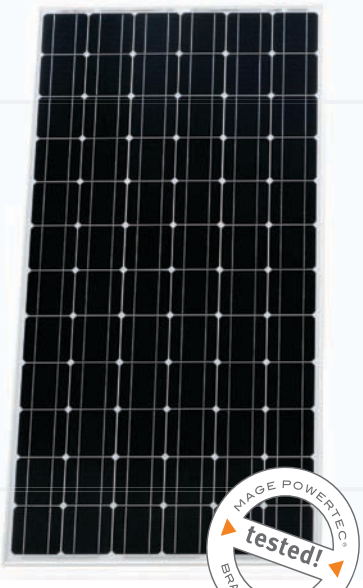
PHOTOVOLTAIC MODULES
MAGE POWERTEC® PLUS 190 / 5 MH-US



Number of Cells: 72
Solar Cell Type: monocrystalline
Power class: 190 Wp
Cell Efficiency: 17.80 %

MAGE POWERTEC® PLUS

More Power

MAGE POWERTEC® PLUS modules use a monocrystalline cell technology with a module efficiency of up to 15.27%.

Allowable tolerances of up to +5 watts guarantee maximum power without compromise. The nominal power is always obtained or even exceeded.

More Quality

The 10-year product warranty far surpasses legal requirements. MAGE POWERTEC® PLUS modules go far beyond competitors' standards with the added guarantee that they'll produce 90% of their nominal power for 12 years and 80% for 30 years. That is three full decades of reassurance.

Certifications according to the most rigorous North American and international standards guarantee maximum quality.

In addition, every MAGE POWERTEC® PLUS module passes rigorous optical, mechanical, and electrical quality controls.

More Security

Due to their engineered hollow section frame and 3.2 mm (0.13 in) special solar glass, MAGE POWERTEC® PLUS modules meet maximum demands with regard to stability and corrosion resistance. The high-quality EVA foil allows ideal embedding of the solar cells, while the weatherproof foil on the back of the modules protects against humidity.

To avoid overheating of the individual solar cells (hot-spot effect), a junction box with bypass diodes is placed on the back of the module. In addition, the extremely robust modules resist a maximum pressure of 5,400 Pa / 113 psf.

+5	WATTS POSITIVE TOLERANCES	10	YEAR PRODUCT-WARRANTY		YEAR POWER GUARANTEE 90%	30	YEAR POWER GUARANTEE 80%

MAGE GROUP

PHOTOVOLTAIC MODULES
MAGE POWERTEC® PLUS 190 / 5 MH-US

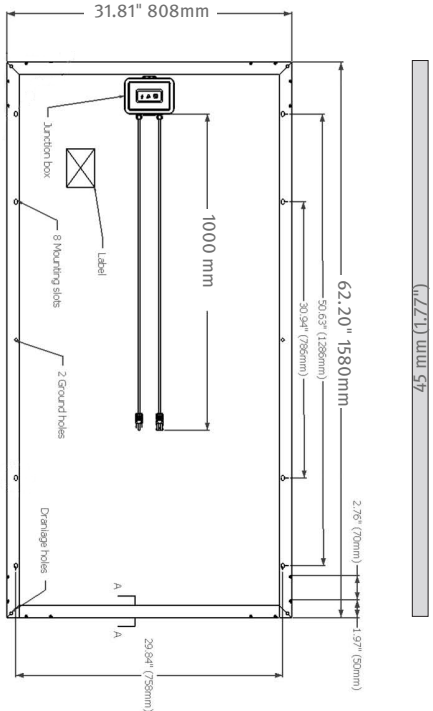
Electrical Characteristics*		190 / 5 MH-US
Maximum Power Rating	P_{max} [Wp]	190
Tolerance of P_{max}	P [Wp]	-0/+5
Maximum Power Voltage of P_{max}	U_{mpp} [V]	36.50
Maximum Power Current P_{max}	I_{mpp} [A]	5.21
Short Circuit Current	I_{SC} [A]	5.53
Open Circuit Voltage	U_{OC} [V]	45.20
Maximum System Voltage	[V]	600

* STC @ 25° C, 1000 W/m², AM 1.5
UL and CEC Pending
Values may vary

Technical Facts	190/ 5 MH-US
Number of Cells (Matrix)	72 (6 x 12)
Solar Cell Type	monocrystalline
Solar Cell Size (mm)	125 x 125
Solar Cell Size (in)	5 x 5
Dimensions [L x W x D mm]	1580 x 808 x 45
Dimensions [L x W x D in]	62.20 x 31.81 x 1.77
Weight [kg]	15.50
Weight [lbs]	34.20

Efficiency	190 / 5 MH-US
Cell [%]	17.80
Module [%]	15.27

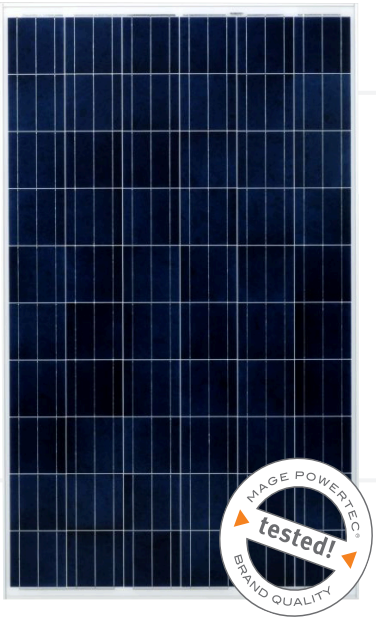
Thermal Characteristics 190 / 5 MH-US		
NOCT	[°C]	+ 48 +/- 2
Temperature Coefficient	I_{SC} [% / K]	+ 0.09
Temperature Coefficient	U_{OC} [% / K]	- 0.34
Temperature Coefficient	P_{max} [% / K]	- 0.37



German Engineering
USA Produced
"Best of both worlds"

PHOTOVOLTAIC MODULES
MAGE POWERTEC® PLUS 230 / 6 PH-US

Number of Cells: 60
Solar Cell Type: polycrystalline
Power class: 230 Wp
Cell Efficiency: 16.50 %



MAGE POWERTEC® PLUS

More Power

MAGE POWERTEC® PLUS modules use a polycrystalline cell technology with a module efficiency of up to 14.88%.

