

## Economical Spectral Colorimeter



## CS-410/411/412

## Product Features

- The smaller the caliber, the more can be measured  
1\*3mm 4mm 8mm caliber switch
- Automatic calibration
- 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 opacity, 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

## 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 $\Delta E^*ab \leq 0.04$ Average: $dE^*ab \leq 0.05$ Max: $dE^*ab \leq 0.08$ (when a white tile is measured 30 times at 5 seconds interval)		
Inter-instrument Agreement	$\Delta E^*ab \leq 0.4$		
Display Resolution	0.01		
Test Aperture/ Illuminated Area	MAV:Φ8mm/11mm	SAV:Φ4mm/6mm	MAV:Φ8mm/11mm+SAV:Φ4mm/6mm
Color Space and Indices	Reflectance, CIE-Lab, CIE-LCh, Hunter Lab, CIE-Luv, XYZ, Yxy, RGB, Color Difference ( $\Delta E^*ab$ , $\Delta E^*cmc$ , $\Delta E^*94$ , $\Delta E^*00$ ), 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 psc of target		

\*Illumination Area is the instrument aperture size