Products Catalogue

www.chnspec.com

Hangzhou CHNSpec Technology Co.,Ltd

Link Color with Data

CHN Spec

Hangzhou CHNSpec Technology Co.,Ltd

V.2022.1

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Website

CHN Spec

Development Course

2021
Launched Gloss Meter DG60 series
Launched Portable Spectrophotometer DS-700 series
Launched Hyperspectral Camera FigSpec FS series

2018
Attend CHINAPLAS 2018
Launched Tiny Aperture Gloss Meter
Attend All in Print 2018
Launched Tiny Aperture Haze Meter
Launched CHNSpec Color Matching Software
Launched Haze Meter TH-100
Launched Non-Contact / Inline Color Spectrophotometer CRX-50
Launched Bench-top Spectrophotometer CS-820N
Launched Three Angles Spectrophotometer CS-390
Attend China Coat 2018

2014
Utility Model Patent - Spectrophotometer based on SCE measurement structure
Mass Production for Spectrophotometer
Attend Exhibition CHINAPLAS 2014
Get Software Copy Right for color QC software
Launch COLORMATCH Software
Launch the first Chinese powder measurement spectrophotometer
Launch the first Chinese Transmittance spectrophotometer
Invention Patent-Spectrophotometer with double light source compatible
SCI/SCE measurement and its implement method
Invention Patents- Spectrophotometer based on D/8 geometry light trap
error correction and implement method
Utility Model Patent - Two different focus state colorimeters focusing lens switching device
Utility Model Patent- Portable Food Dry Analyzer
Attend Chinacoat 2014 Exhibition
Get Honor of "Hangzhou Scientific and Technology Enterprise"
Get Honor of "Hangzhou High Technology Enterprise"

2016
Launch single angle and triple angles gloss meter
Launch online gloss measurement system
Attend CHINAPLAS 2016
Obtain one American Invention Patent
Launch spectral colorimeters
Attend China Coat 2016

2017
Attend 31th Chinaplas 2017
Launch Color and Gloss Measurement
Spectrophotometer
Third prize of Zhejiang Science and Technology
Progress Award
Launched (Bench-top/Portable) 45/0 Spectrophotometer
Attend China Coat 2017
Launched Haze Meter

2020
Launch ColorMeter
SE/Pro/Max
Launch Spectrophotometer
CS-500/520

2019
Attend CHINAPLAS 2019
Launch Non-contact / Online Color Sensor CRX-51/52
Patent for Appearance - multi - Angle spectrophotometer
Obtained Appearance Patent- haze meter
Launch Three Angles Spectrophotometer CS-392

2015
Hangzhou Eyas Program Enterprise
Launch Pantone Colorimeter CS-260
Launch Pantone Spectrophotometer
Benchtop Transmittance and Reflectance
spectrophotometer CS-820 research successfully
Launch Spectrophotometer CS-650
Attend Exhibition CHINAPLAS 2015
Invention Patent- Optimal calibration algorithm for spectrophotometer
Invention Patent- Photoelectric integrating color measurement based on LED light source
Portable Spectrophotometer receives "Excellent New Product Award" of
CHINA INSTRUMENTS MANUFACTURERS ASSOCIATION
Invention Patent- Spectral super - resolution method for illumination color
measuring instrument

2013
Establish Hangzhou CHNSpec Technology Co., Ltd
Spectrophotometer CS-600 made successfully
Get Software Copy Right for testing paper analysis software
Get Software Copy Right for color analysis software
Attend Exhibition Chinacoat 2013
Get Honor of Hangzhou "Blue Plan" Enterprise

2008
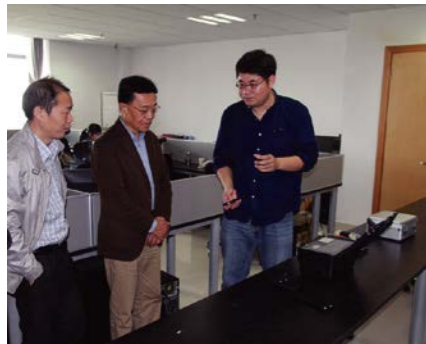Launch the first
colorimeter of China

About Us

Hangzhou CHNSpec Technology Co., Ltd is the leader in the color, haze and gloss measurement field and we are mainly engaged in the researching, producing and sales of color, haze and gloss measurement equipment which includes colorimeters, portable and bench-top spectro-photometers, gloss meters and haze meters. Our products have been widely used in the fields of plastic, printing, paint, auto parts, metals, house-hold appliances and scientific research institution.

Inheritance

All company supervisors are with senior professional post and doctor degree, 80% of the R & D team is with master degree and all other staffs are with bachelor degree. We have close cooperation with many authoritative scientific institutions such as state key laboratory of crucial discipline for color science and project, state key laboratory of modern optical instruments, National Projects Center of Test and Measurement Technology in Ministry of Education and the UK's National Physical Laboratory (NPL) and University of Leeds (Color Sub Commission of CIE). Our technology level and researching ability makes rapid progress and remarkable achievement.

Academician of Chinese Academy of Science Mr. Chen visited us.
General manager Mr Yuan introduced our products to him.

Innovation

Till September of 2018,Hangzhou CHNSpec Technology has received 11 invention patents, 8 patents of utility model,7 design patents,3 software copyright patents and one American

Academician Mr. Zhuang came to visit us

Invention Patent. In addition there are more than 10 invention patents in the

announcement state. We have published more than 20 papers which more than 10 papers are in SCI and EI and others are in the national first grade journal of Science & Research.

CHINA INSTRUMENTS MANUFACTURERS ASSOCIATION
Vice Chairman visited us

Contents

LAB Color Space

L* : Lightness

ΔE Value Reference / Color Difference(Tolerance) / Acceptable

ΔE Value Reference	Color Difference(Tolerance) / Acceptable
0-0.2	Tiny or no, perfectly matched
0.2-0.5	Small, acceptable
0.5-1.0	Small to Medium, acceptable for some industries

ΔE Value Reference	Color Difference(Tolerance) / Acceptable
1.0-2.0	Medium, acceptable for specific industry
2.0-4.0	Large, acceptable for specific industry
> 4.0	Very large, unacceptable for most industries

▼ΔE Color Difference Scale

$$\Delta E^*ab= \sqrt{(\Delta L^*)^2+(\Delta a^*)^2+(\Delta b^*)^2}$$

ΔL+ represents white, ΔL- represents black, Δa+ represents red, Δa- represents green, Δb+ represents yellow,Δb- represents blue. When we use CIE*a*b* to show a color, L* is balck or whilte. a* is red or green.b* is yellow or green.
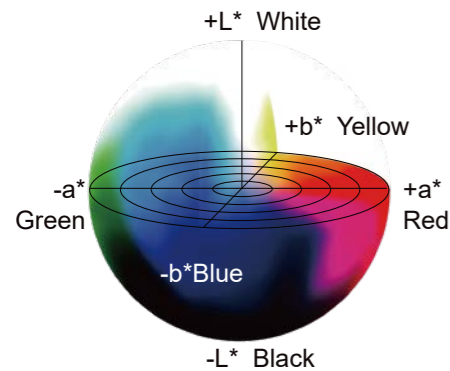
▼CIE LAB

CIE LAB is color space based on the fact that a color can't be both red and green, or both blue and yellow, because these colors oppose each other.So a single data could be used to describe red/green and yellow/blue.

▼CIE LCH

CIE LCH adopts same color space as L*a*b*, but its L* represents lightness, c* represents saturation and h* represents hue.

Instrument Recommend

Samples				DC-1000 series	CS-826 CS-821N CS-820N	CS-810	CS-390 CS-392	CS-650 CS-520 DS-700	Others	Spectral Colorimeter	Colorimeter
Granule	Master Batches	Sand	Polyester chip	★	★	☆	★	★	★	☆	☆
				★	★	☆	★	★	★	☆	☆
	Sugar	Rice Grain	……	★	★	☆	☆	☆	☆	☆	☆
				★	★	☆	☆	☆	☆	☆	☆
Powder	Titanium Powder	Talcum Powder	Calcium Carbonate	★	★	☆	★	★	★	★	★
				★	★	☆	★	★	★	★	★
	Iron Oxide	Flour	……	★	★	☆	☆	★	☆	☆	☆
				★	★	☆	☆	☆	☆	☆	☆
Pasty Material	Tomato Sauce	Yogurt	Toothpaste	★	★	☆	★	★	★	★	★
				★	★	☆	★	★	★	★	★
	Ointment	Juice Powder	……	★	★	☆	★	★	★	☆	☆
				★	★	☆	☆	☆	☆	☆	☆
Transparent Materials	Glass	Thin Film		★	★	★	☆	☆	☆	☆	☆
				★	★	★	☆	☆	☆	☆	☆
	Solvent	Drinking & Beverage	……	★	★	★	☆	☆	☆	☆	☆
				★	★	★	☆	☆	☆	☆	☆
Fluorescence Material	Fluorescent cosmetics	Fluorescent textiles		★	★	☆	☆	★	☆	★	☆
				★	★	☆	☆	★	☆	★	☆
	Fluorescent label	Fluorescent road signs	……	★ (Customizable)	★	☆	☆	☆	☆	★	☆
					★	☆	☆	☆	☆	☆	☆
Flat Surface Material	Textile	Plastic Profile	Anodic oxidation	★	★	☆	★	★	★	★	★
				★	★	☆	★	★	★	★	★
	Paint & Coating	Plates	Electro-plating ……	★	★	☆	★	★	★	★	★
				★	★	☆	☆	★	★	☆	☆
Car Paint and Effective Materials	Car Paint			☆	☆	☆	★	☆	☆	☆	☆
				☆	☆	☆	★	☆	☆	☆	☆
	Laser Paper	Mobile Phone Case	……	☆	☆	☆	★	☆	☆	☆	☆
				☆	☆	☆	★	☆	☆	☆	☆
Complex color	Rock Spray Paint	Textile		★	☆	☆	☆	☆	☆	☆	☆
				★	☆	☆	☆	☆	☆	☆	☆
	Printing products	Tiny objects	……	★	☆	☆	☆	☆	☆	☆	☆
				★	☆	☆	☆	☆	☆	☆	☆

(Instruments header: Benchtop Spectrophotometer — DC-1000 series, CS-826/CS-821N/CS-820N, CS-810; Portable Spectrophotometer — CS-390/CS-392, CS-650/CS-520/DS-700, Others; Spectral Colorimeter; Colorimeter)

Application

● Testing Institute				● University			
● Electronic	OPPO	mi	HUAWEI	● Plastic	VW	北京现代	LEADER
● Textile	COATS	adidas	CONVERSE	● Food	康师傅	TSINGTAO	海天
● Furniture	KUKA	IKEA 宜家家居	TUBAO 兔宝宝	● Paint	立邦	Bairun	中国·多乐

Computer Color Matching Software

Color Matching Steps

Blue:1.8g

Customer → Color Data / Sample → Measure → Software for calculation → Get Formula

Green:1.6g   White:7.2g

Color matching problems | Sample | Measure | Software for calculation | Get Formula
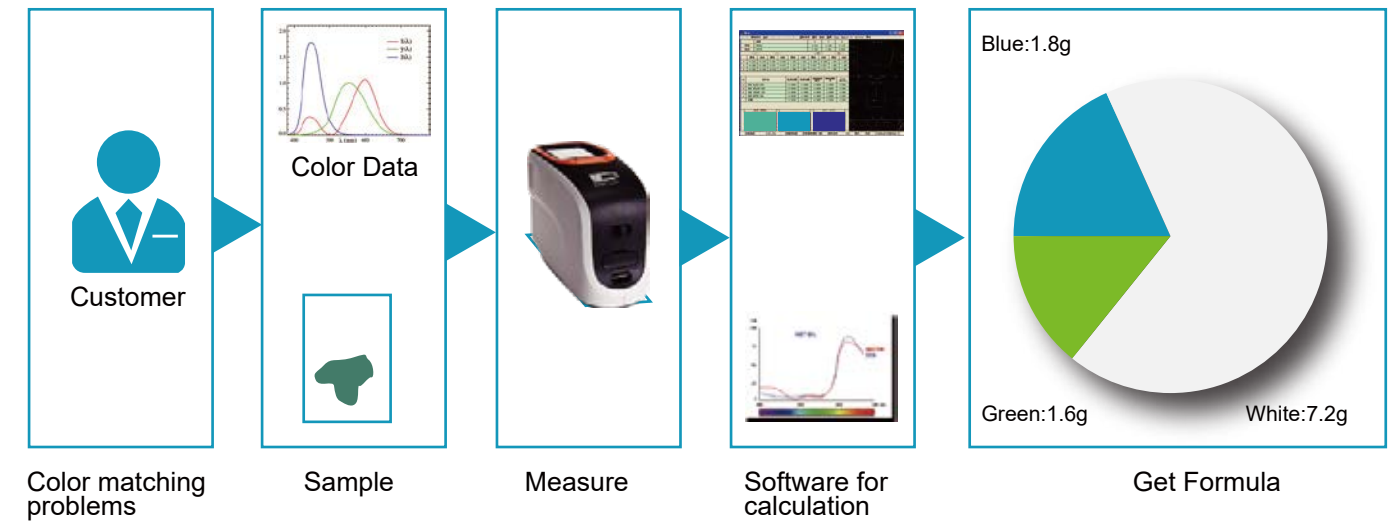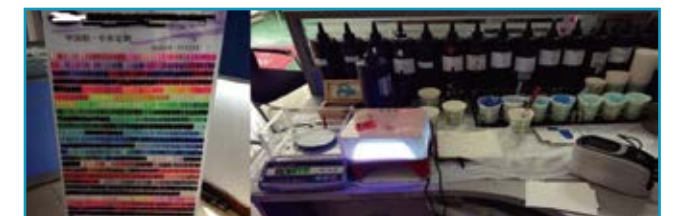
Application Examples
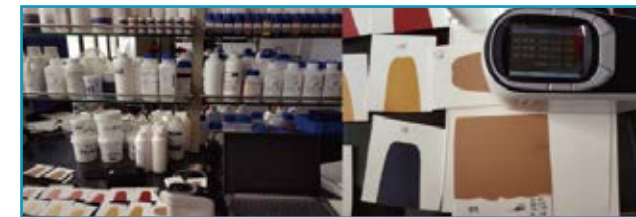
▲ Paint and Coating Color Matching

