

Spectrolab

Illumination Systems

www.spectrolab.com

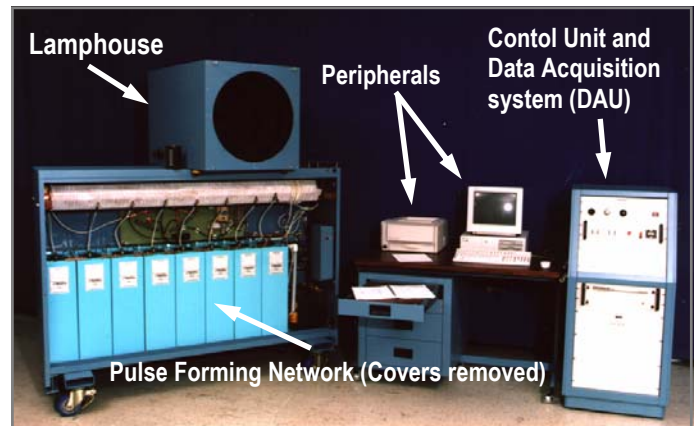
Large Area Pulsed Solar Simulator (LAPSS II)

Benefits

- This pulse simulator permits you to test large solar panels at a fraction of the cost of steady state solar simulators.
- Allows you to repeat the test without changing the temperature of the solar cells (no need for thermocouple testing).
- You don't need to perform any adjustments to maintain beam uniformity which is a function of the distance of the target plane to the lamphouse.
- The spectrum is produced by the current density in the lamp. You don't need sophisticated spectral filtering.
- You can rearrange components according to your changing needs (lamphouse can be mounted on the ceiling to save you space).
- Very low level of maintenance required. You can change the lamp in only 1 to 2 hours.

Product Description

- Lamphouse: Projects a uniform light pulse simulating sunlight in spectrum and intensity.
- Control Unit: contains electronic load with signal scaling and conditioning, safety interlock and pulse intensity control.
- Data Acquisition Unit: performs data acquisition and A/D conversion of light intensity, panel voltage, panel current and temperature data in addition to distributing control signals.
- Peripherals: IBM compatible computer system with hard disk and floppy disk performs system control, data reduction and output to video monitor and printer. Laserjet printer for hard copy of data and systems.
- Pulse Forming Network (PFN): produces current pulse to power the lamphouse.



Features

- Provides for measurement of the current-voltage characteristics of solar arrays as large as 5 m (16 ft) in diameter.
- The new multiple pulse mode allows accurate testing of solar cells with long storage times, such as Back Surface Field cells.
- Measures a minimum of 40 data points per pulse and up to 200 data points in multi-pulse mode.
- Includes an Electronic Load capable of biasing the test specimen in a continuous sweep from short circuit to open circuit.
- Capable of biasing operator selectable segments of the I-V curve between short circuit and open circuit (for multi-pulse testing).
- Xenon lamp current density has been selected for best match to solar spectrum as per NASA Space Vehicle Design Criteria SP8005 (May 1971).
- Optional: Extended range accessory units are available. Accessory external loads increase the current or voltage range to 200 Volts or 50 Amps. Call for details.

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System Specifications

Test Plane Area	5 m (16 ft) diameter at 13 m (42 ft) from Lamphouse	
Test Plane Irradiation Uniformity	Without Optional Uniformity Screen	With Optional Uniformity Screen
	±1.5% inside 2.5 x 2.5 m (8 ft x 8 ft)	±1%
	±2.5% inside 3 x 3 m (10 ft x 10 ft)	±1%
	±3.5% inside 3.5 x 3.5 m (12 ft x 12 ft)	±2%
	±3% inside (w x h) 3.5 x 3 m (12 ft x 10 ft)	±1.5%
	±3% inside 5 m diameter (16 ft)	N/A
Current/ Voltage Measurement Resolution	0.025%	
Voltage Ranges	0-1, 0-2, 0-5, 0-10, 0-20, 0-50, 0-100 Volts	
Current Ranges	0-0.1, 0-0.2, 0-0.5, 0-1, 0-2, 0-5, 0-10, 0-20 Amperes	
Pulse to Pulse Data Repeatability	<±1.0%	
Cycle Time For Single Pulse	Take data and graph corrected I-V curve with Isc, Voc, Pmax, V at Pmax, and current at selected voltage test point within 3 minutes	
Total System Error	<±1.5% (excludes dynamic error associated with cells exhibiting long minority carrier storage time)	
Lamp Life	Over 5000 flashes	
Electric Input: (customer must specify voltages)		
a) Pulse Forming Network (PFN)	a) 208/220; 380; 480V AC (single phase)	
b) Control console and desktop computer	b) 120 or 240V AC (single phase)	

System Components

Item	Width	Height	Length	Weight
Lamphouse (Envelope dimensions; weight may vary, based on order detail)	660 mm (26")	610 mm (24")	953 mm (37.5")	23 kg (50 lbs)
Pulse Forming Network (Envelope dimensions; weight may vary, based on order details)	533 mm (21")	1232 mm (48.5")	1830 mm (72")	682 kg (1500 lbs)
Control Console With Workstation Table	762 mm (30")	1300 mm (51")	2133 mm (84")	46 kg (250 lbs)
Computer, Keyboard, Monitor, Laserjet Printer (Call for details on latest configuration)	Call for details	Call for details	Call for details	Call for details
Cable Set (exact weight based on length ordered)				34 to 45 kg (75 to 100 lbs)
Total System Weight (unpacked, components only; shipping weight is greater)				900 kg (1980 lbs)

ISO9001:2000
REGISTERED

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A BOEING COMPANY

The information contained on this sheet is for reference only.
Actual specifications for delivered products may vary. 8/7/03

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