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Link Color With Data

V.20230620

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Spectrophotometer with excellent repeatability accuracy

Measurement repeatability：dE*ab≤0.02

Inter-instrument Agreement：dE*ab≤0.2

Product-related technology acquisition：

Outstanding Product Award of China Instrument and Control Society

China Industry-University-Research Cooperation Innovation Achievement Award

The third prize of Zhejiang Science and Technology Progress Award

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

DS-700 series spectrophotometer is a model of independent innovation of Optical instrument made in China.

The design models based on D/8 optical structure include DS-700A, DS-700D, and DS-700E:

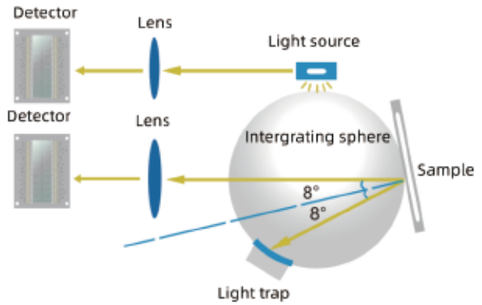
- Excellent technology and process level ensure excellent inter platform consistency, with dE * ab ≤ 0.2
- The dual optical path design of flat field concave grating improves the repeatability accuracy of the instrument to dE * ab ≤ 0.02
- The instrument has over 30 measurement parameters and nearly 40 evaluation light sources for selection
- Available in 12 apertures:Φ11mm,Φ10mm,Φ6mm,Φ5mm,Φ3mm,1*3mm（with plate）
▽11mm,▽10mm,▽6mm,▽5mm,▽3mm,▽1*3mm（without plate）
- Provide functions such as camera framing and positioning, UV measurement, mobile phone connection measurement, and color matching software.

D/8 Geometry　12 Apertures　UV Included　Camera　Mobile APP　PC software

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Key Technology



Double optical path design improves repeatability accuracy dE*ab≤0.02

The dual optical path design monitors the energy fluctuation of the light source while measuring the sample signal, reduces interference during measurement, obtains higher measurement stability, and improves the measurement repeatability index of the instrument to dE*ab≤0.02. The high standards of instrument measurement speed, accuracy, stability and inter-stage difference are guaranteed. Related technologies are protected by Chinese invention patents and US invention patents.

Innovative concave grating light path structure

Innovation is the soul of CHN Spec. After nearly 10 years of intense research, concave raster has been used to achieve better optical performance than 10 nm, which greatly improves the technical performance of the product. Relevant technologies are protected by invention patents in China and the United States. It has independent intellectual property rights worldwide.

- Relevant technologies were published in China's famous optical academic journals "Acta Optics Sinica" and "Acta Photonica Sinica"
  "Optimized design of spectrophotometer based on real-time dual optical path correction"
  "Design of Gloss Correction Model Based on D/8 Condition for Color Measuring Instrument SCE Measurement"
- Related technologies are protected by Chinese invention patents:
  Color measuring instrument and implementation method for optical trap error correction based on D/8 condition　CN201310373360.1
  A color measuring instrument using a linear variable filter to measure the color of an object　CN201310027285.3
- Related technologies are protected by US invention patents:
  SPECTROPHOTOMETRIC COLORIMETER BASED ON LED LIGHT SOURCE AND METHOD FOR REALIZING THE SAME　US9243953B1
- Relevant technologies won the third prize of Zhejiang Provincial Science and Technology Progress Award, the Excellent Product Award of China Instrument and Control Society and the Innovation Achievement Award of China Industry-University-Research Cooperation

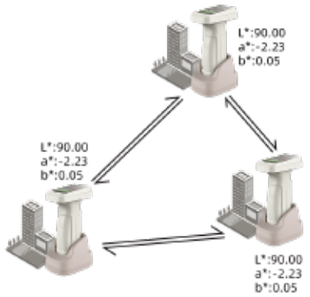
Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Product Features

Excellent inter-station consistency dE*ab≤0.2

Excellent technology and craftsmanship ensure that the DS-700 series has excellent inter-platform consistency. The BCRA series of standard color bricks are used for color transfer and color value traceability, which ensures that the same model of instruments still maintains an excellent inter-platform difference level among upstream and downstream companies.



