

# Luminance Meters

# LS-100/LS-110

Compact, lightweight, easy-to-use SLR luminance meters with a wide measuring range

## Luminance Meter LS-100

1° acceptance angle,  
Measuring range: 0.001 to 299,900 cd/m<sup>2</sup>  
(0.001 to 87,530 fL)

## Luminance Meter LS-110

1/3° acceptance angle,  
Measuring range: 0.01 to 999,900 cd/m<sup>2</sup>  
(0.01 to 291,800 fL)

### Main Features

#### Flareless SLR optical system for accurate measurements

The SLR (single-lens-reflex) optical system allows precise aiming and ensures that the viewfinder shows the exact area to be measured. The optical system is also virtually flareless, eliminating the influence of light from outside the measurement area.

#### Narrow acceptance angle for measurements of small specimens

Acceptance angles of only 1° for **LS-100** and 1/3° for **LS-110** allow accurate measurements of small specimen areas. In addition, optional close-up lenses can be used to measure areas as small as  $\varnothing 1.3$  mm when using **LS-100** and  $\varnothing 0.4$  mm when using **LS-110**.

#### User calibration and color-correction functions

To increase the versatility of the **LS-100** and **LS-110**, both models are equipped with user calibration and color correction functions. The user calibration function allows the meter to be calibrated to a user-selected standard instead of the preset Konica Minolta standard; this function can also be used to standardize the response of several meters. The color correction function allows the response of the meter to be adjusted when measuring colored specimens.

#### Luminance ratio and peak luminance measurements

In addition to measurements of the present luminance, the **LS-100** and **LS-110** can also determine the percent ratio of the measured luminance to a luminance value stored in memory as well as the peak luminance or luminance ratio measured.

#### RS-232C data communication

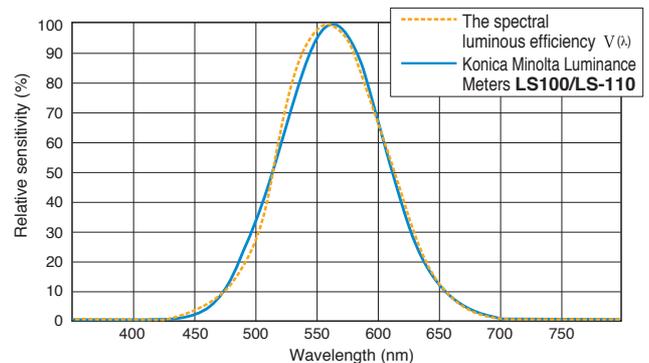
Use of the built-in RS-232C interface allows the meter to be connected to a personal computer.

#### Lightweight, compact design powered by a single 9V battery for portability



LS-100

### Relative Spectral Responsivity



Ideally, the relative spectral responsivity of the luminance meter should match  $V(\lambda)$  of the human eye for photopic vision.

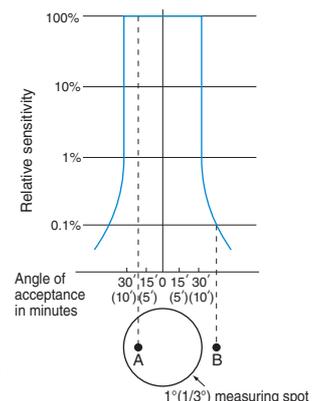
As shown in the graph above, the relative spectral responsivity of Konica Minolta Luminance Meters **LS-100/LS-110** is close to the CIE spectral luminous efficiency  $V(\lambda)$ .

CIE ; Commission Internationale de l'Éclairage  
 $f_1$  (CIE «s symbol) ; The degree to which the relative spectral responsivity matches  $V(\lambda)$  is characterized by means of the error  $f_1$ .

### Reduction of Flare

The degree to which the influence of light from outside the defined measuring area is eliminated is an important factor in the performance of luminance meters. In Konica Minolta Luminance Meters, the flare factor is kept to below 1.5%, even if an object with extremely high luminance is just outside the meter's measuring area.

The graph at right shows the effect when a bright point is moved from A inside the measuring area to B just outside the measuring area. If the measured value at A is defined at 100%, the measured value at B would be less than 0.1%.



