N-TOPCon

HANERSUN



Hitouch 6N PRO

HN21RN-48HT

450-475W

BIFACIAL
Full Black Module

23.8%
Maximum Efficiency

Long-Term Reliability

Module certified to withstand 5400 Pa positive static load and 2400 Pa negative static load.

Excellent anti-PID performance to guarantee a better sustainability in harsh environment.

Higher Power Output

The GEN2 cell technology enables higher efficiency in Hanersun modules.

Better light trapping and current collection to improve module power output and reliability.

Lower Hot Spot and Crack Risk

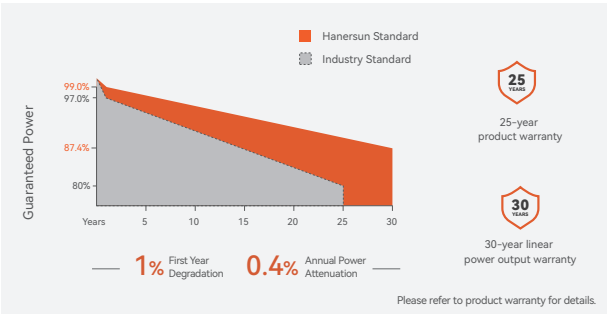
Reduce hot-spot risk with optimized electrical design and lower operating current.

Reduce crack risk by optimization of solar cell design.

Excellent Temperature Coefficient

Lower operating temperature and temperature coefficient increases the power output.

Power Warranty



Certificates

Warranty partner

Munich RE

15Y Product / 30Y Linear Power Warranty under Munich Re insurance.

About Hanersun

Hanersun is a world-leading clean energy company, focusing on R&D, manufacturing and distribution of solar module and energy storage system, as well as comprehensive clean energy solutions. Committed to high-efficiency technologies, the company is one of the first to launch PV modules of 600W+ and 700W+ in the industry.

Electrical Characteristics（STC）

Module Type	HN21RN-48HT450W	HN21RN-48HT455W	HN21RN-48HT460W	HN21RN-48HT465W	HN21RN-48HT470W	HN21RN-48HT475W
Maximum Power (Pmax)	450	455	460	465	470	475
Maximum Power Voltage (Vmp)	29.78	29.94	30.10	30.26	30.42	30.58
Maximum Power Current (Imp)	15.12	15.20	15.29	15.37	15.46	15.54
Open-circuit Voltage (Voc)	35.73	35.93	36.13	36.33	36.53	36.73
Short-circuit Current (Isc)	16.00	16.06	16.12	16.18	16.24	16.30
Module Efficiency(%)	22.5%	22.8%	23.0%	23.3%	23.5%	23.8%

STC: Irradiance 1000W/m², Cell Temperature 25℃, Air Mass AM1.5.

Power Tolerance: 0~+3%

Electrical Characteristics（BNPI）

Module Type	450W	455W	460W	465W	470W	475W
Maximum Power (Pmax)	499	504	510	516	521	527
Maximum Power Voltage (Vmp)	29.78	29.94	30.1	30.26	30.42	30.58
Maximum Power Current (Imp)	16.76	16.84	16.95	17.06	17.13	17.24
Open-circuit Voltage (Voc)	35.73	35.93	36.13	36.33	36.53	36.73
Short-circuit Current (Isc)	17.73	17.79	17.87	17.93	18.00	18.07

BNPI: Irradiance: Front 1000W/m², Rear 135W/m², Cell Temperature 25℃, Air Mass AM1.5.

Mechanical Parameters

Solar Cells	N-TYPE Monocrystalline(210R)
Module Dimensions	1762*1134*30mm
Frame	Anodized Aluminium Alloy
Front Glass	2.0 mm, AR Coating Heat Strengthened Glass
Back Glass	2.0 mm, Heat Strengthened Glass

No. of Cells	96 [2 x (8 x 6)]
Weight	24.1kg
J-Box	IP68
Connector	Z4S-abcd/MC4-EVO 2A/Others
Cables	4.0mm², 300/300mm (can be customized)

Operating Parameters

Operational Temperature	-40℃~+70℃
Maximum System Voltage	1500V DC (IEC)
Maximum Series Fuse Rating	35A
Bifaciality	80±5%
Fire Class Rating	Class C

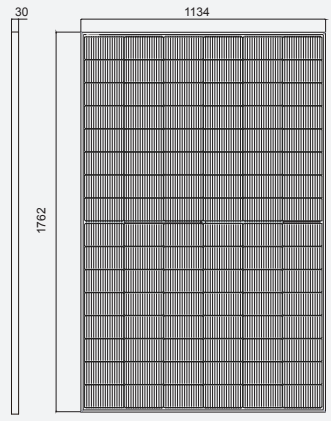
Temperature Ratings

Temperature Coefficient of Pmax	-0.28%/℃
Temperature Coefficient of Voc	-0.23%/℃
Temperature Coefficient of Isc	+0.045%/℃

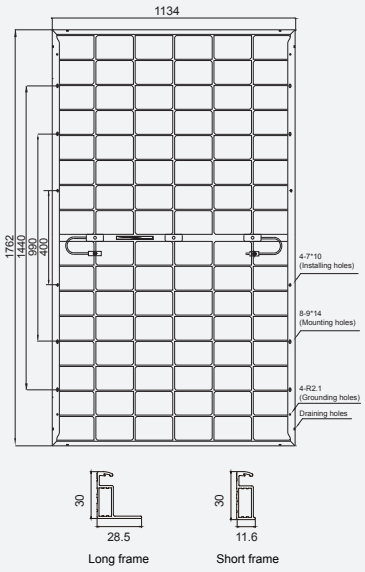
Packaging

Pcs per Pallet: 37	Pcs per 40' HC: 962

Dimensions (Unit: mm)

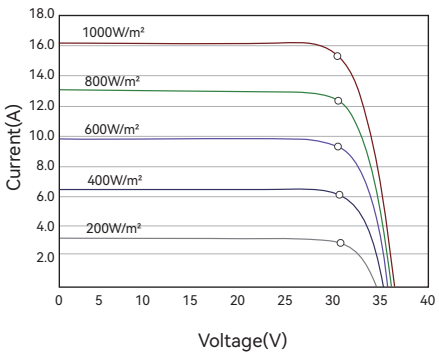


Front View

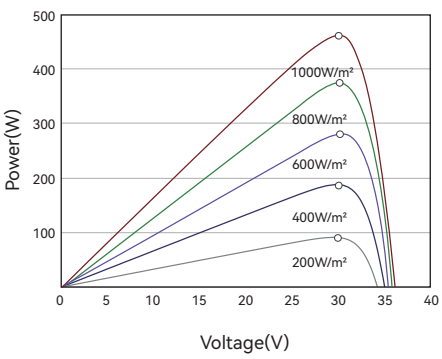


Back View

I-V Curves of PV Module (465W)



P-V Curves of PV Module (465W)



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