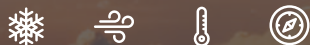


REAR CONTACT MONO

ORION nano-tech layer

450 - 465 Watt



KEY FEATURES

HIGH EFFICIENCY

- Increased solar light absorption area
- No front side busbars

HIGH RELIABILITY

- Rear Contact technology
- Lower micro-crack risk

AESTHETIC DESIGN

- Full black design with no visible front side contacts

HIGH DURABILITY

- Low degradation $\leq 1\%$ in year 1 and $\leq 0,4\%$ in years 2-30
- Low temperature coefficient of $-0,29\%/^{\circ}\text{C}$ optimised
- Positive power tolerance of $0\sim+3\%$

OPTIMIZED BOS

- Significant construction and installation cost savings



QUALITY AND SAFETY

- Industry leading power output warranty
30 years linear power warranty 87,4%
- 30 years warranty on materials & workmanship
- Fire Rating: Class 1
Passed IEC 5400 Pa mechanical loading test



PREMIUM PERFORMANCE WARRANTY

30 years

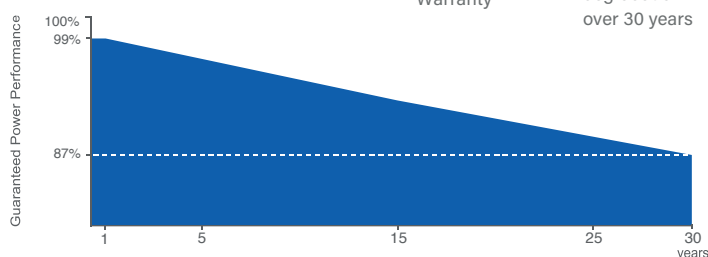
Product Warranty

30 years

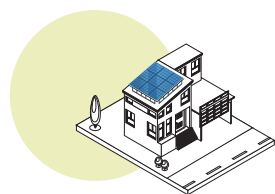
Linear Power
Warranty

0.40%

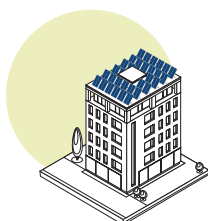
Annual
degradation
over 30 years



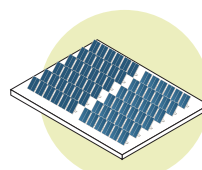
APPLICATIONS



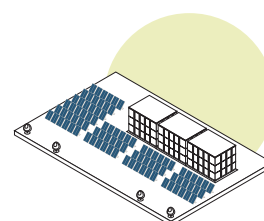
On-grid residential roof-tops



On-grid commercial - industrial roof-tops

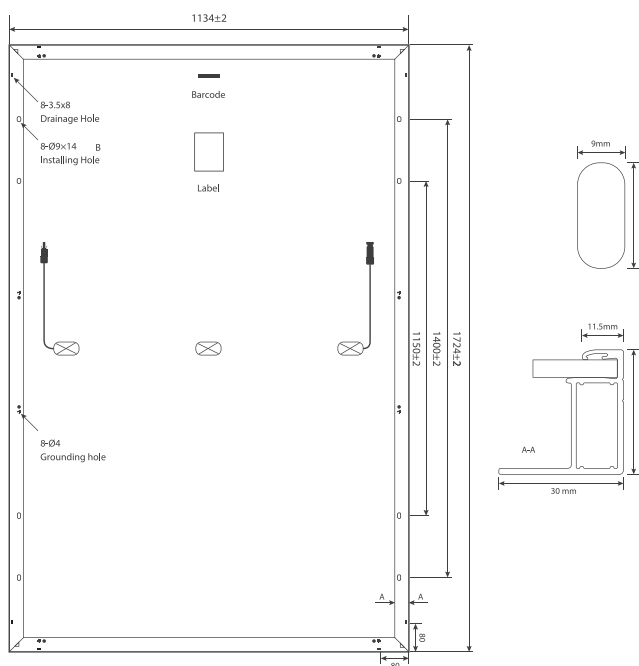


Solar power plants



Off-grid systems

ENGINEERING DRAWINGS

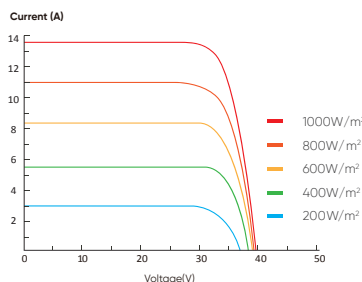


PACKAGING CONFIGURATION

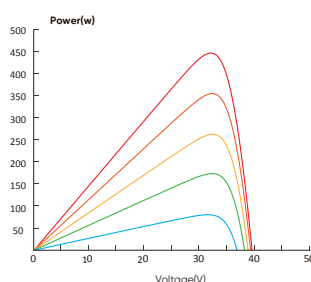
Standard packaging	36 pcs / pallet
Module quantity per 40' container	936 pcs
Pallets per container	26

ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE

Current-Voltage Curve(450W)



Power-Voltage Curve(450W)



MECHANICAL CHARACTERISTICS

Cell Type	Rear Contact N-Type, mono-crystalline 182mm Orion Technology Layer Applied*
No. of cells	108
Dimensions	1724 x 1134 x 30 mm (±2mm)
Weight	20.8kgs
Front Glass	3.2mm tempered, high transmission AR coating
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TÜV 1x4.0mm² / UL 12AWG, Length:1100mm

SPECIFICATIONS

STC  Irradiance 1000W/m²  Module Temperature 25°C  AM=1.5

Module Type ⁽¹⁾	ORION IV-450M		ORION IV-455M		ORION IV-460M		ORION IV-465M	
	STC ⁽²⁾	NMOT ⁽³⁾	STC ⁽²⁾	NMOT ⁽³⁾	STC ⁽²⁾	NMOT ⁽³⁾	STC ⁽²⁾	NMOT ⁽³⁾
Maximum Power (Pmax)	450Wp	339Wp	455Wp	343Wp	460Wp	347Wp	465Wp	351Wp
Maximum Power Voltage (Vmp)	33.81V	31.84V	33.91V	31.94V	34.01V	32.03V	34.11V	32.12V
Maximum Power Current (Imp)	13.32A	10.67A	13.42A	10.76A	13.53A	10.84A	13.64A	10.93A
Open-circuit Voltage (Voc)	39.99V	37.66V	40.09V	37.76V	40.19V	37.85V	40.29V	37.94V
Short-circuit Current (Isc)	13.96A	11.32A	14.02A	11.37A	14.08A	11.42A	14.14A	11.46A
Module Efficiency (%)	23.0%		23.3%		23.6%		23.8%	
Voc and isc tolerance	±3%							
Operating Temperature(°C)	-40°C~+85°C							
Maximum system voltage	1500V							
Maximum series fuse rating	25A							
Temperature coefficients of Pmax	-0.29%/°C							
Temperature coefficients of Voc	-0.25%/°C							
Temperature coefficients of Isc	0.045%/°C							
Nominal operating cell temperature (NOCT)	45±2 °C							