Allowable tolerances of up to +5 watts guarantee maximum power without compromise. The nominal power is always obtained or even exceeded.

More Quality

The 10-year product warranty far surpasses legal requirements. MAGE POWERTEC® PLUS modules go far beyond competitors' standards with the added guarantee that they'll produce 90% of their nominal power for 12 years and 80% for 30 years. That is three full decades of reassurance.

Certifications according to the most rigorous North American and international standards guarantee maximum quality.

In addition, every MAGE POWERTEC® PLUS module passes rigorous optical, mechanical, and electrical quality controls.

More Security

Due to their engineered hollow section frame and 3.2 mm (0.13 in) special solar glass, MAGE POWERTEC® PLUS modules meet maximum demands with regard to stability and corrosion resistance. The high-quality EVA foil allows ideal embedding of the solar cells, while the weatherproof foil on the back of the modules protects against humidity.

To avoid overheating of the individual solar cells (hot-spot effect), a junction box with bypass diodes is placed on the back of the module. In addition, the extremely robust modules resist a maximum pressure of 5,400 Pa / 113 psf.

+5	WATTS POSITIVE TOLERANCES	10	YEAR PRODUCT-WARRANTY	12	YEAR POWER GUARANTEE 90%	30	YEAR POWER GUARANTEE 80%

PHOTOVOLTAIC MODULES
MAGE POWERTEC® PLUS 230 / 6 PH-US

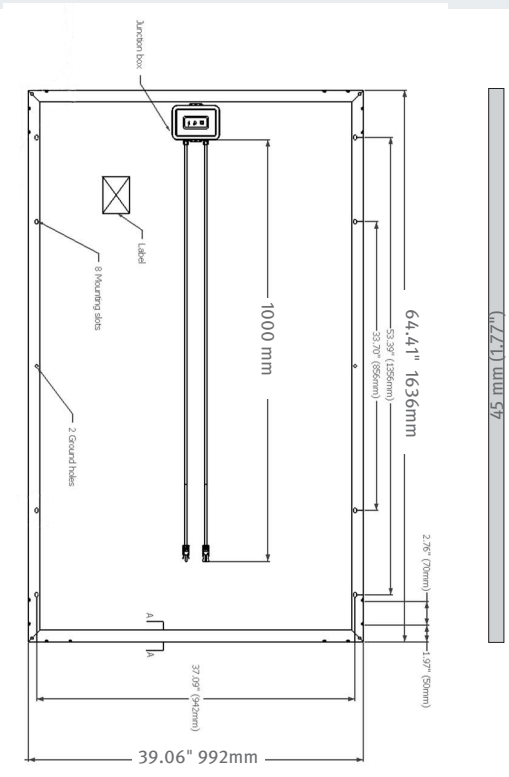
Electrical Characteristics*		230 / 6 PH-US
Maximum Power Rating	P_{max} [Wp]	230
Tolerance of P_{max}	P [Wp]	-0/+5
Maximum Power Voltage of P_{max}	U_{mpp} [V]	29.38
Maximum Power Current P_{max}	I_{mpp} [A]	7.85
Short Circuit Current	I_{SC} [A]	8.30
Open Circuit Voltage	U_{OC} [V]	36.40
Maximum System Voltage	[V]	600

* STC @ 25° C, 1000 W/m², AM 1.5
UL and CEC Pending
Values may vary

Technical Facts	230 / 6 PH-US
Number of Cells (Matrix)	60 (6 x 10)
Solar Cell Type	polycrystalline
Solar Cell Size (mm)	156 x 156
Solar Cell Size (in)	6 x 6
Dimensions [L x W x D mm]	1636 x 992 x 45
Dimensions [L x W x D in]	64.41 x 39.06 x 1.77
Weight [kg]	18.00
Weight [lbs]	39.68

Efficiency	230 / 6 PH-US
Cell [%]	16.50
Module [%]	14.88

Thermal Characteristics 230 / 6 PH-US		
NOCT	[°C]	+48 +/-2
Temperature Coefficient	I_{SC} [% / K]	+0.009
Temperature Coefficient	U_{OC} [% / K]	-0.34
Temperature Coefficient	P_{max} [% / K]	-0.37



German Engineering
USA Produced
"Best of both worlds"

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Press Release

SMA America, LLC

SMA America Delivers ARRA Compliant Sunny Boy Solar Inverters

Products from Denver Manufacturing Facility Now Meet "Buy American" Requirements

ROCKLIN, Calif., May 25, 2010–SMA America, the U.S.-based subsidiary of global solar technology leader SMA Solar Technology AG, has announced the availability of select Sunny Boy solar inverters for projects requiring compliance with the "Buy American" clause in the American Reconstruction and Reinvestment Act of 2009 (ARRA). The ARRA compliant solar inverters are available for immediate shipment.

Currently, all Sunny Boy models assembled in Denver, which include solar inverters ranging from 3,000 to 7,000 watts, are ARRA compliant.

A range of additional products will also be produced at SMA's Denver, Colo. site in the coming months and will meet the guidelines established under the Buy American clause.

During this transitional period, a portion of Sunny Boy solar inverters for the North American market will continue to be manufactured at SMA's award winning production site in Kassel, Germany. The domestically assembled, ARRA compliant solar inverters will be specially designated by a unique label. Installers and project developers requiring these specific inverters should contact their local distributors for ordering information.

"SMA is known for its innovative European design and manufacturing," said Jurgen Krehnke, president and general manager of SMA America. "With production in Denver, SMA has now paired German engineering with American assembly, setting an example for solar manufacturing in the U.S. while creating more than 700 domestic jobs."

(More)

SMA America Delivers ARRA Compliant Sunny Boy Solar Inverters

Products from Denver Manufacturing Facility Now Meet "Buy American" Requirements

Additional SMA products, including Sunny Central inverters, which span commercial and utility power classes, and off-grid Sunny Island inverters will begin to be assembled at the new Denver facility within a few weeks.

