Products Catalogue

www.chnspec.com

Hangzhou CHNSpec Technology Co.,Ltd
Expert for Color Gloss and Haze Measurement Solutions

Hangzhou CHNSpec Technology Co.,Ltd

V.2021.02.05

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Website

CHN Spec

Development Course

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

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"

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

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

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

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

2008
Launch the first colorimeter of China

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
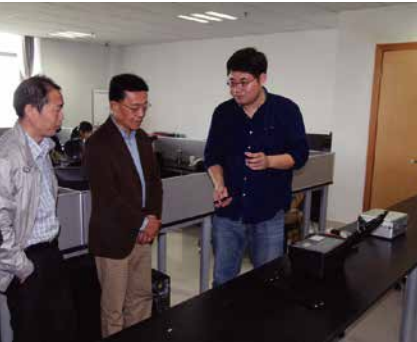Get Honor of Hangzhou "Blue Plan" Enterprise

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 spectrophotometers, gloss meters and haze meters. Our products have been widely used in the fields of plastic, printing, paint, auto parts, metals, household 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 Invention Patent. In addition there are more than 10 invention patents in the
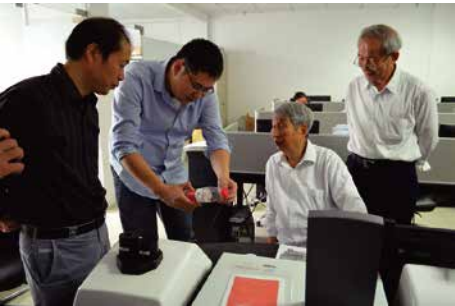
Academician Mr. Zhuang came to visit us

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

Certificate of Compliance

RoHS

Ou Zheng Certificate of Conformity

CE

Ou Zheng Certificate of Conformity

CE

The United States of America

Contents

LAB Color Space

L* : Lightness

100

0

+b*
Yellow
+100
+80
+60
+40
+20

Green
-a* -100 -80 -60 -40 -20 +20 +40 +60 +80 +100 +a* Red

-20
-40
-60
-80
-100
Blue
-b*

Chroma
Hue
C*
h

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

+L* White
+b* Yellow
-a* Green
+a* Red
-b* Blue
-L* Black
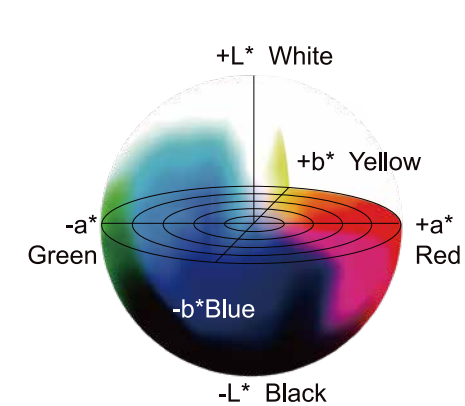
▼ΔE Color Difference Scale

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

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 / Instruments			Benchtop Spectrophotometer CS-820N	CS-810	CS-801	CS-800	Portable Spectrophotometer CS-390/392	CS-650	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	☆	☆	☆	☆	★	☆	☆	☆	☆
		……	☆	☆	☆	☆	★	☆	☆	☆	☆

Application

Testing Institute	河北省计量监督检测院	浙江省纺织测试研究院	国家皮革质量监督监测中心	University	清华大学	北京大学	
Electronic	OPPO	MI	HUAWEI	Plastic	Volkswagen	北京现代	LEADER
Textile	COATS	adidas	CONVERSE	Food	康师傅	TSINGTAO 青岛啤酒	海天
Furniture	KUKA	IKEA 宜家家居	TUBAO 兔宝宝	Paint	立邦	Bairun	中国·参茸

Computer Color Matching Software

Color Matching Steps

Customer

Color Data

Color matching problems | Sample | Measure | Software for calculation | Get Formula

