

Products Catalogue

www.chnspec.com

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



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Website



CHN Spec

Development Course

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

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

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

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

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

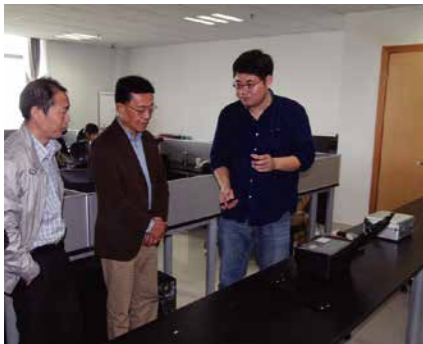




Hangzhou CHNSpec Technology Co., Ltd is the leader in the color, haze and gloss measurement field and we are mainly engaged in the researching, producing and sales of color, haze and gloss measurement equipment which includes colorimeters, portable and bench-top spectrophotometers, gloss meters and haze 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.

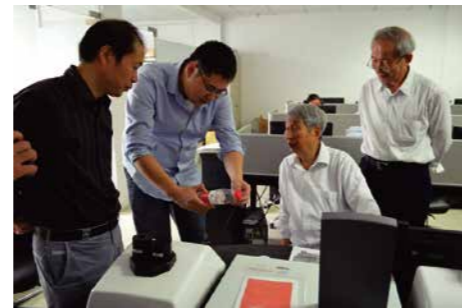


Academician Mr. Zhuang came to visit us

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

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.



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



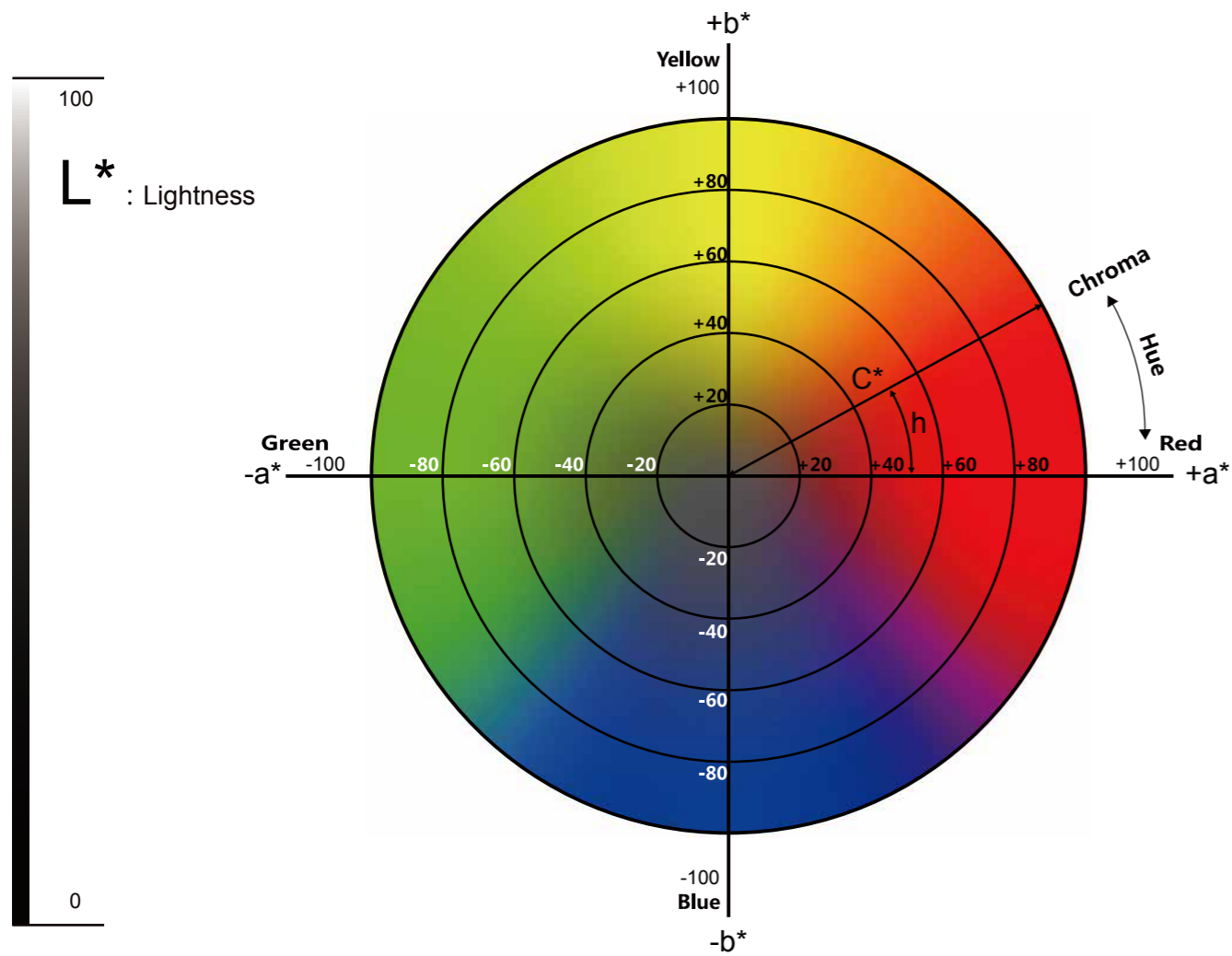
CHINA INSTRUMENTS MANUFACTURERS ASSOCIATION Vice Chairman visited us



