

# SOLAR FLARE

## Flashing Light Solar Simulation System for PV Modules

*Our flashing light solar simulation system Solar Flare for PV modules combines a flashing unit for the light supply and the I-V curve analyser PV-KLA for measuring the I-V curve of a PV module within one flash.*

*Because of the modular built-up and high accuracy of the PV-KLA this device can also be used for reference calibration measurements under natural sunlight.*



### Functional Description

Our flashing light system Solar Flare was developed for I-V curve measurements of PV modules and is optimised for production tests as well as for teaching students in the laboratory. The high quality of repeatability enables the staff to measure the output power of a PV module with high accuracy by using a reference module of the same type.

During the measurement the irradiance changes and will be corrected within the software compensation.

Behalf the measurement of current and voltage in 4-wire-technique also irradiance and temperature are measured together with every point on the I-V curve.

The system exist of a flashing unit, mounted into a case of eloxadised aluminium profiles, shut with eloxadised aluminium sheet metal, which contains the flashing tube and its power supply as well as the I-V curve analyser PV-KLA.

The PV-KLA is used as a highly accurate measuring system for taking the I-V curve and also controls the power supply for the flashing tube by starting the flash in the right moment.

Because of the wide range of measuring I-V curve also under natural sunlight, the PV-KLA can be used for making reference calibration modules under the natural sunlight for use under the Solar Flare.



**INGENIEURBÜRO  
Mencke & Tegtmeyer**

Meßgeräte für die Solartechnik

**PRELIMINARY**

**INGENIEURBÜRO  
Mencke & Tegtmeyer**

Hohe Linden 8F  
D-31789 Hameln  
Tel.: (051 51) 40 36 99 - 0  
Fax: (051 51) 40 36 99 - 19  
email: [info@ib-mut.de](mailto:info@ib-mut.de)  
<http://www.ib-mut.de>

Bankverbindung:  
Stadtsparkasse Hameln  
(BLZ 254 500 01)  
Kto.-Nr. 10 00 38 38

USt-IdNr. DE160212135

## SOLAR FLARE

Flashing Light System

### Technical Data

- Flashing tube: Xenon flash, 4800 Ws
- Enlighted area: maximal 2,0 m \* 2,0 m
- Irradiance: maximal 1.100 W/m<sup>2</sup>
- Inhomogeneity: ±10 % for 1,6 m \* 1,6 m, ±12 % for 2,0 m \* 2,0 m
- Flash duration: 7 ms with  $|G_{\min, \max} - G_{\text{mittel}}| < 10 \%$
- Spectrum: AM 1.5 class C
- Measuring time: 6 I-V curves per minute
- Repeatability at module measurement: ±0,5 %
- Power supply: 230 V<sub>ac</sub>
- Dimensions (B \* L \* H): 0,6 m \* 1,0 m \* 2,0 m
- Weight: 30 kg

## PV-KLA

I-V Curve Analyser for  
Photovoltaics

### Technical Data

- Basic accuracy: ±0,2 % fsr
- Voltage ranges: 15, 30, 60, 120 and 240 V
- Current ranges: 2, 4, 8 and 16 A
- Maximal sampling rate for one current-voltage data pair: 66 ksamples/s
- Sampling of all channels by using 4 sample and hold devices
- Measuring time for I-V curve: 2 to 8 ms  
(about 6 I-V curves per minute possible)
- User interface: controlled directly via PC and software PVK

## SI-02

Silicon  
Irradiance Sensor

### Technical Data

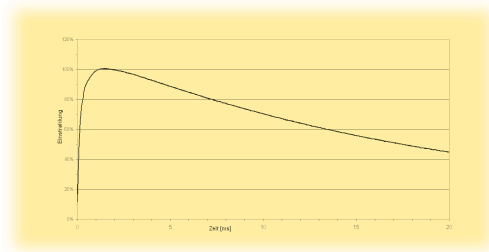
- Silicon irradiance sensor
- Calibration value for irradiance: about 70 mV per 1000 W/m<sup>2</sup>
- Monocrystalline solar cell, embedded in ethylen-vinyl-acetat (EVA) between glass and Tedlar
- Pulverised aluminium case

## LIEFERUMFANG

### Standard Version

Complete device Solar Flare with PV-KLA with the following accessories:

- Solar Flare housing made of eloxadised aluminium profiles and sheets, special opening
- Power supply for Solar Flare, flashing tube, functionable built up
- Serial RS232 com port, incl. cable
- Power supply (optional battery supply with charging unit)
- Silicon irradiance sensor Si-02 (incl. 2m cable, uv- and temperature resistant)
- Pt100 sensor for measuring module temperature (incl. 2m cable)
- Controlsoftware PVK for Windows™, incl. calibration function
- Manual



## OPTIONS

- Implementation, optimisation and training of personal on request
- Software options, output masks for type and data sheets on request
- Additional current and voltage ranges on request

Detaillierte Infos, Referenzlisten sowie eine Demoversion der Software PVK mit Bedienungsanleitung können direkt bei uns angefordert werden.