

# RUNERGY

## **TIER 1** HY-DH108N8 **420-440W**

**22.5%** Max. Efficiency    **N-Type** Bifacial & Dual Glass    **108 Pieces** Half-Cell



### High Conversion Efficiency

Module efficiency up to 22.3% based on N-Type wafer and advanced N-Type cell technology



### Excellent Energy Yield

More power output in field operation due to better thermal behaviors, weak-light performance and bifaciality



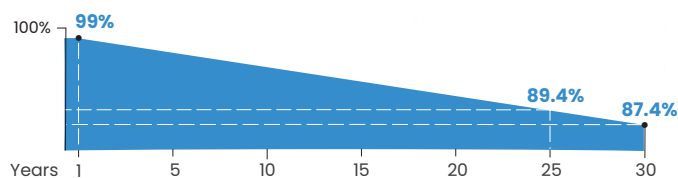
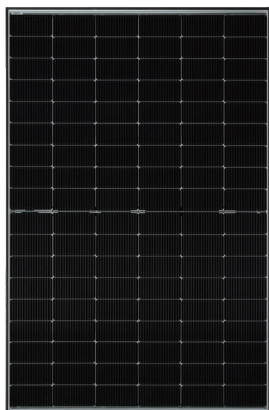
### Outstanding Anti-degradation

Unsusceptible to LID, LeTID and less annual degradation due to special characteristics of N-Type



### Quality Guarantee

Extremely low 1% first year degradation and 0.4% annual power attenuation



Runergy N-Type Dual Glass Product Performance Warranty



15-year product warranty  
25-year product warranty  
(special for rooftop market  
within 300kw only)



30-year linear power warranty

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



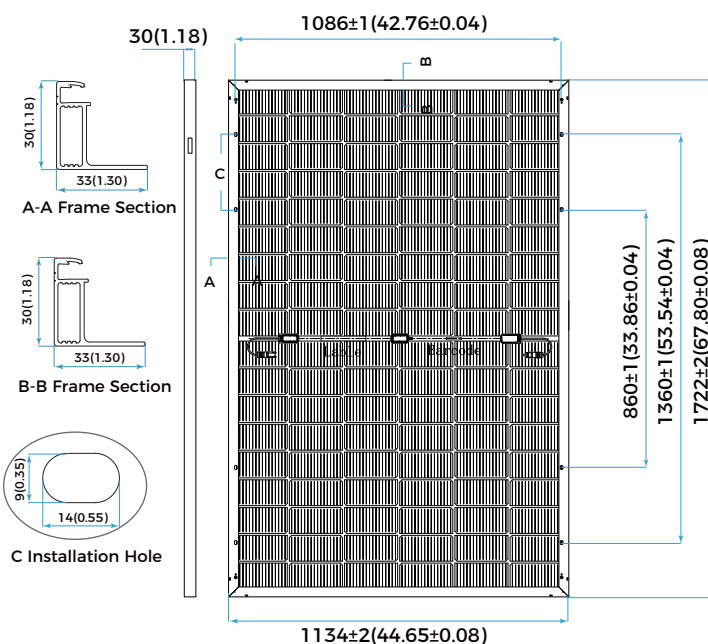
[www.runergy.com](http://www.runergy.com)

## Mechanical Parameters

|              |                                                                       |
|--------------|-----------------------------------------------------------------------|
| Solar Cell   | Mono N-Type 182mm                                                     |
| No. of Cells | 108 (6 × 18)                                                          |
| Dimensions   | 1722 × 1134 × 30mm(67.80 × 44.65 × 1.18in)                            |
| Weight       | 24.2kg(53.35lbs)                                                      |
| Junction Box | IP68 rated (3 bypass diodes)                                          |
| Output Cable | 4mm <sup>2</sup> (IEC), 12 AWG(UL)<br>±1200mm(47.24in.) or customized |
| Connector    | RY01/EVO2 or similar                                                  |
| Front Cover  | 2.0mm (0.079in.)semi-tempered AR glass                                |
| Back Cover   | 2.0mm (0.079in.)semi-tempered glass                                   |
| Frame        | Aluminum, silver/black anodized                                       |
| Container    | 36 pcs/Pallet, 936 pcs/40' HQ                                         |

## 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> )  |
| Bifaciality            | 80%±10%                        |
| Fire Resistance        | IEC Class A                    |



## 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)     | 440    | 435   | 430   | 425   | 420   |
| Power Tolerance (W)               | 0 ~ +5 |       |       |       |       |
| Optimum Operating Voltage (Vmp/V) | 33.21  | 33.03 | 32.85 | 32.67 | 32.49 |
| Optimum Operating Current (Imp/A) | 13.25  | 13.17 | 13.09 | 13.01 | 12.93 |
| Open Circuit Voltage (Voc/V)      | 39.16  | 38.97 | 38.78 | 38.59 | 38.40 |
| Short Circuit Current (Isc/A)     | 13.88  | 13.80 | 13.72 | 13.64 | 13.56 |
| Module Efficiency                 | 22.5%  | 22.3% | 22.0% | 21.8% | 21.5% |

## 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)    | 337.0 | 333.2 | 329.3 | 325.5 | 321.7 |
| Optimum Operating Voltage (Vmp/V) | 31.80 | 31.63 | 31.45 | 31.28 | 31.11 |
| Optimum Operating Current (Imp/A) | 10.60 | 10.53 | 10.47 | 10.41 | 10.34 |
| Open Circuit Voltage (Voc/V)      | 37.50 | 37.31 | 37.13 | 36.95 | 36.77 |
| Short Circuit Current (Isc/A)     | 11.19 | 11.12 | 11.06 | 11.00 | 10.93 |

## Rearside Power Gain (Reference to 430W Front)

|                                   |       |       |       |
|-----------------------------------|-------|-------|-------|
| Rearside Power Gain               | 5%    | 15%   | 25%   |
| Maximum Power (Pmax/W)            | 452   | 495   | 538   |
| Optimum Operating Voltage (Vmp/V) | 32.85 | 32.95 | 32.95 |
| Optimum Operating Current (Imp/A) | 13.74 | 15.01 | 16.31 |
| Open Circuit Voltage (Voc/V)      | 38.78 | 38.88 | 38.88 |
| Short Circuit Current (Isc/A)     | 14.41 | 15.74 | 17.11 |
| Module Efficiency                 | 23.1% | 25.3% | 27.6% |

## 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 |

