Solar Simulator and Cell Tester Continuous Light

Solar simulators with continuous light are primarily used for research purposes. Typically, their light output is more stable than can be found in simulators using flashlamps.

This type of solar simulator uses Xenon high pressure arc lamps as light source. These lamps have a colour temperature near 5800 K, so it is feasible to filter the light output to an excellent AM 1.5 spectrum. If a tuneability of the spectrum is required, these lamps can be combined with tungsten lamps to achieve multi-source solar simulators. These can be used to measure tandem/triple/multijunction solar cells. They also allow detailed analysis of all types of solar cells using a spectral metric (see : Publication List).

Optosolar Continuous Light Solar Simulators allow an adjustment of the light intensity between 800 W/m2 and 1100 W/m2. Using additional filters, even very low light level measurements for energy rating can be done, down to 200W/m^2 or even 50 W/m^2.

Technically, it is more sophisticated to achieve a very good light uniformity, so this type of solar simulator is typically higher priced than a flashlight solar simulator.

All versions
Simulator class AAA, option A+A+A+ acc. to IEC 60904-9, ed. 2
Light source: Xenon lamp (continuous), Light intensity ca. <800 … 1100 W/m^2, adjustable. Low light level option down to 50 W/m^2 . Spectrum: AM 1.5, class A or A+

Light shutter, mechanical or computer controlled.
Double or triple lamp (Xenon, tungsten, LED) available for adjustable spectra

Version for calibration laboratories and high precision measurements

Very high precision amplifiers,
Low temperature coefficient/high stability measurement resistors,
Gold coated connectors for very good contact resistivity,
Software management of references and projects,
Generation of ISO 17025 test laboratory conforming measurement reports,etc.

Measurement procedure
Start of measurement by PC, keyboard, external switch or other external events.

Cell size max. 50mm x 50mm up to max. 200mm x 200mm, (options for 2,4, 6, 8 inch cells), spatial uniformity of light: +-2% or better, depending on sample size.

Electronic load. Measurement ranges: as defined by customer (max. 200/250V, 40A, down to mV and pA). High precision, high stability internal amplifiers with 4 amplification ranges for current, voltage and intensity. Other ranges/cell measurement option on request.

Typical for 160mm x 160mm:

voltage ranges 0.37, 0.75,1.5, 3V, other ranges on request, e.g. max 10V or 50V
current ranges 1.2, 2.5, 5, 10 A, down to <uA range (low current option)
current/voltage resolution 0.01%
reference cell range 30, 60, 120, 240 mV

Kelvin 4 wire connection to cell and temperature sensors

Measurement of light IV, dark IV in forward and reverse connection (options). Adjustable measurement speed for high capacity cells.

Analysis of IV characteristic:
Series and shunt resistance, curve transfer to other intensity/temperature values, 2 diode model (option)

Temperature measurements:
Ambient temperature, Cell temperature, reference temperature, using RTD (PT100), 16bit or IR sensors (option)

Automation:
Safety measures and automation(option): Input for external measurement start switch, output (TTL) for warning lamp. Communication with automated cell transport on request.

Intensity measurement: using reference cell

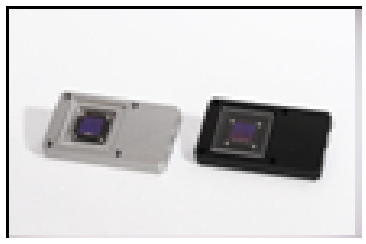
Acessories:

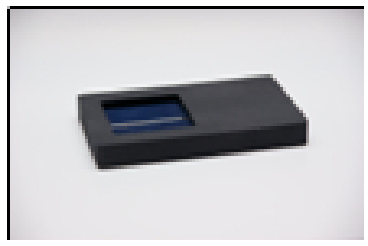
Go to top

Measurement block/cell holder:
holding cells by vacuum suction. Holding grooves for various sizes of solar cells up to 6 in cells. Gold coated for good conduction at high currents. Temperature control by water thermostat or peltier/water (options).

Cell contacts:
Double needles for separate current/voltage connection, or ‘bridge’ with spring contacts. Needles mounted on micropositioner (option) for precise contacting of small contact pads. Possible configurations for top/bottom contacts (e.g. silicon cells), top/top or bottom/bottom contacts for inverted cell structure (dye, organic, polymeric, thin film solar cells) (all as individual options).

Reference cells:
calibrated wafers or reference cells in casing similar to world PV scale cell case





Contact: info (at) optosolar.com

BOTTOM

BOTTOM MENU

Datenschutzerklärung (DSVGO)
Impressum (Deutsch)
Privacy Policy (DSGVO)
Legal notice