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LAB Color Space

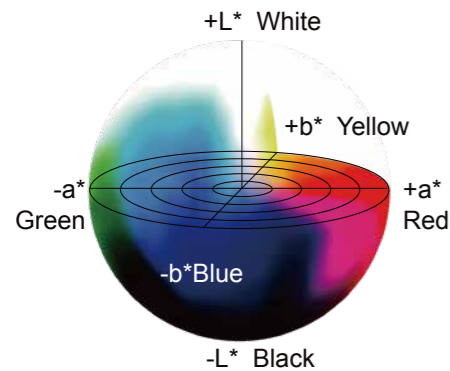


ΔE Value Reference	Color Difference(Tolerance) / Acceptable
0-0.2	Tiny or no, perfectly matched
0.2-0.5	Small, acceptable
0.5-1.0	Small to Medium, acceptable for some industries

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

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

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 black or white. 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				Portable Spectrophotometer			Spectral Colorimeter	Colorimeter
	CS-820N CS-821N CS-826	CS-810	CS-801	CS-800	CS-390/392	CS-650	Others						
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	★	☆	☆	☆	☆	★	☆	☆	☆	☆
Flat Surface Material	Textile	Plastic Profile	Anodic oxidation	★	☆	★	★	★	★	★	★	★	★
	Paint & Coating	Plates	Electroplating	★	☆	★	★	☆	☆	☆	☆	☆
Car Paint and Effective Materials	Car Paint			☆	☆	☆	☆	★	☆	☆	☆	☆	☆
	Laser Paper	Mobile Phone Case	☆	☆	☆	☆	★	☆	☆	☆	☆	☆

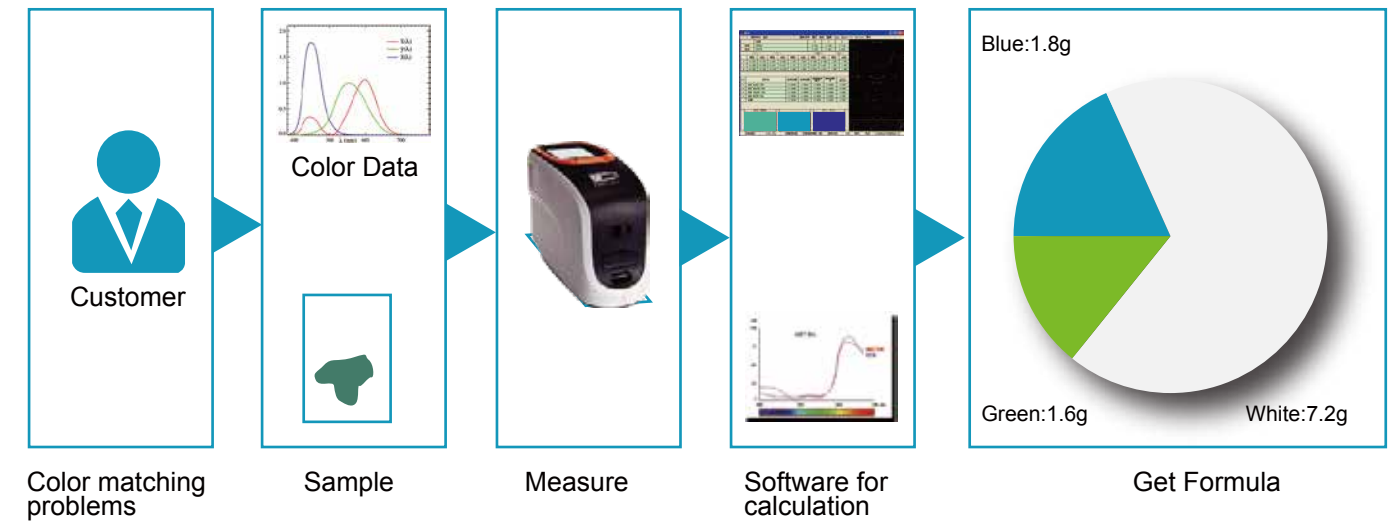
Application

- Testing Institute
 - 河北省计量监督检测院
 - 浙江省纺织测试研究院
 - 国家皮革质量监督检验中心
- University
 - 清华大学
 - 北京大学
 - 上海交通大学
- Electronic
 - OPPO
 - MI
 - HUAWEI
- Plastic
 - VW
 - 北京现代
 - LEI LEADER
- Textile
 - COATS
 - adidas
 - CONVERSE
- Food
 - 康师傅
 - TSINGTAO 青岛啤酒
 - 海天
- Furniture
 - 顾家家居
 - IKEA 宜家家居
 - TILBAO 兔宝宝
- Paint
 - 立邦
 - Bairunme 邦尔美
 - 中国·多乐

