

LEDs GO OUTSIDE!

The Portable Flasher is the ideal solar simulator

- to test solar module just before installation in solar parks (incoming inspection)
- to test installed solar modules directly in the solar farm (power monitoring).

It enables very cost-efficient testing of modules, e.g. short before end of warranty period without the need to disassemble the power plant.

Its nearly perfect simulation of the sun's spectrum enables highly accurate solar module efficiency measurement at minimum operating costs due to the large life span of LEDs. It can be disassembled into three equally large pieces for easy transportation, it is fully portable and can be handled by two operators. The Portable Flasher is based on product ideas developed by Prof. Dr. Franz Baumgartner at ZHAW (University of Applied Sciences, Switzerland), and by Assoc. Prof. Dr. Kasper M. Paasch, Philon Technology / University of Southern Denmark.



FEATURES

- Adjustable multi-color LED light source
- Perfect copy of the sun
- Matches class A+AA+ criteria
- Long exposure time for high-efficiency solar modules
- Battery powered for full independence on site

BENEFITS

- Allows measurement of solar module just before installation or even installed modules
- Fast measurement of installed modules (1 module/min)
- Low operating costs
- Light weight and portable
- Intuitive and ergonomic GUI

CLASSIFICATION

	Portable Flasher		Class AAA requirements
Spectral Match	Class A+	0.875 - 1.125	0.75 - 1.25
Non-uniformity of irradiance	Class A	< 2%	< 2%
Short-term instability (STI)	Class A	< 0.5%	< 0.5%
Long term instability (LTI)	Class A+	< 1%	< 2%

Test conditions: 1sun, AM1.5G, 100 ms with 50 ms stabilization time, illuminated area 1x2m², ambient temperature of 5-30°C, rel. humidity of 20-60%, non-condensing conditions.

SPECTRAL QUALITY

Wavelength range (nm)	Portable Flasher	AM1.5
400 - 500	16.1%-20.7%	18.4%
500 - 600	17.4%-22.4%	19.9%
600 - 700	16.1%-20.7%	18.4%
700 - 800	13.0%-16.8%	14.9%
800 - 900	10.9%-14.1%	12.5%
900 -1,100	13.9%-17.9%	15.9%

FUNCTIONALITY

IV curve measurement	<ul style="list-style-type: none"> Under LED illumination at variable intensities or under natural sun light (without LED flasher)
Solar cell parameter analytics	Voc, Isc, FF, Pmpp and efficiency
Temperature measurement	At back sheet with pyranometer
Temperature correction	Solar cell parameters are adjusted according to IEC 60904-5, IEC 60891
User defined analytics	Open software interface allows export of all measured data for analysis and import of classification criteria
Autonomous operation	Battery powered LED light source and IV electronics
Easy transportation	<ul style="list-style-type: none"> LED light engine consist of three equally sized units and can be easily assembled on-site stackable

PRODUCT FEATURES

Intensity range	As required: from 0.1 up to 1 sun
Spectrum	AM1.5, AM0 or any customer defined spectrum possible with light engine including illumination by single colors
IV curve measurement duration	from 10 ms up to 100 ms.
Flash-to-flash time interval	60 s
Voltage resolution	0.025%
Current resolution	0.025%
Number of measurement points	up to 3.500
Test area	For modules with up to 72 solar cells (6 inch), 1,000mm x 2,000mm
Weight of LED light engine	37 kg
Weight of IV electronics	12 kg
Power requirements	Battery charging via 50 Hz 230 VAC or 60Hz 120VAC
Environmental conditions	No rain, no fog, temperature range 5°C-30°C, rel. humidity range 20-60%, non-condensing-conditions

TECHNOLOGIES AND COMPONENTS

Light source	Multiple individually controlled LEDs with different peak wavelengths.
IV measurement	Passive load with 14 bit calibrated analog-digital converter and calibrated shunt resistor.
System control	Windows laptop runs application software and controls hardware.

SCOPE OF DELIVERY

Portable light engine including batteries
Battery charger
IV electronics
Laptop
Cables
Manuals

Specifications subject to technical changes, Portable Flasher 2019_03_01

Additional features upon request.

CONTACT

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