Ultra-high repeatability accuracy: dE*ab≤0.02

Repeatability accuracy is an important index to describe the accuracy of spectrophotometer.
The excellent photoelectric test system solution ensures that the repeatability accuracy of the DS-700 series spectrophotometer has reached a level that is unmatched by similar products.
The repeatability evaluation of the DS-700 series spectrophotometer adopts strict standards, showing excellent repeatability performance.

The calibration white tile is a zirconium reference with a Mohs hardness of 9 to calibrate the instrument, which guarantees the long-term stability of the instrument

Compared with existing products, the DS-700 series spectrophotometer does not require frequent manual calibration when in use. As long as it is placed on the calibration base, the instrument will automatically calibrate the overall instrument function and accuracy according to its own state and environmental factors. Ensure that the instrument is in a stable state at all times and is on standby at any time.
The white plate in the calibration stand is the reference for the accuracy of the instrument. Through long-term investment and research, Color Spectrum integrates zirconium material known as "artificial diamond" as a calibration whiteboard, and its surface Mohs hardness reaches 9. Since the material itself has hardness and stability comparable to diamonds, it is guaranteed that the surface of the calibration whiteboard will not be scratched, and will not change color with changes in temperature and humidity. Compared with foreign and domestic similar products, ordinary industrial ceramics or even plastics are used as calibration whiteboards, which further improves stability and durability and ensures the performance of the instrument.

Calibrated white tile
(artificial diamond zirconium material)
·Mohs hardness: 9
·Spectral reflectance >90%
·No discolouration due to changes in temperature and humidity
·No discolouration by oxidation
·Ultra-high strength without scratching

More than 30 measurement parameters and nearly 40 evaluation light sources are available

DS-700 series spectrophotometer provides spectral reflectance, CIE-Lab, CIE-LCh, ΔE*ab, hiding power, whiteness, yellowness and other 30+ measurement indicators; A, B, C, D50, D55, Nearly 40 evaluation light sources such as D65 are available for selection, covering almost all color measurement indicators and light source types in the industry.

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Product Features

Supports 12 apertures

In order to facilitate users to measure samples of different sizes, the DS-700 series spectrophotometer supports 12 apertures for customers to use：
Φ11mm，Φ10mm，Φ6mm，Φ5mm，Φ3mm，1*3mm（with plate）
▽11mm，▽10mm，▽6mm，▽5mm，▽3mm，▽1*3mm（without plate）
It can be used flexibly in a variety of different sample test areas.

Built-in high-definition camera, clearly observe the measured area

The DS-700 series spectrophotometer can obtain the image of the measured area through the camera during measurement, and can clearly locate the measured area of the sample to avoid inaccurate measurement caused by area errors.

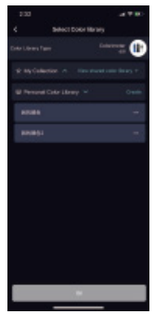
Support WeChat applet, Android, Apple, Hongmeng mobile APP

DS-700 series spectrophotometer can be connected to various mobile phones through rich mobile terminal programs.
Users no longer need to transmit the color value and real object of the sample, and can easily transmit color data through WeChat.
Users can find the closest color in multiple sets of color cards.
Users can create a personal color database, enter printing, paint, textile and other color card information, and the created color library can be uploaded to the cloud, data sharing among multiple devices, and color processing is more convenient.
Enterprise users can create and manage their own color card information library and color formula on the cloud, and share the information library and color formula with their own users through a unique invitation code.


Check color card number


Set standard with color


Share color data


Creat individual color library

WechatApp

APP Mobile APP

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Product Features

Use the powerful PC-based colour management system ColorExpert*

The DS-700 series spectrophotometer comes with the Windows color management system ColorExpert, which can be connected to the DS-700 series spectrophotometer through Bluetooth or USB cable.
ColorExpert is a full-featured color management software with four functional modules: My Color, Color Detection, Color Matching System, and Personal Center.