## Specifications

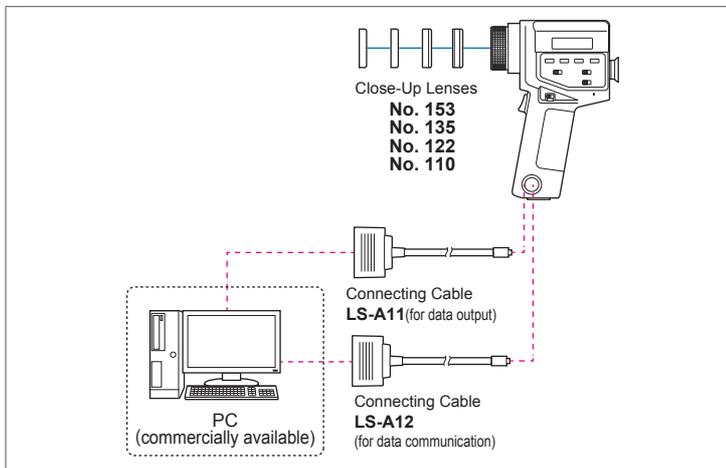
Model	Luminance Meter <b>LS-100</b>	Luminance Meter <b>LS-110</b>
Type	SLR spot luminance meter for measuring light-source and surface brightness	
Measuring angle	1°	1/3°
Optical system	85 mm f/2.8 lens; SLR viewing system; flare factor less than 1.5%	
Angle of view	9°	
Focusing distance	1014 mm (40 in.) to infinity	
Minimum measuring area	ø14.4 mm	ø4.8 mm
Receptor	Silicon photocell	
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 <sup>2</sup> or fL (switchable)	
Measuring range	FAST : 0.001 to 299,900 cd/m <sup>2</sup> (0.001 to 87,530fL) SLOW : 0.001 to 49,990 cd/m <sup>2</sup> (0.001 to 14,590fL)	FAST : 0.01 to 999,900 cd/m <sup>2</sup> (0.01 to 291,800 fL) SLOW : 0.01 to 499,900 cd/m <sup>2</sup> (0.01 to 145,900 fL)
Accuracy* <sup>1</sup>	0.001 to 0.999 cd/m <sup>2</sup> (or fL): ±2% ±2 digits of displayed value 1.000 cd/m <sup>2</sup> (or fL) or greater: ±2% ±1 digit of displayed value	0.01 to 9.99 cd/m <sup>2</sup> (or fL): ±2% ±2 digits of displayed value 10.00 cd/m <sup>2</sup> (or fL) or greater: ±2% ±1 digit of displayed value
Repeatability* <sup>2</sup>	0.001 to 0.999 cd/m <sup>2</sup> (or fL): ±0.2% ±2 digits of displayed value 1.000 cd/m <sup>2</sup> (or fL) or greater: ±0.2% ±1 digit of displayed value	0.01 to 9.99 cd/m <sup>2</sup> (or fL): ±0.2% ±2 digits of displayed value 10.00 cd/m <sup>2</sup> (or fL) or greater: ±0.2% ±1 digit of displayed value
Temperature/humidity drift	Within ±3% ±1 digit (of value displayed at 20°C/68°F) within operating temperature/humidity range	
Calibration mode	Konica Minolta standard/user-selected standard (switchable)	
Color correction factor	Set by numerical input; range: 0.001 to 9.999	
Reference luminance	1; set by measurement or numerical input	
Measurement modes	Luminance; luminance ratio; peak luminance or luminance ratio	
Display	External: 4-digit LCD with additional indications Viewfinder: 4-digit LCD 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	One 9 V battery; power can also be supplied by optional Data Printer DP-10	
Power consumption	While measuring button is pressed and viewfinder display is lit: 16 mA average While power is on and viewfinder display is not lit: 6 mA average	
Operation 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	
Size (W x H x D)	79 x 208 x 150 mm (3-1/8x8-3/16x5-7/8 in.)	
Weight	850 g (30 oz.) without battery	
Standard accessories	Lens cap; Eyepiece cap; ND eyepiece filter; 9 V battery; Case	

\*1 Standard Illuminant A measured at ambient temperature of 20 to 30°C

\*2 Standard Illuminant A

## Optional Accessories

### System Diagram (Optional Accessories)



### Close-Up Lenses



Close-Up Lenses	Minimum measuring area	
	With <b>LS-100</b>	With <b>LS-110</b>
No.153	ø8.0 mm	ø2.7 mm
No.135	ø5.2 mm	ø1.8 mm
No.122	ø3.2 mm	ø1.1 mm
No.110	ø1.3 mm	ø0.4 mm

(Theoretical values)

### Dimensions (Units: mm)

