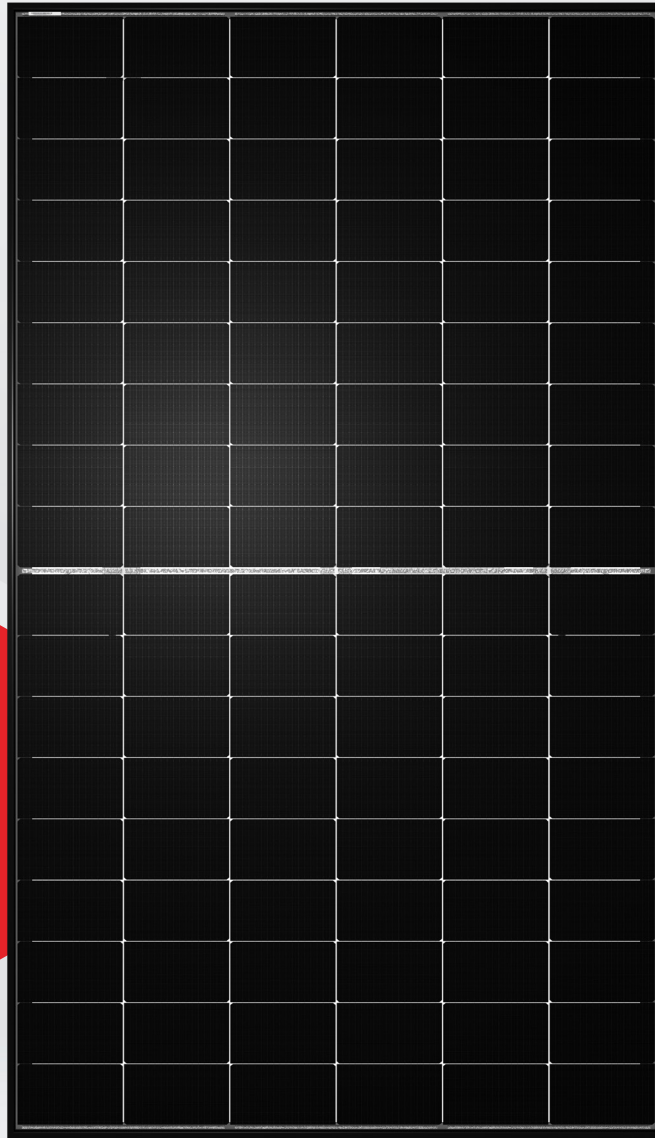


Commercial Series

Bifacial • N-Type • Black Frame



510W - TWMNH



Latest N-Type Technology



Responsible Manufacturing



Dual Glass Design



Product Warranty*



Performance Warranty



TWMNH

Commercial • Bifacial • N-Type

Reliable Performance and Superior Durability for Australian Businesses

Ensuring Reliability

Our rigorous processes enable us to meet and exceed the stringent testing standards required for the Australian climate.



Salt Mist Rated

Level 8 - Highest rating to last in coastal regions



Superior Hail Testing

45mm hailstones at 110km/h



Latest N-Type Technology

Offers higher efficiency, better performance in low-light conditions, and superior temperature tolerance compared to traditional P-Type panels.



Responsible Manufacturing

Ensures responsible manufacturing with TUV-certified quality and rigorous testing for reliable, high-performance solar solutions.



Ideal for Australian Commercial Projects

Tailored to meet the unique energy demands of Australian businesses, offering reliability and efficiency for commercial solar installations.



Dual Glass Design

Provides enhanced durability and moisture resistance, significantly reducing the risk of long-term degradation and ensuring reliability even in harsh conditions.



25-Year Product Warranty*

Reflects confidence in manufacturing quality, providing peace of mind with guaranteed performance over a quarter-century.



30-Year Performance Warranty

Ensures that panels retain high output levels over time, delivering sustained value and maximum return on investment.