"When we selected Denver as a manufacturing site, maintaining highest quality standards was of utmost importance to SMA and that kind of performance simply could not be found in low-cost locations worldwide," added Krehnke. "In the coming months, SMA will demonstrate that the world's leading PV inverters can be cost-competitively built in the U.S., thus helping to lead the way towards a strong 'New Green Economy' in North America."

The Sunny Boy is the world's most popular line of solar inverters and features class leading efficiency and reliability; its longevity is enhanced via SMA's patented OptiCool active temperature-management system and rugged cast-aluminum outdoor-rated enclosure. Sunny Boy inverters are certified to the UL 1741/IEEE1547 standard and include a 10 year factory warranty, with the ability to extend up to 20 years.

About SMA

The SMA Group generated sales of more than sales of 934 million Euro in 2009 and is the worldwide market leader for photovoltaic inverters, a key component of all solar power plants. It is headquartered in Niestetal, near Kassel, Germany, and is represented on four continents by 13 foreign subsidiaries. The Group employs a staff of over 4,000 (incl. temporary workers). SMA's product portfolio includes the most comprehensive range of inverters on the market, offering a compatible inverter for every type of photovoltaic module and for all plant sizes. The product range covers both inverters for photovoltaic plants connected to the grid as well as inverters for off-grid systems. Since 2008, the Group's parent company SMA Solar Technology AG has been listed on the Prime Standard of the Frankfurt Stock Exchange (S92) and also in the TecDAX index. In recent years, SMA has received numerous awards for its excellence as an employer.

Media Contact:
Brad Dore • Brad.Dore@SMA-America.com
SMA America, LLC • 916 625 0870

(More)

UL Certified

- For countries that require UL certification (UL 1741/IEEE 1547)

Efficient

- 97% peak efficiency
- OptiCool™ active temperature management system

Safe

- Galvanic isolation

Simple

- Patented automatic grid voltage detection*
- Integrated DC disconnect switch

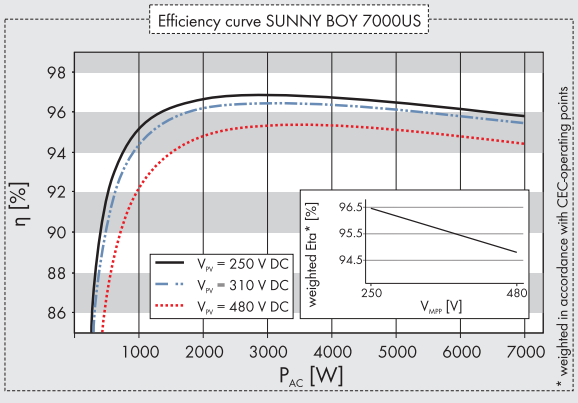
SUNNY BOY 5000-US / 6000-US / 7000-US / 8000-US

Versatile performer with UL certification

The Sunny Boy 5000-US, 6000-US, 7000-US and 8000-US inverters are UL certified and feature excellent efficiency. Graduated power classes provide flexibility in system design. Automatic grid voltage detection* and an integrated DC disconnect switch simplify installation, ensuring safety as well as saving time. These models feature galvanic isolation and can be used with all types of modules—crystalline as well as thin-film.

* US Patent US7352549B1

Technical data	Sunny Boy 5000-US			Sunny Boy 6000-US			Sunny Boy 7000-US			Sunny Boy 8000-US	
	208 V AC	240 V AC	277 V AC	208 V AC	240 V AC	277 V AC	208 V AC	240 V AC	277 V AC	240 V AC	277 V AC
Input (DC)											
Max. recommended PV power (@ module STC)	6250 W			7500 W			8750 W			10000 W	
Max. DC power (@ cos φ = 1)	5300 W			6350 W			7400 W			8600 W	
Max. DC voltage	600 V			600 V			600 V			600 V	
DC nominal voltage	310 V			310 V			310 V			345 V	
MPP voltage range	250 V – 480 V			250 V – 480 V			250 V – 480 V			300 V – 480 V	
Min. DC voltage / start voltage	250 V / 300 V			250 V / 300 V			250 V / 300 V			300 V / 365 V	
Max. input current / per string (at DC disconnect)	21 A / 20 A 36 A @ combined terminal			25 A / 20 A 36 A @ combined terminal			30 A / 20 A 36 A @ combined terminal			30 A / 20 A 36 A @ combined terminal	
Number of MPP trackers / fused strings per MPP tracker	1 / 4 (DC disconnect)										
Output (AC)											
AC nominal power	5000 W			6000 W			7000 W			7680 W	8000 W
Max. AC apparent power	5000 VA			6000 VA			7000 VA			8000 VA	
Nominal AC voltage / adjustable	208 V / ●	240 V / ●	277 V / ●	208 V / ●	240 V / ●	277 V / ●	208 V / ●	240 V / ●	277 V / ●	240 V / ●	277 V / ●
AC voltage range	183 – 229 V	211 – 264 V	244 – 305 V	183 – 229 V	211 – 264 V	244 – 305 V	183 – 229 V	211 – 264 V	244 – 305 V	211 – 264 V	244 – 305 V
AC grid frequency; range	60 Hz; 59.3 – 60.5 Hz			60 Hz; 59.3 – 60.5 Hz			60 Hz; 59.3 – 60.5 Hz			60 Hz; 59.3 – 60.5 Hz	
Max. output current	24 A	21 A	18 A	29 A	25 A	22 A	34 A	29 A	25 A	32 A	
Power factor (cos φ)	1			1			1			1	
Phase conductors / connection phases	1 / 2	1 / 2	1 / 1	1 / 2	1 / 2	1 / 1	1 / 2	1 / 2	1 / 1	1 / 2	1 / 1
Harmonics	< 4%			< 4%			< 4%			< 4%	
Efficiency											
Max. efficiency	96.7%	96.8%	96.8%	96.9%	96.8%	97.0%	97.1%	96.9%	97.0%	96.3%	96.5%
CEC efficiency	95.5%	95.5%	95.5%	95.5%	95.5%	96.0%	95.5%	96.0%	96.0%	96.0%	96.0%
Protection devices											
DC reverse-polarity protection	●			●			●			●	
AC short circuit protection	●			●			●			●	
Galvanically isolated / all-pole sensitive monitoring unit	●/–			●/–			●/–			●/–	
Protection class / overvoltage category	I / III			I / III			I / III			I / III	
General data											
Dimensions (W / H / D) in mm (in)	470 / 615 / 240 (18.5 / 24 / 9)										
DC Disconnect dimensions (W / H / D) in mm (in)	187 / 297 / 190 (7 / 12 / 7.5)										
Packing dimensions (W / H / D) in mm (in)	390 / 580 / 800 (16 / 23 / 31.5)										
DC Disconnect packing dimensions (W / H / D) in mm (in)	370 / 240 / 280 (15 / 9 / 11)										
Weight / DC Disconnect weight	64 kg (141 lb) / 3.5 kg (8 lb)									66 kg (145 lb) / 3.5 kg (8 lb)	
Packing weight / DC Disconnect packing weight	67 kg (147 lb) / 4 kg (9 lb)									69 kg (152 lb) / 4 kg (9 lb)	
Operating temperature range (full power)	–25 °C ... +45 °C (–13 °F ... +113 °F)										
Noise emission (typical)	44 dB(A)			45 dB(A)			46 dB(A)			49 dB(A)	
Internal consumption at night	0.1 W			0.1 W			0.1 W			0.1 W	
Topology	LF transformer			LF transformer			LF transformer			LF transformer	
Cooling concept	OptiCool			OptiCool			OptiCool			OptiCool	
Electronics protection rating / connection area	NEMA 3R / NEMA 3R			NEMA 3R / NEMA 3R			NEMA 3R / NEMA 3R			NEMA 3R / NEMA 3R	
Features											
Display: text line / graphic	●/–			●/–			●/–			●/–	
Interfaces: RS485 / *Bluetooth*	o/o			o/o			o/o			o/o	
Warranty: 10 / 15 / 20 years	●/o/o			●/o/o			●/o/o			●/o/o	
Certificates and permits (more available on request)	UL1741, UL1998, IEEE 1547, FCC Part 15 (Class A & B). CSA C22.2 No. 107.1-2001										
NOTE: US inverters ship with gray lids.											
Data at nominal conditions											
● Standard features o Optional features – Not available											
Type designation	SB 5000US			SB 6000US			SB 7000US			SB 8000US	



