

# MBJ Sun Simulator – Lab 5.0

## with integrate EL for an all-in-one system



### Easy to handle lab system

The MBJ sun simulator 5.0 is as lab system for an in-depth quality analysis of photovoltaic panels. It combines an A+A+A+ LED sun simulator for power measurement with an optional high-resolution electroluminescence system.

With up to 22 different LED types an almost perfect spectrum is achieved which is as at least as good as a Xenon spectrum. The operation is simple: open the lid, place the module, close the lid and start the measurement.

- Large module sizes
- Long LED lifetime
- Optional integrated Hi-Res EL & Hipot
- Easy to use
- Made in Germany



Sun Simulator	Standard spectrum	Advanced spectrum
Spectrum / Light source	Class A+ IEC 60904-9 Ed.3 LED with UV and IR extended spectrum	
No. of LED types	13	22
Spectral coverage (SPC)	> 94 %	> 98 %
Spectral deviation (SPD)	< 44 %	< 24 %
Total irradiance	200 - 1200 W/m <sup>2</sup>	
Non uniformity	< ± 1 % (Class A+ IEC 60904-9 Ed.3 < ± 1 %)	
Long term instability (LTI)	< ± 0.5 % (Class A+ IEC 60904-9 Ed.3 < ± 1 %)	
Accuracy of Pmax	± 1 % based on reference module usage	
Repeatability Pmax	± 0.2 % (absolute)	
Flash pulse duration	200 ms at 1000 W/m <sup>2</sup> / 100ms at 1200 W/m <sup>2</sup>	
Life time of LED's	> 12 million flashes at 1000 W/m <sup>2</sup>	

### Optional:

Electroluminescence	Standard	ECO	MAX
Camera type	NIR CMOS cameras		
Resolution	> 20 MPixel	>24 MPixel	> 30 MPixel
Power supply	up to 250 V / 12 A for EL testing		
Operation mode	Automatic image acquisition, manual judgment through operator		



# MBJ Sun Simulator Lab 5.0

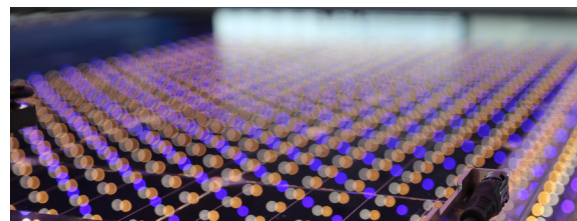
## All-in-one Laboratory Sun Simulator

The machine is a stand alone system, ideal for laboratory use. The manual loading provides a large freedom in module types and sizes to be measured.

Benefit from the 4-point electrical connection, the long light pulse and the innovative step wise IV-sweep when measuring the latest high capacitive cell technologies, including cells like PERC, hetero-junction and TOPCon.

The latest generation of the sun simulator is certified according to IEC 60904-9 Ed.3 as class A+A+A+. With 22 different LED types, a spectral coverage of more than 98 % of the solar spectrum is achieved.

Make use of the well-known advantages of LED technology such as a much longer light source life time, the stability of the light source over time, better measurement results through outstandingly



stable repeatability and significantly reduced operating costs over the systems life time.

The integrated electrical connection test as well as the diode test is already included in the system.

Integrate the optional high-resolution electro-luminescence system and a hipot and grounding test to have a very compact all-in-one lab system at your disposal.

Add an operator desk with workstation and label printer to complete the lab.

Three different machine configurations make it possible to tailor the system to your needs!

MBJ Sun Simulator Lab 5.0	Standard	ECO	MAX
Max. module size	1060 x 2250 mm	1240 x 2400 mm	1400 x 2700 mm
Max. active area (A+)	1040 x 2160 mm	1200 x 2320 mm	1360 x 2640 mm

Available options

Connection test, Diode test, Hipot and ground bond test, operator desk with PC and label printer, UPS, homogeneity verification tool

