

## Economical Spectral Colorimeter CS-410 Series



Spectral colorimeter CS-410 series are economical models to measure the color difference. Instrument is with auto calibration to make it simple in operation. It contains 30 kinds of parameters and 26 kinds of illuminants. CS-412 is with switchable apertures to measure samples with different sizes.

### Part 1. Instrument Advantages

#### 1. Different apertures

Two Apertures / Small Aperture / Big Aperture

#### 2. Auto calibration

#### 3. SCI/SCE

It supports both SCI and SCE test which is more consistent with result of visual method.

#### 4. Many different kinds of test parameters

Opacity, whiteness index, yellowness index and other 30 kinds of test parameters

#### 5. Provide 26 Kinds of Illuminants for Choice

#### 6. Good repeatability for stable measurement (Delta E\*ab 0.08)

#### 7. Guarantee to pass the national metrology

**Part 2. Technical Parameter**

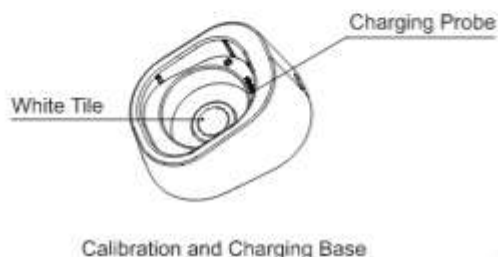
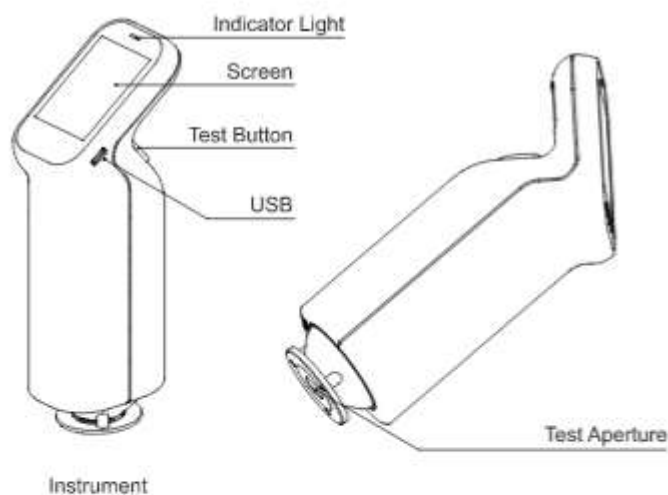
Model	CS-410	CS-411	CS-412
Color	Green		
Geometry	D/8 (diffused illumination, 8 degree viewing) SCI (specular component included), SCE (specular component excluded)		
Repeatability	Chromaticity Value: Standard deviation $\Delta E^*ab \leq 0.04$ Average : $dE^*ab \leq 0.05$ Max.: $dE^*ab \leq 0.08$ (when a white tile is measured 30 times at 5 seconds interval)		
Inter-instrument	$\Delta E^*ab \leq 0.4$		
Display Accuracy	0.01		
Test Aperture	$\Phi 8mm$	$\Phi 4mm$	$\Phi 4mm+8mm$
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°		

<b>Sphere Size</b>	40mm
<b>Standard</b>	CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724-1, ASTM E1164, DIN5033 Teil7
<b>Spectroscopic Method</b>	Integrated optics
<b>Sensor</b>	CMOS Sensor
<b>Wavelength</b>	10nm
<b>Wavelength</b>	400-700nm
<b>Reflectance</b>	0-200%
<b>Reflectance</b>	0.01%
<b>Reflectance</b>	0.01%
<b>Measurement</b>	About 1 second
<b>Screen</b>	IPS full color screen ,2.4 inches
<b>Battery</b>	Rechargeable, 8,000 times continuous tests, 3.7V/3000mAh
<b>Light Source</b>	10 years, 1 million tests
<b>Language</b>	Chinese and English
<b>Storage</b>	APP Mass Storage

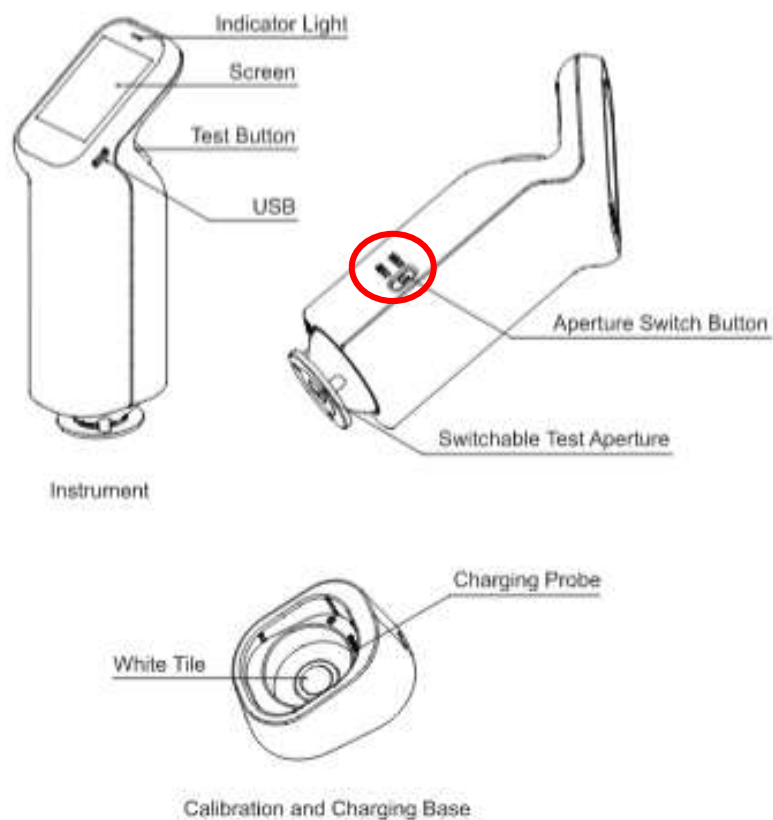
(Note: CS-410/411/412 main difference is the aperture size and quantity)

### Part 3. Instrument Outlook

CS-410/CS-411 Outlook



## CS-412 Outlook



### Part 4. Technical Support

1. One year warranty for whole instrument