Accessories

RS485 interface
485USPB-SMC-NR

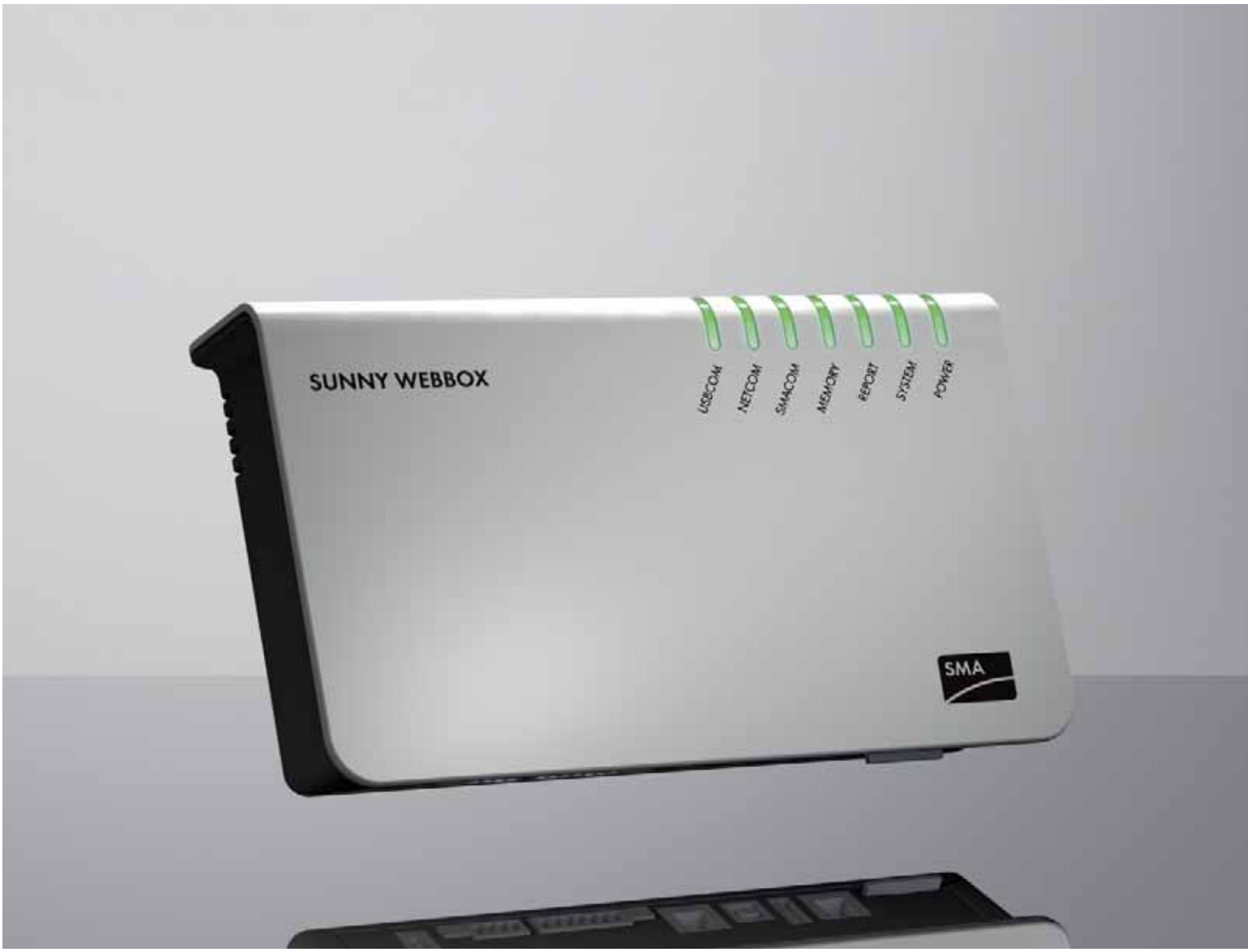
Bluetooth® Piggy Back
BTPBINV-NR

Combi-Switch
DC disconnect and PV array combiner box
COMBO-SWITCH

Combiner Box
Simplify wiring for added convenience and safety
SBCB-6-3R or SBCB-6-4

