

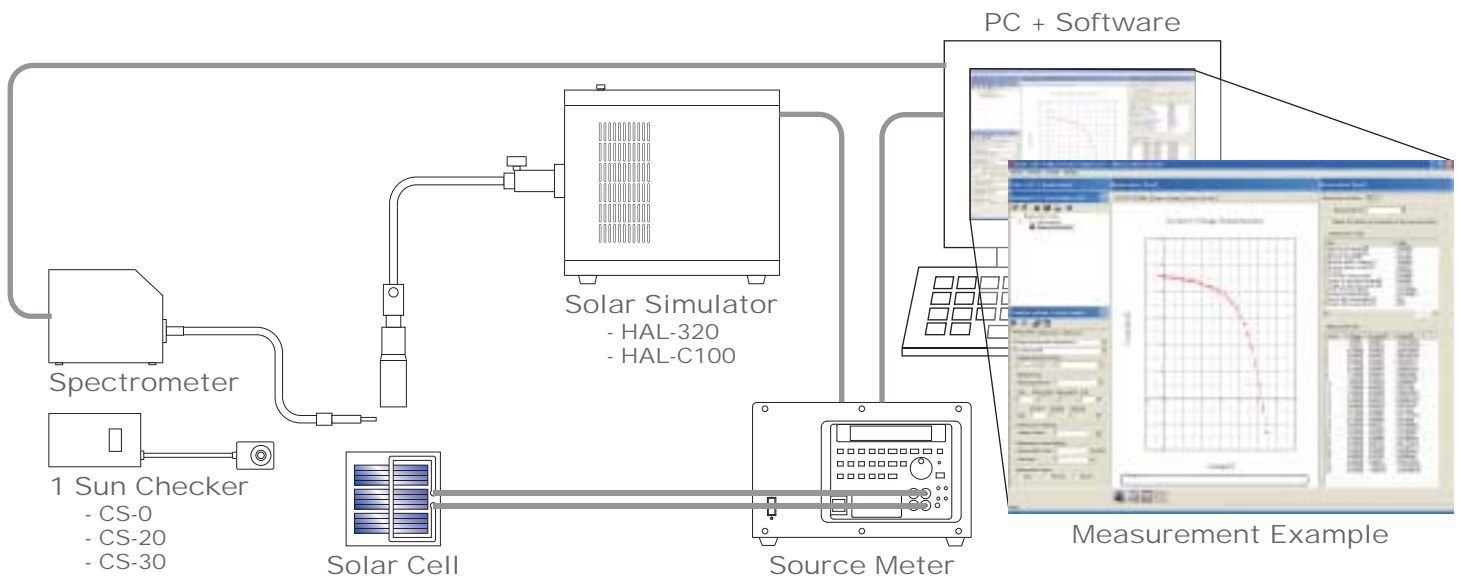
I-V Measurement System

Precise measurement for any types of solar cells with simple system



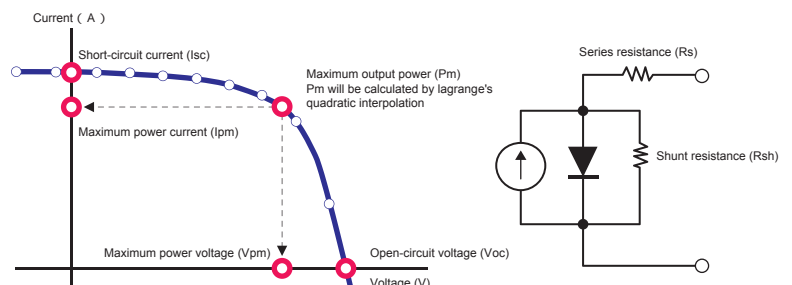
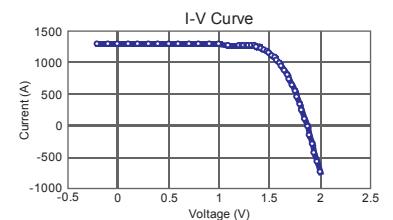
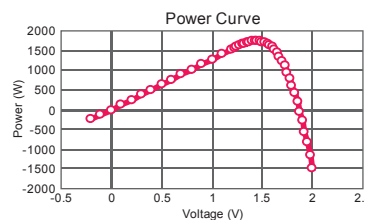
- 1 click easy, speedy operation gives you all results at once (Full auto function)
- Interval of measurement step is controllable
- Hysteresis measurement is available
- Controlling the solar simulator shutter open/close
- Repeated continuous measurement is available
- All units can be integrated by 1 remote PC with compact system.

