

**GOSSEN**

# Spectral Photometry



mW/m<sup>2</sup>/nm

**MAVOSPEC LITE**

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# PERFECTLY SAFE LIGHT

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The Mavospec Lite provides you with certified safety – for light which ideally fulfils your requirements in every respect.

Regardless of the lighting situation – from private residential or professional, right on up to industrial – compliance with specified values and standards, as well as consideration of quantitative and qualitative requirements, are decisive in terms of the achieved lighting effect. The Mavospec Lite assesses your light and delivers information covering all relevant factors – certified and documented for more safety from planning to commissioning.

#### THE MAVOSPEC LITE PROVIDES SUPPORT FOR LIGHTING DESIGN

From selecting and matching various light sources all the way through to checking the results and approving the installation, the Mavospec Lite provides you with all important values.

#### THE MAVOSPEC LITE PROACTIVELY DETECTS ELECTRICAL INSTALLATION PROBLEMS

By proactively assessing the light quality of delivered lighting fixtures, you can avoid subsequent complaints in advance and ensure smooth approval procedures by quickly checking the lighting installation at the touch of a button.

#### THE MAVOSPEC LITE ENSURES STANDARDS-COMPLIANT WORKSTATIONS

Defined, precisely specified lighting quality is stipulated in the standards for workstations. These requirements are especially strict in, for example, the medical engineering, cosmetics and chemicals industries. The Mavospec Lite provides you with all of the decisive values simply and quickly – for certified safe light.

#### THE MAVOSPEC LITE MAKES PUBLIC PLACES SAFE

Changeovers to LED lighting and new installations in public areas – lighting has to ensure safety and comply with the standards in these applications. The Mavospec Lite supports you in your testing process and provides you with certified, documented security.

### Testing Light Safely and Effectively – Anytime, Anywhere

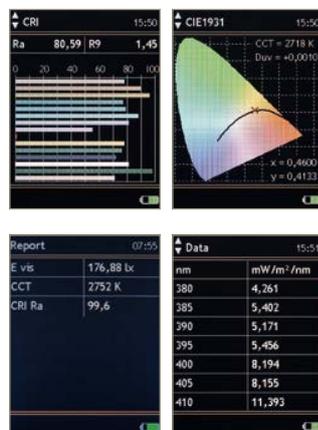
Regardless of which kind of light you want to test – the Mavospec Lite delivers all decisive measured values with certified precision by simply pressing a key. Thanks to its simple operation and fast, efficient results documentation, light can be tested by any user with the Mavospec Lite. And our outstanding service in Germany assures that you can quickly get back to measuring with absolute precision when calibration is required, or in the event of repairs.

The Mavospec Lite provides you with perfection and safety – day after day, in any application and with all light sources.



  
USB 2.0

micro



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# PERFECT LIGHT FOR EVERY APPLICATION

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The Mavospec Lite examines your light – anytime, anywhere and in countless applications.

The qualification of light is becoming a decisive factor for more and more applications. The Mavospec Lite provides you with precise support for these requirements – from individual light sources to the accurate assessment of lighting situations, as well as checking for compliance with the standards.



INTERIOR DESIGN, LIGHTING DESIGN – Faster selection and matching of different light sources, verification of the results of planning programs such as DIALux and more efficient approval of the installation.



ELECTRICAL INSTALLATION – checking installations for best possible lighting, for perfect light and color quality and for compliance with all specified light values and standards prior to approval.



WHOLESALE AND RETAIL – Quality assurance by means of examination, verification, comparison and evaluation of the light and color quality of various light sources from numerous production lots and various suppliers.



SHOP LIGHTING – Optimization of light in order to meet requirements for the presentation of goods in the foods retailing sector and true-color presentation of textiles and leather goods, as well as for the beauty sector.



WORKPLACE LIGHTING – Perfect color rendering for exacting demands placed upon color selection and color monitoring in the graphics and chemicals industries, for hair care and cosmetics, as well as for processing wood, ceramics, textiles, leather goods and jewelry.



MEDICAL TECHNOLOGY – Testing of illuminance and color rendering according to room classifications for dental treatment rooms and dental laboratories.



PUBLIC LIGHTING – Assurance of standards-compliant lighting for streets and public areas during the course of renovation, as well as where lighting is changed over to LED lamps.