Computer Color Matching Software



Color Matching Steps



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

Image Color Spectrophotometer



CS-828

Product Features

Auto calibration

Professionally used in complex image color measurement

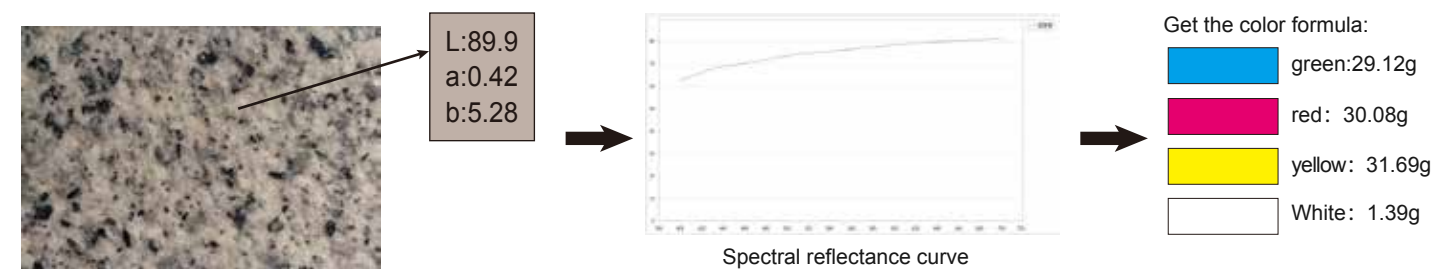
Minimum measurement area 0.09 square millimeters

Ensure excellent data consistency with ordinary spectrophotometers

24 kinds of illuminants and more than 30 measurement indices

Support SCI+SCE simultaneous rapid measurement

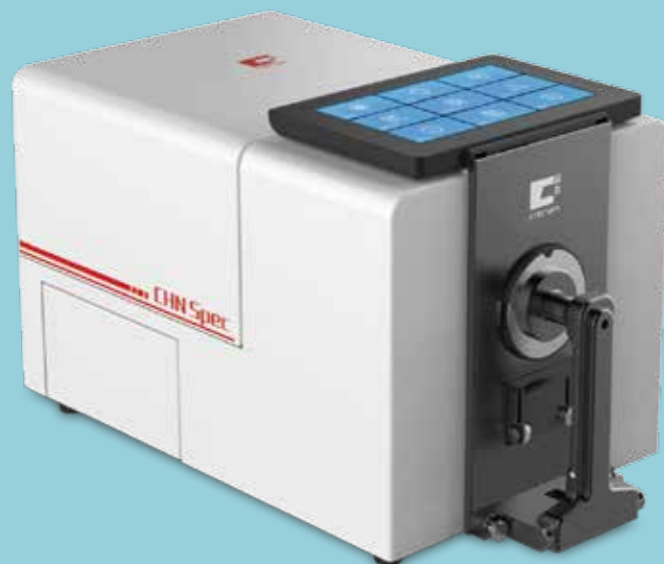
Application Examples



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 Range	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	0.09mm ²
Repeatability	XLAV Chromaticity value: Standard deviation within $\Delta E^*ab0.03$, Max. within $\Delta E^*ab 0.1$ (0.3mm ² test area, when a white tile is measured 30 x at 10-second intervals after white calibration)
Inter-Instrument Agreement	XLAV $\Delta E^*ab 0.4$ (BCRA Series II, Average measurement of 12 tiles, at 23 °C)
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 milim, 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	$\Delta E^*ab,\Delta E^*CH,\Delta E^*uv,\Delta E^*cmc,\Delta E^*94,\Delta E^*00,\Delta Eab$ (Hunter),555 shade sort
Operate Temperature	5-40 °C (40-104F), relative humidity 80% (at 35 °C) no condensation
Storage Temperature	-20-45 °C (-4-113F), relative humidity 80% (at 35 °C) 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°C±10°C 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 °C)
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°C(40-104F), relative humidity 80% (at 35°C) no condensation
Storage Temperature	-20-45°C(-4-113F), relative humidity 80% (at 35°C) 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

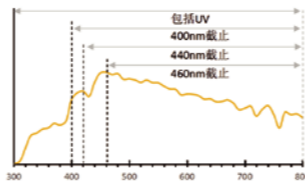
- Inter-Instrument Agreement: $dE < 0.15$ (XLAV aperture)
- Provides Pulse Xenon and LED Two Kinds of Light Sources
- 24 standard light sources, 40 measurement standards
- Temperature and Humidity Auto Compensation Function
- Simultaneous reflectance/transmittance measurement
- Double optical path spectrum analysis technology
- Simultaneous SCI/SCE measurement



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



Camera to view the measurement area.



4 kinds of UV test modes.



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.



Intelligent instrument software, support operation without PC.



on sample size.



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



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)	Color Difference	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv, \Delta E^*cmc, \Delta E^*94, \Delta E^*00, \Delta E^*ab(hunter), 555$ shade sor
Sphere Diameter	152mm	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, 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
Wavelength	360-780nm	Language	English, Russian, Spanish, Portuguese, Japanese, Thai, Korean, German, French, Polish, Chinese (simple and traditional)
Wavelength Pitch	10nm	Storage Memory	8GB
Reflectance Range	0-200%	Screen Size	7 Inches Touch Screen
Resolution	0.01%	Power	12V/2.5A
Light Source	Pulse Xenon Lamp and LED	Operate Temperature	5-40 °C (40-104F), relative humidity 80% (at 35 °C) no condensation
UV Measurement	Include UV, 400nm cut, 420nm cut, 460nm cut	Storage Temperature	-20-45 °C (-4-113F), relative humidity 80% (at 35 °C) no condensation
Measurement Time	SCI/SCE < 2s SCI+SCE < 4s	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
Transmittance Sample Size	No limit on sample width and height, thickness ≤ 50 mm	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
Inter-Instrument Agreement	XLAV ΔE^*ab 0.15 (BCRA Series II, Average measurement of 12 tiles, at 23 °C)	Interface	RS-232, USB-A, USB-B
Measurement Aperture	Reflectance: XLAV $\Phi 25.4$ mm/ $\Phi 30$ mm, LAV $\Phi 15$ mm/ $\Phi 18$ mm, MAV $\Phi 8$ mm/ $\Phi 11$ mm, SAV $\Phi 3$ mm/ $\Phi 6$ mm (Aperture size can be custom made) Auto aperture size recognition Transmittance: $\Phi 17$ mm/ $\Phi 25$ mm	Instrument Size	465 x 240 x 260mm
Viewing Angles	2° and 10°	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.
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, color simulation, color assessment, haze, liquid chromaticity values, color tendency		

