



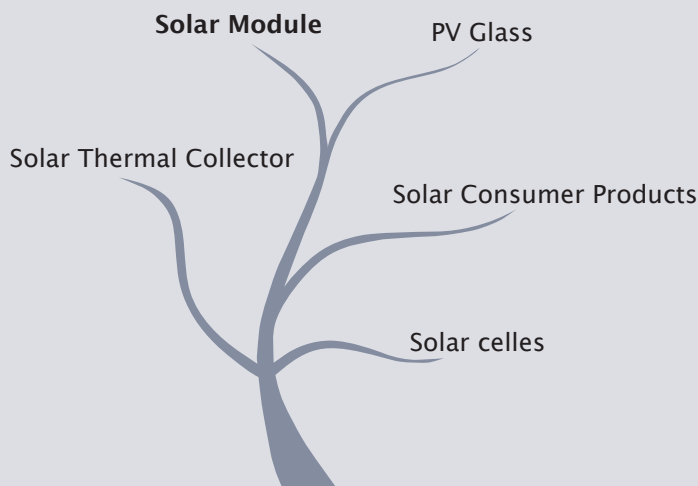
TPSM5U(BK)190W/195W

Black Mono Crystalline Photovoltaic Module



Not Your Average Solar Provider

Our Products Categories



Profession Solar Provider Since 1992

Best Quality

- Junction box and bypass diodes guarantee the modules free of overheating and "hot spot effect"
- Industry standard inverters and mounting systems guarantee minimal maintenance
- 100%EL double-inspection ensures modules are defects free
- Modules binned current to improve system performance
- Potential Induced Degradation (PID) free

Key Feature



Aesthetically appealing design with black frame and backsheet suited for the use on residential, commercial and utility applications



High module efficiency up to 15.60%.



Plus power tolerance: 0~+3%.



Independent research anti-reflective and self-cleaning glass surface reduces power loss from dirt and dust.



Excellent performance under low light environments: create better kWh/kW ratio and produce averages 2-3% more electricity.



Certified by TUV to withstand high level of wind load (2400Pa) and snow loads (5400Pa)*

Guaranteed Performance ^{**}

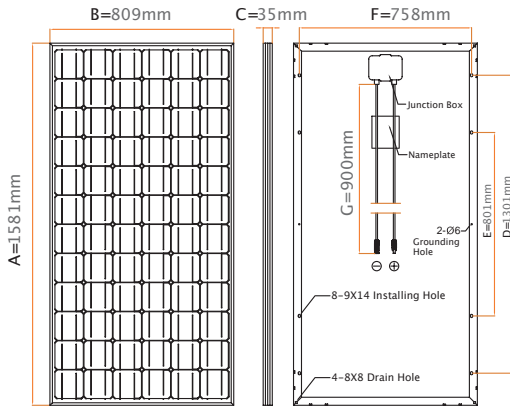
10 Years Manufacturing Warranty

12 Years Warranty, 90% Power Output

25 Years Warranty, 80% Power Output

Free module recycling through membership in the PV Cycle Association

* Please refer to Topray Safety and Installation Manual for details.
**Please refer to Topray Limited Product Warranty for details.



MECHANICAL DRAWINGS

ELECTRICAL CHARACTERISTICS

MECHANICAL SPECIFICATION

Cell Type	Mono crystalline 125×125 mm (5 inches)
Number of cells	72 (6×12)
Dimensions (A×B×C)	1581×809×35mm
Weights	13kg
Front Glass	3.2 mm Low iron tempered glass
Frame	Anodized aluminum alloy
Junction Box	Ip 65,with bypass diodes
Connector	MC4 compatible
Output Cables	TÜV,length 900mm, 4.0mm ²

The typical relative change in module efficiency at an irradiance of 200W/m² in relation to 1000W/m²(both at 25°C and AM 1.5 spectrum) is less than 6%.

PACKING CONFIGURATION

Container	20' GP	40' HQ
Pieces per pallet	28	28
Pallets per container	14	28
Pieces per container	392	784+84

TEMPERATURE CHARACTERISTICS

Nominal Operating Cell Temperature (NOCT)	47±3°C
Temperature Coefficient of Pmax (γ)	-0.44%/K
Temperature Coefficient of Voc (β)	-0.36%/K
Temperature Coefficient of Isc (α)	0.05%/K

SYSTEM INTEGRATION PARAMETERS

Maximum system voltage	DC 1000V
Maximum Series Fuse	10A
Maximum reverse current	13.5A
Increased snowload acc. to IEC 61215	5400Pa
Operating Temperature	-40~+85°C
Number of bypass diodes	3

DEALER INFORMATION BOX

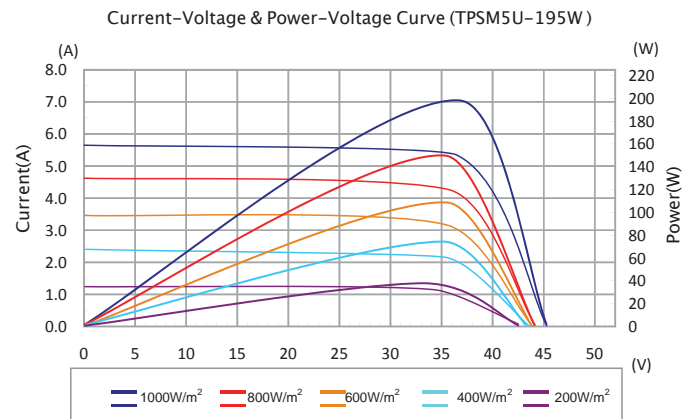
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PERFORMANCE AT STANDARD TEST CONDITION (STC:1000W/m²,25°C,AM1.5)

Module Series	TP5M5U — Topray Universal	
Maximum Power at STC(Pmax)	190W	195W
Short Circuit Current (Isc)	5.65A	5.71A
Open Circuit Voltage (Voc)	44.90V	45.20V
Maximum Power Current (Impp)	5.28A	5.36A
Maximum Power Voltage (Vmpp)	36.00V	36.40V
Encapsulated Cell Efficiency	17.20%	17.60%
Module Efficiency	14.90%	15.20%
Power Tolerance	0/+3%	0/+3%

PERFORMANCE AT NORMAL OPERATING CELL TEMPERATURE (NOCT:800W/M²,47±3°C,AM 1.5)

Maximum Power (Pmax)	137W	141W
Short Circuit Current (Isc)	4.76A	4.82A
Open Circuit Voltage (Voc)	41.60V	41.90V
Maximum Power Current (Impp)	4.32A	4.38A
Maximum Power Voltage (Vmpp)	31.70V	32.10V



QUALIFICATIONS AND CERTIFICATES

CE-Compliant, IEC 61215 (Ed.2), IEC 61730 (Ed.1) application classA, TÜV Safety Class II,UL 1703

