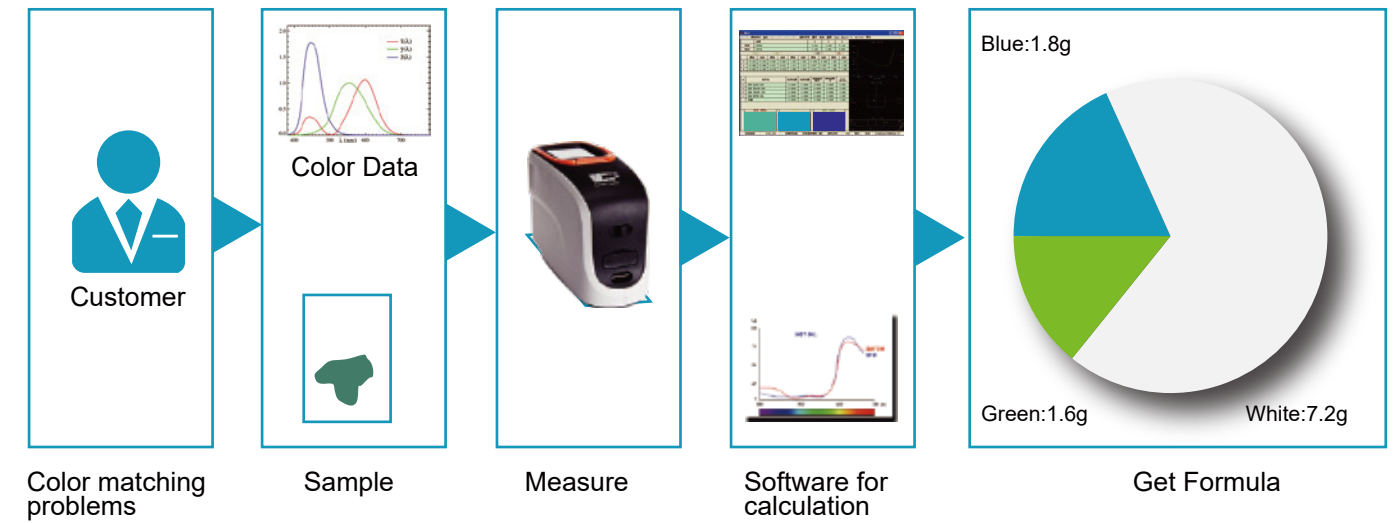


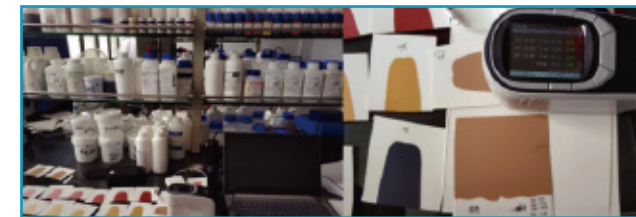
Computer Color Matching Software



Color Matching Steps



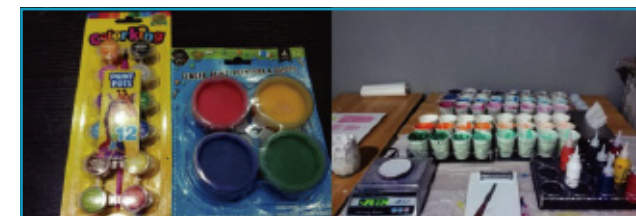
Application Examples



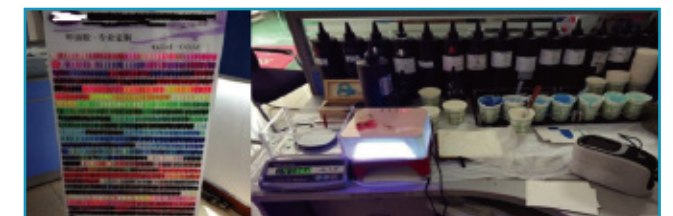
▲ Paint and Coating Color Matching



▲ Spot Color Printing Color Matching



▲ Pigment Color Matching



▲ Textile and Dyeing Color Matching

CHNSpec Color Matching Software

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

Digspec® Series Image Spectrophotometer



DS-1000/1050/1100

Product Features

- Digspec® Series image spectrophotometer is the advanced model and can be used to measure most kinds of samples from different industries.
- Digspec® can get every point of color and reflectance of image and the smallest point can achieve 0.0016 mm² (0.04mm*0.04mm).
- Repeatability dEab≤0.01 (max.), Digspec® can achieve the maximum repeatability dEab≤0.01[※] regardless of whether it is measuring the white tile or the black cavity, which is a new standard for bench-top spectrophotometers.
- Adopt LED or pulse xenon lamp as light source to guarantee the traceability data consistency with the traditional color spectrophotometer.
- Perfect calibration structure and algorithm provide completely reliable short-term and long-term measurement repeatability.
- 20+ kinds of illuminants, 30+ kinds of indexes, SCI/SCE test mode. It covers all the functions of the traditional spectrophotometer, and can provide the same parameters and measurement conditions as the traditional spectrophotometer.

