

Next Innovations 2012





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This catalog on new product releases contains all innovations from the area of residential and commercial PV plants, PV power stations, off-grid system solutions and monitoring systems. In particular, you will find all new products that have been available since the beginning of 2012 and those scheduled to be launched later this year.



Sunny Family 2012

In this catalog you will find all products and services necessary for planning and designing residential and commercial PV plants, PV power stations and off-grid system solutions. This includes all Sunny Boy, Sunny Mini Central and Sunny Tripower inverters as well as all central inverters, monitoring systems and Sunny Backup products.

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ECONOMIC EXCELLENCE

Economical

- Maximum efficiency 98.5 %
- SMA OptiTrac MPP tracking for best MPP tracking efficiency
- Active temperature management with OptiCool
- Bluetooth communication

Simple

- Three-phase grid feed-in
- Cable connection without tools
- SUNCLIX DC plug-in system

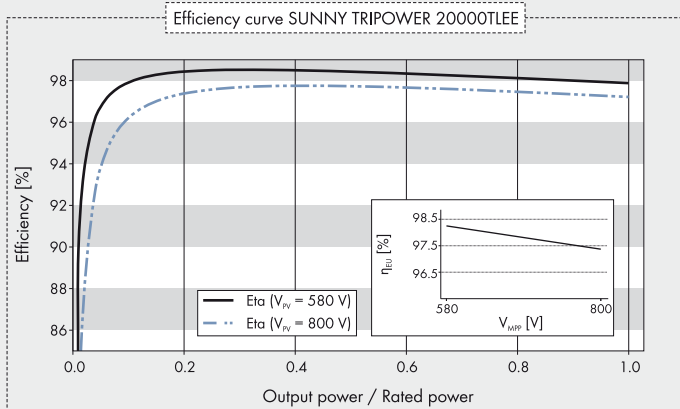
Flexible and future-proof

- DC input voltage up to 1 000 V
- Integrated grid management functions
- Reactive-power capable

SUNNY TRIPOWER 15000TL / 20000TL ECONOMIC EXCELLENCE

The expert cost saver for high-yield, commercial plants

Peak performance and technological perfection at a significantly reduced specific price: the new Sunny Tripower TL Economic Excellence is the next logical step in the development of the Sunny Tripower series in terms of achieving an optimum price-performance ratio. On the one hand, it brings with it a considerable reduction in investment costs, while on the other hand guaranteeing exceptionally high yields with an efficiency of 98.5 %. Hence, the Sunny Tripower TL Economic Excellence is the ideal solution for uniformly structured PV plants on the medium to very large scale. The focus is on the essentials and meets all requirements, including reactive power provision, grid support, and grid management integration.



Accessories



RS485 interface
DM-485CB-10



Webconnect interface
with WEBCONDM-10
speedwire function



Interface to speedwire
fieldbus SPWDM-10



Multi-function relay
MFRO1-10

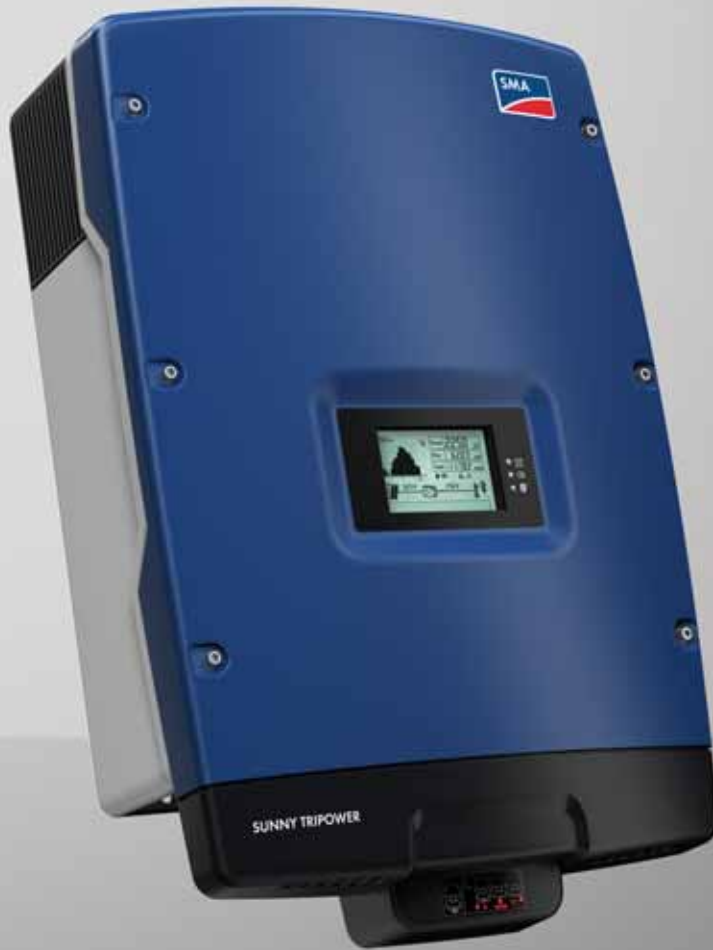
¹ Does not apply to all national appendices of EN 50438

