

# RUNERGY

## HY-WH96N11

Single Glass

Turbo

# 450-470W

**23.5%**

Max. Efficiency

**N-Type**

Monofacial & Single Glass

**96 Pieces**

Half-Cell



### Leading Technology

Based on n-type cell and 210R technology platform; Advanced design and manufacturing process; Industry leading reliability and efficiency of mass production



### Higher Reliability, Higher Power

Lower temperature coefficient and better low light performance; Unsusceptible to LID, LeTID and lower PID degradation; High-barrier backsheets to be better resistant to damp and heat aging; Long-term reliability and power output guaranteed



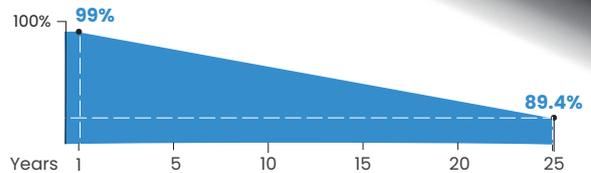
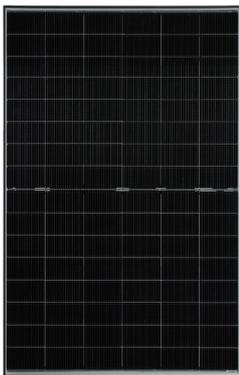
### Lighter Weight Yet Resilient

Mono glass design, 15% lower in weight compared with dual glass, thickened fully tempered front glass to be resistant to 55mm hails with 33.9m/s strike



### Stringent Quality Control

Durable product structure; Stringent quality control system; Guaranteed after-sales service to ensure long-term reliability



Runergy N-Type Single Glass Product Performance Warranty

• 1st year degradation <1%, annual degradation <0.4%



12-year product warranty



25-year linear power warranty

IEC61215 / IEC61730 / UL61730 / IEC61701 / IEC62716 / IEC60068 / ISO9001 / ISO14001 / ISO45001



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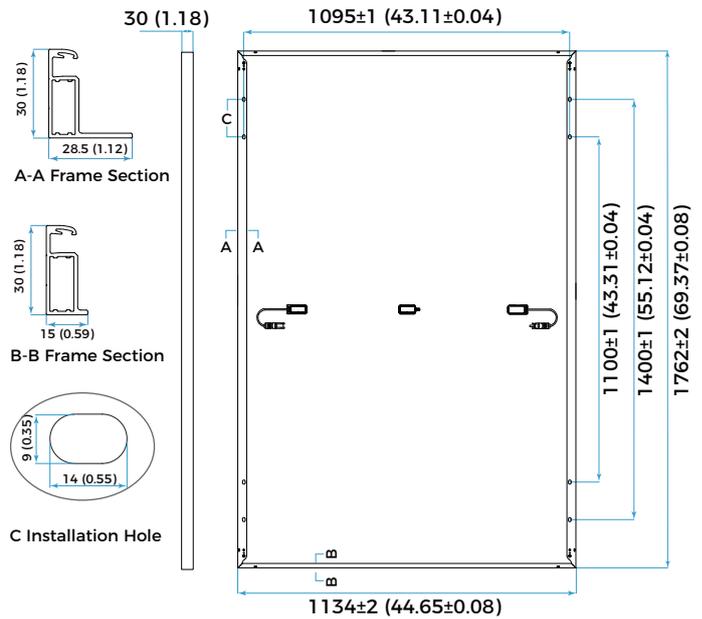
Unit: mm (inch)

## Mechanical Parameters

Solar Cell	Mono N-Type 182*210mm
No. of Cells	96 (6 × 16)
Dimensions	1762 × 1134 × 30mm (69.37 x 44.65 x 1.18in)
Weight	21.2kg (46.7lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cable	4mm <sup>2</sup> (IEC), 12 AWG (UL) ±1200mm (47.24in.) or customize
Connector	MC4-EVO2 or similar
Front Cover	3.2mm AR coated fully tempered glass
Back Cover	White backsheet
Frame	Black-anodized aluminum
Container	36 pcs/pallet, 936 pcs/40' HQ (Global) ,864 pcs/40' HQ (US)

## Operating Parameters

Max. System Voltage	DC 1500V (IEC/UL)
Operating Temperature	-40°C ~ +85°C (-40°F ~ +185°F)
Max. Fuse Rating	30A
Frontside Max. Loading	5400Pa (112lb/ft <sup>2</sup> )
Backside Max. Loading	2400Pa (50lb/ft <sup>2</sup> )
Hail Test	55mm, 33.9 m/s
Fire Resistance	IEC Class C/ UL type 1



## Electrical Characteristics - STC

Irradiance 1000 W/m<sup>2</sup>, cell temperature 25 °C, AM-1.5, Test uncertainty for Pmax: ±3%

Maximum Power at STC (Pmax/W)	470	465	460	455	450
Power Tolerance (W)			0 ~ +5		
Optimum Operating Voltage (Vmp/V)	29.96	29.83	29.70	29.57	29.44
Optimum Operating Current (Imp/A)	15.69	15.59	15.49	15.39	15.29
Open Circuit Voltage (Voc/V)	35.78	35.65	35.52	35.39	35.26
Short Circuit Current (Isc/A)	16.39	16.31	16.23	16.15	16.07
Module Efficiency	23.5%	23.3%	23.0%	22.8%	22.5%

## Electrical Characteristics - NMOT

Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

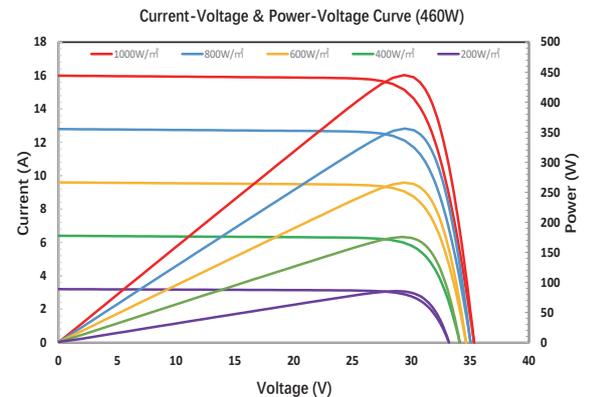
Maximum Power at NMOT (Pmax/W)	360.9	356.1	352.3	348.5	344.8
Optimum Operating Voltage (Vmp/V)	28.87	28.56	28.44	28.31	28.19
Optimum Operating Current (Imp/A)	12.50	12.47	12.39	12.31	12.23
Open Circuit Voltage (Voc/V)	34.25	34.13	34.01	33.89	33.76
Short Circuit Current (Isc/A)	13.21	13.15	13.08	13.02	12.95

## Warranty

Product Workmanship Warranty	12 Years
Linear Power Output Warranty	25 Years
First Year Degradation	1%
Annual Power Degradation	0.4%

## Temperature Characteristics

Nominal Module Operating Temperature	42 ± 2 °C
Nominal Cell Operating Temperature	45 ± 2 °C
Temperature Coefficient of Pmax	-0.29%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Isc	0.045%/°C



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