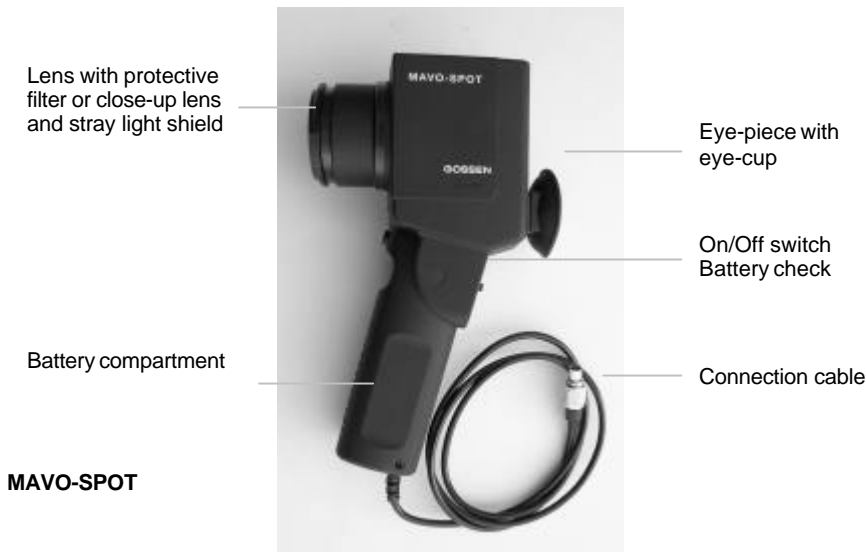


MAVO-SPOT

**With Measuring Angle 1 Degree
For Measuring Luminance from the Distance
Attachment for MAVO-MONITOR**

15167

1/7-04



MAVO-SPOT

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Warning: Do not aim the MAVO-SPOT at the sun. You would risk damaging your eye and also the light sensor may be destroyed!!

1 Applications

The MAVO-SPOT attached to the measuring instrument MAVO-MONITOR provides high precision measurements with a measuring angle of 1 degree.

The combined set permits measuring the luminance, non-contact, at distances from 1 m to ∞ . The MAVO-SPOT is equipped with SLR (single lens reflex) optics having a viewing area of 15° and a clearly defined 1 degree measuring circle in the centre.

Two close-up lenses available as optional accessories permit reducing the measuring distance down to 34 cm. The light sensor is color corrected, i.e. its spectral responsivity is matched to the spectral photopic vision of the human eye (V_λ), acc. to DIN 5032, Part 7, Class B.

The combined set is especially suited for measuring:

- Monitors, while taking into account the ambient light, e.g. inspection and constancy tests at medical imaging systems, acc. to DIN 6868-57 and IEC 61223-2-5 (QS-RL dt. Nov. 20, 2003)
- Lighting of streets, tunnels, airports
- Lighting of sports areas
- Light contrast at work stations (Protection Laws and Regulations)
- Lighting in museums
- Projection screens (Checking the uniformity of illumination)

2 The Functioning of the MAVO-SPOT

2.1 Inserting the Battery

The battery compartment is located at the front of the grip of the unit.

Slide the cover of the compartment downward, insert the battery and attach the connector clip to the new battery. Then insert battery in the compartment.

Attention: Only use new batteries or rechargeable accus according to IEC 6 LF 22.

2.2 Battery Control

When the instrument is switched on the green LED on the right of the **ON/OFF** switch lights up. When the battery is exhausted the red LED at the left of the **ON/OFF** switch will light up. You should then replace the battery immediately.

A new alkaline-manganese battery will last for approx. 60 hours of continuous measurement operation.



3 Using the MAVO-SPOT

3.1 Preparing the measurement

Screw the protective filter, supplied with the instrument, or one of the close-up lenses on the lens of the MAVO-SPOT. For getting correct measurement values, either protective filter or one of the close-up lenses must be placed on the lens, but please note: one item only – either the filter or one of the lenses. Pull the stray light shield out. Use the attached cable to connect the MAVO-SPOT with the MAVO-MONITOR. Switch both units on and select a suitable measuring range.

3.2 Measuring

View through the eye-piece of the SLR viewfinder of the MAVO-SPOT and direct the measuring circle, you see in the viewfinder to the area to be measured. This area should be illuminated uniformly and be as large as possible as compared to the measuring circle. Press the key **HOLD (Display Hold)** at the MAVO-MONITOR and read the value measured.

4 Accessories

4.1 Standard equipment

- Battery
- Instruction Manual
- Protective filter

4.2 Optional accessories

- Close-up lenses: the MAVO-Spot with the protective filter (standard equipment) placed in front of the lens allows measuring from distances from 1 m to ∞ . For shorter distances two close-up lenses are available.
 - Close-up lens 1 (Ordering No. M496G): Reduces the measuring distance down to approx. 51 cm to 1 m
 - Close-up lens 2 (Ordering No. M496G): Reduces the measuring distance down to approx. 34 to 51 cm

Attention: Take care that always the protective filter or one of the close-up lenses must be placed in front of the lens, but one item only. Incorrect measurement values will result, if you attach more than the one filter or more than one close-up lens.