My Color

Users can collect or create their own colour library from hundreds of other users' own shared colour libraries. The PC software and mobile app can share accounts and the colour library data follows the account to synchronise information between PC and mobile.

Color QC

The user can calibrate, measure and set up the spectrophotometer via the PC software. The user can use colours from the cloud database as specimens to measure colour differences, view spectrograms, colour difference graphs, specimen trial data and export the desired data test reports.

Color matching

Provide users with a more convenient and efficient color matching process. After the instrument measures the color of the sample, the system calculates the formula in the formula center and automatically fixes the color to achieve accurate matching. The system is suitable for computer automatic color matching applications in paint, coating, printing, textile and other industries.

Personal centre

Users can edit personal information, search for or delete connected instruments, manage downstream users, and manage color libraries shared with downstream users.

*Some functions need to be purchased

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Appearance structure and accessories

Content	Quantity	Content	Quantity
Spectrophotometer	1	Charger	1
Aperture	4/8/12	USB cable	1
Calibration base	1	Calibration Certificate	1
Portable package	1	Software U Disk	1
Instructions	1		

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Brief list of model functions

DS-700A

DS-700D

DS-700E

Model	DS-700A	DS-700D	DS-700E
Sensor	Array sensor	Dual column high precision CMOS array sensor	
repeatability	≤ 0.025	≤ 0.02	≤ 0.02
Inter-instrument Agreement	≤ 0.25	≤ 0.25	≤ 0.2
Aperture	4	8	12
UV light source	X	✓	✓
Camera	X	✓	✓
APP	✓	✓	✓
PC software	✓	✓	✓

Spectrophotometer DigiSpec®

D/8 Geometry：DS-700A/D/E

Technical Parameter

Product model	DS-700A	DS-700D	DS-700E
Measuring Geometry*	D/8，SCI/SCE		
Measurement repeatability**	ΔE*ab≤ 0.025	ΔE*ab≤ 0.02	ΔE*ab≤ 0.02
Inter-instrument Agreement***	ΔE*ab≤0.25	ΔE*ab≤0.25	ΔE*ab≤0.2
Display accuracy	0.01		
Measuring aperture	Φ11mm,Φ6mm（with plate） ▽11mm,▽6mm（without plate）	Φ11mm,Φ6mm,Φ3mm, 1*3mm（with plate） ▽11mm,▽6mm,▽3mm, ▽1*3mm（without plate）	Φ11mm,Φ10mm,Φ6mm,Φ5mm, Φ3mm,1*3mm（with plate） ▽11mm,▽10mm,▽6mm,▽5mm, ▽3mm,▽1*3mm（without plate）
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, 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), 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,ID50,ID65,LED-B1,LED-B2,LED-B3,LED-B4,LED-B5,LED-BH1,LED-RGB1,LED-V1,LED-V2		
Light source	LED	LED+UV	
Measurement observation method	Visually	Camera	
Calibration	Auto calibration		
Software	Andriod,iOS,Windows, Wechat app		
Guaranteed accuracy	Guaranteed first class measurement		
Observer	2°，10°		
Integrating sphere diameter	40mm		
Standards	CIE No.15,GB/T 3978,GB 2893,GB/T 18833,ISO7724-1,ASTM E1164,DIN5033 Teil7		
Spectrometry	Grating		
Sensor	Array sensor	Dual column high precision CMOS array sensor	
Wavelength interval	10nm		
Wavelength range	400-700nm		
Reflectance determination range	0-200%		
Reflectance resolution	0.01%		
Measurement time	About 2 seconds	About 1 seconds	
Interface	USB, Bluetooth		
Screen	IPS full color screen, 3.5 inches		
Battery capacity	8000 consecutive measurements, 7.2V/3000mAh with a single charge		
Life of Light Source	10 years and 1 million cycles		
Language	Simplified Chinese, English		
Storage Memory	Instrument: 100 standard samples and 10,000 samples; APP: Mass Storage		

* Diffuse illumination / 8° directional reception with specular component included / specular component excluded
**White plate calibration with 30 standard deviations measured at 5 second intervals after white plate calibration
***BCRA Series II average of 12 colour plate measurements
The parameters described are subject to change without notice