

Specifications

Model	CS-150	CS-160
Measuring angle	1°	1/3°
Optical system	SLR viewing system, f = 85 mm F2.8	
Angle of view	9° (visibility adjustment possible)	
Relative spectral responsivity	Close to CIE 1931 color matching function ($\bar{x}(\lambda)$, $\bar{y}(\lambda)$, $\bar{z}(\lambda)$)	
Minimum measuring area (diameter)	14.4 mm 1.3 mm (when the close-up lens is used)	4.5 mm 0.4 mm (when the close-up lens is used)
Minimum measuring distance (From the measuring distance reference)	1,012 mm 213 mm (when the close-up lens is used)	
Color space	(Absolute value) L_v, x, y (Y, x, y), L_v, u', v' , $L_v, T_{cp}, duv, XYZ, L_v, A_d, P_e$	
Measurement mode	(Luminance) Instantaneous value, maximum/minimum value, luminance difference (Δ)/luminance ratio (%) (Chromaticity) Instantaneous value, chromaticity difference (Δ)	
Measurement time	Auto: 0.7 to 4.3 seconds Manual: 0.7 to 7.1 seconds	
Luminance unit	cd/m ² or fL	
Luminance range	0.01 to 999,900 cd/m ²	0.1 to 9,999,000 cd/m ²
Accuracy*1	(Luminance) $\pm 2\% \pm 1$ digit (Chromaticity) ± 0.004 (50 cd/m ² or more)	(Luminance) $\pm 2\% \pm 1$ digit (Chromaticity) ± 0.004 (50 cd/m ² or more)
Repeatability*1	(Luminance) 0.2% + 1 digit (Chromaticity) 0.001 (10 cd/m ² or more) 0.002 (5 cd/m ² or more)	(Luminance) 0.2% + 1 digit (Chromaticity) 0.001 (100 cd/m ² or more) 0.002 (50 cd/m ² or more)
Calibration standard	Konica Minolta standard/user-specified standard switchable	
No. of user calibration channels	10 channels	
Amt. of storable data	1,000 items	
External display (No. of significant digits)	(Luminance) 4 digits (Chromaticity) 4 digits	
Internal display (No. of significant digits)	(Luminance) 4 digits	
Interface	USB2.0	
Power	Two AA batteries, USB bus power, or AC adapter (Option)	
Current consumption	When viewfinder display is lit: 70 mA average	
Operation temperature/humidity range	0 to 40°C, relative humidity of 85% or less (at 35°C)	
Storage temperature/humidity range	0 to 45°C, relative humidity of 85% or less (at 35°C)	
Size	71x214x154 mm	
Weight	850 g (excluding batteries)	
Standard accessories	Lens cap Eyepiece ND filter Eyepiece cap AA battery x 2 Case CS-A12 Wrist strap CS-A13 USB cable T-A15 Data management software CS-S20	
Optional accessories	Close-up lens No. 153/135/122/110 CCD camera adapter CS-A14 Illuminance adapter CS-A15 White calibration plate (for 45-0) CS-A20 AC adapter AC-A305J/L/M	

* 1 "A"light source, reference distance, measurement time: Auto

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SAFETY PRECAUTIONS

For correct use and for your safety, be sure to read the instruction manual before using the instrument.

- Be sure to use the specified power supply voltage. Improper connection may cause a fire or electric shock.



KONICA MINOLTA, INC.
Konica Minolta Sensing Americas, Inc.
Konica Minolta Sensing Europe B.V.

Osaka, Japan
New Jersey, U.S.A.
European Headquarter /BENELUX
German Office
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Konica Minolta (CHINA) Investment Ltd.

Konica Minolta Sensing Singapore Pte Ltd.
Konica Minolta Sensing Korea Co., Ltd.
Konica Minolta, Inc.

