



KONICA MINOLTA

Filtered silicon reference cell for solar simulator intensity adjustment

Reference PV Cell AK-100/AK-110

NEW

For a-Si (amorphous silicon) solar cells /
For μ c-Si (microcrystalline silicon) solar cells

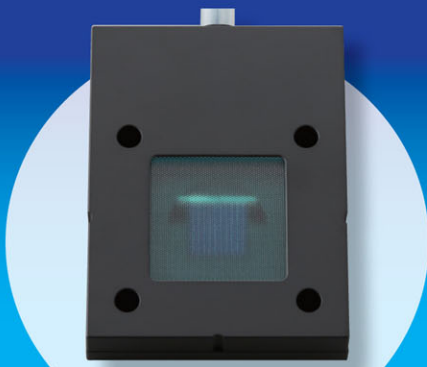


Reference PV Cells AK-100 and AK-110 are the result of collaborative research between Konica Minolta and Japan's National Institute of Advanced Industrial Science and Technology.

Patent application number (Japan)
2010-131945

Industry's best spectral mismatch performance for high accuracy and high stability!

(Conforms to ASTM, IEC, JIS C 8941:2009)

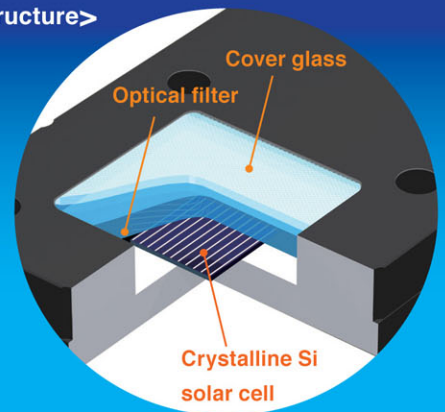


AK-100 (For a-Si cells)



AK-110 (For μ c-Si cells)

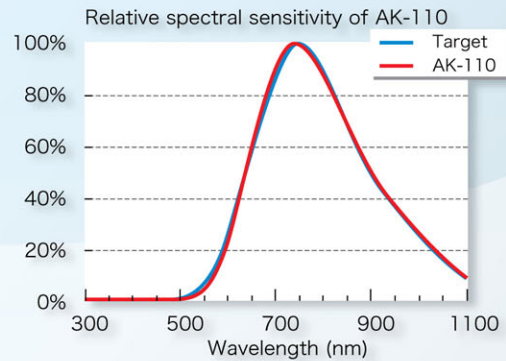
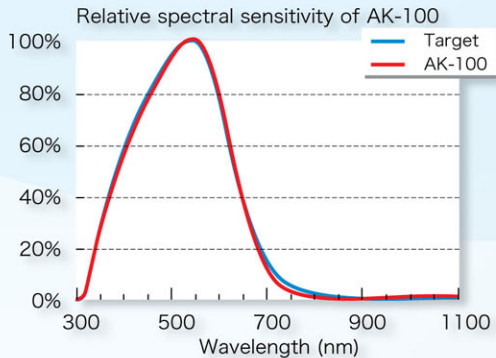
<Structure>



Feature 1

Spectral mismatch reduced to less than 1%

Even on Class C solar simulators for multi-junction cells, the spectral mismatch for tandem solar cells (a-Si / μ c-Si types) is drastically lower than that of typical reference cells, making current matching of tandem solar cells easier.

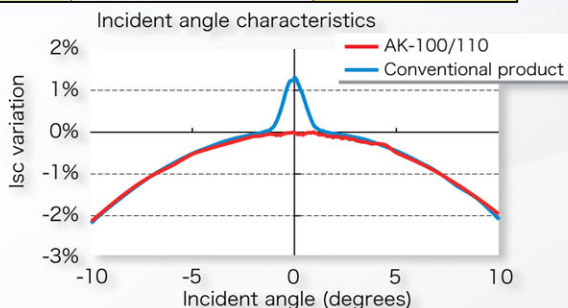


Feature 2

Improved reflection characteristics

Error in short-circuit current (I_{sc}) due to multiple reflection is greatly reduced. Improvements in the optical structure suppress multiple reflection and reduce the 1.3% error of conventional products to 0.0%.