Preliminary information – last updated: March 2012

● Standard feature ○ Optional feature – Not available

Data at nominal conditions

Technical data	Sunny Tripower 15000TL	Sunny Tripower 20000TL
Input (DC)		
Max. DC power (@ cos φ = 1)	15260 W	20450 W
Max. input voltage	1000 V	1000 V
MPP voltage range @ 230 V line voltage	580 V – 800 V	580 V – 800 V
Min. input voltage / initial input voltage	570 V / 620 V	570 V / 620 V
Max. input current	36 A	36 A
Max. input current per string	36 A	36 A
Number of independent MPP inputs / strings per MPP input	1 / 6	1 / 6
Output (AC)		
Rated output power (@ 230 V, 50 Hz)	15000 W	20000 W
Max. apparent AC power	15000 VA	20000 VA
AC nominal voltage	3 / N / PE, 230 V / 400 V	3 / N / PE, 230 / 400 V
Nominal AC voltage range	160 V – 280 V	160 V – 280 V
AC power frequency / range	50 Hz, 60 Hz / -6 Hz ... +5 Hz	50 Hz, 60 Hz / -6 Hz ... +5 Hz
Rated power frequency / rated grid voltage	50 Hz / 230 V	50 Hz / 230 V
Max. output current	24 A	29 A
Power factor at rated power	1	1
Adjustable displacement power factor	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited
Feed-in phases / connection phases	3 / 3	3 / 3
Efficiency		
Max. efficiency / European weighted efficiency	98.5 % / 98.3 %	98.5 % / 98.2 %
Protective devices		
DC-side disconnection device	○	○
Ground fault monitoring / grid monitoring	● / ●	● / ●
DC surge arrester type II	–	–
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	● / ● / –	● / ● / –
All-pole-sensitive residual-current monitoring unit	●	●
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	I / III
General data		
Dimensions (W / H / D)	665 / 680 / 265 mm (26.2 / 26.8 / 10.4 inch)	665 / 680 / 265 mm (26.2 / 26.8 / 10.4 inch)
Weight	45 kg / 99.2 lb	45 kg / 99.2 lb
Operating temperature range	-25 °C ... +60 °C / -13 °F ... +140 °F	-25 °C ... +60 °C / -13 °F ... +140 °F
Noise emission (typical)	51 dB(A)	51 dB(A)
Self-consumption (night)	1 W	1 W
Topology / cooling concept	Transformerless / OptiCool	Transformerless / OptiCool
Degree of protection: electronics / connection area (according to IEC 60529)	IP65 / IP54	IP65 / IP54
Climatic category (according to IEC 60721-3-4)	4K4H	4K4H
Max. permissible value for relative humidity (non-condensing)	100 %	100 %
Features		
DC connection	SUNCLIX	SUNCLIX
AC connection	Spring clamp terminal	Spring clamp terminal
Display	Graphic	Graphic
Interfaces: RS485 / Bluetooth / multi-function relay	○ / ● / ○	○ / ● / ○
Interfaces: Webconnect / speedwire	○ / ○	○ / ○
Warranty: 5 / 10 / 15 / 20 / 25 years	● / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○
Certificates and approvals (more available on request)	CE, VDE0126-1-1, RD 661/2007, PPC, AS 4777, EN 50438 ¹ , C10/11, PPDS, UTE C15-712-1, G59/2, VDE-AR-N 4105, BDEW 2008, RD1699	CE, VDE0126-1-1, RD 661/2007, PPC, AS 4777, EN 50438 ¹ , C10/11, PPDS, UTE C15-712-1, G59/2, VDE-AR-N 4105, BDEW 2008, RD1699
Certificates and approvals (planned)	CEI 0-21	CEI 0-21
Type designation	STP 15000TLEE-10	STP 20000TLEE-10



