Maxima GxB 390 SM
Bifacial Smart Module
A Trusted Quality Brand in Solar

High Performance
Bifacial technology generates power from both the front and back faces of the module, resulting in up to 20% higher energy harvest (kWh). Our HCT cells packaged in frameless double glass modules yield higher power and do not suffer from light-induced degradation (LID) or potential induced degradation (PID).

Integrated Optimizer with TIGO TS4-L
Impedance Matching Technology results in enhanced energy yield at string level. AC/DC output at string level up to 0.95.

Longer Strings: String length increased up to 30%
Less BOS. Faster Installation. Lower Costs

Safety, Enhanced O&M
NEC 2014 & 2017 Rapid Shutdown Compliant Module-level Monitoring

Robust Quality & Reliability
Double glass modules designed for durability. Certified to international certification body standards: IEC, UL, and CEC listed. Manufactured according to the International Quality Management System ISO9001.

Extreme Climate Performance
As temperatures rise, our patented Hybrid Cell Technology produces more power [kW] than conventional crystalline silicon solar panels at the same elevated temperature.

Superior Aesthetics
Thin profile double-glass construction provides superior aesthetics that are a perfect complement to roofs, carports, and canopies.

About Sunpreme
Sunpreme is an innovative solar PV module manufacturer headquartered in Sunnyvale, California with manufacturing facilities in the United States and China. We provide high quality, reliable and aesthetically superior modules to residential, commercial, and utility customers globally. Sunpreme solar systems are delivering clean energy on 5 continents.

Sunpreme solar panels are designed and engineered in Silicon Valley, CA, USA.

Hybrid Cell Technology
Sunpreme modules use our patented Hybrid Cell Technology platform that utilize enabling thin-film materials on surface engineered Silicon substrate to achieve high-efficiency power output and reliable energy production for increased project returns.

Unlike conventional crystalline silicon cell technologies, Sunpreme uses highly scalable process to deliver high output solar power at very competitive Levelized Cost of Energy (LCOE).

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Front View
Back View

High Efficiency
19.8% Module Efficiency (STC)
21.8% Module Efficiency with 10% Backside Power Boost
23.8% Module Efficiency with 20% Backside Power Boost

Bifacial Energy Boost
Harvests sun from the backside to increase power output up to 20%

Double-Glass Frameless Design
Sunpreme Design is more robust, and does not require module grounding

15 YEAR PRODUCT WARRANTY
30 YEAR POWER WARRANTY

"At 22%, Sunpreme HCT Bifacial Double Glass modules move to the top of the class in effective efficiency" Dr. Eicke Weber quoted in:

Material Quality
- Diffusion length, base conductivity

Industry Standard
- PERC: Passivated Emitter and Rear Cell
- MWT: Metal Wrap Through
- HBC: - Integrate Flex Back Contact - Back Junction
- HCT: Hybrid Cell Technology

Device Quality
- Passivation of surfaces, low series resistance, light confinement
Maxima GxB 390 SM Bifacial Solar Module
High Performance 72-cell Thin-Film enabled Solar Module

ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>STC rated output P_{mpp} (W)</th>
<th>370</th>
<th>380</th>
<th>390</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Efficiency</td>
<td>21.6%</td>
<td>21.8%</td>
<td>22.0%</td>
</tr>
<tr>
<td>Module Efficiency</td>
<td>18.8%</td>
<td>19.3%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Standard sorted output</td>
<td>-3%/5%</td>
<td>-3%/5%</td>
<td>-3%/5%</td>
</tr>
<tr>
<td>Maximum Voltage (V) For TS4-L</td>
<td>47.5</td>
<td>48.2</td>
<td>48.8</td>
</tr>
<tr>
<td>Maximum current (A)</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Rated Voltage V_{mpp} (V)</td>
<td>42.6</td>
<td>43.2</td>
<td>43.9</td>
</tr>
<tr>
<td>Open Circuit Voltage V_{oc} (V)</td>
<td>52.6</td>
<td>52.8</td>
<td>53.0</td>
</tr>
<tr>
<td>Rated Current I_{mpp} (A)</td>
<td>8.7</td>
<td>8.8</td>
<td>8.9</td>
</tr>
</tbody>
</table>

