



High Power Output
Low LCOE



Maximum Power
450W+



TWMNH

N-type Half-cell
Bifacial Full-black Module (48)

48HC430-450W



Residential
Rooftop



15
YEAR
Materials
Warranty



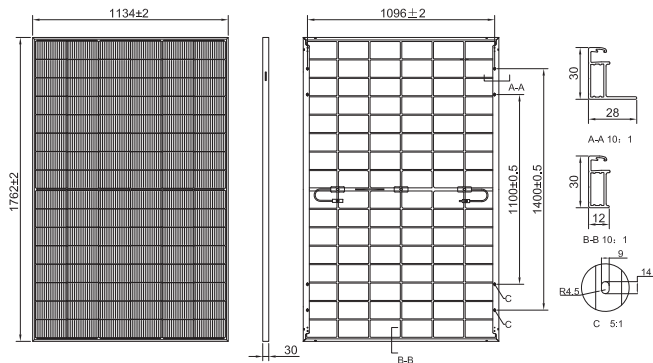
30
YEAR
Power
Warranty

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DRAWINGS (Unit: mm)



ELECTRICAL CHARACTERISTICS (STC)

Module Type: TWMNH-48HCXXX

Maximum Power: Pmax [W]	430	435	440	445	450
Open Circuit Voltage: Voc [V]	34.95	35.15	35.35	35.55	35.75
Short Circuit Current: Isc [A]	15.83	15.86	15.89	15.92	15.95
Voltage at Maximum Power: Vmp [V]	29.16	29.42	29.67	29.93	30.19
Current at Maximum Power: Imp [A]	14.75	14.79	14.83	14.87	14.91
Module Efficiency: η [%]	21.5	21.8	22.0	22.3	22.5

* STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass1.5

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power: Pmax [W]	325	329	332	336	340
Open Circuit Voltage: Voc [V]	33.27	33.46	33.65	33.84	34.03
Short Circuit Current: Isc [A]	12.78	12.80	12.83	12.85	12.88
Voltage at Maximum Power: Vmp [V]	27.29	27.56	27.74	27.98	28.24
Current at Maximum Power: Imp [A]	11.91	11.94	11.97	12.01	12.04

* NMOT: Irradiance 800W/m², Ambient Temperature 20°C, Air Mass1.5, Wind Speed 1m/s

ELECTRICAL CHARACTERISTICS (Rear Power Gain)

5%	Maximum Power: Pmax[W]	451	456	462	467	472
	Module Efficiency: η [%]	22.6	22.8	23.1	23.4	23.6
15%	Maximum Power: Pmax[W]	494	500	506	511	517
	Module Efficiency: η [%]	24.7	25.0	25.3	25.6	25.9
25%	Maximum Power: Pmax[W]	537	543	550	556	562
	Module Efficiency: η [%]	26.9	27.2	27.5	27.8	28.1

TEMPERATURE PARAMETERS

Temperature Coefficient (Pmax)	-0.28%/°C
Temperature Coefficient (Voc)	-0.24%/°C
Temperature Coefficient (Isc)	+0.046%/°C
NMOT	45±2°C

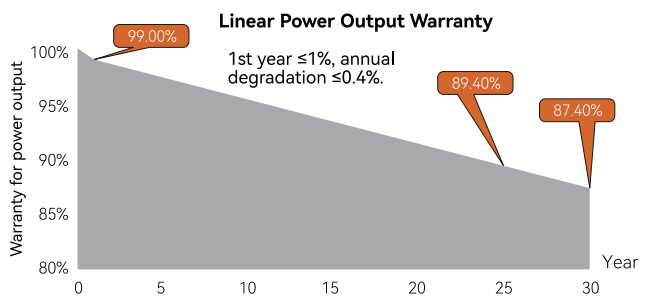
MAXIMUM RATINGS

Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Output Tolerance	0~+3%
Bifaciality	80±10%

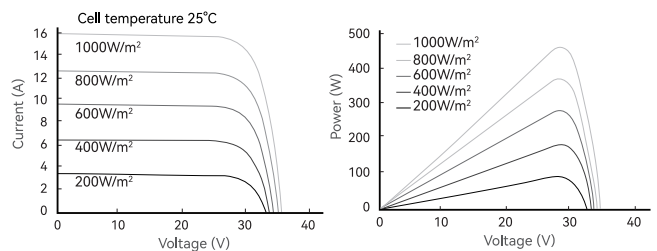
MECHANICAL PARAMETERS

Cells	TNC (N Type Monocrystalline Cell)
Cell Orientation	96[6×16]
Dimension	1762±2×1134±2×30mm
Weight	20.9kg
Front Glass	1.6mm high transmittance, AR tempered glass
Rear Glass	1.6mm semi-tempered glass
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Output Cable	4.0mm ²
Cable Length	+1200mm, -1200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet, 936pcs per 40'HC

WARRANTY



I-V CURVE



CERTIFICATIONS

Quality Management System and Product Certification

ISO 9001: 2015/Quality management system
 ISO 14001: 2015/Environmental management system
 ISO 45001: 2018/Occupation health safety management system
 ISO 50001: 2018/Energy management system
 IEC 62941: 2019/Quality system for PV module manufacturing
 IEC 61215/61730, IEC 62804(PID), IEC 61701(Salt),
 IEC 62716 (Ammonia), IEC 60068-2-68(Sand)



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Statement: With technological process and product update, there maybe deviation between the technical parameters of Tongwei's module products and the technical parameters contained in the specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar. (Preview-20250206)