COMPATIBLE WITH MOST TRINA MODULES

265-310W POWER OUTPUT RANGE

FULLY INTEGRATED SMART SOLUTION

Founded in 1997, Trina Solar is the world’s leading comprehensive solutions provider for solar energy. We believe close cooperation with our partners is critical to success. Trina Solar now distributes its PV products to over 60 countries all over the world. Trina is able to provide exceptional service to each customer in each market and supplement our innovative, reliable products with the backing of Trina as a strong, bankable partner. We are committed to building strategic, mutually beneficial collaboration with installers, developers, distributors and other partners.

Comprehensive Products And System Certificates
IEC61215/IEC61701/UL1703/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse gases Emissions Verification
OHSAS 18001: Occupation Health and Safety Management System

Safer Solar
• Panel-level disconnect to remotely deactivate modules
• Arc, fire and safety hazard mitigation

More Efficient O&M
• Panel-level monitoring to pinpoint problems
• Detailed real-time alerts and analytics

Highest Power Density
• Install more modules on any roof
• Uneven string lengths enables design flexibility

Maximized Energy Harvest
• Impedance matching technology eliminates mismatch loses
• More power from each module

Lower BOS Costs from Smart Curve Technology
• 30% lower max open circuit voltage, 30% longer strings
• Fewer combiners, fuses and copper wiring required

Fully Integrated
• Compatible with any inverter
• No additional boxes to mount on module

LINEAR PERFORMANCE WARRANTY
10 Year Product Warranty · 25 Year Linear Power Warranty

Trina solar
Trinasmart modules incorporate innovative power electronics from Tigo Energy to achieve module-level diagnostics, maximum energy harvest through module level DC power optimization, and reduction of arc, fire and safety hazards.

Integration of the module optimizer into the junction-box enables patented Smart Curve technology, which allows up to 30% longer strings and significant balance-of-system (BOS) savings.

SYSTEM ARCHITECTURE

Trinasmart system components work together with any inverter to maximize energy harvest. Trinasmart modules communicate wirelessly through the gateway, allowing users to monitor system performance in real time.

SMART CURVE TECHNOLOGY

Module-integrated Trinasmart technology reduces the open circuit voltage range for each module and allows longer strings to be designed. The maximum voltage is programmed by Trina Solar in the factory.

- Hardware voltage clamp prevents over-voltage
- Design up to 30% longer strings
- Fewer combiner boxes, fuses and wiring
CLOUD CONNECT
The cloud connect controls processes in real time and sends data to a remote server for monitoring.

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>ONE CC SUPPORTS UP TO 7 GATEWAYS, 360 TRINASMART MODULES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>Ethernet Interface</td>
</tr>
<tr>
<td>Connectivity Options</td>
<td>Wireless Interface</td>
</tr>
<tr>
<td>Electrical</td>
<td>Supply Voltage</td>
</tr>
<tr>
<td></td>
<td>Power Consumption</td>
</tr>
<tr>
<td></td>
<td>Power Supply</td>
</tr>
<tr>
<td></td>
<td>Din Rail</td>
</tr>
<tr>
<td></td>
<td>Socket</td>
</tr>
<tr>
<td>Capacity (single CC)</td>
<td>Supports to Gateway</td>
</tr>
<tr>
<td></td>
<td>Supports to Smart Modules</td>
</tr>
<tr>
<td>Mechanical Specifications</td>
<td>Mounting Type</td>
</tr>
<tr>
<td></td>
<td>Dimensions (L x W x H)</td>
</tr>
<tr>
<td></td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>Enclosure</td>
</tr>
<tr>
<td></td>
<td>Operating Temperature</td>
</tr>
</tbody>
</table>

GATEWAY
Radio transceiver that communicates with Trinasmart modules and relays data to the cloud connect.