BIFACIAL OUTPUT*

With 10% Backside PowerBoost

| Power Output (W) | 407 | 418 | 429 |
| Module Efficiency | 20.7% | 21.3% | 21.8% |

With 20% Backside PowerBoost

| Power Output (W) | 444 | 456 | 468 |
| Module Efficiency | 22.6% | 23.2% | 23.8% |

*Backside boost for flush mount configuration is ≤5%, resulting in \( I_{sc} \leq 9.56-9.77 \) A

TEMPERATURE COEFFICIENTS

Temperature coefficients \( P_{mpp} \) \(-0.28\%/C\)

Temperature coefficients \( I_{sc} \) \(+0.015\%/C\)

Temperature coefficients \( V_{oc} \) TS4-L (and -O,M,S,D) \(0.00\%/C\) (and \(-0.23\%/C\))

Normal operating cell temperature (NOCT) \(+46^\circ C \pm 2^\circ C\)

TEST OPERATING CONDITIONS

Operating Temperature \(-40 to 85^\circ C\)

Storage Temperature \(-40 to 85^\circ C\)

Maximum Series Fuse \(15 \text{ A}\)

Maximum System Voltage \(1,000 \text{ VDC (UL & IEC)}\)

Power/Sq. Ft. w/ 20% backside power boost \(22.1 \text{ W/Sq. Foot}\)

Maximum load capacity \(5,400 \text{ PA (snow load)}\)

Fire Class Class A – Type 3

Mechanical specifications

Dimensions \(1985 \times 990 \times 6 \text{ mm (6.50 \times 3.25 \times 0.02 ft)}\)

Weight \(27.4 \text{ kg (60.5 lbs)}\)

Area \(1.96 \text{ m}^2 (21.1 \text{ ft}^2)\)

Cell Type Bifacial Hybrid Cell Technology (HCT)

Module Type 72 Cells, Frameless double glass design with tempered glass

Glass Tempered 2.9 mm anti-reflective coating, low iron

Smart Junction Box Tigo TS4-Platform

Cables \(4 \text{ mm}^2 \times 1.2 \text{ m cable with MC4 connectors or MC4 compatible Connectors}\)

Clamps Sunpreme 200mm

PACKAGING

Modules per crate \(26\)

Crate per shipping container \(22\)

I_{max} - V_{max} (72 cell Version)

Multi-Irradiance Curve for Maxima GxB 390 SM

Covered by one or more of the following U.S. patents: 7,951,640; 7,956,283; 7,960,644

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CERTIFICATION

Certified to IEC 61646, IEC 61730-01, IEC 61730-02, IEC 61701, UL 1703 and CEC (in progress), ISO 9001, ISO 14001, CE Mark, FSEC, MCS, SEC, and TUV

WARRANTY

15-year extended product warranty

97.5% power warranty first 5 years

-0.5% per year degradation for the following 25 years

PACKAGING

Modules per crate \(26\)

Crate per shipping container \(22\)

Mounting method

Rail structure runs parallel to short-side of module if in portrait mount on rooftop (1.2 m cable length)

Rail structure runs parallel to long-side of module in ground mount (1.2 m cable length)

Side View (mm)

Mid Clamp

End clamp

Retaining clip

440

1542

1985

990

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Cloud Connect Advanced

- Can connect with up to 7 GTWYs and 360 PV modules
- All Smart Modules in the same string must be assigned to the same CCA

Gateway

- Can connect up to 300 PV modules
- Maximum distance from GTWY to closest TS4: 10m (33ft)
- Maximum distance from GTWY to farthest TS$: 70m (230ft)

*Note: This system architecture overview is applicable when using TS4-L, -O, -S, and –M. TS4-F and –D does not use the GTWY, CCA or Monitoring Software
**Cloud Connect**

The Cloud Connect is the data logger and communication hub of the Tigo smart platform. It controls optimization, provides safety features, and enables module-level monitoring via the Tigo cloud. It also acts as a data logger for Modbus-equipped devices, like AC meters, weather stations, and selected inverters. The Cloud Connect is the next generation Management Unit.