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. Measure the 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° viewing Specular component included)	D/8 ,SCI/SCE(diffused illumination,8° viewing Specular component included, Specular component excluded)
Repeatability 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, Colodifference(ΔE*ab, ΔE*cmc, ΔE*94, ΔE*00), WI (ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger Stensby), 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), Milim, 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 continuous 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



Colorimeter 420 Series

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 $\Delta E^*ab \leq 0.03$ Average: $dE^*ab \leq 0.04$ Max: $dE^*ab \leq 0.06$ (when a white tile is measured 30 times at 5 seconds interval)		
Inter-instrument Agreement	$\Delta E^*ab \leq 0.4$		
Display Accuracy	0.01		
Test Aperture/ Illuminated Area	MAV: $\Phi 8mm/\Phi 11mm$	SAV: $\Phi 4mm/\Phi 6mm$	MAV: $\Phi 8mm/\Phi 11mm$ +SAV: $\Phi 4mm/\Phi 6mm$
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		
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	$2^\circ, 10^\circ$		
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 Series

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 0.08)

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 $\Delta E^*ab \leq 0.03$ Average: $dE^*ab \leq 0.04$ Max: $dE^*ab \leq 0.06$ (when a white tile is measured 30 times at 5 seconds interval)		
Inter-instrument Agreement	$\Delta E^*ab \leq 0.4$		
Display Accuracy	0.01		
Test Aperture/ Illuminated Area	MAV: $\Phi 8mm/11mm$	SAV: $\Phi 4mm/6mm$	MAV: $\Phi 8mm/11mm$ +SAV: $\Phi 4mm/6mm$
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		

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, ΔE^*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	$\Delta E \leq 0.1$ (when a white tile is measured 30 times at 5-second intervals after calibration)		$\Delta E \leq 0.05$ (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		

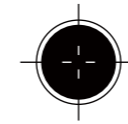
Color Density Meter



Exact

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.



Auto Calibration



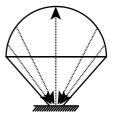
APP



Cloud Database



4mm Aperture

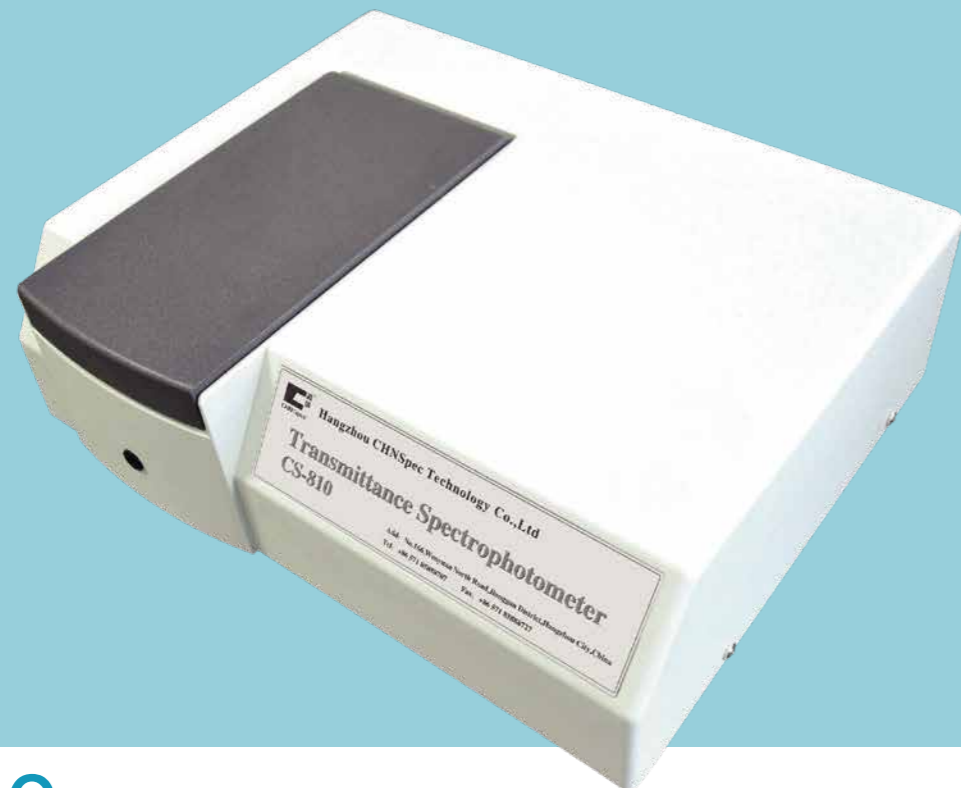


45/0 Geometry

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, ASTM E313-73, 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 Density CMYK (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	$\Delta E \leq 0.1$ (when a white tile is measure 30 times at 5s interval)
Inter-instrument Agreement	$\Delta E^*00 < 0.4$ (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

