



High Power Output
Low LCOE

Maximum Power
450W+

TWMNH

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

48HC430-450W

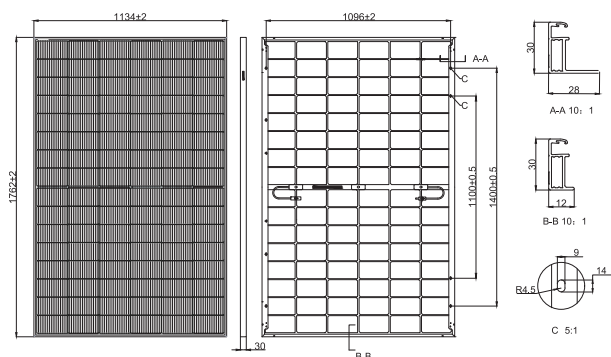


www.tw-solar.com



Learn More

DRAWINGS (Unit: mm)



MECHANICAL PARAMETERS

Cells	TNC (N Type Monocrystalline Cell)
Cell Orientation	96[6X16]
Dimension	1762±2X1134±2X30mm
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	+400mm, -200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet, 936pcs per 40'HC

ELECTRICAL CHARACTERISTICS (STC)

Module Type: TWMNH-48HCXXX					
Maximum Power: Pmax [W]	430	435	440	445	450
Open Circuit Voltage: Voc [V]	34.31	34.49	34.67	34.85	35.03
Short Circuit Current: Isc [A]	15.85	15.90	15.95	16.00	16.05
Voltage at Maximum Power: Vmp [V]	29.36	29.54	29.72	29.90	30.08
Current at Maximum Power: Imp [A]	14.65	14.73	14.81	14.89	14.97
Module Efficiency: η [%]	21.5	21.8	22.0	22.3	22.5

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power: Pmax [W]	323	327	331	335	338
Open Circuit Voltage: Voc [V]	32.59	32.77	32.94	33.11	33.28
Short Circuit Current: Isc [A]	12.80	12.84	12.88	12.92	12.96
Voltage at Maximum Power: Vmp [V]	27.31	27.51	27.68	27.88	27.96
Current at Maximum Power: Imp [A]	11.83	11.89	11.96	12.02	12.09

* STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass1.5, Measuring Tolerance: ±3%
* 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

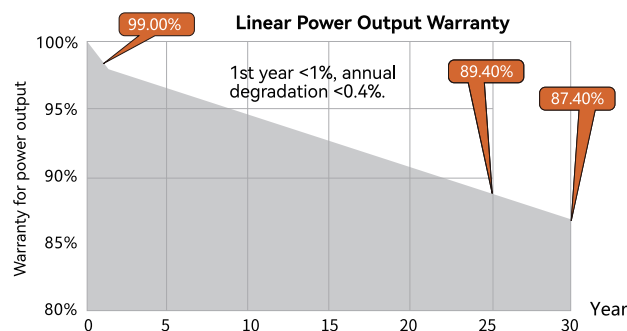
TEMPERATURE PARAMETERS

Temperature Coefficient (Pmax)	-0.30%/°C
Temperature Coefficient (Voc)	-0.25%/°C
Temperature Coefficient (Isc)	+0.046%/°C
NMOT	45±2°C

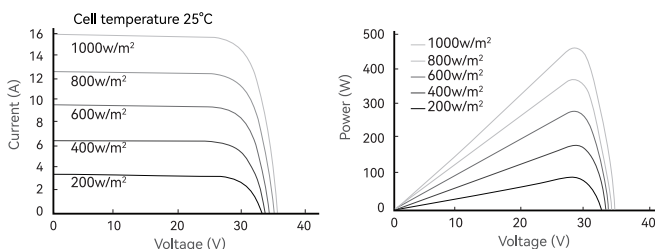
MAXIMUM RATINGS

Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Output Tolerance	0~+5W
Maximum Bifaciality	80±5%

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 50001:2011 / energy management system
- IEC TS 62941—2016 / PV industry quality management system
- IEC 61215/61730, IEC 62804(PID), IEC 61701(Salt), IEC 62716 (Ammonia), IEC 60068-2-68(Sand)



Email: sales@tongwei.com Website: www.tongwei.com.cn Add: 888 Changning Avenue, High-tech Zone, Hefei City, Anhui Province

Declaration: With the technical progress and product updates, there exists a deviation between the technical parameter of the TW Solar's future products and the technical parameter in this specification. The TW Solar reserves the right to adjust the technical parameter at any time without notifying the customers. TW Solar reserves the final right of interpretation. (20231106)