

TrinaSmart

THE OPTIMIZED SOLUTION



60 CELL

MONOCRYSTALLINE MODULE

265–270W

POWER OUTPUT RANGE

16.5%

MAXIMUM EFFICIENCY

FULLY INTEGRATED SMART SOLUTION

TRINA SOLAR: A STRONG AND RELIABLE PARTNER

As a leading global manufacturer of next generation photovoltaic products, Trina Solar is committed to building mutually beneficial alliances with installers, developers, distributors and technological partners as the backbone of our shared goal to drive Smart Energy Together. Thanks to an extensive sales and service network with local expert teams throughout Europe, Trina Solar is perfectly positioned to support your needs. With Trina Solar as your strong, bankable partner you can rest assured knowing that you've made the right choice.

www.trinasolar.com



Safer Solar

- Panel-level disconnect to remotely deactivate module power
- 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 given roof
- Uneven string length enables design flexibility



Maximized Energy Harvest

- Impedance matching technology eliminates mismatch losses
- More power from each module bin



Lower BOS Costs thanks to Smart Curve Technology

- Up to 30% lower max open circuit voltage, 30% longer strings
- Fewer combiners, fuses and copper wiring required

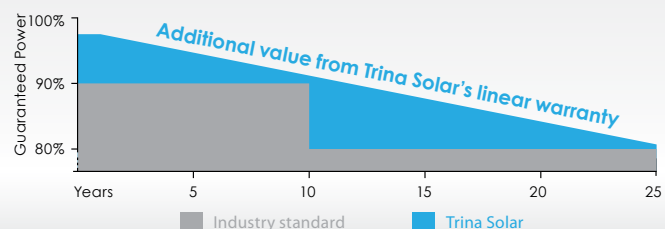


Fully Module Integrated

- Compatible with almost any inverter
- No additional boxes to mount to a module

LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty

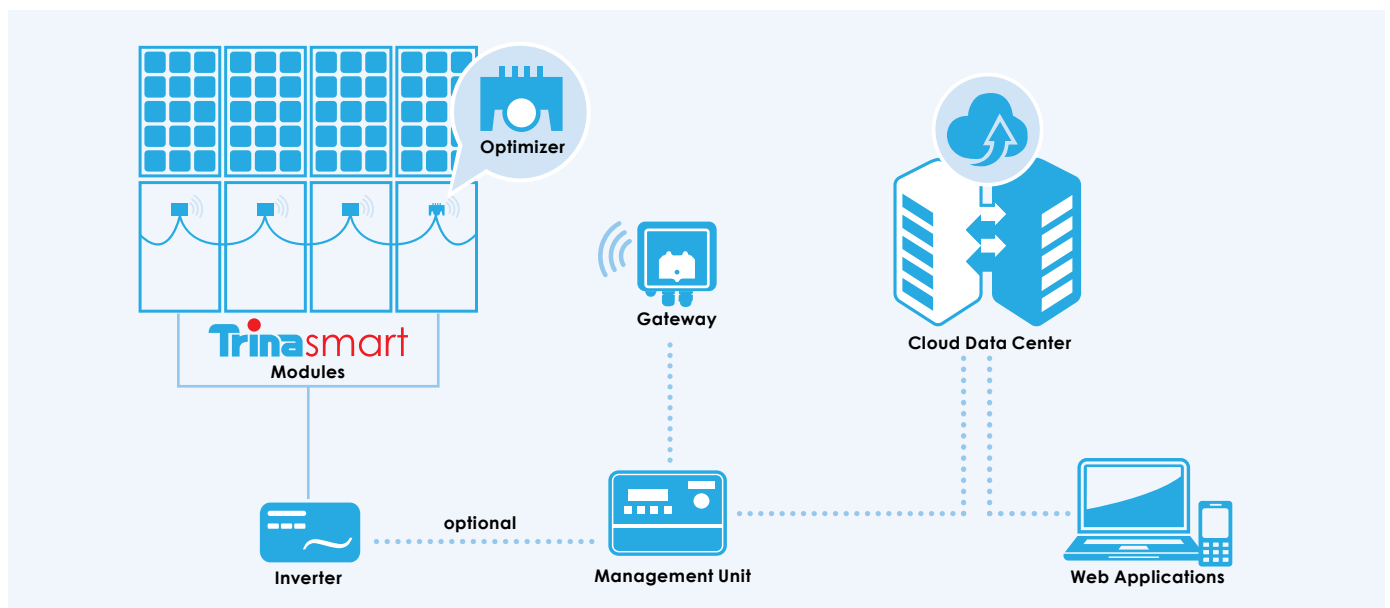


Trinasmart modules incorporate innovative power electronics from Tigo Energy to achieve module-level diagnostics, maximum energy harvest through module level DC power optimization, and reduction of arc, fire and safety hazards.