Blue:1.8g

Green:1.6g

White:7.2g

Application Examples

▲ Paint and Coating Color Matching

▲ Spot Color Printing Color Matching

▲ Pigment Color Matching

▲ Textile and Dyeing Color Matching

CHNSpec Color Matching Software	Colorist Color Matching
It can provide several formulas and user can choose the formula according to cost and stock	can only provide limit color formula
Color and formula can be saved into data, saves labor cost and guarantees production stability	color formula is unstable and relies entirely on the experience and level of the colorist
Simple operation and quick to get started	Colorist needs long training time, slow start, low color matching efficiency and longer time
Electronic sample data and formula data	Color swatch, sample and formula can not store for long periods of time
Precise formula and high efficiency	Need adjust several times during color matching, takes long time, high cost, and low efficiency
Waste and old materials can be used which saves a lot of cost	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
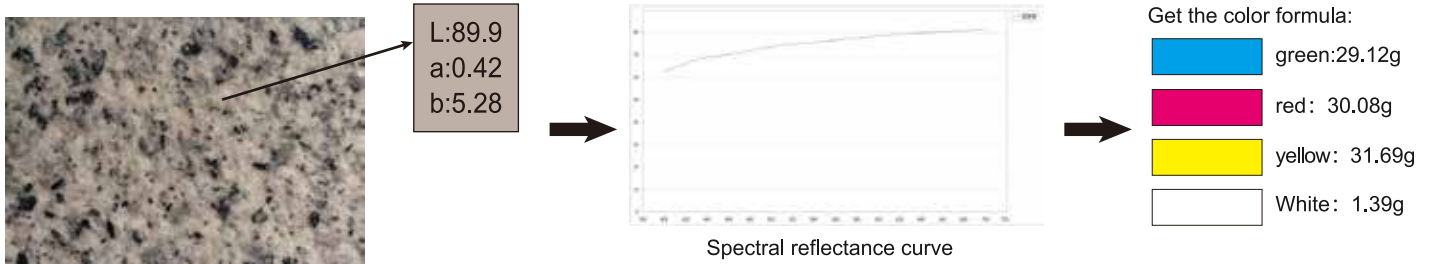
Image Color Spectrophotometer

CS-828

Product Features

- Auto calibration
- Professionally used in complex image color measurement
- Minimum measur ement area 0.09 square millimeters
- Ensure excellent data consistency with ordinary spectrophotometers
- 24 kinds of illuminants and more than 30 measurement indices
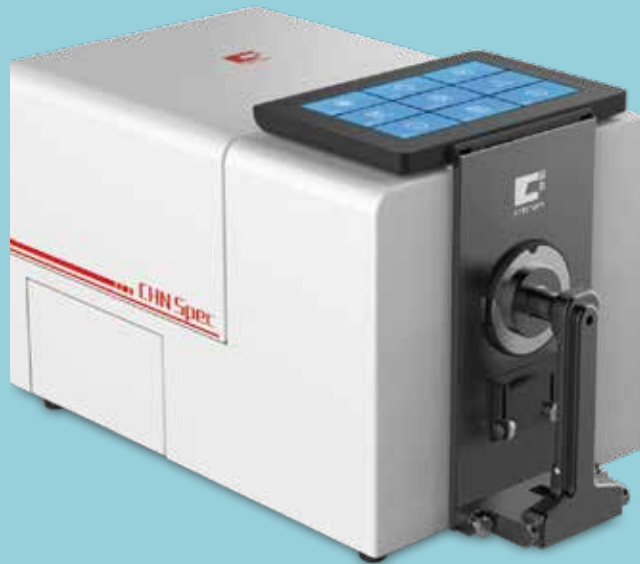- Support SCI+SCE simultaneous rapid measurement

Application Examples

L:89.9
a:0.42
b:5.28

Spectral reflectance curve

Get the color formula:
green:29.12g
red： 30.08g
yellow： 31.69g
White： 1.39g

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
Sensor	Silicon Photodiode Array
Grating Method	Concave Grating
Sphere Diameter	152mm
Wavelength Rnage	400nm-700nm
Wavelength Pitch	10nm
Half Band Width	5nm
Reflectance Range Resolution	0-200%,Resolution0.01%
Light Source	Full Wavelength LED
Measurement Aperture	30*30mm(support custom made)
Minimum Measurement Area	0.09mm²
Repeatability	XLAV Chromaticity value: Standard deviation within ΔE*ab0.03， Max. within ΔE*ab 0.1 （0.3mm2 test area, when a white tile is measured 30 x at 10-second intervals after white calibration）
Inter-Instrument Agreement	XLAV ΔE*ab 0.4 (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
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),555 shade sort
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, white tile
Interface	USB

High Accuracy Bench-top Spectrophotometer

CS-826

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

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	5nm
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 Φ30mm, LAV 18mm,MAV Φ11mm,SAV Φ6mm Transmittance: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 0.01 (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	7 Inches Touch Screen
Operate System	Android
Power Adaptor	12V/3A
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.

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	5nm
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 Φ30mm, LAV 18mm,MAV Φ11mm,SAV Φ6mm Transmittance: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 0.15 (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	12V/3A
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

Instrument Advantages

■ 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
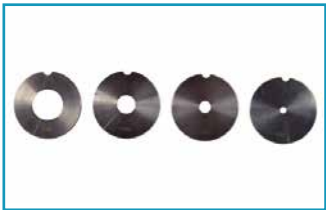
4 kinds of apertures, instrument can automatically recognize and adjust light path.
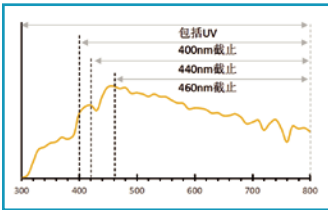
4 kinds of UV test modes.