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC



- System access from any Web browser - anywhere in the world
- Recording of daily, monthly and annual energy yield via Sunny Portal

- Remote plant diagnosis
- Remote system configuration
- Automatic data transfer at chosen intervals

- Data storage and display via Ethernet
- Compatible with all SMA utility interactive inverters

- Low power consumption
- Automated communication with Sunny Portal

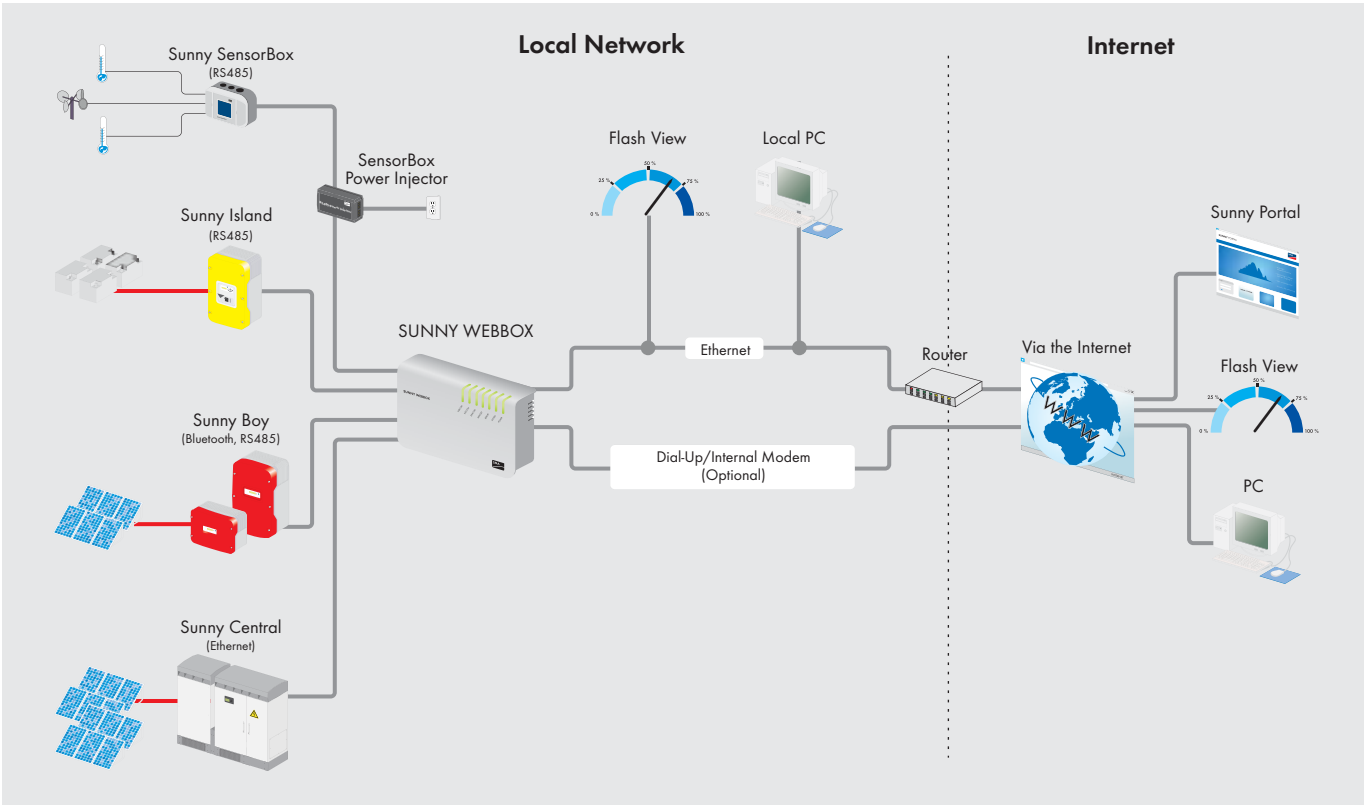
SUNNY WEBBOX

Web-enabled data logging and control

The Sunny WebBox is a powerful communications tool that allows the performance data of your solar power system to be logged and easily transmitted via modem or Ethernet to the internet or directly to your PC. It can also send the data to SMA's internet portal (Sunny Portal), which provides free long-term data storage and graphical display of your system's performance data. Collected information is stored in common file formats so that it can be used in various spreadsheets, graphs or your own web site. The Sunny WebBox is extremely versatile, making the storage, transmission, management and display of your system data easier than ever before.

Technical Data

	Sunny WebBox
Inverter Communication	RS485 (up to 50 inverters, max. 4000 ft. cable) Ethernet (only Sunny Central Communication)
Modem for Sunny Portal Interface (optional)	internal analog modem
Ethernet Interface	10 / 100 MB, connection to LAN, Sunny Portal
SD Card Data Storage	up to 2 GB
Status Display	integrated LEDs
Power Supply	115 - 230 V, 50 / 60 Hz
Plug-In Power Consumption	typ. 4 W / max. 12 W
Operating Ambient Temperature	-4 to 131° F
Operating Relative Air Humidity	5% to 95%
Dimensions: W x H x D in inches	8.85 x 2.25 x 5.11
Weight	1.65 lbs
Installation Options	wall mounting, tabletop device



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Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

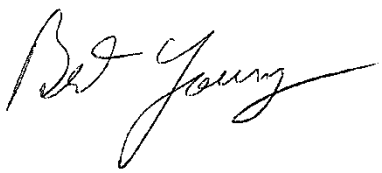
Manufacturer's Certification Statement

(For the American Recovery and Reinvestment Act of 2009)

SolarEdge Technologies, Inc. certifies that the following products qualify as "Solar Electric Property" as defined in §25D of the Internal Revenue Code and the American Recovery and Reinvestment Act of 2009.

