

THE Residential Module

MULTI-BUSBAR 120 HALF-CELL BOB MODULE



120-CELL
MONOCRYSTALLINE MODULE

310-335W
POWER OUTPUT RANGE

19.9%
MAXIMUM EFFICIENCY

0~+5W
POSITIVE POWER TOLERANCE

PRODUCTS	COLOR	POWER RANGE
TSM-DE15M(II)	Black	310-335W



High power output

- Reduce BOS cost with high power bin and 1500V system voltage
- New cell string layout and split J-box location reduces the energy loss caused by inter-row shading
- Lower resistance of half-cut cells and increased MBB (Multi Busbar) reflectance ensure higher power



High energy generation, low LCOE

- Excellent 3rd party validated IAM and low light performance with cell process and module material optimization
- Low Pmax temp coefficient (-0.36%) increases energy production
- Better anti-shading performance and lower operating temperature



Outstanding visual appearance, easy to install

- Designed for superior rooftop aesthetics
- Thinner wires give an eye-catching all-black look
- Safe and easy to transport, handle and install

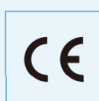


Certified to perform in highly challenging environments

- High PID resistance through cell process and module material control
- Resistant to salt, acid, sand, and ammonia
- Over 30 in-house tests (UV, TC, HF, etc)
- Certified to 5400 Pa positive load and 2400 Pa negative load

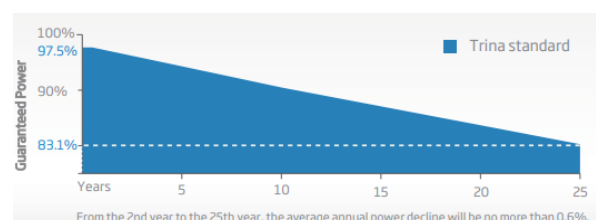
Comprehensive Products and System Certificates

UL 61730
IEC 61215 / IEC 61730 / IEC 61701 / IEC 62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
OHSAS 18001: Occupation Health and Safety Management System



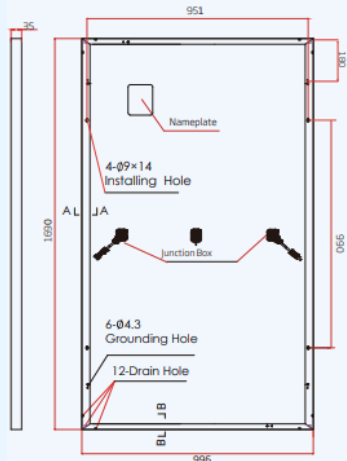
PERFORMANCE WARRANTY

25 Year Product Warranty · 25 Year Power Warranty

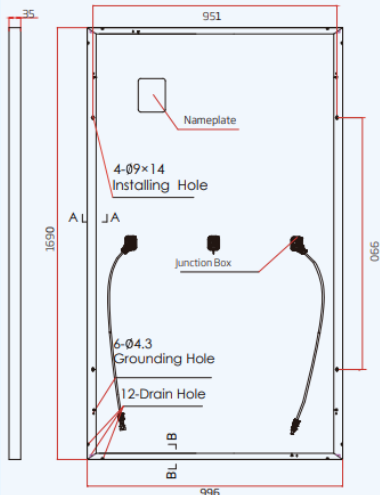


Residential Module MULTI-BUSBAR 120 HALF-CELL BOB MODULE

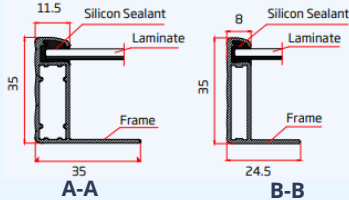
DIMENSIONS OF PV MODULE(mm)



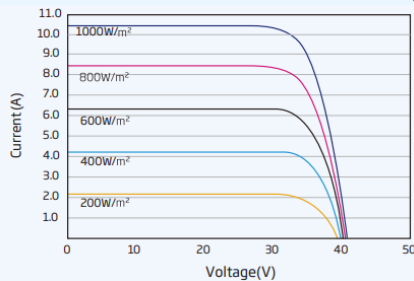
String Inverter Configuration



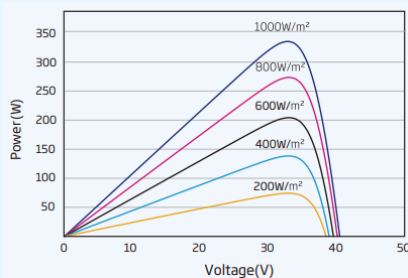
Microinverter or Optimizer Configuration



I-V CURVES OF PV MODULE(335W)



P-V CURVES OF PV MODULE(335W)



ELECTRICAL DATA (STC)

Peak Power Watts-PMAX (Wp)*	310	315	320	325	330	335
Power Output Tolerance-PMAX (W)	0 ~ +5					
Maximum Power Voltage-VMPP (V)	33.0	33.2	33.4	33.6	33.8	34.0
Maximum Power Current-IMPP (A)	9.40	9.49	9.58	9.67	9.76	9.85
Open Circuit Voltage-VOC (V)	39.9	40.1	40.3	40.4	40.6	40.7
Short Circuit Current-ISC (A)	10.03	10.12	10.20	10.30	10.40	10.50
Module Efficiency η m (%)	18.4	18.7	19.0	19.3	19.6	19.9

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5.

*Measurement tolerance: ±3%.

ELECTRICAL DATA (NMOT)

Maximum Power-PMAX (Wp)	235	238	242	246	250	254
Maximum Power Voltage-VMPP (V)	31.0	31.2	31.4	31.6	31.7	31.9
Maximum Power Current-IMPP (A)	7.57	7.64	7.71	7.79	7.86	7.94
Open Circuit Voltage-VOC (V)	37.6	37.8	38.0	38.1	38.3	38.4
Short Circuit Current-ISC (A)	8.08	8.15	8.22	8.30	8.38	8.46

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

MECHANICAL DATA

Solar Cells	Monocrystalline
Cell Orientation	120 cells (6× 20)
Module Dimensions	1690 × 996 × 35 mm (66.54× 39.21 × 1.38 inches)
Weight	18.0kg (39.7lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	EVA
Backsheet	Black
Frame	35 mm (1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²), Portrait: N 450 mm/P 450 mm (17.72/17.72 inches), Landscape: N 1400 mm /P 1400 mm (55.12/55.12 inches)
Connector	MC4
Fire Type	Type 2

TEMPERATURE RATINGS

NMOT	41°C (±3°C)
Temperature Coefficient of PMAX	- 0.36%/°C
Temperature Coefficient of VOC	- 0.26%/°C
Temperature Coefficient of ISC	0.04%/°C

MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC) 1500V DC (UL)
Max Series Fuse Rating	20A

WARRANTY

25 year Product Workmanship Warranty
25 year Linear Power Warranty

PACKAGING CONFIGURATION

Modules per box: 31 pieces
Modules per 40' container: 806 pieces
Pallet dimensions (L x W x H): 1735 x 1140 x 1148 mm
Pallet weight: 603.5kg (1,331lb)