

Evaluation for solar cell research Solar Simulator (400-1100nm)

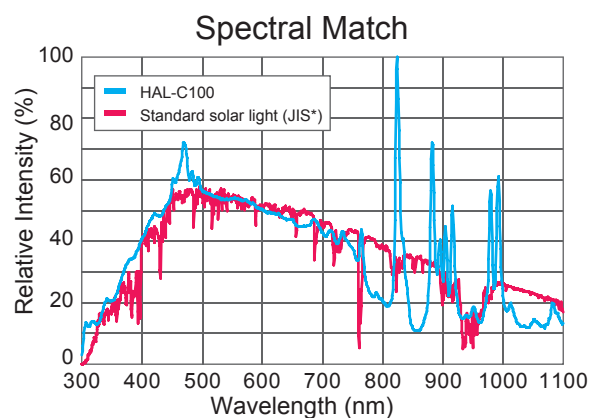
HAL-C100

Entry model with compact body for the introduction of the photovoltaic research

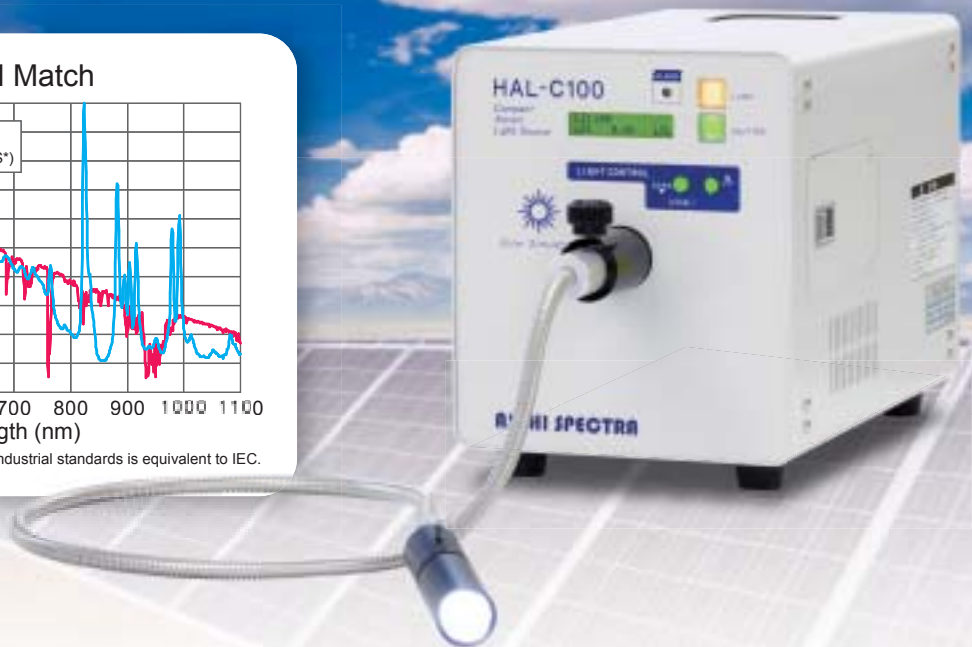
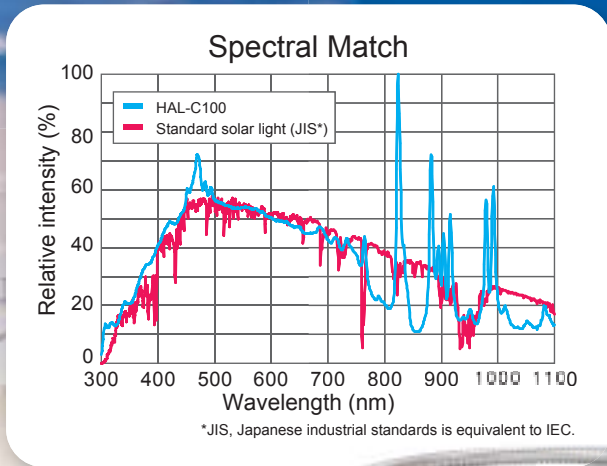


