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# MAKE THE COLOR DIFFERENCE CLEAR

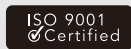
## Handheld Grating Spectrophotometer



**Domestic high-quality spectrophotometer**

Shenzhen Three-nh Technology Co., Ltd. is a high-tech enterprise. We research, develop, produce and market photoelectric detection products in photoelectric detection technology field and color management field.

**1000-line grating with dual optical path system**



## PRODUCT FEATURES

- 1、 D / 8 geometric optical structure, conforming to CIE No.15, GB / T 3978, GB 2893, GB / T 18833, iso7724 / 1, ASTM e1164, din5033 teil7;
- 2、 Adopt combined LED light source with high life and low power consumption, including UV / excluding UV;
- 3、 Switchable 8mm & 4mm aperture( the flat/ tip measuring aperture can be switched easily, which is suitable for more tested sample)
- 4、 Dual optical path system, the optical resolution in the visible range is less than 10nm, which can measure the SCI and SCE spectrum of the sample at the same time;
- 5、 Accurate spectrum and lab data, used for color matching and accurate color transmission;
- 6、 High hardware configuration: 3.5-inch TFT true color screen, capacitive touch screen, 1000 line blazed grating, silicon photocell array detector with large photosensitive area, etc;
- 7、 USB / Bluetooth dual communication mode, wider adaptability;
- 8、 Super dirt resistant and stable standard white calibration board;
- 9、 Large capacity storage space, which can store more than 30000 pieces of test data
- 10、 2/10 standard observer's angle, multiple light source modes, multiple surface color systems, meet various standards of chromaticity indicators, and the needs of various customers for color measurement;
- 11、 Camera locating position and Stabilizer cross measurement position;
- 12、 PC software has powerful function expansion;

## OPTIONAL ACCESSORIES

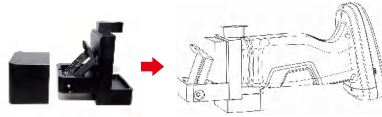
Micro printer: easy to carry, without computer can continuously print out the measurement of various parameters, easy to save.



Powder test box: Easy to use, focusing on powdered target measurement.



Multifunctional test components: can be used to test liquid reagents, sauces (such as ketchup, paint), powders (such as coffee), color masterbatches, etc.



Place the base: quickly place, pick up the machine to use, prevent dust from entering, save space, the base is stable, will not fall.



## APPLICATION INDUSTRY

It is widely used in plastics, electronics, paints and inks, textile and garment printing and dyeing, printing paper, automotive, medical, cosmetics and food industries, scientific research institutions and laboratories. The instrument can accurately measure multiple color indices such as reflection spectrum in multiple color spaces. With this instrument, research on color matching, color management, etc. can be easily performed, and precise product quality management control can also be performed. The instrument is equipped with high-end color management software, which can be connected to a computer for more functions.



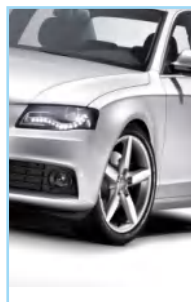
Plastics



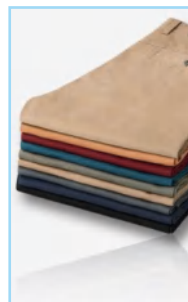
Paint & Ink



Printing



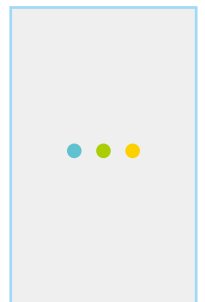
Automobile



Textiles



Medicines



Others

## SPECIFICATION PARAMETER

**Model:** TS7700

**Optical Geometry:** Reflect: di:8°, de:8°(diffused illumination, 8-degree viewing angle)SCI (specular component included)/SCE (specular component excluded) ; Include UV / excluded UV light sourceConforms to CIE No.15,GB/T 3978,GB 2893,GB/T 18833,ISO7724-1,ASTM E1164, DIN5033 Teil7

**Characteristic:** double apertures for accurate color analysis and transmission in laboratoryIt is used for precise color measurement and quality control in plastic electronics, paint and ink, textile and garment printing and dyeing, printing, ceramics and other industries, and for fluorescent sample measurement.

