

RUNERGY

TIER 1 HY-DH120P8 440-460W

21.3% Max. Efficiency
P-Type Bifacial & Dual Glass
120 Pieces Half-Cell

High Conversion Efficiency

Module efficiency up to 21.3% achieved through advanced cell technology and manufacturing process

Excellent weak light performance

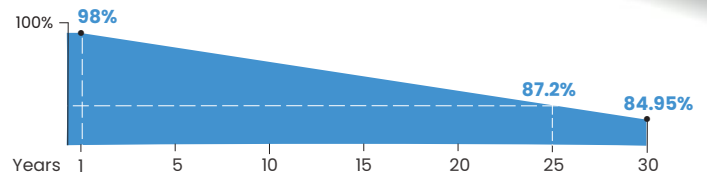
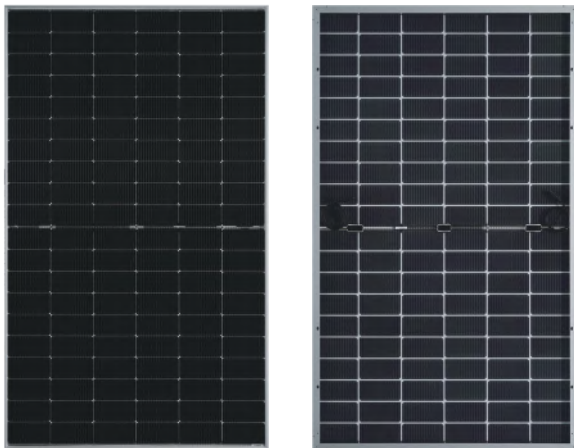
More power output in weak light condition, such as cloudy days, morning and sunset

Pa Extended mechanical performance

Module certified to withstand extreme wind(2400 Pa) and snow loads(5400 Pa)

Quality Guarantee

High module quality ensures long-term reliability



Runergy P-Type Dual Glass Product Performance Warranty

- **15 Years** warranty for materials and workmanship
- **30 Years** warranty for extra linear power output
- 1st year < **2%**, annual degradation < **0.45%**

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



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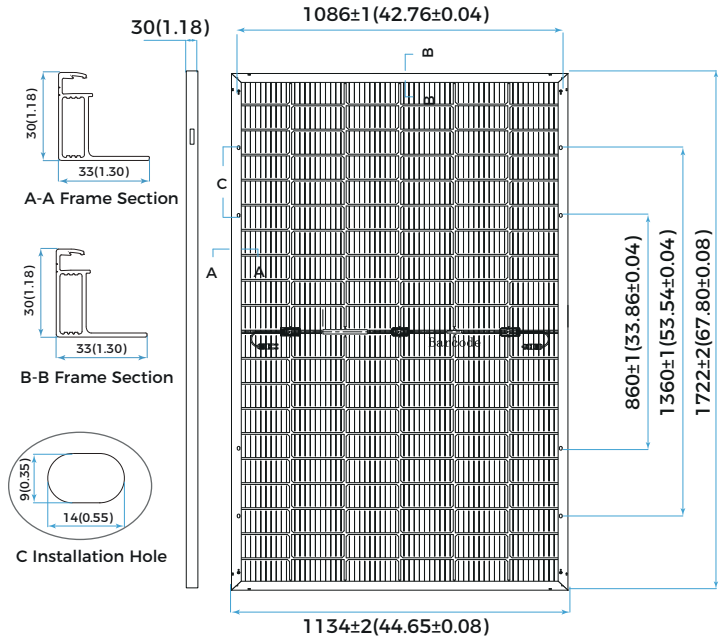
Unit: mm(inch)

Mechanical Parameters

Solar Cell	Mono PERC 182mm
No. of Cells	120 (6 × 20)
Dimensions	1908 × 1134 × 30mm(75.12 x 44.65 x 1.18in)
Weight	26.5kg(58.42lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cable	4mm ² (IEC), 12 AWG(UL) ±1200mm(47.24in.) or customized
Connector	RY01 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, 864 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 ²)
Backside Max. Loading	2400Pa(50lb/ft ²)
Bifaciality	70%±10%
Fire Resistance	IEC Class A



Electrical Characteristics - STC

Irradiance 1000 W/m², cell temperature 25 °C, AM1.5, Test uncertainty for Pmax: ±3%

	460	455	450	445	440
Maximum Power at STC (Pmax/W)	460	455	450	445	440
Power Tolerance (W)	0 ~ +5				
Optimum Operating Voltage (Vmp/V)	35.04	34.90	34.73	34.58	34.41
Optimum Operating Current (Imp/A)	13.13	13.04	12.96	12.87	12.79
Open Circuit Voltage (Voc/V)	41.54	41.36	41.20	41.04	40.91
Short Circuit Current (Isc/A)	14.02	13.95	13.87	13.79	13.70
Module Efficiency	21.3%	21.0%	20.8%	20.6%	20.3%

Electrical Characteristics - NMOT

Irradiance 800 W/m², ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

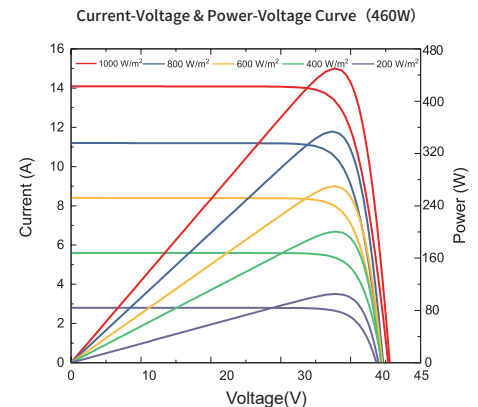
Maximum Power at NMOT (Pmax/W)	348.0	344.2	340.4	336.6	332.8
Optimum Operating Voltage (Vmp/V)	33.23	33.10	32.94	32.79	32.63
Optimum Operating Current (Imp/A)	10.47	10.40	10.34	10.26	10.20
Open Circuit Voltage (Voc/V)	39.39	39.22	39.07	38.92	38.80
Short Circuit Current (Isc/A)	11.31	11.25	11.19	11.13	11.05

Rearside Power Gain (Reference to 460W Front)

Rearside Power Gain	5%	15%	25%
Maximum Power (Pmax/W)	483	529	575
Optimum Operating Voltage (Vmp/V)	35.04	35.14	35.14
Optimum Operating Current (Imp/A)	13.78	15.05	16.36
Open Circuit Voltage (Voc/V)	41.54	41.64	41.64
Short Circuit Current (Isc/A)	14.72	16.08	17.48
Module Efficiency	22.3%	24.4%	26.6%

Temperature Characteristics

Nominal Module Operating Temperature	42 ± 2 °C
Nominal Cell Operating Temperature	45 ± 2 °C
Temperature Coefficient of Pmax	-0.35%/°C
Temperature Coefficient of Voc	-0.26%/°C
Temperature Coefficient of Isc	0.048%/°C



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