▲ Spot Color Printing Color Matching

▲ Pigment Color Matching

▲ Textile and Dyeing Color Matching

CHNSpec Color Matching Software

It can provide several formulas and user can choose the formula according to cost and stock

Color and formula can be saved into data, saves labor cost and guarantees production stability

Simple operation and quick to get started

Electronic sample data and formula data

Precise formula and high efficiency

Waste and old materials can be used which saves a lot of cost

Colorist Color Matching

Can only provide limit color formula

Color formula is unstable and relies entirely on the experience and level of the colorist

Colorist needs long training time, slow start, low color matching efficiency and longer time

Color swatch, sample and formula can not store for long periods of time

Need adjust several times during color matching, takes long time, high cost, and low efficiency

A large amount of waste and old materials accumulated in the production process cannot be fully utilized

Service

♦ Solve color matching problem for customer to improve production efficiency

♦ Provide software customization services to meet user's customization needs

♦ One year warranty for spectrophotometer and software

Digspec® Series Image Spectrophotometer

DS-1000/1050/1100

Product Features

- Digspec® Series image spectrophotometer is the advanced model and can be used to measure most kinds of samples from different industries.
- Digspec® can get every point of color and reflectance of image and the smallest point can achieve 0.0016 mm^2 (0.04mm*0.04mm).
- Repeatability dEab≤0.01 (max.), Digspec® can achieve the maximum repeatability dEab≤0.01[※] regardless of whether it is measuring the white tile or the black cavity , which is a new standard for bench-top spec-trophotometers.
- Adopt LED or pulse xenon lamp as light source to guarantee the traceability data consistency with the traditional color spectrophotometer.
- Perfect calibration structure and algorithm provide completely reliable short-term and long-term measurement repeatability.
- 20+ kinds of illuminants, 30+ kinds of indexes, SCI/SCE test mode. It covers all the functions of the traditional spectrophotometer, and can provide the same parameters and measurement conditions as the traditional spectrophotometer.

Technical Data

Model	DS-1000	DS-1050	DS-1100
Instrument Type	Double beam d/8, SCI (specular component included)/ SCE(specular component excluded)		
Light Source	Full wavelength LED	High-precision simulation of sunlight full wavelength LED	High-precision simulation of sunlight xenon light source
Sphere Diameter	152mm / 6 inches		
Wavelength Range	400nm-700nm(Cover the entire visible light range)		400nm-1000nm (Covers near infrared and all visible light)
Reporting interval	10nm	2.5nm	
Photometric range	0-200%, resolution 0.01%		
30 read repeatability [※※] on white tile using double flash (CIELAB)	ΔE*ab≤0.03（max.）	ΔE*ab≤0.01（max.）	
Inter-instrument [※※※] agreement:reflectance measurements (CIELAB)	0.4	0.25	
Aperture Plates	LAV (Square 30mm illuminated, 25mm viewed), custom made aperture is available		
Standards	Conform to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724-1, ASTM E1164, DIN5033 Teil7, JISL Z8722 condition C, ASTM D1003-07		
Sensor	CMOS Array Sensor	Silicon-based metal oxide image sensor	
Grating Method	Grating spectroscopy	Ultra-high precision holographic transmissive volume grating	
Image Resolution	300dpi	500dpi(high resolution)	600dpi(ultra-high resolution)
Minimum measurement area	0.01mm² (0.1*0.1mm)	0.004mm² (0.06*0.06mm)	0.0016mm² (0.04*0.04mm)
Observer Angle	2°and10°		
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,DLF,NBF,TL83,TL84		
Color Space	L*a*b,L*C*h,Hunter Lab,Yxy,XYZ		
Other Indices	WI(ASTM E313-00,ASTM E313-73，CIE/ISO,AATCC,Hunter,Taube,Berger Stensby)，YI(ASTM D1925, ASTM E313-00,ASTM E313-73),Tint(ASTM E313-00),Metamerism index milm, stain fastness, color fastness, ISO brightness, ISO brightness, R457, A density, T density, E density, M Density, Opacity, Color Strength		
Color Difference	ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc,ΔE*94,ΔE*00,ΔEab(Hunter),555 shade sort		
Measurement Time	<8s	<5s	
Operate Temperature	5-40℃(40-104F), relative humidity 80% (at 35℃) no condensation		
Storage Temperature	-20-45℃(-4-113F), relative humidity 80% (at 35℃) no condensation		
Accessories	Power Adapter, USB Cable, White Tile		
Interface	USB 3.0		

※ The surface color of samples is greatly affected by temperature. dEab≤0.01 is an extremely precise measurement repeatability condition. When testing Digspec® repeatability, please ensure the surface temperature stability of the measured sample

※※ The measuring diameter is 25*25mm. After the instrument is calibrated, measure the BCRA white tile 30 times at 10s intervals

※※※ The average of the measurement results of 12 BCRA ceramic tiles

High Accuracy Bench-top Spectrophotometer

CS-826

Technical Data

Name	Specifications
Illumination/ Viewing System	Reflectance: d/8(Diffused illumination, 8 degree viewing) Simultaneous measurement of SCI/SCE, conform to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724/1, DIN5033 Teil7, JIS Z8722 condition C, ASTM E1164,ASTM-D1003-07 Transmittance d/0(Diffused illumination, 0 degree viewing)
Sensor	Silicon Photodiode Array
Grating Method	Concave Grating
Sphere Diameter	152mm
Wavelength Range	360nm-780nm
Wavelength Pitch	10nm
Half Band Width	1nm
Reflectance Range Resolution	0-200%,0.01%
Light Source	Pulse Xenon Lamp and LED
UV Measurement	Include UV, 400nm cut, 420nm cut, 460nm cut
Measurement Time	SCI/SCE < 2s; SCI+SCE < 4s
Measurement Aperture	Reflectance: XLAV Φ25.4mm/Φ30mm, LAV Φ15mm/18mm,MAV Φ8mm/Φ11mm,SAV Φ3mm/Φ6mm Transmittance:Φ17mm/Φ25mm (Auto aperture size recognition)
Transmittance Sample Size	No limit on sample width and height, thickness ≤50mm
Long Term Repeatability	XLAV Chromaticity value: Standard deviation within ΔE*ab 0.015 (20℃±10℃ arbitrary temperature change, white tile is measured every hour within 24 hours）
Repeatability	XLAV Spectrum Reflectance/Transmittance: standard deviation within 0.1%;XLAV Chromaticity value: Standard deviation within ΔE*ab 0.01 (max 0.02) * When a white tile is measured 30 x at 10-second intervals after white calibration
Inter-Instrument Agreement	XLAV ΔE*ab 0.1 (BCRA Series II, Average measurement of 12 tiles, at 23℃)
Observer	2° and 10°
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,DLF,NBF,TL83,TL84
Language	English, Russian, Spanish, Portuguese, Japanese, Thai, Korean, German, French, Polish, Chinese (simple and traditional),
Display	Reflectance and Transmittance graph/value, color value, color difference values, pass/fail, color simulation, color assessment, haze, liquidchromaticity values, color tendency
Color Spaces	L*a*b,L*C*h,Hunter Lab,Yxy,XYZ
Other Indices	WI(ASTM E313-00,ASTM E313-73,CIE/ISO, AATCC, Hunter, Taube Berger, Stensby) YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313-00),Metamerism index milm, stain fastness,color fastness, ISO brightness, R457, A density, T density, E density, M Density, APHA/Pt-Co/Hazen, Gardner, Saybolt, ASTM color, Haze, Total Transmittance, Opacity, Color Strength
Color Difference	ΔE*ab, ΔE*CH, ΔE*uv, ΔE*cmc, ΔE*94, ΔE*00, ΔE*ab(hunter),555 shade sort
Storage Memory	8GB
Screen Size	10 Inches Touch Screen
Operate System	Android
Power Adaptor	DC stabilized power supply
Operate Temperature	5-40℃(40-104F), relative humidity 80% (at 35℃) no condensation
Storage Temperature	-20-45℃(-4-113F), relative humidity 80% (at 35℃) no condensation
Accessories	Power Adaptor, USB Cable, fixture for transmittance, U disk (PC software), Black Calibration Cavity, White and Green Calibration Tile, Reflectance Test Support,30mm,18mm,11mm and 6mm apertures, reflectance sample fixture, Glass Cell 40x10mm,reflectance fixture
Optional Accessories	Heating Fixture for Transmittance, Vertical Support and Pneumatic ram for downward measurement, Reflectance fixture for small size sample, Reflectance Glass Cell Support, Corrosion-Resistant Protective Plate (non-removable), Sample Holder for Fiber, Film Fixture, Transmittance Fixture for Small Aperture, Trolley Case, European Standard Plug, American Standard Plug
Other Function	RS-232、USB、USB-B
Interface	1. Camera to view measurement area;2. Support horizontal, vertical and downward measurement method (need optional accessories to support for downward measurement);3. Auto humidity and temperature compensation function.

Product Features

- ■ Automatic calibration

- ■ High stability UV light source, providing stable fluorescence measurement result

- ■ Excellent repeatability when measuring on black samples

- ■ Excellent consistency with other competing products made in United States, Japan, and Europe

- ■ Excellent long-term repeatability, even after rapid changes in the environment can still guarantee excellent repeatability

- ■ It has two lamps: pulsed xenon and LED

- ■ 24 kinds of illuminants and more than 40 measurement indices

- ■ Temperature and humidity compensation function

- ■ Seven-inch touch screen, Android operate system

- ■ Dual optical paths spectrum analysis technology

- ■ Support SCI+SCE simultaneous rapid measurement

High Repeatability Bench-top Spectrophotometer

CS-821N

Product Features

- Automatic calibration

- Excellent long-term repeatability, ensure excellent measurement repeatability even after environment changes

