

# somera

## SERIES 10

Monocrystalline Solar PV Modules, Monofacial, MBB, M10 Half-Cell, SOMERA VSMH.60.AAA.05

PRELIMINARY  
DATASHEET

POWER OUTPUT WATT

435-465

MAXIMUM EFFICIENCY %

21.28

POSITIVE POWER TOLERANCE WP

0~+4.99

CELLS (HALF CUT)

M10 120



**EFFECTIVE GAIN OF 1% OF CELL ACTIVE AREA** by using cylindrical tabbing wire



Bypass diodes and innovative series-parallel connections enable the module to perform better in **PARTIAL SHADOW CONDITIONS**



**BETTER TOLERANCE TO MICRO CRACK**  
Higher number of busbar makes the PV modules less prone to loss in efficiency due to micro-cracks.

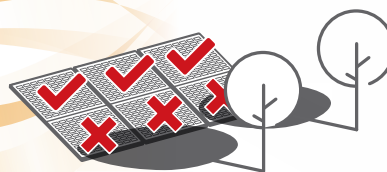


**IMPROVED FIELD RELIABILITY** due to multiple contact points on the cell.



**SUPERIOR PRICE PERFORMANCE**  
half-cut improves modules output without adding much to cost

### INCREASED SHADE TOLERANCE



HALF-CELL MODULE

Functions like two parallel modules, enabling the half-cell string to work in partial shading



FRAME

SILVER

BLACK

BACKSHEET

WHITE

BLACK

TRANS-PARENT

### APPLICATIONS

- On-grid large scale utility systems
- On-grid rooftop industrial and commercial systems
- Rooftop residential systems

  
**vikramsolar**  
CREATING CLIMATE FOR CHANGE

THIS DATASHEET IS APPLICABLE FOR: SOMERA VSMH.60.AAA.05 (AAA= 435-465)

### Electrical Data<sup>1,2</sup> All data refers to STC (AM 1.5, 1000 W/m<sup>2</sup>, 25°C)

Peak Power P <sub>max</sub> (Wp) [0 ~ +4.99Wp]	435	440	445	450	455	460	465
Maximum Voltage V <sub>mpp</sub> (V)	34.8	34.9	35	35.1	35.2	35.3	35.4
Maximum Current I <sub>mp</sub> (A)	12.52	12.62	12.72	12.83	12.93	13.04	13.14
Open Circuit Voltage V <sub>oc</sub> (V)	41.1	41.2	41.3	41.4	41.5	41.6	41.7
Short Circuit Current I <sub>sc</sub> (A)	13.21	13.31	13.41	13.51	13.61	13.72	13.81
Module Efficiency η(%)	19.91	20.14	20.37	20.60	20.82	21.05	21.28

1) STC:1000 W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5g spectrum according to EN 60904-3. | 2) Power measurement uncertainty is within +/- 3%.

### Electrical Parameters at NOCT<sup>3</sup>

Power (W)	324	327	331	334	338	342	345
V@P <sub>max</sub> (V)	32	32.1	32.2	32.3	32.4	32.5	32.6
I@P <sub>max</sub> (A)	10.11	10.19	10.27	10.35	10.43	10.52	10.61
V <sub>oc</sub> (V)	38.2	38.3	38.3	38.4	38.5	38.6	38.7
I <sub>sc</sub> (A)	10.7	10.78	10.86	10.94	11.02	11.11	11.19

3) NOCT irradiance 800 W/m<sup>2</sup>, ambient temperature 20°C, wind speed 1 m/sec

### Temperature Coefficients (Tc) permissible operating conditions

Tc of Open Circuit Voltage (β)	-0.27%/°C
Tc of Short Circuit Current (α)	0.065%/°C
Tc of Power (γ)	-0.35%/°C
Maximum System Voltage	1500V
NOCT	45°C ± 2°C
Temperature Range	-40°C to + 85°C

