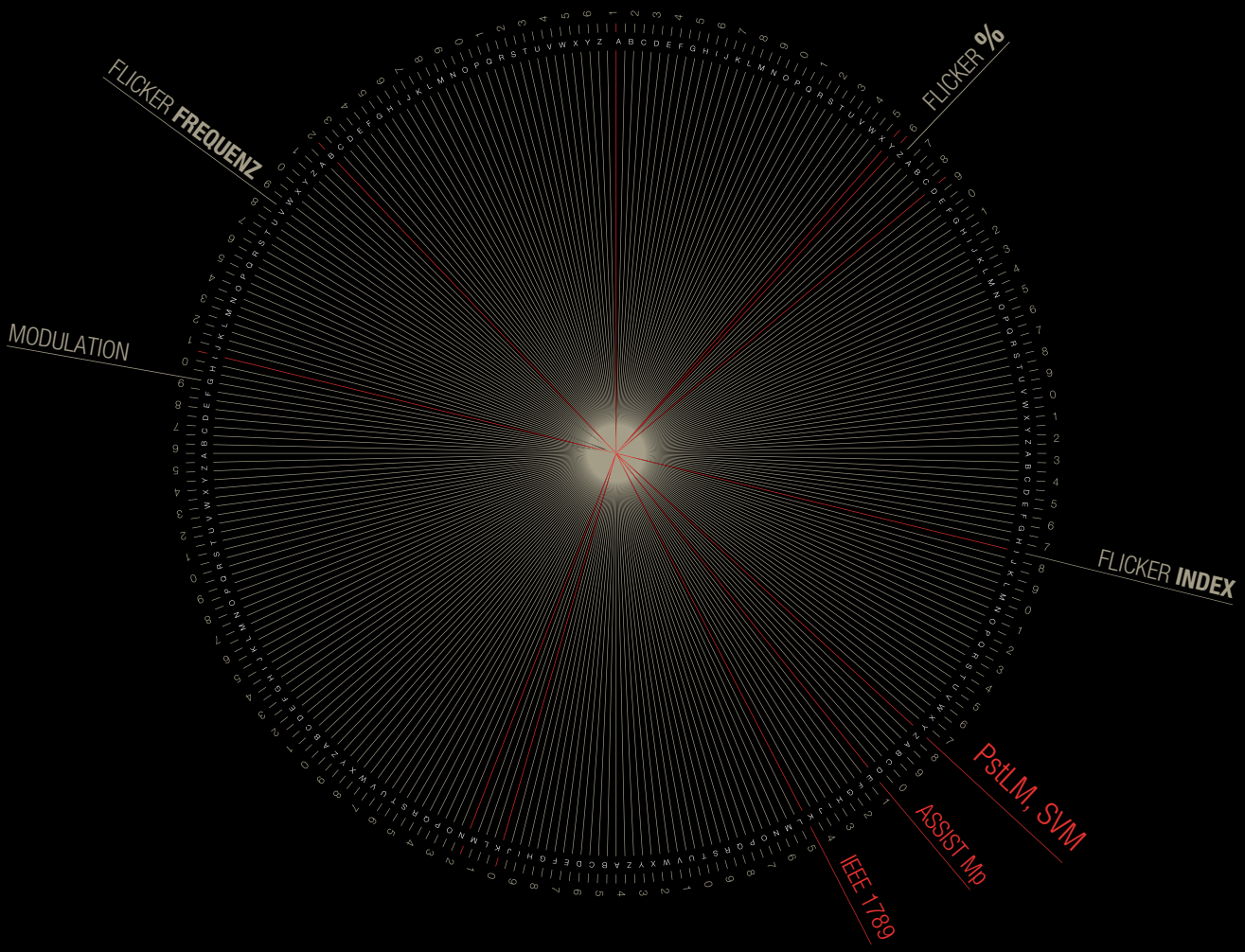
GOSSEN

The Flicker Meter
MAVOPAD



RELIABLY QUANTIFYING TEMPORARY LIGHT ARTIFACTS

USB 2.0

MAVOPAD – Precise Measurement of Light Flicker (PstLM) and Stroboscopic Effects (SVM) in Luminaires

The use of LED in lighting technology necessitates greater accuracy for flicker measurement with new calculation procedures and parameters. The Ecodesign Regulation (EU) 2019/2020 established binding limit values and standardized measurement methods for the European market. It also requires all manufacturers to provide information on luminous ripple demonstrated by their products.