Technical Data

Model	DS-1000	DS-1050	DS-1100
Instrument Type	Double beam d/8, SCI (specular component included)/ SCE(specular component excluded)		
Light Source	Full wavelength LED	High-precision simulation of sunlight full wavelength LED	High-precision simulation of sunlight xenon light source
Sphere Diameter	152mm / 6 inches		
Wavelength Range	400nm-700nm(Cover the entire visible light range)		400nm-1000nm (Covers near infrared and all visible light)
Reporting interval	10nm	2.5nm	
Photometric range	0-200%, resolution 0.01%		
30 read repeatability ^{※※} on white tile using double flash (CIELAB)	ΔE*ab≤0.03 (max.)		ΔE*ab≤0.01 (max.)
Inter-instrument ^{※※※} agreement:reflectance measurements (CIELAB)	0.4		0.25
Aperture Plates	LAV (Square 30mm illuminated, 25mm viewed), custom made aperture is available		
Standards	Conform to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724-1, ASTM E1164, DIN5033 Teil7, JISL Z8722 condition C, ASTM D1003-07		
Sensor	CMOS Array Sensor	Silicon-based metal oxide image sensor	
Grating Method	Grating spectroscopy	Ultra-high precision holographic transmissive volume grating	
Image Resolution	300dpi	500dpi(high resolution)	600dpi(ultra-high resolution)
Minimum measurement area	0.01mm ² (0.1*0.1mm)	0.004mm ² (0.06*0.06mm)	0.0016mm ² (0.04*0.04mm)
Observer Angle	2°and10°		
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,DLF,NBF,TL83,TL84		
Color Space	L*a*b,L*C*h,Hunter Lab,Yxy,XYZ		
Other Indices	WI(ASTM E313-00,ASTM E313-73,CIE,ISO2470/R457,AATCC,Hunter,Taube,Berger Stensby),YI(ASTM D1925, ASTM E313-00,ASTM E313-73),Tint(ASTM E313-00),Metamerism index milm, stain fastness, color fastness, ISO brightness, ISO brightness, R457, A density, T density, E density, M Density, Opacity, Color Strength		
Color Difference	ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc,ΔE*94,ΔE*00,ΔEab(Hunter),555 shade sort		
Measurement Time	<8s	<5s	
Operate Temperature	5-40°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 Adapter, USB Cable, White Tile		
Interface	USB 3.0		

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

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

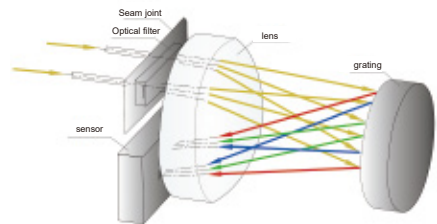
※※※ The average of the measurement results of 12 BCRA ceramic tiles

High Accuracy Bench-top Spectrophotometer



DS-36D/37D/39D

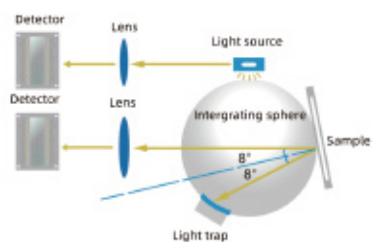
Differential spectrum engine improves overall measurement performance



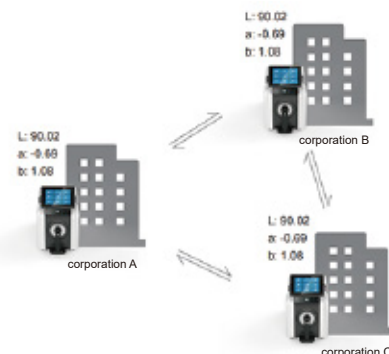
Innovative 1nm resolution grating spectroscopy technology



