

## Solar Simulator (400-1100nm) HAL-C100

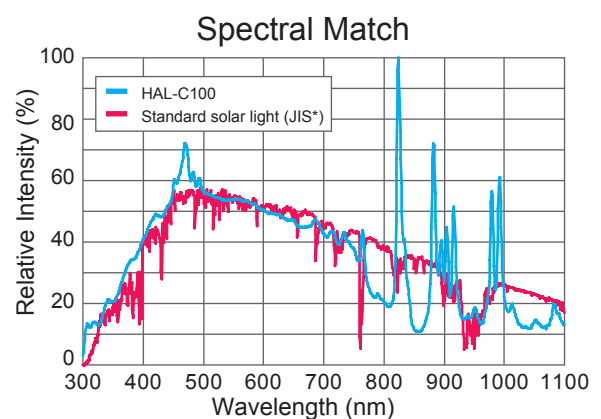
Compact entry model for introduction of photovoltaic research



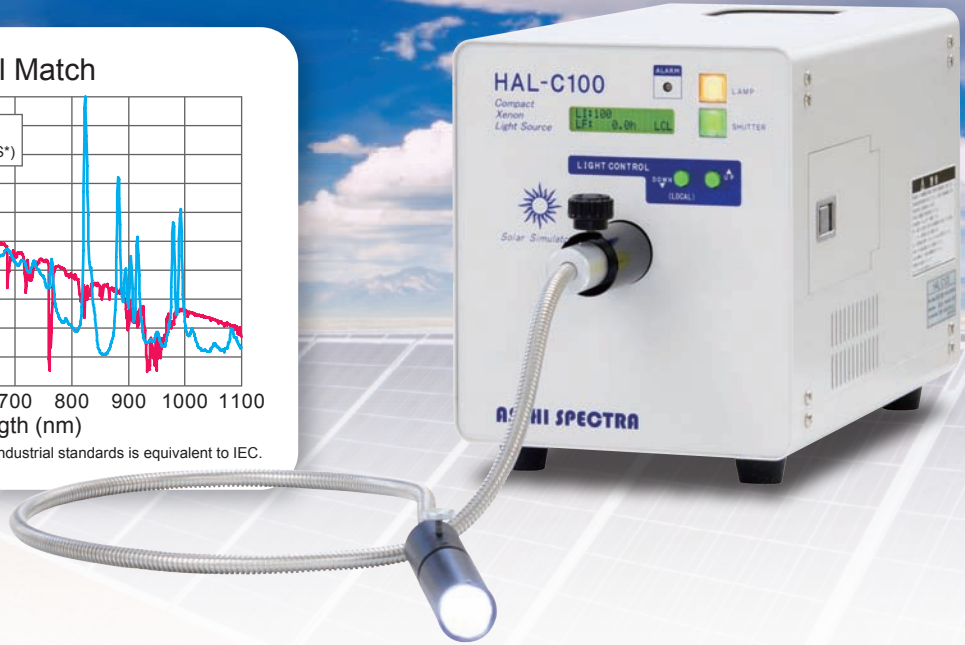
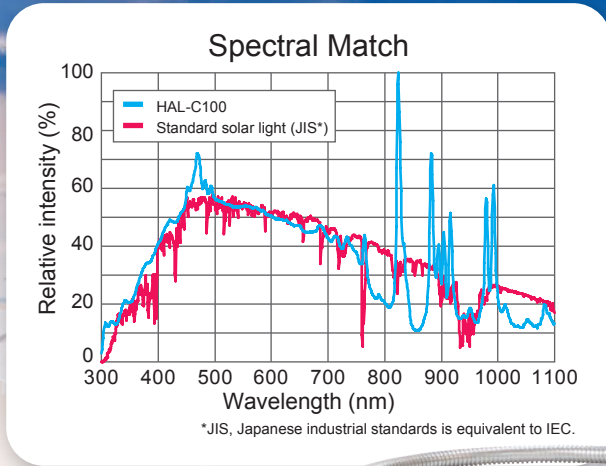
### Features

- JIS\* Class AAA solar simulator (400-1100nm)
- Built-in AM1.5G filter
- Flexible illumination by light guide
- Adjustable light intensity
- No need of optical axis alignment
- RS232C remote control