Transmittance Spectrophotometer

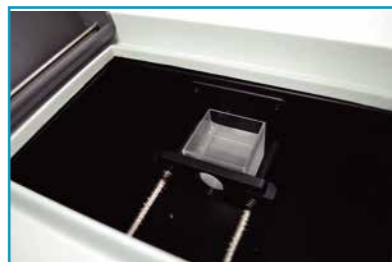


CS-810

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%

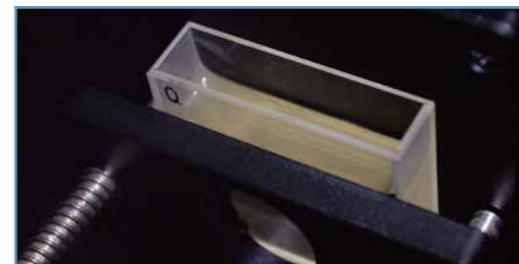
Pt-Co, Gardner

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



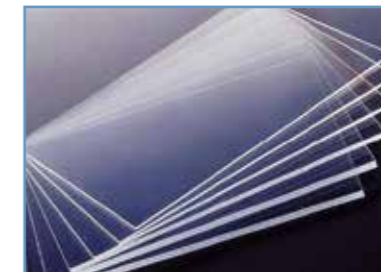
▲ Clear liquid



▲ Pt-Co Standard Solution



▲ Glass



▲ Transparent Plastic

Technical Data

Model	CS-810	Color Difference	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*94, \Delta E^*00$
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	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
Light Source	CLEDs	Inter-instrument agreement	Within ΔE^*ab 0.2
Detector	Dual optical sensor array	Data Storage	Mass storage (PC)
Wavelength	400-700nm	Interface	USB
Wavelength Pitch	10nm	Light source lifetime	5years, 1.5 million tests
Half Band Width	5nm	Size	475*340*150mm (L*W*H)
Measurement Range/Resolution	0-200% 0.01%	Operate Temperature	0-45°C, relative humidity 80% or below (at 35°C); no condensation
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	Storage Temperature	-25-55°C, relative humidity 80%, or below (at 35°C), no condensation
Display	Reflectance graph/value, chromaticity value, color difference values, pass/fail, color tendency, color simulation, manually input target value, generate test report	Standard Accessories	Power line, color QC software, driving software, USB cable, black calibration tile, 40x10 cuvette
Measurement Interval	1s	Optional Accessories	40x33mm Cuvette (for ASTM color), 40x100mm Cuvette (for Saybolt)
Measurement Time	1s		
Aperture	10mm (cuvette support)		
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	Color Difference	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*94, \Delta E^*00, \Delta E^*ab$ (hunter), 555 shade sort
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)	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 Milim, staining fastness, color fastness, ISO brightness, 8° Gloss, A Density, T Density, E Density, M Density
Integrating Sphere	40mm, Avian-D Fully diffuse reflective surface coating	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
Light Source	CLEDs	Inter-instrument agreement	Within ΔE^*ab 0.2 (BCRA Series II, average measurement of 12 tiles)
Detector	Dual optical sensor array	Battery Power	Rechargeable, 20000 continuous tests, 7.4V/6000mAh
Wavelength	400-700nm	Interface	USB
Wavelength Pitch	10nm	Data Storage	20000 pcs of samples
Half Band Width	5nm	Light source lifetime	10years, 3 million tests
Reflectance Range/Resolution	0-200% 0.01%	Working Temperature	0-45°C, relative humidity 80% or below (at 35°C); no condensation
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	Storage Temperature	-25-55°C, relative humidity 80%, or below (at 35°C); no condensation:
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	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
Measurement Interval	1s	Color Matching Software	Workable
Measurement Time	0.5S	UV Light Source	Without
Aperture	Φ11mm		
Color Spaces	CIE-L*a*b, L*C*h, L*u*v, XYZ, Yxy, Reflectance, Hunterlab, Munsell MI, CMYK, RGB, HSB		

45/0 Spectrophotometer



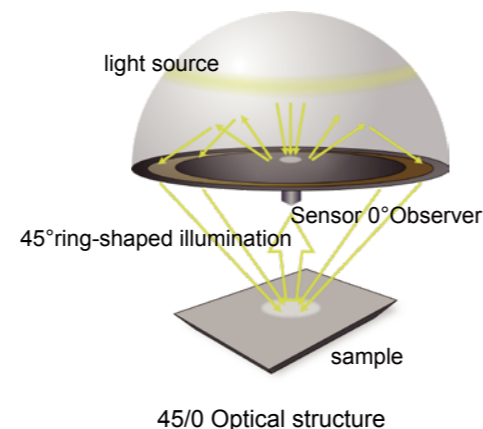
CS-600C/600CG/800C/800CG

Instrument Features

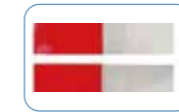
45/0 spectrophotometer adopt 45/0 geometry, directional dependence is eliminated, regardless of changing the sample position, tilting sample or rotating instrument can achieve high accuracy and repeatability.

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 ExamplesPlastic and Rubber

Automobile Decoration



Road Signs



Plastic floor



PET film



Screen film



Reflective film

Coating

Color Steel Plate



Home Decoration



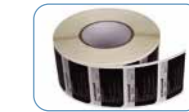
Coil Coatings

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	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*94, \Delta E^*00, \Delta Eab$ (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°C relative humidity 80% or less (at 35°C) 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.



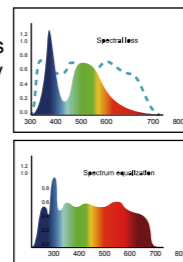
Camera to see the measurement area

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.