EXHIBITIONS, MUSEUMS, LIBRARIES – Checking for adequate lighting and color rendering. Evaluation of the spectrum with regard to spectral components which might cause damage.



STUDIO, STAGE AND FILM LIGHTING – Coordination of various light sources, white balancing, evaluation of color rendering.





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# SAFETY AT THE TOUCH OF A BUTTON

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The Mavospec Lite assigns precise values to your light – with automatic results documentation.

Precise and easy-to-use light measurement and documentation for any user, any-time, anywhere – the Mavospec Lite was developed precisely for this purpose. All measured quantities which are relevant for light such as illuminance, correlated color temperature, color rendering index in accordance with CIE 13.3, color coordinates in accordance with various CIE standards and spectral power distribution are determined from the measured spectrum by simply pressing a key and displayed comprehensibly for experts as well as laypersons. Light measurement is made extremely easy as a result.

## Mavospec Lite – Developed to Optimize Your Light

**INTUITIVE ONE-HAND OPERATION** – With the help of the ring controller and just a few keys.

**BRILLIANT COLOR DISPLAY** – for perfect read-outs under all lighting conditions and lucid evaluations directly at the display.

**OUTSTANDING MEASURED VALUE STABILITY** – by means of a large temperature range resulting from an integrated temperature sensor and automatic temperature compensation of the dark current.

**PHOTOMETRIC AND RADIOMETRIC CALIBRATION** – with calibration report for verifiably perfect results.

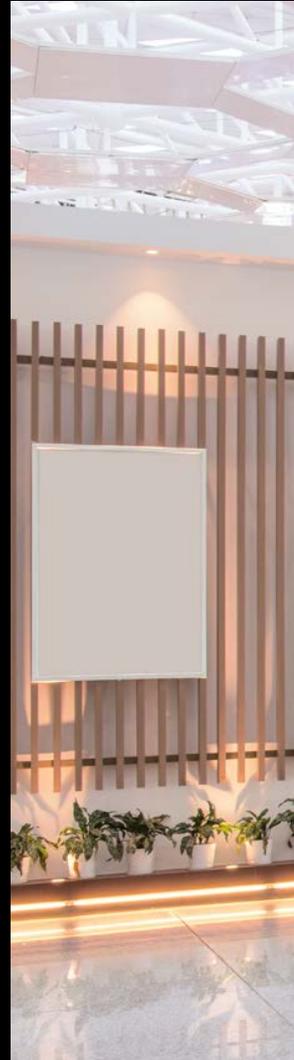
**INVESTMENT SECURITY** – thanks to top quality made in Germany and a 3-year guarantee, as well as the ability to install updates via the USB port for new features and changes to the standards.

**UNIQUE CUSTOMER SERVICE** – meter, product support and calibration from a single source close to you.

## Certainty with Documented Measurement Results

The Mavospec Lite either stores the measured values on the integrated micro SD card at the touch of a button or automatically and is recognized as a removable data medium when connected to a computer. The measurement files saved in CSV format can be easily opened, copied, moved or deleted.

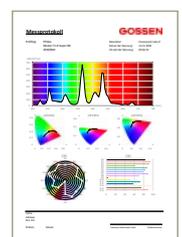
**FLEXIBLE REPORTING** – The included Excel template offers various measurement reports, the elements of which can be adapted as required and combined to create new customer-specific templates. All of the template's elements access the data spreadsheet, to which stored measured value files are read in automatically after pressing a key. A measurement can also be started with the connected meter and transferred automatically. Complete documentation is thus generated quickly and easily.





**CONTINUOUS RECORDING** – Das EXCEL template „Datenlogger Vx.xx.xlsm“ provides a data logger function. Either individual measurements or continuous measurements with adjustable measuring interval can be carried out and stored in the data worksheet. The respective spectral curve appears in the graphic display and below the positions are displayed in the CIE 1931 and CIE 1976 color space.

**SIMPLE SYSTEM INTEGRATION** – The open protocol for device control and data communication permits incorporation into the user's own applications.



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# WHICH VALUES DEFINE YOUR LIGHT?

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The Mavospec Lite provides you with all of the decisive factors – accurately and with certification.

Spectral power distribution, color temperature, illuminance and other factors make light unique in each given situation. The Mavospec Lite ascertains all relevant values, so that you can optimize your light for any specified requirements.