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>ONE GATEWAY SUPPORTS UP TO 120 TRINASMART MODULES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication with modules</td>
<td>Wireless (802.15)</td>
</tr>
<tr>
<td>Communication with CC</td>
<td>RS-485 cable connection; in series with other gateways</td>
</tr>
<tr>
<td>Mounting Location</td>
<td>Center of array</td>
</tr>
<tr>
<td>Mounting Method</td>
<td>Mounted to module frame or rack clips included for frame mounting</td>
</tr>
<tr>
<td>Wireless Range</td>
<td>15m line-of-sight</td>
</tr>
<tr>
<td>Capacity (single GW)</td>
<td>120 smart modules</td>
</tr>
<tr>
<td>Mechanical Specifications</td>
<td>Dimensions</td>
</tr>
<tr>
<td></td>
<td>141.3 × 48.5 × 33.3 mm (with bracket)</td>
</tr>
<tr>
<td></td>
<td>(5.56 × 1.91 × 1.31 inches)</td>
</tr>
<tr>
<td></td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>0.9kg (2.0 lb)</td>
</tr>
<tr>
<td></td>
<td>Operating temperature range</td>
</tr>
<tr>
<td></td>
<td>-30°C ~ +70°C</td>
</tr>
<tr>
<td></td>
<td>Enclosure environmental rating</td>
</tr>
<tr>
<td></td>
<td>IP 65 rated</td>
</tr>
</tbody>
</table>

MONITORING SERVICE
Trinasmart monitoring provides total insight into the performance of any system. You can choose to upgrade online once your system is installed.

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>FREE</th>
<th>PREMIUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports</td>
<td>Monthly</td>
<td>Daily</td>
</tr>
<tr>
<td>1-min data granularity</td>
<td>current &amp; previous month</td>
<td>Full History</td>
</tr>
<tr>
<td>Full history</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Safety alerts</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Dashboard showing enviromental impact</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Trending data charts</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Performance analytics</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Ability to download</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Device Integration</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Performance alerts</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>API access</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>
THE OPTIMIZED SOLUTION

**Product Information:**
TSM-PD05.082 | 265-280W

**Power Range:**
- 265W
- 270W
- 275W
- 280W

**Safety Precautions:**
- Read safety and installation instructions before using the product.

**Electrical Data (STC):**
- **Peak Power Watts** (Wp)*: 265, 270, 275, 280
- **Power Output Tolerance** (W): 0 ~ +5
- **Maximum Power Voltage** (V): 30.8, 30.9, 31.1, 31.4
- **Maximum Power Current** (A): 8.61, 8.73, 8.84, 8.92
- **Smart Voltage Output** (V): 36.2
- **Maximum PV string current** (DC) (IM): 12.5
- **Module Efficiency** (%): 16.2, 16.5, 16.8, 17.1

**Electrical Data (NOCT):**
- **Maximum Power** (Wp): 197, 200, 204, 208
- **Maximum Power Voltage** (V): 28.5, 28.6, 28.8, 29.0
- **Maximum Power Current** (A): 6.90, 7.00, 7.09, 7.15
- **Smart Voltage Output** (V): 36.2
- **Maximum PV string current** (DC) (IM): 12.5

**Mechanical Data:**
- **Solar Cells:** Multicrystalline 156.75 × 156.75 mm (6 inches)
- **Cell Orientation:** 60 cells (6 × 10)
- **Module Dimensions:** 1650 × 992 × 35 mm (65.0 × 39.1 × 1.4 inches)
- **Weight:** 19.0 kg (41.9 lb)
- **Glass:** 3.2 mm (0.13 inches), High Transmission, AR Coated Tempered Glass
- **Backsheet:** White
- **Frame:** Black Anodized Aluminium Alloy
- **J-Box:** IP65 or IP67 rated
- **Cables:** Photovoltaic Technology Cable 4.0mm² (0.006 inches²)
  - 1000 mm (39.4 inches)
- **Connector:** MC4/UTX/MC4 EVO2