Economical

- Maximum efficiency of 98.1 %
- Shade management with OptiTrac Global Peak
- Active temperature management with OptiCool

Flexible

- DC input voltage up to 1.000 V
- Integrated grid management functions
- Reactive power supply
- Module-tailored plant design with Optiflex

Communicative

- SMA Webconnect communication to Sunny Portal
- *Bluetooth* communication
- Simple country configuration
- Multi-function relay included

Simple

- Three-phase grid feed-in
- Cable connection without tools
- SUNCLIX DC plug-in system
- Integrated ESS DC switch-disconnector
- Easy wall mounting

SUNNY TRIPOWER 5000TL / 6000TL / 7000TL / 8000TL / 9000TL

The three-phase inverter for your home

At home with cutting-edge technology and top yields: The Sunny Tripower PV plant with 5 to 9 kW of power is setting new standards for private PV plants. It features an asymmetric multi-string and Optiflex technology to ensure the highest in flexibility while combining peak efficiency with OptiTrac Global Peak to generate the highest in yields. In addition to communication via the external *Bluetooth* antenna, the PV plant comes with a direct Sunny Portal connection via SMA Webconnect as standard – and now for the first time without data loggers. The “small” Sunny Tripower also comes with integrated grid management functions and reactive power supply.

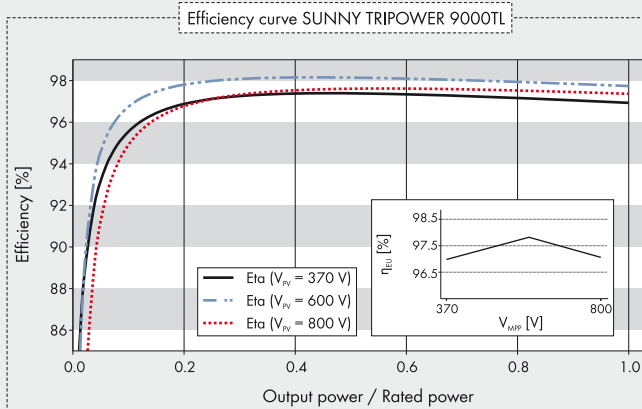


Lyon, France

SUNNY TRIPOWER

5000TL / 6000TL / 7000TL / 8000TL / 9000TL

Technical data	Sunny Tripower 5000TL	Sunny Tripower 6000TL
Input (DC)		
Max. DC power (@ $\cos \varphi = 1$)	5100 W	6125 W
Max. input voltage	1000 V	1000 V
MPP voltage range / rated input voltage	245 V ... 800 V / 600 V	295 V ... 800 V / 600 V
Min. input voltage / initial input voltage	150 V / 188 V	150 V / 188 V
Max. input current input A / input B	11 A / 10 A	11 A / 10 A
Max. input current per string input A / input B	11 A / 10 A	11 A / 10 A
Number of independent MPP inputs / strings per MPP input	2 / A:2; B:2	2 / A:2; B:2
Output (AC)		
Rated output power (@ 230 V, 50 Hz)	5000 W	6000 W
Max. apparent AC power	5000 VA	6000 VA
AC nominal voltage	3 / N / PE; 220 / 380 V, 3 / N / PE; 230 / 400 V, 3 / N / PE; 240 / 415 V	3 / N / PE; 220 / 380 V, 3 / N / PE; 230 / 400 V, 3 / N / PE; 240 / 415 V
Nominal AC voltage range	160 V – 280 V	160 V – 280 V
AC power frequency / range	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz
Rated power frequency / rated grid voltage	50 Hz/230 V	50 Hz/230 V
Max. output current	7.3 A	8.7 A
Power factor at rated power	1	1
Adjustable displacement power factor	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited
Feed-in phases / connection phases	3 / 3	3 / 3
Efficiency		
Max. efficiency / European weighted efficiency	98.1 % / 97.5 %	98.1 % / 97.5 %
Protective devices		
DC disconnect device	●	●
Ground fault monitoring / grid monitoring	● / ●	● / ●
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	● / ● / –	● / ● / –
All-pole-sensitive residual-current monitoring unit	●	●
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	I / III
General data		
Dimensions (W / H / D)	470 / 730 / 240 mm (18.5 / 28.7 / 9.4 inch)	470 / 730 / 240 mm (18.5 / 28.7 / 9.4 inch)
Weight	37 kg / 81.4 lb	37 kg / 81.4 lb
Operating temperature range	-25 °C ... +60 °C / -13 °F ... +140 °F	-25 °C ... +60 °C / -13 °F ... +140 °F
Noise emission (typical)	40 dB(A)	40 dB(A)
Self-consumption (night)	1 W	1 W
Topology / cooling concept	Transformerless / OptiCool	Transformerless / OptiCool
Degree of protection / connection area degree of protection (according to IEC 60529)	IP65 / IP65	IP65 / IP65
Climatic category (according to IEC 60721-3-4)	4K4H	4K4H
Max. permissible value for relative humidity (non-condensing)	100 %	100 %
Features		
DC connection	SUNCLIX	SUNCLIX
AC connection	Spring clamp terminal	Spring clamp terminal
Display	Graphic	Graphic
Interface: RS485 / Bluetooth / Webconnect	– / ● / ●	– / ● / ●
Multi-function relay	●	●
Warranty: 5 / 10 / 15 / 20 / 25 years	● / ○ / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○ / ○
Certificates and approvals (more available on request)	CE, VDE0126-1-1, UTE C15-712-1, VDE-AR-N 4105	
Certificates and approvals (planned)	RD 661/2007, PPC, AS 4777, EN 50438 ¹ , C10/11, PPDS, IEC 61727, SI4777, G59/2, CEI 0-21, RD1699	
Type designation	STP 5000TL-20	STP 6000TL-20