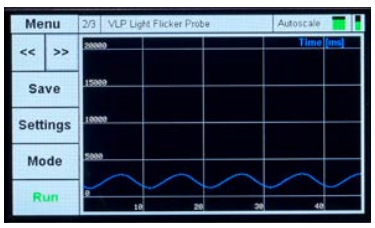
MAVOPAD – All Parameters and Calculation Procedures with Maximum Precision

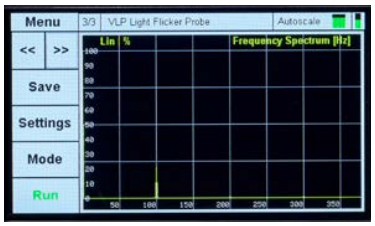
Brightness fluctuation results from the fact that LEDs very quickly respond to voltage fluctuations. Flicker influences human health and mood, and our sense of well-being. It can trigger epileptic seizures, migraine headaches, fatigue, restricted visual acuity, distraction and impaired vision. In the case of rotating objects, the strobe effect can lead to erroneous evaluations and accidents. Previous time range parameters such as flicker percentage, flicker index and flicker frequency are no longer sufficient, which is why new calculation procedures and parameters have been developed. These include PstLM and SVM, whose importance has increased due to the establishment of limit values in EU ecodesign requirements. Flicker assessments in accordance with IEEE 1789 and ASSIST Mp are used outside of Europe.

The universal MAVOPAD covers all of these calculation procedures and flicker parameters. In addition to displaying the parameters, the time curve and the frequency spectrum are also depicted. High 16-bit resolution and a fast sampling rate of up to 1.6 MHz even make it possible to measure lighting dimmed with high PWM frequencies. By means of updates, the MAVOPAD is also open for additional complex evaluation procedures.

For Professional Use by Lighting Manufacturers, Importers, Lighting Designers and Anyone Who Certifies Light on a Daily Basis

The highly accurate MAVOPAD is laid out ideally for laboratory and development applications and is indispensable for manufacturers and importers of lamps, luminaires and LED control gear in order to verify or check for compliance with the specified EU limits. But also as a portable meter used on site, the MAVOPAD is highly advantageous, e.g. for the assessment of newly installed lighting systems and for testing existing installations.





MADE IN GERMANY

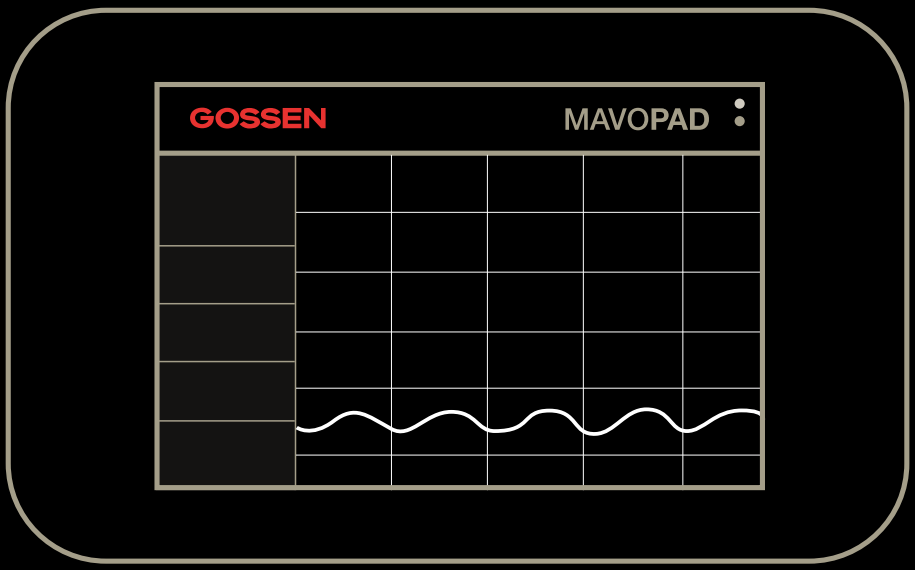
MADE IN GERMANY

MAVOPAD – the Innovative Measuring Instrument

The MAVOPAD is designed for extremely fast and accurate measured value acquisition and is equipped with lots of computing power – for precise analyses.

