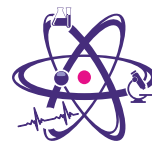


**Multiplelabs**  
Turnkey Laboratories Solutions

# CS-9820 Plus

## Color Spectrophotometer





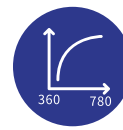
CS-9820 Plus Spectrophotometer is a bench-top measurement instrument designed to evaluate the color and appearance of many measuring applications for objects' reflectance and also the transmittance of translucent or transparent liquids and solids. Equipping with 7 inches TFT capacitive touch screen display, full illuminants, reflective d/8 and transmissed/0 geometry (including or excluding UV) makes CS-9820 Plus ideal for color analysis within R&D laboratory environments.



7 inches TFT Capacitive Touch-screen



Store approximately 20000 test data



Wavelength range 360nm-780nm

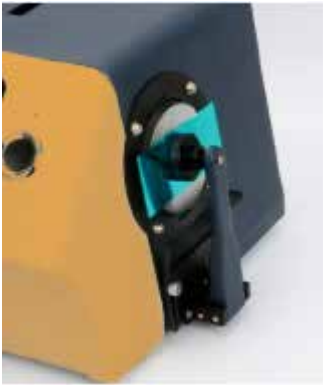


Built-in camera locating

## ►► Features

- Double Array 256 image Element CMOS Sensor; Long life-span stable LED, UV LED and xenon lamp.
- With reflective and transmissive spectrum, accurate Lab value, good to calculate color formula and do precise color transmission.
- Auto identify measuring aperture. Freely switchable between 4 measuring apertures:  $\phi 25.4\text{mm}/15\text{mm}/8\text{mm}/4\text{mm}$ . Users also can customize apertures.
- Built-in temperature sensor to monitor and compensate the measuring temperature to ensure the measurement more precision.
- Wavelength range 360nm – 780nm. Built-in 400nm cut off/460nm cut off (only xenon lamp edition), more professional in UV measurement.
- Independent light source detector, continuously monitor the condition of light sources to ensure the light source reliable.
- Multiple accessories, sample holders, fixation clamp, suitable to more working condition.
- More powerful extended functions at the PC software





### Plastic Sample

Reflectance Measurement:  
Adopt D/8° Geometry,  
conform to ISO7724/1,CIE,  
ASTM, DIN and JIS standard.



### Transmissive Sample

Transmittance Measurement: Adopt  
D/O° Geometry, conform to ISO, CIE,  
ASTM and DIN standard.



### Liquid, Powder, Solid Sample Measurement

360-780nm wide wavelength  
range measurement,  
professional UV sample  
measurement.



### Measuring Apertures

Auto-identify the apertures,  
25.4/8/14mm three apertures  
freely switch.Special aperture  
can be customised.

## ▶▶ Application Industry

CS-9820 Plus benchtop spectrophotometer is used to do precise color analysis and transmission in laboratories. It can be widely applied in different industries, such as plastics, electronics, paint and ink, printing, garments, leather, paper, auto, medical, cosmetics, food, science institutes, laboratories.



Automobile



Leather



Plastics



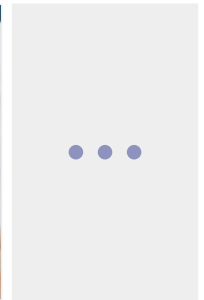
Paint



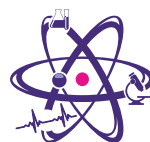
Food stuff



Laboratory



Others

**►► Specification**

Optical Geometry	Reflectance: d/8 (SCI&SCE; Include UV/Exclude UV) Transmittance: d/0 (SCI&SCE; Include UV/Exclude UV) Conforms to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724/1, ASTM E1164, DIN5033 Teil7
Integrating Sphere Size	Φ 154mm
Light Source Device	360nm-780nm Combined LED Lamp, 400nm cut-off, UV Lamp
Application	It is used for accurate analysis and transmission of laboratory color. Apply in paints, inks, textiles, garments, printing and dyeing etc industries for color transfer and quality control
Spectral Separation Device	360nm-780nm Combined LED Lamp, 400nm cut-off, UV Lamp
Detector	256 Image Element Double Array CMOS Image Sensor
Wavelength Range	360-780nm
Reflectance Range	0~200%
Wavelength Pitch	10nm
Measuring Aperture	Reflective: Φ30mm/Φ25.4mm, Φ10mm/Φ8mm, Φ6mm/Φ4mm; Transmissive: Φ30mm/Φ25mm;
Specular Component	Reflectance:SCI&SCE;Transmittance: SCI&SCE
Color Space	CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter LAB, Munsell, s-RGB, HunterLab, DIN, βxy
Other Colorimetric Index	WI (ASTM E313, CIE/ISO,AATCC, Hunter),YI (ASTM D1925, ASTM 313),TI (ASTM E313, CIE/ISO),MI (Metamerism Index), Staining Fastness, Color Fastness, Color Strength,Opacity, 8° Glossiness, Gardner Index, Pt-Co Index, 555 Index Haze and Transmittance
Color Difference Formula	$\Delta E^*ab$ , $\Delta E^*uv$ , $\Delta E^*94$ , $\Delta E^*cmc(2:1)$ , $\Delta E^*cmc(1:1)$ , $\Delta E^*00v$ , $\Delta E$ (Hunter), DIN $\Delta E99$
Illuminants	D65, A, C, UV, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12
Displayed Data	Spectrogram/Values, Chromaticity Values, Color Difference Values/Graph, Pass/Fail Result, Color Offset
Measurement time	About 3s (Measure both SCI & SCE about 6s)
Repeatability	Spectral reflectance: Φ25.4mm/SCI, Standard deviation within 0.05% (400 nm to 700 nm: within 0.04%)

Chromaticity value	Φ25.4mm/SCI, Standard deviation within AEab 0.02 (When a white calibration plate is measured 30 times at 5 second intervals after white calibration) Spectral Transmittance: 025.4mm SCI, Standard deviation within 0.05% (400 nm to 700 nm: within 0.04%)
Size	370×300×200mm(L*W*H)
Weight	9.6kg
Power	AC 24V, 2A Power adapter power supply
Illuminant Life Span	5 years, more than 3 million times measurements
Display	7-inch TFT color LCD, Capacitive Touch Screen
Data Port	USB
Data Storage Capacity	Standard: 2000 Pcs; Sample: 20000 Pcs. (One PCS can include both SCI and SCE)
Language	English & Chinese
Working Environment	Temperature: 0~40°C; Humidity: 0~85% (No Condensation)
Storage Environment	Temperature: -20~50°C; Humidity: 0~85% (No Condensation)
Standard Accessory	White Calibration Board, Black Clavity, Sample Holder, Φ4mm, Φ8mm, Φ25.4mm Aperture, Power Adapter, USB Cable, User Guide, PC Software
Other Colorimetric Index	WI (ASTM E313, CIE/ISO,AATCC, Hunter),YI (ASTM D1925, ASTM 313),TI (ASTM E313, CIE/ISO),MI (Metamerism Index), Staining Fastness, Color Fastness, Color Strength,Opacity, 8° Glossiness, Gardner Index, Pt-Co Index, 555 Index Haze and Transmittance
Optional Accessory	Micro-printer, Transmissive Test Clamp Component