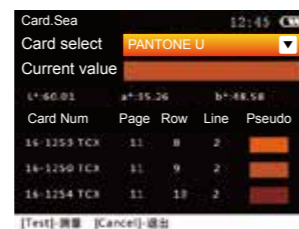


Adopt CLEDs light source – spectrally balanced LED light source

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 of the measurement results. This research has been published in national leading optical journal Chinese Optics Letter.



Pantone Color Number Matching

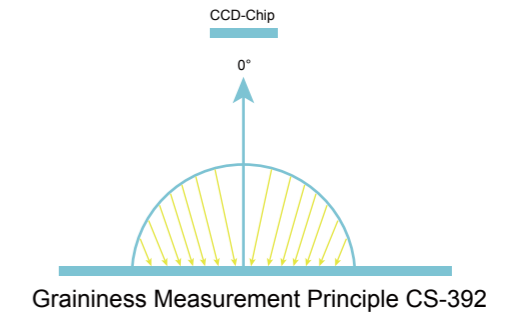
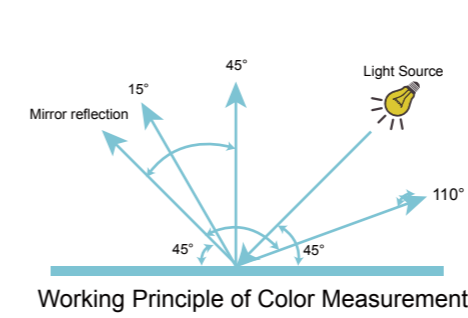


To improve the utility and convenience of our instrument, we develop spectrophotometer with built-in pantone color swatches. After measurement, instrument can help us find three similar colors from the color swatches which can greatly improve working efficiency.

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	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 C , relative humidity 80% or below(at 35°C),no condensation			
Storage Temperature	-25 C to 55°C , 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)			

Working Theory Picture



Three Angles Color Spectrophotometer

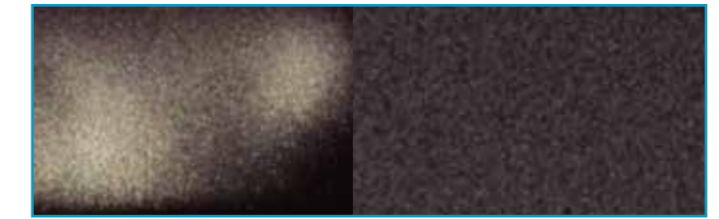


CS-390/392

Application Examples



▲ Multi-angle color measurement



▲ Graininess Assessments



▲ Automobile Coating



▲ Laser Paper



▲ Mobile Phone Case

Technical Data

Model	CS-390	CS-392	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		dE≤0.5 Average measurement of BCRA II color tiles)	
Measurement Parameter	L*a*b,L*C*h,ΔE*; 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°	
Wavelength Range	400-700nm		Measurement Area	Dia. 17mm	
Wavelength Pitch	10nm		Light Source Life time	10 years, ≥1 million times	
Reflectance Range	0-500%		Interface	USB	
Resolution	0.01%		Instrument Size	145*58*99mm	
Light Source	LED		Instrument Weight	476g	
Illuminants	A,C,D50,D65,F2,F7,F11,F12		Power	3.7V/3000mAh rechargeable lithium batter	
			Temperature	0-40 C (32-104 F)	
			Storage Temperature	-20-50 C (-4-122 F)	

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

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
Illumination/Viewing System	di/8(diffused illumination: 8°viewing),SCI (conform to CIE No.15,ISO 7724/1,ASTM E1164,DIN 5033 Teil7,JIS Z8722 Condition c standard)		
Integrating 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		with camera	with camera,spectrum reflectance value,manually input target value
Color Differences	$\Delta E^*ab,\Delta E^*CH$		$\Delta E^*ab,\Delta E^*CH, \Delta E^*uv,\Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*94, \Delta E^*00$
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	Rechargeable 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 Color Matching System	Micro Printer		
UV Light Source	not support		
	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.

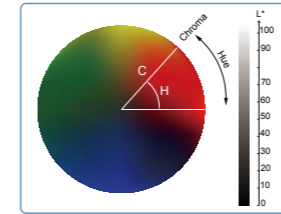


CS-220 provides specular component excluded(SCE) measuring condition. It is designed for the color measurement of powder, pasty materials and highly reflective materials.

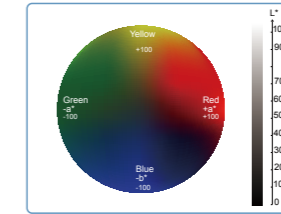


CS-260 is with build-in color charts. After measurement, instrument will match three color numbers from the color charts for the colourist reference.

