



Engineered in Australia for Australian Conditions



A Secure & Reliable Investment

Tindo Solar has extended the product warranty of our Karra panels by an additional 2 years, from 10 years to 12 years.



Great Visual Appearance

The Tindo Karra series has been designed with appearance in mind. Their deep black cells, with black frames and thinner wires give an aesthetically pleasing appearance.



High Efficiency

Higher module conversion efficiency (up to 18.9%) benefit from Passivated Emmitter Rear Contact (PERC) technology.



Proven Field Performance

Our panels are mounted and performing everyday at the Desert Knowledge Testing Centre in Alice Springs. The Karra series panels are consistently one of the highest performing panels at the centre. www.dkasolarcentre.com.au



Maximum Cost Reductions

Much lower logistics costs due to our modules being made in South Australia with flexible module numbers per pallet on request.



Innovative All Weather Technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



Low-light Performance

Advanced glass and solar cell surface texturing allow for excellent performance in low-light environment.

Karra Series Data Sheet

Electrical Characteristics

60 Cell Module		Karra-315H	
Item	Unit	*STC	*NMOT
Max. Power (Pmax)	Wp	315	231
Max. Power voltage (Vmp)	V	33.80	30.69
Max. Power current (Imp)	A	9.32	7.52
Open circuit voltage (Voc)	V	41.1	37.92
Short circuit current (Isc)	A	9.92	8.08
Panel efficiency	%	18.9	
Positive power tolerance	W	0 + - 5	

*STC (Standard Test Condition): 1,000 W/m², AM 1.5, 25°C / *NMOT (Nominal Module Operating Temperature): 800W/m², 20°C, wind speed 1m/s, Tolerance of Pmax, Vo & Isc ± 3% within each watt class at STC.

Qualification Test

Thermal cycling test	- 40°C to 85°C for 200 cycles
Damp heat test	85°C and 85% relative humidity for 1000 hr
Front Load test	5400Pa
Rear Load test	2400Pa
Hail Impact test	25mm hail at 23m/s from 1m distance

Safety factor of *static load test: 1.5 (Test load = Design load x Safety factor)

Mechanical Characteristics

Cells per panel	60Cells (6x10)
Cell Type	5BB PERC Mono-crystalline
Panel Dimension (Lx Wx Hx)	1667 x 1000 x 40mm
Panel Weight	18 Kg
Front Glass	3.2mm Tempered Glass
Frame	Black Anodized Aluminum
Junction Box	With bypass diode / IP67 (1.2M/4mm ²)
Connector Type	KST4-EV02(M), KBT4-EVO2(F) /Stabli-MC4

System Integration Parameters

Temperature Range	-40°C to 85°C
Maximum System Voltage	1,500V DC(IEC)
Maximum over-current protection	15 A

Thermal Characteristics

Rating	Unit	Value	
*NMOT	°C	44	
Temperature Coefficient	Isc	%/°C	+0.06
	Voc	%/°C	- 0.30
	Pmax	%/°C	-0.37

NMOT: Nominal Module Operating Temperature

Safety Ratings & Warranties

Safety Application Class	Class II
Fire Safety Classification	Class C
Certifications	IEC 61215 , IEC 61730
Warranty	12 years limited product warranty
Performance Guarantee	25 years limited warranty 80% power

Packaging

Stacking Method	Horizontal / Palletised
Panels per Pallet	25
Pallet Dimensions & Weight	1720x1050x1200, 460kg
Pallets & Panels per 20-ft container	12 Pallets - 282 Panels
Pallets & Panels per 40-ft container high cube	26 Pallets - 650 Panels

[Panel Diagram]

