TONGWEI

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TNC

N-type Half-cell Dual Glass Monofacial Black Frame Module (48)

TWMNH-48HW

- High Power Output, Low LCOE
- Maximum Power 475W

440-475W

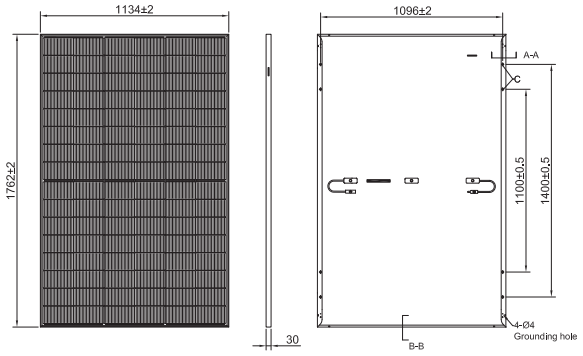
Residential Rooftop

* The images shown above are for reference only. The actual product delivered shall prevail.

TWMNH N-type Half-cell Dual Glass Monofacial Black Frame Module(48)

48HW440-475W

Drawing (Unit: mm)



Mechanical Parameters

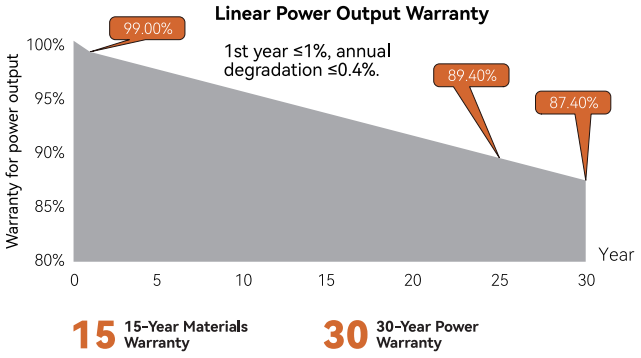
Cell Type	TNC (N Type Monocrystalline Cell)
Cell Orientation	96[6×16]
Dimensions	1762±2×1134±2×30mm
Weight	22.8kg
Front Glass	2.0mm AR coating semi tempered glass
Rear Glass	2.0mm semi tempered glass
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3diodes
Cable	4.0mm²
Cable length	+1200mm, -1200mm, length can be customized
Connector	TW-PVCON-01(Tongwei Solar) PV-KST4-EVO2/xy_UR, PV-KBT4-EVO2/xy_UR(Staubli) PV-KST4-EVO2A/xy, PV-KBT4-EVO2A/xy(Staubli) PV-ZH202B(Zhejiang Zhonghuan Sunter)
Max static test load	Front side 5400Pa,Rear side 2400Pa
Per pallet	36pcs
Packaging	936pcs per 40'HC

Electrical Characteristics (STC)

Module type:	TWMNH-48 HW440	TWMNH-48 HW445	TWMNH-48 HW450	TWMNH-48 HW455	TWMNH-48 HW460
Maximum Power: Pmax [W]	440	445	450	455	460
Open Circuit Voltage: Voc [V]	35.65	35.80	35.95	36.10	36.25
Short Circuit Current: Isc [A]	15.72	15.76	15.81	15.85	15.89
Voltage at Maximum Power: Vmp [V]	29.30	29.56	29.81	30.06	30.31
Current at Maximum Power: Imp [A]	15.02	15.06	15.10	15.14	15.18
Module Efficiency: η [%]	22.0	22.3	22.5	22.8	23.0

* STC: Irradiance 1000W/m², Cell Temperature 25℃, AM=1.5, Power measurement tolerance: ±3%