Camera to view the measurement area.

Innovative design of fixture for 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.

Open measurement area, no limit 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	12V/2.5A
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.

Spectrophotometer

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. Measurethe 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.

Parameter

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,Colordifference(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	
Accuracy	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)	
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	
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

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

■ **Automatic calibration, take care of yourself**

■ **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 hiding power, 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 Accuracy	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	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		

PS：Illumination Area is the instrument aperture size

Economical Spectral Colorimeter

CS-410

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

- ■ Automatic calibration
  Easy operation for better user experience.

- ■ 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 hiding power, whiteness,
  yellowness, etc.

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

- ■ Good repeatability for stable measurement
  (Delta E*ab 0.08)

- ■ 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≤ 0.03 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 Accuracy	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	APP Mass Storage		

PS：Illumination Area is the instrument aperture size

ColorMeter

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 black and white 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

Operate on Instrument   Operate from APP   Cloud Database   Auto Calibration

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		

Color Density Meter

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

Exact

Technical Data

Model	Exact
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),沾色牢度,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

Product Features

■ Design for Print Industry

Color density meter 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.

■ Small Aperture

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.
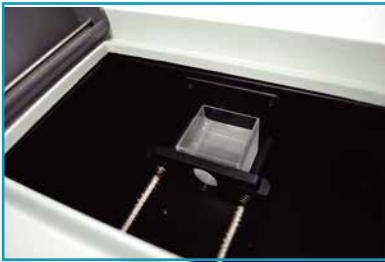
Transmittance Spectrophotometer

CS-810

Product Advantages

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.

Application Examples

▲ Clear liquid

▲ Pt-Co Standard Solution

▲ Glass
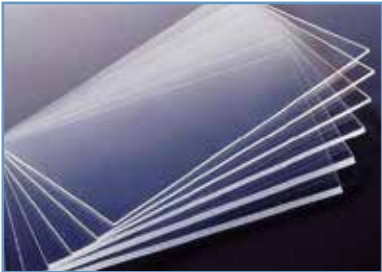
▲ Transparent Plastic

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)Metamerism 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	Inter-instrument agreement	Within ΔE*ab 0.2
Wavelength Pitch	10nm	Data Storage	Mass storage (PC)
Half Band Width	5nm	Interface	USB
Measurement Range/Resolution	0-200% 0.01%	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
Measurement Interval	1s	Storage Temperature	-25-55℃,relative humidity 80%,or below (at 35℃), no condensation
Measurement Time	1s	Standard Accessories	Power line, color QC software, driving software, USB cable, black calibration tile, 40x10 cuvette
Aperture	10mm (cuvette support)	Optional Accessories	40x33mm Cuvette (for ASTM color),40x100mm Cuvette (for Saybolt)
Color Spaces	CIE-L*a*b,L*C*h,L*u*v,XYZ,Yxy,Transmittance,Hunterlab, Munsell,MI,CMYK		

Top-port Spectrophotometer

CS-800

Product Advantages

The First Bench-top Spectrophotometer in China

CS-800 is the first bench-top spectrophotometer in China to make up for the corresponding domestic market vacancies. Over the years, its accuracy and performance make great improvement, and now has a huge market.
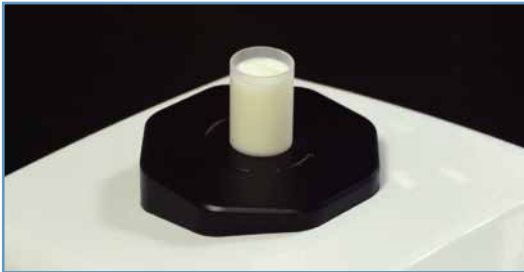
D/8 geometry, Simultaneous SCI/SCE measurement

Adopt international D/8 geometry (Integrating sphere diffused illumination, 8 degree viewing) Simultaneous measurement of SCI/SCE compatible with lighting observation conditions.

Top-port Aperture for Color Measurement

Adopt geometric conditions of D/8 illumination and viewing with top-port aperture which is easier for testing all kinds of samples. Solid samples (steel, cloth) can be placed directly on the measurement aperture, particles (tablets, master batch), powder (Calcium Carbonate, pigment, coffee), paste objects (tomato sauce) can be placed in a cuvette, then placed in the aperture.