- It has two lamps: pulsed xenon and LED

- 24 kinds of illuminants and more than 40 measurement indices

- Temperature and humidity compensation function

- Seven-inch touch screen, Android operate system

- Dual optical paths spectrum analysis technology

- Support SCI+SCE simultaneous rapid measurement

Technical Data

Name	Specifications
Illumination/ Viewing System	Reflectance: d/8(Diffused illumination, 8 degree viewing);Simultaneous measurement of SCI/SCE, conform to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724/1, DIN5033 Teil7, JIS Z8722 condition C, ASTM E1164, ASTM-D1003-07 Transmittance d/0(Diffused illumination, 0 degree viewing)
Sensor	Silicon Photodiode Array
Grating Method	Concave Grating
Sphere Diameter	152mm
Wavelength	360nm-780nm
Wavelength Pitch	10nm
Half Band Width	1nm
Reflectance Range Resolution	0-200%,0.01%
Light Source	Pulse Xenon Lamp and LED
UV Measurement	Include UV, 400nm cut, 420nm cut, 460nm cut
Measurement Time	SCI/SCE < 2s;SCI+SCE < 4s
Measurement Aperture	Reflectance: XLAV Φ25.4mm/Φ30mm, LAV Φ15mm/18mm,MAV Φ8mm/Φ11mm,SAV Φ3mm/Φ6mm Transmittance:Φ17mm/Φ25mm (Auto aperture size recognition)
Transmittance Sample Size	No limit on sample width and height, thickness ≤50mm
Long Term Repeatability	XLAV Chromaticity value: Standard deviation within ΔE*ab 0.015 (20℃±10℃ arbitrary temperature change, white tile is measured every hour within 24 hours)
Repeatability	XLAV Spectrum Reflectance/Transmittance: standard deviation within 0.1%;XLAV Chromaticity value: Standard deviation within ΔE*ab 0.015 * When a white calibration plate is measured 30 x at 10-second intervals after white calibration
Inter-Instrument Agreement	XLAV ΔE*ab 0.25 (BCRA Series II, Average measurement of 12 tiles, at 23℃)
Observer	2° and 10°
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,DLF,NBF,TL83,TL84
Language	English, Russian, Spanish, Portuguese, Japanese, Thai, Korean, German, French, Polish,Chinese (simple and traditional),
Display	Reflectance and Transmittance graph/value, color value, color difference values, pass/fail, color simulation, color assessment, haze, liquid chromaticity values, color tendency
Color Spaces	L*a*b,L*C*h,Hunter Lab,Yxy,XYZ
Other Indices	WI(ASTM E313-00,ASTM E313-73,CIE/ISO, AATCC, Hunter, Taube Berger, Stensby) YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313-00),Metamerism index milm, stain fastness, color fastness, ISO brightness, R457, A density, T density, E density, M Density, APHA/Pt-Co/Hazen, Gardner, Saybolt, ASTM color, Haze, Total Transmittance, Opacity, Color Strength
Color Difference	ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc,ΔE*94,ΔE*00,ΔEab(Hunter),555shade sort
Storage Memory	8GB
Screen Size	7 Inches Touch Screen
Operate System	Android
Power Adaptor	DC stabilized power supply
Operate Temperature	5-40℃(40-104F), relative humidity 80% (at 35℃) no condensation
Storage Temperature	-20-45℃(-4-113F), relative humidity 80% (at 35℃) no condensation
Accessories	Power Adaptor, USB Cable, fixture for transmittance, U disk (PC software), Black Calibration Cavity, White and Green Calibration Tile, Reflectance Test Support,30mm,18mm,11mm and 6mm apertures, reflectance sample fixture, Glass Cell 40x10mm
Optional Accessories	Heating Fixture for Transmittance, Vertical Support and Pneumatic ram for downward measurement, Reflectance fixture for small size sample, Reflectance Glass Cell Support, Corrosion-Resistant Protective Plate (non-removable), Sample Holder for Fiber, Film Fixture, Transmittance Fixture for Small Aperture, Trolley Case, European Standard Plug, American Standard Plug
Interface	RS-232、USB、USB-B
Other Function	1. Camera to view measurement area;2. Support horizontal, vertical and downward measurement method (need optional accessories to support for downward measurement);3. Auto humidity and temperature compensation function.

Bench-top Spectrophotometer

CS-820N

Product Features

- Inter-Instrument Agreement:dE＜0.15（XLAV aperture)

- Provides Pulse Xenon and LED Two Kinds of Light Sources

- 24 standard light sources, 40 measurement standards

- Temperature and Humidity Auto Compensation Function

- Simultaneous reflectance/transmittance measurement

- Double optical path spectrum analysis technology

- Simultaneous SCI/SCE measurement

4 kinds of apertures, instrument can automatically recognize and adjust light path.

4 kinds of UV test modes.

Camera to view the measurement area.
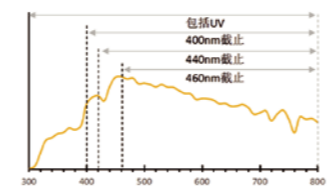
both stable clamping and protection of the instrument.

Unique multifunction transmittance fixture design.

Perfect combination of accessories and instrument body , convenient for protection and storage.

Instrument is with 7.0 inches TFT touch display screen with good human-computer interface.

Intelligent instrument software, support operation wihtout PC.

on sample size.

Different kinds of fixtures to measure different kinds of samples.

Technical Data

Illumination/ Viewing System	Reflection: d/8(Diffused illumination, 8 degree viewing) Simultaneous measurement of SCI/SCE (ISO7724/1, CIE No.15, ASTM E1164,DIN5033 Teil7,JIS Z8722 Condition C standard)Transmittance d/0(Diffused illumination, 0 degree viewing)
Sphere Diameter	152mm
Wavelength	360-780nm
Wavelength Pitch	10nm
Reflectance Range	0-200%
Resolution	0.01%
Light Source	Pulse Xenon Lamp and LED
UV Measurement	Include UV, 400nm cut, 420nm cut, 460nm cut
Measurement Time	SCI/SCE < 2s SCI+SCE < 4s
Transmittance Sample Size	No limit on sample width and height, thickness ≤50mm
Inter-Instrument Agreement	XLAV ΔE*ab 0.15 (BCRA Series II, Average measurement of 12 tiles, at 23℃)
Measurement Aperture	Reflectance: XLAV Φ25.4mm/Φ30mm, LAVΦ15mm/18mm,MAVΦ8mm/Φ11mm,SAVΦ3mm/Φ6mm (Aperture size can be custom made) Auto aperture size recognition Transmittance:Φ17mm/Φ25mm
Viewing Angles	2° and 10°
Repeatability	XLAV Spectrum Reflectance/Transmittance: standard deviation within 0.1%XLAV Chromaticity value: Standard deviation within ΔE*ab 0.015 * When a white calibration plate is measured 30 x at 5-second intervals after white calibration
Color Spaces	L*a*b、L*C*h、Hunter Lab、Yxy、XYZ、RGB
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9, F10,F11,F12,CWF,U30,DLF,NBF,TL83,TL84
Display	Reflectance and Transmittance graph/value, color value, color difference values,pass/fail, olor simulation, color assessment, haze, liquid chromaticity values, color tendency

Color Difference	ΔE*ab, ΔE*CH, ΔE*uv, ΔE*cmc, ΔE*94, ΔE*00, ΔE*ab(hunter),555 shade sor
Other Indices	WI(ASTM E313-00,ASTM E313-73,CIE/ISO, AATCC,Hunter, Taube Berger, Stensby)YI(ASTM D1925,ASTME313-00,ASTM E313-73),Tint(ASTM E313-00,CIE,Ganz),Metamerism index milm, stain fastness, color fastness, ISO brightness, R457, A density, T density, E density, M Density, APHA/Pt-Co/Hazen, Gardner, Saybolt,ASTM color, Haze, Total Transmittance, Opacity, Color Strength
Language	English, Russian, Spanish, Portuguese, Japanese, Thai, Korean, German, French, Polish, Chinese (simple and traditional)
Storage Memory	8GB
Screen Size	7 Inches Touch Screen
Power	DC stabilized power supply
Operate Temperature	5-40℃(40-104F), relative humidity 80% (at 35℃) no condensation
Storage Temperature	-20-45℃(-4-113F), relative humidity 80% (at 35℃) no condensation
Accessories	Power Adaptor, USB Cable, fixture for transmittance, U disk (PC software), Black Calibration Cavity, White and Green Calibration Tile,0% Calibration Tile (transmittance), 30mm,18mm, 11mm and 6mm apertures, Reflectance Test Support, Glass Cell 40x10mm,reflectance sample fixture
Optional Accessories	Heating Fixture for Transmittance, Vertical Support and Pneumatic ram for downward measurement, Reflectance fixture for small size sample, Reflectance Glass Cell Support, Corrosion-Resistant Protective Plate (non-removable), Sample Holder for Fiber, Film Fixture, Transmittance Fixture for Small Aperture, Trolley Case, European Standard Plug, American Standard Plug
Interface	RS-232, USB-A, USB-B
Instrument Size	465 x 240 x 260mm
Other Function	1. Camera to view measurement area; 2. Support horizontal, vertical and downward measurement method (need optional accessories to support for downward measurement); 3. Auto humidity and temperature compensation function.

Portable Spectrophotometer

CS-500

CS-520

CS-500/520

Product Features

■ High Accuracy
It can pass Level I metrology,repeatability less than 0.04* inter-instrument agreement less than 0.2**.

■ 29 Color indexes and 26 kinds of illuminants
Support the color measurement and color difference judge under the illuminants of D65/D50/A/CWF and so on. Measure reflectance, Lab,LCh,WI,YI,Blackness, Color strength and other 29 color indices.

■ Automatic calibration
Easy operation for better user experience.

■ UV Included and Excluded
UV included / excluded for fluorescence materials color / color difference measurement.

■ Connect APP to expand more application
Find the most similar color from Colorcard
Establish the personal color database in the clouds
Check the Color inspiration.

■ Switchable Apertures
Switchable apertures 1*3mm/4mm/8mm to measure samples with different sizes.

Technical Data

Model	CS-500	CS-520
Geometry	D/8 ,SCI(diffused illumination 8° viewingSpecular component included)	D/8 ,SCI/SCE(diffused illumination,8° viewing Specular component included,Specular component excluded)
Repeatablity and Stability	Max: dE*ab < 0.1 Average: dE*ab < 0.05 Standard deviation: dE*ab < 0.03 Reflectance: Standard Deviation *	Max: dE*ab < 0.04 Average: dE*ab < 0.03 Standard deviation: dE*ab < 0.02 Reflectance: Standard Deviation *
Inter-instrument agreement	Average ΔE*ab < 0.3 Max ΔE*ab < 0.5 **	Average ΔE*ab < 0.2 Max ΔE*ab < 0.4 **
Illumination Area Aperture	MAV:Φ8mm/Φ11mm	Switchable: MAV:Φ8mm/Φ11mm SAV:Φ4mm/Φ6mm MINI:1*3mm
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84	
Color Indices	Reflectance,CIE-Lab,CIE-LCh,HunterLab,CIE-Luv,XYZ,Yxy,RGB,Color difference(ΔE*ab,ΔE*cmc,ΔE*94,ΔE*00),WI (ASTM E313-00,ASTM E313-73,CIE/ISO,AATCC,Hunter,TaubeBergerStensby),YI(ASTM D1925,ASTM E313-00 ASTM E313-73),Blackness(My,dM),Color Fastness Tint,(ASTM E313-00),Color Density CMYK(A,T,E,M),Milm,Munsell Opacity,Color strength	
Sensor	256 Pixel CMOS Sensor	
Display Resolution	0.1	0.01
Spectroscopic Method	Concave Grating Spectroscopy	
Sphere diameter	40mm	
Standards	Conform to standards CIE No.15，GB/T 3978,GB 2893,GB/T 18833,ISO7724-1,ASTM E1164,DIN5033 Teil7	
Lighting source	LED(Full band balanced LED light source)	LED(Full band balanced LED light source)+UV light source
Wavelength Interval	10nm	
Wavelength range	400-700nm	
Reflectance Range	0-200%	
Measurement time	2s	1s
Interface	USB,Bluetooth	
Observer Angle	2°,10°	
Screen	IPS Full color screen,2.4 inches	
Battery	Rechargeable，8000 times continous tests 3.7V/3000mAh	
Light source lifetime	One million times for 10 years	
Language	Chinese,English	
Calibration	Automatic Calibration	
Color Matching Software	Support color matching on APP(if user buy the color matching software)	
Software support	Andriod,iOS,Windows	
Camera	No	Yes
Metrology Level	Level I	
Storage	App and PC software for mass storage	

*(When a white tile is measured 30 times after 5-seconds interval.)   **(BCRA Series Ⅱ, average measurement of 12 tiles，MAV/SCI）

Professional Spectral Colorimeter

CS-420/421/422

Product Features

■ **The smaller the caliber, the more can be measured**
1*3mm 4mm 8mm caliber switch

■ **Automatic calibration**

■ **SCI/SCE**
It supports both SCI and SCE test which is more consistent with result of visual method.

■ **Many measurement parameters**
30+ measurement indicators such as opacity, whiteness, yellowness, etc.

■ **Many light source conditions**
Provide 26 Kinds of Illuminants for Choice

■ **Good repeatability for stable measurement**
(Delta E*ab 0.06)

■ **Guaranteed measurement certification**

■ **Portable and Massive Color Card Database**
Connect to mobile phone APP to create database to upload the color shades from printing, paint, textile color cards. No need to carry big and heavy color card, we can find color card database from Colormeter Pro APP and find the closed/similar color easier and faster.

■ **Cloud database, more convenient to view and upload**
Official color card databases are available. Personal users can update color information to cloud and share between different instruments which make color management much easier. Enterprise users can create and manage their own color library and formula information in the cloud and share the information to their customers and suppliers through the unique invitation code.

■ **Better performance than traditional colorimeter**
UV for fluorescence material test
Camera to see the test area to avoid test error
Paint color matching software: user can use mobile phone App to achieve color correction function.

