

FCT-450: Light I-V Testing for Solar Cells



The removable chuck plate allows for multiple backside contact chucks to be rapidly interchanged with the standard front contact chuck.

Advanced analysis of solar cells including light I-V and Suns-Voc data. Capability to accurately measure high-efficiency conventional or backside-contact solar cells.

Product Overview

The FCT-450 has been designed to have the highest possible accuracy for measuring high-efficiency solar cells. This is done using patented Voltage Modulation to neutralize the capacitive effects in I-V measurements.

The Sinton analysis package includes standard cell test outputs. It is supplemented with the Suns-Voc analysis that precisely indicates the source of power loss with accurate shunt and series resistance measurements.

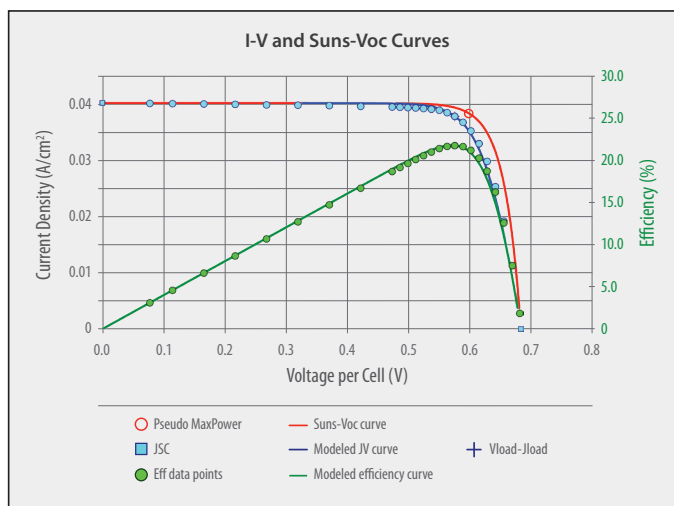
System Capabilities

Primary application:

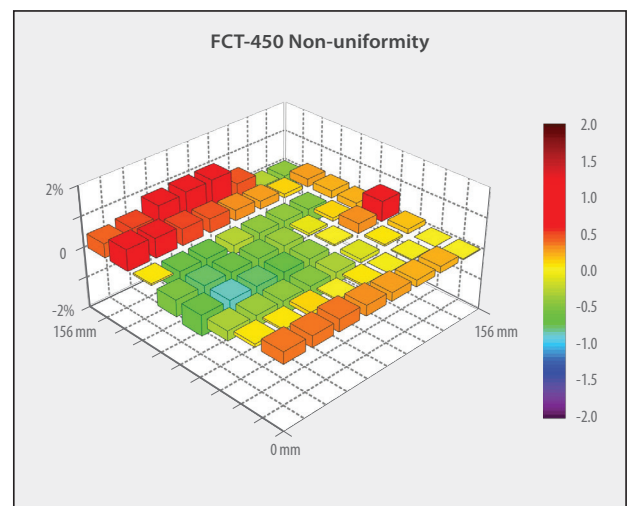
- One-sun cell flash testing

Analysis techniques:

- Suns-Voc curve
- 5-point testing utilizing Suns-Voc, Jsc, Vmp
- I-V curves at multiple intensities (MultiSuns Analysis)
- Efficiency versus intensity characteristic



The instrument interface displays both I-V and Suns-Voc data. This permits quick identification of shunt and series resistance effects.



The non-uniformity of the FCT-450 is Class A ($\pm 2\%$) over 156 mm x 156 mm.

Specifications

Instrument Specifications

Available measurements

- Voc, Isc, Vmp, Imp, FF, Rs, Rsh (dark Rsh)
- Suns-Voc parameters
- Jo, bulk lifetime, lifetime at max power
- Dark breakdown characteristic
- Substrate doping

Measurement modes

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

Current: 15 A

Voltage: 10 V

Available chuck designs

- Standard 3-5 busbar, front contact chuck

- Custom back contact chucks
- R&D front contact chuck accommodating cell sizes 2 cm x 2 cm to 156 cm x 156 cm

Available intensity range

- 0.2–1.2 suns

Non-uniformity

- $\pm 2\%$ 156 x 156 mm

Simulator class

- Class A non-uniformity over 156 x 156 mm
- Class A temporal stability
- Class A spectrum

Warranty

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



Facility Requirements

Ambient operating temperature

- 20°C–25°C

Power requirements

- Instrument: 80 W
- Computer with monitor: 200 W
- Light source: 60 W

Dimensions

- Computer: 22 x 26 x 18 cm (L x W x H)
- Tower: 42 x 45 x 150 cm (L x W x H)
- Flash power supply: 43 x 51 x 12 cm (L x W x H)
- Electronic load box: 49 x 49 x 14 cm (L x W x H)

Universal mains voltage

- 100–240 VAC 50/60 Hz

Special facilities requirements

- Vacuum: 20 in Hg



High throughput flash power supply and electronic load box.

FCT 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
- Temperature-controlled chuck

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.

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