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.

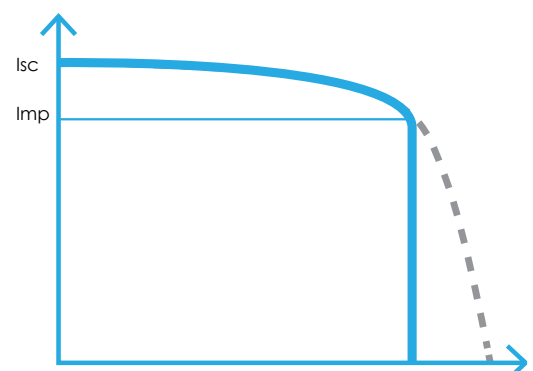


SMART CURVE TECHNOLOGY

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 at 33.4V.

- Hardware voltage clamp prevents over-voltage
- Design up to 30% longer strings
- Fewer combiner boxes, fuses and wiring
- Smaller resistance losses
- TUV & CSA certified

■ With Smart Curve ■ Without Smart Curve



MODULE MANAGEMENT UNIT (MMU)

The Management Unit controls processes in real time and sends data to a remote server for monitoring.

SPECIFICATIONS	ONE UNIT SUPPORTS UP TO 360 TRINASMART MODULES	
Communication	Data Backhaul	Ethernet (MMU to Data Center)
	On-Screen Prompts	Module (power, voltage, signal), Internet check, basic troubleshooting
	PV-Safe	Button deactivates the array at module level
	Accessories	Pull data from most meters that speak Modbus (i.e. AC Meters)
	Inverter Data	Can pull data from most inverters (SMA, Power One, Fronius, Kaco etc.)
Power	Compatibility	110 / 230V compatible converter (comes with international plugs)
Mechanical Specifications	Dimensions (L x W x H)	255.5 x 226 x 125 mm
	Weight	1 kg
	Environmental Rating	NEMA 3R rated
	Operating Temperature	0° to +70°C



Module Management Unit (MMU)
This unit manages up to 360 Trinasmart modules.

GATEWAY

The Gateway provides wireless communication with up to 120 Trinasmart modules and the MMU. Up to seven Gateways can be connected to a single MMU.

GATEWAY SPECIFICATIONS		
MMU Communications	Wireless (802.15)	
	RS-485 cable connection; in series with other Gateways	
Mounting Location	Center of array - wireless range limits distance from module	
Mounting Method	Mounted to module frame or rack Clips included for frame mounting	
Wireless Range	15m line-of-sight (can go around obstacles)	
Maximum number of Trinasmart modules per Gateway	120	
Mechanical Specifications	Dimensions	141.3 x 48.5 x 33.3 mm (with bracket)
	Weight	0.9 kg
	Operating temperature range	-30°C to +70°C
	Enclosure environmental rating	IP 65



An Internet connection and a Gateway are required for full system functionality.

The wireless communications system is FCC and CE Class 2 certified. Fixing hole comes with a M3.5X6 SST pan head screw.

MONITORING SERVICE

Trinasmart monitoring provides total insight into the performance of any system. Module-level monitoring is included free with Trinasmart. You can choose to upgrade online* once your system is installed.

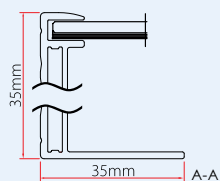
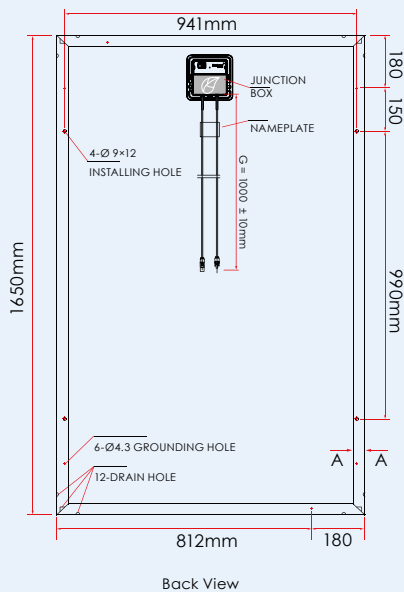