¹ Does not apply to all national appendices of EN 50438

Note: Technical data is preliminary and subject to change

● Standard feature ○ Optional feature – Not available
Data at nominal conditions

Sunny Tripower 7000TL	Sunny Tripower 8000TL	Sunny Tripower 9000TL	
7175 W	8200 W	9225 W	
1000 V	1000 V	1000 V	
290 V ... 800 V / 600 V	330 V ... 800 V / 600 V	370 V ... 800 V / 600 V	
150 V / 188 V	150 V / 188 V	150 V / 188 V	
15 A / 10 A	15 A / 10 A	15 A / 10 A	
15 A / 10 A	15 A / 10 A	15 A / 10 A	
2 / A:2; B:2	2 / A:2; B:2	2 / A:2; B:2	
7000 W	8000 W	9000 W	
7000 VA	8000 VA	9000 VA	
3 / N / PE; 220 / 380 V, 3 / N / PE; 230 / 400 V, 3 / N / PE; 240 / 415 V	3 / N / PE; 220 / 380 V, 3 / N / PE; 230 / 400 V, 3 / N / PE; 240 / 415 V	3 / N / PE; 220 / 380 V, 3 / N / PE; 230 / 400 V, 3 / N / PE; 240 / 415 V	
160 V - 280 V	160 V - 280 V	160 V - 280 V	
50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	
50 Hz/230 V	50 Hz/230 V	50 Hz/230 V	
10.2 A	11.6 A	13.1 A	
1	1	1	
0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	
3 / 3	3 / 3	3 / 3	
98.1 % / 97.6 %	98.1 % / 97.6 %	98.1 % / 97.7 %	
● ● / ● ● / ● / - ● I / III	● ● / ● ● / ● / - ● I / III	● ● / ● ● / ● / - ● I / III	
470 / 730 / 240 mm (18.5 / 28.7 / 9.4 inch)	470 / 730 / 240 mm (18.5 / 28.7 / 9.4 inch)	470 / 730 / 240 mm (18.5 / 28.7 / 9.4 inch)	
37 kg / 81.4 lb	37 kg / 81.4 lb	37 kg / 81.4 lb	
-25 °C ... +60 °C / -13 °F ... +140 °F	-25 °C ... +60 °C / -13 °F ... +140 °F	-25 °C ... +60 °C / -13 °F ... +140 °F	
40 dB(A)	40 dB(A)	40 dB(A)	
1 W	1 W	1 W	
Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	
IP65 / IP65	IP65 / IP65	IP65 / IP65	
4K4H	4K4H	4K4H	
100 %	100 %	100 %	
SUNCLIX	SUNCLIX	SUNCLIX	
Spring clamp terminal	Spring clamp terminal	Spring clamp terminal	
Graphic	Graphic	Graphic	
- / ● / ●	- / ● / ●	- / ● / ●	
●	●	●	
● / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○	
CE, VDE0126-1-1, UTE C15-712-1, VDE-AR-N 4105			
RD 661/2007, PPC, AS 4777, EN 50438 ¹ , C10/11, PPDS, IEC 61727, SI4777, G59/2, CEI 0-21, RD1699			
STP 7000TL-20	STP 8000TL-20	STP 9000TL-20	



