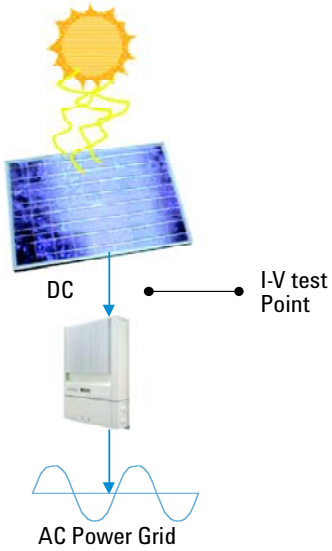
PS-X10-100
Solar Cell I-V Test System

Introduction

Solar cell, technical name Photovoltaic (PV), is the booming technology which converts sunlight (Including visible or ultra violet radiation) into electricity. Due to today's growing demand for green energy, the solar cell is increasingly used in many areas, such as buildings, infrastructure and even mobile devices, as these industries become more eco-conscious.

While PV devices absorb the solar irradiance and convert it into energy, Agilent I-V tester solution can measure the performance of various PV devices such as Silicon/ Thin film/ multi-junction in different power ranges. This could then be integrated with solar simulators for in-house tests. It is also suitable as a standalone for outdoor testing.

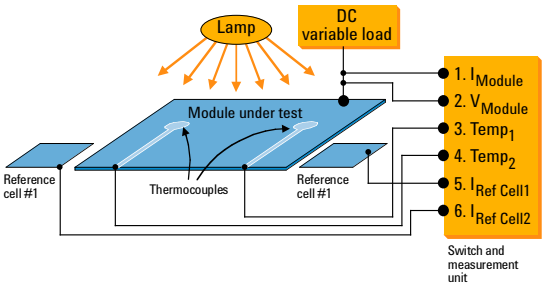


Solution

Based on Agilent N3301A based Electrical Load mainframe, this integrated solution can greatly increase the solar cell's I-V curve measure power by achieving 30A or higher efficiency and larger PV area. Further, it can apply to next generation with internal transient generator and high speed sampling digitizer which allows the sampling time to be even faster than 100 points within 10ms. With U2722A three channels 0.1nA resolution SMU, we utilize for reference cell Js measure as solar stability monitoring during I-V measurement. As the thermal effect may contribute to any test uncertainties, additional U2355A+U2802A (Or 34970A/ 34980A as alternative) can be used as multi-channel temperature data logging for coefficient correction after post analysis. The systematic rack stack is configured as turnkey solution for measurement. The benefit of the tester itself can be separated into parts for various test needs in advance.

Agilent Technologies

In addition, with Agilent VEE based platform, we provide the start up Graphical User Interface console program to provide necessary parameters.



Features

- Automated test parameters include:
- Pmpp/ Vmpp/ Impp: Power/ Voltage/ Current maximum power point.
- Isc: Short circuit current
- Voc: Open circuit voltage
- FF: Fill Factor
- Rs/ Rsh: Series Resistance/ Shunt Resistance
- Luminance from Reference cell
- Multi-channel temperatures from test points.

Benefits Statement

- Supply easy user interfaces to access system
- Minimizes tested connectors' attrition
- Increases test efficiency & savings on test cost
- Fast test cycle time to get result
- Easy to train operators for the I-V test

System Components

- Agilent N3301A/ N3300A DC Electronic Load Mainframe with suitable modules
- Agilent U2722A Modular Source Measure Unit
- Agilent U2355A/ U2802A 31-Channel Thermocouple Signal Conditioner or 34970A
- Agilent VEE 9.0 Console Control Platform
- On-site installation and start-up assistance services
- Operational Manual: Guideline for practical test steps to avoid tedious trial-and-error procedures

www.agilent.com

For more information on this application, please contact your local Agilent sales representative.

Online Assistance
www.agilent.com/find/assist

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866

Product specifications and descriptions in this document subject to change without notice.

© Agilent Technologies, Inc. 2009

Published in Hong Kong, June 22, 2009
5990-4328 ENA

Agilent Technologies