

3nh[®]

专注二十余载 掌握核心技术

The MS3012 multi-angle spectrophotometer uses an industrial-grade MCU and supports 12 measurement angles, providing accurate and consistent color measurement for gold, pearlescent and other complex special-effect color products. The smooth operating system and superior optical measurement system allow the MS3012 multi-degree spectrophotometer to provide repeatable and reproducible scintillation, color scintillation, and particle size measurements.

Multi-Angle Spectrophotometer



Professional car surface inspection



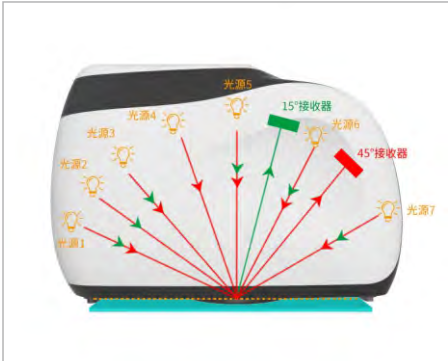
- ◆ color changing paint
- ◆ Color flash
- ◆ flicker
- ◆ Graininess



深圳市三恩时科技有限公司

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Features



1, Multi-angle measurement

Using 7 light sources and 2 receivers, it can measure 12 angles at the same time



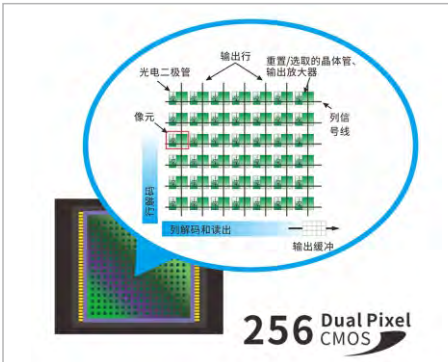
2, Display is more intuitive

The touch screen can display the measurement results of all angles, and view the comprehensive data more intuitively.



3, Effect measurement discrimination function

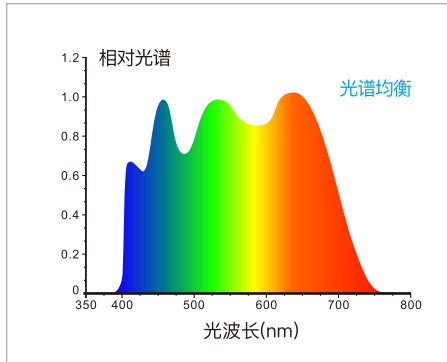
Quickly identify the scintillation, color scintillation and particle size of the sample, and implement quality inspection simply and effectively.



256 Dual Pixel CMOS

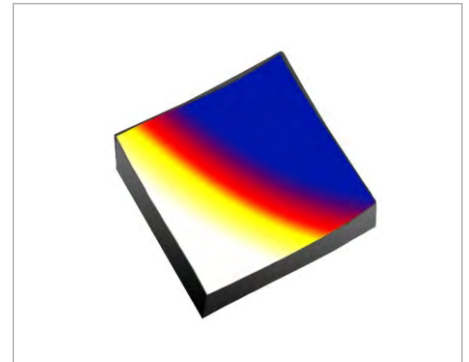
4, 256-element dual-array CMOS image sensor

Higher optical resolution ensures the measurement speed, accuracy, stability and consistency of the instrument, mastering the core technology, and achieving complete compatibility with the same platform as international standards.



5, Full spectrum LED light source with blue light enhancement

The blue light-enhanced full-spectrum LED light source ensures a sufficient spectral distribution in the visible light range, avoiding the spectral missing of LEDs in specific wavelength bands.



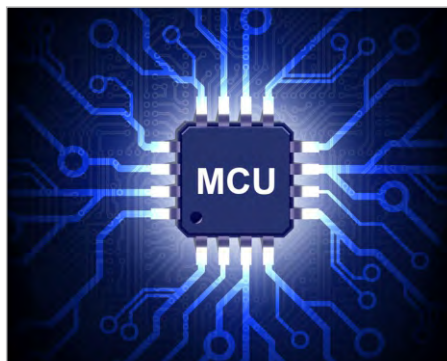
6, Concave grating spectroscopic technology

Using concave grating spectroscopic technology, it has higher resolution and makes color measurement more accurate.



7, Professional grade whiteboard

A lifetime promise that will never change.



8, higher quality

Adopt industrial-grade real-time processing MCU, support Bluetooth 5.0 transmission more stable and reliable.



9, Novel and fashionable design based on ergonomics

The shape of the instrument is designed for easy operation and can meet different holding habits. The smooth and fine surface is derived from the high-precision appearance processing technology.



