



Hitouch 6N

HN21RN-48HT

435-460W

BIFACIAL

High Efficiency Module

23.0%

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.



Lower Hot Spot and Crack Risk

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

Reduce crack risk by MBB solar cell design.



Higher Power Output

Higher module conversion efficiency benefit from bigger wafer and half-cell structure.

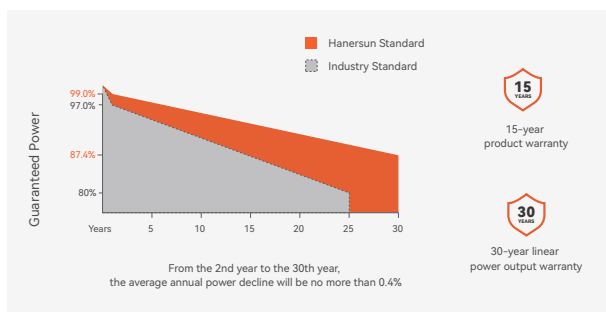
MBB technology enhances current collection with lower series resistance.



Excellent Temperature Coefficient

Lower operating temperature and temperature coefficient increases the power output.

Power Warranty



Certificates



Warranty partner

Munich RE 

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-48HT435W	HN21RN-48HT440W	HN21RN-48HT445W	HN21RN-48HT450W	HN21RN-48HT455W	HN21RN-48HT460W
Maximum Power (Pmax)	435	440	445	450	455	460
Maximum Power Voltage (Vmp)	29.30	29.46	29.62	29.78	29.94	30.10
Maximum Power Current (Imp)	14.85	14.94	15.03	15.12	15.20	15.29
Open-circuit Voltage (Voc)	35.13	35.33	35.53	35.73	35.93	36.13
Short-circuit Current (Isc)	15.82	15.88	15.94	16.00	16.06	16.12
Module Efficiency(%)	21.8%	22.0%	22.3%	22.5%	22.8%	23.0%

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

Power Tolerance: 0~+3%

Electrical Characteristics (BNPI)

Module Type	435W	440W	445W	450W	455W	460W
Maximum Power (Pmax)	482	488	493	499	504	510
Maximum Power Voltage (Vmp)	29.30	29.46	29.62	29.78	29.94	30.10
Maximum Power Current (Imp)	16.45	16.57	16.65	16.76	16.84	16.95
Open-circuit Voltage (Voc)	35.13	35.33	35.53	35.73	35.93	36.13
Short-circuit Current (Isc)	17.53	17.60	17.66	17.73	17.79	17.87

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

Mechanical Parameters

Solar Cells	N-TYPE Monocrystalline(210R)
Module Dimensions	1762*1134*30mm
Glass	2mm-2mm
Frame	Anodized Aluminium Alloy
Output Cable	4.0mm ²

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

Operating Parameters

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

Temperature Ratings

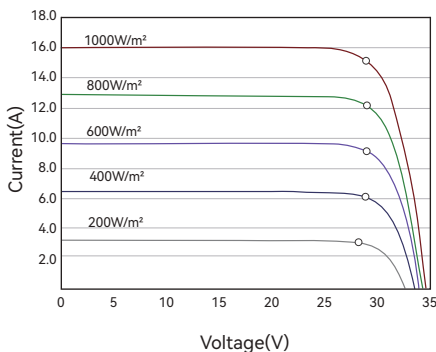
Temperature Coefficient of Pmax	-0.28%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Isc	+0.045%/°C

Packaging

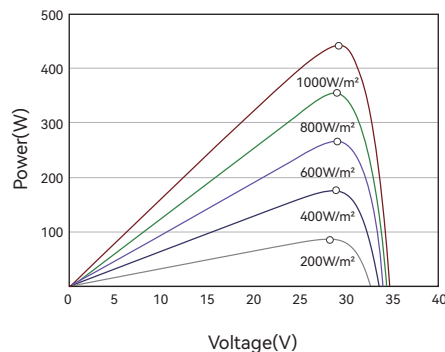
Pcs per Pallet: 37

Pcs per 40' HC: 962

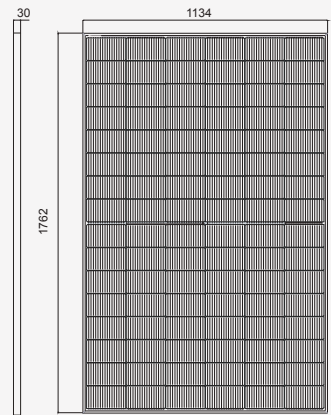
I-V Curves of PV Module (440W)



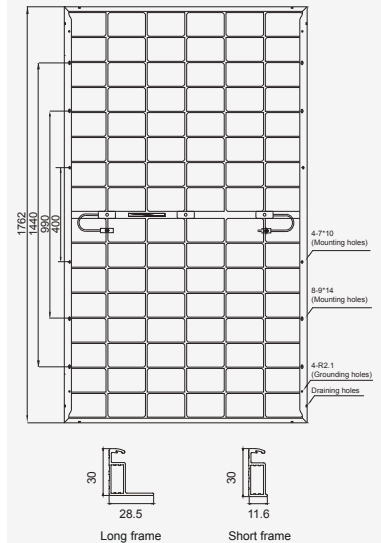
P-V Curves of PV Module (440W)



Dimensions (Unit: mm)



Front View



Back View