Features

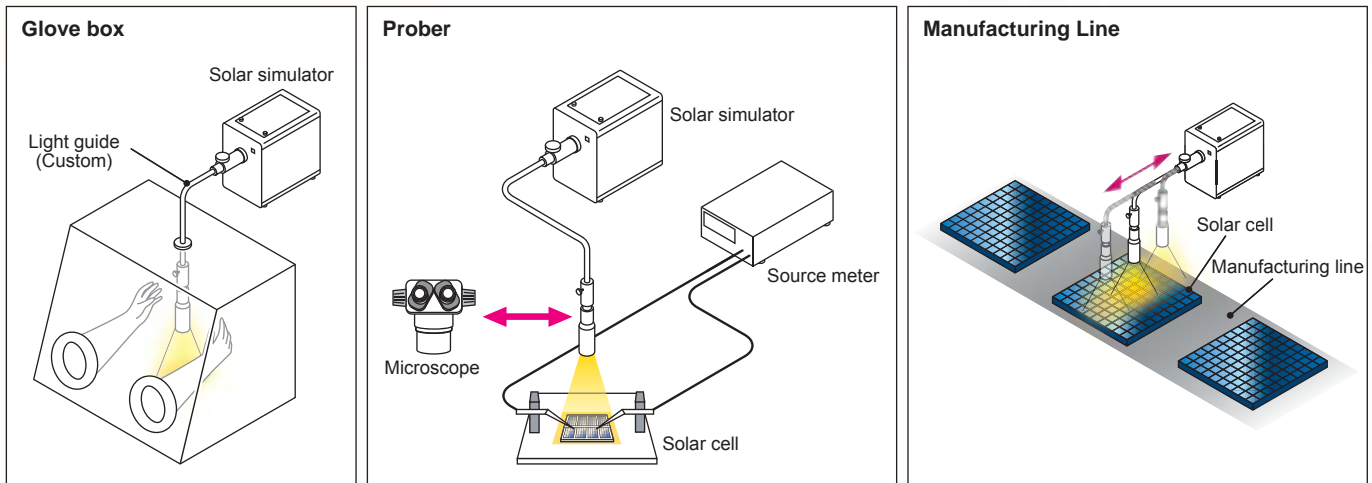
- Entry model with xenon 100W lamp for the introduction of solar cell research
- Spectral match achieves Class A for JIS8912*
- Optical fiber output and remote controller allow you to design a flexible configuration
- Both the lamp and the power supply are in one compact box
- Light intensity control is available by variable ND filter
- Remote control by PC via RS232C is also available



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

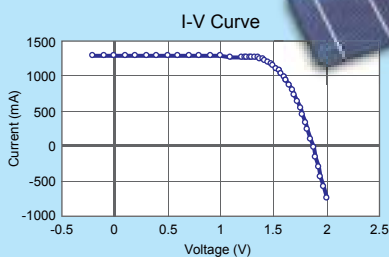


Flexible configuration with light guide

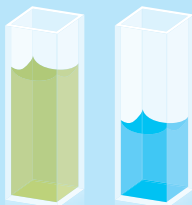


Application field Solar simulator for various inspection and research

Solar cell development and research



Photocatalyst research



Display inspection



Cosmetics research and evaluation



Compact solar simulator which achieves Class A for JIS C8912* with fiber output system

Spectral match

The combination of xenon 100W lamp and proprietary mirror unit produce the characteristics Class A spectrum with blocking IR emission lines of xenon lamp.

This solar simulator is suitable for a research of a crystal type, dye-sensitized solar cell, CIGS etc.

JIS C 8912-2011*

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

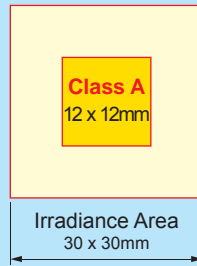
*JIS, Japanese industrial standards is equivalent to IEC.

Uniformity

The calculated value of 1SUN in the range from 400 to 1100nm is about 75mW/cm².