Explore the monitoring portal at www.trinasmart.com

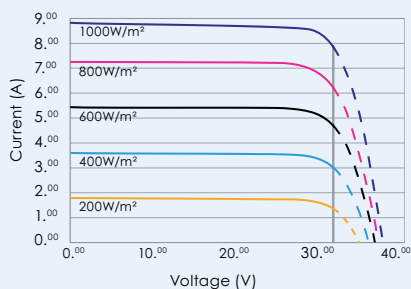
FEATURES	FREE	PREMIUM*
Reports	Monthly	Daily
1-Min Data Granularity	current & previous month	Full History
Full History	•	•
Safety Alerts	•	•
Dashboard Showing Environmental Impact	•	•
Performance Analytics		•
Trending Data Charts		•
Ability To Download		•
Device Integration		•
Performance Alerts		•
API Access		•

*PREMIUM monitoring provided by Tigo Energy

**DIMENSIONS OF PV MODULE
TSM-DC05A.082**



I-V CURVES OF PV MODULE TSM-270 DC05A.082



CERTIFICATIONS

IEC61215 /EN61215
IEC61730/EN61730
MCS BRE PV0183



ELECTRICAL DATA @ STC

	TSM-265 DC05A.082 WHITE	TSM-270 DC05A.082 WHITE
Peak Power Watts-P _{MAX} (Wp)	265	270
Power Output Tolerance-P _{MAX} (%) ¹	0/+3%	0/+3%
Maximum Power Voltage-V _{MPP} (V)	30.7	30.8
Maximum Power Current-I _{MPP} (A)	8.63	8.77
Open Circuit Voltage-V _{OC} (V) ²	33.4	33.4
Short Circuit Current-I _{SC} (A) *	9.50	9.50
Module Efficiency η _m (%)	16.2	16.5

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3
Average efficiency reduction of 4.5% at 200 W/m² according to EN 60904-1
¹ Average power delivered by modules is guaranteed to be greater than Peak Power Watts
² Trinasolar modules automatically limit the open circuit voltage
* Maximum output current of Optimizer

ELECTRICAL DATA @ NOCT

	TSM-265 DC05A.082 WHITE	TSM-270 DC05A.082 WHITE
Maximum Power-P _{MAX} (Wp)	194	201
Maximum Power Voltage-V _{MPP} (V)	28.5	28.6
Maximum Power Current-I _{MPP} (A)	6.92	7.02
Open Circuit Voltage-V _{OC} (V)	33.4	33.4
Short Circuit Current-I _{SC} (A) *	9.50	9.50

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1M/s.
* Maximum output current of Optimizer

MECHANICAL DATA

Solar Cells	Monocrystalline 156 x 156 mm
Cell Orientation	60 cells (6 x 10)
Module Dimensions	1650 x 992 x 35 mm
Weight	19.0 kg
Glass	High Transparency, Anti-Reflective, AR Coated And Heat Tempered Solar Glass - 3.2mm
Backsheet	Black (DC05A.052), White (DC05A.082)
Frame	Black Anodized Aluminium Alloy
J-Box	IP 65 rated
Cables / Connector	Photovoltaic Technology 4.0 mm ² , 1200 mm; MC4 or Amphenol Helios H4 Polarized Connectors

TEMPERATURE RATINGS

Nominal Operating Cell Temperature (NOCT) DC05A.082 / DC05A.052	44°C (±2K)
Temperature Coefficient of P _{MAX}	- 0.40%/K
Temperature Coefficient of V _{OC}	- 0%/K
Temperature Coefficient of I _{SC}	0.05%/K

MAXIMUM RATINGS

Operational Temperature	-40 to +85°C
Maximum System Voltage	1000V DC (IEC)
Max Series Fuse Rating	15A
Mechanical Load	5400pa
Wind Load	2400pa

WARRANTY

10 year Product Workmanship Warranty

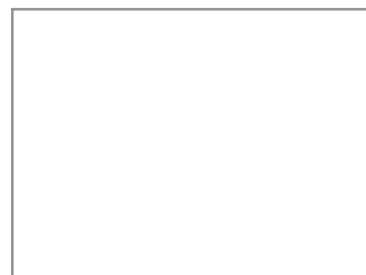
25 year Linear Performance Warranty

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 30 pieces

Modules per 40' container: 840 pieces



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