

## ■ Spectral Light Meter MSC15

**Low cost spectral light meter** for measurement of illuminance, spectrum, color, and color rendering index

### Spectral Light Meter MSC15

LEDs enable much greater control of the lighting quality than the technologies they are rapidly replacing. Many international standards now specify requirements for internal and external lighting systems in terms of both 'quality' and 'quantity' of light as well as in terms of efficiency and life time. Photometry in the lighting industry generally focuses on the intensity (i.e. illuminance) and color (i.e. correlated color temperature CCT and color rendering index CRI) of light impacting on a surface. LED lamps are extremely versatile in terms of emission spectra. This is the reason why spectral measurements of the illuminance and color have now become essential for all high-end light meters.

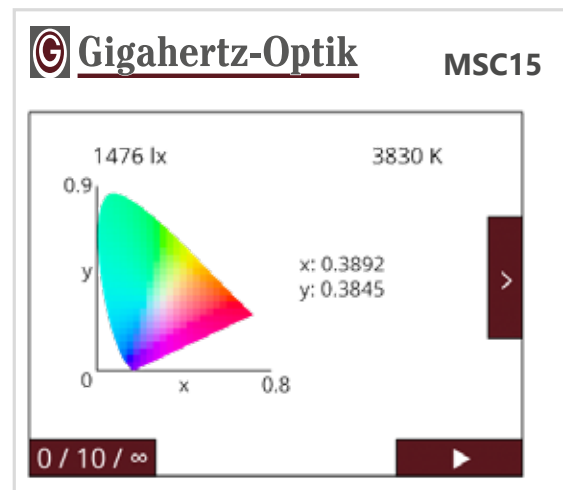
#### The MSC15 – compact, handheld, and low cost

The MSC15 from Gigahertz-Optik GmbH is a modern light meter whose technical concept allows for precise measurement of the illuminance spectrum, color, and color rendering. Its cutting-edge design concentrates on measurement accuracy rather than unnecessary esoteric electronic features which results in a high quality meter for an attractive price. The light sensor

consists of a fast spectroradiometer that covers a spectral range between 360 nm and 830 nm (V-lambda range according to CIE S023) with a spectral bandwidth of 10 nm. The device also integrates an optical bandwidth correction feature (CIE 214) in order to further improve the quality of the values calculated based on the spectral measurement data. Another key feature that ensures accurate illuminance measurements of extended lighting conditions is its carefully designed field of view. Accurate illuminance measurements are only possible with a precise, cosine-corrected entrance optic. The MSC15 has an excellent cosine response ( $f2 \leq 3\%$ ). At the same time, it offers a wide measurement range for illuminance between 1 lx and 350,000 lx. The color touch screen of the device makes it easy to use. Uninterrupted operation of more than 8 hours is provided by its lithium ion battery which is recharged via the USB 2.0. Remote control of the device and data read out are made possible by the supplied software. In addition the MSC15 is equipped with an internal memory which can be used to store up to 10 measurements internally and read them out via software later.



MSC15



CIE 1931 view

### Measurands

- Illuminance photopic (lux)
- Illuminance scotopic (lux)
- Spectral irradiance 360 nm - 830 nm
- Color coordinates (x,y)
- CCT color temperature
- CRI (color rendering indices) Ra, R1-R15
- IES TM30-15 Rf and Rg (S-MSC15 software)
- Melanopic irradiance & illuminance
- Melanopic daylight equivalent illuminance
- PAR PPFD  $\mu\text{mol}/\text{m}^2/\text{s}$

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### Additional functions of the MSC15

The MSC15 also includes additional functions for use in specialist fields of lighting.

LED grow lights need to be measured in terms of the Photosynthetically Active Radiation (PAR) they produce. An additional function of the MSC15 is the display of Photosynthetic Photon Flux Density (PPFD) in  $\mu\text{mol}/\text{m}^2\text{s}$  (400 nm to 700 nm) which is a measure of the total number of photons within the PAR wavelength range that reach a surface each second per square meter area.

