

Terrestrial - High Intensity Pulsed Solar Simulator (T-HIPSS)

Table top Solar Simulator providing up to 3000 Suns (1500 Suns for Model 460) for Terrestrial solar cell testing.

Benefits

- System allows for testing of Terrestrial Solar Cells at very high (up to 3000 suns on Model 420 and up to 1500 suns on Model 460) fluence levels.
- Illuminated area is 10cm x 10cm.
 - 8cm by 8cm Class A Standard.
 - Well defined and repeatable intensity distribution from uncorrected system.
 - Optional intensity distribution correction masks are available to allow enhanced uniformity control.
- Adjustable, unobstructed volume between lamp housing and illuminated volume for easy tooling and robotic manipulations.
- System is pulsed (2.5millisecond) so thermally induced temperature changes are minimized.
- Pulse rates of 1 pulse per 15 seconds are standard; faster production rates achievable.
- High speed Data Acquisition Unit (DAU) can perform I-V curve measurements within 2.5 millisecond pulse duration.
- Fundamental spectral content is from a high pressure Xenon Lamp, close to Air Mass 0.
 - Spectral content can be changed to simulate various Air Mass Values from AM0 to AM2.5
 - Model 420: uses absorbing filters
 - Model 460: uses wavelength selective mirrors
- Optional diagnostics include intensity distribution measurement system and single pulse spectrometers. (300 nm to 1700 nm)
- Thin nickel attenuating screens allow intensity changes without changing the energy distribution throughout entire spectrum.

Product Description

- **Lamphouse:** Projects multiple, overlapping images of one single lamp at a point in space 25" from the lamp. Spectral filtering can be achieved by introducing balanced spectral filters in matched beam paths (on Model 420) or by aperturing wave length specific mirrors (on Model 460).
- **Control Unit:** Contains Pulse Forming Network (PFN), charging and triggering circuits, trigger control logic and safety interlocks.
- **Pulse Forming Network (PFN):** Produces required voltage and current pulses for lamphouse.



Product Description, (continued)

- **Data Acquisition Unit (DAU):** Performs data capture, buffering and data manipulation. Monitors and reports on optical pulse parameters, current and voltage parameters for each pulse. Provides computer interface to master control computer.
- **Control Computer:** PC-based control computer for instrument control, data acquisition, diagnostic control, data manipulation and display. Includes large data storage capability and laser printer capability.

Features

- Provides for measurement of the I-V Curve on Terrestrial Solar Cells in up to a Class A illuminated area.
 - 4 Reference channels held at I_{sc}
 - 2 Device Under Test (DUT) channels
 - 50 amps @ 20 volts
- Adjustable illumination pulse of <50 Suns to >1500 Suns (<200 to >3000 for Model 420) for 2.5 ms every 15 seconds.
- Optical spectrum from 250 nm to 2500 nm approximately matching AM0, modifiable to beyond AM1.5.
- Internal diagnostics include current, voltage, optical signals for each pulse.
- Optional diagnostics include single pulse Intensity Distribution measurement capability and single shot spectral measurements.
- Clear area under lamphouse for test fixtures and / or robotic manipulations.

The information contained on this sheet is for reference only. Specifications subject to change without notice. (REV. AIST)



SPECTROLAB

A BOEING COMPANY

Terrestrial - High Intensity Pulsed Solar Simulator (T-HIPSS)

SYSTEM SPECIFICATIONS

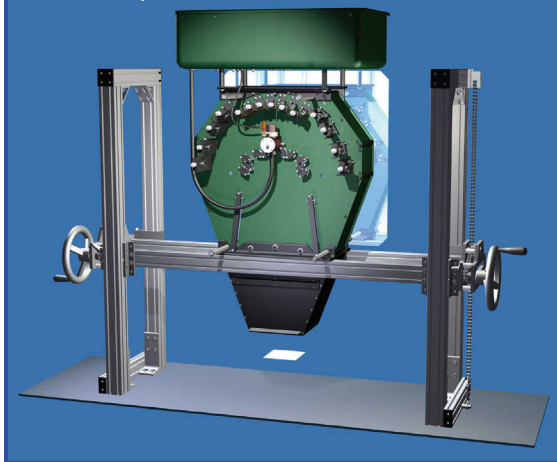
T-HIPSS 400 SERIES

	Model 420	Model 460
• Test Plane Area	10cm x 10cm	10cm x 10cm
• Test Plane Uniformity, (raw, unfiltered)	~6cm @ 1.87%, parallel to lamp ~7cm @ .877%, perpendicular to lamp	~6cm @ 1.87%, parallel to lamp ~7cm @ .877%, perpendicular to lamp
• Irradiance Levels	200 - 3000 Suns	50 - 1500 Suns
• Spectral Adjustability	Filter Dependent	6 Bands
• Type	Absorbing Filters	Dielectric Mirrors, Computer Controlled
• Range	± 10% per filter pair	± 5% per dielectric mirror pair
• Pulse to Pulse Variation	< 1%	< 1%

SYSTEM COMPONENTS

ITEM	WIDTH	HEIGHT	LENGTH	WEIGHT
Lamphouse	508mm	635mm	330mm	46kg
Pulse Forming Network (PFN)	533mm	1,232mm	1,830mm	682kg
Control Unit (w/Workstation Table)	762mm	1,300mm	2,133mm	92kg
Data Acquisition Unit (DAU)		Dependent upon Requirements		
Control Computer		Dependent upon Requirements		

Model 460 depicted with Lexan Shield, Frame & Attenuator



Included Standard Equipment, not pictured:

- Pulse Forming Network (PFN)
- Control Unit
- Data Acquisition Unit (DAU)
- Control Computer

Contact Spectrolab Customer Service for price and availability.
+1 (800) 936-4888 or DL-SYLCustomerservice@boeing.com

The information contained on this sheet is for reference only. Specifications subject to change without notice. (REV. 05/09)



SPECTROLAB

A BOEING COMPANY