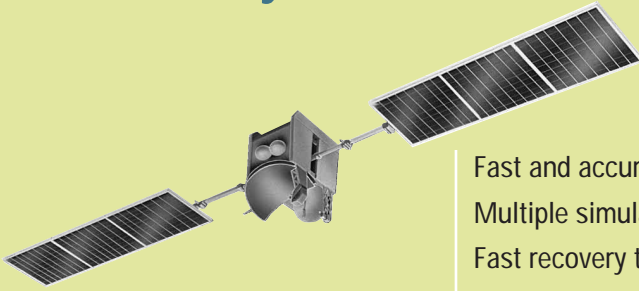




Solar Array Simulators



E4350B, E4351B

- Fast and accurate simulation of any type of solar array
- Multiple simulation modes
- Fast recovery time
- Easy to simulate environmental conditions

The Agilent one-box Solar Array Simulator (SAS) is a dc power source that simulates the output characteristics of a solar array. The SAS is primarily a current source with very low output capacitance and is capable of simulating the I-V curve of different arrays under different conditions (i.e., temperature, age etc.). The I-V curve is programmable over the IEEE-488.2 bus and is conveniently generated within the SAS. The SAS provides three current operating modes:

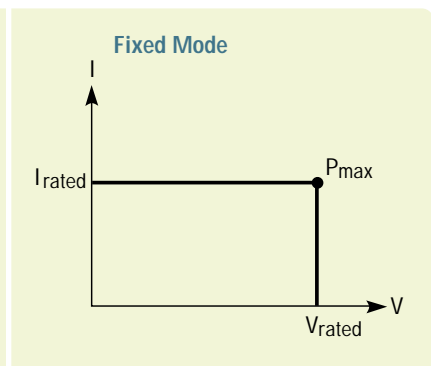
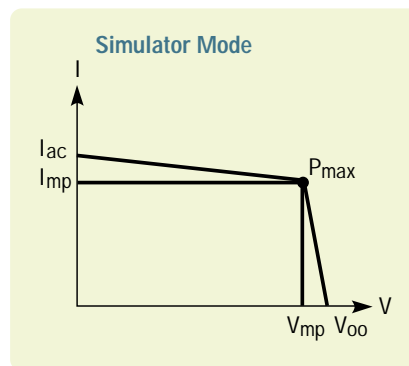
1. Simulator Mode: An internal algorithm is used to approximate a SAS I-V curve. Four input parameters: Voc (open circuit voltage), Isc (short circuit current), Imp and Vmp (current and voltage at the peak power point on the curve) are needed to establish a curve in this mode.

2. Table Mode: For a fast and accurate I-V simulation, the SAS provides a table mode. The I-V curve is set by a user-defined table of points. A table can have any length up to 4000 points (a point corresponds to a specific value of I and V). As many as 30 tables may be stored in each of the SAS built-in volatile and non-volatile memory.

Specifications

(at 0° to 55° C unless otherwise specified)

	E4350B	E4351B	E4350B-J01 Special Order Option	E4350B-J02 Special Order Option
Number of outputs	1	1	1	1
 GPIB	Yes	Yes	Yes	Yes
Output ratings (Simulator and Table Modes)				
Max. Power	480 W	480 W	480 W	480 W
Voc. Max.	65 V	130 V	54 V	86.6 V
Isc. Max.	8 A	4A	9.6 A	6 A
Output ratings (for mixed mode)				
Max Power	480 W	480 W	480 W	480 W
V rated	0-60 V	0-120 V	0-50 V	0-80 V
I rated	0-8 A	0-4 A	0-9.6 A	0-6 A
Programming accuracy at 25°C ±5°C				
Voltage (Fixed Mode)	0.075% + 10 mV	0.075% + 20 mV	0.075% + 8.5 mV	0.075% + 13.5 mV
Current (Simulator and Fixed Mode)	0.2% + 20 mA	0.2% + 10 mA	0.2% + 25 mA	0.2% + 15 mA
Ripple and noise				
from 20 Hz to 20 MHz				
Voltage rms	16 mV	24 mV	16 mV	21 mV
Voltage p-p	125 mV	195 mV	125 mV	175 mV
Current rms	4 mA	4 mA	4 mA	4 mA





Solar Array Simulators (Continued)

Non-volatile memory can store a maximum of 3500 points. The tables (I-V curves) are easily stored and recalled with an IEEE-488.2 command. The table(s) stored in this memory will be retained when the power is turned off. Volatile memory greatly increases the flexibility by saving up to 30,000 points. Multiple tables are easily accessed with IEEE-488.2 command. These tables will be erased after power is removed.

In Table Mode, current and voltage offsets can be applied to the selected table to simulate a change in the operating conditions of the solar array.

3. Fixed Mode: This is the default mode when the unit is powered on. The unit has the rectangular I-V characteristics of a standard power supply, when an output capacitor is added in this mode.

