MSC15

https://www.gigahertz-optik.com/en-us/product/msc15/

Product tags: VIS ,



Description

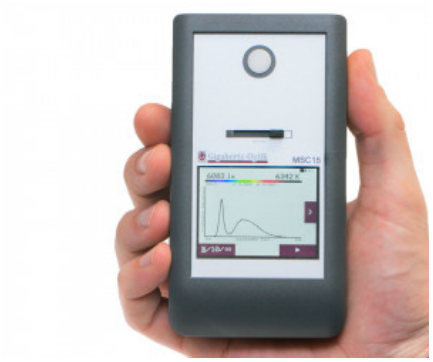
LEDs enable much greater control of the lighting quality than the technologies they are rapidly replacing. Many international standards now specify requirements for internal and external lighting systems in terms of both 'quality' and 'quantity' of light as well as in terms of efficiency and life time. 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 falling on a surface. LED lamps are extremely versatile in terms of emission spectra, which is why spectral measurement of the illuminance and color has now become essential for any high-end light meters.



Compact and handheld spectral light meter

MSC15 Light Spectrum Meter

The compact, hand-held MSC15 light spectrum meter from Gigahertz-Optik GmbH focuses on the precise measurement of the illuminance spectrum, color, and color rendering. Its cutting-edge design concentrates on measurement accuracy rather than unnecessary esoteric electronic features. This makes the MSC15 a high quality LED light meter at 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.



MSC15 for measurement of the illuminance, spectrum, color, and color rendering in the lighting Industry. Touchscreen for intuitive handling of the meter.

Excellent cosine response plus a wide measurement range

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 light meter has an excellent cosine response ($f_2 \leq 3$ %), at the same time as offering a wide measurement range for illuminance and color between 1 lx and 350,000 lx.

Intuitive simple color touch-screen operation

The colored touch screen of the device makes it extremely easy to use. Activating and deactivating of individual measurement displays is possible as well via a configuration menu which is implemented into the MSC15 spectral light meter. 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.



Display of photopic lux, CCT and CRI Ra

Application Software

The included software allows control of the MSC15 light meter device via its USB 2.0 interface. It provides numerical and graphical displays for all the measured parameters. Measurement data can be stored, loaded and exported. The software also enables the configuration of which display screens are active on the meter.

Store up to 100 Measurements internally

In addition, the MSC15 is equipped with an internal memory which can be used to store up to 100 measurements internally and read them out via software later (10 meausurements for Firmware <1.62). The device allows the comfortable management of the stored measurements on its screen.

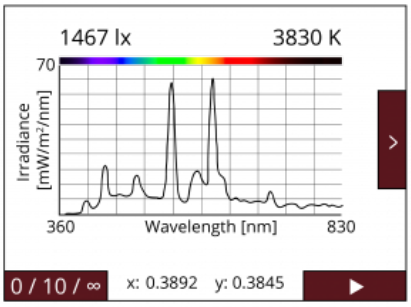
Calibration of the MSC15 Light Meter

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.

Over 30 different light, spectral, color quantity & actinic measurements

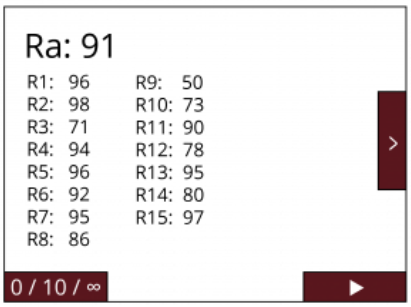
With over 30 different light, spectral, color quantity & actinic measurements, this versatile light meter for LED and other light sources can work precisely for you in a multitude of lighting conditions in the field, lab or in production.



Display of the spectral power distribution, photopic lux and CCT

PAR Meter measurements for horticultural applications

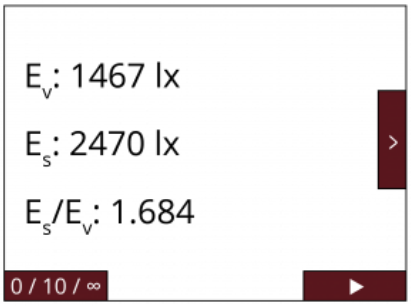
LED grow lights need to be measured in terms of the Photosynthetically Active Radiation (PAR) they produce. An additional function of the MSC15 is the display of Photosynthetic Photon Flux Density (PPFD) in µmol/m²s (400 nm to 700 nm) which is a measure of the total number of photons within the PAR wavelength range that reach a surface each second per square meter area.