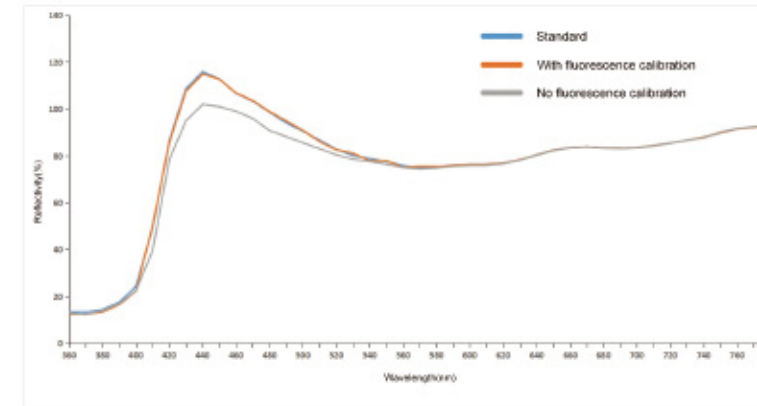
Double optical path design improves repeatability accuracy $dE^*ab \leq 0.005$



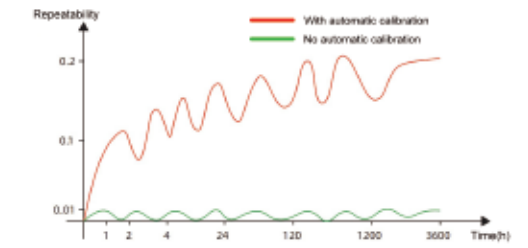
Excellent inter-instrument agreement: $dE^*ab \leq 0.08$



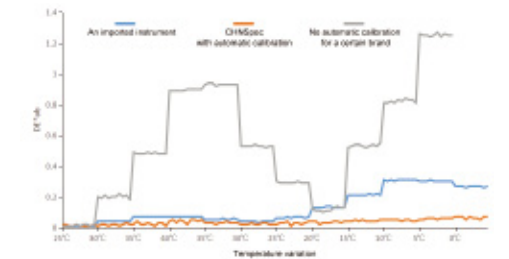
Self-developed fluorescence calibration technique



High precision automatic calibration



Long-term repeatability curve at constant temperature



Repeatability curve of temperature change from

Measure different shape samples by using different size apertures easily



Configure high-definition preview camera

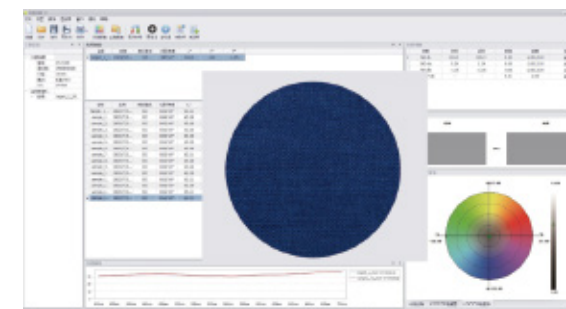


Previous generation clarity (The color is slightly dark and blurry)



DS-36D clarity (Bright and high-definition color)

