

DUAL GLASS BIFACIAL  
ORION nano-tech layer

640 - 650 Watt



## KEY FEATURES

Our solar cells offer high conversion efficiency to ensure the highest quality.

Our high performing modules enable cost savings in mounting, cabling and labour of up to 15%.

The modules can withstand high wind-pressure, snow loads and extreme temperatures.

Passed IEC 5400 Pa mechanical loading test.  
PID Resistance Available.

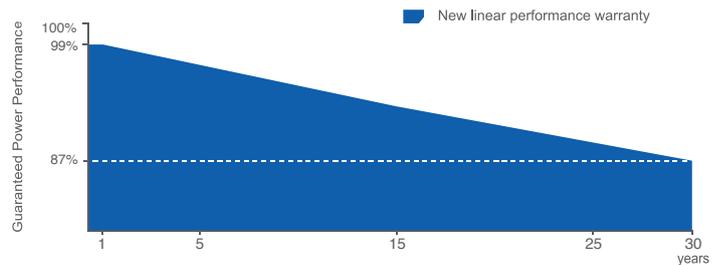


## QUALITY AND SAFETY

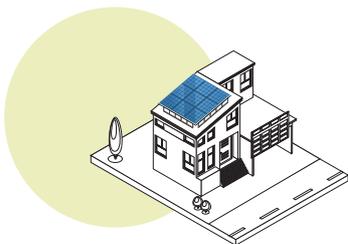
- Industry leading power output warranty  
30 years/87,4%
- 30-year warranty on materials & workmanship
- Fire Rating: Class 1



## PREMIUM PERFORMANCE WARRANTY



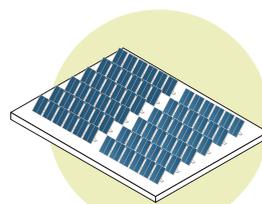
## APPLICATIONS



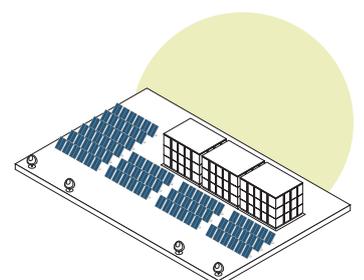
On-grid residential roof-tops



On-grid commercial - industrial roof-tops

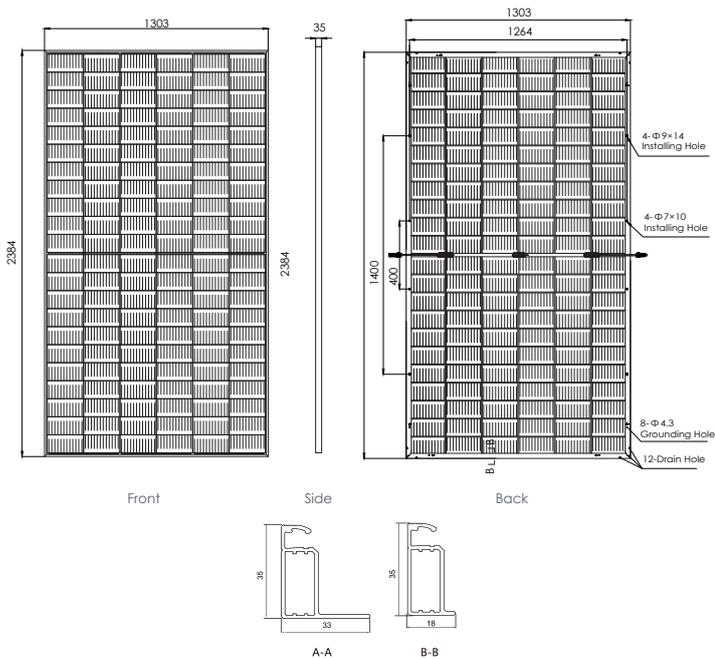


Solar power plants

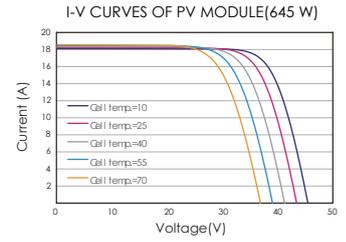
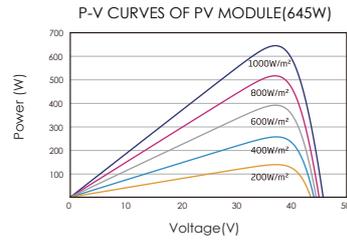


Off-grid systems

## ENGINEERING DRAWINGS



## ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE



## MECHANICAL CHARACTERISTICS

Cell Type	Orion N-Type TOPCon Mono-crystalline (210x105mm) Orion Technology Layer Applied*
No. of cells	132 (2x66)
Dimensions	2384x1303x35mm ( $\pm$ 2mm)
Weight	38.50kg
Front Glass	2.0mm, Anti-Reflection Coating
Back Glass	2.0mm, Heat-strengthened glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TÜV 1x4.0mm <sup>2</sup> / UL 12AWG Length:400mm/1100mm or customized length

## PACKAGING CONFIGURATION

Standard packaging	31 pcs / pallet
Module quantity per 40' container	558pcs
Pallets per container	18

## SPECIFICATIONS

Module Type <sup>(1)</sup>	ORION Xs-640N		ORION Xs-645N		ORION Xs-650N	
	STC <sup>(2)</sup>	NMOT <sup>(3)</sup>	STC <sup>(2)</sup>	NMOT <sup>(3)</sup>	STC <sup>(2)</sup>	NMOT <sup>(3)</sup>
Maximum Power (P <sub>max</sub> )	640Wp	486Wp	645Wp	490Wp	650Wp	494Wp
Maximum Power Voltage (V <sub>mp</sub> )	37.30V	33.71V	37.50V	33.89V	37.70V	34.07V
Maximum Power Current (I <sub>mp</sub> )	17.19A	14.42A	17.23A	14.46A	17.27A	14.5A
Open-circuit Voltage (V <sub>oc</sub> )	45.10V	40.54V	45.30V	40.82V	45.50V	41.1V
Short-circuit Current (I <sub>sc</sub> )	18.26A	15.42A	18.31A	15.46A	18.35A	15.5A
Module Efficiency (%)	20.60%		20.76%		20.92%	
V <sub>oc</sub> and I <sub>sc</sub> tolerance	±3%					
Operating Temperature(°C)	-40°C~+85°C					
Maximum system voltage	1500V					
Maximum series fuse rating	25A					
Temperature coefficients of P <sub>max</sub>	-0.29%/°C					
Temperature coefficients of V <sub>oc</sub>	-0.25%/°C					
Temperature coefficients of I <sub>sc</sub>	0.040%/°C					
Nominal operating cell temperature (NOCT)	45±2 °C					
Refer. Bifacial Factor	70±5%					

## BIFACIAL OUTPUT-REARSIDE POWER GAIN

5%	672Wp	677Wp	682Wp
15%	736Wp	741Wp	747Wp
25%	672Wp	806Wp	812Wp

STC Irradiance 1000W/m<sup>2</sup> Module Temperature 25°C AM=1.5