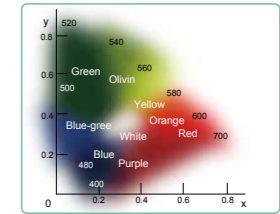
Multiple color spaces



CIE L*c*h* Color Space



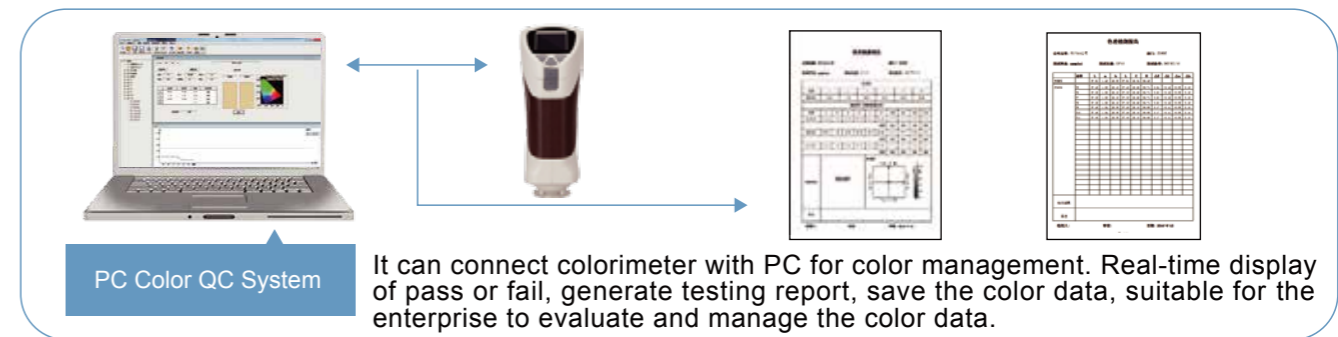
CIE L*a*b* Color Space



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



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
Display	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

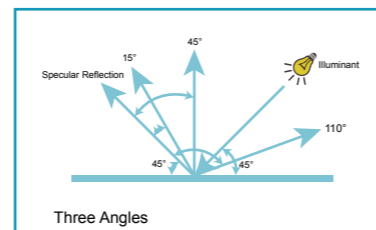
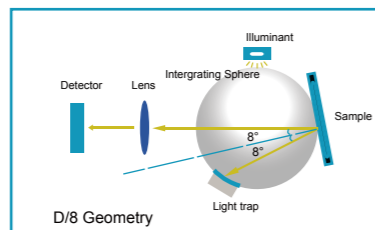
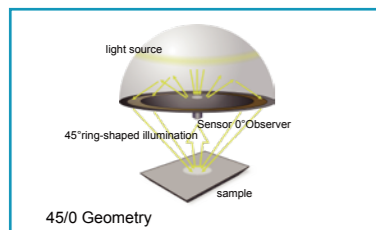
- 45/0 Geometry for Color Measurement
- Non-Contact and Instrument to Sample Distance 7.5mm
- Ultra Fast Measurement with Interval Only 20ms
- Measure with High Accuracy for Samples with Fluctuation $\pm 3\text{mm}$

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.



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	Measurement Interval	2S
Light Sources	CLEDS(Full Wavelength Balanced LED Light Source)			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)
Sensor	Dual Light Path Sensor Array		Silicon Photodiode	Color Space and Other Indices	CIE-L*a*b, L*C*h, L*u*v, XYZ, Yxy, Reflectance, 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), Milm, Metamerism Index Milm, Staining Fastness, Color Fastness
Measurement Distance	7.5 \pm 3mm(Repeatability in the case of Distance Fluctuations $dE < 0.1$)	0.5mm	Contact to Measure		CIE-L*a*b, L*C*h, Graininess
Calibration Method	Build-in Calibration Tiles			Color Difference	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*94, \Delta E^*00$
Protection Level	Without	IP67	Without	Light Source Lifetime	Whole Life Time Warranty
Wavelength Range	400-700nm			Working Temperature	0-45°C, relative humidity 80% or below (at 35 °C), no condensation
Wavelength Interval	10nm			Storage Environment	-25-55°C, relative humidity 80% or below (at 35 °C), no condensation
Half Band Width	5nm			Power Adaptor	DC12V
Reflectance Range	0-200%			Interface	USB or custom made
Measurement Aperture	$\phi 7\text{mm}$	$\phi 10\text{mm}(\phi 4\text{mm optional})$	$\phi 7\text{mm}$	Power	12V DC Power Adaptor
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)		