- Transport Case (Ordering No. M495G): for storing and transporting the complete set of MAVO-SPOT plus MAVO-MONITOR and also the two close-up lenses, the USB cable and spare batteries.

4.3 Calibration Certificate (Optional)

Calibration reference: Scientific Standard Lamp, type Wi 41G of the PTB (Physikalische Technische Bundesanstalt Braunschweig – National Standard Institute of Germany). Depending on how the instrument is being used we recommend a recalibration interval between 12 and 18 months. For this purpose please contact our Calibration Service Department (telephone +49 911 8602 172).

5 Servicing and Repairs

No special maintenance is required, if the MAVO-SPOT is handled correctly.

Keep the outside surfaces clean. Use a slightly dampened cloth for cleaning. Do not use cleansers, abrasives or solvents.

Should the instrument nevertheless not work to your satisfaction or if you will require repeated calibration with Test Certificate, please send the MAVO-SPOT to:

GOSSSEN Foto- und Lichtmesstechnik GmbH
Thomas-Mann-Strasse 16 – 20
D – 90471 Nürnberg

6 Technical data

Light Sensor Silicon photo diode with $V(\lambda)$ filter acc. To DIN 5032 Part 7 (CIE 69)

Measuring Angle $\varepsilon^1_{/10} = 1^\circ$

Measuring Range 0,01 cd/m² to 20 000 cd/m²,

Measuring Accuracy the same as indicated for the MAVO-MONITOR

Power Supply 9 V IEC 6 F 22 battery, Accu IEC 6 LF
Battery life approx. 60 hours of continuous measuring

Cable Length approx. 1 m

Dimensions 200 x 90 x 55 mm

Weight 375 g (without battery)

Electromagnetic Compatibility (EMC)

The MAVO-SPOT fully meets the Specifications 89/336/EWG dt. Jan. 01, 1996



EG - KONFORMITÄTSERKLÄRUNG
DECLARATION OF CONFORMITY

GOSSEN

Dokument-nr./ Document.No.:
Hersteller/ Manufacturer:
Anschrift / Address:

104/2004
GOSSEN Foto- und Lichtmesstechnik GmbH
Thomas-Mann-Str.16-20
90471 Nürnberg

Produktbezeichnung/ Product name:

**Leuchtdichtevorsatz zur Distanzmessung
For Measuring Luminance from the Distance
MAVO-SPOT
M494G**

Typ / Type:
Bestell-Nr / Order No:


Das bezeichnete Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein, nachgewiesen durch die vollständige Einhaltung folgender Normen:
The above mentioned product has been manufactured according to the regulations of the following European directives proven through complete compliance with the following standards:

Nr. / No.	Richtlinie	Directive
73/23/EWG 73/23/EEC	Elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen - Niederspannungsrichtlinie - Anbringung der CE-Kennzeichnung : 2003	Electrical equipment for use within certain voltage limits - Low Voltage Directive - Attachment of CE mark : 2003
EN/Norm/Standard EN 61010-1 : 1993 EN 61557-3 : 1997	IEC/Deutsche Norm IEC 61010-1 : 1992 IEC 61557-3 : 1997	VDE-Klassifikation/Classification VDE 0411-1 : 1994 VDE 0413-3 : 1997
Nr. / No.	Richtlinie	Directive
89/336/EWG 89/336/EEC	Elektromagnetische Verträglichkeit - EMV - Richtlinie	Electromagnetic compatibility - EMC directive

Fachgrundform / Generic Standard: EN 61326 : 2002

Nürnberg, den 03. Januar 2002

Ort, Datum / Place, date:
Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, beinhaltet jedoch keine Zusicherung von Eigenschaften. Die Sicherheitshinweise der mitgelieferten Produktdokumentationen sind zu beachten.


Vorsitzender der Geschäftsführung
This declaration certifies compliance with the above mentioned directives but does not include a property assurance. The safety notes given in the product documentations which are part of the supply, must be observed.

Gossen Foto- und Lichtmesstechnik GmbH is also a leading provider for other interesting light measuring instruments:

-MAVOLUX 5032 C USB Digital precision instrument for measuring the illuminance in lx or fc, classified acc. to DIN 5032, Part 7 and CIE 69 in Class C. Ideally suited for use in industry, trade, institutes and inspection authorities, also for very high light intensities.

-MAVOLUX 5032 B USB Digital precision instrument for measuring the illuminance in lx or fc, classified acc. to DIN 5032, Part 7 and CIE 69 in Class B. Especially wide measuring range and high sensitivity for inspection and certification, suited for checking emergency lighting, but also for very high light intensities.

-MAVO-MAX: For monitoring the ambient light in the surroundings of monitors according to the IEC 61223-2-5 (QS-RL dt. 20/11/2003). The use of the MAVO-MAX allows extending the required repeat test intervalls of the „veil luminance“ and the „maximum contrast“ at medical imaging displays – to six month.

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GOSSEN Foto- und Lichtmesstechnik GmbH
Thomas-Mann-Str.16-20
90471 Nürnberg
Phone : +49 911 8602-181
Fax: : +49 911 8602-142
e-mail: info@gossen-photo.de