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 be noted that the output of lamp varies between the manufacturing lots.



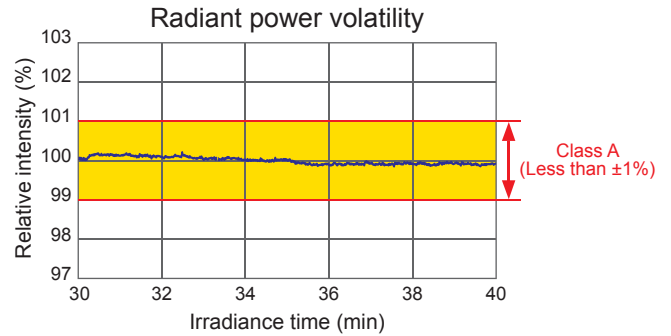
JIS classification

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

Stable output

There is less flicker and stable output at long times.

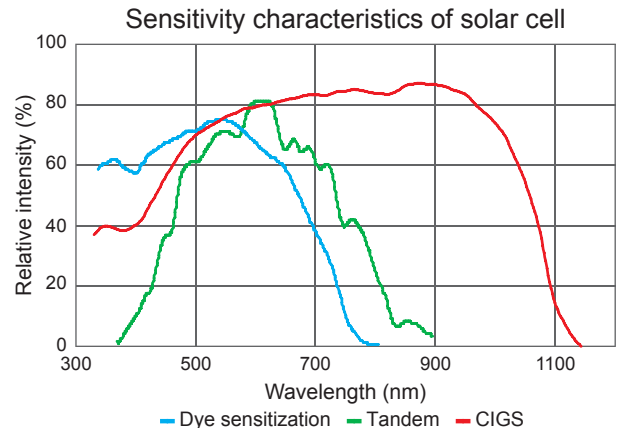


*10 minutes measurement after turning on the lamp for 30 minutes.
*The values are for reference only.

*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.

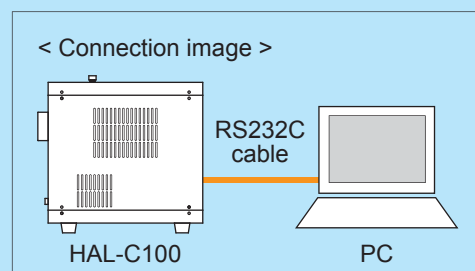
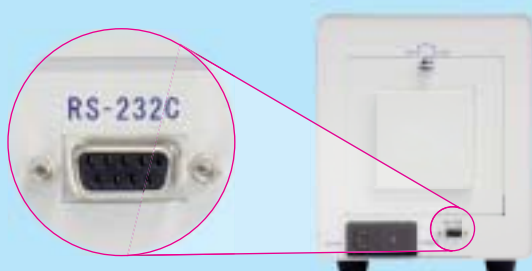
Target solar cell

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



Remotely controllable by PC via RS232C

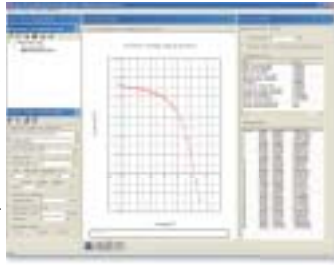
The HAL-C100 can be controlled remotely via RS232C.



