# RUNERGY

## TIER 1 HY-WH96N11

# 440-460W

| 23.0% | N-Type | 96 Pieces |
|---|---|---|
| Max. Efficiency | Unifacial & Single Glass | 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

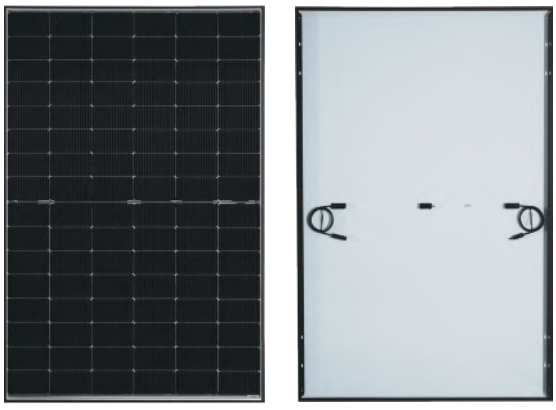
Single - glass Design, Reducing Weight by 15%, Perfectly Suited for Diverse Residential Scenarios and Ensuring Hassle - free Installation.

### Aesthetics

Black Frames with White Gaps, Presenting a Tech - Savvy Exterior, with an Area of 2 Square meter.

### Solid Quality, Steady Reliability

Anti - hail Capability Reaching 55mm, Underpinning Long - term Reliability.






Runergy N-Type Single Glass Product Performance Warranty

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

15 15-year product warranty

25 25-year linear power warranty

IEC61215 / IEC61730 / UL61730 / IEC61701 / IEC62716 / IEC60068 / ISO9001 / ISO14001/ ISO45001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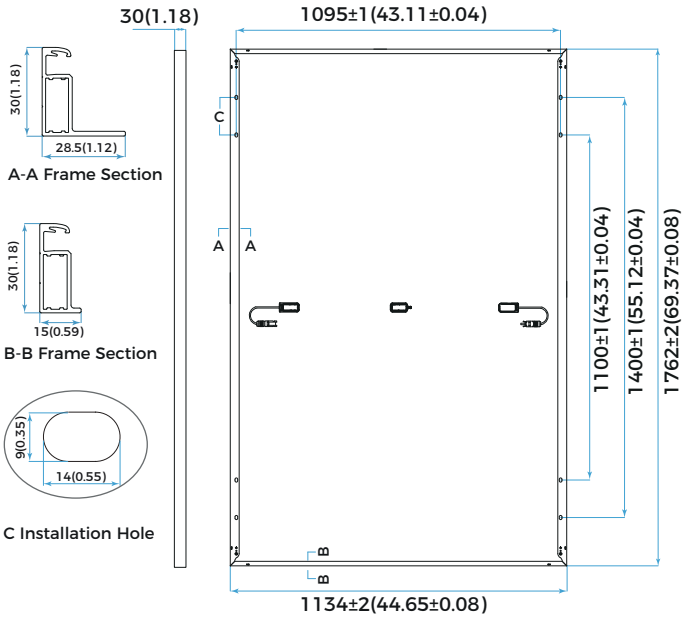
# HY-WH96N11 440-460

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 | 4mm² (IEC), 12 AWG(UL)<br>±1200mm(47.24in.) or customized |
| Connector | EVO2 or similar |
| Front Cover | 3.2mm AR coated tempered glass |
| Back Cover | White backsheet |
| Frame | Aluminum, Black anodized |
| Container | 36 pcs/Pallet,<br>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/ft²) |
| Backside Max. Loading | 2400Pa(50lb/ft²) |
| Hail test | 55mm, 33.9m/s |
| Fire Resistance | IEC Class C/ UL type 1 |

## Electrical Characteristics - STC

Irradiance 1000 W/m², 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/m², ambient temperature 20 ˚C, AM1.5, wind speed 1 m/s.

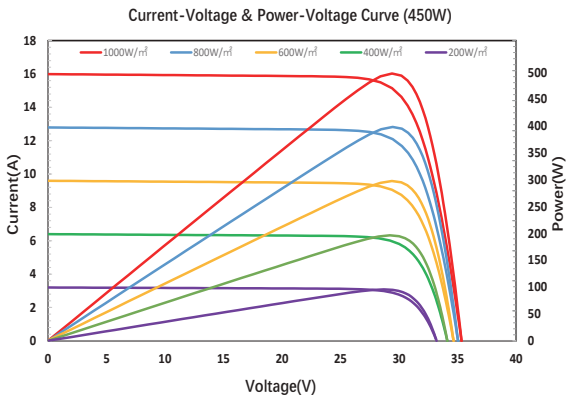
| Maximum Power at NMOT (Pmax/W) | 352.3 | 348.5 | 344.8 | 340.9 | 337.0 |
|---|---|---|---|---|---|
| Optimum Operating Voltage (Vmp/V) | 28.44 | 28.31 | 28.19 | 28.05 | 27.92 |
| Optimum Operating Current (Imp/A) | 12.39 | 12.31 | 12.23 | 12.15 | 12.07 |
| Open Circuit Voltage (Voc/V) | 34.01 | 33.89 | 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 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 |





HY-WH96N11-Global-Ver24Q4

Specifications included in this datasheet are subject to change without notice.