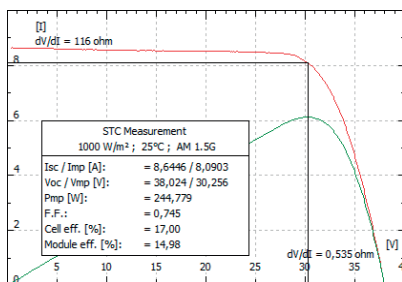


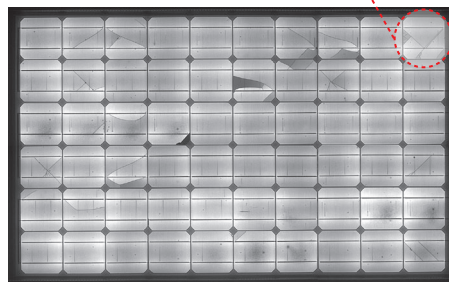
QuickSun[®] 550E

Module Testing System

Unique combination of top quality module characterization tools



IV measurement



EL imaging

Insulation Resistance:	
Result:	PASS
Level [V]:	1000.0
Resistance [GΩ]:	10.65
<input type="button" value="Measure"/>	
Hipot Durability:	
Result:	FAIL
Level [V]:	3602.0
Current [μA]:	72.56
<input type="button" value="Measure"/>	
<input type="button" value="Cancel"/> <input type="button" value="OK"/>	

Electrical safety

QuickSun 550E is foremost a Class A+A+A+ solar simulator for testing all crystalline silicon and thin film PV modules with dimensions up to 110 x 200 cm².

A detailed test report is included with every simulator proving the Class A+ performance with respect to spectrum, irradiance non-uniformity and short term instability (STI). Flash pulse has 40 ms long plateau with Class A+ long term instability (LTI). Our factory and site acceptance testing procedures and reports comply fully with all applicable solar simulator standards as inspected and proved by SGS Fimko Ltd.

Automation

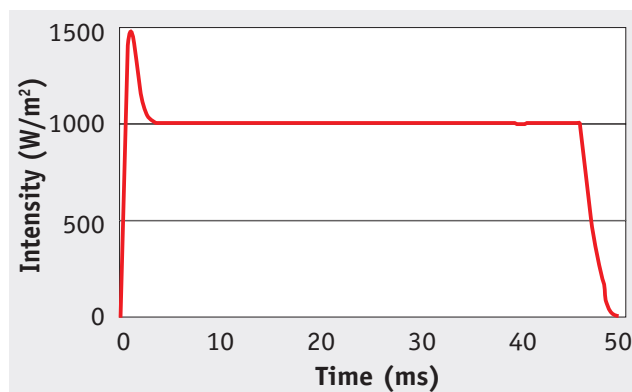
550E can be equipped with PLC (ABB) controlled automation option which moves the module from the loading table to the test position, identifies it by reading the barcode, measures the module after contacting it and thereafter moves it automatically to the loading table.

When EL Imaging and Electrical Safety options are included also their contacting and measurements are processed automatically as part of the total measurement cycle.

Nominal throughput of 550E with Automation option and when operated only as a solar simulator is 180 modules per hour.

EL Imaging

EL-images can be recorded with 200 µm resolution by capturing six 8.3 Mpixel pictures with two moving cameras. With this image quality crack detecting software packages can be applied with throughput of 90 modules per hour. If this high image quality is not necessary the two cameras can be placed in fixed positions enabling still very accurate dark area



identification with maximum total throughput of 120 modules per hour.

Electrical Safety

Insulation Resistance and Hipot durability are measured automatically and results written to local data base. Instead of high voltage relays alternative testing probes are connected to the module terminals. This provides 100% certainty that high testing voltages have no chance to be misconnected with other measurement instruments. The total throughput of 550E with Electrical Safety option is 90 modules per hour.

Electrical characteristics

Contacting	4-wire / Kelvin	
Electronic load	feedback controlled MOSFET	
Voltage sweep	Linear Isc -> Voc, duration max 40 ms	
Bias power source	0 – 4.5 V	
Voltage measurement	1 – 100 V (other scales on request)	accuracy 0.2 % / 512 samples
Current measurement	0.5 – 25 A (other scales on request)	accuracy 0.2 % / 512 samples
Irradiance control	200 – 1000 W/m ²	setting resolution 1 W/m ² / 512 samples
Module temperature (IR)	0 – 75 °C	accuracy 1 °C
Monitor cell temperature	0 – 75 °C	accuracy 1 °C
Power measurement repeatability	+/- 0.5 %	
Testing capacity	180 modules / hr	
Average flash tube life time	200 000 flashes	
Operation temperature	15 – 35 °C	
Mains power	3 Ph / 400 V / 16A, 50 – 60 Hz	
Dimensions, weight	360 x 170 x 160 cm, 750/960 kg	