Application Examples

▲ Opaque liquid

▲ Paste

▲ Powder

▲ Pellet

Technical Data

Type	CS-800
Illumination /Viewing System	d/8 (diffused illumination, 8 degree viewing)Simultaneous measurement of SCI (Specular Component Included) / SCE (Specular Component Excluded)(conforms to CIE No.15, ISO7724/1,ASTM E1164,DIN5033 Teil 7, JIS Z8722 Condition C standard)
Integrating Sphere	40mm, Avian-D Fully diffuse reflective surface coating
Light Source	CLEDs
Detector	Dual optical sensor array
Wavelength	400-700nm
Wavelength Pitch	10nm
Half Band Width	5nm
Reflectance Range/ Resolution	0-200% 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
Display	Reflectance graph/value, chromaticity value, color difference values,pass/fail, color tendency, display measurement area, history color,color simulation, manually input target value, generate test report
Measurement Interval	1s
Measurement Time	0.5S
Aperture	Φ11mm
Color Spaces	CIE-L*a*b,L*C*h,L*u*v,XYZ,Yxy,Reflectance,Hunterlab, 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 (hunter),555 shade sort
Other Indices	WI(ASTM E313-10,ASTM E313-73,CIE/ISO,AATCC,Hunter, Taube Berger,Stensby),YI(ASTM D1925,ASTM E313-10, ASTM E313-73),Tint(ASTM E313,CIE,Ganz),Metamerism index Milm，staining fastness，color fastness，ISO brightness, 8°Gloss,A Density,T Density,E Density,M Density
Repeatability	Reflectance: standard deviation within 0.08% 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	Within ΔE*ab 0.2 (BCRA Series II, average measurement of 12 tiles)
Battery Power	Rechargeable, 20000 continuous tests, 7.4V/6000mAh
Interface	USB
Data Storage	20000 pcs of samples
Light source lifetime	10years, 3 million tests
Working 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：
Standard Accessories	AC power line, operating manual, color QC software, driving software, electric operating manual, USB cable, white/black calibration tile, verification certification Optional: powder presser, cuvette with diameter 29mm, cover
Color Matching Software	Workable
UV Light Source	Without

45/0 Spectrophotometer

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

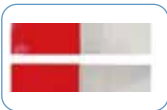Sensor 0°Observer

45°ring-shaped illumination

sample

45/0 Optical structure
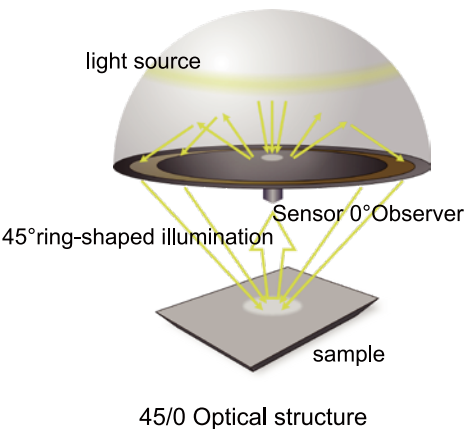
Instrument Advantages

● 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

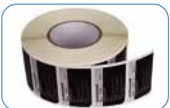**Coating**

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

CS-580/600/650/660

Product Advantages

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.
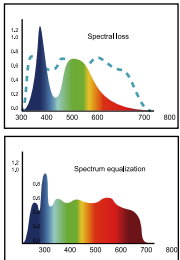
Pantone Color Number Matching
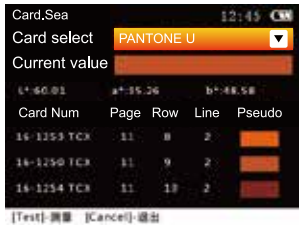
To improve the utility and convenience of our instrument, we develop spectrophotometer with build-in pantone color swatches. After measurement,instrument can help us find three similar colors from the color swatches which can greatly improves working efficiency.