Neonatal phototherapy lamps used for the treatment of hyperbilirubinemia can be accurately measured in accordance with the latest standards and guidelines, irrespective of the lamp type or manufacturer. The MSC15 directly displays total irradiance for bilirubin, Ebi ( $\text{mW}/\text{cm}^2$ ) in accordance with IEC 60601-2-50:2009+A1:2016 as well as average spectral irradiance ( $\mu\text{W}/\text{cm}^2/\text{nm}$ ) in accordance with the latest American Academy of Pediatrics recommendations.

Human Centric Lighting requires new metrics beyond traditional photometric and colorimetric values (ref. CIE TN 003:2015). The MSC15 directly displays melanopic irradiance, melanopic illuminance (equivalent melanopic lux) and melanopic daylight equivalent illuminance.



*MSC15 for measurement of the illuminance, spectrum, color, and color rendering in the lighting industry*

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### Calibration of the MSC15

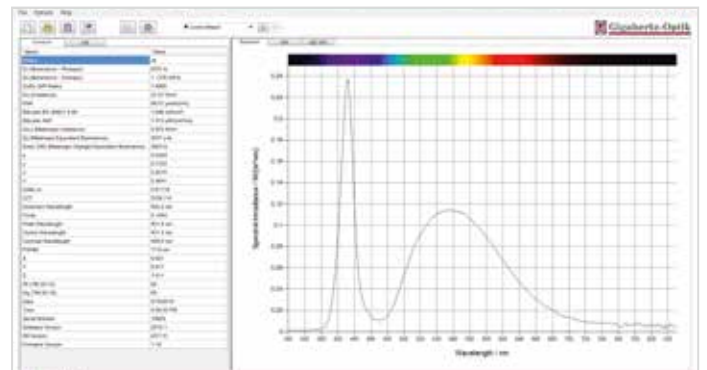
One essential quality feature of photometric devices is their precise and traceable calibration. The MSC15 is calibrated by Gigahertz-Optik's calibration laboratory that is accredited by DAkkS (D-K-15047-01-00) for the spectral responsivity and spectral irradiance according to ISO/IEC 17025. Every device is supplied with its respective calibration certificate.

### Options for the MSC15

- Software development kit for integration of the device in the user's own software



*Touchscreen for intuitive handling of the meter*



*S-MSC15 Software provides data acquisition and remote control of measurement functions as well as selection of meter display options.*

## ■ Specifications MSC15

Specifications	
Wavelength range	(360 - 830) nm
Measurement range	(1 - 350000) lx
Optical bandwidth	10 nm with CIE 214 correction
Entrance optic	10 mm diam. cosine diffuser, $f_2 \leq 3 \%$
$\Delta x, \Delta y$ reproducibility	$\pm 0.0002$
$\Delta x, \Delta y$ uncertainty	$\pm 0.002$ (standard illuminant A)
CCT measurement range	(1700 - 17000) K
$\Delta$ CCT	$\pm 50$ K (standard illuminant A)
Interface	USB 2.0
Temperature range	Operation: +10°C to +30°C
Power	Rechargeable battery via +5V USB
Battery life	Minimum 8 h of operation
Dimensions	136 mm x 74 mm x 32 mm



With its innovative and high-quality products as well as application solutions, Gigahertz-Optik enjoys a high regard from its international customers within the field of optical radiation measurement technology. As a manufacturer, Gigahertz-Optik offers standard and custom-made solutions. Regular investments in new technologies ensure that Gigahertz-Optik is able to offer modern measuring solutions to its customers in industry and science.

### Broadband light measurement devices

- UV Radiometer
- Photometer
- Hazard

### Spectral light meter

- Handheld devices
- High-end devices
- UV Spectroradiometer
- Weather-proof devices
- Light transmission

### Complementary products

- Integrating spheres
- Integrating sphere light sources
- Calibration standards
- Electronics, optomechanics
- Optically diffuse materials

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