Technical Data

Name	CS-420	CS-421	CS-422
Geometry	D/8(diffused illumination,8 degree viewing) SCI (specular component included),SCE (specular component excluded)		
Repeatability	Chromaticity Value:Standard deviation ΔE*ab≤ 0.03 Average:dE*ab≤ 0.04 Max:dE*ab≤ 0.06 (when a white tile is measured 30 times at 5 seconds interval)		
Inter-instrument Agreement	ΔE*ab≤0.4		
Display Resolution	0.01		
Test Aperture/ Illuminated Area	MAV:Φ8mm/Φ11mm	SAV:Φ4mm/Φ6mm	MAV:Φ8mm/Φ11mm+SAV:Φ4mm/Φ6mm
Color Space and Indices	Reflectance, CIE-Lab, CIE-LCh, Hunter Lab, CIE-Luv, XYZ, Yxy, RGB, Color Difference (ΔE*ab, ΔE*cmc, ΔE*94, ΔE*00), Whiteness Index (ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger Stensby), Yellowness Index (ASTM D1925, ASTM E313-00, ASTM E313-73), Blackness Index(My,dM), Staining Fastness, Color Fastness, Tint (ASTM E313-00), Color Density CMYK(A,T,E,M), Metamerism Index Milm, Munsell, Opacity, Color Strength		
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84		
Color Matching Software	Support color matching on APP(if user buy the color matching software)		
Light Source	LED+UV		
Camera	Yes		
Calibration	Auto		
Software	Windows，Android，iOS		
Accuracy Guarantee	Pass National Metrology Level I		
Observer Angle	2°,10°		
Sphere Size	40mm		
Standard	Conform to CIE No.15，GB/T 3978,GB 2893,GB/T 18833,ISO7724-1,ASTM E1164,DIN5033 Teil7		
Spectroscopic Method	Integrated optics		
Sensor	CMOS Sensor		
Wavelength interval	10nm		
Wavelength	400-700nm		
Reflectance	0-200%		
Reflectance Resolution	0.01%		
Measurement Time	About 1 second		
Interface	USB, bluetooth		
Screen	IPS full color screen ,2.4 inches		
Battery	Rechargeable, 8,000 times continuous tests, 3.7V/3000mAh		
Light Source Lifetime	10 years, 1 million tests		
Language	Chinese and English		
Storage	APP Mass Storage		

*Illumination Area is the instrument aperture size

Economical Spectral Colorimeter

CS-410/411/412

Product Features

■ **The smaller the caliber, the more can be measured**
1*3mm 4mm 8mm caliber switch

■ **Automatic calibration**

■ **SCI/SCE**
It supports both SCI and SCE test which is more consistent with result of visual method.

■ **Many measurement parameters**
30+ measurement indicators such as opacity, whiteness, yellowness, etc.

■ **Many light source conditions**
Provide 26 Kinds of Illuminants for Choice

■ **Good repeatability for stable measurement**
(Delta E*ab 0.06)

■ **Guaranteed measurement certification**

Technical Data

Name	CS-410	CS-411	CS-412
Geometry	D/8 (diffused illumination,8 degree viewing)SCI (specular component included),SCE (specular component excluded)		
Repeatability	Chromaticity Value:Standard deviation ΔE*ab≤ 0.04 Average:dE*ab≤ 0.05 Max:dE*ab≤ 0.08 (when a white tile is measured 30 times at 5 seconds interval)		
Inter-instrument Agreement	ΔE*ab≤0.4		
Display Resolution	0.01		
Test Aperture/ Illuminated Area	MAV:Φ8mm/11mm	SAV:Φ4mm/6mm	MAV:Φ8mm/11mm+SAV:Φ4mm/6mm
Color Space and Indices	Reflectance, CIE-Lab, CIE-LCh, Hunter Lab, CIE-Luv, XYZ, Yxy, RGB, Color Difference (ΔE*ab, ΔE*cmc, ΔE*94, ΔE*00), Whiteness Index (ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger Stensby), Yellowness Index (ASTM D1925, ASTM E313-00, ASTM E313-73), Blackness Index(My,dM), Staining Fastness, Color Fastness, Tint (ASTM E313-00), Color Density CMYK(A,T,E,M), Metamerism Index Milm, Munsell, Opacity, Color Strength		
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84		
Support Color Matching Software	NO		
Light Source	LED		
Camera	NO		
Calibration	Auto		
Software	Windows		
Accuracy guarantee	Pass National Metrology Level I		
Observer	2°,10°		
Sphere Size	40mm		
Standard	Conform to CIE No.15，GB/T 3978,GB 2893,GB/T 18833,ISO7724-1,ASTM E1164,DIN5033		
Spectroscopic Method	Integrated optics		
Sensor	CMOS Sensor		
Wavelength interval	10nm		
Wavelength Range	400-700nm		
Reflectance Range	0-200%		
Reflectance Resolution	0.01%		
Measurement Time	About 1 second		
Interface	USB		
Screen	IPS full color screen ,2.4 inches		
Battery	Rechargeable, 8,000 times continuous tests, 3.7V/3000mAh		
Light Source Lifetime	10 years, 1 million tests		
Language	Chinese and English		
Storage	100 psc of target		

*Illumination Area is the instrument aperture size

ColorMeter

| Operate on Instrument | Operate from APP | Cloud Database | Auto Calibration |

ColorMeter SE   ColorMeter Pro   ColorMeter MAX

ColorMeter SE/Pro/Max

Product Features

- Adopt D/8 (Diffused Illumination, 8 degree viewing) geometry and SCI to make measurement more accurate

- Adopt spectral sensor to provide reflectance data which make its performance much better than colorimeter

- Auto Calibration

- Data uploading background in the cloud can be edited for the second time

- Single machine or connected to the APP/PC can measure, and display the measurement results directly

- Find similar color, support customer to upload their own color information

- Android, ios, Windows (SE version not supported) operating systems

Technical Data

Model	ColorMeter SE	ColorMeter Pro	ColorMeter Max
Geometry	D/8,Specular Component Included(SCI)		
Color Spaces and Indices	CIE-Lab,△E*ab,reflectance curve	Reflectance, CIE-Lab, CIE-LCh, Hunter Lab, CIE-Luv, XYZ, Yxy, RGB, Color Difference (ΔE*ab, ΔE*cmc, ΔE*94, ΔE*00), Whiteness Index (ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger Stensby), Yellowness Index,(ASTM D1925, ASTM E313-00, ASTM E313-73), Blackness Index(My,dM) Staining Fastness, Color Fastness, Tint(ASTM E313-00), Color Density CMYK(A,T,E,M), Metamerism Index Milm, Munsell, Opacity, Color Strength	
Light Source	LED (Full Wavelength Balanced LED Light Source)		
Test Aperture	8nm		
Wavelength Interval	/	10nm	
Wavelength Range	/	400-700nm	
Repeatability	ΔE≤0.1 (when a white tile is measured 30 times at 5-second intervals after calibration)		ΔE≤0.05 (when a white tile is measured 30 times at 5-second intervals after calibration)
Measurement Time	1.5s		1s
Interface	USB (only for charging)	USB	
Illuminants	D65	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12 CWF,U30,U35,DLF,NBF,TL83,TL84	
Observer	10°	2° and 10°	
Screen	IPS Full Color Screen (screen resolution 135*240,1.14 inches)		
Battery	4.2V/500mAh，Rechargeable, 5 ,000 continuous tests	4.2V / 760mAh, Rechargeable, 10,000 continuous tests	
Calibration	Auto		
Language	English and Chinese		
Software Support	Andriod,IOS	Andriod,IOS,Windows	
Weight	About 90g		
Instrument Size	Diameter 31mm，Height 102mm		

Spectral Colorimeter CR series

CR10
Professional Edition
(No display screen)

CR20
Professional Edition
(With display screen)

CR30
Enhanced Edition
(With display screen）

CR 10/20/30

Product Features

■ Automatic calibration, one-key measurement, get results in 1s

■ Adopt 45°/0 geometry that is more in line with the color evaluation
by the human eye

■ Can be used standalone or connect to App

■ Software supported: Android, iOS, Windows QC software

■ Magnetic calibration box

■ Lipstick-size, more convenient to carry

Technical Data

Model	CR10	CR20	CR30
Geometry		45/0	
Measure index	RGB,Hex,Lab,LCh,HSB, LRV,CMYK(A,T,E,M), XYZ,Yxy,ΔE*ab,ΔE*cmc, ΔE*94,ΔE*00	RGB,Hex,Lab,LCh,HSB,LRV,Spectral reflectance,HunterLab,CIE-Luv, XYZ,Yxy,Color Difference (ΔE*ab,ΔE*cmc,ΔE*94,ΔE*00),Whiteness (ASTM E313-00,ASTM E313-73,CIE/ISO,AATCC,Hunter,TaubeBerger-Stensby),Yellowness(ASTM D1925,ASTM E313-00,ASTM E313-73), Blackness（My,dM）,Staining Fastness,Color Fastness, Tint(ASTM E313-00),Color Density CMYK(A,T,E,M),Metamerism Index Milm,Munsell,Opacity,Color Strength	
Light Source		LED (Full Wavelength Balanced LED Light Source)	
Measure Aperture		4mm	
Wavelength Interval		10nm	
Wavelength Range		400nm-700nm	
Repeatability ※	ΔE*00≤0.1	ΔE*00≤0.05	
Inter-instrument agreement ※※	ΔE*00 < 0.5	ΔE*00 < 0.4	
Measurement Accuracy	0.1	0.01	
Measure Time		1.0s	
Interface		USB，Bluetooth	
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84		
Observer		2°，10°	
Display Screen	No screen	IPS Full Color Screen（135*240,1.14inch）	
Battery	Rechargeable,5,000 continuous tests	Rechargeable,10,000 continuous tests	
Language		Chinese ,English	
Calibration		Automatic Calibration	
Software supported		Andriod,IOS,Windows	
Weight		About 75g	
Size		Diameter：33mm，Height：84mm	
Storage		APP mass storage	

※ Measure white tile 30 times with 5 seconds interval
※※ BCRA II Series , Average measurement of 12 tiles

Color Density Meter CMYK

Color Density Meter CMYK

Auto Calibration   APP   Cloud Database   4mm Aperture   45/0 Geometry

Technical Data

Model	Color Meter CMYK
Geometry	45/0
Color Spaces and Indices	Reflectance,CIE-Lab,CIE-LCh,HunterLab,CIE-Luv,XYZ,Yxy,RGB,Color Difference(ΔE*ab,ΔE*cmc,ΔE*94,ΔE*00) WI(ASTM E313-00,ASTME313-73,CIE/ISO,AATCC,Hunter,TaubeBergerStensby),YI(ASTM D1925,ASTM E313-00 ASTM E313-73),Blackness Index(My,dM),Staining fastness,Color Fastness,Tint(ASTM E313-00),Color DensityCMYK (A,T,E,M)Metamerism Index Milm,Munsell,Opacity,Color Strength,dot increase/dot area overprint rate Grey Level
Light Source	LED(Full Wavelength Balanced LED Light Source)
Illumination Aperture	4mm
Wavelength Interval	10nm
Wavelength Range	400-700nm
Repeatability	ΔE≤0.1(when a white tile is measure 30 times at 5s interval)
Inter-instrument Agreement	ΔE*00 < 0.4(BCRA Series II , average measurement of 12 tiles)
Measurement Time	1.5s
Interface	USB,Bluetooth
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84,M0,M1,M2
Observer	2°,10°
Screen	IPS Full color screen(135*240,1.14inch)
Battery	Rechargeable, 10,000 continuous tests
Calibration	Auto Calibration
Language	Chinese and English
Software	Andriod,iOS,Windows
Weight	About 90g
Instrument Size	Diameter:31mm,Height:102mm

Color Density Meter CMYK

Product Features

■ Design for Print Industry

Color Meter CMYK is a good performance measuring device to measure color density CMYK (A,T, E, M), dot increase/dot area, overprint rate, print contrast, gray level, hue error. It supports 20 kinds of color indices and 26 kinds of illuminants.

■ Auto Calibration

■ It adopts auto calibration technology to realize real-time calibration for easier operation

■ 4mm aperture to measure smaller size

■ Connect with APP to extend more functions

■ Instrument comes with free software to save test result and establish personal color library

Transmittance Spectrophotometer

Application Examples

▲ Clear liquid

▲ Pt-Co Standard Solution
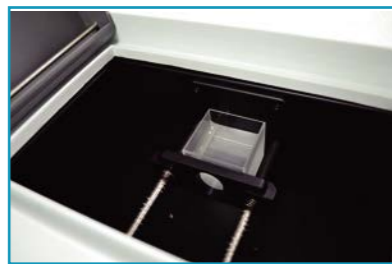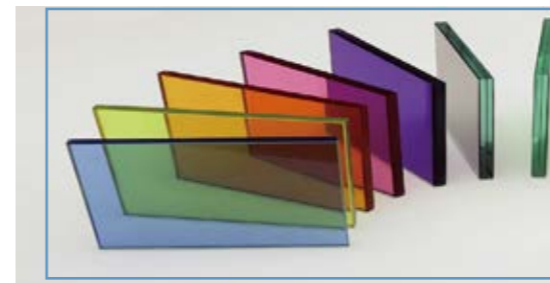

▲ Glass

▲ Transparent Plastic

CS-810

Product Features

Glass and Liquid Color Measurement

CS-810 transmittance spectrophotometer is specially designed for measuring the material transmittance, absorbance, chromaticity and other datas.

Adopt UV-enhanced Silicon Photodiode
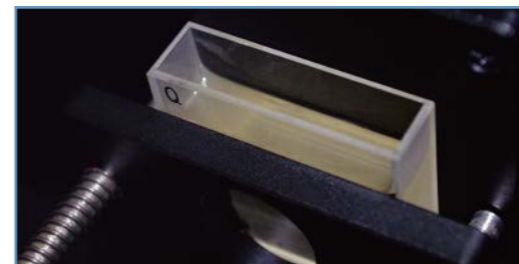
Transmittance measure range improved from 0-100% to 0-200%

Pt-Co, Gardner

Pt-Co is suitable for measuring transparency or close to liquid Pt-Co color which is general transparency and brownish yellow.

