ASAHI SPECTRA

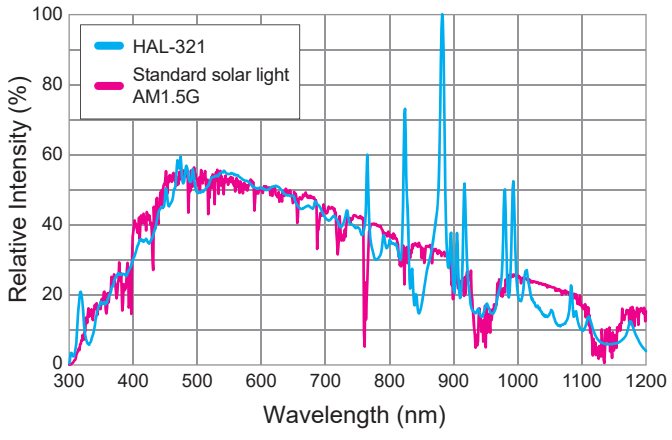
Solar Simulator (300-1200nm)
HAL-321

High approximation of solar spectrum with AM1.5G, compact design and fiber illumination

Features

- High approximation of solar spectrum
- Built-in AM1.5G filter
- Flexible illumination by light guide
- Adjustable light intensity
- Self-contained lamp and power supply
- No need of optical axis alignment
- External controller
- RS232C remote control

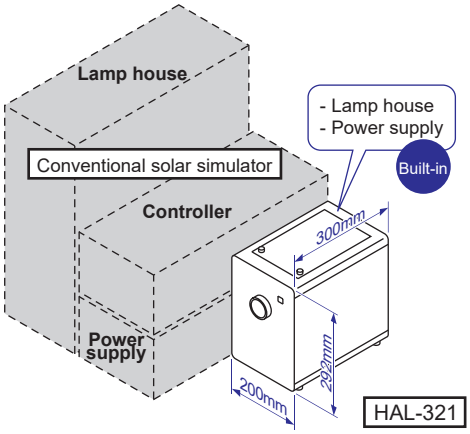
Spectral Match ※Reference value



Our unique fiber output method enables the use in various experimental configurations

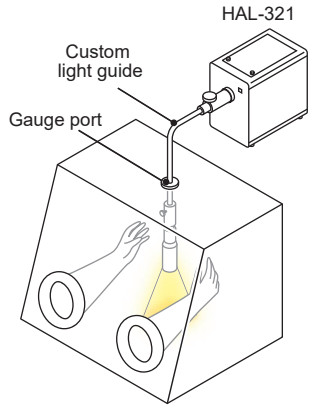
The solar simulator HAL-321, includes an AM1.5G filter, is a compact design and easy-carrying.
Fiber output system enables flexible design of experiment: combination with a glove box, a prober,manufacturing line and so on.

