

# RUNERGY

## TIER 1 HY-DH96N11B 440-460W

**23.0%** Max. Efficiency    **N-Type** Unifacial & Dual Glass    **96 Pieces** Half-Cell

### Advanced Technology

Embracing N - type Cells and a Novel product technology platform. The mass production efficiency and reliability are leading in the industry.

### Exceptional Performance

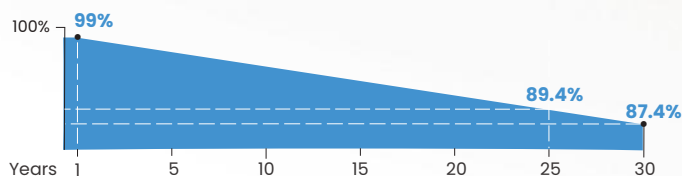
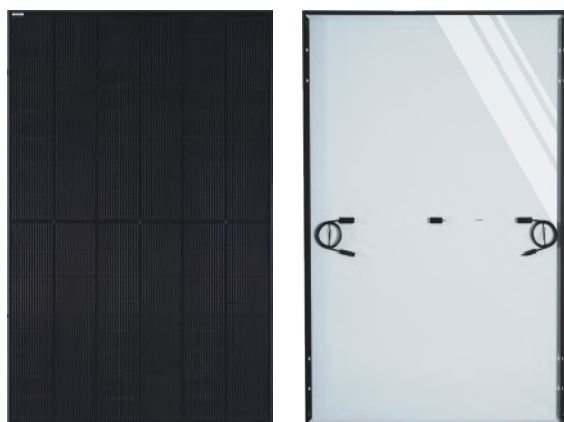
Leveraging Two - color, High - reflection Black Encapsulation Materials to Maximize Light Energy Utilization Rate.

### Aesthetics

A Captivating All - black Design That Effortlessly Blends with Buildings, with an Area of 2 Square meter.

### Solid Quality, Steady Reliability

Double - glass Design, Exhibiting Strong Resistance to Water Vapor and Guaranteeing Long - term Reliability.



Runergy N-Type Dual Glass Product Performance Warranty

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

**15** 15-year product warranty  
**25** 25-year product warranty  
(special for rooftop market within 500kw only)

**30** 30-year linear power warranty

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



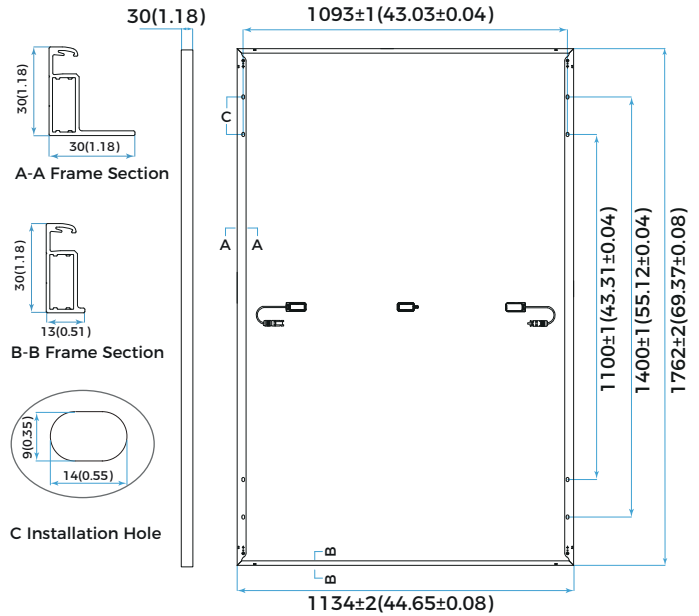
www.runergy.com  
sales-inform@runergy.com

## Mechanical Parameters

Solar Cell	Mono N-Type 182*210mm
No. of Cells	96 (6 × 16)
Dimensions	1762 × 1134 × 30mm(69.37 × 44.65 × 1.18in)
Weight	25kg(55.12lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cable	4mm <sup>2</sup> (IEC), 12 AWG(UL) ±1200mm(47.24in.) or customized
Connector	EVO2 or similar
Front Cover	2.0mm AR coated heat strengthened glass
Back Cover	2.0mm heat strengthened glass
Frame	Aluminum, Black anodized
Container	36 pcs/Pallet, 936 pcs/40' HQ(Global) ,756 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	35A
Frontside Max. Loading	5400Pa(112lb/ft <sup>2</sup> )
Backside Max. Loading	2400Pa(50lb/ft <sup>2</sup> )
Hail test	35mm, 27.2m/s
Fire Resistance	IEC Class A/ UL type 29



## Electrical Characteristics - STC

Irradiance 1000 W/m<sup>2</sup>, cell temperature 25 °C, AM1.5, Test uncertainty for Pmax: ±3%

Maximum Power at STC (Pmax/W)	460	455	450	445	440
Power Tolerance (W)	0 ~ +5				
Optimum Operating Voltage (Vmp/V)	29.70	29.57	29.44	29.30	29.16
Optimum Operating Current (Imp/A)	15.49	15.39	15.29	15.19	15.09
Open Circuit Voltage (Voc/V)	35.52	35.39	35.26	35.12	34.98
Short Circuit Current (Isc/A)	16.23	16.15	16.07	15.99	15.91
Module Efficiency	23.0%	22.8%	22.5%	22.3%	22.0%

## 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)	352.3	348.5	344.8	340.9	337.0
Optimum Operating Voltage (Vmp/V)	28.44	28.31	28.19	28.05	27.92
Optimum Operating Current (Imp/A)	12.39	12.31	12.23	12.15	12.07
Open Circuit Voltage (Voc/V)	34.01	33.89	33.76	33.63	33.49
Short Circuit Current (Isc/A)	13.08	13.02	12.95	12.89	12.83

## Warranty

Product Workmanship Warranty	15/25 Years
Linear Power Output Warranty	30 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