### Mechanical Data

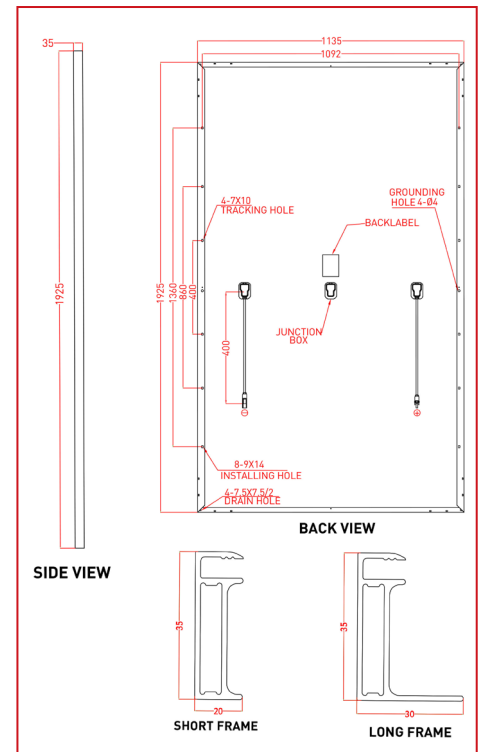
Length × Width × Height	1925 X 1135 x 35 mm [75.79 X 44.68 X 1.38 inches]
Weight	23.9 Kg (52.69 lbs)
Junction Box	IP68, Split Junction Box with individual bypass diodes
Cable & Connectors <sup>#</sup>	400 mm length cables, MC4 Compatible/MC4 Connectors
Application Class	Class A (Safety class II)
Superstrate	3.2 mm (0.125 inches) high transmission low iron tempered glass, AR coated
Cells	60 Mono PERC (120 half-cells) P-type solar cells
Back Sheet	Composite film
Frame	Anodized aluminium frame with twin wall profile
Mechanical Load Test	5400 Pa (Snow load), 2400 Pa (Wind load)
Maximum Series Fuse Rating	25 A

### Warranty and Certifications

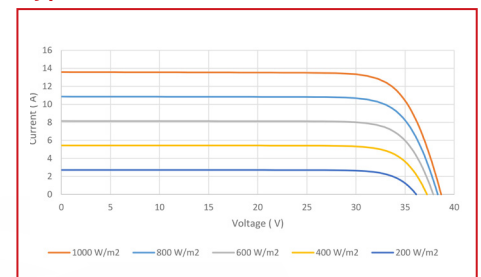
Product Warranty**	12 years
Performance Warranty**	Linear Power Warranty for 27 years with 2% for 1st year degradation and 0.65% from year 2 to year 27
Approvals and Certificates <sup>^</sup>	IEC 61215 : 2016, IEC 61730 : 2016, IEC 61701, IEC 62716, CE, IEC 60068-2-68, IEC 62804, CEC (California), UL 61215, UL 61730

<sup>^</sup> All (\*) certifications under progress. | \*\* Refer to Vikram Solar's warranty document for terms and conditions. | \* 1200mm (47.24 inches) cable length is also available

### Dimensions in mm

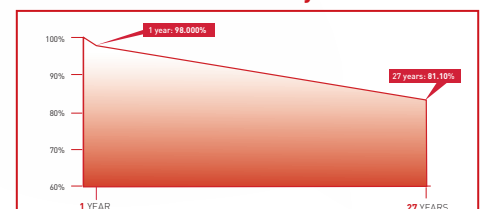


### Typical I-V Curves<sup>4</sup>



4) Average relative efficiency reduction of 5% at 200 W/m<sup>2</sup> according to EN 60904-1.

### Performance Warranty



### Packaging Information

Quantity /Pallet	30
Pallets/Container (40'HC)	24
Quantity/Container (40'HC)	720

**CAUTION:** READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT.

Specifications included in this datasheet are subject to change without notice. Electrical data without guarantee. Please confirm your exact requirement with the company representative while placing your order.

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