SolarEdge Technologies, Inc.	**Standard Part Number**
US Single Phase Inverters	
Inverter 1PH 3.3kW Ethernet/RS485	SE3300-ER-US
Inverter 1PH 3.8kW Ethernet/RS485	SE3800-ER-US
Inverter 1PH 4kW Ethernet/RS485	SE4000-ER-US
Inverter 1PH 5kW Ethernet/RS485	SE5000-ER-US
Inverter 1PH 6kW Ethernet/RS485	SE6000-ER-US
SolarEdge Power Box	
Power Box AOB 250W (1x1) with IN=Huber-Suhner	PB250-AOB-HR4CUS, PB250-AOB-4S3CUS
Power Box AOB 250W (1x1) with IN=MC4	PB250-AOB-4S4CUS, PB250-AOB-4S3CUS
Power Box AOB 250W (1x1) with IN=Tyco	PB250-AOB-TR4CUS, PB250-AOB-4S3CUS
Power Box AOB 350W (1x1) with IN=MC4	PB350-AOB-4S4CUS
Combiner Boxes	
DC Disconnect for Inverter 1PH US	DCD-1PH-US

Under the Penalties of perjury, I declare that I have examined this certificate statement and to the best of my knowledge and belief, the facts presented are true, correct and complete.



Bret Young
National Sales Manager
SolarEdge Technologies, Inc.

solaredge

SolarEdge Single Phase Inverters (North America)

The only inverters specially designed for distributed DC architecture

- Superior efficiency (97.5%)
- Small, lightweight and easy to install
- Built-in module-level monitoring
- Communication to internet via Ethernet or Wireless
- Outdoor and indoor installation

architects of energy™

Single Phase Inverters

SE3300US/SE3800US/SE5000US/SE6000US

All our inverters are part of SolarEdge's innovative system designed to provide superior performance at a competitive price.

The SolarEdge inverter combines a sophisticated, digital control technology and a one stage, ultra-efficient power conversion architecture to achieve superior performance – over 97% efficiency and best-in-class reliability. Our fixed-voltage technology ensures the inverter is always working at its optimal input voltage, regardless of the number of modules or environmental conditions.

A proprietary data monitoring receiver is integrated in the inverter and aggregates SolarEdge PowerBox performance data from each PV module. Multiple inverters can be connected in an RS485 bus or using a wireless Zigbee MESH network. The data from the inverters is transmitted to the web using an Ethernet connection or a wireless link and can be accessed via the SolarEdge Monitoring Portal for performance analysis, fault detection and troubleshooting.

The inverter comes with an AC/DC safety switch and is light enough for a single person to install on a supplied bracket.

TECHNICAL DATA

	SE3300US	SE3800US	SE5000US	SE6000US	
OUTPUT					
Rated AC Power Output	3300	3800	5000	6000	W
Maximum AC Power Output	3300	3800	5000	6000	W
AC Output Voltage (Nominal)	208 / 240				Vac
AC Output Voltage Range	183 - 228.8 / 211.2-264				Vac
AC Frequency (Nominal)	60 ± 5				Hz
Maximum Continuous Output Current 208V Grid	17.5	20	26	-	A
Maximum Continuous Output Current 240V Grid	15	16	23	26	A
GFDI	1				A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes				
INPUT					
Recommended Maximum DC Power* (Module STC)	3500	4000	5500	6200	W
Transformer-less, Ungrounded	Yes				
Maximum Input Voltage	500				Vdc
Nominal DC Input Voltage	325 @ 208V / 350 @ 240V				Vdc
Maximum Input Current	13	15.5	20	23	Adc
Reverse-Polarity Protection	Yes				
Ground-Fault Isolation Detection	600 kΩ Sensitivity				
Maximum Inverter Efficiency	97.6				%
European Weighted Efficiency	97.2	97.3	97.2	97.1	%
CEC Weighted Efficiency	97 @ 208V / 97.5 @ 240V				%
Nighttime Power Consumption	< 2.5				W
STANDARD COMPLIANCE					
Safety	UL1741, IEC-62103 (EN50178), Draft IEC-62109				
Grid Connection Standards	NEC, VDE 0126-1-1, AS-4777, RD-1663 , DK 5940, IEEE1547				
Emissions	FCC part15 class B, IEC61000-6-2, IEC61000-6-3, IEC61000-3-11, IEC61000-3-12				
RoHS	Yes				
INSTALLATION SPECIFICATIONS					
AC Output	3/4" Metal Conduit				
DC Input	3/4" Metal Conduit				
Dimensions (HxWxD)	27.5 x 12.5 x 7.5 / 540 x 315 x 191				in / mm
Weight	52 / 23				lb / kg
Cooling	Natural Convection				
Operating Temperature Range	-4 - +120 / -20 - +50				˚F / ˚C
Protection Rating	NEMA 3R				
Bracket Mounted (Bracket Provided), Integral AC/DC Safety Switch					

* Higher input DC power may be installed; analyze yearly AC performance.

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Germany Bretonischer Ring 18, 85630 Grasbrunn (Munich), Germany
Japan B-9 Ariake Frontier Building, 3-7-26 Ariake, Koto-Ku, Tokyo 135-0063, Japan
Israel 6 HaHarash St. P.O.Box 7349, Neve Neeman, Hod Hasharon 45240, Israel

www.solaredge.com

solaredge
architects of energy™

solaredge

SolarEdge PowerBox™
Module Embedded Solution

A superior approach to maximizing the throughput of photovoltaic systems using module embedded electronics

- Up to 25% increase in power output
- Simple, error-free system design & installation
- Next generation maintenance with module-level monitoring and smart alerts
- Unprecedented installer and firefighter safety

- **Embedded into any module as a certified junction box**
- **Faster installation, less wiring and better roof utilization**
- **Advanced theft prevention**

architects of energy™

SolarEdge PowerBox™
Module Embedded Solution

PB250-CSI
PB350-CSI

HIGHLIGHTS

- Up to 4 sub-string inputs with bypass diodes
- Removes manufacturer limitations - no more temperature variance, cell mismatch and manufacturing variations
- Module-level monitoring - for easy module and string level fault detection with no added wiring
- Immediate installation feedback for quick commissioning
- Unprecedented installer and firefighter Safety Mode - safe module voltage when inverter is disconnected or off
- Module embedded SolarEdge solution - part of SolarEdge's patented Smart-DC system
- Easy no constraint installation – use the same installation methods as exist today with all the SolarEdge added benefits
- Panel level MPPT - optimizes each panel separately
- Theft prevention feature – modules are immobilized if stolen
- Enables manufacturers to design and deliver a system per customer with speed and efficiency
- Customer specific adaptations and solutions