Gardner is suitable for dark yellow or brownish yellow Pt-Co.

Technical Data

Model	CS-810	Color Difference	ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc(2:1),ΔE*cmc(1:1),ΔE*94, ΔE*00
Illumination /Viewing System	Illumination: d/0 (diffused Illumination, 0 degree viewing) (conform to CIE No.15, ISO 7724/1, ASTM E1164, DIN 5033 Teil7, JIS Z8722 Condition C standard)	Other Indices	WI(ASTM E313-00,ASTM E313-73,CIE/ISO,Hunter, Taube Berger Stensby),YI(ASTM D1925,ASTM E313-00 ASTM E313-73),Tint(ASTM E313,CIE,Ganz)Metamerlsm index Milm,staining fastness,color fastness,APHA,Hazen, Pt-Co Index,Gardner,Saybolt,ASTM color
Integrating Sphere	40mm, Avian-D Fully diffuse reflective surface coating		
Light Source	CLEDs	Repeatability	Transmittance, standard deviation within 0.08% Chromaticity value: ΔE*ab 0.015 (When measuring air 3 0 x at 5-second intervals after air calibration), max. 0.03
Detector	Dual optical sensor array		
Wavelength	400-700nm		
Wavelength Pitch	10nm	Inter-instrument agreement	Within ΔE*ab 0.2
Half Band Width	5nm	Data Storage	Mass storage (PC)
Measurement Range/ Resolution	0-200% 0.01%	Interface	USB
		Light source lifetime	5years, 1.5 million tests
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10, F11,F12,CWF,U30,DLF,NBF,TL83,TL84	Size	475*340*150mm（L*W*H）
Display	Reflectance graph/value,chromaticity value,color difference values,pass/fail,color tendency,color simulation,manually input target value,generate test report	Operate Temperature	0-45℃,relative humidity 80% or below (at 35℃); no condensation
		Storage Temperature	-25-55℃,relative humidity 80%,or below (at 35℃), no condensation
Measurement Interval	1s	Standard Accessories	Power line, color QC software, driving software, USB cable, black calibration tile, 40x10 cuvette
Measurement Time	1s	Optional Accessories	40x33mm Cuvette (for ASTM color),40x100mm Cuvette (for Saybolt)
Aperture	10mm (cuvette support)		
Color Spaces	CIE-L*a*b,L*C*h,L*u*v,XYZ,Yxy,Transmittance,Hunterlab, Munsell,MI,CMYK		

## 45/0 Spectrophotometer

CS-600C/600CG

CS-800C/800CG

CS-600C/600CG/800C/800CG

Instrument Features

45/0 spectrophotometer adopt 45/0 geometry , directional dependence is eliminated ,regardless of changing the sample position, tilting sample or rotating instrument can achieve high accuracy and repeatability.

light source

Sensor 0°Observer

45°ring-shaped illumination

sample

45/0 Optical structure

Instrument Advantages

- Measurement Management Software
- Every instrument comes with verification certification
- Top-port aperture makes it much simpler to measure solid, pellet, powder, pasty material and others
- 60 Degree Gloss Measurement
- Conform to CIE,ISO,ASTM,DIN standard for color and gloss measurement
- Instrument can connect with PC by USB cable.
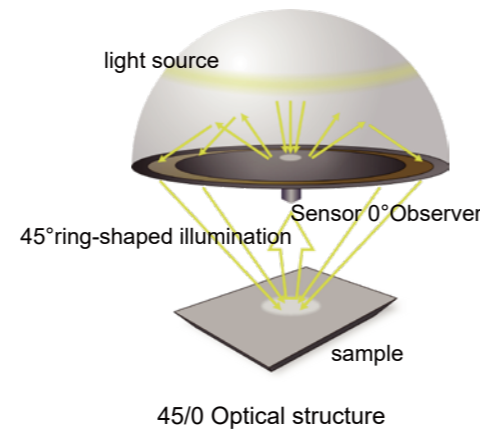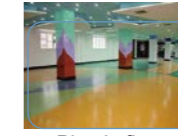
Application Examples
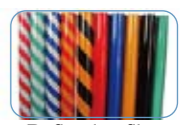
Plastic and Rubber

Automobile Decoration | Road Signs | Plastic floor
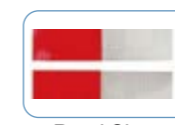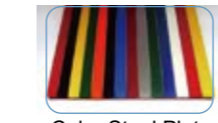
Thin Films
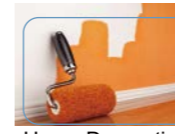
PET film | Screen film | Reflective film

Coating

Color Steel Plate | Home Decoration | Coil Coatings

Print

Plastic package | Magazine | Label
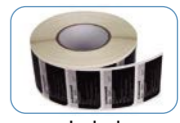
Technical Data

Model	CS-600C	CS-800C	CS-600CG	CS-800CG
Function	color		color and gloss	
Geometry	45/0 (45 ring-shaped illumination, 0 degree viewing)			
Aperture	11mm			
Wavelength	400-700nm			
Wavelength Interval	10nm			
Sensor	high sensitivity silicon photodiode			
Light Source	LED			
Repeatability	Reflectance: standard deviation within 0.08% Chromaticity value: ΔE*ab 0.03 (when a white plate is measured 30 times at 5 second intervals after white calibration),Maximum 0.05			
Inter Instrument Agreement	0.2 ΔE*ab (BCRA II color tiles, average test value of 12 tiles)			
Language	Chinese and English			
Observer	2°/ 10°			
Illuminants	A,C,D50,D55,D65,D75,F1~F12,CWF,U30,DLF,NBF,TL83,TL84,U35			
Color Spaces	CIE-L*a*b,L*C*h,L*u*v,XYZ,Yxy, Reflectance,Hunter-lab,Munsell MI,CMYK			
Indices	WI(ASTM E313-00,ASTM E313-73,CIE/ISO,AATCC,Hunter,Taube Berger Stensby),YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313,CIE,Ganz),Metamerism index Milm, Stick color fastness, Color fastness,ISO brightness, A density, T density, M density, E density			
Color Difference	ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc(2:1),ΔE*cmc(1:1),ΔE*94,ΔE*00,ΔEab(Hunter),555 shade sort			
Gloss Test Angle			60°	
Test Area			5x10 mm	
Test Range			0-1000 GU	
Repeatability			0.2 GU(0-100GU) 0.2%(100-1000GU)	
Reproducibility			1.0 GU(0-100GU) 1.0%(100-1000GU)	
Light Source Life Time	10 years 3million test			
Screen	2.8 inch color screen	5.0 inch color screen	2.8 inch color screen	5.0 inch color screen
Data Storage	20000 samples			
Interface	USB			
Power	Rechargeable Lithium Battery, 20000 continuous tests, 7.4V/600mAh			
Working Temperature	0-45℃ relative humidity 80% or less (at 35℃) with no condensation			
Size	181*73*112mm(L*W*H)	350*300*200mm(L*W*H)	181*73*112mm(L*W*H)	350*300*200mm(L*W*H)
Weight	about 800g (without battery)	about 4.5kg (without battery)	about 800g (without battery)	about 4.5kg (without battery)
Standard accessories	Adapter, Lithium Battery, operate manual, color QC software, driver software, USB cable, Calibration tile (Black and white)			
			Gloss calibration tile	

Portable Spectrophotometer

DS-700S   DS-700D   DS-700X

DS-700S/700D/700X

Product Features

- Excellent repeatability and inter-instrument agreement.
  (repeatability : dE*ab≤ 0.04 (max.) and inter-instrument agreement : ≤0.25)
- Dual optical path high precise CMOS array sensor.
- Intelligent auto calibration, white tile is made by ZrO2 with reflectance more than 90%, no need for frequent white calibration.
- 360-700nm Full Wavelength Balanced LED+UV.
- 10nm Resolution Grating Spectroscopy Technology.
- Three aperture as standard accessories, no tools are needed and apertures can be replaced at any time to meet different sample measurement requirements.
- More than 30 kinds of color indices and 37 kinds of illuminants.
- It supports Android, IOS and Windows program.
- It is with the camera to see the measurement area clearly.

Technical Data

Model	DS-700S	DS-700D	DS-700X
Geometry	d/8,SCI	d/8,SCI+SCE	
Sensor	Dual array sensor	Dual optical path high precise CMOS array sensor	
Spectroscopic method	Grating spectroscopy		
Sphere Size	Φ40mm		
Wavelength Range	400-700nm		360-740nm
Wavelength Interval	10nm		
Reflectance Range	0-200%, resolution 0.01%		
Light Source	LED(Full wavelength balanced LED)	LED(Full wavelength balanced LED) + UV	High-precision simulated daylight xenon lamp
Measurement Time	About 1.5s		
Illumination Area/Aperture	1 Aperture（MAV:Φ8mm/Φ11mm）	3 Apertures（MAV:Φ8mm/Φ11mm；SAV:Φ4mm/Φ6mm；MINI:1*3mm）	
Repeatability※	ΔE*ab≤ 0.04	ΔE*ab≤ 0.025	
Inter-instrument greement※※	ΔE*ab≤0.3	ΔE*ab≤0.25	
Language	English and Chinese		
Display Resolution	0.01		
Observer Angles	2°，10°		
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84,ID50,ID65,LED-B1,LED-B2,LED-B3,LED-B4,LED-B5,LED-BH1,LED-RGB1,LED-V1,LED-V2		
Color Spaces and Indices	Reflectance,CIE-Lab,CIE-LCh,HunterLab,CIE-Luv,XYZ,Yxy,RGB,Color difference(ΔE*ab,ΔE*cmc,ΔE*94,ΔE*00),WI(ASTM E313-00,ASTM E313-73,CIE/ISO,AATCC,Hunter,TaubeBergerStensby),YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Blackness（My,dM），Color Fastness, Tint,(ASTM E313-00),Color Density CMYK(A,T,E,M),Milm, Munsell, Opacity, Color strength		
Storage	APP Mass Storage		
Interface	USB, Bluetooth		
Battery	Rechargeable, 8000 times continuous tests, 3.7V/3000mAh		
Camera to see the measurement area	Yes		
Calibration	Intelligent auto calibration		
Software	Andriod,IOS,Windows		
Accuracy	Metrology Level I		
Standards	Conform to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724-1, ASTM E1164, DIN5033 Teil7		
Screen	IPS Full Color Screen,3.5 inches		
Light Source Lifetime	10 years, 1 million tests		Warranty 1 year

※ When a white tile is measured 30 times at 5-seconds interval with MAV
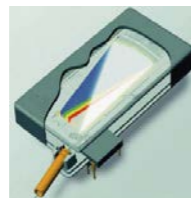※※ BCRA Series Ⅱ, average measurement of 12 tiles

Portable Spectrophotometer

CS-580/600/650/660

Product Features

SCS optical engine

Adopt innovative light splitting system SCS optical engine which creates the best measurement repeatability for portable spectrophotometers, and guarantees accurate measurement of materials surface color.

Camera to see the measurement area

In previous spectrophotometer, we can only aim at the testing area approximately, and it may introduce errors. Our new spectrophotometer includes a camera, so the user can clearly see the measurement area to avoid measurement errors.

Adopt CLEDs light source – spectrally balanced LED light source

LED light source has balanced intensity across visible spectrum avoids the spectral deficiency in certain parts of the spectrum in common white LEDs, which guarantees the speed and accuracy ofthe measurement results. This research has been published in national leading optical journal Chinese Optics Letter.
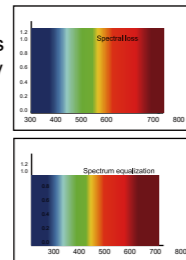
Pt Color Number Matching
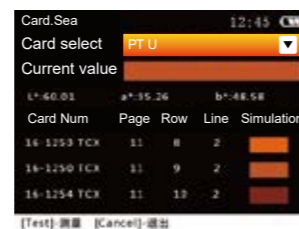
To improve the utility and convenience of our instrument, we develop spectrophotometer with build-in PT colors watches.After measurement,instrument can help us find three similar colors from the color swatches which can greatly improves working efficiency.

