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

*SIS, Japanese industrial standards is equivalent to IEC.

Spectral Match

*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

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

*JIS, Japanese industrial standards is equivalent to IEC.

**Uniformity**

The calculated value of 1SUN in the range of 400-1100nm 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 note that the output of lamp varies among the manufacturing lots.

**JIS Classification**

<table>
<thead>
<tr>
<th>Item</th>
<th>Class A</th>
<th>Class B</th>
<th>Class C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positional uniformity of irradiance (%)</td>
<td>≤±2</td>
<td>≤±3</td>
<td>≤±10</td>
</tr>
<tr>
<td>Temporal stability of irradiance (%)</td>
<td>≤±1</td>
<td>≤±3</td>
<td>≤±10</td>
</tr>
<tr>
<td>Spectral match</td>
<td>0.75 - 1.25</td>
<td>0.6 - 1.4</td>
<td>0.4 - 2.0</td>
</tr>
</tbody>
</table>

**RS232C Remote Control**

The HAL-C100 can be controlled remotely via RS232C.
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