Support for simultaneously saving sample data and images



Technical Data

Model	DS-36D	DS-37D	DS-39D
Lighting/measuring conditions	Reflection: d/8 (diffuse illumination, 8° direction reception) SCI (Contains specular reflected light) / SCE (not contain specular reflected light) measure at same time. Compliance standards: CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724/1, DIN5033 Teil7, JIS Z8722 Condition C, ASTM E1164, ASTM-D1003-07 Transmission: d/0 (diffuse illumination, vertical reception)		
Sensor	Differential spectrum engine		
Spectroscopic method	Concave grating		
Integrating sphere diameter	152mm		
Wavelength range	360nm-780nm		
Wavelength interval	10nm		
Reflectance measurement range	0-200%, resolution 0.01%		
Lighting source	Pulsed xenon lamps and LED		
Ultraviolet measurement	Includes UV, 400nm cutoff, 420nm cutoff, 460nm cutoff		
Measuring time	Single mode <2s		
Lighting/measuring calibers	Reflection: XLAV Φ25.4mm/Φ30mm; LAVΦ15mm/Φ18mm; MAVΦ8mm/Φ11mm; SAVΦ3mm/Φ6mm Users can customize the calibre, and the calibre switch is automatically recognized Transmission: Φ17mm/Φ25mm		
Transmission measurement specification	Sample height and thickness: height is not limited, thickness ≤50mm		
Repeatability*	ΔE*ab≤0.01, Spectral reflection/transmittance ≤0.1%	ΔE*ab≤0.005, Spectral reflection/transmittance ≤0.1%	
Inter-Instrument Agreement**	XLAV ΔE*ab 0.15	XLAV ΔE*ab 0.12	XLAV ΔE*ab 0.08
Long-term repeatability***	XLAV chroma value: standard deviation ΔE*ab 0.01 or less (under constant temperature conditions, the white correction plate is measured every hour within 24 hours)		
Standard observer	2° and 10°		
Viewing light source	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83, TL84,ID50,ID65,LED-B1,LED-B2,LED-B3,LED-B4,LED-B5,LED-BH1,LED-RGB1,LED-V1,LED-V2,LED-8		
Language	Simplified Chinese, English, Traditional Chinese, Russian, Spanish, Portuguese, Japanese, Thai, Korean, German, French, Polish		
Display content	Spectral data, Spectrogram, chromaticity data, chromaticity Data, chromaticity map, Pass/Fail judgment, Simulation color, Color evaluation, fog, liquid chromaticity, Color bias		
Color space	CIE LAB, CIE LUV, LCh, Hunter Lab, Yxy, XYZ, Musell, s-RGB, βxy		
Chroma index	WI (ASTM E313-20, ASTM E313-73, CIE, AATCC, Hunter, Taube, Berger Stensby), YI (ASTM D1925, ASTM E313-20, ASTM E313-73), Tint (ASTM E313-20), Isochromatic index Milm, color fastness, color changing fastness, ISO brightness, R457, A density, T density, E density, M density, APHA/Hazen/Pt-Co (platinum-cobalt index), Gardner (Gardner Index), Saybolt (Seibert Index), Astm color, fog, total transmittance, covering power, force, intensity		

Color difference formula	ΔE*ab, ΔE*CH, ΔE*uv, ΔE*cmc, ΔE*94, ΔE*00, ΔEab (Hunter), 555 color tone classification
Storage	8GB
Screen size	7-inch capacitive touch screen
Operating system	Android
Power source	Dc regulated power supply
Operating temperature and humidity	5 ~ 40°C, relative humidity 80% (35°C) below no condensation
Storage temperature and humidity	-20 ~ 45°C, relative humidity 80% (35°C) below no condensation
Accessories	Power adapter, USB cable, transmission fixture, software U disk, black cavity, white board, greenboard, Fluorescence correction plate, 30mm aperture, 18mm aperture, 11mm aperture, 6mm aperture, support table, cuvette,
Optional accessories	Heating transmission jig (including control circuit), vertical bracket, pneumatic jacking rod (including control circuit), small sample holding accessories, reflection cupping plate (non-removable), fiber test box, film jig, micro transmission jig, rod box, European standard plug, American standard plug
Port	RS-232, USB, USB-B, Bluetooth
Camera positioning	Ultra HD camera (1400dpi)
Automatic calibration	√ (Can greatly improve the long-term repeatability of the instrument)
Fluorescence calibration	√ (Can automatically adjust the UV intensity, and ensure that the value of the instrument is highly consistent with that of other imported instruments when measuring materials containing fluorescence)
Brightness calibration	√ (Through the brightness calibration algorithm, the real color of ultra-dark samples is restored)
Others	The instrument can be measured sideways, up and down (using accessories); Automatic temperature and humidity compensation function; PC side software save sample image function

※ After instrument calibration, the white correction plate was measured 30 times at 5-second intervals to measure the standard deviation of the result in XLAV caliber

※※ Based on 23°C, the average value of XLAV aperture measurement of 12 swatches of BCRA Series is measured

※※※ XLAV chroma value: standard deviation ΔE*ab within 0.1 (0°C-40°C arbitrary temperature change)

High Accuracy Bench-top Spectrophotometer



CS-820P



CS-821N



CS-826

CS-820P/821N/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
- 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
- It has two lamps: pulsed xenon and LED