**Integrating Sphere Size:**  $\Phi$ 40mm

**Light Source:** Combined full spectrum LED light source, UV light source

**Spectrophotometric Mode:** Flat Grating

**Sensor:** Silicon photodiode array (double row 40 groups)

**Wavelength Range:** 360~780nm

**Wavelength Interval:** 10nm

**Semiband Width:** 10nm

**Measured Reflectance Range:** 0-200%

**Measuring Aperture:** MAV: $\Phi$ 8mm/ $\Phi$ 10mm; SAV: $\Phi$ 4mm/ $\Phi$ 5mm

**Specular Component:** SCI&SCE

**Color Space:** CIE LAB,XYZ,Yxy,LCh,CIE LUV,s-RGB,HunterLab, $\beta$ xy,DIN Lab99 Munsell(C/2)

**Color Difference Formula:**  $\Delta E^*ab, \Delta E^*uv, \Delta E^*94, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*00, \text{DIN}\Delta E99, \Delta E(\text{Hunter})$

**Other Colorimetric Index:** Spectral reflectance, whiteness (ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube-Berger-Stensby), yellowness (ASTM D1925, ASTM E313-00, ASTM E313-73), metamerism index Mt, staining fastness, color fastness to light, strength (dye strength, tinting strength), opacity, 8-degree gloss, 555 hue classification, blackness (My, dM), color density CMYK, tint (ASTM E313-00), color density, Munsell ,MI(Melanin index),EI(Erythema index) (some functions realized through a host computer).

**Observer Angle:** 2°/10°

**Illuminant:** 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, customizable light sources (a total of 41 light sources, some of which are realized through a host computer/APP).

**Displayed Data:** Spectrogram/Values, Samples Chromaticity Values, Color Difference Values/Graph, PASS/FAIL Result, Color Offset

**Measuring Time:** About 1.5s (Measure SCI & SCE about 3.2s)

**Repeatability:** Spectral reflectance: MAV/SCI, Standard deviation within 0.08% (400 nm to 700 nm: within 0.18%)

**Chromaticity value:** MAV/SCI, within  $\Delta E^*ab$  0.02 ( When a white calibration plate is measured 30 times at 5 second intervals after white calibration)

**Inter-instrument Error:** MAV/SCI, Within  $\Delta E^*ab$  0.15(Average for 12 BCRA Series II color tiles)

**Measurement Mode:** Single Measurement, Average Measurement(2-99times)

**Software Support:** Android, iOS, Windows, WeChat Mini Program, HarmonyOS

**Locating Method:** Camera Locating, stabilizer cross position

**Dimension:** L\*W\*H=129X76X217mm

**Weight:** Approx 600g

**Battery:** Li-ion battery, 3.7v, 5000mAh, 6000 measurements within 8 hours

**Illuminant Life Span:** 5 years, more than 3 million times measurements

**Displayed Data:** 3.5-inch TFT color LCD, Capacitive Touch Screen

**Data Port:** USB, Bluetooth

**Data Storage:** Standard 1000 Pcs, Sample 30000 Pcs

**Language:** Simplified Chinese, English, Traditional Chinese, Russian

**Operating Environment:** 0~40°C, 0~85%RH (no condensing), Altitude < 2000m

**Storage Environment :** -20~50°C, 0~85%RH (no condensing)

**Standard Accessory:** Power Adapter, User Guide, PC Software(Download from office website), USB cable, White and Black Calibration Cavity, Protective Cover, Wrist strap, 8mm flat aperture, 8mm tip aperture, 4mm flat aperture, 4mm tip aperture

**Optional Accessory:** Micro Printer, Powder Test Box ,Multifunctionaltestassembly,placingbase

**Notes:** The specifications are subject to change without notice.