Technical Data

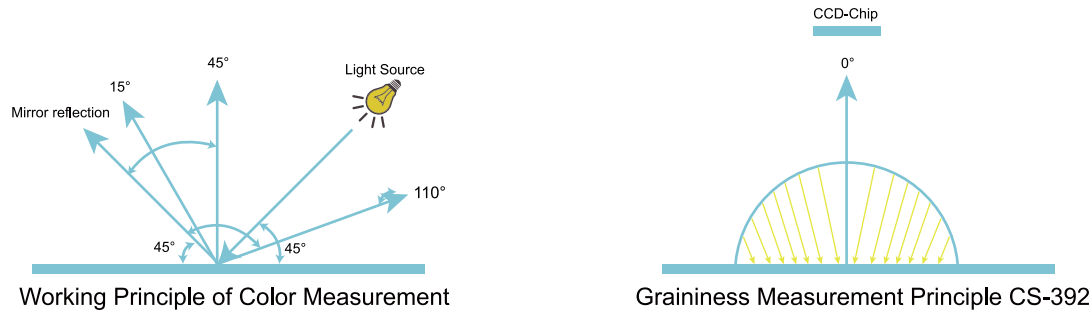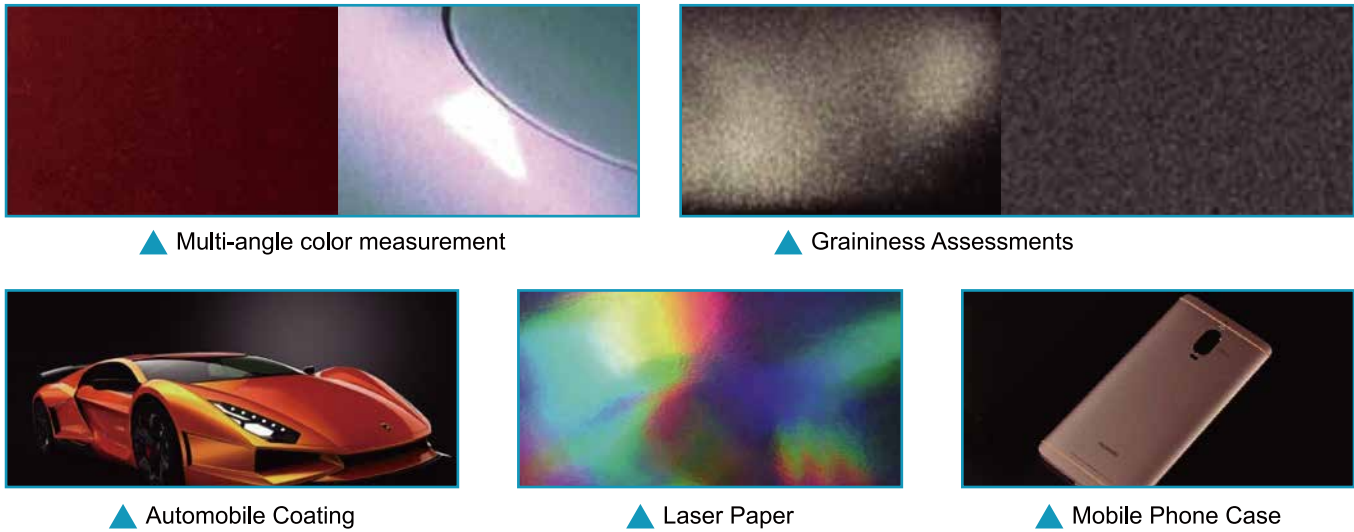| Model	CS-580	CS-600	CS-650	CS-660
Illumination/Viewing System	Observer : 2°/10° d/8(Diffused illumination, 8 degree viewing) , simultaneous measurement of SCI(specular component included)/ SCE(specular component excluded) (conform to CIE No.15,ISO 7724/1,ASTM E1164,DIN 5033 Teil7, JIS Z8722 Condition 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℃),no condensation			
Storage Temperature	-25℃ to 55℃, relative humidity 80% or below(at 35℃),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

Working Theory Picture

45°
15°
Mirror reflection
Light Source
110°
45° 45°

Working Principle of Color Measurement

CCD-Chip
0°

Graininess Measurement Principle CS-392

CS-390/392

Application Examples

▲ Multi-angle color measurement

▲ Graininess Assessments

▲ Automobile Coating

▲ Laser Paper

▲ Mobile Phone Case

Technical Data

Model	CS-390	CS-392		
Illumination Angle	45°		Measurement Time	Less than 2s	Less than 6s
Measurement Angles	15°,45°,110°	Color measure angle:15°/45°/110° Graininess Measure Angle: Integrating Sphere Diffused Illumination	Repeatability	dE≤0.05Max. after white calibration (measured 30 x at 5-second intervals)
			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			

Product Advantages

◼ 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.

Spectral Colorimeter

CS-280/280+/286/288

Product Advantages

▥ 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

Application Examples

▲ Plastic   ▲ Paint   ▲ Printing   ▲ Food

Technical Data

Type	CS-280	CS-280+	CS-286	CS-288
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		camera,electricity pantone color chart,Mobile Phone APP
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			