Sensing Business
Thailand Representative Office

Phone : 888-473-2656 (in USA), 201-236-4300 (outside USA)
Nieuwegein, Netherlands
München, Germany
Roissy CDG, France
Warrington, United Kingdom
Cinisello Balsamo, Italy
Dietikon, Switzerland
Västra Frölunda, Sweden
Wrocław, Poland
Shanghai, China
Beijing, China
Guangdong, China
Chongqing, China
Shandong, China
Hubei, China
Singapore
Goyang-si, Korea
Bangkok, Thailand

Phone : +31 (0) 30 248-1193
Phone : +49 (0) 89 4357 156 0
Phone : +33 (0) 1 80 11 10 70
Phone : +44 (0) 1925 467300
Phone : +39 02849488.00
Phone : +41 (0) 43 322-9800
Phone : +46 (0) 31 7099464
Phone : +48 (0) 71 73452-11
Phone : +86 (0)21-5489 0202
Phone : +86 (0)10-8522 1551
Phone : +86 (0)20-3826 4220
Phone : +86 (0)23-6773 4988
Phone : +86 (0)532-8079 1871
Phone : +86 (0)27-8544 9942
Phone : +65 6563-5533
Phone : +82 (0)2-523-9726
Phone : +66-2361-3730

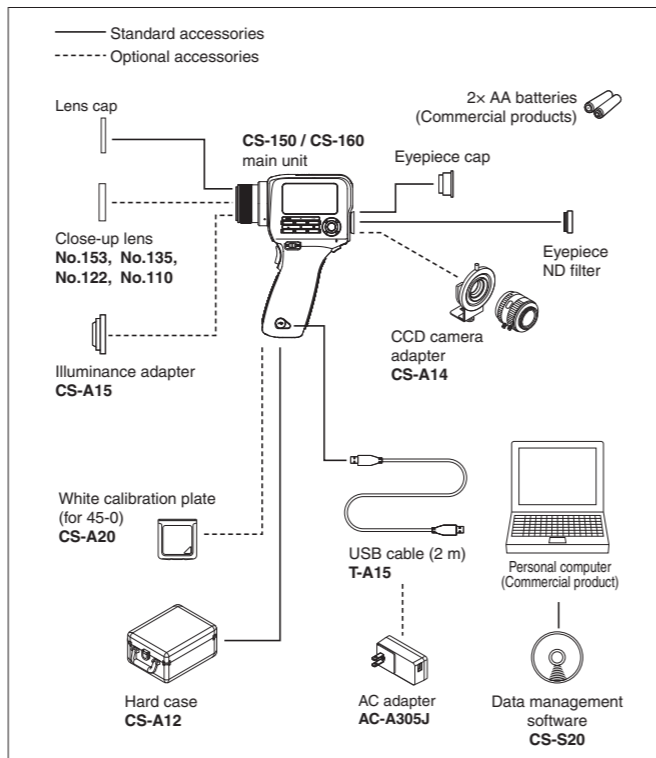
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Fax : +31 (0) 30 248-1280
Fax : +49 (0) 89 4357 156 99
Fax : +33 (0) 1 80 11 10 82
Fax : +44 (0) 1925 711143
Fax : +39 02849488.30
Fax : +41 (0) 43 322-9809
Fax : +48 (0)71 734 52 10
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Fax : +86 (0)532-8079 1873
Fax : +86 (0)27-8544 9991
Fax : +65 6560-9721
Fax : +82 (0)31-995-6511
Fax : +66-2361-3771

Addresses and telephone/fax numbers are subject to change without notice. For the latest contact information, please refer to the KONICA MINOLTA Worldwide Offices web page :

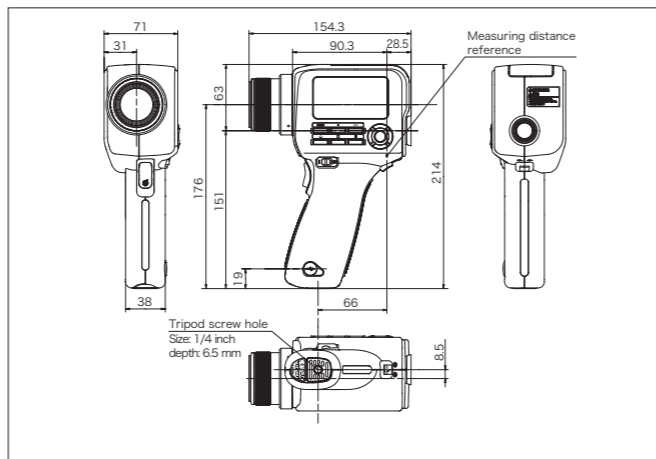
<http://konicaminolta.com/instruments/network>