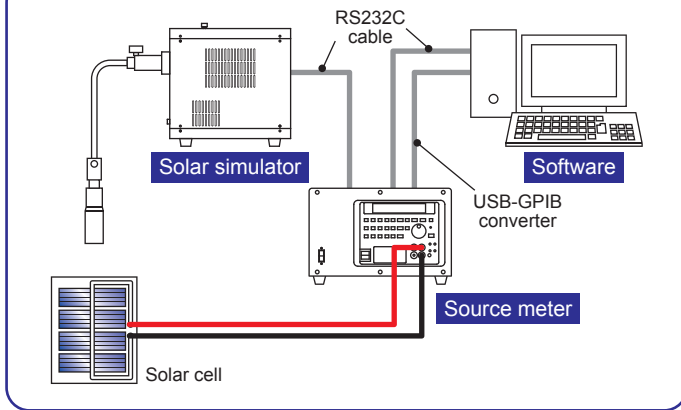
Options

I-V Measurement System

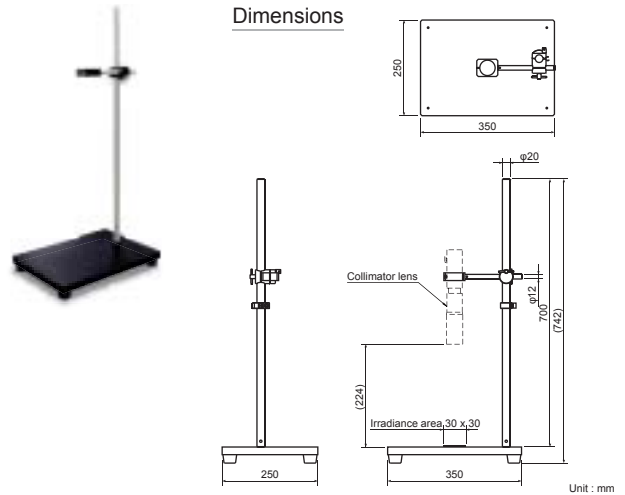
This system gives you simple and high precision I-V measurement. You can easily construct the evaluation system of solar cell by combining it with the HAL-C100. Measurement can be controlled from our original software. All measured data can be saved as CSV file, so that you can easily edit the measured data. It also can measure rise characteristics with the shutter function of the HAL-C100.



Example of system configuration



Stand for collimator lens



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.

Scope of Delivery

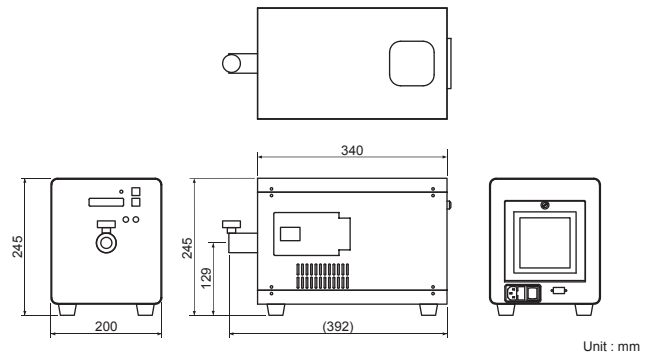
- HAL-C100 main unit
- Quartz light guide (1m)
- Collimator lens
- AC cable (3m)
- Instruction manual etc.

General Specifications

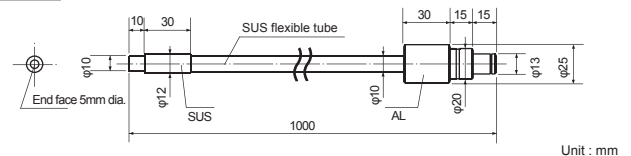
- Model :HAL-C100
 Output wavelength :400 - 1100nm
 Circuit method :Switching power supply
 Input voltage :AC100V 50/60Hz (Input range: AC90 - 132V)
 AC200V 50/60Hz (Input range: AC198 - 264V)
 *Select input voltage when you ordering.
 Apparent power :Less than 350VA (AC100V/50Hz)
 Less than 440VA (AC240V/50Hz)
 Lamp type :Xenon lamp 100W
 Lamp life :500h (Average)
 *When the light intensity has decreased by 50% from the initial value.
 Cooling method :Forced air cooling
 Shutter :Pulsed motor drive
 Light intensity control :100 - 5 (Steps)
 Continuously variable
 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 timeover 500h, 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

Dimensions

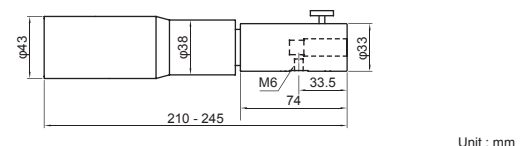
Main unit



Light guide



Collimator lens



*Product specifications are subject to change without notice.

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