

FMT-350 — Light I-V Testing for Modules



Advanced analysis of solar modules including light I-V and Suns-Voc data. Capability to accurately measure high-efficiency modules.

Product Overview

The FMT instrument has been designed to have the highest possible accuracy for measuring high-efficiency silicon solar modules. This is accomplished using a patented multflash technology.

The standard analysis includes the commonly reported parameters for module testers, but is supplemented with the Suns-Voc analysis that precisely indicates the source of power loss due to shunt and series resistance effects.

FMT System Capabilities

Primary applications:

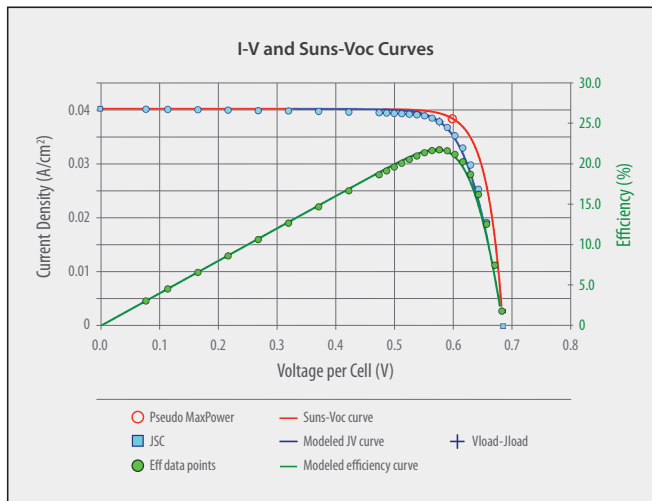
- One-sun flash module testing

Analysis techniques:

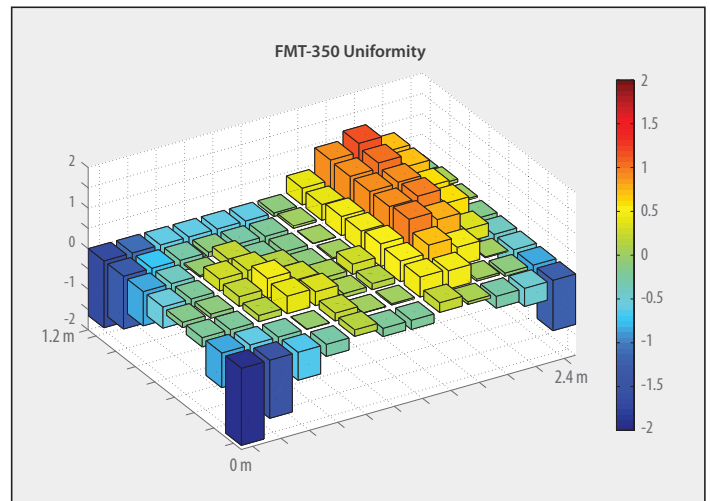
- Suns-Voc curve
- 3-point production testing utilizing Suns-Voc, J_{sc} , V_{load}
- Efficiency versus intensity characteristic
- IV curves at multiple intensities

Measures any crystalline silicon module, including high-capacitance, high-efficiency modules, using patented electronic load technology.

Over 1 GW of product has been tested to date using the FMT instrument. It is also ideal for R&D.



The FMT interface displays both I-V and Suns-Voc data. This permits direct comparisons of module data to cell data and quick identification of series resistance, shunting, and cell mismatch.



The FMT-350 illumination area uniformity is Class A ($\pm 2\%$) uniformity over a 1 x 1.5 m test area. The figure above shows data from a setup that achieved Class A ($\pm 2\%$) uniformity over 1.2 x 2.4 m.

FMT Specifications

Instrument Specifications

Available measurements

- Voc, Isc, Vmp, Imp, FF, Rs, Rsh
- Suns-Voc parameters

Measurement modes

- Full I-V
- 3-point measurement (Voc, Isc, Vload)
- Hunt for Vmp (optimized sequence to take data at Vmp)

Current range

- 0–10 A

Voltage range

- 0–100 V (other available)

Available intensity range

- 0.2–1.3 suns

Uniformity

- $\pm 2\%$ 1 x 1.5 m

Simulator class

- Class A uniformity over 1.5 x 1 m
- Class A temporal stability
- Class C spectrum, standard (Class A spectrum, optional)

Warranty

- One-year limited warranty on all parts and software
- Service agreement also available



Facility Requirements

Ambient operating temperature

- 20°C–25°C

Power requirements

- Computer with monitor: 200 W
- Light source: 1 kW 20 A

Dimensions

- 5-m distance from source to module required for Class A uniformity

Universal mains voltage

- 100–240 VAC 50/60 Hz

Special facilities requirements

- Darkened room or tunnel (2.5 x 2.5 m cross section typical)



High-throughput flash power supply.

FMT Components

- Electronic load and current, voltage interconnections
- Programmable flashlamp and supply
- Windows PC with installed, configured software and monitor
- Sinton Instruments data acquisition and analysis software package
- High-resolution, high-speed data acquisition with simultaneous I-V-illumination sampling

Purchasing Information

For a quote, please contact quotes@sintoninstruments.com

We are happy to accommodate custom requirements. Please inquire about a quote for your specific needs.

Quotes are valid for 60 days. Please allow 10 weeks for delivery from date of purchase order.

For our full product line, visit our website at: www.sintoninstruments.com