Economical

- Maximum DC input voltage of 750 V
- Cost savings due to fewer parallel strings
- Shade management with OptiTrac Global Peak¹

Flexible

- Compatible with all PV modules available on the market
- Variable applications due to the use as main or complementary device

Simple

- Without fan
- Easier wall mounting
- SUNCLIX DC plug-in system
- Quick connection without tools

Communicative

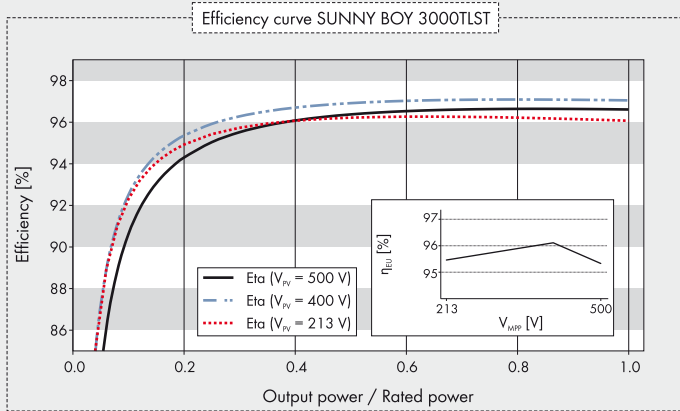
- Simple country configuration
- Bluetooth technology

SUNNY BOY 2500TL / 3000TL SINGLE TRACKER






Now also available as an economical specialist for small, simple plants

The same. Only new: The Sunny Boy TL is now available with "only" one MPP tracker and in principle offers all the benefits of its multistring brothers 3000TL, 3600TL, 4000TL and 5000TL: with economical operation, advanced technology and convenient handling, the special strengths of the Sunny Boy Single Tracker make it a standout. Not only is it a cost-efficient specialist for small, simple rooftop installations, but thanks to its reactive power capability, it is also the perfect addition to existing plants.

¹ Available starting 06/2012



Accessories

-  RS485 interface DM-485CB-10
-  Webconnect interface with WEBCONDM-10 speedwire function
-  Interface to speedwire fieldbus SPWDM-10
-  Additional fan kit FANKIT01-10
-  Multi-function relay MFR01-10