Technical Data

Model	CS-580	CS-600	CS-650	CS-660
Illumination/Viewing System	Observer : 2°/10° d/8(Diffused illumination, 8 degree viewing) , simultaneous measurement of SCI(specular component included)/ SCE(specular component excluded) (conform to CIE No.15,ISO 7724/1,ASTM E1164,DIN 5033 Teil7, JIS Z8722 Condition C standards)			
Integrating Sphere	Φ40mm,Avian diffused reflection surface coating			
Light source	CLEDs		Pulse Xenon Lamp	CLEDs
Sensor	dual light path sensor array			
Wavelength Range	400-700nm		360-740nm	400-700nm
Wavelength Pitch	10nm			
Half Band Width	5nm			
Reflectance Range	0-200%			
Resolution	Reflectance 0.01%			
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12, CWF, U30,DLF, NBF,TL83,TL84,U35			
Display	Reflectance graph/value, chromaticity value, color difference values, pass/fail results, color tendency, color simulation, history data, color simulation, manually input target value, generate test report			
Measurement time	2s	0.5s	about 2s	0.5s
Measurement Interval	about 2s			
Color Spaces	CIE-L*a*b, L*C*h, L*u*v, XYZ, Yxy, Reflectance	CIE-L*a*b, L*C*h, L*u*v, XYZ, Yxy, Reflectance,Hunter-lab, Munsell MI,CMYK, RGB,HSB		
Color Difference	ΔE*ab, ΔE*CH, ΔE*uv, ΔE*cmc(2:1), ΔE*cmc(1:1), ΔE*94,ΔE*00	ΔE*ab, ΔE*CH, ΔE*uv, ΔE*cmc(2:1), ΔE*cmc(1:1),ΔE*94,ΔE*00, ΔE*ab (Hunter),555 color shade		
Other Indices	WI(ASTM E313-10,ASTM E313-73,CIE/ISO, AATCC, Hunter, Taube Berger, Stensby),YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313,CIE,Ganz);Metamerism Index Milm, Staining Fastness, Color Fastness,opacity, DS Wavelength,color strength			
		ISO Brightness, 8°Gloss, A density, T density, M density, E density		
Repeatability	Reflectance: standard deviation within 0.08%			
	Chromaticity value: ΔE*ab 0.03 (when a white calibration plate is measured 30 x at 5-second intervals after white calibration, (max.0.05)		Chromaticity value: ΔE*ab 0.02 (when a white calibration plate is measured 30 x at 5-second intervals after white calibration,(max.0.04)	Chromaticity value: ΔE*ab 0.015 (when a white calibration plate is measured 30 x at 5-second intervals after white calibration,(max.0.03)
Inter-Instrument agreement	ΔE*ab within 0.2(BCRA Series II, average measurement of 12 tiles)			
Battery	rechargeable, 10000 continuous tests, 7.4V/6000mAh			
Interface	USB			
Data Storage	20000 test results			
Light Source Lifetime	5 years, 1.5 million tests			
Size	181*73*112mm(L*W*H)			
Weight	about 550g(without battery)			
Screen	2.8 inches color screen			
Working Temperature	0~45℃, relative humidity 80% or below(at 35°C),no condensation			
Storage Temperature	-25℃ to 55℃, relative humidity 80% or below(at 35°C),no condensation			
Standard Accessories	Power Adapter, Lithium Battery, Operate Manual, color QC software, driver software, color USB cable, black/white calibration tile, tile protective cover, carrying bag, electronic color charts, verification certification			
Optional Accessories	powder molding device, micro printer			
UV light source	without		with	without
Aperture Size	10mm/4mm/6mm (one instrument with one aperture)			

Three Angles Color Spectrophotometer

CS-390/392

Working Theory Picture

Working Principle of Color Measurement

Graininess Measurement Principle CS-392

Application Examples

▲ Multi-angle color measurement

▲ Graininess Assessments
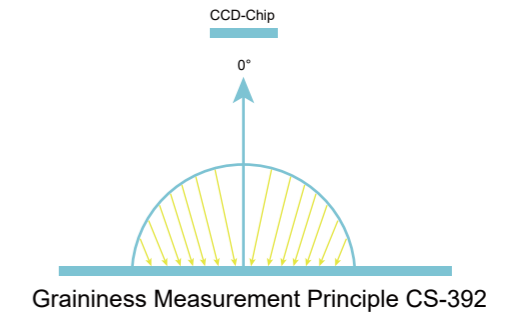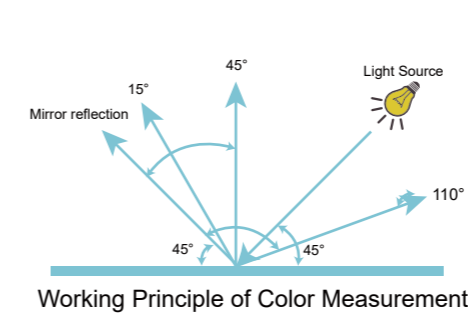

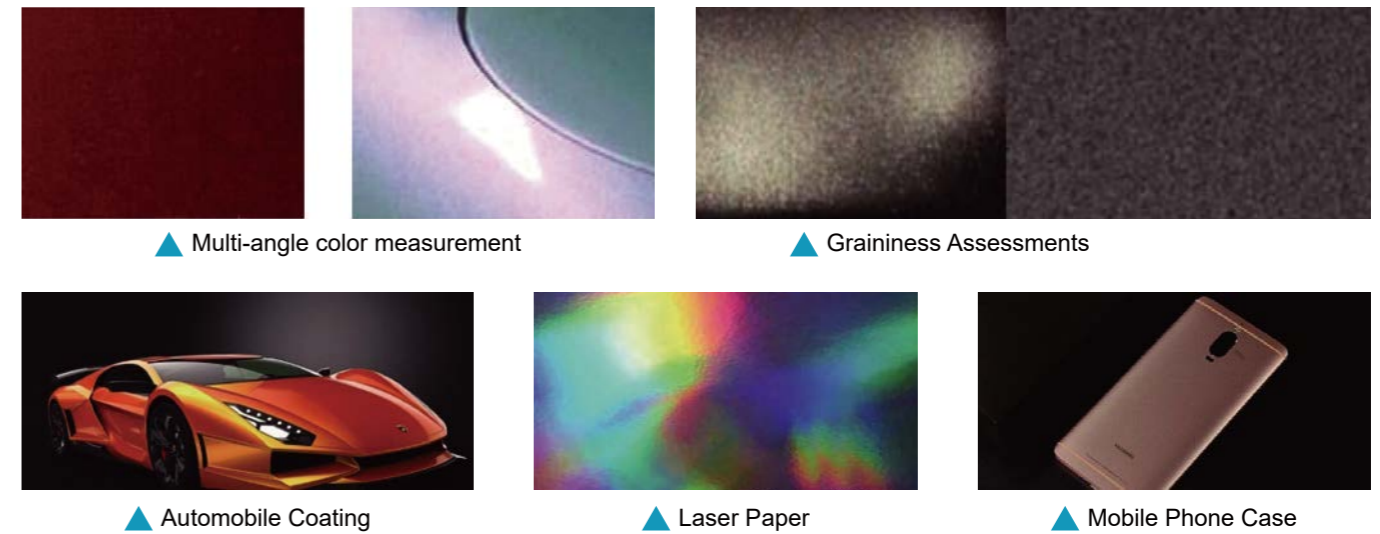▲ Automobile Coating

▲ Laser Paper

▲ Mobile Phone Case

Product Features

■ It is designed to measure color value and surface graininess evaluation (for CS-392 only)

■ Four contact buttons are on the bottom of the instrument to guarantee the test repeatability.

■ Measure at angles of 15 degree, 45 degree,110 degree.

■ Adopt steady and long lifetime LED light source.

■ Conform to ASTM D2244,E308,E1164,E2194,DIN 5033,5063,6174,6175-2,DIN EN ISO 11664,ISO 7724,SAE J1545 standards.

Technical Data

Model	CS-390	CS-392	Measurement Time	Less than 2s	Less than 6s
Illumination Angle	45°		Repeatability	dE≤0.05Max. after white calibration (measured 30 x at 5-second intervals)	
Measurement Angles	15°,45°,110°	Color measure angle:15°/45°/110° Graininess Measure Angle: Integrating Sphere Diffused Illumination	Inter-instrument Agreement	dE≤0.5 Average measurement of BCRA II color tiles)	
Measurement Paremeter	L*a*b,L*C*hΔE*; ΔECMC；ΔE DIN 6175;ΔE2000	Colorimetric parameter:L*a*b、 L*C*h,ΔE*；ΔECMC；ΔE DIN6175;ΔE2000 Effect parameter:Graininess level(G)	Viewing Angles	2°and 10°	
			Measurement Area	Dia. 17mm	
			Light Source Life time	10 years, ≥1 million times	
			Interface	USB	
Wavelength Range	400-700nm		Instrument Size	145*58*99mm	
Wavelength Pitch	10nm		Instrument Weight	476g	
Reflectance Range	0-500%		Power	3.7V/3000mAh rechargeable lithium batter	
Resolution	0.01%		Temperature	0-40℃ (32-104 F)	
Light Source	LED		Storage Temperature	-20-50℃ (-4-122 F)	
Illuminants	A,C,D50,D65,F2,F7,F11,F12				

Spectral Colorimeter

CS-280/280+/286

Application Examples

▲ Plastic ▲ Paint ▲ Printing ▲ Food

Technical Data

Type	CS-280	CS-280+	CS-286
Illumination/Viewing System	di/8(diffused illumination: 8°viewing),SCI (confrom to CIE No.15,ISO 7724/1,ASTM E1164,DIN 5033 Teil7,JIS Z8722 Condition c standard)		
Intergrating Sphere Size	Φ40mm,Avian-diffused reflection surface coating		
Light source	CLED		
Sensor	Array Sensor		
Wavelength Range	400-700nm		
Spectral Resolution	10nm		
Measurement Time	2s		
Measurement Aperture	11mm,optional 4mm，6mm，15mm		
Repeatability	Standard Deviation ΔE*ab 0.08(When a white calibration plate is measured 30 x at 10-second intervals after white calibration）		
Observer	2° and 10°		
Illuminants	A,C,D50,D65		A,C,D50,D55,D65,D75,F1~F12,CWF,U30,DLF,NBF, TL83,TL84,U35
Display	Chromaticity value(L*a*b，L*C*h),delta E value,pass/fail,color tendency,average,generate test report,reflectance graph reflectance figure		
		with camera	with camera,spectrum reflectance value,manually input target value
Color Differences	ΔE*ab,ΔE*CH		ΔE*ab,ΔE*CH, ΔE*uv,ΔE*cmc(2:1), ΔE*cmc(1:1), ΔE*94, ΔE*00
Color Spaces	CIE-L*a*b,L*C*h	CIE-L*a*b,L*C*h,XYZ,Yxy	CIE-L*a*b*,L*C*h,L*u*v,XYZ,Yxy,Reflectance
Other Index	Staining Fastness, Color Fastness	WI(ASTM E313 -10,ASTM E313 -73,CIE/ISO,AATCC,Hunter,Taube Berger,Ganz,Stensby) YI(ASTM D1925,ASTM E313 -00,ASTM E313 -73)Tint(CIE,ASTM E313,Ganz),staining fastness,color fastness	
			metameric index Milm
Data Storage	20000 pcs of samples		
Light Source Lifetime	5 years,1.5 million		
Other	without	camera,electricity pantone color chart	
Display	Panchromatic true color screen		
Language	Chinese and English		
Interface	USB2.0		
Working Temperature	5~45°C relative humidity 80% or less(at 35°C) with no condensation		
Storage Temperature	-25°C to 55°C,relative humidity 80% or less (at 35°C) with no condensation		
Power	Recharageable Lithium Battery 8.4V/2000mAh,adaptor DC12V		
Size	77×86×210mm		
Weight	about 550g		
Standard Accessories	Power Adapter,Operating Manual,Color QC Software,Driving Software,USB Cable,Calibration Tiles (Black and White), Protection Cover,Canvas bag		
Optional	Micro Printer		
Color Matching System	not support		
UV Light Source	without		

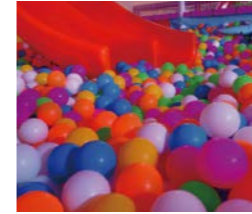## Product Features

▥ Auto Light Compensation

◿ Optical Engine

◯ Every Test Calibration

◍ Full-band Balanced Light Source

▌ Measure Absolute Color Value

▌ Spectrum Measurement Principle Achieve High Accuracy

▌ Patented Technology Guarantees Repeatability

▌ Mass Storage Memory

Colorimeter

CS-10
Best choice for low price

CS-200
High Quality & Reasonable Price

CS-260
Color Number Matching

CS-210
Camera view

CS-220
Powder measurement

CS-10/200/210/220/260

Product Features

CS-10 is the economic model designed for assembly line. It could meet basic color measurement requirement.

CS-200 is the update version of CS-10 for the improvement of testing accuracy and measuring YI and WI. It belongs to high cost-effective product.