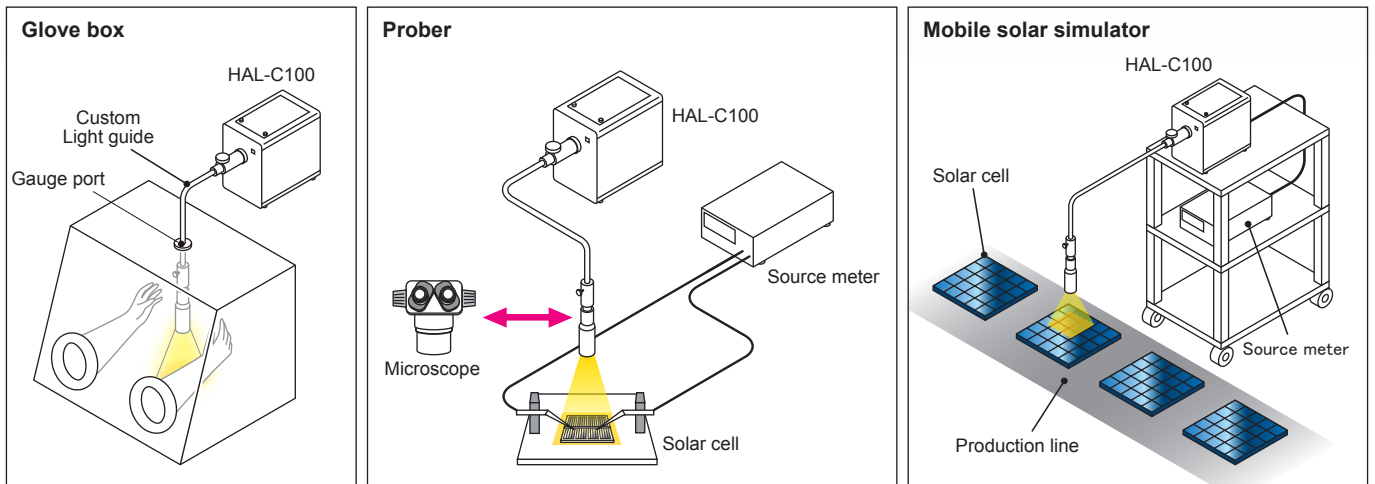
\*JIS, Japanese industrial standards is equivalent to IEC.



# The most suitable entry model for development and trial production of next-generation solar cell



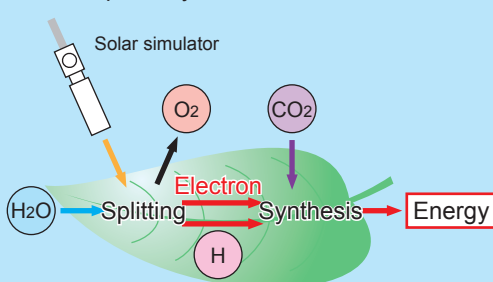
## Flexible Configuration with Light Guide



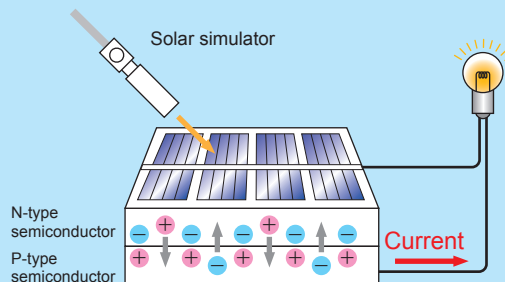
## Applications

### Solar simulator for various inspection and research

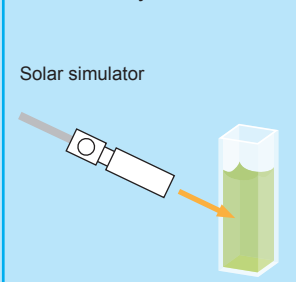
#### Artificial photosynthesis



#### Solar cell research



#### Photocatalytic research



# Compact solar simulator achieves Class AAA with fiber output system

## Spectral Match



Our own designed AM1.5G filter corrects xenon emission lines according to Class A.

This simulator can evaluate not only a crystal type, also dye-sensitized solar cells, CIGS and so on.

