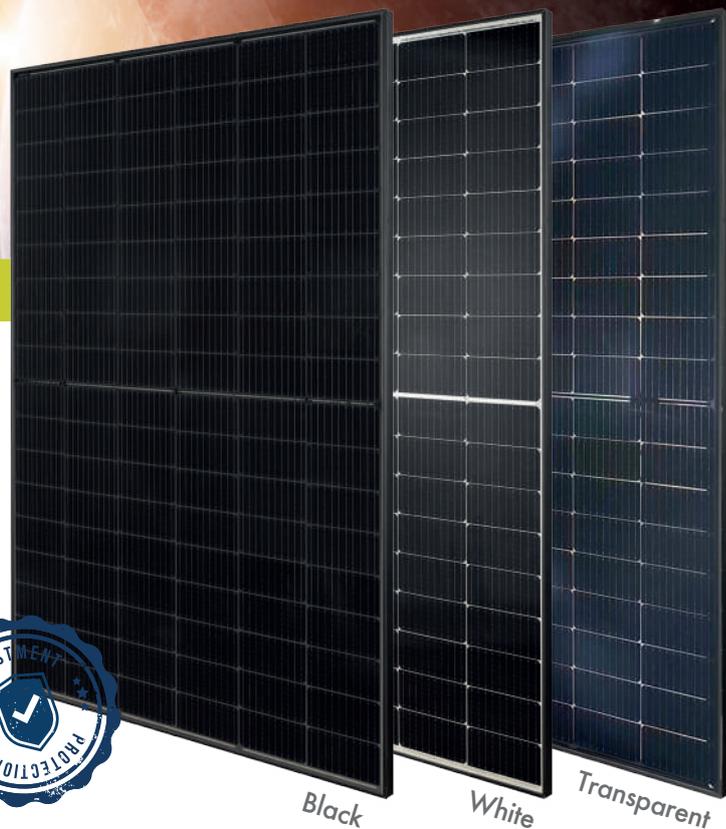


DUAL GLASS BIFACIAL

ORION nano-tech layer

450 - 465 Watt



Black White Transparent

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%.

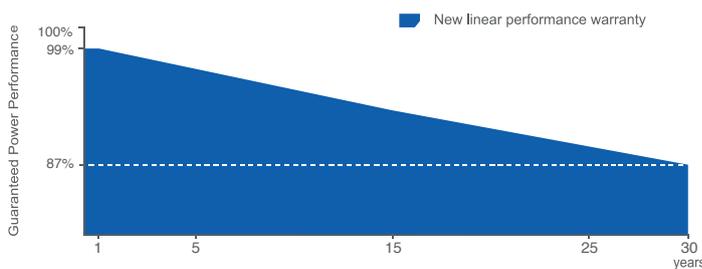
The modules can withstand high wind-pressure, snow loads and extreme temperatures.

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

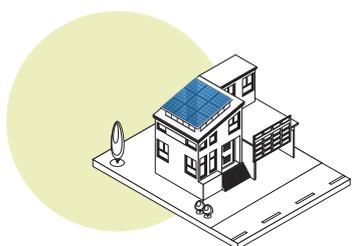
QUALITY AND SAFETY

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

PREMIUM PERFORMANCE WARRANTY



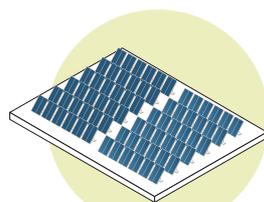
APPLICATIONS



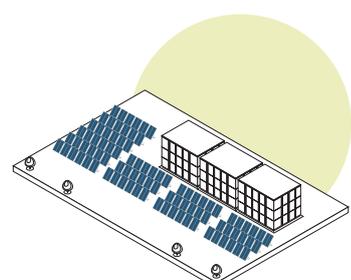
On-grid residential roof-tops



On-grid commercial - industrial roof-tops

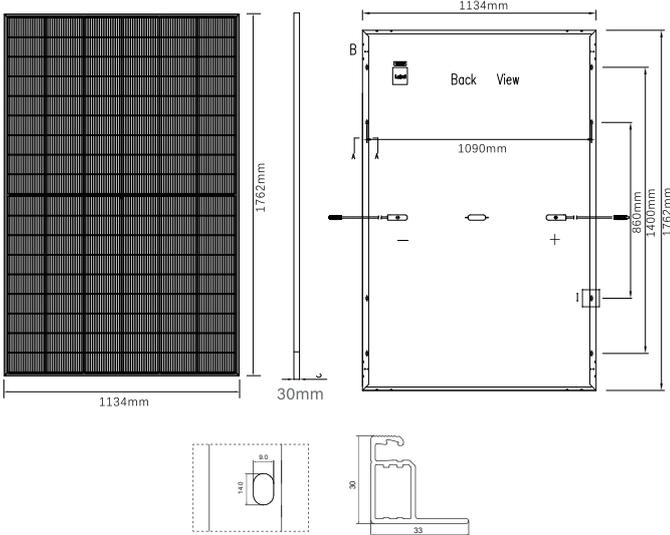


Solar power plants



Off-grid systems

ENGINEERING DRAWINGS



PACKAGING CONFIGURATION

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

SPECIFICATIONS

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

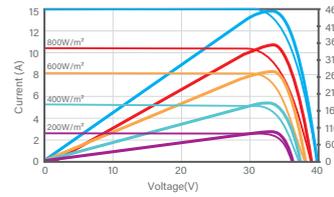
Module Type ⁽¹⁾	ORION III-450M		ORION III-455M		ORION III-460M		ORION III-465M	
	STC ⁽²⁾	NMOT ⁽³⁾						
Maximum Power (Pmax)	450Wp	341Wp	455Wp	345Wp	460Wp	349Wp	465Wp	352Wp
Maximum Power Voltage (Vmp)	33.22V	30.56V	33.42V	30.75V	33.63V	30.94V	33.83V	31.12V
Maximum Power Current (Imp)	13.55A	11.16A	13.61A	11.21A	13.68A	11.27A	13.75A	11.32A
Open-circuit Voltage (Voc)	39.78V	36.20V	39.98V	36.38V	40.18V	36.56V	40.38V	36.75V
Short-circuit Current (Isc)	14.00A	11.29A	14.06A	11.34A	14.13A	11.40A	14.20A	11.45A
Module Efficiency (%)	22.52%		22.77%		23.02%		23.27%	
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							
Refer. Bifacial Factor	70±5 °C							

BIFACIAL OUTPUT-REAR SIDE POWER GAIN

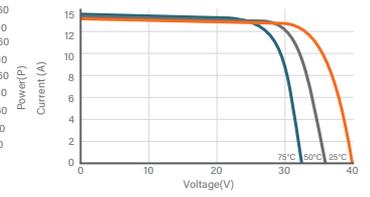
	450Wp	455Wp	460Wp	465Wp
5%	472Wp	477Wp	483Wp	488Wp
15%	517Wp	523Wp	529Wp	534Wp
25%	562Wp	568Wp	575Wp	581Wp

ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE

I-V characteristics at different irradiation



I-V characteristics at different temperature



MECHANICAL CHARACTERISTICS

Cell Type	Orion N-Type TOPCon Mono-crystalline (183X94mm) Orion Technology Layer Applied*
No. of cells	108(6x18)
Dimensions	1762x1134x30mm (±2mm)
Weight	24 kg
Front Glass	2.0mm, AR Coating, High Transmission, Low Iron, Tempered Glass
Back Glass	2.0mm, AR Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy (Silver/Black optional)
Junction Box	IP68 Rated
Output Cables	TÜV 1x4.0mm ² / UL 12AWG, Length:1100mm