Technical Data

Name	CS-820P	CS-821N	CS-826
Lighting/light receiving system	Reflection :d/8(diffuse lighting,8° direction reception), transmission :d/0 (diffuse lighting, vertical direction reception); SCI(including specular reflected light)/SCE(not including specular reflected light) measurement at the same time; Compliance with: CIE No.15,GB/T 3978,GB 2893,GB/T 18833,ISO7724/1,DIN5033 Teil7,JIS Z8722 Conditions C,ASTM E1164,ASTM-D1003-07		
Sensor	Silicon photodiode array	Dual-row high precision CMOS array sensor	
Light splitting method	Concave grating		
Integrating sphere diameter	152mm		
Wavelength range	360nm-780nm		
Wavelength interval	10nm		
Half wave width	5nm	1.6nm	
Reflectance measurement range	0-200%, resolution 0.01%		
Lighting source	Pulsed xenon lamps and LEDs		
UV measurement	Including UV, 400nm cutoff, 420nm cutoff, 460nm cutoff		
Measure time	Single mode <2s		
Measurement/Illumination Aperture	Reflection: XLAV Φ25.4mm/Φ30mm, LAVΦ15mm/Φ18mm, MAVΦ8mm/Φ11mm, SAVΦ3mm/Φ6mm Users can customize the caliber, automatic identification of caliber switching Transmission: Φ17mm/Φ25mm		
Transmission measurement specification	Sample height and thickness: unlimited height, thickness ≤ 50mm		
Long-term repeatability	/	XLAV chromaticity value: standard deviation ΔE*ab within 0.015 (Any temperature change at 20°C±10°C, measure the white calibration plate every hour within 24 hours)	
Repeatability*	ΔE*ab≤0.02, Spectral reflectance/transmittance≤0.1%	ΔE*ab≤0.015, Spectral reflectance/transmittance≤0.1%	ΔE*ab≤0.01, Spectral reflectance/transmittance≤0.1%
Inter-instrument** agreement	XLAV ΔE*ab 0.25	XLAV ΔE*ab 0.2	
Standard observer	2° Standard Observer and 10° Standard Observer		
Light source	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84, ID50,ID65,LED-B1,LED-B2,LED-B3,LED-B4,LED-B5,LED-BH1,LED-RGB1,LED-V1,LED-V2		
Language	Simplified Chinese, English, Traditional Chinese, Russian, Spanish, Portuguese, Japanese, Thai, Korean, German, French, Polish		
Display content	Spectral data, spectral graph, chromaticity data, color difference data, color difference graph, pass/fail judgment, simulated color, color evaluation, haze, liquid chromaticity, color bias		
Color space	CIE LAB,CIE LUV,LCh,Hunter Lab,Yxy,XYZ,Musell,s-RGB,βxy		
Chromaticity index	WI (ASTM E313-20, ASTM E313-73, CIE, ISO2470/R457, AATCC, Hunter, Taube, Berger Stensby), YI (ASTM D1925, ASTM E313-20, ASTM E313-73), Tint (ASTM E313-20), metamerism index Milm, staining fastness, color fastness, ISO brightness, R457, A density, T density, E density, M density, APHA/Hazen/Pt-Co (platinum cobalt index),Gardner (Gardner index), Saybolt (Saybolt index), Astm color, haze total transmittance, hiding power, strength, strength		
Chromatic aberration formula	ΔE*ab, ΔE*CH, ΔE*uv, ΔE*cmc, ΔE*94, ΔE*00, ΔEab(Hunter), 555 color classification		
Storage	8GB		
Screen size	7 inch capacitive touch screen		
Operation system	Android		
Power supply	DC regulated power supply		
Operating temperature and humidity range	5~40°C, relative humidity below 80% (at 35°C), no condensation		
Storage temperature and humidity range	-20~45°C, relative humidity below 80% (at 35°C), no condensation		
Accessories	Power adapter, data cable, transmission fixture, USB flash disk, Black cavity, white board, green board,0% calibration Visor cover (with 820N), 30mm aperture ,18 mm aperture ,11 mm aperture ,6 mm aperture , support table, colorimetric dish, damping handle		
Optional accessories	Heating transmission fixture (including control circuit), vertical bracket, pneumatic jacking rod (including control circuit), small sample holding accessories, reflection cubed bracket corrosion resistant plate (not removable), fiber test box, film fixture, trace transmission fixture, rod box, European standard plug, American standard plug		
Interface	RS-232、USB、USB-B		
Others	1. Camera framing and positioning; 2. The instrument can measure sideways, upwards and downwards (with accessories); 3. Automatic temperature and humidity compensation function		

※ After the instrument is calibrated, measure the white calibration plate 30 times at intervals of 5 seconds and measure the standard deviation of the results with the XLAV caliber
 ※※ At 23°C, measure the average value of XLAV diameter measured by BCRA Series 12 swatches.