¹ Does not apply to all national appendices of EN 50438

Technical data	Sunny Boy 2500TL Single Tracker	Sunny Boy 3000TL Single Tracker
Input (DC)		
Max. DC power (@ cos φ = 1)	2650 W	3200 W
Max. input voltage	750 V	750 V
MPP voltage range / rated input voltage	180 V ... 500 V / 400 V	213 V ... 500 V / 400 V
Min. input voltage / initial input voltage	125 V / 150 V	125 V / 150 V
Max. input current	15 A	15 A
Max. input current per string	15 A	15 A
Number of independent MPP inputs / strings per MPP input	1 / 2	1 / 2
Output (AC)		
Rated output power (@ 230 V, 50 Hz)	2500 W	3000 W
Max. apparent AC power	2500 VA	3000 VA
AC nominal voltage	220 V / 230 V / 240 V	220 V / 230 V / 240 V
Nominal AC voltage range	180 V - 280 V	180 V - 280 V
AC power frequency / range	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz
Rated power frequency / rated grid voltage	50 Hz/230 V	50 Hz/230 V
Max. output current	10.9 A	13.1 A
Power factor at rated power	1	1
Adjustable displacement power factor	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited
Feed-in phases / connection phases	1 / 1	1 / 1
Efficiency		
Max. efficiency / European weighted efficiency	97 % / 96 %	97 % / 96.1 %
Protective devices		
DC-side disconnection device	○	○
Ground fault monitoring / grid monitoring	● / ●	● / ●
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	● / ● / -	● / ● / -
All-pole-sensitive residual-current monitoring unit	●	●
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	I / III
General data		
Dimensions (W / H / D)	490 / 519 / 185 mm (19.3 / 20.4 / 7.3 inch)	490 / 519 / 185 mm (19.3 / 20.4 / 7.3 inch)
Weight	23 kg / 50.6 lb	23 kg / 50.6 lb
Operating temperature range	-25 °C ... +60 °C / -13 °F ... +140 °F	-25 °C ... +60 °C / -13 °F ... +140 °F
Noise emission (typical)	25 dB(A)	25 dB(A)
Self-consumption (night)	1 W	1 W
Topology / cooling concept	Transformerless / convection	Transformerless / convection
Degree of protection: electronics / connection area (according to IEC 60529)	IP65 / IP54	IP65 / IP54
Climatic category (according to IEC 60721-3-4)	4K4H	4K4H
Max. permissible value for relative humidity (non-condensing)	100 %	100 %
Features		
DC connection	SUNCLIX	SUNCLIX
AC connection	Spring clamp terminal	Spring clamp terminal
Display	Graphic	Graphic
Interfaces: RS485 / Bluetooth®	○ / ●	○ / ●
Interfaces: Webconnect / speedwire	○ / ○	○ / ○
Warranty: 5 / 10 / 15 / 20 / 25 years	● / ○ / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○ / ○
Multi-function relay	○	○
Certificates and approvals (more available on request)	CE, VDE0126-1-1, G83/1-1, C10/11, G59/2, VDE-AR-N 4105	
Certificates and approvals (planned)	RD 661/2007, PPC, AS 4777, EN 50438 ¹ , PPDS, IEC 61727, SI4777, UTE C15-712-1, CEI 0-21, RD1699	
● Standard feature ○ Optional feature – not available, data at nominal conditions		
Type designation	SB 2500TLST-21	SB 3000TLST-21



Efficient

- Efficiency of up to 96 %
- Transformerless

Safe

- Integrated ESS DC switch-disconnector (optional)

Reliable

- Proven technology
- Maintenance-free, thanks to convection cooling

Simple

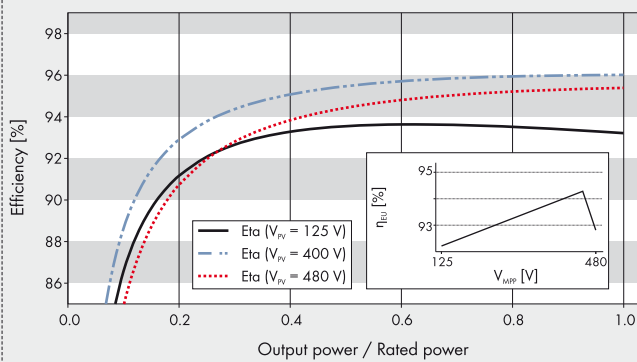
- SUNCLIX DC plug-in system

SUNNY BOY 1300TL

Small inverter with big returns

Combining a broad input voltage range and a broad input current range, the Sunny Boy 1300TL can be connected to nearly all standard crystalline PV modules. As a proven entry-level device in the field of transformerless inverters, it offers top-class efficiency. Its low weight and robust enclosure allow simple installation, both indoors and outdoors. Due to its power class, it is the ideal inverter for smaller PV plants.

Efficiency curve SUNNY BOY 1300TL



Accessories


 RS485 interface
485PB-NR

 Bluetooth
Piggy-Back BTPBINV-NR

¹ Does not apply to all national appendices of EN 50438

 ● Standard feature ○ Optional feature – Not available
Data at nominal conditions

Technical data

Input (DC)

Max. DC power (@ $\cos \varphi = 1$)
Max. input voltage
MPP voltage range / rated input voltage
Min. input voltage / initial input voltage
Max. input current
Max. input current per string
Number of independent MPP inputs / strings per MPP input

Output (AC)

Rated output power (@ 230 V, 50 Hz)
Max. apparent AC power
Nominal AC voltage / range
AC power frequency / range
Rated power frequency / rated grid voltage
Max. output current
Power factor at rated power
Feed-in phases / connection phases

Efficiency

Max. efficiency / European weighted efficiency
--

Protective devices

DC disconnect device
Ground fault monitoring / grid monitoring
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated
All-pole-sensitive residual-current monitoring unit
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)