JIS C 8912-2011

Reference data

Wavelength (nm)	Energy Distribution (%)		Spectral Match	Class
	HAL-C100	JIS		
400 - 500	21.0	18.4	1.14	A
500 - 600	20.3	19.9	1.02	A
600 - 700	17.8	18.4	0.97	A
700 - 800	13.2	14.9	0.89	A
800 - 900	11.8	12.5	0.94	A
900 - 1100	15.8	15.9	0.99	A

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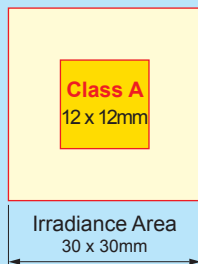
## Uniformity



The calculated value of 1SUN in the range of 400-1100nm is about 75mW/cm<sup>2</sup>.

Working distance: about 224mm

You can obtain Class A uniformity in the area 12x12mm with 1 SUN intensity when you set the ND control by about 50% of initial lamp as described in the right figure.(factory default setting) Light intensity decline due to a lamp life can be adjusted by light intensity control. Above the size of Class A area is reference value. Please note that the output of lamp varies among the manufacturing lots.



## JIS Classification

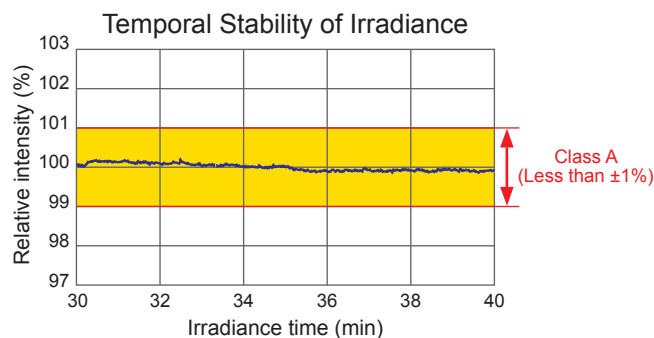
JIS C8912-2011

Item	Class A	Class B	Class C
Positional uniformity of irradiance (%)	≤ ±2	≤ ±3	≤ ±10
Temporal stability of irradiance (%)	≤ ±1	≤ ±3	≤ ±10
Spectral match	0.75 - 1.25	0.6 - 1.4	0.4 - 2.0

## Temporal Stability of Irradiance



There is less flicker and stable output at long times.

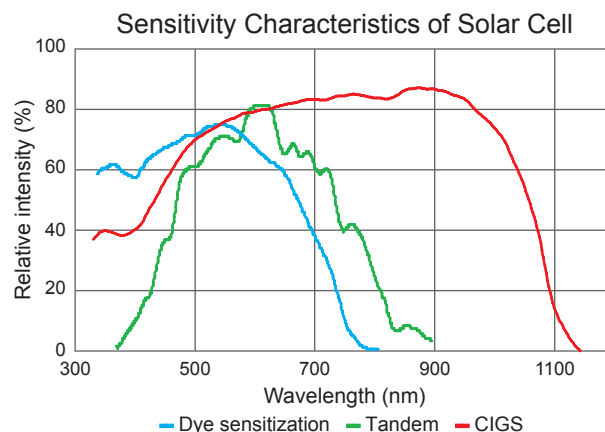


\*10 minutes measurement after turning on the lamp for 30 minutes.  
\*The values are for reference only.

\*If you use the HAL-C100 for a long time, we recommend that you use the constant-voltage power supply so that the HAL-C100 is not influenced by the change of load.

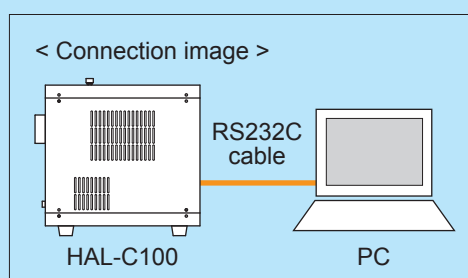
## Target Solar Cell

The HAL-C100 is suited for the evaluation for development and prototype of next-generation solar cell.



## RS232C Remote Control

The HAL-C100 can be controlled remotely via RS232C.



