

# SOLAR POWER PANELS



## SOLAHART SILHOUETTE RESIDENTIAL SOLAR PANELS

SOLAHART400S4



The new ultimate-performance Solahart Silhouette panel, with stylish all-black appearance, is the ideal solution for Australian homes thanks to its innovative and premium cell technology.

The state-of-the-art PERC monocrystalline half-cell and 12-busbar design was developed to achieve excellent performance under real conditions, even with low radiation intensity and on clear, hot summer days. The new zero-gap layout boosts panel efficiency to up to 20.4% and with positive tolerance of up to 5W guarantees that each Silhouette panel will have a rated maximum power on or above 400W at Standard Test Conditions (STC)<sup>(1)</sup>.

The black anodised aluminium frame has been built to withstand extreme weather conditions, including high winds, and reliable silicone connections ensure excellent stability and durability. Other features include optimally positioned drainage holes to protect against frost damage, premium MC4 connecting plugs to secure a reliable connection, and a sealed junction box that offers corrosion protection and water resistance.

The exceptional 25-Year Solahart Product Warranty provides ultimate confidence and peace of mind. Solahart Silhouette is designed in Germany, manufactured in Malaysia and only available through Solahart.

### How you benefit:



#### MODERN DESIGN

Combining premium technology with a contemporary design and a striking all-black finish



#### HIGH SOLAR YIELD

Innovative gapless technology with excellent low-light and temperature behaviour results in more energy production per square metre.



#### HIGH PERFORMANCE

Long-term yield security with anti-LID technology, anti-PID Technology<sup>^</sup>, Hot-Spot Protect and Solahart Quality Auditing.



#### EXTREME WEATHER RATED

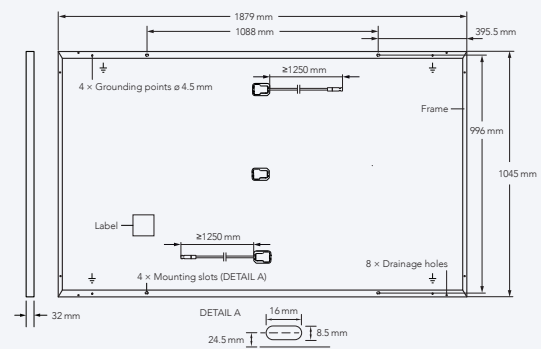
High-tech aluminium alloy frame, certified for high wind loads and snow loads.



#### SOLAHART WARRANTY

25-Year Solahart Product Warranty for peace of mind, plus, 25-Year Performance Guarantee for long term returns.\*

Model	SOLAHART400S4	
<b>Mechanical Data</b>		
Dimensions (H x W x D)	1879 x 1045 x 32 mm (including frame)	
Weight	22.0 Kg	
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology	
Back Cover	Composite film	
Frame	Black Anodised Aluminium	
Cell	6 x 22 monocrystalline solar half-cells	
Junction Box	Protection class $\geq$ IP67, with bypass diodes	
Cable	4 mm <sup>2</sup> solar cable; (+) 1250 mm, (-) 1250 mm	
Connector	Stäubli MC4 connectors (PV-KST4 & PV-KSB4), IP68	

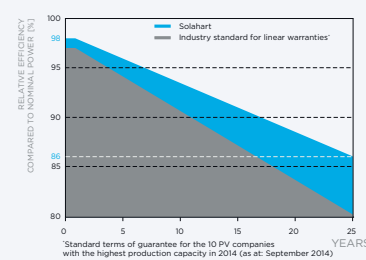


<b>Electrical Data</b>	
Minimum performance at standard test conditions, STC <sup>(1)</sup> (Power Tolerance +5 W / -0 W)	
Power at MPP <sup>(2)</sup> - P <sub>MPP</sub>	400 Wp
Short circuit current <sup>(2)</sup> - I <sub>sc</sub>	11.14 A
Open circuit voltage <sup>(2)</sup> - V <sub>oc</sub>	45.30 V
Current at MPP <sup>#</sup> - I <sub>MPP</sub>	10.77 A
Voltage at MPP <sup>#</sup> - V <sub>MPP</sub>	37.13 V
Efficiency <sup>(1)</sup> - $\eta$	$\geq$ 20.4 %
Minimum performance at normal operating conditions, NMOT <sup>(3)</sup>	
Power at MPP - P <sub>MPP</sub>	300.1 Wp
Short circuit current <sup>#</sup> - I <sub>sc</sub>	8.97 A
Open circuit voltage <sup>#</sup> - V <sub>oc</sub>	42.72 V
Current at MPP <sup>#</sup> - I <sub>MPP</sub>	8.51 A
Voltage at MPP <sup>#</sup> - V <sub>MPP</sub>	35.25 V

<b>Other information</b>	
Part Number	SOLAHART400S4
Solahart Product Warranty*	25 years
Performance Guarantee*	25 years
Country of Manufacture	Malaysia

<b>Temperature Coefficients</b>	
Normal module operating temperature (NMOT)	43 $\pm$ 3 °C
Temperature coefficient of P <sub>MPP</sub> - $\gamma$	-0.34 % / °C
Temperature coefficient of V <sub>oc</sub> - $\beta$	-0.27 % / °C
Temperature coefficient of I <sub>sc</sub> - $\alpha$	+0.04 % / °C

### Performance Guarantee



At least 98% of nominal power during the first year. Thereafter max 0.5% degradation per year.

At least 93.5% of nominal power up to 10 years.

At least 86% of nominal power up to 25 years.

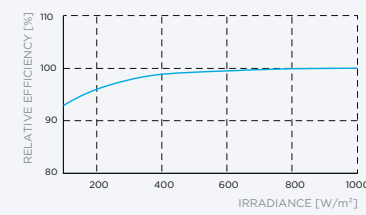
All data within measurement tolerances.

### Qualifications and Certificates

IEC 61215: 2016; IEC 61730: 2016, Application class II.

### Properties for System Design

Permitted module temp on continuous duty	-40°C up to +85°C
Maximum system voltage - V <sub>SYS</sub>	1000 V
Maximum reverse current - I <sub>R</sub>	20 A
Maximum design load, Push / Pull	3600 / 2660 Pa
Maximum test load, Push / Pull	5400 / 4000 Pa
Safety class	II
Fire rating based on ANSI / UL 61730	C / TYPE 2



Typical panel performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m<sup>2</sup>).

Specifications and designs included in this data sheet are subject to change without notice.

<sup>(1)</sup>1000 W/m<sup>2</sup>, 25 $\pm$ 2°C, AM 1.5 G. <sup>(2)</sup>Measurement tolerances PMPP  $\pm$ 3 %; ISC, VOC  $\pm$ 5 % at STC. <sup>(3)</sup>800 W/m<sup>2</sup>, NMOT, spectrum AM 1.5 G. <sup>#</sup> Typical values, actual values may differ.  
 \* 25-year Solahart Product Warranty covers certain defects with the Solahart Silhouette panels. Please refer to the 'Solahart PV Systems Owner's Guide' for full details, available on Solahart's website [www.solahart.com.au](http://www.solahart.com.au). 25-year Performance Guarantee is provided by the manufacturer of the Solahart Silhouette panels and guarantees the maximum reduction in power output performance of the panels over a 25-year period. Neither the Solahart Product Warranty nor the Performance Guarantee are intended to exclude, restrict or modify your rights under the Australian Consumer Law.  
<sup>\*</sup>APT test conditions according to IEC/TS 62804-1:2015, method B (-1500 V, 168 h).