**Temperature Ratings:**
- **NOCT (Nominal Operating Cell Temperature):** 44°C (+2°C)
- **Temperature Coefficient of Pmax:** -0.41%/°C
- **Temperature Coefficient of Voc:** 0%/°C
- **Temperature Coefficient of Isc:** 0.05%/°C

**Maximum Ratings:**
- **Operational Temperature:** -40°C ~ +85°C
- **Maximum System Voltage:** 1000V DC (IEC)
- **Max Series Fuse Rating:** 15A

**Warranty:**
- 10 year Product Workmanship Warranty
- 25 year Linear Power Warranty

(Please refer to product warranty for details)

**Packaging Configuration:**
- Modules per box: 30 pieces
- Modules per 40' container: 840 pieces

**Additional Information:**
- Specifications included in this datasheet are subject to change without notice.
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- Version number: TSM_EN_2017_B
**THE OPTIMIZED SOLUTION**

**PRODUCTS & POWER RANGE**
- TSM-DD05A.082(II) 280-310W
- TSM-DD05A.052(II) 275-305W

**DIMENSIONS OF PV MODULE (mm)**

**ELECTRICAL DATA (STC)**
- Peak Power Watts-$P_{MAX}$ (Wp)*: 275, 280, 285, 290, 295, 300, 305, 310
- Power Output Tolerance-$P_{MAX}$ (W): 0 ~ ±5
- Maximum Power Voltage-$V_{MPPT}$ (V): 31.4, 31.7, 31.8, 32.2, 32.5, 32.6, 32.9, 33.1
- Maximum Power Current-$I_{SC}$ (A): 8.76, 8.84, 8.97, 9.01, 9.08, 9.19, 9.28, 9.37
- Smart Voltage Output-$V_{SC}$ (V): 37.2
- Maximum PV string current (DC)-$I_{MPPT}$ (A): 12.5
- Module Efficiency $\eta_p$ (%): 16.8, 17.1, 17.4, 17.7, 18.0, 18.3, 18.6, 18.9

**ELECTRICAL DATA (NOCT)**
- Maximum Power Voltage-$V_{MPPT}$ (V): 29.1, 29.4, 29.5, 29.9, 30.1, 30.2, 30.5, 30.7
- Maximum Power Current-$I_{SC}$ (A): 7.04, 7.10, 7.21, 7.24, 7.30, 7.38, 7.46, 7.53
- Smart Voltage Output-$V_{SC}$ (V): 37.2
- Maximum PV string current (DC)-$I_{MPPT}$ (A): 12.5

**MECHANICAL DATA**
- Solar Cells: Monocrystalline 156.75 × 156.75 mm (6 inches)
- Cell Orientation: 60 cells (6 × 10)
- Module Dimensions: 1650 × 992 × 35 mm (65.0 × 39.1 × 1.4 inches)
- Weight: 19.0 kg (41.9 lb)
- Glass: 3.2 mm (0.13 inches), High Transmission, AR Coated Tempered Glass
- Backsheet: White [DD05A.082(II)]; Black [DD05A.052(II)]
- Frame: Black Anodized Aluminium Alloy
- J-Box: IP 65 or IP 67 rated
- Cables: Photovoltaic Technology Cable 4.0mm² (0.006 inches²), 1000 mm (39.4 inches)
- Connector: MC4/UTX/MC4 EVO2

**TEMPERATURE RATINGS**
- NOCT (Nominal Operating Cell Temperature): 44°C (±2°C)
- Temperature Coefficient of $P_{MAX}$: -0.39%/°C
- Temperature Coefficient of $V_{MPPT}$: 0%/°C
- Temperature Coefficient of $I_{SC}$: 0.05%/°C

**WARRANTY**
- 10 year Product Workmanship Warranty
- 25 year Linear Power Warranty

**MAXIMUM RATINGS**
- Operational Temperature: -40 ~ +85°C
- Maximum System Voltage: 1000V DC (IEC)
- 1000V DC (UL)
- Max Series Fuse Rating: 15A