**SPECTRAL POWER DISTRIBUTION** – represents the radiant power of a light source for a wavelength or a waveband in the visible range. It provides us with information about color characteristics and can be used to compare the color temperature of different light sources. Information can be inferred from this regarding color rendering properties, because missing or attenuated portions of the spectrum result in color rendering errors. Abbreviation: SPD, unit of measure:  $\text{mW/m}^2/\text{nm}$



**COLOR COORDINATES** – are a means of precisely defining a color, i.e. a color's chromaticity as specified by the coordinates of the CIE diagram. The human eye is equipped with sensory cells for the perception of the three primary colors, namely red, green and blue. Photopic curves for the standard observer were ascertained in 1931 by the CIE and indicate sensitivity for the individual wavelength ranges. Abbreviations: x, y [CIE 1931] / u, v [CIE 1960] / u', v' [CIE 1976]



**ILLUMINANCE** – indicates with how much intensity a surface is illuminated. It amounts to one lux when a luminous flux of one lumen illuminates a surface of one square meter. Luxmeters are used to measure illuminance at horizontal and vertical surfaces. However, illuminance does not indicate the brightness impression of a room, because this depends to a great extent on the room's reflective characteristics. As a rule, uniform light distribution is not achieved with normal lighting, for which reason specifications in the standards usually make reference to mean illuminance. This value is calculated as the weighted arithmetic mean of all illuminance values in the room.

Abbreviation: E, unit of measure: lux



**CCT** **COLOR TEMPERATURE** – is a function which is used to quantitatively specify the respective color impression of a light source. The unit of measure for color temperature is degrees Kelvin (K). In concrete terms, it's the temperature whose light effect is most similar to the color to be described at uniform brightness under specified observation conditions. Abbreviation: CCT, unit of measure: Kelvin [K]



**THE COLOR RENDERING INDEX** – Ra is a measure of the color rendering properties of lamps and has a theoretical maximum value of 100. The higher the color rendering index, the better the color rendering properties of the lamp. Color rendering which is as natural as possible is achieved through the use of lamps with an Ra value of greater than 90. Ra is the arithmetic mean of the color deviation of the first 8 of 14 test colors according to DIN 6169. An extension to this is the color rendering index Re, which is calculated over all 14 test colors and the additional test color 15 (Asia Skin Color), which also takes into account saturated colors, leaf green and skin tones. DIN EN 12464 specifies the color rendering prop

Abbreviation: Ra





**GAMUT AREA INDEX** – is a measure of the vividness of the color representation and is used primarily in the evaluation of exhibition and museum lighting. It is an indicator of how well the octahedral surface defined by the eight test colors of the Ra in the color space is covered by the light source.

	low Ra	high Ra
low GAI	false and pale colors	correct but pale colors
high GAI	false and intense colors	natural colors



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# IDENTICAL LIGHT COLOR DAY AFTER DAY

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Precision comes from experience, know-how and perfect calibration at regular intervals.

We are the experts for the measurement of light with decades of experience in our chosen field of endeavor. It's not without reason that the name GOSSEN stands for continuous innovation – in response to rapidly changing technologies, regulations and markets. And thus the Mavospec Lite with intuitive user interface is one of the most accurate and reliable spectrometers in its class, and reflects the most up-to-date technology available on the market.

However, like all other precision light meters, this product also requires regular maintenance, recalibration and software updates in order to continuously fulfil performance capabilities within the stipulated tolerances and specifications. Benefit from our unique service: meter, product support and calibration – all from a single source, made in Germany. With us you always have a competent partner at your side, and you also benefit from our short response times for your calibration and repair requirements.