Toughened Glass

Encapsulant - EVA

Photovoltaic Solar Cells

Encapsulant - EVA

White Inner Sheet

Toughened Glass

Aluminium Frame

Built for Longevity, From Source to Installation

At TW Solar, we take pride in our vertically integrated production system, ensuring premium quality solar panels at every step of the process.

Why does this matter?

By controlling the entire journey, from refining polysilicon to assembling the final product, we deliver unmatched performance and reliability. Our supply chain has been independently verified by TÜV Rheinland, confirming our adherence to the highest ethical and environmental standards.

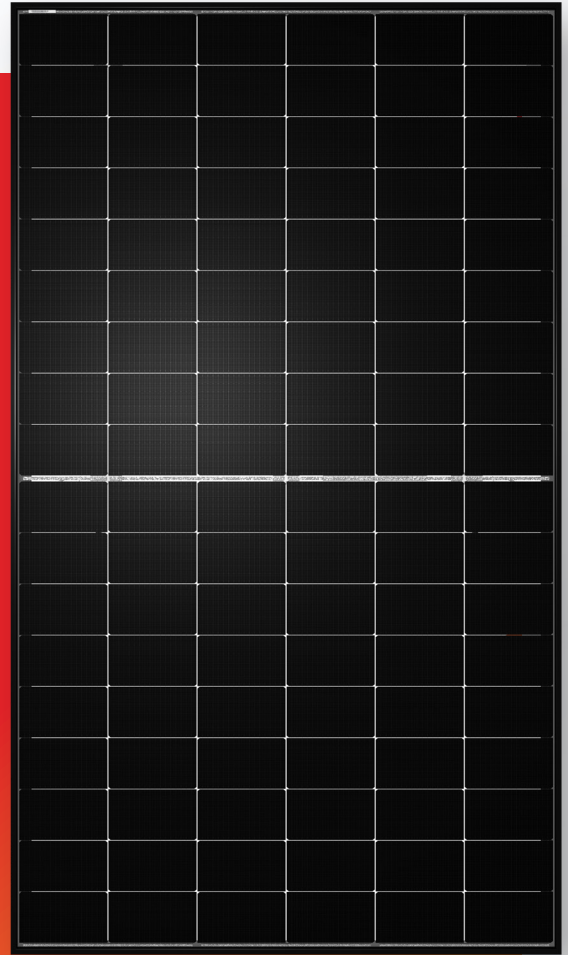


Polysilicon

Ingots

Wafers

Solar Cells



Commercial Solar Panels

Did you know?

As the largest producer of solar cells globally, with a 2024 capacity of over 140GW, we can power the equivalent of 21 million homes* and offer long-term warranties with confidence.

*Based 6.6kW homes



The result?

Solar panels that not only present a sleek, professional finish on your building but are engineered to deliver clean, dependable energy for your operations for decades.



Take a look at this massive 3.04MW commercial system, in New South Wales, featuring TW Solar panels



b.link/twsolar-commercial

Commercial Series

TWMNH-510W • Bifacial • N-Type • Black Frame

Available from



Electrical Characteristics (STC) (NMOT)

| Model | TWMNH-54HD510 | |
|-----------------------------------|---------------|-------|
| Testing Condition | STC | NMOT |
| Maximum Power: Pmax (W) | 510 | 385 |
| Open Circuit Voltage: Voc (V) | 40.42 | 38.48 |
| Short Circuit Current: Isc (A) | 15.95 | 12.88 |
| Voltage at Maximum Power: Vmp (V) | 34.19 | 31.96 |
| Current at Maximum Power: Imp (A) | 14.92 | 12.05 |
| Module Efficiency: (%) | 22.9 | |

*STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass 1.5, Power Measurement Tolerance: ±3% *NMOT: Irradiance 800W/m², Cell Temperature 20°C, Air Mass 1.5, Wind Speed 1m/s

