

2) The white board is precision optical components, please properly keep it and avoid the sharp objects touching the face, staining the working surface with dirt, exposing to light. Regularly wiping softly with alcohol to clean the white board surface, before calibrating, clean the dust of white board surface.

3) In order to ensure the effectiveness of the test data, advise to send the instrument and white board to the manufacturer or a qualified measurement institute for calibration after using one year.

4) The instrument has built-in lithium battery. If you do not use the instrument for a long time, please charge it every 2 weeks to protect the performance of lithium batteries for extending the life of lithium batteries.

5) Please do not disassemble the instrument. If there is any question, please contact the relevant after-sales staff. Do not tear the labels, or it will affect its after-sales maintenance service.

5. Technical Parameters

5.1 Products Features

A. Perfect combination of beautiful appearance and the human body mechanics structural design;

B. D/8 geometrical optics, conforms with CIE No.15, GB/T 3978, GB2893, GB/T 18833, ISO7724/1, ASTM E1164, DIN5033 Teil7

C. Use long-life and low power consumption combined LED light source,

including UV/excluding UV (only for model PCE-CSM 22);

D. Switchable 8/4mm aperture, adapt to more samples; support both SCI and SCE at the same time;

E. Measure sample spectra, accurate Lab data, can be used in color matching and accurate color transmission;

F. High electronic hardware configuration: 3.5-inch TFT color LCD, Capacitive Touch Screen, concave grating, 256 Image Element Double Arrays CMOS Image Sensor;

G.USB/Bluetooth 4.0 (compatible with 2.1), dual mode, widely useful;

H. Super stain-resistant and stable standard white calibration plate;

I. Large capacity storage space, over 20,000 measurement data;

J. Two standard observer angles, a variety of illuminants, a variety of color indexes, conforms with a variety of standard chromatic data, meet a variety of users' demand for color measurement;

K. Camera Locating Function, better position;

L. PC software has a powerful function extension.

5.2 Technical Specifications

Model	CSM 22	CSM 21	CSM 20
Items			
Optical Geometry	Reflect: di:8°, de:8°(diffused illumination, 8-degree viewing angle)		

GRATING SPECTROPHOTOMETER OPERATING MANUAL

Integrating Sphere Size	48mm		
Light Source	Combined LED Light, UV Light	Combined LED Light	
Spectrophotometric Mode	Concave Grating		
Sensor	256 Image Element Double Array CMOS Image Sensor		
Wavelength Range	400-700nm		
Wavelength Interval	10nm		
Semiband Width	10nm		
Measured Reflectance Range	0-200%		
Measuring Aperture	Dual Aperture: 4mm/8mm	Customized Aperture: 4mm	Single Aperture: 8mm

GRATING SPECTROPHOTOMETER OPERATING MANUAL

	5mm/4mm	3mm	8mm/10mm
Specular Component	SCI&SCE		
Color Space	CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter LAB		
Color Difference Formula	ΔE^*ab , ΔE^*uv , ΔE^*94 , $\Delta E^*cmc(2:1)$, $\Delta E^*cmc(1:1)$, ΔE^*00v , $\Delta E(\text{Hunter})$		
Other Colorimetric Index	WI(ASTM E313, CIE/ISO, AATCC, Hunter), YI(ASTM D1925, ASTM 313), TI(ASTM E313, CIE/ISO), Metamerism Index MI, Staining Fastness, Color Fastness, Color Strength, Opacity, 8° Glossiness		
Observer Angle	2°/10°		
Illuminant	D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12	D65, A, C, D50, D55, D75, F2, F7, F11	D65, A, C, D50
Displayed Data	Spectrogram/Values, Samples Chromaticity Values, Color Difference Values/Graph, PASS/FAIL Result,		

GRATING SPECTROPHOTOMETER OPERATING MANUAL

	Color Offset		
Measuring Time	2.6s		
Repeatability	MAV/SCI: $\Delta E^* \leq 0.03$	MAV/SCI: $\Delta E^* \leq 0.05$	MAV/SCI: $\Delta E^* \leq 0.06$
Inter-instrument Error	MAV/SCI: $\Delta E^* \leq 0.15$	MAV/SCI: $\Delta E^* \leq 0.2$	MAV/SCI: $\Delta E^* \leq 0.4$
Measurement Mode	Single Measurement, Average Measurement		
Locating Method	Camera View Finder Locating		
Battery	Li-ion battery. 5000 measurements within 8 hours		
Dimension	L*W*H=184*77*105mm		
Weight	600g		
Illuminant Life Span	5 years, more than 3 million times measurements		
Display	3.5-inch TFT color LCD, Capacitive Touch Screen		
Data Port	USB, Bluetooth 4.0		USB
Data Storage	Standard 2,000 Pcs, Sample 20,000 Pcs		

GRATING SPECTROPHOTOMETER OPERATING MANUAL

Language	English, Chinese
Operating Environment	0~40°C, 0~85%RH (no condensing), Altitude < 2000m
Storage Environment	-20~50°C, 0~85%RH (no condensing)
Standard Accessory	Power Adapter, Built-In Li-ion Battery, User Guide, PC Software, White and Black Calibration Cavity, Dust Cover
Optional Accessory	Powder Test Box
<i>*Note: The specifications are subject to change without notice.</i>	



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