

# RUNERGY

MADE IN THAILAND/CHINA

**TIER 1** HY-DH156N8

# 630-645W

**23.1%**

Max. Efficiency

**N-Type**

Bifacial & Dual Glass

**156 Pieces**

Half-Cell



## High Conversion Efficiency

Module efficiency up to 23.1% 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



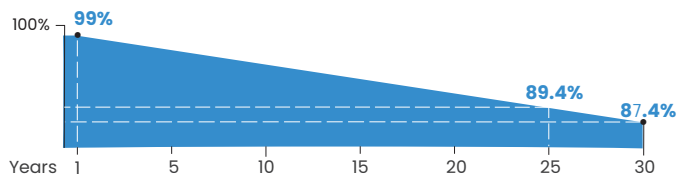
## Outstanding Anti-degradation

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



## Quality Guarantee

High module quality ensures long-term reliability



Runergy N-Type Dual Glass Product Performance Warranty

- **12 Years** warranty for materials and workmanship
- **30 Years** warranty for extra linear power output
- 1st year < **1%**, annual degradation < **0.40%**

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



Evidence for IEC61701/62716/60068 is available on request.

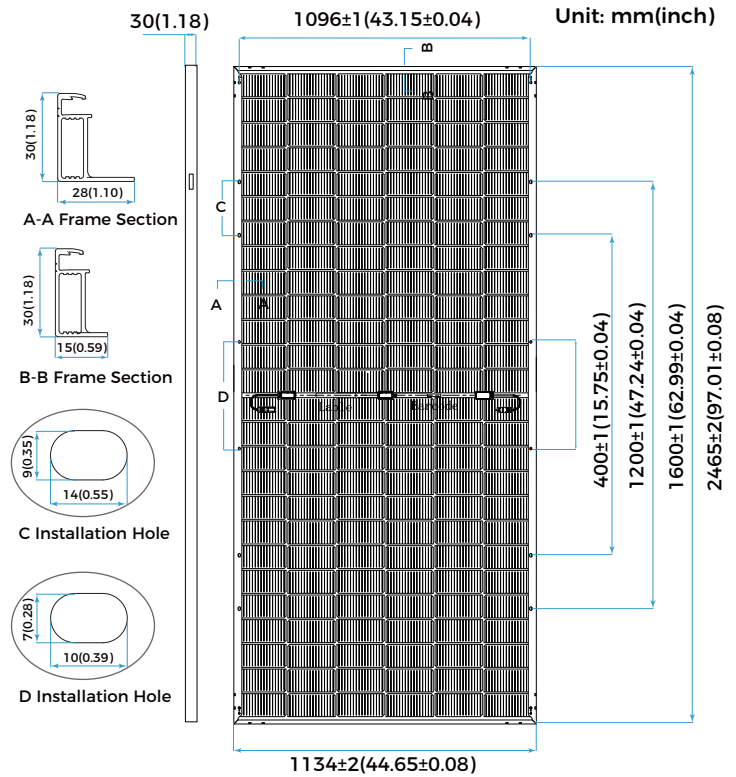
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## Mechanical Parameters

Solar Cell	Mono N-Type 182mm
No. of Cells	156 (6 × 26)
Dimensions	2465 × 1134 × 30mm(97.05 × 44.65 × 1.18in.)
Weight	33.9kg(74.74lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cable	4mm <sup>2</sup> (IEC), 12 AWG(UL) +400/-200mm (+15.75/-7.87in.) or customized
Connector	PV-KST4-EVO 2/xy_UR, PV-KBT4-EVO 2/xy_UR
Front Cover	2.0mm (0.079in.)semi-tempered AR glass
Back Cover	2.0mm (0.079in.)semi-tempered glass
Container	36 pcs/Pallet, 576 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% (Pmax) 98%±2%(Voc) 80%±10%(Isc)
Fire Resistance	IEC Class A



## Electrical Characteristics - STC Irradiance 1000 W/m<sup>2</sup>, ambient temperature 25 °C, AM1.5, Test uncertainty for Pmax: ±3%,Isc: ±4%,Voc: ±3%

	645	640	635	630
Maximum Power at STC (Pmax/W)	645	640	635	630
Power Tolerance (W)	0 ~ +5			
Optimum Operating Voltage (Vmp/V)	48.32	48.13	47.97	47.80
Optimum Operating Current (Imp/A)	13.35	13.30	13.24	13.18
Open Circuit Voltage (Voc/V)	56.95	56.75	56.56	56.37
Short Circuit Current (Isc/A)	13.98	13.94	13.89	13.84
Module Efficiency	23.1%	22.9%	22.7%	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)	494.1	490.3	486.4	482.5
Optimum Operating Voltage (Vmp/V)	46.27	46.08	45.93	45.77
Optimum Operating Current (Imp/A)	10.68	10.64	10.59	10.54
Open Circuit Voltage (Voc/V)	54.53	54.34	54.16	53.97
Short Circuit Current (Isc/A)	11.27	11.24	11.20	11.16

## Rearside Power Gain (Reference to 645W Front)

	5%	15%	25%
Rearside Power Gain	5%	15%	25%
Maximum Power (Pmax/W)	677	742	806
Optimum Operating Voltage (Vmp/V)	48.32	48.42	48.42
Optimum Operating Current (Imp/A)	14.02	15.32	16.65
Open Circuit Voltage (Voc/V)	56.95	57.05	57.05
Short Circuit Current (Isc/A)	14.68	16.05	17.44
Module Efficiency	24.2%	26.5%	28.8%

## 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