Electrical Characteristics (BNPI)

| | |
|-----------------------------------|-------|
| Maximum Power: Pmax (W) | 563.1 |
| Open Circuit Voltage: Voc (V) | 40.42 |
| Short Circuit Current: Isc (A) | 17.61 |
| Voltage at Maximum Power: Vmp (V) | 34.19 |
| Current at Maximum Power: Imp (A) | 16.47 |

*BNPI: Front Side Irradiance 1000W/m², Back Side Irradiance 135W/m², Cell Temperature 25°C, Air Mass 1.5, Power Measurement Tolerance: ±3%

Mechanical Parameters

| | |
|-----------------------------|---|
| Cell Type | TNC (N Type Monocrystalline Cell) |
| Cell Orientation | 108 (6x18) |
| Dimension (L x W x H) | Length: 1961mm |
| | Width: 1134mm |
| | Height: 30mm |
| Weight | 27kg |
| Front Glass | 2.0mm AR coated heat strengthened glass |
| Backsheet | 2.0mm heat strengthened glass |
| Frame | Anodized Aluminium Alloy Black Frame |
| Cable (Including Connector) | 1200mm |
| Junction Box | IP 68 Rated, 3 diodes |

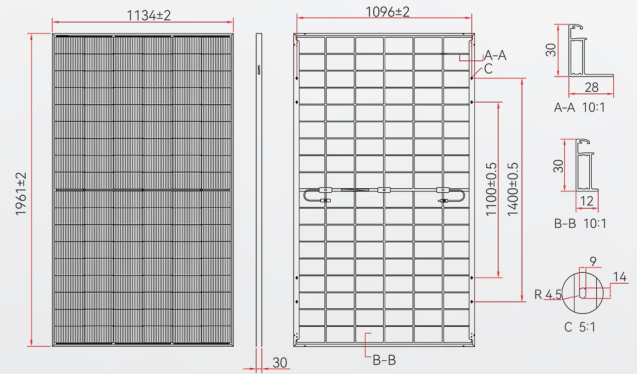
Temperature Rating

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

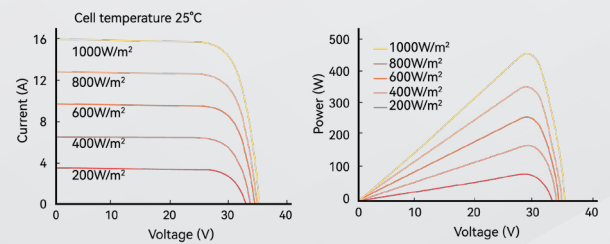
Operating Parameters

| | |
|---------------------------------|-----------------------|
| Operating Temperature | From -40°C to ~+ 70°C |
| Maximum System Voltage | 1500V DC |
| Wind/ Snow Load | 2400Pa/5400Pa |
| Maximum Series Fuse Rating | 30A |
| Power Selection Tolerance | 0~+3W |
| Bifaciality Coefficient of Pmax | 80±5% |
| Bifaciality Coefficient of Voc | 98±5% |
| Bifaciality Coefficient of Isc | 80±5% |
| Fire Class Rating | Class C |

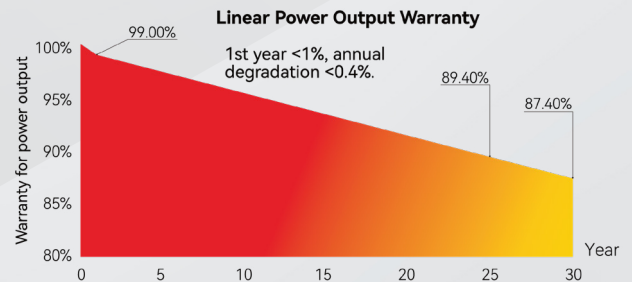
Technical Drawings



I-V Curve



Linear Power Output Warranty



Packaging Configurations

| | |
|---------------------|--------------------------|
| Per Pallet | 36 Modules |
| Per 40'HC Container | 864 Modules / 24 Pallets |

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)



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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 specifications vested in Tongwei Solar. (AUS-20250509) Made in China