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System Diagram



Dimensions (Units:mm)



Chroma Meter

NEW

CS-150/CS-160

1

The next-generation models of chroma meter! Outstrip the CS-100A in performance!

Chroma Meter CS-150

Can measure chroma across a 0.01 - 999,900 cd/m² range in 1° steps.



Chroma Meter CS-160

Can measure chroma across a 0.01 - 9,999,900 cd/m² range in 1/1° steps.



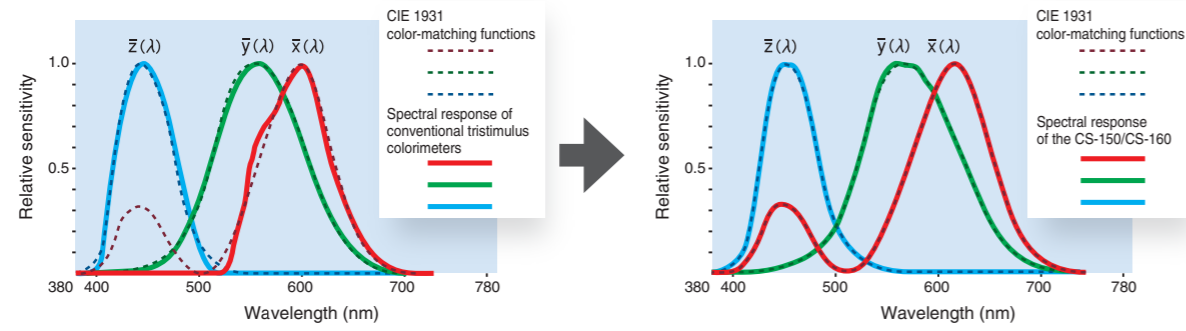
Giving Shape to Ideas

1

High precision

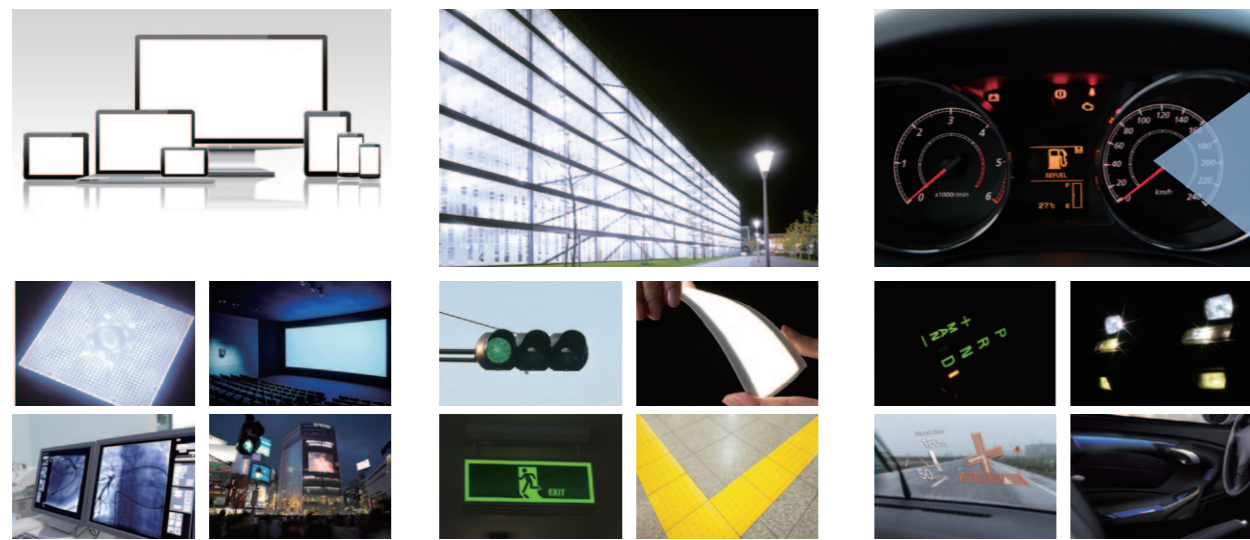
The CS-150 and CS-160 are highly accurate tristimulus (XYZ = red, green and blue) colorimeters that use the output of 3 newly incorporated sensors that tune sensitivity to the spectral response (CIE 1931 color-matching functions) of the human eye.