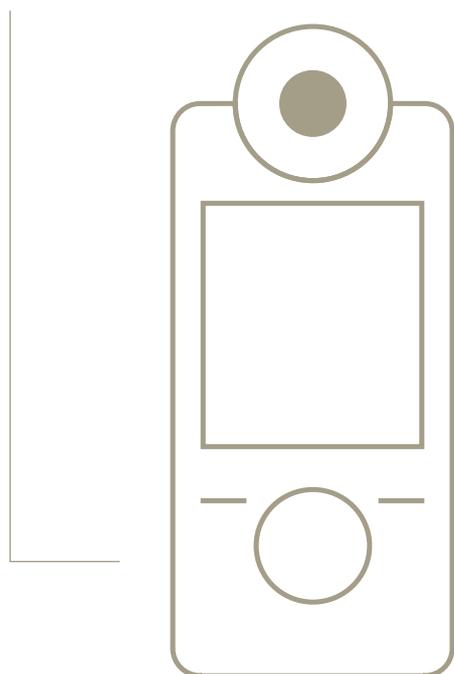
## Calibrated for the Most Exacting Demands

We recommend a calibration interval of 12 to 24 months for the Mavospec. Recalibration is conducted at the GOSSEN Light Lab with a tested and monitored optical bench, whose traceability to the national standard maintained by the PTB (German Federal Institute of Physics and Metrology) is assured by means of a Wi41G standard lamp. The lab is subject to test equipment monitoring in accordance with DIN EN ISO 9001:2015, and is additionally accredited for illuminance by DAkkS in accordance with DIN EN ISO/IEC 17025:2018. This assures top quality calibration with international recognition.



PHOTOMETRIE	
Applications	Daylight, LEDs, halogen and more
Illuminance Evis	10 lx ... 100,000 lx
Color temperature CCT	1,600 K ... 50,000 K (Duv ≥ - 0.1)
Color temperature difference relative to the Planckian locus Duv	(1,600 K ≤ CCT ≤ 50,000 K)
Color rendering index CRI per CIE 13.3	Ra, Re, R1 ... R15
Gamut Area Index GAI	•
Chromaticity coordinates [x',y'] per CIE 1931	•
Chromaticity coordinates [u',v'] per CIE 1976	•
Chromaticity coordinates [u,v] per CIE 1960	•
Configurable measured value display	•
Selectable Units Of Measure	lx / °C – fc / °F

OPERATION, INTERFACES, MEMORY	
Display	2.1" color TFT 320 x 240
Controls	3 keys, ring controller
Interface	USB 2.0
Interface protocol	open
Data storage	4 GB micro SD / 500,000 measurements
Memory mode	Manual, auto
Data format	CSV



Model MAVOSPEC LITE  
Article number M530G

SENSOR TECHNOLOGY / MEASUREMENT TOLERANCES	
Sensor	CMOS image sensor, 256 pixels
Diffusor light-entry surface	Φ 7 mm
Distance diffuser to surface to be measured	25 mm
Error limit - cosine rating (f2')	≤ 3.00 %
Spectral range	380 - 780 nm (VIS)
Full width at half maximum (FWHM)	≤ 15 nm (typically 12 nm)
Physical resolution	~ 1.72 nm
A/D converter	16 bit
Wavelength reproducibility	± 0.5 nm
Integration time	automatic, manually 10 ms – 3,000 ms
Signal-to-noise ratio	1,000:1
Spurious light	-25 dB
Dark current compensation	automatic via temperature sensor
Measurement uncertainty illuminance*	± 3 %
Reproducibility chromaticity*	± 0.0005
Measurement uncertainty CCT*	± 2 %
Measurement uncertainty CRI*	± 1.5 %

\*Standard light type A, 2,856 K @ 1,000 lx

MISCELLANEOUS	
Mains power pack	100 - 240V (50/60 Hz) 0.15A 5V, 1A (DC) USB port
Power supply via USB port	•
Rechargeable battery	Li-Ion 3.7V - 890 mAh
Automatic shutdown	Programmable for display + device
Rechargeable battery life	≥ 8 hours continuous operation
Charging time with power pack	1.5h
Operating temperature	5 - 40 °C
Dimensions [H x W x D]	139 mm x 60 mm x 30 mm
Weight	150 g
Scope of delivery	Meter, sensor cover cap, V070A rechargeable battery, power pack, USB interface cable, neoprene sheath, carrying strap, calibration protocol, operating instructions in German and English, 4 GB micro SDHC memory card including EXCEL file with several protocol templates and operating instructions in German, English, French, Italian, Spanish as PDF, SD adapter

OPTIONAL ACCESSORIES	
Replacement battery	Li-Ion 3.7V - 890 mAh Article number V070A
Calibration Certificate	Factory calibration certificate Article number H997S

Subject to change without notice  
• included function

**GOSSEN**

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