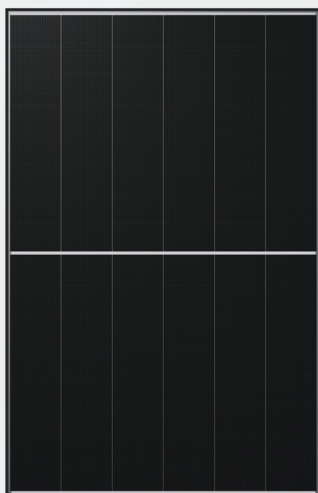


# TNC 2.0

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

TWMNH-48HW



Higher power output, higher conversion efficiency



Passed hail resistance test for higher reliability

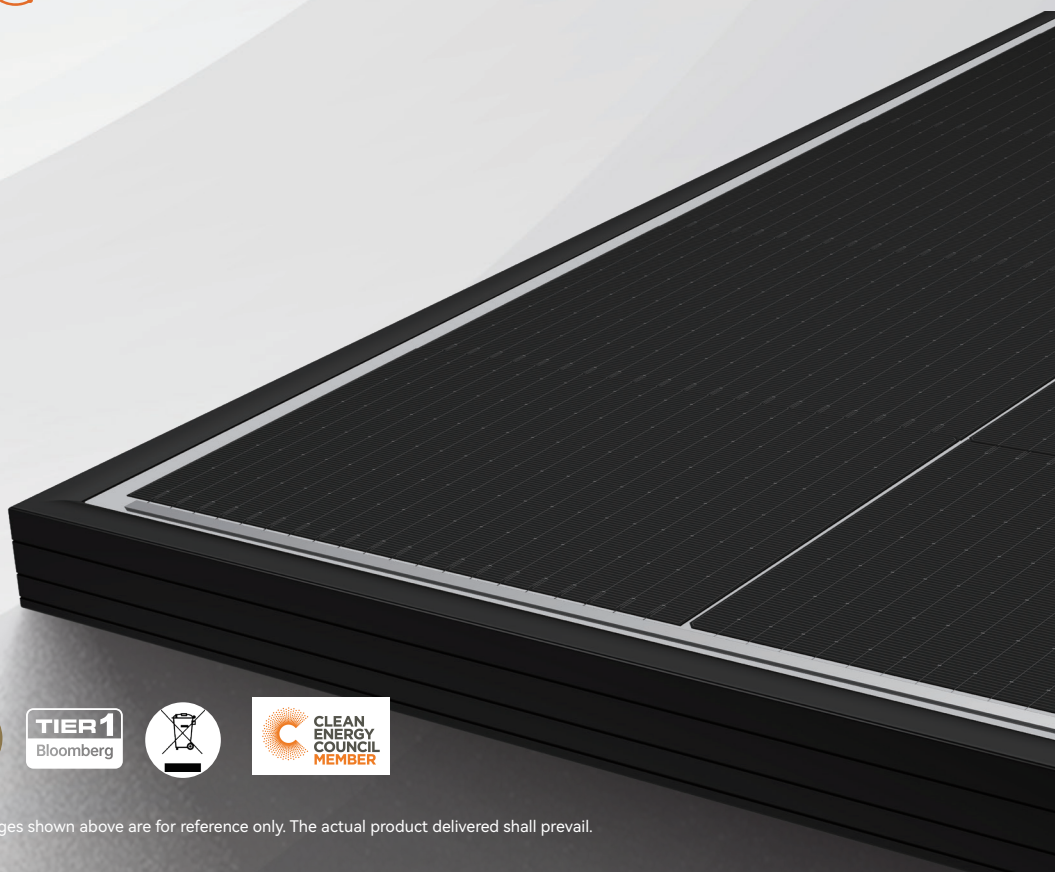


Compact size and lightweight, making installation easier

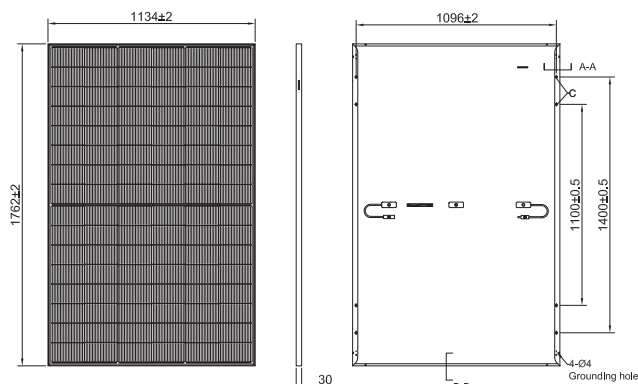


Exquisite appearance, enhancing home aesthetics

480-490W



## Drawing (Unit: mm)



## Mechanical Parameters

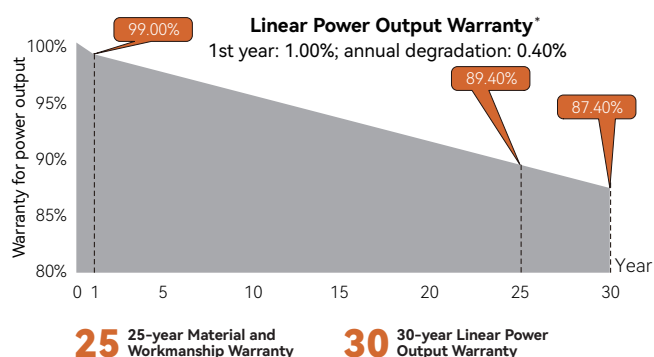
|                          |                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cell Type                | TNC                                                                                                                                                                              |
| Cell Orientation         | 96[6×16]                                                                                                                                                                         |
| Dimension                | 1762±2×1134±2×30mm                                                                                                                                                               |
| Weight                   | 22.8 kg                                                                                                                                                                          |
| Front Glass              | 2.0 mm AR coating semi tempered glass                                                                                                                                            |
| Rear Glass               | 2.0 mm semi tempered glass                                                                                                                                                       |
| Frame                    | Anodized aluminum alloy black frame                                                                                                                                              |
| Junction Box             | IP68, 3 diodes                                                                                                                                                                   |
| Cable                    | 4.0 mm <sup>2</sup>                                                                                                                                                              |
| Cable Length             | +1200mm,-1200mm,length can be customized                                                                                                                                         |
| Connector                | TW-PVCON-01,TW-PVCON-02(Tongwei Solar)<br>PV-KST4-EVO2/xy_UR, PV-KBT4-EVO2/xy_UR(Staubli)<br>PV-KST4-EVO2A/xy, PV-KBT4-EVO2A/xy(Staubli)<br>PV-ZH202B(Zhejiang Zhonghuan Sunter) |
| Maximum Static Test Load | 5400Pa (positive) / 2400Pa (negative)                                                                                                                                            |