General data

Dimensions (W / H / D)
Weight
Operating temperature range
Noise emission (typical)
Self-consumption (night)
Topology
Cooling concept
Degree of protection (according to IEC 60529)
Climatic category (according to IEC 60721-3-4)

Features

DC connection
AC connection
Display
Interface: RS485 / Bluetooth
Warranty: 5 / 10 / 15 / 20 / 25 years
Certificates and approvals (more available on request)

Certificates in planning

Type designation

Sunny Boy 1300TL

1400 W
600 V
125 V ... 480 V / 400 V
125 V / 150 V
11 A
11 A
1 / 1
1300 W
1300 VA
220 V, 230 V, 240 V / 180 V - 260 V
50 Hz / -4.5 Hz ... +2.5 Hz
50 Hz / 230 V
7.2 A
1
1 / 1
96 % / 94.3 %
○
● / ●
● / ● / -
●
I / III
440 / 339 / 214 mm (17.3 / 13.3 / 8.4 inch)
16 kg / 35.3 lb
-25°C ... +60°C / -13°F ... +140°F
33 dB(A)
0.1 W
Transformerless
Convection
IP65
4K4H
SUNCLIX
Connector
Text line
○ / ○
● / ○ / ○ / ○ / ○
CE, VDE0126-1-1, G83/1-1, PPC, AS 4777, EN 50438 ¹ , C10/11, PPDS, UTE C15-712-1, VDE-AR-N 4105, RD1699
CEI 0-21

SB 1300TL-10



Easy, different, flexible – the new micro inverter system from SMA

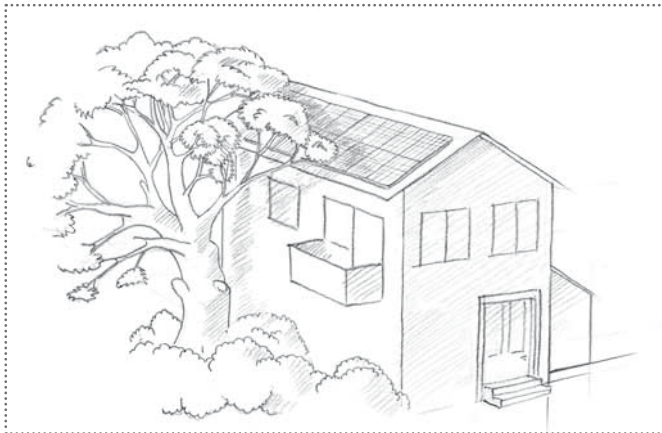
SMA's new feed-in system with micro inverters is the perfect solution for all residential systems, particularly in the low power classes. Knowledge of large-scale PV plant design is not required to install the new Sunny Boy 200/240 micro inverter and Sunny Multigate. Other advantages of the feed-in system include separate MPP tracking for each module and a modular approach to plant extension.

The perfect complement to the string concept

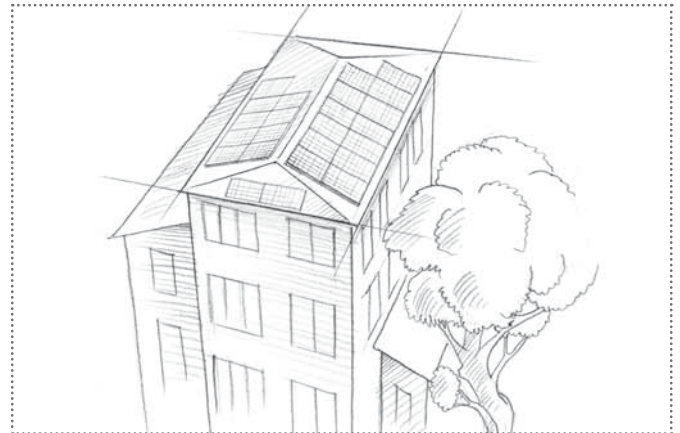
In addition to these advantages, installers and plant operators profit from the following (double) bonus: At SMA, the micro inverter and the well-known string concept can be perfectly combined. This way, existing PV plants can be expanded by the addition of a module or several PV arrays. This applies not only for modules in "inconvenient" places around dormers or partially-shaded areas, but also for the additional equipment of roof

surfaces (east/west roofs), and the subsequent attachment to balconies, for example. In this combination of existing PV plant with micro inverter system, power and flexibility are very important, because starting with Sunny Boy 200/240, up to 14 and 12 units, respectively, can be connected to the Sunny Multigate, the intelligent link between micro inverters and the power distribution grid. In short, the micro inverter concept is deployable as an individual solution, and especially in combination with the common string concept, as it is thoroughly thought-out.