Display of the CRI's

Photomedicine measurements

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



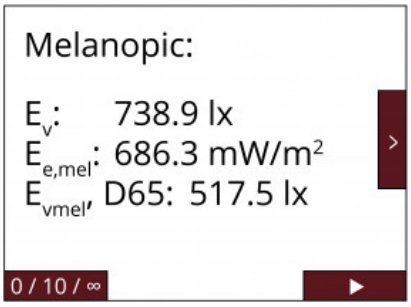
Display of photopic and scotopic lux and their ratio.

Human Centric Lighting measurements

Circadian or 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 according to CIE S 026:2018.

DALI Alliance tests IEC 62386-209

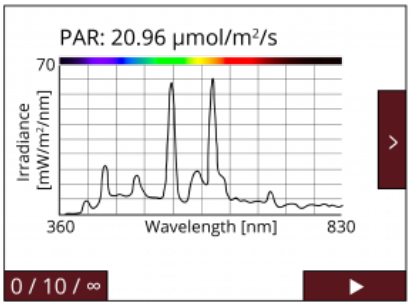
Enables CCT measurements to be fully automated in the official DALI Alliance tests in accordance with IEC 62386-209 (colour control gear).



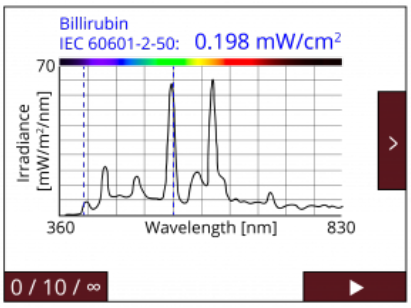
Options for the MSC15:

- Software development kit (S-SDK-MSC15) for integration of the device in the user's own software
- Bilimeter Option, see MSC15-Bilimeter Version (spectral)
- Version with external detector, see CSS-45 (same technology as MSC15 light meter) with CSS-D display unit

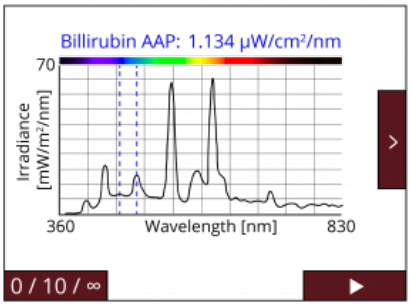
Display of melanopic lux, etc. according to CIE S 026:2018 and Well building Standard



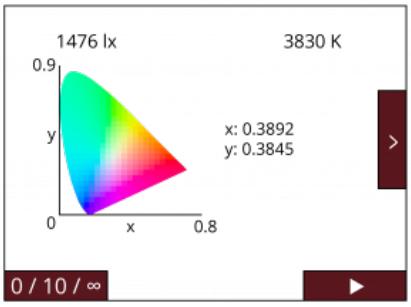
Display of PAR and the spectral power distribution



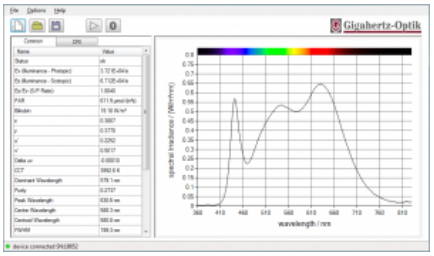
Display of Bilirubin according IEC 60601-2-50 and the spectral power distribution



Display of Bilirubin according AAP and the spectral power distribution



CIE 1931 view



Example measurement in the MSC15's software

Specifications

General	
Short description	Light meter based on spectroradiometer technology for measurement of the illuminance, spectrum, light color, and color rendering
Main features	Mobile light meter, spectroradiometer 360 nm to 830 nm with a 10 nm optical bandwidth and additional optical bandwidth correction (CIE214), precise cosine field of view function (f_2), Lithium ion battery with over 8 operation hours and traceable calibration
Measurement range	1 lx to 350,000 lx, 360 nm to 830 nm
Typical applications	Precise spectral light meter for the lighting industry and all kind of applications
Calibration	Factory calibration. Traceable to international calibration standards.
Product	
MSC15	Handheld light meter for illuminance, spectral data and light color. Color-Touchscreen, simple intuitive Operation with clearly arranged display views. Storage of 10 measuring points and selection of different display views is possible. (Class B according DIN 5032-7 or AA according to JIS C 1609-1:2006)