Linear Warranty



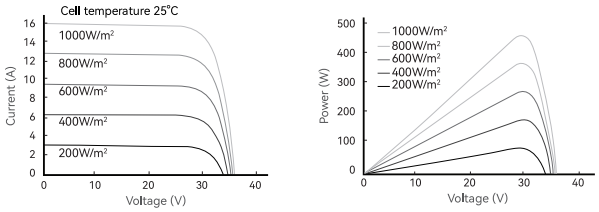
15 15-Year Materials Warranty

30 30-Year Power Warranty

Temperature Rating

Temperature Coefficient of Pmax	-0.28%/℃
Temperature Coefficient of Voc	-0.24%/℃
Temperature Coefficient of Isc	+0.046%/℃

I-V Curve



Operating Parameters

Operating Temperature	-40℃~+70℃
Module [T98] max	70℃
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Selection Tolerance	0~+3%
Fire Class Rating	Class C

Certifications

Quality Management System and Product Certification

ISO 9001: 2015 / Quality management systems
ISO 14001: 2015 / Environmental management systems
ISO 45001: 2018 / Occupational health and safety management systems
ISO 50001: 2018 / Energy management systems
IEC 62941: 2019 / Quality system for PV module manufacturing
IEC 61215(2021) / IEC 61730(2023)

Learn More

Email: sales@tongwei.com **Website:** https://en.tongwei.cn/ **Add:** No.588, Middle Section Tianfu Avenue, High-Tech Zone, Chengdu, China (Sichuan) Pilot Free Trade Zone **Tel:** +86-028-60707985

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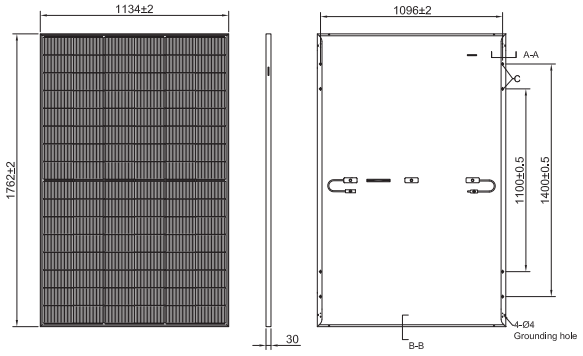
48HW440-475W

Drawing (Unit: mm)



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Max static test load	Front side 5400Pa,Rear side 2400Pa
Per pallet	36pcs
Packaging	936pcs per 40'HC

Electrical Characteristics (STC)

Module type:	TWMNH-48 HW465	TWMNH-48 HW470	TWMNH-48 HW475
Maximum Power: Pmax [W]	465	470	475
Open Circuit Voltage: Voc [V]	36.40	36.55	36.70
Short Circuit Current: Isc [A]	15.92	15.95	15.97
Voltage at Maximum Power: Vmp [V]	30.56	30.80	31.05
Current at Maximum Power: Imp [A]	15.22	15.26	15.30
Module Efficiency: η [%]	23.3	23.5	23.8

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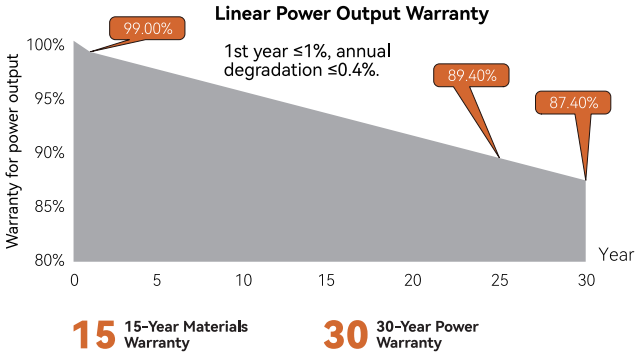
Linear Warranty



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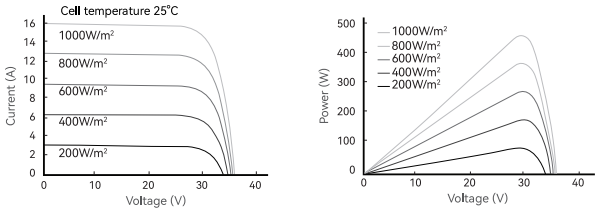

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