CHROMA METER CS-100A

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

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 ø14.4mm (at a subject distance of 1014mm); by using optional Close-Up Lenses, subjects as small as ø1.3mm can be measured.

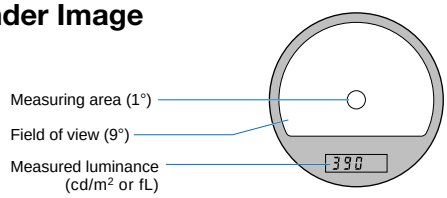
Color difference can also be measured

Calibration to a user-selected reference is also possible

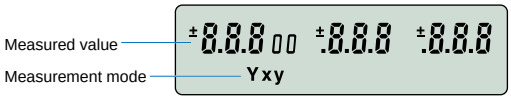
Luminance units of cd/m² or fL can be selected

EASY-TO-READ DISPLAY

Viewfinder Image



External display



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, subjects with complicated shapes, or subjects which should not be touched for sanitary reasons.

Display Measurements

- Luminance and chromaticity of color TVs and CRTs
- Luminance measurements of monochrome TVs and SRTs
- Luminance and chromaticity of projection TVs and video projectors.

SPECIFICATIONS

Model	Chroma Meter **CS-100A**
Type	SLR spot colorimeter for measuring light-source and surface luminance and chromaticity
Acceptance angle	1°
Optical system	85mm f/2.8 lens; SLR viewing system; flare factor less than 1.5%
Angle of view	9° with 1° measurement area indication
Focusing distance	1014mm (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 ($\bar{x}\lambda$,$\bar{y}\lambda$, and $\bar{z}\lambda$)
Response time	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	FAST: 0.01 to 299,000cd/m^2 (0.01 to 87,530fL); SLOW: 0.01 to 49,900cd/m^2 (0.01 to 14,500fL)
Accuracy	Luminance (Y): ±2% of reading ±1 digit Chromaticity (x,y): ±0.004 (Illuminant A measured at ambient temperature of 18 to 28°C/64 to 82°F)
Repeatability	Luminance (Y): ±0.2% of reading ±1 digit Chromaticity (x,y) : FAST: Y 100cd/m^2 or above: ±0.001; 48.1 to 99.9cd/m^2: ±0.002; below 48.1cd/m^2 : below measurement range SLOW: Y 25.0cd/m^2 or above: ±0.001; 12.0 to 24.9cd/m^2: ±0.002; below 12.0cd/m^2: below measurement range (Measurement subject: Illuminant A)
Target value	1; set by measurement or numerical input
Measurement modes	Absolute color: Yxy; color difference: Δ(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: 4800bps
External control	Measurement process can be started by external device connected to data output terminal
Power source	One 9V battery; power can also be supplied via data output terminal
Operating environment conditions	Temperature: 0 to 40°C (32 to 104°F); relative humidity 85% or less (at 35°C/95°F) with no condensation Installation category: II, Pollution degree: 2
Storage temperature range	-20 to 55°C (-4 to 131°F); relative humidity 85% or less (at 35°C/95°F) with no condensation
Dimensions	79x208x154mm (3-1/8x8-3/16x6-1/16 in.)
Weight	890g (2 lb.) without battery
Standard accessories	Lens cap; Eyepiece cap; Protective filter, ND eyepiece filter; 9V battery; Chromaticity chart; Case

Specifications are subject to change without notice.

OPTIONAL ACCESSORIES

Data Processor DP-101

Compact, portable, multi-function data processor to increase the versatility of Minolta Chroma Meter CS-100A

Additional Color Notations

When DP-101 is used with the CS-100A, measured values can be calculated in terms of Yxy, L*a*b*, Yu'v', color temperature, and distance from blackbody locus Δuv for absolute color values and in terms of Δ(Yxy), Δ(L*a*b*), ΔE*ab, Δ(Yu'v'), and Δu'v' for color difference.

Data Storage and Printout

DP-101 has memory space for up to 300 sets of measurement data and a built-in thermal printer for printing out data either at the time of measurement or from memory at a later time.

Interval Timer for Automatic Measurements

SPECIFICATIONS

Type	Battery-powered multi-function data processor for use with Minolta Chroma Meter CS-100A
Measurement modes	Absolute and difference
Chromatic systems	Absolute color: Yxy, Yu'v', L*a*b*, color temperature, distance from blackbody locus Δuv Color difference: Δ(Yxy), Δ(Yu'v'), Δu'v', Δ(L*a*b*), ΔE*ab
Calibration channels	4
Target color channels	17 (4 for each calibration channel and 1quick-input temporary target-color channel); set by measurement or numerical input
Data memory	Space for 300 sets of measurement data divisible into 16 pages; built-in NiCd battery for backup maintains data in memory even if POWER switch is set to OFF
Display	16-character x 2-line dot-matrix LCD with adjustable viewing angle
Printer	24-character thermal-dot
Statistical calculations	Maximum, minimum, mean, and standard deviation
Interval timer	Timer interval user-selectable from 3s to 99m
Data communication	RS-232C format; transmission rate: 9600 baud (can be set by service personnel to 600, 1200, 2400, or 4800; output voltage: CMOS ±5V; RS-232C terminal uses DIN 8-pin connector)
Other	Multiple-measurement-averaging mode; remote-control socket; can supply to CS-100A
Power source	6 AA-size batteries or included AC Adapter
Dimensions	220x50x200mm (8-11/16x2x7-7/8 in.)
Weight	1300g (2.87 lb.) not including batteries
Standard accessories	Data Cable DP-A12; AC Adapter AC-A11; thermal paper (one roll); DIN 8-pin plug (1); 3.5mm (1/8-inch) subminiature plug; Shoulder Case DP-A30

Specifications are subject to change without notice.

Close-Up Lenses

Close-Up Lenses	Minimum measuring area
No.153	¿8.0mm
No.135	¿5.2mm
No.122	¿3.2mm
No.110	¿1.3mm

Long Eye-Relief Eyepiece

When the Long Eye-Relief Eyepiece is used, the measuring area and measurement display inside the viewfinder can be seen with the eye 5cm (2 in.) away from the eyepiece.

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.

SYSTEM DIAGRAM (Optional Accessories)