HIGH PERFORMANCE MONOCRYSTALLINE PERC MODULE



























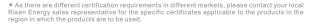












RISEN ENERGY CO., LTD.

Risen Energy is a leading, global tier 1 manufacturer of high-performance solar photovoltaic products and provider of total business solutions for residential, commercial and utility-scale power generation. The company, founded in 1986, and publicly listed in 2010, compels value generation for its chosen global customers. Techno-commercial innovation, underpinned by consummate quality and support, encircle Risen Energy's total Solar PV business solutions which are among the most powerful and cost-effective in the industry. With local market presence and strong financial bankability status, we are committed, and able, to building strategic, mutually beneficial collaborations with our partners, as together we capitalise on the rising value of green energy.

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RSM132-8-645M-670M

132 CELL 645-670Wp

Mono PERC Module Power Output Range

1500VDC 21.6%

Maximum System Voltage Maximum Efficiency

KEY SALIENT FEATURES

Bloomberg TIER 1 Global, Tier 1 bankable brand, with independently certified state-of-the-art automated manufacturing



Industry leading lowest thermal co-efficient of power



Industry leading 12 years product warranty



Excellent low irradiance performance



Excellent PID resistance



Positive power tolerance of 0~+3%



Dual stage 100% EL Inspection warranting defect-free product



Module Imp binning radically reduces string mismatch losses



Excellent wind load 2400Pa & snow load 5400Pa under certain installation method

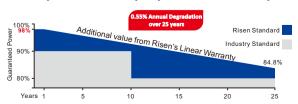


Comprehensive product and system certification

- * IEC61215:2016; IEC61730-1/-2:2016;
- ISO 9001:2015 Quality Management System
- ISO 14001:2015 Environmental Management System
- ISO 45001:2018 Occupational Health and Safety Management System

LINEAR PERFORMANCE WARRANTY

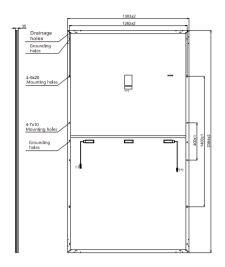
12 year Product Warranty / 25 year Linear Power Warranty



★ Please check the valid version of Limited Product Warranty which is officially released by Risen Energy Co., Ltd



Dimensions of PV Module Unit: mm



ELECTRICAL DATA (STC)

| Model Number | RSM132-8-645M | RSM132-8-650M | RSM132-8-655M | RSM132-8-660M | RSM132-8-665M | RSM132-8-670M |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Rated Power in Watts-Pmax(Wp) | 645 | 650 | 655 | 660 | 665 | 670 |
| Open Circuit Voltage-Voc(V) | 45.15 | 45.35 | 45.55 | 45.75 | 45.95 | 46.15 |
| Short Circuit Current-Isc(A) | 18.18 | 18.23 | 18.28 | 18.33 | 18.38 | 18.43 |
| Maximum Power Voltage-Vmpp(V) | 37.58 | 37.76 | 37.94 | 38.12 | 38.30 | 38.48 |
| Maximum Power Current-Impp(A) | 17.17 | 17.22 | 17.27 | 17.32 | 17.37 | 17.42 |
| Module Efficiency (%) ★ | 20.8 | 20.9 | 21.1 | 21.2 | 21.4 | 21.6 |

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.

ELECTRICAL DATA (NMOT)

| Model Number | RSM132-8-645M | RSM132-8-650M | RSM132-8-655M | RSM132-8-660M | RSM132-8-665M | RSM132-8-670M |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Maximum Power-Pmax (Wp) | 488.6 | 492.4 | 496.2 | 500.0 | 503.8 | 507.6 |
| Open Circuit Voltage-Voc (V) | 41.99 | 42.18 | 42.36 | 42.55 | 42.73 | 42.92 |
| Short Circuit Current-Isc (A) | 14.91 | 14.95 | 14.99 | 15.03 | 15.07 | 15.11 |
| Maximum Power Voltage-Vmpp (V) | 34.87 | 35.04 | 35.21 | 35.38 | 35.54 | 35.71 |
| Maximum Power Current-Impp (A) | 14.01 | 14.05 | 14.09 | 14.13 | 14.17 | 14.21 |

NMOT: Irradiance at 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s.

MECHANICAL DATA

| Solar cells | Monocrystalline | |
|--------------------|--|--|
| Cell configuration | 132 cells (6×11+6×11) | |
| Module dimensions | 2384×1303×35mm | |
| Weight | 35.5kg | |
| Superstrate | High Transmission, Low Iron, Tempered ARC Glass | |
| Substrate | White Back-sheet | |
| Frame | High strength alloy steel | |
| J-Box | Potted, IP68, 1500VDC, 3 Schottky bypass diodes | |
| Cables | 4.0mm² (12AWG), Positive(+)350mm, Negative(-)230mm (Connector Included | |
| Connector | Risen Twinsel PV-SY02, IP68 | |

RSM132-8-655M I-V characteristics at different irradiations 20 18 600 500 400 300 200 100 20 25 3 Voltage(V) 35

I-V characteristics at different temperatures 14 12 10 Current(A) 20 30 Voltage(V)

TEMPERATURE & MAXIMUM RATINGS

| Nominal Module Operating Temperature (NMOT) | 44°C±2°C |
|---|-------------|
| Temperature Coefficient of Voc | -0.25%/°C |
| Temperature Coefficient of Isc | 0.04%/°C |
| Temperature Coefficient of Pmax | -0.34%/°C |
| Operational Temperature | -40°C~+85°C |
| Maximum System Voltage | 1500VDC |
| Max Series Fuse Rating | 30A |
| Limiting Reverse Current | 30A |

Our Partners:

PACKAGING CONFIGURATION

| | 40ft(HQ) |
|--|----------------|
| Number of modules per container | 558 |
| Number of modules per pallet | 31 |
| Number of pallets per container | 18 |
| Packaging box dimensions (LxWxH) in mm | 1320×1120×2520 |
| Box gross weight[kg] | 1145 |

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 $[\]star$ Module Efficiency (%): Round-off to the nearest number