# Options

## 1 SUN Checker CS-30



1 SUN Checker is used for checking the light intensity (1 SUN) of HAL-C100. It is battery operated and portable.

## Light Guide (TPO)



This light guide is the option for bringing a light into a glove box. The gauge port is equipped.

## Scope of Delivery

- HAL-C100 main unit
- Lamp cartridge
- Quartz light guide (1m)
- Light guide adapter
- Collimator lens
- AC cable (3m)
- RS232C cable (1.8m)
- Instruction manual

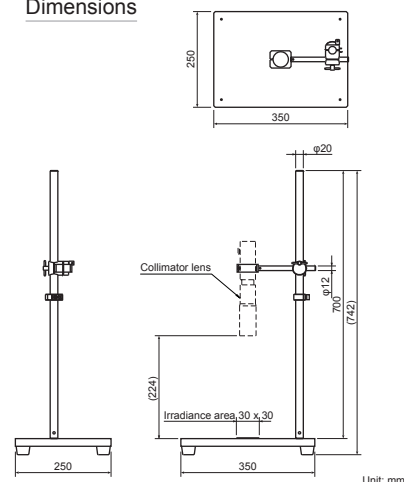
## General Specifications

- Model: HAL-C100  
 Output wavelength: 400 - 1100nm  
 Circuit method: Switching power supply  
 Input voltage: AC100V 50/60Hz (Input range: AC90 - 132V)  
 AC200V 50/60Hz (Input range: AC198 - 264V)  
 \*Select input voltage when placing an order.  
 Apparent power: Less than 350VA (AC100V/50Hz)  
 Less than 440VA (AC240V/50Hz)  
 Lamp type: Xenon lamp 100W  
 Lamp voltage, current: 12.8 - 14V 7.2A (DC) \*Representative value  
 Lamp life: 500h (Average)  
 \*When the light intensity has decreased by 50% from the initial value.  
 Optical axis alignment: Cartridge type (Alignment-free)  
 Cooling method: Forced air cooling  
 Shutter: Pulsed motor drive  
 Light intensity control: 100 - 5 (Steps)  
 Continuously variable  
 Air Mass filter: Air Mass 1.5G filter  
 Emitting method: Bundled light guide  
 Controller: Built-in  
 Remote control: RS232C \*The cable must be less than 3m.  
 Safety mechanism: Xenon lamp problem, Rear door is open,  
 Lamp usage exceeds 500 hours, Cooling fan problem,  
 Temperature anomaly  
 Recommended environment: Temperature 10 - 35 deg C  
 Humidity 20 - 80% \*Avoid condensation  
 Dimensions: 200(W) x 340(D) x 245(H)mm  
 Weight: 8.9kg

## Stand for Collimator Lens



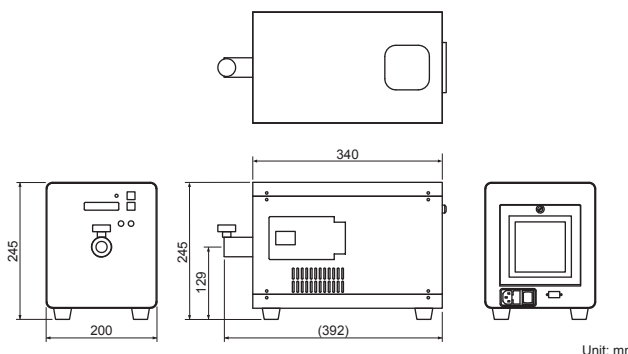
### Dimensions



Unit: mm

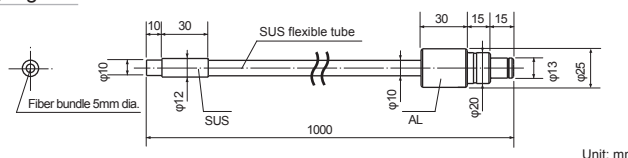
## Dimensions

### Main unit



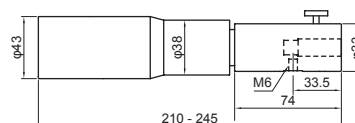
Unit: mm

### Light guide



Unit: mm

### Collimator lens



Unit: mm

\*Product specifications are subject to change without notice.

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