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
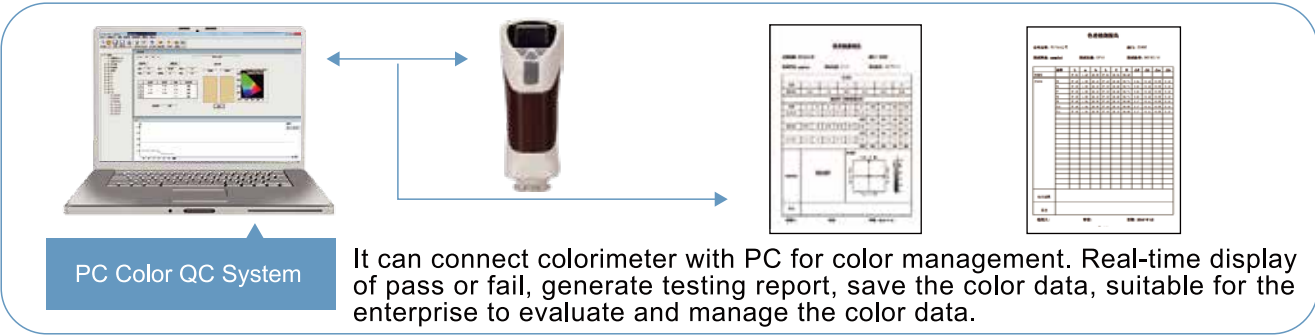Powder measurement

CS-10/200/210/220/260

Product Advantages

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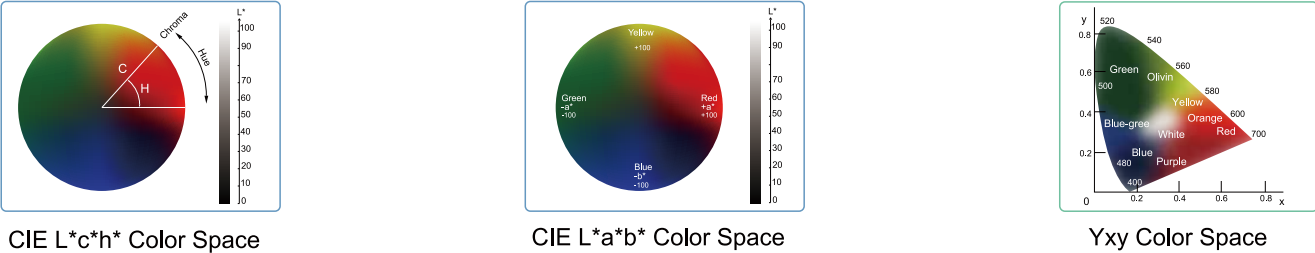
Being the most commonly used testing device, our colorimeter with color display indicators transformation program that makes our device could be used for color measurement in many different industries. It does not need convert the measurement data by manual which greatly improve the working efficiency.

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

Instrument Advantages

▌ 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

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

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.

45/0 Geometry

D/8 Geometry

Three Angles
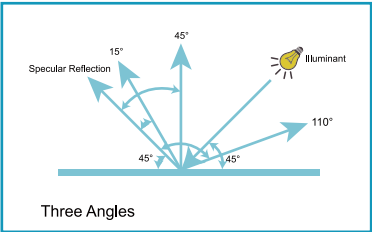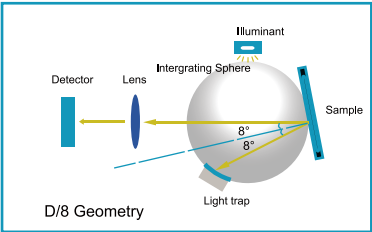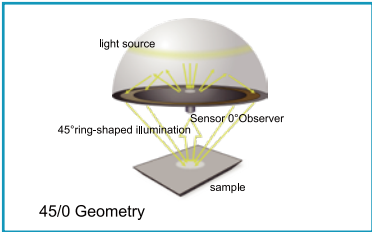
Application

▲ 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

Clarity and Haze Meter

It is designed for plastic, films, glass, LCD panel, touch screen other transparent and semi-transparent materials clarity, color, haze and transmittance measurement.
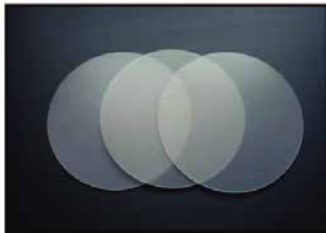
CS-720

Instrument Introduction

■ Different measurement parameters and professional clarity measurement function

■ Comprehensive Transmission Color Parameters

■ Comply with ASTM and ISO standards

■ Different Light Sources for Different Measurement Standards

■ Compensation Measurement to Make Test Result More Accurate

■ Haze QC software as Standard Accessory

■ Seven-inch Android Touch Screen for Better User Experience

■ Open Sample Measurement Area, Sample can be Measured Horizontally or Vertically