- Built-in Wi-Fi
- Free iOS/Android app for monitoring and commissioning
- Easy-to-install DIN rail form factor

**Electrical Specifications**

**Electrical**
- Supply Voltage: 24VDC +/- 1VDC
- Power Consumption: Max 16W
- Power Supply: 100-240VAC
- Din Rail: Terminal Block or;
  - Socket: EU/UK/US/AU Interchangeable, 2-Pin Plug

**Capacity**
- Single Cloud Connect supports up to 360 PV Modules (In case of 2Es: 160 Optimizers)
- Single Cloud Connect supports up to 7 Tigo Gateways

**Internet Connectivity Options**
- Ethernet Interface: 10/100-BaseT
- Wireless Interface: Wi-Fi

**Mechanicals**
- Mounting Type: DIN Rail, mountable enclosure
- Dimensions: 159.5 mm x 90.2 mm x 57.5 mm (6.26" x 3.55" x 2.26")
- Weight: 0.158 kg/0.348 lb.
- Operating Temperature Range: -20 to +70°C (-4 to 158°F)
- Cooling: Natural Convection - No Fans
- Enclosure: Indoor NEMA 1

**Features**
- Safety: CE, UL1741, EN62109,-1:2010, NEC 690.12 Rapid Shutdown (Approval Pending)
- EMC: FCC Part 15,IC Canada, VCCI Japan

**Optional Accessories**
- NEMA 3R Outdoor-Rated Enclosure
- External Emergency Safety Button (ANSI/UL) Recognized

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**Gateway**

The Tigo Energy Gateway provides robust and scalable wireless communications with each smart module. This solution provides clear, concise communication with the smart modules on the array, vastly exceeding the quality of data transmission over previous powerline methods.

Each Gateway can communicate with up to 120 smart modules and easily combines with other Gateways to accommodate larger arrays.

**Electrical Specifications**

**Electrical**
- Supply Voltage: 24VDC +/- 1VDC
- Power Consumption: Max 10W
- Power Supply: 100-240VAC
- Din Rail: Terminal Block or;
  - Socket: EU/UK/US/AU Interchangeable, 2-Pin Plug

**Gateway**
- Communications with Maximizer: Wireless (802.15)
- Communication with Cloud Connect: RS-485 cable connection; in series with other Gateways
- Mounting Location: Center of array
- Mounting Method: Mounted to module frame or rack, Clips included for framemounting
- Wireless Range: 50ft (15m) line-of-sight
- Maximum Number of Modules per Gateway: 120

**Mechanical Specifications**

**Mechanical Data**
- Dimensions (W x H x D): 141.3 x 48.5 x 33.3 mm w/bracket
- Weight: 900 g (1.98 lbs.)
- Operating Temperature Range: -30°C + 70°C (-26°F + 158°F)
- Enclosure Environmental Rating: IP 65

**TS4**

**Mechanical**
- Ambient Temperature Range: -40 to +85°C (-40 to +185°F)
- Storage Temperature Range: -40 to +85°C (-40 to +185°F)
- Cooling Method: Natural Convection
- Dimensions (with cover): 152.5 x 108 x 25 mm
- Weight: 550 g (1.20 lbs.)
- Environmental Rating: IP65/67, NEMA 3R

**Cabling**
- Cabling Type: PV1-F, PV wire
- Cable Length: 1.0 m / other lengths per request
- Connector: MC4, MC4 Compatible, Amphenol, EVO2
- UV Resistance: 500 hr with UBV light between 300-400 nm @ 65°C
- Maximum String Voltage: 1000V UL
- Outer Cable Diameter: IP65/67, NEMA 3R
- Wire Cross Section: 4.0 mm² (12AWG)