



### 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 Kara 325H Solar Panels incorporates Full Square Mono PERC Cells (G1-158.75mm) and has been designed with appearance in mind. The black square cells, with black frames and thinner wires give an aesthetically pleasing appearance.



#### High Efficiency

Featuring 60 solar cells and a 19.3% module efficiency, the Tindo Karra 325H mono solar panel (square mono perc) generates more power output than conventional mono-crystalline solar panels.



#### 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](http://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.



#### Project Flexibility

We have also updated our traditional MC4 connectors on the Karra 325H module to MC4-EVO 2 Staubli connectors increasing the panels rating to 1500V making it ideal for both commercial and residential applications.



#### Low-light Performance

Advanced glass and solar cell surface texturing allow for optimal yields, whatever the weather with excellent low-light and temperature behaviour.

# Karra Series Data Sheet

## Electrical Characteristics

60 Cell Module		Karra-320H	Karra-325H
Item	Unit	* STC	* STC
Max. Power (Pmax)	Wp	320	325
Max. Power voltage (Vmp)	V	34.15	34.50
Max. Power current (Imp)	A	9.37	9.42
Open circuit voltage (Voc)	V	41.45	41.80
Short circuit current (Isc)	A	9.98	10.02
Panel efficiency	%	19.0	19.3
Positive power tolerance	W	0 + - 5	

\*STC (Standard Test Condition): 1,000 W/m<sup>2</sup>, AM 1.5, 25°C.  
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	4BB PERC Mono-crystalline
Panel Dimension (Lx Wx Hx)	1676 x 1005 x 40mm
Panel Weight	18 Kg
Front Glass	3.2mm Tempered ARC Glass
Frame	Black Anodized Aluminum
Junction Box	With bypass diode / IP67 (1.2M/4mm <sup>2</sup> )
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	1750x1100x1200, 480kg
Pallets & Panels per 20-ft container	12 Pallets - 282 Panels
Pallets & Panels per 40-ft container high cube	26 Pallets - 650 Panels

[Panel Diagram]