* The 1931 color-matching functions have spectral response peaks $\bar{x}(\lambda)$ in the long wavelength range ($\bar{x}2(\lambda)$) and the short wavelength range ($\bar{x}1(\lambda)$), whereas conventional colorimeter sensors had to calculate $\bar{x}(\lambda)$ from $\bar{x}1(\lambda)$ because they were not sensitive enough for the $\bar{x}1(\lambda)$ range. In contrast, the CS-150 and CS-160 sensors are sensitive to light in the $\bar{x}1(\lambda)$ range, so measurements can be made using a sensitivity ideally similar to the human eye.



CIE 1931 color-mating functions and spectral response of a conventional tristimulus colorimeter

CIE 1931 color-mating functions and spectral response of the CS-150/CS-160



Measurement subjects

2

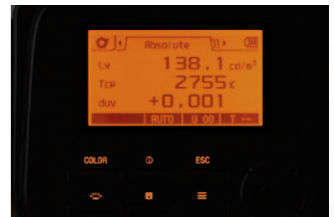
Incredibly easy to use

Bright, highly visible viewfinder that easily captures measurement targets



These new colorimeters feature an automatic mode that automatically sets the measurement time to the brightness of the target.

Can be used in dark places thanks to a backlit display.



Easy-to-hold grip. Smooth focusing during measurement.

3

Numerous options to choose from

Close-up lenses
The lineup sports 4 lenses (Nos. 153, 135, 122 and 110) for measuring tiny surfaces.



Measuring distance and measuring area (Units: mm)

(Measuring angle)	Minimum measuring area		Maximum measuring area		Minimum measuring distance	Maximum measuring distance
	1/3°	1°	1/3°	1°		
None	4.5	14.4	∞	∞	1,012	∞
No.153	2.5	8	5.9	18.8	627	1,219
No.135	1.6	5.2	2.7	8.6	455	625
No.122	1.0	3.2	1.3	4.3	331	378
No.110	0.4	1.3	0.5	1.5	213	215

*Measuring distance is the distance from the standard plane for distance measurements

The use of an optional C-mount CCD camera adaptor allows the colorimeter to be used for stationary measurement.



An adaptor is available as an option allowing the viewfinder of the colorimeter to be coupled to an industrial C-mount CCD camera.
* CCD cameras are sold separately.

Luminosity can also be measured using a separately sold luminosity adapter.



Measurable luminosity range
• CS-150:
Equivalent to 0.15 - 999,900 lx
• CS-160:
Equivalent to 1.5 - 9,999,900 lx
* This simplified luminosity measurement function does not comply with JIS.

4

Easy-to-understand utility software

Using the included software, colorimeters can be controlled from a PC. Measurements can be conducted at set intervals and data can be displayed on graphs and lists, and sent to spreadsheet applications.

Supported OS: Windows® 7 Professional and later Features

Colorimeter control	1-shot measurement Continuous measurement Interval measurement ... 2 - 5,000 meas/3 - 3,600 sec (1-sec intervals) Triggered measurement Colorimeter setup Export of data saved in the colorimeter to a PC User calibration
References	Registration Download of data from a PC to the colorimeter
Data list	List displays and editing of references and measured data (Delete, Copy & Paste)
External I/O	Text creation, saving in CSV format, copying of list to/from clipboard

