

# MBJ - Backend solution

Innovative LED technology meets proven EL system

Innovative inspection solutions  
for the photovoltaic industry



A+A+A+ LED Sun Simulator, Hipot-Test,  
Grounding-Test and high resolution EL-Test

- Superior LED life time
- Pulse width up to 200ms
- Compact design
- Made in Germany

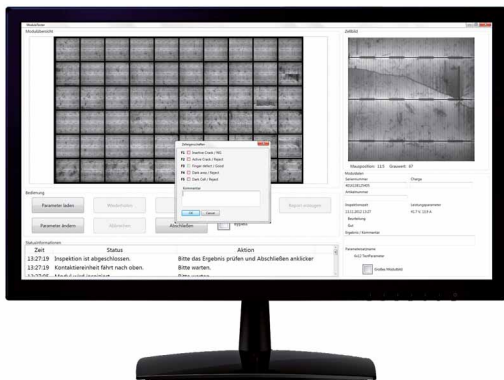
The MBJ Backend Solution combines a triple A+ LED sun simulator with hipot and grounding test and a high resolution EL tester into a very compact system design. All tests are performed sunny side down which makes the integration into the production flow easier than ever.

# MBJ - Backend solution

## Innovative LED technology meets proven EL system

### Field of Application

The **MBJ Backend Solution** is a new, innovative inspection system for the backend of the module production process. It combines the most important quality tests in one compact system: an A+A+A+ LED sun simulator, the Hipot and Grounding test and our proven EL inspection technology.



The powerful and easy to use SW

All final module test steps are performed sunny side down, which makes the integration into the production line a lot easier than it used to be.



The LED technology addresses the major problems of the established XENON technology: much longer life time, longer pulse duration, substantially better stability of the light source over time. All this results in better measurement results and significantly reduced operating costs over the systems life time.

The backend solution is offered as long or short edge leading version. The LED sun simulator is available with standard or extended spectrum following the IEC 60904-9 edition 3, and can be adapted for bi-facial modules. For glass-glass modules the hipot test is possible in a separate station.

Model	MBJ - Backend solution	
<b>General data</b>	Cycle time	< 45 sec (standard) / < 30 sec (high speed)
	Max. module size	1050 x 2050 mm
<b>Sun simulator</b>	Light source	LED (IEC 60904-9 TÜV Rheinland certified technology)
	Total irradiance	200-1000 W/m <sup>2</sup> (configurable in 200 W/m <sup>2</sup> steps)
	Spectrum	Class A+
	LTI	Class A+
	Non uniformity	Class A+
	Repeatability Pmax	< 0.1 %
	Flash pulse duration	up to 200 ms at 1000 W/m <sup>2</sup>
	Life time of LED's	2 mio. flashes guaranteed (10 mio. flashes expected)
<b>Hipot/grounding test</b>	Test voltage	Adjustable up to 11000 VDC
	Test current	Adjustable 3 - 30 A
	Test time	Adjustable 0.1 - 999 sec
	Contacting unit	Carbide metal probe using pneumatic cylinder
<b>EL tester</b>	Resolution	200µm/pixel (60 MPixel)
	Cameras	3 SolarCamTwo (standard) or 3 SolarCamFour (high speed)
	Power supply	60V / 20A (voltage and current controlled by software)
	Judgment	Automatic defect detection software