

INTEGRATED GLOVE BOX AAA CLASS SOLAR SIMULATOR



TECHNICAL PRODUCT DATASHEET: CLASS AAA SOLAR SIMULATOR

This professional-grade Solar Simulator is engineered for high-precision photovoltaic research, material characterization, and biological testing, fully complying with **ASTM E927-19** and **IEC 60904-9 Ed.3** international standards.

Product Overview

The system utilizes **AAA class light source** technology combined with an **AM1.5G** spectral filter to replicate the natural solar spectrum with peak accuracy. Its compact design and integrated safety modifications make it ideal for **glovebox** integration and high-end laboratory environments.

Technical Specifications

1. Optical Performance & Classification

Parameter	Value / Class	Standard Compliance
Solar Simulator Class	AAA	IEC 60904-9 Ed.3 / ASTM E927-19
Spectral Match	Class A (0.875–1.125)	With AM1.5G Filter
Spatial Non-Uniformity	< 2% (Class A)	Over 50 × 50 mm Area
Temporal Instability	< 2% (Class A)	Short-term and Long-term

2. Illumination & Light Source

- **Light sources :**
- - i. 300W Xenon Short Arc (Ozone-Free) (Life time: 1000 hour)
 - ii. Fytronix AAA Class light source (Life time: 12000 hour)
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- **Lamp Lifespan:** 1000 Hours (Average)
- **Illumination Area:** 50 × 50 mm
- **Working Distance:** up to 400 mm or more
- **Irradiance at Target:** 1 Sun (1000 W/m² at AM1.5G standard)

3. Control & Mechanical Design

- **Shutter Operation:** Manual
- **Variable Attenuator:** Manual (For precise light intensity control)
- **Dimensions (L×W×H):** 535 × 183 × 188 mm
- **Weight:** 8.5 kg (Main Unit) + 8 kg (Mounting Stand)
- **Power Requirements:** 110–240V AC, 50/60 Hz (Max 450 W)

Key Features & Advantages

- **Research-Grade Accuracy:** Class A temporal stability ensures data consistency during long-term degradation tests and IV characterization.
- **Glovebox Optimized:** Specifically designed for integration under a glovebox. A **custom-fitted metal plate** is installed around the simulator section to ensure airtight integrity and thermal protection.
- **Versatile Intensity:** The manual variable attenuator allows researchers to perform measurements across a range of intensities (from low light to 2 Sun).
- **Safe Operation:** Ozone-free lamps eliminate the need for specialized ventilation systems for toxic gas removal.

Safety & Installation

Note: The inclusion of the specialized metal plate around the simulator section is a critical safety feature for glovebox setups, preventing heat transfer to the enclosure and protecting internal components from light leakage.

Standard Package Includes: 300W Xenon Housing, Power Supply Unit, Mounting Stand, AM1.5G Filter, and Manual Shutter/Attenuator Assembly.

Certificate Compliance

Product: Solar Simulator Model: SOLAR TECH X-11 SN: 112 Applicable

Standards: ASTM E 72-10, EIC 60904-9, JIS C 8912

Spectral Fit

Certificate Compliance

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Spectral Fit

Spectral Match Compared to AM 1.5G

Band/Band	Class A limits	Error	
400-500nm	%25	4.30%	
500-600nm	%25	2.20%	
600-700nm	%25	1.02%	
700-800nm	%25	2.50%	
800-900nm	%25	1.80%	
900-1100nm	%25	3.40%	

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