MEYER BURGER

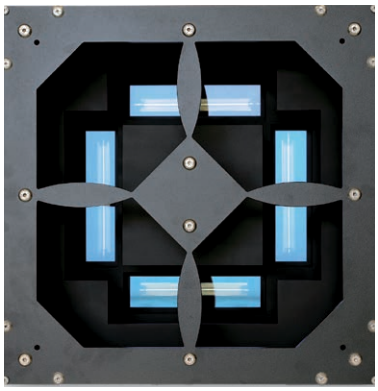
High^{LIGHT} LMT/VLMT

Module Tester for Laboratories

The measurement you rely on

The latest developments added to our unequalled light source quality allows the new generation HighLIGHT tester for laboratories to perform measurements with the lowest overall uncertainty.

- Established quality reference : most of leading certification bodies and test institutes worldwide rely on Pasan (i.e. Fraunhofer ISE, TÜV Rheinland, ESTI, SUPSI)
- A+A+A+ light source TÜV certified, with extended spectrum range (300–1200 nm)
- Low irradiance and spectral response measurements over the full module area as option



Setting the standard for uncertainty control

Pasan turnkey solar simulator system certified by TÜV Rheinland in a class of our own: A+A+A+ (twice better than class AAA)

IEC 60904-9	Pasan A+A+A+	AAA	BBB
Spectral Match	< ± 12.5 %	± 25 %	± 40 %
Non-uniformity	< 1.0 %	2 %	5 %
Instability	< 1.0 %	2 %	5 %

Uncertainty on Pmax*	Pasan A+A+A+	AAA	Accuracy gain
Spectral Match	2.4 %	3.5 %	**1.1 %**
Non-uniformity	3.1 %	4.1 %	**1 %**

*Uncertainty calculation (k=2) according to ISO/IEC GUIDE 98-3:2008(E), Please refer to publication 4AV.1.38 at 26th EU-PVSEC

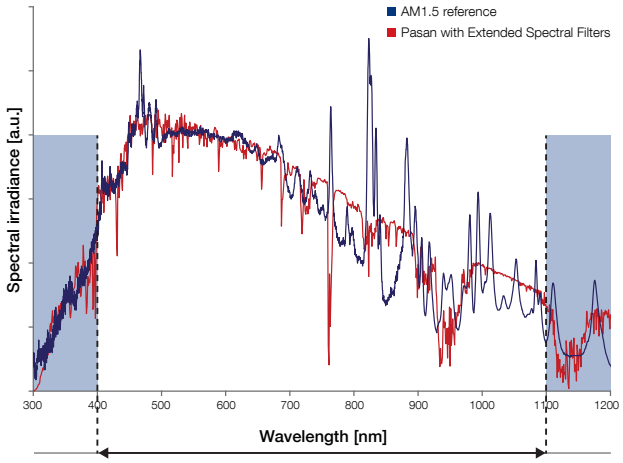

Certificate

premium
technology
standard
by pasan

Best in class system

Worldwide reference technology constantly improving

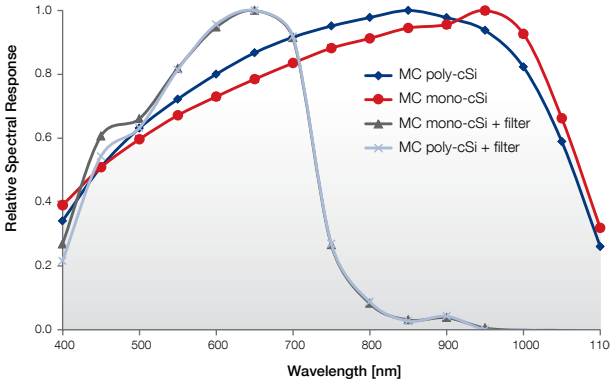
- Exceeds the IEC standards in terms of classification and spectral range (300–1200 nm)
- New electronic load's design increases the measurement accuracy by thermally stabilizing the measurement shunts and increasing the precision of the acquisition channels
- Up to 4 irradiance channels can be measured and displayed simultaneously
- Established quality reference: most of leading certification bodies and manufacturers world-wide rely on Pasan