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

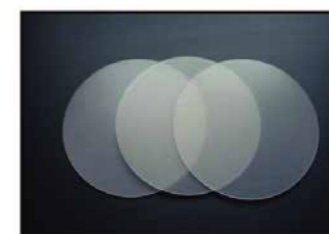
Instrument Introduction

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

Packing List



Application



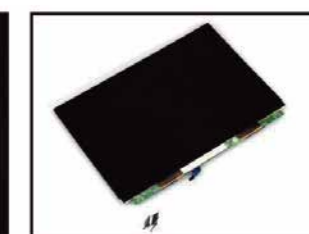
▲ Plastic plates



▲ Thin film



▲ glass



▲ The LCD panel

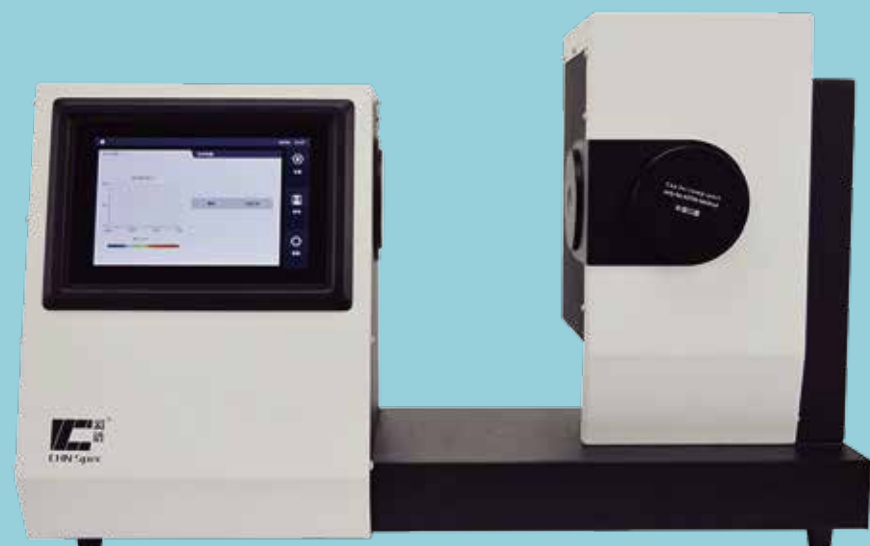
Technical Parameters

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-riism Index Milm,APHA, Pt-Co, Gardner, Color Difference(ΔE^*ab , ΔE^*CH , ΔE^*uv , $\Delta E^*cmc(2:1)$, $\Delta E^*cmc(1:1)$, 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 $\leq 0.05\%$;Haze $\geq 10\%$, Repeatability $\leq 0.1\%$; Transmittance Repeatability $\leq 0.1\%$
Sample Size	Thickness $\leq 145mm$
Display	7 inch TFT LCD screen,Android system
Data Storage	20000 pcs of samples
Interface	USB
Power	110-240V
Working Temperature	0-45 C , relative humidity 80% or below(at 35°C),no condensation
Storage Temperature	-25-55 C , 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

Product Features

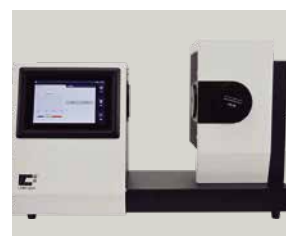
- Conform to ASTM D 1003, ISO 13468, ISO 14782 GB/T 2410 standards.



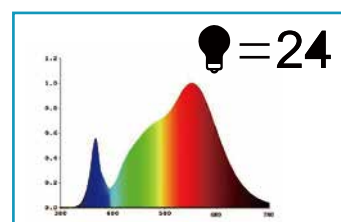
- Three kinds of light sources A, C and D65 for haze and total transmittance measurement



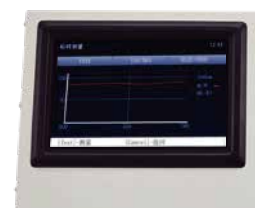
- The most cost effective product. Lower cost than similar products.



- 24 kinds of illuminants for transmittance color measurement



- 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 environment light.



- Flexible fixtures for different sample measurement



- Free Haze QC Software



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



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

- One year warranty

Technical Data

Model	Haze Meter CS-700	Haze Repeatability	Haze < 10%, Repeatability ≤0.05%; Haze ≥10%, Repeatability ≤0.1%; Transmittance Repeatability ≤0.1%
Light Source	Tungsten Halogen Lamp	Sample Size	Thickness ≤145mm
Illuminants	CIE-A, CIE-C, CIE-D65	Display	7 inch TFT LCD screen, Android system
Standards	ASTM D 1003/D 1044, ISO 13468/ISO 14782, JIS K 7105, JIS K 7361, JIS K 7136, GB/T 2410-2008, JJF 1303-2011	Data Storage	20000 pcs of samples
Parameters	HAZE, Transmittance Curve and Value(T)	Interface	USB
Spectral Response	CIE Luminosity function Y/V(λ)	Power	110-240V
Wavelength	400-700nm	Working Temperature	10~40°C, relative humidity 80% or below(at 35°C), no condensation
Wavelength Interval	10nm	Storage Temperature	10-40°C, relative humidity 80% or below(at 35°C), no condensation
Geometry	0/d	Size	598mm X 247mm X 366mm (L x W x H)
Illumination and Test Aperture Size	15mm/21mm	Instrument Weight	12kgs
Measurement Range	0-100%	Standard Accessory	PC software (Haze QC)
Haze Resolution	0.01Unit	Optional	Measurement Fixture, Haze Standard Film, Custom Made Aperture

Haze Meter

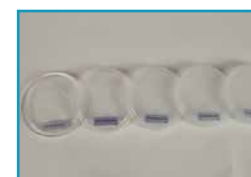


TH-09/100/TH110

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

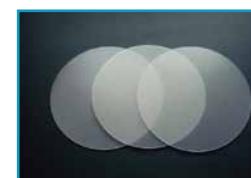


▲ Soft Film Fixture

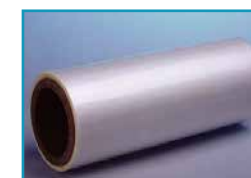


▲ Liquid/ Sheet Material Fixture

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 GB/T 2410-08	ASTM D1003/D1044, ISO13468/ISO14782, JIS K 7105, JIS K7361, 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	0.05
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 °C (+50 – 104 °F)		
Storage Temperature	-20-50°C (+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

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

Application Examples

▲ Plastic



▲ Metal



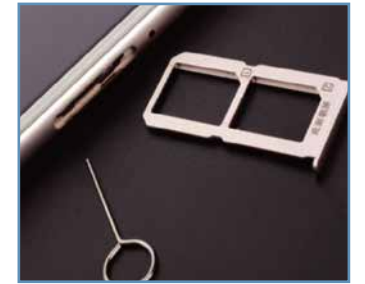
▲ Automobile Accessories



▲ 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)
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:0.2GU 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

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 designs and 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.