| Packaging (Per pallet)   | 36 pcs                                                                                                                                                                           |
| Packaging                | 936 pcs per 40'HC                                                                                                                                                                |

## Electrical Characteristics (STC)

| Module type:                                  | TWMNH-48<br>HW480 | TWMNH-48<br>HW485 | TWMNH-48<br>HW490 |
|-----------------------------------------------|-------------------|-------------------|-------------------|
| Maximum Power: P <sub>max</sub> [W]           | 480               | 485               | 490               |
| Open Circuit Voltage: V <sub>oc</sub> [V]     | 36.80             | 36.85             | 36.90             |
| Short Circuit Current: I <sub>sc</sub> [A]    | 15.98             | 15.99             | 16.00             |
| Voltage at Maximum Power: V <sub>mp</sub> [V] | 31.20             | 31.36             | 31.52             |
| Current at Maximum Power: I <sub>mp</sub> [A] | 15.39             | 15.47             | 15.55             |
| Module Efficiency: η [%]                      | 24.02             | 24.27             | 24.52             |

\* STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM=1.5, Power measurement tolerance: ±3%  
V<sub>oc</sub> measurement tolerance: ±5%, I<sub>sc</sub> measurement tolerance: ±5%

## Warranty

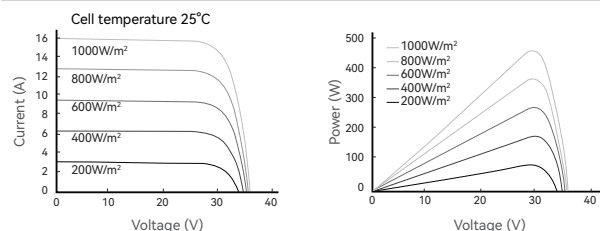


\*The warranty is applicable under STC.

## Temperature Rating

|                                             |            |
|---------------------------------------------|------------|
| Temperature Coefficient of P <sub>max</sub> | -0.28%/°C  |
| Temperature Coefficient of V <sub>oc</sub>  | -0.24%/°C  |
| Temperature Coefficient of I <sub>sc</sub>  | +0.046%/°C |

## Curve



## Operating Parameters

|                            |                          |
|----------------------------|--------------------------|
| Operating Temperature*     | [T <sub>g</sub> ] ≤ 70°C |
| Maximum System Voltage     | 1500V DC                 |
| Maximum Series Fuse Rating | 30A                      |
| Power Output Tolerance     | -5W~+10W                 |
| Fire Class Rating          | Class C                  |

\*The module operating temperature can reach up to 85°C for short term.

## Certifications

### Quality Management System and Product Certification

ISO 9001: 2015 / Quality Management System  
ISO 14001: 2015 / Environmental Management System  
ISO 45001: 2018 / Occupational Health and Safety Management System  
ISO 50001: 2018 / Energy Management System  
IEC 62941: 2019 / Quality System for PV Module Manufacturing  
IEC 61215 (2021) / IEC 61730 (2023), IEC TS 62804,  
IEC 61701, IEC 62716, IEC 60068-2-68



Scan the code for more information