Example of system configuration



Measurement items

1. Short-circuit current (I_{sc})
2. Open-circuit voltage (V_{oc})
3. Maximum output power (P_m)
4. Maximum power voltage (V_{pm})
5. Maximum power current (I_{pm})
6. Fill factor (FF)
7. Series resistance (R_s)
8. Shunt resistance (R_{sh})
9. Current of specified voltage (I_v)
10. Voltage of specified current (V_i)
11. Conversion efficiency (η)

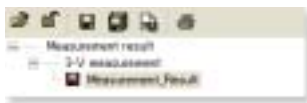


I-V Measurement System

Software

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.

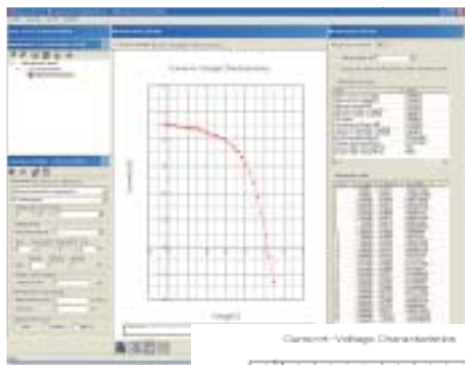
Measured Data Files



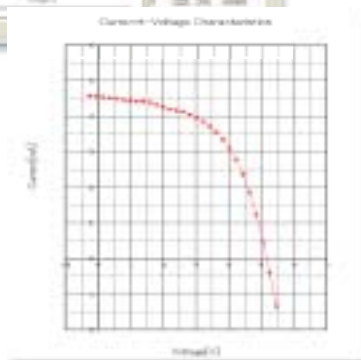
Measured Values

Character value	Value
Short-circuit current [A]	8.00865
Open-circuit voltage [V]	5.50743
Maximum output [W]	8.01285
Maximum power voltage [V]	1.605405
Maximum power current [A]	8.00817
Fill factor	0.84885
Conversion efficiency [%]	8.70899
Current of specified voltage [A]	8.00889
Voltage of specified current [V]	5.50713
Series resistance [Ω]	272.2008
Parallel resistance [Ω]	8179.0001
Area of light irradiation [cm ²]	2.54
Incident light energy [W/cm ²]	0.003

Measuring Condition Settings



Graph View Area



1 Sun Checker

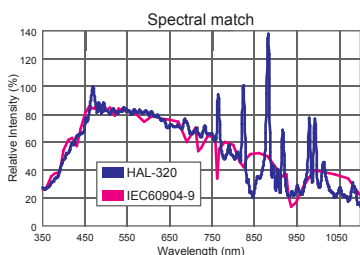
CS-20 :Compatible with HAL-320
 CS-30 :Compatible with HAL-C100
 CS-0 :General - purpose
 1 sun checker is used for checking the light intensity (1sun) of Asahi Solar Simulator.



Selection of Solar Illuminators

Full function model HAL-320

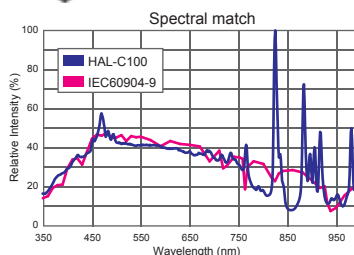
This model is our standard solar simulator, which achieves all class A in three major specifications defined by IEC60904-9.



Spectral Range: 350 - 1100nm
 Uniformity: Class A
 1 Sun Area: 50 x 50mm
 Lamp type: Xenon lamp 300W
 Intensity adjustment: 100 - 30 (T)
 Continuously variable
 Dimensions: Main unit 200 x 300 x 292mm
 (W) x (D) x (H) Controller 160 x 37 x 99mm
 Weight: Main unit 11.3kg
 : Controller 0.6kg

Entry model HAL-C100

This model is a simple type of solar simulator. This consists of 100W Xenon lamp and Air mass filter 1.5G.



Spectral Range: 400 - 1100nm
 Uniformity: Class A
 1 Sun Area: 30 x 30mm
 Lamp type: Xenon lamp 100W
 Intensity adjustment: 100 - 5 (T)
 Variable Slit
 Dimensions: 200 x 340 x 245mm
 (W) x (D) x (H) Weight: 8.9kg