TECHNICAL DATA

INPUT		
Rated Input DC Power	250/350	W
Absolute Maximum Input Voltage (Voc)	68	Vdc
MPPT Operating Range	5 - 65	Vdc
Maximum Input Current	14	Adc
Reverse-Polarity Protection	Yes	
Maximum Efficiency	98.6	%
European Weighted Efficiency	97.8	%
CEC Weighted Efficiency	97.7	%
Inductive Lightning Protection	1 / 3	m / ft
Nighttime Power Consumption	0	W
OUTPUT DURING OPERATION (POWERBOX CONNECTED TO OPERATING INVERTER)		
Maximum Output Current	16.4	Adc
Operating Output Voltage	5 - 60	Vdc
Total Maximum String Voltage (Controlled by Inverter) - US and EU 1-ph	550	Vdc
Total Maximum String Voltage (Controlled by Inverter) - EU 3-ph	950	Vdc
OUTPUT DURING STANDBY (POWERBOX DISCONNECTED FROM INVERTER OR INVERTER OFF)		
Safety Output Voltage per PowerBox	1	Vdc
PV SYSTEM DESIGN		
Minimum String Length	8 (1ph system) / 15 (3ph system)	modules
Maximum String Length	module power dependant; typically 20 - 25 (1ph system) / 45 - 55 (3ph system)	modules
Parallel Strings of Different Lengths or Orientations	Yes	
STANDARD COMPLIANCE		
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3	
Safety	UL1741, IEC-62103 (class II safety), IEC61730	
Material	UL-94 (5-VA), UV Resistant	
RoHS	Yes	
INSTALLATION SPECIFICATIONS		
Dimensions (WxLxH)	200x141x25 / 7.9x5.6x1	mm / in
Weight	700 / 1.5	g / lb
Operating Temperature Range	-40 - +65 / -40 - +150	˚C / ºF
Protection Rating	IP65 Outdoor Use / NEMA 3R	
Relative Humidity	0 - 100	%

*CSI PowerBox warranty will not extend beyond the warranty period of the module in which it is embedded.

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SolarEdge
Monitoring Combiner Box with GFDI

Ensure field operation with maximum safety

- Outdoor string combiner box, ETL listed according to UL1741
- Fuse per input (replaceable)
- Web-based string performance monitoring
- Per string ground fault detection and automatic isolation
- Automatic self-testing of main components
- Communication to monitoring web server via Zigbee, RS485 or Ethernet
- Remote control of cabinets from web server
- NEMA 4 - Outdoor installation (NEMA 4X optional)

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Monitoring Combiner Box with GFDI

MCB16
MCB36
MCB64

The SolarEdge Monitoring Combiner Box with GFDI allows you to enjoy a high level of system performance monitoring and exceptional system safety. The box comes in three sizes, for up to 16, 36 or to 64 strings.

The box detects string leakage and isolates the faulty string, ensuring other strings are not affected, and immediately provides on-site and web indication as well as email fault notification. Additionally the detection and isolation components are continuously monitored and an alert is sent in case of a fault, promising an uninterrupted detection system.

The box includes built in fuses that meet the US string fusing requirements, eliminating the need for additional fuses.

TECHNICAL DATA

	MCB16	MCB36	MCB64	
ELECTRICAL SPECIFICATIONS				
Maximum Number of inputs	16	36	64	
Maximum Input Voltage	600			Vdc
Maximum Input Current (Per String)	8			Adc
Fuse Rating Per Input	12			A
Maximum Output Current	128 (1 output)	288 (1 output)	512 (2 outputs)	Adc
AC Voltage Rating	90 - 240, compatible with all US AC voltage conditions			Vac
AC Frequency (Nominal)	50 / 60			Hz
Power Consumption	< 50	< 120	< 200	W
GROUND FAULT DETECTION AND ISOLATION				
Threshold Range (Programmable)	50 - 400			mA
Detection Resolution	± 10			mA
Time From Leakage Detection to String Isolation	< 750			msec
MONITORING AND FAULT DETECTION CAPABILITIES				
Instantaneous String Current	Yes, ± 5% accuracy			A
Output Voltage	Yes, ± 5% accuracy			V
Continuous String Charge	Yes, ± 5% accuracy			Wh
Ground Leakage Detection and Isolation	Optional			
Leakage Sensor and String Circuit Breaker Monitoring	Optional			
Combiner Box-Web Communications (Data and Control)	Yes			
Web Portal, Email Notification and Logging in Case of Leakage, Sensor Fault and Breaker Fault	Optional			
Graphic User Interface for Configuration, Monitoring and Control	Yes, on-site via technician laptop			
ADDITIONAL FEATURES				
Display	LCD and LED for full status review			
On-site Master Shutdown	Yes			
Input Lightning Protection (Per String)	Yes - 600 Vdc / 8kA - 8/20 µs			
Output Lightning Protection (Per Cabinet)	Yes - 600 Vdc / 20kA - 8/20 µs			
Supported Communication Interfaces	RS485, RS232, Ethernet, ZigBee (optional)			
STANDARD COMPLIANCE				
Electromagnetic Compatibility	FCC Part15 Class B			
Safety	UL1741			
INSTALLATION SPECIFICATIONS				
Dimensions (HxWxD)	42x12x36	42x12x36	60x12x36	in
Weight	160	230	375	lb
Operating Temperature Range	-4 - +104			°F
Protection Rating	NEMA 4X optional			
Relative Humidity	0 - 100			%
Wiring Temperature Rating	165			°F
Input Wiring Gauge	8 - 14	8 - 14	10 - 14	AWG
Output Wiring Gauge	1/0 AWG - 350 kcmil	1/0 AWG - 500 kcmil		
Material	14 gauge steel with polyester powder paint			
Storage Temperature Range	-4 - +140			°F
Storage Humidity Range	0 - 95			%

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The MAGE Industrie Holding AG combines expertise in the area of renewable energies with high-quality roof engineering and innovative fastening and mounting solutions. The T.R.A.-MAGE company—as a member of the MAGE GROUP—consistently implements these synergies in the photo voltaic and solar thermal sector.

