



MILLENNIUM ELECTRIC: MSS - MIL-PVT-195W-MO3 DATA SHEET

> High Performance

High-power module using 72 high efficient Black 125*125 mm square mono-crystalline silicon cells.

>High Quality

High Quality Advanced EVA encapsulation.

> CELL EFFICIENCY 17.425%

17.425% cell conversion efficiency. PVT modules with 3 bypass diodes minimize the power drop caused by shade.

> The Most Efficient Solar Collector in the World

-Up to **30% higher PV efficiency** for production of electricity.
 -Up to **70% additional thermal energy** from the same collector.

> Warranty

Warranty for module 90% performance after 10 years. for module 80% performance after 25 years.

Millennium's Black on Black photovoltaic modules offer industry-leading performance, durability, and reliability for a variety of electrical power requirements. Using breakthrough technology, these modules use a black cells and contacts to reduce reflection of sunlight, a structure to improve conversion efficiency and black anti-reflective coating provides uniformity..



MSS, Millennium's Unique Technology:

The Multi Solar system is an innovative, patented Solar PV/Thermal System that makes it possible to **convert solar energy into Electrical energy (PV) and Thermal energy at the same time using a single integrated flat plate collector system**. The Multi Solar System uses air and water pipes to cool the PV cells in order to increase the relative efficiency of the electric system and at the same time produce hot water and hot air which can be channelled for further thermal use.

The **PV cells which are cooled by the water and air flow inside the pipes** can provide up to **30% higher annual electrical production than the usual PV system under the same conditions**. The MSS collector creates this advantage by preventing the efficiency degradation of regular PV caused by excessive heat (negative heat coefficient of half percent per degree of heat in any normal photovoltaic panel). The thermal efficiency of the MSS collector system reaches up to 70%. With the additional 15% efficiency of the PV electrical production the MSS reaches to 85% efficiency: **The Most Efficient Solar Collector in the World**.

- Common applications include:**
- Solar MSS power stations
 - Solar MSS Co-generation power stations
 - Grid connected houses
 - Solar houses
 - Solar air conditioning systems



STC: irradiance level 1000W/m2, spectrum AM 1.5 and cell temperature 25°C
 Specifications and design are subject to change without prior notice.

< MILLENNIUM ELECTRIC T.O.U. Ltd >



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MILLENNIUM ELECTRIC LTD.

MSS Mii-PVT 195W M-03 Module

> High Performance

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> CELL EFFICIENCY 17.425%

17.425% cell conversion efficiency. PVT modules with 3 bypass diodes minimize the power drop caused by shade.

> High Quality encapsulation

High Quality Advanced EVA encapsulation.

Millennium's Black on Black photovoltaic modules offer industry-leading performance, durability, and reliability for a variety of electrical power requirements. Using breakthrough technology, these modules use a black cells and contacts to reduce reflection of sunlight, a structure to improve conversion efficiency and black anti-reflective coating provides uniformity.



Characteristics of the Photovoltaic and PVT Modules

Millennium's Black On Black photovoltaic modules offer industry-leading performance, durability, and reliability for a variety of electrical power requirements. Using breakthrough technology, these modules use a black cells and contacts to reduce reflection of sunlight, a structure to improve conversion efficiency and black anti-reflective coating provides uniformity.

Common applications include:

- Solar MSS power stations
- Solar MSS Co-generation power stations
- Grid connected houses
- Solar houses
- Solar air conditioning systems

Designed to withstand rigorous weather conditions, a junction box is also provided for easy electrical connections in the field, making Millennium's modules the perfect combination of advanced technology and reliability.



Millennium Electric Panels in a PV Power stations in Italy

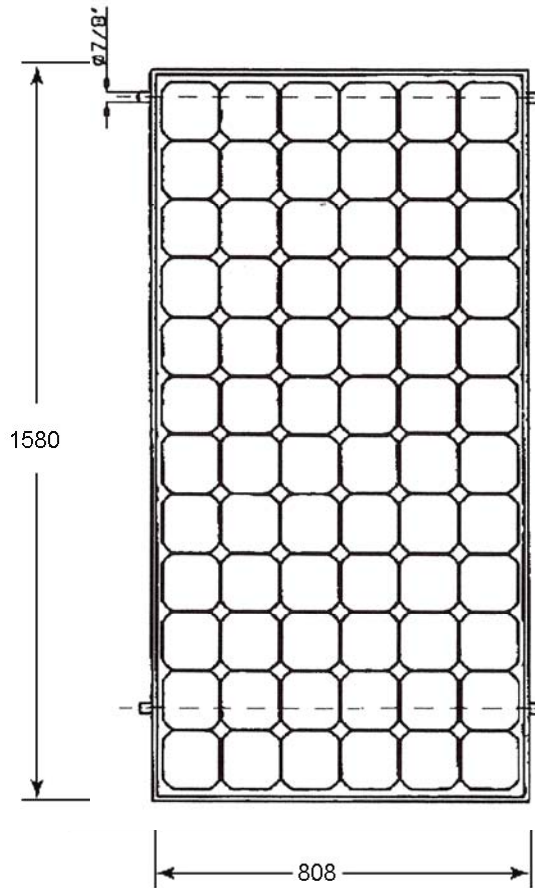
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MSS MIL-PVT BLACK ON BLACK 195W-MO3



COMPONENT DESCRIPTION

| | |
|------------------------|---|
| COMPONENT MANUFACTURER | Millennium Electric |
| Type | MSS-MIL-PVT-195W-MO3 Black on Black |
| Power | 195W |
| Power tolerance | +/-5% |
| BIPV | No |
| Cell type | High Efficient Black Mono crystalline |
| Cell shape | Square 125*125 mm |
| Cell efficiency | 17.33% |
| Cells per Module | 72 |
| Quality guarantee | Warranty for module 90% performance after 10 years. for module 80% performance after 25 years. |
| Distribution | worldwide |
| Length | 1,580 mm |
| Width | 808 mm |
| Thickness | 40 mm |
| Frame type | Anodized Aluminum Alloy |
| Connection type | PG7 |
| Weight | 30 kg |
| Voc | 48.61 V |
| Isc | 5.7 A |
| Maximum Power Voltage | 36.1 V |
| Maximum Power Current | 5.57 A |
| Coefficient of voltage | -0.38%/°C |
| Coefficient of current | 0.10%/°C |
| Coefficient of power | -0.47%/°C |
| Voltage Stand off | DC 3000 V |
| Test conditions | 1000W/m2, AM1.5, 25°C |
| Thermal Production | 2000 Kcal/Day |



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| | |
|---------------------------------------|---|
| Connection Box | With 3 pcs built-in bypass diodes |
| Grounding connection | Yes |
| Solar Junction boxes: | Solar Junction box provides the user with safety, swift and reliable way to connect. The junction box can be connected to the photovoltaic collector. Solar Junction box provided with cable and connector, PV/T junction box for time-saving, safe and reliable cabling. |
| Cable Type and Length, connector type | PG7 |

Junction boxes for Millennium PV/T modules