CS-210 is with build-in camera for viewing the measuring area. It is convenient for customer to see the measuring area and suitable for testing patterned and colorful samples.
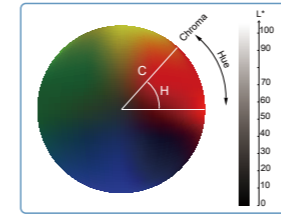
CS-220 provides specular component excluded(SCE) measuring condition. It is designed for the color measurement of powder, pasty materials and highly reflective materials.
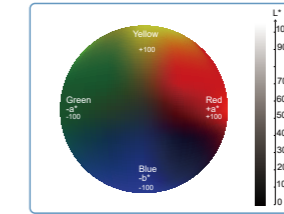
CS-260 is with build-in color charts. After measurement, instrument will match three color numbers from the color charts for the colourist reference.
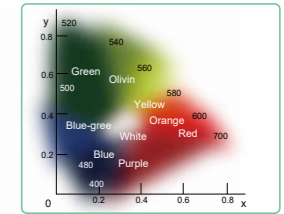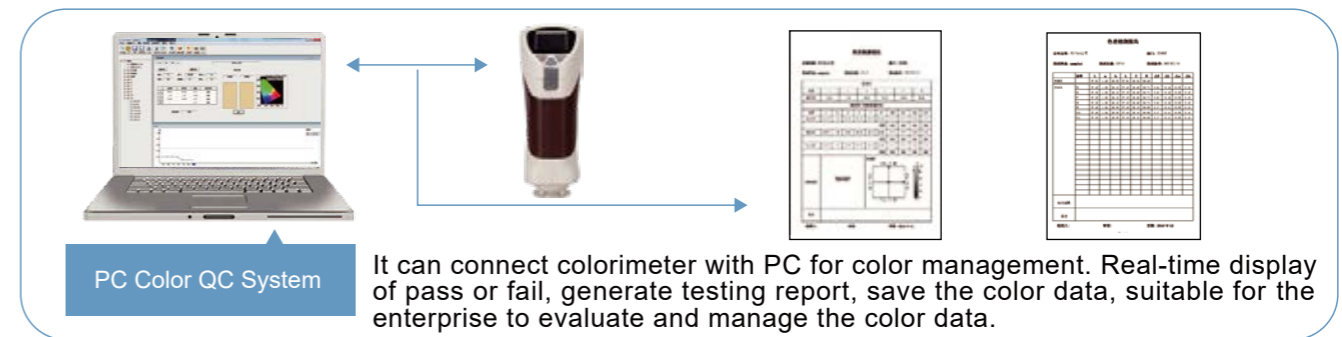
Multiple color spaces

CIE L*c*h* Color Space

CIE L*a*b* Color Space

Yxy Color Space

Being the most commonly used testing device, our colorimeter with color display indicators transformation program that makes our device could be used for color measurement in many different industries. It does not need convert the measurement data by manual which greatly improve the working efficiency.

PC Software

PC Color QC System

It can connect colorimeter with PC for color management. Real-time display of pass or fail, generate testing report, save the color data, suitable for the enterprise to evaluate and manage the color data.

Technical Data

| Type	CS-10	CS-200	CS-210	CS-220	CS-260
Illumination and Viewing	8/d (8°illumination/diffused viewing) SCI (specular component included)			8/d，SCE	8/d，SCI
Dispaly	Chromaticity Value:L*a*b,L*C*h,ΔE*ab,XYZ,Yxy,Relative RGB;Color Difference:ΔE*ab,ΔE*Ch				
	Whiteness:ASTM Whiteness,Ganz Whiteness; Yellowness:YI				
Measuring Aperture	Φ8mm（optional 4mm）				
Measuring Condition	CIE 10°standard observer/CIE D65 light source				
Measuring Range	L*：1~100				
Repeatability	Standard deviation within ΔE*ab < 0.1(average test result of measuring white tile 30 times)	Standard deviation within ΔE*ab < 0.08（maverage test result of measuring white tile 30 times)			
Storage	10 targets and 100 samples for each target	100 targets and 100 samples for each target			
Measurement Time	0.5s				
Light Source	LED				
Language	Chinese and English				
Power	Four 1.5V AA-sized alkaline battery or nickel metal hydride batteries/Power Adaptor DC5V				
Interface	USB2.0,Printer				
Weight	550g				
Size	77x86x210mm				
Other Functions	- -	- -	Camera View	Powder Pasty Material Measurement	Build-in color card

Non-contact / Online Color Sensor
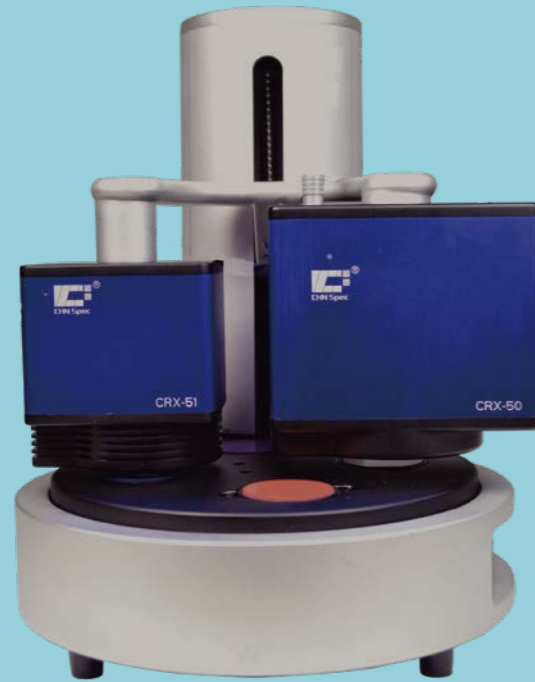
CRX-50/51/52

Product Features

| Built-in Calibration Tiles for Auto Calibration
| Full Wavelength Balanced LED Light Source with Long Lifetime

CRX-50

| 45/0 Geometry for Color Measurement

| Non-Contact and Instrument to Sample Distance 7.5mm

| Ultra Fast Measurement with Interval Only 20ms

| Measure with High Accuracy for Samples with Fluctuation ±3mm
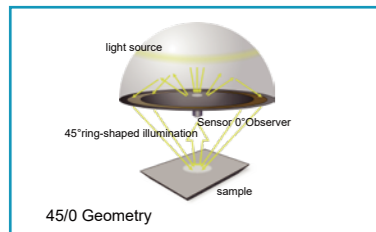

45/0 Geometry

CRX-51

| D/8 Geometry for Color Measurement

| IP67 Protection Level, No Need Maintenance, Best Choice for Anodizing Products Color Test

| Non-Contact and Instrument to Sample Distance 0.5mm

| Good Consistency with Laboratory Test Result

| Ultra Fast Measurement with Interval Only 20ms

D/8 Geometry
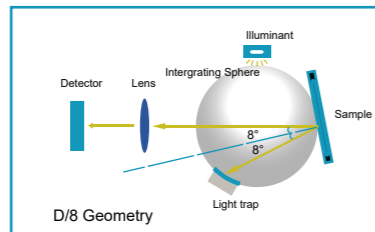
CRX-52

| Three Angles to Measure Color, Graininess and Grade Evaluation

| Measure Angles 15,45 and 115, Illuminate angle 45

| Good Consistency with Laboratory Test Result

| It is designed to measure car paint, effective paint, laser paper, mobile phone colorful shell,etc.

Three Angles
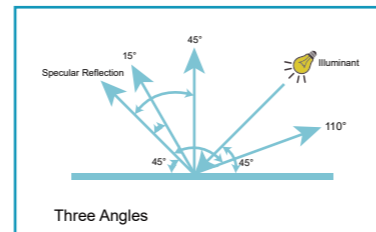
Application

▲ Anodizing Products

▲ Paint Coating

▲ Paper Production Line

▲ Automobile Spraying Line

▲ Textile Production Line

▲ Wood Production Line

Technical Data

Type	CRX-50	CRX-51	CRX-52
Illumination / Viewing System	45/0,(illumination, 0° Viewing)	D/8(Diffused Illumination, 0° Viewing)-SCI (specular component included)	45° illumination, 15°, 45°, 110° Viewing
Light Sources	CLEDs(Full Wavelength Balanced LED Light Source)		
Sensor	Dual Light Path Sensor Array		Silicon Photodiode
Measurement Distance	7.5±3mm(Repeatability in the case of Distance Fluctuations dE<0.1)	0.5mm	Contact to Measure
Calibration Method	Build-in Calibration Tiles		
Protection Level	Without	IP67	Without
Wavelength Range	400-700nm		
Wavelength Interval	10nm		
Half Band Width	5nm		
Reflectance Range	0-200%		
Measurement Aperture	φ7mm	φ10mm(φ4mm optional)	φ7mm
Measurement Distance	7.5mm		
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30.DLF,NBF,TL83,TL84.U35		
Measurement Time	Min.20ms	Min.20ms	6s
Inter Instrument Agreement	ΔE*ab within 0.2 (BCRA Series II, average measurement of 12 tiles)		ΔE*ab within 0.5 (BCRA Series II, average measurement of 12 tiles)

Measurement Interval	2S
Repeatability	Chromaticity Value: ΔE*ab standard deviation ≤0.03, Max. ≤0.05 (a white calibration tile is measured 30 times at 1- second intervals after white calibration)
Color Space and Other Indices	CIE-L*a*b,L*C*h,L*u*v,XYZ,Yxy,Reflectance，WI(ASTM E313-00,ASTME313-73,CIE/ISO,AATCC,Hunter,Taube Berger Stensby),YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313,CIE,Ganz),Milm,Metamerism Index Milm, Staining Fastness, Color Fastness / CIE-L*a*b, L*C*h, Graininess
Color Difference	ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc(2:1),ΔE*cmc(1:1),ΔE*94,ΔE*00 / ΔE*ab,ΔEc,ΔEp
Light Source Lifetime	Whole Life Time Warranty
Working Temperature	0-45℃, relative humidity 80% or below (at 35 ℃), no condensation
Storage Environment	-25-55℃, relative humidity 80% or below (at 35 ℃), no condensation
Power Adaptor	DC12V
Interface	USB or custom made
Power	12V DC Power Adaptor

Color and Haze Meter/Clarity and Haze Meter

It is designed for plastic, films, glass, LCD panel, touch screen other transparent and semi-transparent materials color, haze and transmittance measurement.

Color and Haze Meter CS-700

Clarity and Haze Meter CS-720

CS-700/720

Product Features

1. Different measurement parameters and professional clarity measurement function
2. Comprehensive Transmission Color Parameters
3. Comply with ASTM and ISO standards
4. Different Light Sources for Different Measurement Standards
5. Compensation Measurement to Make Test Result More Accurate
6. Haze QC software as Standard Accessory
7. Seven-inch Android Touch Screen for Better User Experience
8. Open Sample Measurement Area, Sample can be Measured Horizontally or Vertically
9. Abundant Measurement Fixtures

Technical Data

Type	CS-700	CS-720
Light Source	Haze / Transmittance：CIE-A,CIE-C,CIE-D65 Chromaticity index：A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CMF,U30,DLF,NBF,TL83,TL84	
Standards	ASTM D1003/D1044,ISO13468/ISO14782 JIS K 7105,JIS K 7361,JIS K 7136,GB/T 2410-08,CIE No.15, ISO 7724/1,ASTM E1164,DIN 5033,Teil7,JIS Z8722,Condition c standard	
Parameters	Haze (HAZE),Transmittance (T),Spectral transmittance, CIE Lab, LCh, CIE Luv, XYZ, Yxy, , Hunter Lab Munsell MI,CMYK, Whiteness WI(ASTM E313-00,ASTM E313-73, CIE/ISO, Hunter, Taube Berger Stensby),Yellow Index YI(ASTM D1925, ASTM E313-00, ASTM E313-73), Tint(ASTM E313-00), Heterochromatic index Milm, APHA, Pt-Co(Index of platinum cobalt), Gardner, Color difference (ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc(2:1), ΔE*cmc(1:1),ΔE*94,ΔE*00)	Haze (HAZE),Transmittance (T),Spectral transmittance,**Clarity** CIE Lab, LCh, CIE Luv, XYZ, Yxy, , Hunter Lab Munsell MI,CMYK, Whiteness WI(ASTM E313-00,ASTM E313-73, CIE/ISO, Hunter, Taube Berger Stensby),Yellow Index YI(ASTM D1925, ASTM E313-00, ASTM E313-73), Tint(ASTM E313-00), Heterochromatic index Milm, APHA, Pt-Co(Index of platinum cobalt), Gardner, Color difference (ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc(2:1), ΔE*cmc(1:1),ΔE*94,ΔE*00)
Spectral Response	CIE The spectrum functionY/V(λ)	
Wavelength	400-700nm	
Wavelength Interval	10nm	
Geometry	0/d	
Measurement Area Sample Port	16.5mm/21mm	18mm/25.4mm
Measurement Range	0-100%	
Haze Resolution	0.01%	
Haze Repeatability	Haze < 10%, Repeatability≤0.05;Haze≥10%, Repeatability≤0.1%;Transmittance≤0.1%	
Sample Size	Thickness≤145mm	
Display	7 Inches Touch Screen	
Memory	Mass storage	
Interface	USB-A,USB-B	
Power	220V（with power cable）	
Working Temperature	5~40℃，Relative humidity 80% or below (at 35 ° C), no condensation	
Storage Temperature	-20℃~45℃，Relative humidity 80% or below (at 35 ° C), no condensation	
Size	length X width X height：598mmX247mmX366mm	
Weight	12kg	
Standard Accessory	PC management software(Haze QC)	
Optional	Measurement Fixture, Haze standard film	

Haze Meter

TH-09/100   TH-110

TH-09/TH-100/TH-110

Product Features

It conforms to international standards ASTM D 1003,ISO 13468,ISO 14782, JIS K 7361 and JIS K 7136.

