

Chroma Meter CS-100A

A compact, lightweight, battery-powered instrument with a 1° measurement angle for high-accuracy non-contact measurements of luminance and chromaticity



Easy-To-Read Display

Viewfinder Image



External display



Main Features

Compact and lightweight

Measurements of subjects at a distance

SLR (single-lens-reflex) viewing system and flare-free optical system provide accurate measurements of subjects at a distance with virtually no influence from light outside the measurement area.

Measurements of small subjects

1° measurement angle allows measurements of subjects as small as $\phi 14.4$ mm (at a subject distance of 1014 mm); by using optional Close-Up Lenses, subjects as small as $\phi 1.3$ mm can be measured.

Luminance units of cd/m^2 or fL can be selected

Main Applications

Light-Source Measurements

- Luminance and chromaticity of small light sources such as LEDs, miniature neon lamps, etc.
- Luminance and chromaticity of general light sources such as tungsten lamps, fluorescent lamps, etc.
- Luminance and chromaticity of traffic signals, airport guidance lights, emergency exit signs, etc.

Reflective-Subject Measurements

- Color measurements of subjects which cannot be measured by contact methods, such as distant building walls, just-painted surfaces.

Display Measurements

- Luminance and chromaticity of projectors.



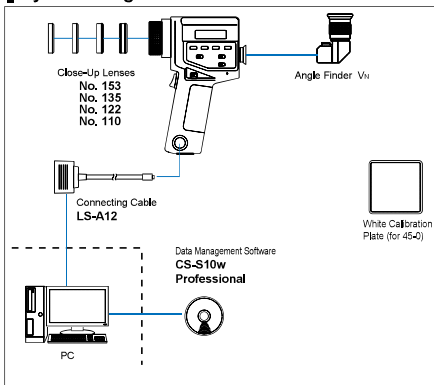
Measuring angle	1°
Optical system	85 mm f/2.8 lens; SLR viewing system; flare factor less than 1.5%
Angle of view	9° with 1° measurement area indication
Focusing distance	1014 mm (40 in.) to infinity
Receptors	3 silicon photocells filtered to detect primary stimulus values for red, green and blue light
Spectral response	Closely matches CIE 1931 Standard Observer curves (\bar{x} , \bar{y} , and \bar{z})
Response time	Switchable; FAST: Sampling time: 0.1s, Time to display: 0.8 to 1.0s SLOW: Sampling time: 0.4s, Time to display: 1.4 to 1.6s
Luminance units	cd/m ² or fL (switchable)
Measuring range ¹	FAST: 0.01 to 299,000 cd/m ² (0.01 to 87,530 fL) SLOW: 0.01 to 49,900 cd/m ² (0.01 to 14,500 fL)
Accuracy ²	Luminance (Y): $\pm 2\%$ of reading ± 1 digit Chromaticity (x, y): FAST: 48.1 cd/m ² or above: ± 0.004 ; below 48.1 cd/m ² : below measurement range SLOW: 12.0 cd/m ² or above: ± 0.004 ; below 12.0 cd/m ² : below measurement range
Repeatability ¹	Luminance (Y): $\pm 0.2\%$ of reading ± 1 digit Chromaticity (x, y): FAST: 100 cd/m ² or above: ± 0.001 ; 48.1 to 99.9 cd/m ² : ± 0.002 ; below 48.1 cd/m ² : below measurement range SLOW: 25.0 cd/m ² or above: ± 0.001 ; 12.0 to 24.9 cd/m ² : ± 0.002 ; below 12.0 cd/m ² : below measurement range
Target value	1; set by measurement or numerical input
Measurement modes	Absolute color: Yxy; color difference: ΔJ (Yxy)
Display	External LCD: 3 values (Y, x, and y) of 3 digits each with additional indications Viewfinder: 3-digit LCD (showing luminance value Y) with LED backlight
Data communication	RS-232C; baud rate: 4800 bps
External control	Measurement process can be started by external device connected to data output terminal
Power source	One 9 V battery; power can also be supplied via data output terminal
Operating temperature/humidity range	0 to 40°C, relative humidity 85% or less (at 35°C) with no condensation
Storage temperature /humidity range	-20 to 55°C, relative humidity 85% or less (at 35°C) with no condensation
Dimensions	79x208x154 mm (3-1/8x8-3/16x6-1/16 in.)
Weight	890 g (2 lb.) without battery
Standard accessories	Lens cap; Eyepiece cap; Protective filter; ND eyepiece filter; 9V battery; Chromaticity chart; Case

¹ Standard Illuminant A

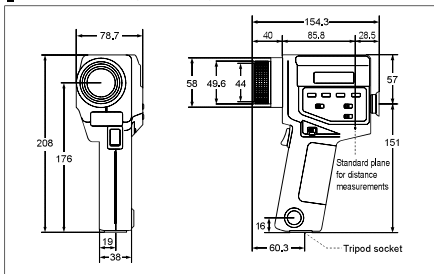
² Standard Illuminant A measured at ambient temperature of 20 to 30°C

Optional Accessories

System diagram (Optional Accessories)



Dimensions (Units: mm)



Close-Up Lenses



Close-Up Lenses	Minimum measuring area
No.153	ø8.0 mm
No.135	ø5.2 mm
No.122	ø3.2 mm
No.110	ø1.3 mm

(Theoretical values)

Angle Finder Vn



Angle Finder Vn allows the measuring area and measurement display inside the viewfinder to be seen at an angle of 90° to the normal viewfinder optical axis. Angle Finder Vn can also be focused and the magnification can be set to 1x or 2x.

Data Management Software

CS-S10w Professional (Optional accessory)

Color space : L_y x y, L_y u' v', L_yT, Juv, XYZ, dominant wavelength

Mode selection : Normal mode, Object color mode, Contrast mode
RGB mode, RGB & contrast mode

Instrument control: Average measurement, Interval measurement

Data management: Reading and saving files, Data management with folders
Creating, saving and loading templates
(customizable design/layouts for various graphs)
Various graph displays

Data evaluation: Statistics display for each folder
Box tolerance setting, Multiple-point measurement, uniformity display, contrast display and polygon tolerance setting for display evaluation

Other : Creating reports in customizable screen layouts

System requirements

OS : Windows® XP Professional 32-bit SP3, 64-bit SP2

Windows® 7 Professional 32-bit, 64-bit

Windows® 8 Pro 32bit, 64bit

CPU : Pentium® III 600 MHz equivalent or higher

Memory : 128 MB min. (256 MB or more recommended)

Hard disk : 60 MB or more space required for installation

Display : 1024 X 768, 256 colors or more

Other : CD-ROM drive, USB port