**PACKAGING CONFIGURATION**
- Modules per box: 30 pieces
- Modules per 40' container: 840 pieces

---

**Notes:**
- STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5.
- Measuring tolerance: ±3%.
- NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

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- www.trinasolar.com

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**CAUTION:** READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.
THE OPTIMIZED SOLUTION

ELECTRICAL DATA (STC)

<table>
<thead>
<tr>
<th>Peak Power Watts-P_{MPP} (Wp)*</th>
<th>265</th>
<th>270</th>
<th>275</th>
<th>280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Output Tolerance-P_{MPP} (W)</td>
<td>0 - +5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Power Voltage-V_{MP} (V)</td>
<td>30.8</td>
<td>30.9</td>
<td>31.1</td>
<td>31.4</td>
</tr>
<tr>
<td>Maximum Power Current-I_{MP} (A)</td>
<td>8.61</td>
<td>8.73</td>
<td>8.84</td>
<td>8.92</td>
</tr>
<tr>
<td>Open Circuit Voltage-V_{OC} (V)</td>
<td>37.7</td>
<td>37.9</td>
<td>38.1</td>
<td>38.2</td>
</tr>
<tr>
<td>Short Circuit Current-I_{SC} (A)</td>
<td>9.15</td>
<td>9.22</td>
<td>9.32</td>
<td>9.40</td>
</tr>
<tr>
<td>Module Efficiency η (%)</td>
<td>16.2</td>
<td>16.5</td>
<td>16.8</td>
<td>17.1</td>
</tr>
</tbody>
</table>

**TEMPERATURE RATINGS**

NOCT (Nominal Operating Cell Temperature): 44°C (±2°C)

- Temperature Coefficient of P_{MPP}: -0.41%/°C
- Temperature Coefficient of V_{OC}: -0.32%/°C
- Temperature Coefficient of I_{SC}: 0.05%/°C

**MAXIMUM RATINGS**

- Operational Temperature: -40°C to +85°C
- Maximum System Voltage: 1000V DC (IEC)
- Max Series Fuse Rating: 15A

**PACKAGING CONFIGURATION**

- Modules per box: 30 pieces
- Modules per 40' container: 840 pieces

**WARRANTY**

- 10 year Product Workmanship Warranty
- 25 year Linear Power Warranty

*Please refer to regional datasheet for specified connector.

**MECHANICAL DATA**

- Solar Cells: Multicrystalline 156.75 × 156.75 mm (6 inches)
- Cell Orientation: 60 cells (6 × 10)
- Module Dimensions: 1650 × 992 × 35 mm (65.0 × 39.1 × 1.4 inches)
- Weight: 18.6 kg (41.0 lb)
- Glass: 3.2 mm (0.13 inches), High Transmission, AR Coated Tempered Glass
- Backsheet: White
- Frame: Black Anodized Aluminium Alloy
- J-Box: IP 65 or IP 67 rated
- Cables: Photovoltaic Technology Cable 4.0mm² (0.006 inches²), 1000 mm (39.4 inches)

*Please refer to regional datasheet for specified connector.

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THE OPTIMIZED SOLUTION

ELECTRICAL DATA (STC)

<table>
<thead>
<tr>
<th>Peak Power Watts-P_{MAX}(Wp)*</th>
<th>275</th>
<th>280</th>
<th>285</th>
<th>290</th>
<th>295</th>
<th>300</th>
<th>305</th>
<th>310</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Output Tolerance-P_{MAX}(W)</td>
<td>0</td>
<td>+5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Power Voltage-V_{MPPT}(V)</td>
<td>31.4</td>
<td>31.7</td>
<td>31.8</td>
<td>32.2</td>
<td>32.5</td>
<td>32.6</td>
<td>32.9</td>
<td>33.1</td>
</tr>
<tr>
<td>Maximum Power Current-I_{MPPT}(A)</td>
<td>8.76</td>
<td>8.84</td>
<td>8.97</td>
<td>9.01</td>
<td>9.08</td>
<td>9.19</td>
<td>9.28</td>
<td>9.37</td>
</tr>
<tr>
<td>Open Circuit Voltage-V_{OC}(V)</td>
<td>38.4</td>
<td>38.4</td>
<td>38.5</td>
<td>38.9</td>
<td>39.6</td>
<td>39.8</td>
<td>40.0</td>
<td>40.2</td>
</tr>
<tr>
<td>Module Efficiency \eta_{P} (%)</td>
<td>16.8</td>
<td>17.1</td>
<td>17.4</td>
<td>17.7</td>
<td>18.0</td>
<td>18.3</td>
<td>18.6</td>
<td>18.9</td>
</tr>
</tbody>
</table>

