LED-series, etc.), supporting 2°/10° observer angles, simulating color appearance under various lighting conditions, meeting different industry standards.

**Rich Colorimetric Indices:** In addition to conventional color spaces (CIE LAB, XYZ, LCh, HunterLab, etc.) and color difference formulas ( $\Delta E_{ab}$ ,  $\Delta E_{00}$ ,  $\Delta E^*cmc$ , etc.), it also supports professional indices such as whiteness (WI, multiple standards), yellowness (YI), staining fastness, color change fastness, strength, hiding power, color density CMYK, etc., fully covering quality control needs of plastics, textiles, coatings, printing, and other industries.

40+

Illuminant

1s

Measurement time

10+

Colorimetric indices

	illuminant	Illuminant	31.2°C	09:15
Data Manage	D65	<input checked="" type="radio"/>		
Calibration	D50	<input type="radio"/>		
illuminant	A	<input type="radio"/>		
MEAS Setting	C	<input type="radio"/>		
Color Option	D66	<input type="radio"/>		
Parameter	D75	<input type="radio"/>		
Display	F1	<input type="radio"/>		
Sys Setting	F2	<input type="radio"/>		
	F3	<input type="radio"/>		

## IV. Smart Operation and Data Management – Suitable for Industrial Applications



### 7-inch Large Touchscreen



Equipped with a TFT true-color capacitive touchscreen, intuitively displaying spectral graph/data, color values, color difference charts, pass/fail results, and color deviation – smooth operation, clear results.

### Large Storage Capacity



Stores up to 1,000 master samples and 30,000 test samples, meeting the data storage and traceability needs of large-scale industrial production.

### Full-Platform Software Support



Comes with professional quality management software (download from official website), supporting in-depth data analysis, batch management, remote transmission, and report export, facilitating the establishment of a digital color management system.

### Multi-Language System



Built-in languages include Simplified Chinese, English, Traditional Chinese, Russian, and others, adapting to global application scenarios.



## V. Industrial Durability and Environmental Adaptability

### Long-Life Illumination Light Source

Uses a combined LED light source with a service life of up to 10 years or >2 million measurements, greatly reducing equipment maintenance costs.

### Wide Environmental Adaptability

Operating temperature range 0–40°C, humidity 0–85% RH (non-condensing), altitude below 2000 m, suitable for most production and testing scenarios. Storage temperature range –20 to 50°C, ensuring safe storage when not in use.

### Stable Power Supply

Powered by a 24 V DC, 3 A power adapter, ensuring stable operation during long-term continuous use.



## OPTIONAL ACCESSORIES

Product Name	Material Code	Image	Function
Micro Printer	1.609.01.0020		Portable, allowing you to print various measurement parameters without connecting to a computer.

# TECHNICAL SPECIFICATIONS

Product Model	PS809
Geometry	D/8 (diffuse illumination, 8° viewing);
Compliant Standards	CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO 7724-1, ASTM E1164, DIN 5033 Teil 7
Features	The large aperture spectrophotometer adopts D/8 optical geometry and is equipped with a Φ50 mm large aperture. The instrument provides a wide measurement area and highly representative data, making it ideal for color measurement of complex samples. It is used for precise color measurement and quality control in industries such as plastics & electronics, paints & inks, textile & apparel dyeing, printing, ceramics, and food, as well as for accurate color analysis and data transfer in laboratories.
Integrating sphere size	120mm
Light Source	Combined LED light source
Spectroscopy	Nano-integrated spectral device
Sensor	Silicon photodiode array (dual-row 20 sets)
Wavelength Range	400-700nm
Wavelength Interval	10nm
Half Bandwidth	10nm
Reflectance Range	0-200%
Measurement Aperture	Φ50
Specular Component	Simultaneous SCI/SCE measurement
Color Space	CIE LAB, XYZ, Yxy, LCh, CIE LUV, s-RGB, 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 index	Spectral reflectance, WI (ASTM E313, CIE/ISO, R457, AATCC, Hunter, Taube, Berger, Stensby), YI (ASTM D1925, ASTM 313), Tint (CIE/ISO, ASTM E313-20), Metamerism Index MI, Staining fastness, Color change fastness, Strength, Hiding power, Color density CMYK
Observer Angle	2°/10°
Illuminant	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
Display	Spectral graph/data, sample colorimetric values, color difference values/graph, pass/fail results, color deviation
Measuring Time	Approx. 1 s
Repeatability	Spectral reflectance: standard deviation ≤0.07% (≤0.2% for 400-700 nm) Colorimetric values: ΔE*ab ≤0.03 (after warm-up and calibration, 30 measurements of white plate at 5 s intervals)
Inter-Instrument Agreement	ΔE*ab ≤0.35 (average of measurements on 12 BCRA Series II color tiles)
Measurement Time	Approx. 1 s
Measurement Modes	Single measurement, average measurement (2-99 times)
Dimensions	210 × 245 × 188 mm
Weight	3.1 kg
Power Supply	24 V DC, 3 A power adapter
Light Source Lifespan	10 years or >2 million measurements
Display	TFT true color 7-inch capacitive touchscreen
Interfaces	USB, Bluetooth
Data Storage	1,000 standard samples, 30,000 test samples
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)
Standard Accessories	Power adapter, data cable, user manual, quality management software (Download URL: <a href="http://www.3nh.com/en/client_en_14.html">http://www.3nh.com/en/client_en_14.html</a> ), white plate, Petri dishes x2
Optional Accessories	Micro printer

## GUANGDONG THREENH TECHNOLOGY CO., LTD.



Spectrophotometers



Colorimeters



Haze Meters



Gloss Meters



Test Charts



Light Booths

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