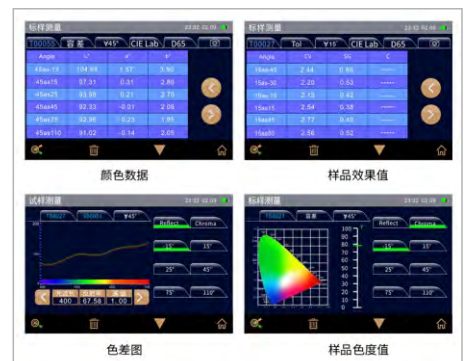
10, Color camera preview for clear observation of the measured area

The built-in color camera for framing and positioning can accurately determine the measured part of the object, which improves the measurement efficiency and accuracy.



11, Multiple color measurement spaces, multiple observation light sources

Provides 6 color spaces and a variety of observation light sources, which can meet the special measurement needs under different measurement conditions.



12, Easily analyze data

The screen can intuitively display spectrum graph/data, sample color value, color difference value/graph, pass/fail result, color simulation, color bias, sample effect value

APPLICATION INDUSTRY

Polychromatic spectrophotometers are widely used in plastics, electronics, paint and ink, textile and garment printing and dyeing, printed paper, automobile, medical, cosmetics and food industries. The instrument is equipped with high-end color management software, which can be connected to a computer to achieve more functional expansion.



MS3012 Product parameters

Measuring geometry	12 measuring angles (7 light sources, 2 receivers)
Color measurement role	45° receiver: 45as-15°, 45as15°, 45as25°, 45as45°, 45as75°, 45as110° 15° receiver: 15as-45°, 15as-15°, 15as15°, 15as- 30°,15as45°,15as80°
Standards compliant	ASTM D2244,E308,E1164,E2194, E2539,DIN 5033,5036,6174,6175-1,6175-2;ISO 7724, 11664-4, SAE J1545
characteristic	Accurate and consistent color measurement for metallic, pearlescent, and other complex special-effect color products
Lighting source	Blue light-enhanced full-spectrum LEDs
Lighting source life	5 years 3 million measurements
Spectroscopic method	Concave grating
detector	256-element dual-array CMOS image sensor
wavelength range	400nm-700nm
wavelength spacing	10nm
Measuring range	0~600%
half width	10nm
Measuring diameter	Φ12mm
color space	CIE LAB,XYZ,Yxy,LCh,βxy,DIN Lab99
Color difference formula	$\Delta E^*ab, \Delta E^*94, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*00, \Delta E^*DIN, \Delta E^*DIN6175$
Other indicators	Flop Index, Radiation intensity value
Observer's point of view	2°/10°
Observation light source	D65,A,C,D50,D55,D75,F1,F2(CWF),F3,F4,F5,F6,F7(DLF),F8,F9,F10(TPL5),F11(TL84),F12(TL83/U30)
show	Spectrum graph/data, sample color value, color difference value/graph, pass/fail result, color simulation, sample effect value, effect difference value
measure time	The measurement time of a single angle is about 1s, and the measurement of all the angles takes about 12s
color repeatability	Spectral reflectance: standard deviation within 0.08%, chromaticity value: 0.02 ΔE^*ab (after the instrument is warmed up and calibrated, the average value of 30 times)
color reproducibility	$\Delta E^* < 0.10$, average on grey BCRA panels, $\Delta E^* < 0.25$, the average value on the color BCRA plate
Differ instruments	0.18 $E^*0.0$ BCRA series Ⅱ 12 pieces of color plate measurement average
Effect parameters	Flicker, Color Flicker, Granularity
Effect measurement	6 degrees of flicker, color flicker data: 15as-45°, 15as-30°, 15as-15°, 15as15°, 15as45°, 15as80°, 15d diffuse particle size
effect repeatability	Short-term repeatability of flicker: 0.12% (standard deviation of 10 times), (after the instrument is warmed up and calibrated, the average value of 10 times of color plate measurement), Short-term repeatability of particle size: 0.09% (standard deviation of 10 times) (measurement of color plate 10 times the average)
effect reproducibility	Scintillation reproducibility: 1.9% particle size reproducibility: 1.4%
Trigger method	Pressure sensitive trigger, button trigger, software trigger
measurement method	Single measurement, average measurement (1~99 times), continuous measurement (1~99 times)
Targeting	Color camera preview
size	Length x width x height =195X83X128mm
weight	about 1Kg
battery power	Lithium battery, 3.7V, 3200mAh, can test 6000 times continuously within 8 hours after full charge
display	TFT true color 3.5inch, capacitive touch screen
interface	USB,BT
Storing data	1000 standard samples, 4000 samples
language	Chinese (Simplified, Traditional) English
calibration	Built-in white board parameters, external white board, black light trap, color board
Calibration interval	4h,8h,24h,Power-on calibration
Standard accessories	Power adapter, data cable, manual, quality management software (download from official website), calibration box, black light trap, protective cover, wrist strap
Optional accessories	micro printer

Warning:

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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