Supplemental Characteristics for all model numbers

Load Switching Recovery Time: < 5 μ s when switched from short circuit to variable load, to within 1.5 A of an operating point on the I-V curve.

Remote Sensing: Up to 2 V+ (Voc-Vmp). Add 3 mV to the voltage load regulation specification for each 1 volt change in the positive output lead due to load current change.

Analog Programming of Output Current

Input Signal: 0 to -4.0 V

Input Impedance: 20 k Ohms nominal

Shunt Regulation: Switching frequency up to 50 kHz

Specifications

(at 0° to 55° C unless otherwise specified)

	E4350B-J03 Special Order Option	E4350B-J04 Special Order Option	E4350B-J06 Special Order Option
Number of outputs	1	1	1
GPIB	Yes	Yes	Yes
Output ratings (Simulator and Table Modes)			
Max. Power	480 W	480 W	480 W
Voc. Max.	52 V	47 V	74 V
Isc. Max.	10 A	11 A	7 A
Output ratings (for mixed mode)			
Max Power	480 W	480 W	480 W
V rated	0 - 48 V	0 - 43.5 V	0 - 68 V
I rated	0.10 A	0 - 10 A	0 - 7 A
Programming accuracy at 25° C \pm 5° C			
Voltage (Fixed Mode)	0.075% + 8 mV	0.075% + 8 mV	0.075% + 11.5 mV
Current (Simulator and Fixed Mode)	0.2% + 27.5 mA	0.2% + 30.5 mA	0.2% + 17.5 mA
Ripple and noise			
from 20 Hz to 20 MHz			
Voltage rms	16 mV	16 mV	19 mV
Voltage p-p	125 mV	125 mV	150 mV
Current rms	5.5 mA	6.5 mA	4 mA

Series Regulation: Switching frequency up to 50 kHz

OVP and OCP: Overvoltage and overcurrent protection triggers in \leq 100 μ s

Capacitive Load: In fixed mode, the maximum load capacitance (without causing instability) is 2000 μ F. In simulator and table mode, it is unconditionally stable at all capacitive loads.

Inductive Load: The maximum load inductance (without causing instability) is 200 μ H

Regulatory Compliance: Listed to UL3101, certified to CSA 22.2 No. 1010.1, complies with EN 61010-1.

RFI Suppression: Complies with CISPR-11, Group 1, Class A

Size: 425.5 mm W x 132.6 mm H x 497.8 mm D (16.75 in x 5.25 in x 19.6 in)
See page 102 for more details.

Weight: Net, 25 kg (54 lb); shipping, 28 kg (61 lb)

Warranty: One year

Ordering Information

Opt 100 87 to 106 Vac, 47 to 63 Hz

Opt 120 104 to 127 Vac, 47 to 63 Hz

Opt 220 191 to 233 Vac, 47 to 63 Hz

Opt 240 209 to 250 Vac, 47 to 63 Hz

* **Opt 908** Rackmount Kit, p/n 5062-3977

* **Opt 909** Rackmount Kit with Handles, p/n 5063-9221

Opt 0L2 Extra Standard Documentation Package

Opt 0B3 Service Manual

Opt 0B0 No documentation package

* Support rails required

Accessories

p/n 1252-3698 7-pin Analog Plug

p/n 1252-1488 4-pin Digital Plug

p/n 5080-2148 Serial Link Cable
2 m (6.6 ft)

p/n 1494-0059 Accessory Slide Kit

Your Requested Excerpt from the Agilent Power Products Catalog

The preceding page(s) are an excerpt from the *2002-2003 Power Products Catalog*.

We hope that these pages supply the information that you currently need.

If you would like to have further information about the extensive selection of Agilent dc power supplies, ac sources, and dc electronic loads, please visit www.agilent.com/find/power to print a copy of the complete Power Products catalog, or to request that a copy be sent to you. You will also find a lot of other useful information on this web site.

In the full Power Products Catalog, you will find that Agilent offers much more than basic power generation. If you need basic, clean, power for your lab bench, it's there. But in each product category, we've also integrated the capabilities that you need for a complete power solution, including extensive measurement and analysis capabilities.

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To see a copy of the user's guide, please visit our Web site at www.agilent.com/find/manuals

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Phone or Fax

United States:
(tel) 1 800 829 4444

Canada:
(tel) 1 877 894 4414
(fax) (905) 282-6495

China:
(tel) 800-810-0189
(fax) 1-0800-650-0121

Europe:
(tel) (31 20) 547 2323
(fax) (31 20) 547 2390

Japan:
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

Korea:
(tel) (82-2) 2004-5004
(fax) (82-2) 2004-5115

Latin America:
(tel) (305) 269 7500
(fax) (305) 269 7599

Taiwan:
(tel) 080-004-7866
(fax) (886-2) 2545-6723

Other Asia Pacific Countries:
(tel) (65) 375-8100
(fax) (65) 836-0252
Email: tm_asia@agilent.com

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



Agilent Technologies