	Conventional product	AK-100/AK-110
Error	1.3%	0.0%



Feature 3

Improved durability against solar simulator light

Variations in short-circuit current are low even under continuous irradiation by a solar simulator.

Feature 4

Calibration

The AK-100/AK-110 can be calibrated as a secondary reference by NREL.

The essentials of imaging

Main specifications

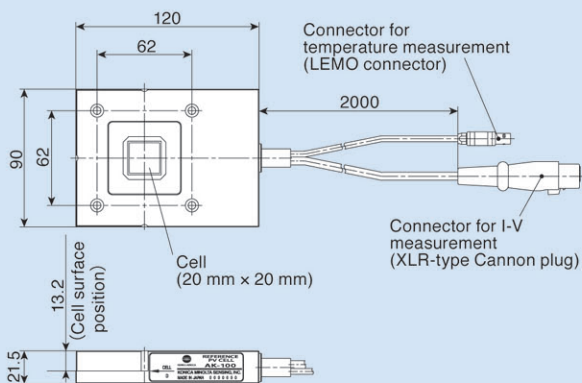
	AK-100	AK-110
Spectral mismatch error*1	Within $\pm 1\%$	Within $\pm 1\%$
Short-circuit current (Isc) at 25 $\pm 1^\circ\text{C}$	40 mA or higher	10 mA or higher
Receptor area	20 x 20 mm	
Aperture area	47 x 47 mm	
FOV	160 $^\circ$	
FF	60% or higher	55% or higher
Temperature sensor	PT-100	
Connector for I-V measurement	XLR-type Cannon plug (ASTM, IEC, JIS standard)	
Connector for temperature measurement	LEMO connector (WPVS standard)	
Operating temperature/humidity range	20 to 30 $^\circ\text{C}$, relative humidity 65% or less	
Storage temperature/humidity range	15 to 30 $^\circ\text{C}$, relative humidity 30 to 75% with no condensation	
Calibration as secondary standard	Calibration by the National Renewable Energy Lab (NREL, US) as secondary reference possible	
Size (W) x (D) x (H)	120 x 90 x 21.5 mm	
Weight	600 g	
Standard accessories	Storage Case PV-A01, M4 screws (4pcs), Connector for I-V Measurement (male) PV-A02, Protection Plate PV-A03	

*1 Spectral mismatch error evaluated according to Konica Minolta standard test conditions.

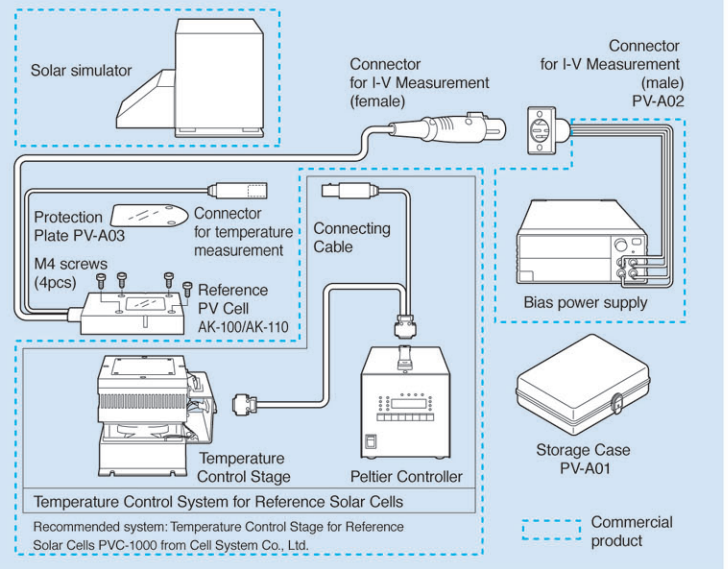
Software for calculating spectral mismatch is available for download from the Konica Minolta Sensing home page.
(<http://www.konicaminolta.com/instruments/download/software/index.html>)

<Dimensions>

(Same for both AK-100 and AK-110; Units: mm)



<System Example>



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SAFETY PRECAUTIONS

For correct use and for your safety, be sure to read the instruction manual before using the instrument.



Certificate No : YKA 0937154
Registration Date : March 3, 1995



Certificate No : JQA-E-80027
Registration Date : March 12, 1997

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