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5.
* Measuring tolerance ±3%.

ELECTRICAL DATA (NOCT)

<table>
<thead>
<tr>
<th>Maximum Power-P_{MAX}(Wp)</th>
<th>205</th>
<th>209</th>
<th>212</th>
<th>216</th>
<th>220</th>
<th>223</th>
<th>227</th>
<th>231</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Power Voltage-V_{MPPT}(V)</td>
<td>29.1</td>
<td>29.4</td>
<td>29.5</td>
<td>29.9</td>
<td>30.1</td>
<td>30.2</td>
<td>30.5</td>
<td>30.7</td>
</tr>
<tr>
<td>Maximum Power Current-I_{MPPT}(A)</td>
<td>7.04</td>
<td>7.10</td>
<td>7.21</td>
<td>7.24</td>
<td>7.30</td>
<td>7.38</td>
<td>7.46</td>
<td>7.53</td>
</tr>
<tr>
<td>Open Circuit Voltage-V_{OC}(V)</td>
<td>35.7</td>
<td>35.7</td>
<td>35.8</td>
<td>36.2</td>
<td>36.8</td>
<td>37.0</td>
<td>37.2</td>
<td>37.4</td>
</tr>
<tr>
<td>Short Circuit Current-I_{SC}(A)</td>
<td>7.46</td>
<td>7.61</td>
<td>7.68</td>
<td>7.80</td>
<td>7.82</td>
<td>7.89</td>
<td>7.95</td>
<td>8.03</td>
</tr>
</tbody>
</table>

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

MECHANICAL DATA

- **Solar Cells**: Monocrystalline 156.75 × 156.75 mm (6 inches)
- **Cell Orientation**: 60 cells (6 × 10)
- **Module Dimensions**: 1650 × 992 × 35 mm (65.0 × 39.1 × 1.4 inches)
- **Weight**: 18.6 kg (41.0 lb)
- **Glass**: 3.2 mm (0.13 inches), High Transmission, AR Coated Tempered Glass
- **Backsheet**: White [DD05A.08U(II)]; Black [DD05A.05U(II)]
- **Frame**: Black Anodized Aluminium Alloy
- **J-Box**: IP 65 or IP 67 rated
- **Cables**: Photovoltaic Technology Cable 4.0mm² (0.006 inches²). 1000 mm (39.4 inches)
- **Connector**: MC4/UTX/MC4 EVO2 *

* Please refer to regional datasheet for specified connector.

TEMPERATURE RATINGS

- **NOCT (Nominal Operating Cell Temperature)**: 44°C (±2°C)
- **Temperature Coefficient of P_{MAX}**: -0.39%/°C
- **Temperature Coefficient of V_{OC}**: -0.29%/°C
- **Temperature Coefficient of I_{SC}**: 0.05%/°C

MAXIMUM RATINGS

- **Operational Temperature**: -40°C to +85°C
- **Maximum System Voltage**: 1000V DC (IEC)
- **Max Series Fuse Rating**: 15A

WARRANTY

- 10 year Product Workmanship Warranty
- 25 year Linear Power Warranty

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

- Modules per box: 30 pieces
- Modules per 40' container: 840 pieces

*Please refer to regional datasheet for specified connector.