Three kinds of light sources A,C and D65 for haze and total transmittance measurement.

Open measurement area, no limit on sample size.

Unique signal processing technology to ensure the test result is not affected by external light.

Instrument is with 5.0 inches TFT display screen with good human-computer interface.

It can realize both horizontal and vertical measurement to measure different kinds of materials.

Accessories can be placed in drawer for better user experience.

It adopts LED light source whose lifetime can reach 10 years.

No need to do warm-up, after instrument is calibrated, it can be used. And measurement time is only 3 seconds.

Small size and light weight which makes it much easier to carry.

Optional Accessories

▲ Haze Standards   ▲ Custom Made Apertures   ▲ Soft Film Fixture   ▲ Liquid/ Sheet Material Fixture

Application

▲ Plastic Sheet   ▲ Film   ▲ Glass   ▲ Screen

Technical Data

Model	TH-09	TH-100	TH-110
Light Source	LED		
Illuminants	CIE-A,CIE-C,CIE-D65		
Standards	ASTM D1003/D1044,ISO13468/ISO14782,JIS K 7105,JIS K 7361,JIS K 7136, GB/T 2410-08,JJF 1301-2011		
Parameters	HAZE, Transmittance(T)		
Spectral Response	CIE Luminosity function Y/V (λ)		
Geometry	0/d		
Tset Aperture Size	21mm	21mm	21mm/7mm
Measurement Range	0-100%		
Haze Resolution	0.01unit		
Transmittance Resolution	0.01unit		
Haze Repeatability	0.1	0.08	0.05
Transmittance Repeatability	0.1unit		
Sample Size	Thickness ≤145mm		
Memory	10000 value	20000 value	Mass storage
Interface	USB		
Power	DC12V		
Working Temperature	5-40 ℃ (40– 104 °F)		
Storage Temperature	-20-45℃ (-4-113F)		
Size (LxWxH)	310mm X 215mm X 540mm		
Instrument Weight	6kgs		
Standard Accessory	Free PC software (Haze QC)		
Screen size	5 inches	5 inches	7 inches

Benchtop Tiny-aperture Gloss Meter

CS-3000S

Product Features

Tiny Aperture

2x3mm aperture make it suitable for gloss measurement of curved surface irregular and extra small products

Simple and Statistic Modes to meet all gloss measurement requirement

Simple mode: get gloss result directly on screen fast and effective
Statistic mode: get gloss difference value to analysis the gloss difference between samples

Simple Operation, 5 Inches Color Screen

Large color screen intuitive operate interface

International Leading Level Repeatability

Optimize the light source to make sure the measurement stability
Double light paths technology, Japan sensor and US processor chips for best repeatability

Powerful PC software

Connect with PC by USB cable to transfer test value to PC, test result analysis, generate and print test report.

Large Battery Power

Rechargeable lithium battery for 100,000 continuous tests

Application Examples

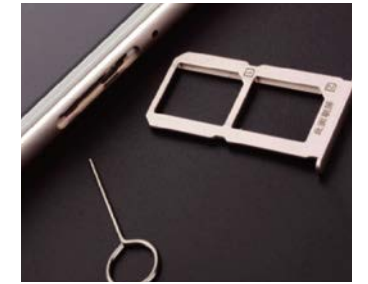▲ Plastic   ▲ Metal   ▲ Automobile Accessories

▲ Glasses accessories   ▲ Ceramics Accessories   ▲ Cell Phone Accessories

Details

2mm Aperture   5 Inches Color Screen   Test key   Switch on-off   Gloss calibration tile

Technical Data

Test Angle	60°	Language	English and Chinese
Aperture	2*3mm	Working Temperature	0-45℃ relative humidity 80% or less (at 35℃) with no condensation
Measurement Range	0-600GU		
		Interface	USB
Repeatability	0.2GU（0-100GU）0.2%GU（100-600GU）	Size	350*300*200mm（L*W*H）
		Power	rechargeable Lithium Battery, 7.4V/6000mAh
Reproducibility	1.0GU（0-100GU）1.0%GU（100-600GU）	Weight	4.5kgs
Screen	5 inches color screen	Standard Accessories	Calibration tile, Power adapter, USB cable, operate manual, verification certification, PC Software
Light Source Life Time	10 years,3million tests		
Data Storage	100 pcs of targets; 10000 pcs of samples		

Gloss Meter

CS-300/380/CS-300S

Application Examples

◄Automobile accessories

◄Metals

◄Ceramic tile

◄Glass

Technical Data

Type	CS-380	CS-300	CS-300S
Test Angle	20°、60°、85°	60°	60°
Test Light Spot(mm)	20°: 10*10 60°: 9*15 85°: 5*38	60°: 9*15	60°: 2*3
Test range	20°: 0-2000GU 60°: 0-1000GU 85°: 0-160GU	60°: 0-1000GU	60°: 0-600GU
Stability	0-100:0.1GU;＞100:1GU		
Repeatability	0-100GU:0.2GU 100-2000GU:0.2%GU		0-100GU:0.2GU 100-600GU:0.2%GU
Test Modes	simple mode and statistics mode		
Accuracy	Conform to JJG 696-2002 standard for first class gloss meter		
Test time	Less than 1s		
Data storage	100 pcs of target; 10000 pcs of sample		
Size(mm)	165 x 51 x 77 (L x W x H)		
Weight	About 400g		
Language	Chinese and English		
Battery	3000mAh lithium battery		
Interface	USB, Bluetooth (optional)		
Working Temperature	0-40℃		
Working Humidity	<85%, no condensation		
Accessories	5V/2A charger, USB cable,operating manual, PC software CD,calibration tile, verification certification		5V/2A charger, USB cable,operating manual, PC software CD,calibration tile

Product Features

High Precise
Every instrument comes with verification certification from National Modern Metrology and Instrument Testing Laboratory. It conforms to ASTM D 523, D2457, DIN 67530, ISO 2813, ISO 7668, JIS Z8741, BS3900, BS6161 international standards.

Comfortable Grab Feeling
The shell is made by Dow Corning TiSLV material, a desirable elastic material. It is resistant to UV and bacteria and does not cause allergy. All designs are for better user experience.

High Stability
Every gloss meter made by us has done the following tests:
412 calibration tests
43200 stability tests
110 hours of accelerated aging test
17000 vibration tests

Large Battery Capacity for 50000 continuous tests
We fully utilize every space of the device and specially custom made advanced high density lithium battery which ensures continuous testing for 54300 times.

Gloss Meter DG60 Series

DG60 SE (Basic edition) DG60 Pro (Professional edition) DG60 Max(Enhanced edition)

DG60 SE/Pro/Max

Product Features

■ Small —— Only 80 grams weight，size as small as name card

■ Accurate —— Pass metrological certification

■ Fast —— Single measure time less than 1s

■ Long —— Continuous measure 10000 times after rechargeable

■ Auto Calibration ——no need manual calibration, measure immediately after power on, intelligent

■ Calibration base,Anti-pollution, calibration at any time, to ensure long-term accuracy

Application Examples

Building Material   Glass   Hardware   Automobile   Ceramics   Cellphone

Technical Data

Model	DG60 SE	DG60 Pro	DG60 Max
Calibration	Automatic		
Measure Angle	60°		
Parameter	Gloss(GU)		
Aperture	23*7mm		
Measure range	0-200GU	0-1200GU	0-2000GU
Stability	1GU	0-100:0.1GU; > 100:1GU	
Repeatability※	1	±0.1 / ±0.1%	0.1 / 0.1%
Battery	Rechargeable, 5000 times continuous tests	Rechargeable, 15000 times continuous tests	Rechargeable, 30000 times continuous tests
Display	IPS full color screen，135*240，1.14inch		
Interface	USB	USB,Bluetooth	USB,Bluetooth
Working temperature	0-40℃		
Humidity	＜85%，with no condensation		
Accessories	USB cable,Straps, Manual,Calibration base,Cleaning cloth		
Weight	80g	116g	116g
Size	84mm*70mm*17mm		

※ Continuously measure the standard deviation for 30 times. When the measured value is less than 100gu,
   use the absolute value to evaluate; When the measured value is greater than 100gu,
   it is evaluated by percentage

Portable Transmittance Tester CT Series

CT-23

CT-25

CT-23/25

Product Features

- Simple operation and fast to get the result, as long as the sample is placed in the test area, the test result will be displayed.
- It can measure the transmittance of UV light, visible light, and infrared light.
- It adopts parallel light path design, sample measurement thickness can reach 13mm.
- The instrument has a data lock function. After the test, press the HOLD key on the instrument to lock the test data, and the test sample data will still remain on the display interface after the sample is taken away.
- Digital display, wide measuring range, high resolution.
- Two calibration modes: Manual calibration and automatic calibration for easy usage.
- Small size and non-slip design, easy to grasp and carry for outdoor test.
- Rechargeable lithium battery, no need to take time to replace batteries.

Application Examples

Solar Film   Agricultural Film   Optical Glasses   Tempered Glasses

Technical Data

Model	CT-23	CT-25
Geometry	Transmission	
Calibration	Manual + Automatic	
Test Index	Ultraviolet (peak wavelength 365nm) Visible light (peak wavelength 530nm) Infrared (peak wavelength 940nm)	Ultraviolet (peak wavelength 365nm) Visible light (peak wavelength 530nm) Infrared (peak wavelength 940nm) Infrared (peak wavelength 1400nm) Visible light (380nm-760nm,conform to CIE photopic function standard)
Test Accuracy	±2%	
Display Resolution	0.10%	
Sample Thickness	13mm (max.)	
Instrument Size	115* 70* 14mm	
Test Time	Less than 1s	
Battery Volume	750mA	
Power Supply	5V/1A	
Screen	Full color display, 135*240, 1.14 inch	
Recharging Interface	USB	
Working Temperature	0-40℃	
Humidity	Less than 85%, no condensation	
Standard Accessories	USB cable, Lanyard, operate manual	

## Hyperspectral Camera FigSpec® FS Series

FS-10/11/12/13

Working Principle

Product Features

■ Machine vision, color measurement, visible light / near-infrared detection hyperspectral solution.

■ Spectralrange:400-700nm/400-1000nm,spectralsampling/pixel2.5nm,max.

1.5nm(Changingtheslitwidthcanachievehigherspectralresolution,butwillaffect thesignalstrength).

■ Imaging speed: Full Spectral range 128Hz,3300Hz after ROI.

■ Support multi-region ROI.

■ Color difference test : print, textile and other industries surface color test, texture detection, with special light source and control system, the repeatability of single pixel of color measurement can reach dE*ab<0.1
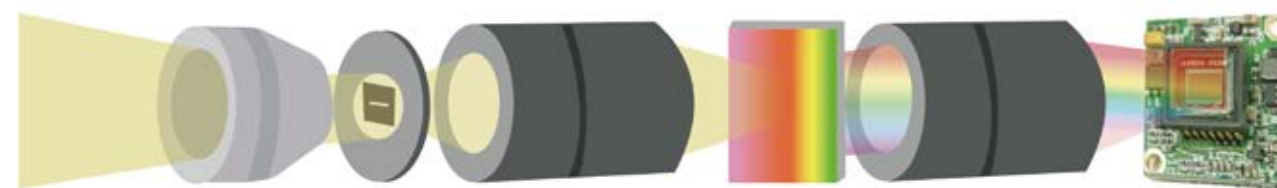
Technical Data

Model	FS-10	FS-11	FS-12	FS-13
Illuminant	Passive (without illuminant inside device)			
Spectroscopic method	Grating spectroscopy			
Wavelength Range	400-700nm		400-1000nm	
Spectral bands	150		300	
Spectral sampling/pixel	2.5nm			
Slit width	30um			
Transmission Efficiency	> 50%		> 60%	
Stray light	< 0.5%			
Spatial Samples	Max. 1920 (set from software)			
Pixel Size	5.86um			
Imaging speed	Full Spectral range 41Hz, 390Hz after ROI	Full Spectral range 128Hz, 3300Hz after ROI	Full Spectral range 41Hz, 390Hz after ROI	Full Spectral range 128Hz, 3300Hz after ROI
Detector	CMOS			
SNR(Peak)	600/1			
Camera Output	USB3.0			
Interface	C-Mount			
Accessory	USB3.0 cable			
ROI	Single Band	Freely selectable multiple bands	Single Band	Freely selectable multiple bands

Light Box

Light box is also called light booth or color matching cabinet. It is the illuminant for checking the samples color difference. After connect with power, press the illuminant button, the corresponding light will be switched on. Then we could compare the samples color inside it. Multi light sources could be chosen at the same time. Customer could choose the suitable light source according to his or her need and the most commonly used light source is D65.

Four/Five/Six Illuminations Color Light Box
Low power consumption, no heat producing, high efficiency, small volume, simple operation, low cost, configuration UK and US commonly used standard light sources.

1200L Six Illuminations Color Light Box
Six Illuminations Color Light Box contain 6 kinds of illuminations: D65,TL84,CWF,UV,U30 and F/A.