All MAVOPAD Functions at a Glance

- EXCELLENT MEASURING ACCURACY
  16-bit A-D converter resolution.
- EXTREMELY FAST SAMPLING RATE
  Up to 1.6 MHz with as many as 4 measuring channels.
- NUMEROUS EVALUATION PROCEDURES
  PstLM, SVM, flicker%, flicker index, modulation, dominant frequency, ASSIST Mp and IEEE 1789.
- INTUITIVE OPERATION
  4.3" touchscreen display with direct access to all important functions.
- UNIVERSAL DISPLAY
  Display of measured values, time curve and frequency spectrum.
- V(λ) MATCHING
  Color corrected spectral sensitivity of the VLP sensor corresponds very closely to the spectral brightness sensitivity of the human eye.
- INTEGRATED DATA MEMORY
  Measurement data can be stored to internal memory in CSV format and read out via USB.



Model MAVO**PAD**
Article Number M610A

TECHNICAL DATA

VLP Light Flicker Sensor

MEASURING FUNCTIONS	
Spectral sensitivity	480 … 660 nm
Spectral matching	V(λ)
Illuminance	1 lx … 20.000 lx, mean, maximum, minimum
Flicker Minimum illuminance	Dominant frequency, flicker%, flicker index, modulation > 200 lx
Flicker (frequency weighted) Minimum illuminance	PstLM, SVM, ASSIST Mp, IEEE 1789 > 1000 lx
lx accuracy	<5%, Standard illuminant A at 1000 lx, ε 0°
PstLM accuracy	per IEC TR 61547-1
SVM accuracy	per IEC TR 63158
Flicker frequency	50 Hz … 400 kHz

MECHANICAL DESIGN	
Sensor connection	Can be plugged in directly or via 0.8 m sensor extension cord
Protection	IP 20
Dimensions	18 mm dia. x 55 mm
Weight	30 g

Subject to change without notice

MAVOPAD

OPERATION	
Display	4,3“ capacitive TFT touchscreen display
Display illumination	Brightness 10% to 100% in steps of 10% Power saving (minutes) 1 to 10 minutes in 1 minute steps Power saving (%) 10% to 100% in steps of 10%
A-D Converter	16-bit, 4-channel, sampling rate up to 1.6 MHz
Interface	USB 2.0 with micro B socket
Sensor detection	Automatic

POWER SUPPLY	
Battery	Rechargeable lithium-ion
Automatic battery monitoring	Battery voltage display
Automatic shutdown	Off: 10 to 60 minutes in 10 minute steps
Operating time	5 to 20 hours depending on device settings
Charging time	3 hours, charge every 6 months when not in use
Charging	Via USB socket with 5 V / 1500 mA plug-in power pack, LED charging indicator

AMBIENT CONDITIONS	
Operating temperature	5°C … 30°C
Storage temperature	0°C … 40°C
Relative humidity	10 ... 70 % (no condensation)

MECHANICAL DESIGN	
Protection	IP 20
Dimensions	154 x 96 x 34 mm
Weight	350 g

SCOPE OF DELIVERY
MAVOPAD, VLP light flicker sensor,# 0.8 m sensor extension cord, li-ion battery (built-in), plug-in power pack, interface cable, touch pen, operating instructions, plastic carrying case, test certificate

Subject to change without notice

GOSSEN

Foto- und Lichtmesstechnik GmbH
Lina-Ammon-Str. 22
D-90471 Nuremberg
Germany
Tel: +49 (0) 911 800621 – 0
Fax: +49 (0) 911 800621 – 29

www.gossen-photo.de