Compact and Easy-carrying

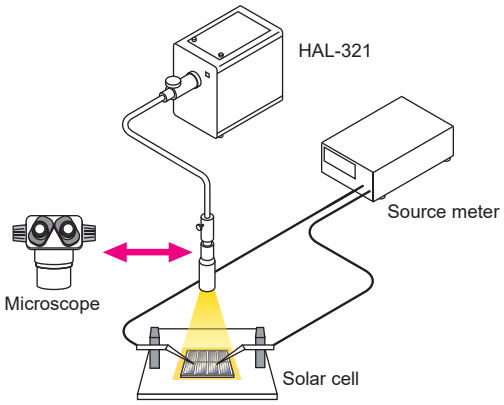


Flexible Configuration with Light Guide

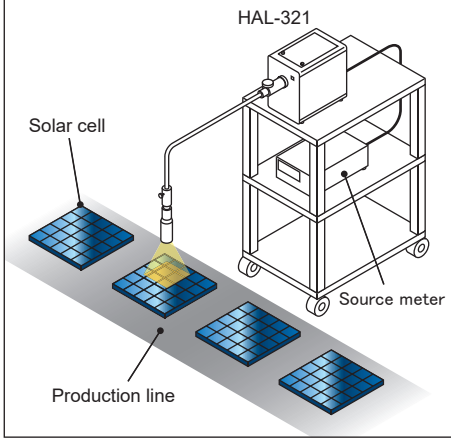
Glove box



Prober



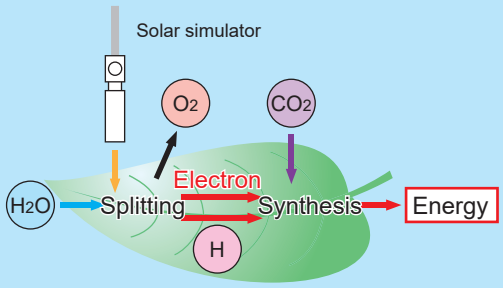
Mobile solar simulator



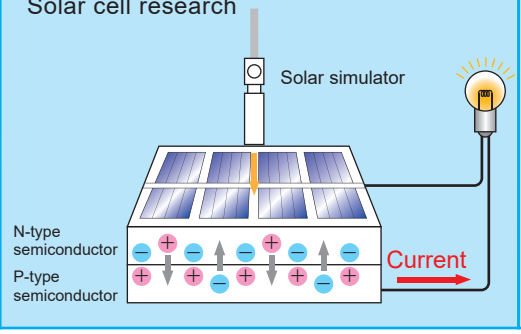
Applications

Solar simulator for various inspection and research

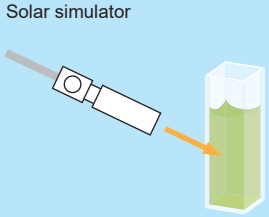
Artificial photosynthesis



Solar cell research



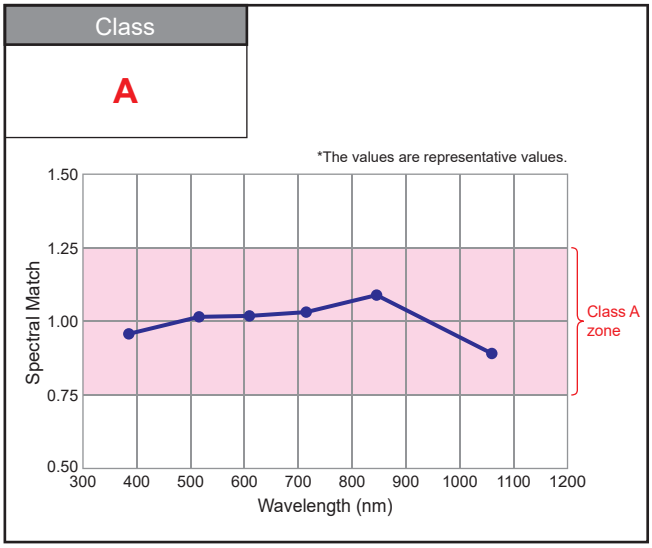
Photocatalytic research



Compact solar simulator achieves high approximation of solar spectrum

Spectral Match *1 *6 *7

Class
A



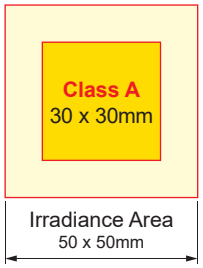
IEC Classification IEC 60904-9:2020

A	B	C
0.75～1.25	0.6～1.4	0.4～2.0

Energy Distribution

Wavelength (nm)	(%)
300～470	16.61
470～561	16.74
561～657	16.67
657～772	16.63
772～919	16.66
919～1200	16.69

Non-uniformity of Irradiance *2 *7

Condition	Class
Working distance: About 363mm Irradiance area: 50x50mm Class A area: 30x30mm (±15mm from the center)  	A

IEC Classification IEC 60904-9:2020

A	B	C
2% or less	5% or less	10% or less

Temporal Instability of Irradiance *3 *7

Measurement Item	Class
Short term instability (STI) *4	B
Long term instability (LTI) *5	

IEC Classification IEC 60904-9:2020

	A	B	C
STI	0.5% or less	2% or less	10% or less
LTI	2% or less	5% or less	10% or less

*1 Warming up: More than 30 minutes, measuring four points in Class A area.
*2 Warming up: More than 30 minutes, measuring the whole Class A area.
*3 Warming up: More than 30 minutes, measuring the center of Class A area.
*4 Sampling time: 10 sec, Sampling interval: 1 ms
*5 Sampling time: 1 hour, Sampling interval: 0.1 sec
*6 It is confirmed at the time of shipment.
We are not able to guarantee it, when the lamp is degraded as time passes.
*7 Performance maintenance environmental conditions: Temperature 20 - 30 deg C, Humidity 20 - 80%

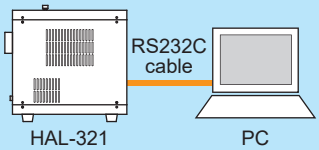
User-friendly External Controller

< Operation contents >
1. Shutter function Open/Close
2. Timer function
3. Light intensity adjustment
etc.

The HAL-321 is controlled by our proprietary controller. Various functions can be easily controlled just by pressing the control buttons of the controller and it has a comprehensive display.

RS232C Remote Control

< Connection image >

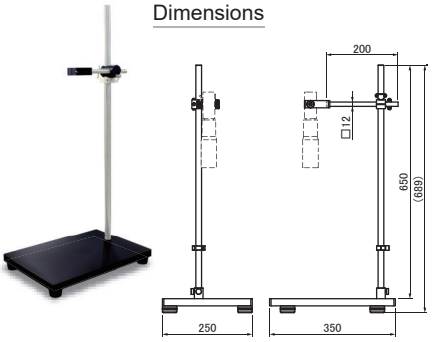


The HAL-321 can be controlled remotely via RS232C.

