

# Tindo Karra 330P Mono PERC

Mono-Crystalline Module



## Engineered in Australia for Australian Conditions



**choice**  
THE PEOPLE'S WATCHDOG



### A Secure & Reliable Investment

Tindo Solar has extended the product warranty of our Karra panels by an additional 13 years, from 12 years to 25 years.



### Great Visual Appearance

The Tindo Kara 330P Solar Panels incorporate 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 and Performance

Featuring 60 solar cells and a 19.8% module efficiency, the Tindo Karra 330P mono solar panel (square mono PERC) generates more power output than conventional mono-crystalline solar panels. The Tedlar® based backsheets used in this module provide critical, long-life protection, safeguarding the system and enabling long-term PV system returns. In harsh climates, it offers the best protection from UV, thermal, moisture, mechanical and chemical stress.



### 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 330P module to MC4-EVO 2 Staubli connectors increasing the panels rating to 1500V making it ideal for both commercial and residential applications.



### PID Resistance

Polyolefin Encapsulant is superior to the traditional EVA encapsulant used in solar panels. As a result the panel is more PID resistant, it is more inert which prevents corrosion, it has better UV protection giving the module better lifespan and it has better thermo-mechanical properties for better performance in the field.



### Low-light Performance

Advanced glass and solar cell surface texturing allow for optimal yields, whatever the weather with excellent low-light and temperature behaviour. (98% @200W/m2 irradiance)

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# Karra Series Data Sheet

## Electrical Characteristics

60 Cell Module		Karra-330P
Item	Unit	*STC
Max. Power (Pmax)	Wp	330
Max. Power voltage (Vmp)	V	33.25
Max. Power current (Imp)	A	9.93
Open circuit voltage (Voc)	V	40.93
Short circuit current (Isc)	A	10.35
Panel efficiency	%	19.8
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  $\pm$  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
Mechanical Load test	5400Pa (Front) / 2400Pa (Rear)
PID test	-1500 V DC, 96 h, 85 % RH, 85 °C
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)	1676 x 1005 x 40mm
Panel Weight	18 Kg
Front Glass	3.2mm Tempered ARC Glass
Frame	Black Anodized Aluminium
Junction Box	With bypass diode / IP67 ( $\geq$ 1.0M/4mm <sup>2</sup> )
Connector Type	KST4-EV02(M), KBT4-EVO2(F) /Stabli-MC4
Backsheet	Tedlar® based backsheets
Encapsulant	Polyolefin Encapsulant

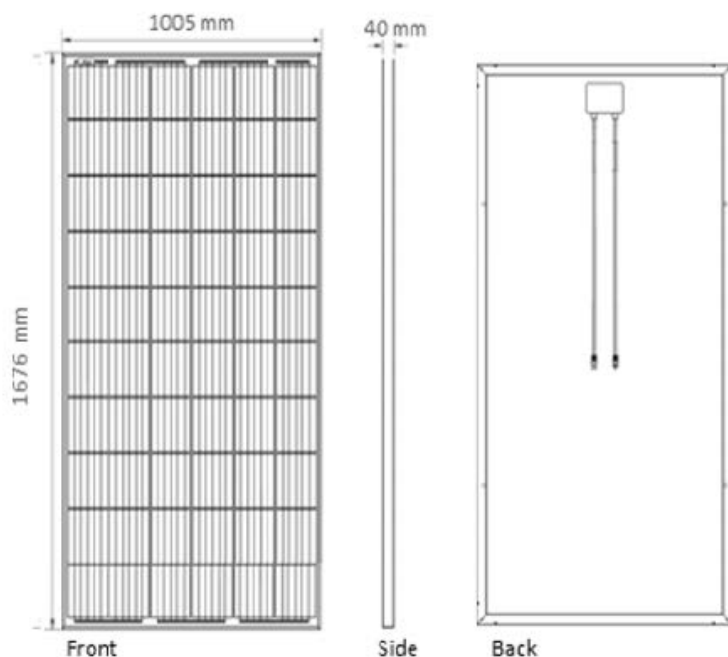
## Safety Ratings & Warranties

Safety Application Class	Class II
Fire Safety Classification	Class C
Certifications	IEC 61215, IEC 61730
Warranty	25 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]



## 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