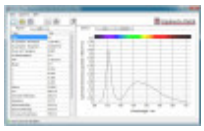
Measured Quantity	Illuminance photopic Illuminance scotopic Spectral Irradiance Color coordinates (x,y) CCT CRI (color rendering index) PAR– PPFD Melanopic irradiance Melanopic illuminance (equivalent melanopic lux) Melanopic daylight equivalent illuminance Total irradiance for bilirubin (E_{bi}) Average spectral irradiance for bilirubin (AAP) Foot Candela (fc) Other color quantities as well by software (x, y, u´, v´, X,Y,Z, delta uv, color temperature, color rendering index (CRI) Ra, R1-R15, TM-30-20, CQS, CIE-170, etc.)
Input optics	Diffuser window with 10mm diameter, cosine corrected field of view, f2 ≤ 3 %
Spectral Detector	
Spectral range	(360 - 830) nm
Optical Bandwidth	10 nm optical bandwidth correction applied according to CIE 214
Measurement range typ. white LED	(1 - 350000) lx
CCT Measurement range	(1700 - 17000) K
ΔCCT	± 50 K (standard illuminant type A, *k=2*) ± 3 MK^{-1} (Standard illuminant type A, *k=1*) ± 4% (depending on the LED spectrum, *k=2*)
Δy Δx uncertainty	± 0.002 (Standard illuminant A, *k=2*)
Repeatability	± 0.0002
Peak wavelength	± 1 nm
Calibration	
Calibration uncertainty	Illuminance (standard illuminant A, *k=2*) +/- 3% Illuminance (typ. LED, *k=2*) +/- 4% *(Traceable to national standard. Uncertainty of the standard is included.)*
Miscellaneous	
Interface	USB 2.0
Temperature range	Operation: 10°C to +30°C Storage: -10°C to +50°C
Power Supply	5VDC by USB
Power Supply	rechargeable battery 8h of operation (continuos measurement, 100% display backlight on) 13.5h of operation (one measurement, standy modus, 100% display backlight on) 30h of operation (one measurement, standby-modus, reduced display backlight to 10% (sufficient for indoor lighting conditions))

Display	Color Touchscreen
Weight	160 g
Dimensions	136 mm x 74 mm x 32 mm

Downloads

Type	Description	File-Type	Download
MSC15 Technical Datasheet	MSC15 brochure	pdf	https://www.gigahertz-optik.com/assets/Uploads/Technical-Datasheet-MSC15-210x297-EN-sheets.pdf
Brochure	Light measurement solutions for general and specialized lighting	pdf	https://www.gigahertz-optik.com/assets/Uploads/generallighting-broschuere-DINA4-hoch-v2.pdf

Configurable with

Product Name	Product Image	Description	Go to product
S-SDK-MSC15		Software Development Kit for MSC15 and CSS-45 variants for full measurement device control and implementation in own software.	https://www.gigahertz-optik.com/en-us/product/s-sdk-msc15/
S-MSC15		Application software for MSC15 and CSS-45 variants for measurement device control, measurement mode setup and data export.	https://www.gigahertz-optik.com/en-us/product/s-msc15/

Purchasing information

Article-Nr	Modell	Description
Product		
15298960	MSC15	MSC15 spectral light meter measurement device, USB cable, case for device and USB cable, S-MSC15 software as a download, calibration, Factory calibration certificate
15310290	KP-MSC15-E-S	Option: DIN EN ISO/IEC 17025:2018 Test Certificate (DAkkS) Spectral irradiance measurement in wavelength range from 360nm to 830nm.
Re-calibration		
15300569	K-MSC15-I	Calibration of the MSC15 including wavelength adjustment. Factory calibration certificate
15310249	KKP-MSC15-E-S	Factory Calibration Certificate with DIN EN ISO/IEC 17025:2018 Test Certificate.

Article-Nr	Modell	Description
Software		
15306347	S-SDK-MSC15	Software development kit

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- Repairs & Updates
- OEM & Feasibility Consulting of Customized Solutions

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