Options

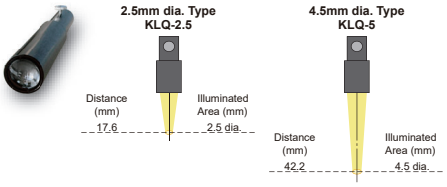
Stand for Collimator Lens

Dimensions

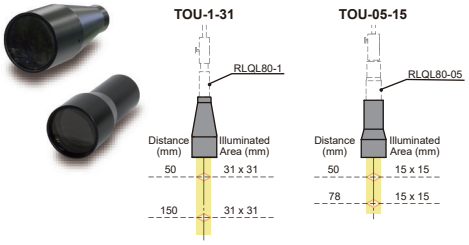


Unit: mm

High Condensing Lens



Telecentric uniform illumination unit



1 SUN Checker CS-20

1 SUN Checker is used for checking the light intensity (1 SUN) of HAL-321.
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.

Package Contents

- HAL-321 main unit
- Lamp cartridge
- Quartz light guide (1m)
- Light guide adapter
- Collimator lens
- Controller
- Controller cable (2m)
- AC cable (3m)
- RS232C cable (1.8m)
- Instruction manual

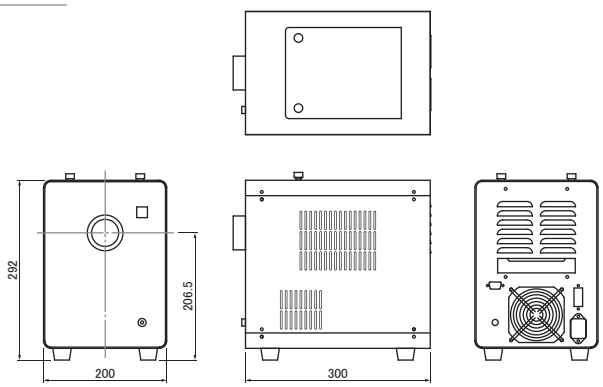
General Specifications

Model:	HAL-321
Output wavelength:	300 - 1200nm *AM1.5G filter made by ASC is equipped as standard.
Lighting mode:	Continuous
Scope of application:	I-V measurement, irradiation test
Irradiance:	1000W/m2 (1 SUN condition) *Confirmed with a reference solar device.
Max. AOI on irradiance area:	≦15°
Input voltage:	AC100 - 240V±10% 50/60Hz
Apparent power:	510VA or less *In case AC100V input / 50Hz 500VA or less *In case AC240V input / 50Hz
Lamp type:	Xenon lamp 300W (UV)
Lamp voltage, current:	14V, 21A (DC) *Representative value
Lamp control method:	Constant power control
Lamp life:	500h *1
Optical axis alignment:	Cartridge type (Alignment-free)
Cooling method:	Forced air cooling
Functions:	Shutter, Timer, Lamp life *2, Light intensity control 100-30 (steps) continuously variable
Remote control:	RS232C *The cable must be 3m or less.
Controller:	Remote controller
Safety mechanism:	Lamp turns off and warning lamp turns on: - Xenon lamp problem - Top door is open - Cooling fan problem - Temperature anomaly Circuit protector is used, shut off when AC input is overcurrent
Recommended environment:	Temperature 10 - 35 deg C Humidity 20 - 80% *Avoid condensation
Dimensions:	Main unit 200(W) x 300(D) x 292(H)mm Controller 160(W) x 37(D) x 99(H)mm
Weight:	Main unit 11.3kg Controller 0.6kg (including cable)

*1 Less than 1 year after delivery, under our condition.
*2 Count the lamp usage hours. (Unit: h)

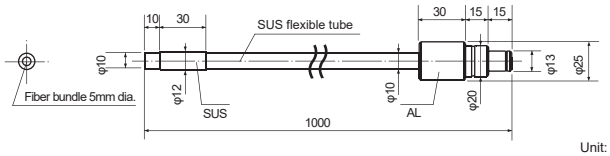
Dimensions

Main unit



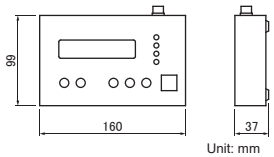
Unit: mm

Light guide



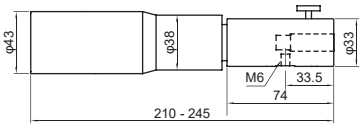
Unit: mm

Controller



Unit: mm

Collimator lens



Unit: mm

*Product specifications are subject to change without notice.

ASAHI SPECTRA
Gardenia Bldg. 4F, 2-13-1 Kamijujo, Kita-ku, Tokyo 114-0034 Japan
Phone: +81-3-3909-1151 / FAX: +81-3-3909-1152
E-mail: info@asahi-spectra.com
www.asahi-spectra.com

20251002.0000