■ Abundant Measurement Fixtures
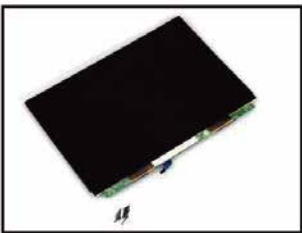
Packing List

Application

▲ Plastic plates　　　▲ Thin film　　　▲ glass　　　▲ The LCD panel

Technical Parameters

Model	Color and Haze Meter CS-720
Light Source	Tungsten Halogen Lamp
Illuminants	CIE-A,CIE-C,CIE-D65 Chromaticity Value: 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,CIE No.15,ISO 7724/1,ASTM E1164,DIN 5033 Teil7,JIS Z8722 Condition C standard, GB/T 2410-2008
Parameters	HAZE, Transmittance Curve and Value (T), Clarity(C%),CIE Lab,LCh,CIE Luv,XYZ,Yxy, Transmittance spectrum,Hunter Lab Munsell MI,CMYK,WI (ASTM E313-00,ASTME 313-73,CIE/ISO,Hunter,Taube Berger Stensby),YI(ASTM D1925,ASTM E313-00, ASTM E313-73),Tint(ASTM E313-00), Metame-rism Index Milm,APHA, Pt-Co, Gardner, Color Difference(ΔE*ab, ΔE*CH,ΔE*uv,ΔE*cmc(2:1), ΔE*cmc(1:1),ΔE*94,ΔE*00)

Spectral Response	CIE Luminosity function Y/V(λ)
Wavelength	400-700nm
Wavelength Interval	10nm
Geometry	0/d
Illumination and Test Aperture Size	18mm/25.4mm
Measurement Range	0-100%
Haze Resolution	0.01Unit
Haze Repeatability	Haze < 10%, Repeatability ≤0.05%;Haze≥10%, Repeatability ≤0.1%; Transmittance Repeatability ≤0.1%
Sample Size	Thickness ≤145mm
Display	7 inch TFT LCD screen
Data Storage	20000 pcs of samples
Interface	USB
Power	110-240V
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	598mm X 247mm X 366mm (L x W x H)
Instrument Weight	12kgs
Standard Accessory	PC software (Haze QC)
Optional	Measurement Fixture, Haze Standard Film,Custom Made Aperture

Color 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.
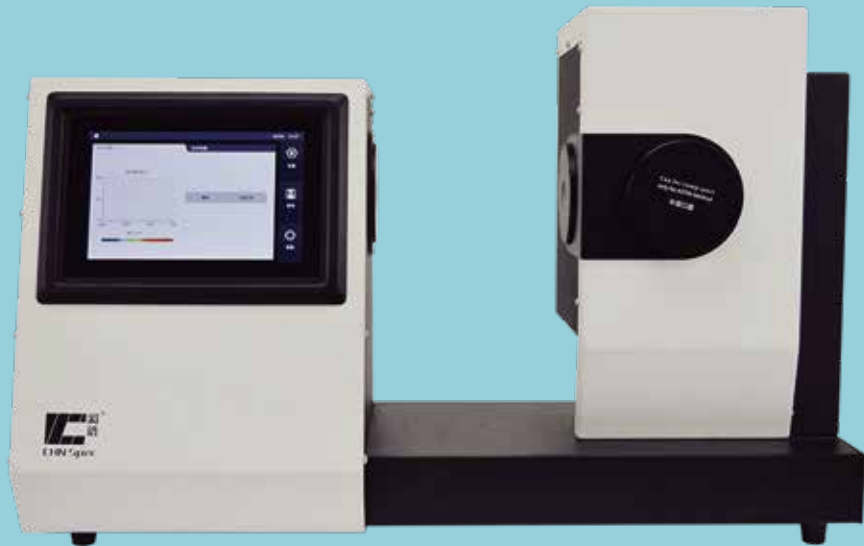
CS-700

■ Spectral haze measurement obtains more than 20 kinds of measurement data such as color, haze,transmittance,yellowness and whiteness in one measurement

■ Unique signal processing technology to ensure measurement results will not be affected by enviroment light.

■ Flexible fixtures for different sample measurement

■ Free Haze QC Software

■ It can realize both vertical and horizontal measur ement to measure different kinds of materials.

■ No need to do warm-up, after instrument is calibrated, it can be used.

■ One year warranty

Product Features

■ Confrom to ASTM D 1003,ISO 13468, ISO 14782 GB/T 2410 standards.

■ The most cost effective product.Lower cost than similar products.