And because we are a worldwide company with a far-reaching network of production and development companies, you can trust that the T.R.A-MAGE TEGRA line subscribes to strict USA quality standards while also being easy-to-use for both commercial and household installations.

CONNECTING TO ENERGY

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The T.R.A.-MAGE manufacturing plant located in the heart of the Rocky Mountains, American Fork, Utah, USA.

T.R.A.-MAGE develops, produces and sells high-quality mounting and fastening systems for photo voltaic modules and solar thermal collectors. Using our exclusive MAGE TEGRA LINE you can create a solid foundation for any solar system on sloped roofs, flat roofs, open areas and façades.

With an international production, service and distribution network at its core, T.R.A.- MAGE gives you access to a seamless supply chain like no other manufacturer can. From aluminum extrusion and finishing to powder-coating zinc plated steel, to structural calculations and a complete fastening system, we do it all.

Visit our website to try out our estimating calculator or call our experienced team of experts. They are there to support you in the planning and development of all of your solar projects.

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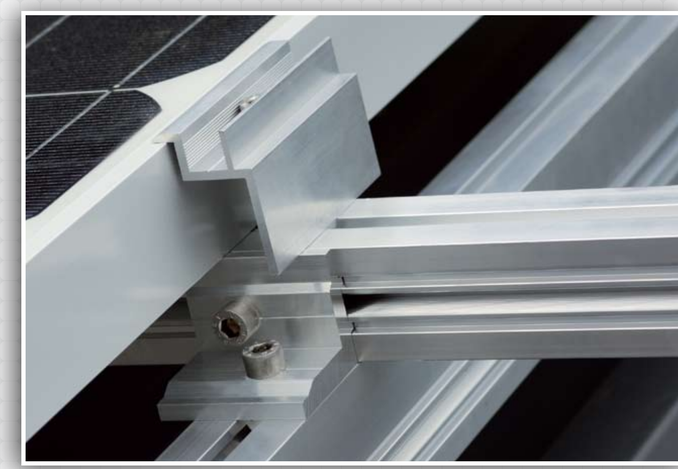

SOLAR MOUNTING: SLOPED ROOF SYSTEMS

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T.R.A.-MAGE: THE PERFECT FOUNDATION FOR SOLAR SYSTEMS

When it comes right down to it, a solar system is only as good as its mounting structure. That's why when you need the highest quality roof mounting accessories and fastening systems, you turn to T.R.A.-MAGE.

Built to last. Built to be reliable. Each and every component in our MAGE TEGRA LINE creates a perfect foundation for your solar systems.

- Online project estimator that provides estimated cost, layout drawing, and engineering reports for your mounting system, find it at www.solarmountestimator.com
- Highly weatherproof + water-tight = roof warranty is maintained
- Easy to install, self threaded rails with one type of screw — only one tool necessary
- A proprietary worksheet to determine the best system for you
- Patented fastener systems are easy to use and safe
- Components are recyclable
- Customized solutions based on your needs
- Free itemized quotes
- Innovative system solutions for any solar mounting configuration—from on-roof to flat roof set ups

PRODUCTS BY CATEGORIES

ON TEGRA

Roof Mounts for most standard roof types

- 3 different Standard Roof Mount types for asphalt shingle, simulated slate, wood shake, wood shingle, and similar roof types.
- Designed for exceptional strength and durability
- Specified for use in conjunction with Simpson SDS fasteners providing the benefits of high strength, no pre-driling, and ease of installation
- Choose from mill finish or powder-coated aluminum to match roof
- Online project estimator that provides estimated cost, layout drawing, and engineering report for your mounting system, find it at www.solarmountestimator.com
- All components are in compliance with DIN 1055 & ASCE 7-05, ICBO and CEC

Flashing for Roof Mounts for most standard roof types

- Aluminum step flashing for water proofing maintains manufacturer's roofing product warranty
- Flashing is available in mill finish or powder-coated aluminum to match roof
- Flashing can be used on asphalt shingle, simulated slate, wood shake, wood shingles and more.
- Variable length to provide the best defence against water infiltration

Roof Mounts for Flat and Profiled Tile Roofs

- No cutting of tile body required, hook passes through the head lap
- Slotted holes and a wide base for maximum adjustability when mounting to the roof structure
- Waterproof system, maintains manufacturer's roofing product warranty
- Adjustable height for single, counter or elevated batten system
- Choose from mill finish or powder-coated aluminum to match roof

Flex Flashing for Waterproofing Roof Hooks

- Flex Flash for waterproofing the underlayment
- Easy to use, cut to size with a utility knife
- Self adhesive on back—no messy glue

Clamp for Mounting to Standing Seam Metal Roof

- Mounted directly to rib
- Designed to fit all rail systems
- Non penetrating
- Superior attachment strength
- For use with or without rails
- Powder coated, zinc plated steel

PRODUCTS BY CATEGORIES

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Mounting Rails

- Patented design for increased strength and ease of installation
- Threaded screw channel allows quick attachment to mount
- Two sizes available: 22x65mm and 40x60mm
- Superior grounding properties
- Polypropylene End Caps to protect against the elements

End Clamps for Mounting Solar Panels

- Choose from mill finish or powder-coated aluminum to match roof
- Designed to fit all rail systems
- Quick and easy to mount
- Various heights for use with most solar modules (35-55mm)

Middle Clamps for Mounting Solar Modules

- Made for use with patented solar rail system
- Corrosion-resistant materials
- Quick and easy to mount
- Designed for us with all solar modules
- Designed for use with WEEB grounding components

Sliding Block for Mounting Solar Modules

- Made for use with patented solar rail system
- Quick and easy, insert anywhere
- Designed for all rail profiles
- Adjust easily by sliding along rail

Solar Mount Estimation Tool

- Design your project in 6 easy steps
- Receive immediate estimate for your project
- Saves all your project information
- Provides layout drawing and engineering report
- All information downloadable for your files

One Tool Assembly

- Patented Fastener system
- Efficient
- Every bolt is installed with a 6mm Allen wrench
- Bolts are easily accessible
- Rail is uniform to fit all brackets, mounts and clamps

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