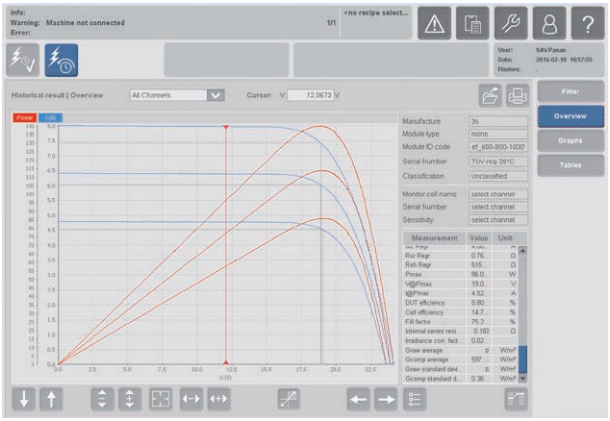
IEC range = 400–1100 nm

Powerful features for a complete evaluation of module characteristics

- The set of spectral filters enables relative measurements of the spectral response (quantum efficiency) of any solar module over the full area
- The light attenuation masks enable IV-curve measurement of PV modules at reduced irradiance levels. Their unique design ensures we keep the A+A+A+ light quality from 100 to 1200 W/m^2
- The WPVS interface allows to use a World PV Scale (WPVS) reference cell as monitor cell or as reference DUT to decrease the overall uncertainty of the measurement



Spectral response measurement



Low irradiance measurement

Flexible laboratory interface

Software especially designed to fulfill your needs

The software interface has been fully redesigned, taking into account the numerous years of experience gained by working with PV institutes.

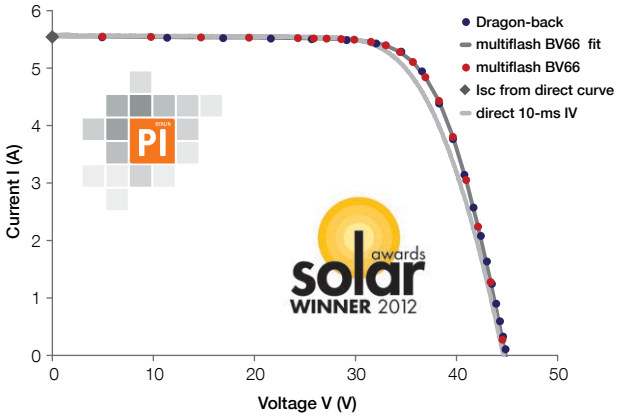
- Highly configurable interface
- Customized sets of measurements can be predefined and played
- Display of multiple curves simultaneously
- Ability to input custom voltage ramps
- Zoom on display feature on compensated and raw data

Pasan software interface

DragonBack® method: Speeding up the measurement of high efficiency modules

The Pasan DragonBack® dynamic sweep methodology combined with our unequalled testers' quality allows high accurate measurements of any high efficiency technology

- Measurement method validated by PI Berlin institute
- Short pulse flash for highest light quality without any heating of the module
- Suited for actual and future high performance technologies
- Deviation of the Pmax between multi-flash and DragonBack® measurements <0.3 %



DragonBack® measurement

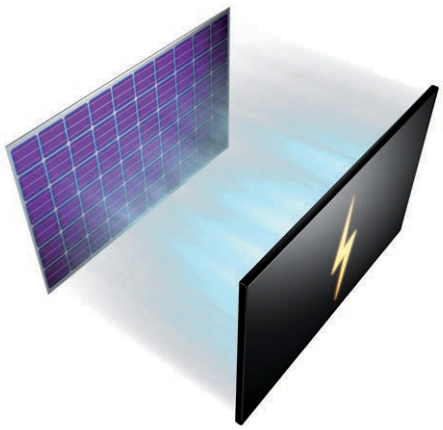
Options & Accessories

Technical specifications

- Module dimensions :
  - Up to 2.0 x 2.0 meters with High^{LIGHT} LMT Module Tester
  - Up to 3.0 x 3.0 meters with High^{LIGHT} VLMT Module Tester
- Active Electronic Load
  - Enables 4 quadrants sweep; IV and dark measurements
  - Manages up to 4 irradiance and temperature channels (InfraRed sensor, Pt100 / Pt1000 probes)
  - Measurement ranges up to 420V and 50A
  - Guaranteed accuracy (I, V, Irradiance) ≤ 0.1% for k = 2
  - Calibration report provided with each system
- Module types: Standard Si, thin films, high efficiency module (for example HJT)
- Environment: 25 ±10 °C

Options and integration

- Simple upgrade pack that turns your SunSim to our new High^{LIGHT} tester generation
- Light attenuation masks for low irradiance measurements
- Spectral filters for spectral response evaluation
- Infra-red sensor, Pt100, Pt1000 temperature probes
- WPVS reference cell interface
- ISO17025 calibration service
- Horizontal tunnel and vertical tower setups
- Spectrometer for evaluation of the Module Tester spectrum



For production environments, refer to High^{LIGHT} Prod documentation

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Designed and manufactured by Pasan SA