■ Three kinds of light sources A,C and D65 for haze and total transmittance measurement
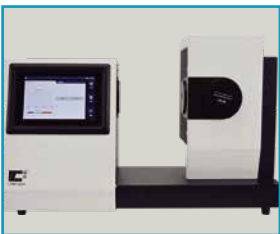
■ 24 kinds of illuminants for transmitance color measurement

Technical Data

Model	Haze Meter CS-700
Light Source	Tungsten Halogen Lamp
Illuminants	CIE-A,CIE-C,CIE-D65
Standards	ASTM D1003/D1044, ISO13468/ISO14782, JIS K 7105,JIS K 7361,JIS K 7136,GB/T 2410-2008,JJF 1303-2011
Parameters	HAZE, Transmittance Curve and Value(T)
Spectral Response	CIE Luminosity function Y/V(λ)
Wavelength	400-700nm
Wavelength Interval	10nm
Geometry	0/d
Illumination and Test Aperture Size	15mm/21mm
Measurement Range	0-100%
Haze Resolution	0.01Unit

Haze Repeatability	Haze < 10%, Repeatability ≤0.05%;Haze≥10%, Repeatability ≤0.1%; Transmittance Repeatability ≤0.1%
Sample Size	Thickness ≤145mm
Display	7 inch TFT LCD screen
Data Storage	20000 pcs of samples
Interface	USB
Power	110-240V
Working Temperature	5~40℃, relative humidity 80% or below(at 35℃),no condensation
Storage Temperature	-20-45℃, relative humidity 80% or below(at 35℃),no condensation
Size	598mm X 247mm X 366mm (L x W x H)
Instrument Weight	12kgs
Standard Accessory	PC software (Haze QC)
	Measurement Fixture, Haze Standard Film,Custom Made Aperture
Optional	

Haze Meter

TH-09/100   TH-110

TH-09/100+TH110

## Instrument Advantages

▮ 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
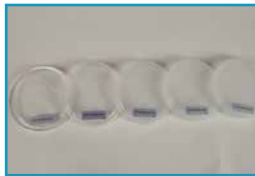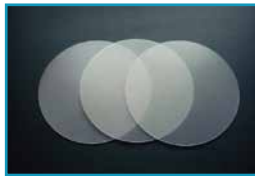

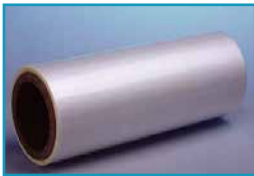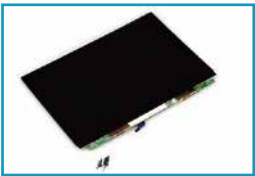▲ Haze Standards | ▲ Custom Made Apertures | ▲ Soft Film Fixture | ▲ Liquid/ Sheet Material Fixture

Application

▲ Plastic Sheet | ▲ Film | ▲ Glass | ▲ Screen

Technical Data

Model	Haze Meter TH-09	Haze Meter TH-100	Haze Meter 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	0.8	
Transmittance Repeatability		0.1unit	
Sample Size		Thickness ≤145mm	
Wavelength Interval		10nm	
Memory	10000 value	20000 value	Mass storage
Interface		USB	
Power		DC24V	
Working Temperature		10-40 ℃ (+50 – 104 °F)	
Storage Temperature		-20-50℃ (+32 – 122 °F)	
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
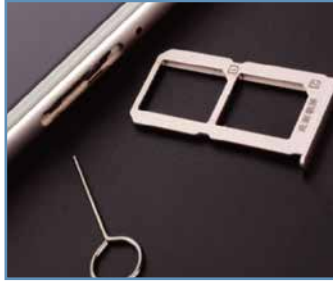
CS-3000S

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

Product Advantages

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

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		
Repeatability	0.2GU（0-100GU）0.2%GU（100-600GU）	Interface	USB
		Size	350*300*200mm（L*W*H）
Reproducibility	1.0GU（0-100GU）1.0%GU（100-600GU）	Power	rechargeable Lithium Battery, 7.4V/6000mAh
Screen	5 inches color screen	Weight	4.5kgs
Light Source Life Time	10 years,3million tests	Standard Accessories	Calibration tile, Power adapter, USB cable, operate manual, verification certification, PC Software
Data Storage	100 pcs of targets; 10000 pcs of samples		

Gloss Meter

CS-300/380/CS-300S

Product Advantages

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.

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°：0-1000GU
Stability	0-100:0.1GU；＞100:1GU		
Repeatability	0-100GU:0.2GU100-2000GU: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

Color Swatch and Light Box

Pantone Color Swatch

The latest version 2019 newly add 294 color shades, total including 2161 solid colors printed on both coated and uncoated paper, for most options possible to communicate and specify color intent accurately and confidently.

The PANTONE FORMULA GUIDE Solid Coated & Solid Uncoated set is the must-have tool for designer, printers and color decision makers for specifying and approving sport colors in graphic projects, especially logos, brand designsand packaging.

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.