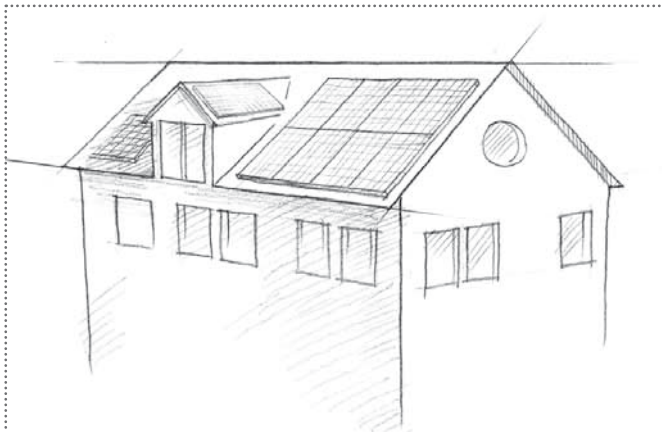
Common applications with real advantages



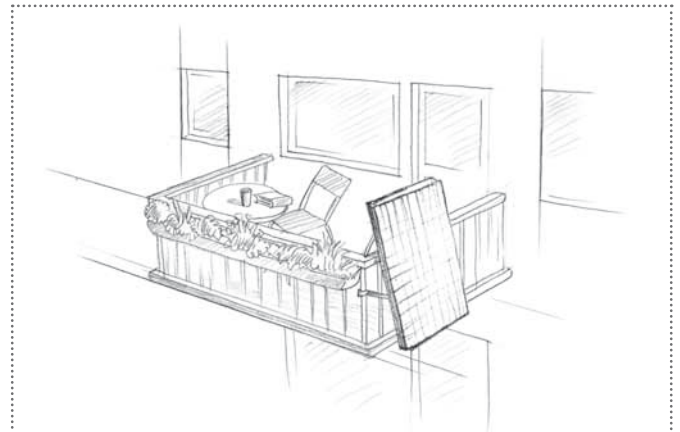
Partial shading: One MPP tracker per module ensures optimal yields, even with moving shading.



Different alignment: Even modules installed on an east-west roof under uneven irradiation conditions can be operated.



Optimal use of roof surface: "Inefficient" roof areas can now be used to generate electric current with micro inverters.



Small plants: Whether on the balcony or in the garden, even the smallest PV plant for private power generation can use the Sunny Boy 200/240.



reddot design award



High yields

- Maximum efficiency of 95.5 %
- Optimal module use with individual MPP tracking
- Ideal for partially shaded PV plants

Safe

- Galvanic isolation
- UL listing (UL 1741 / IEEE 1547)

Reliable

- Rapid diagnosis with access to measured values and event memory
- Maximum electrical endurance thanks to patented electronics design and minimum number of components

Communicative

- Free and convenient plant monitoring via Sunny Portal
- Visualization of performance data in real time
- Remote monitoring via Internet, iPhone or Android

SUNNY BOY 200-US / 240-US

Great things come in small packages

Clearly the right inverter for any module: The new micro inverter Sunny Boy 200-US / 240-US rounds off SMA's product range. It is therefore the ideal solution for differently aligned substrings as well as for PV plants with regularly shaded PV modules. In any case, due to their modular design, plants equipped with the Sunny Boy 200-US / 240-US can be realigned and upgraded at any time – for instance in the event of structural modifications, capacity expansion or depending on the financial room for maneuver. In addition, at SMA the micro inverter concept and the well-known string concept can be perfectly combined.



reddot design award



High yields

- Maximum efficiency of 95.5 %
- Optimal module use with individual MPP tracking
- Ideal for partially shaded PV plants

Safe

- Galvanic isolation

Reliable

- Rapid diagnosis with access to measured values and event memory
- Maximum electrical endurance thanks to patented electronics design and minimum number of components

Communicative

- Convenient plant monitoring via Sunny Portal
- Visualization of performance data in real time
- Remote monitoring via Internet

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Easy to use

- Easy PV plant configuration via Sunny Explorer
- Real-time monitoring on module level

Safe

- Integrated grid disconnection point

Communicative

- Integrated Webconnect function to Sunny Portal via Ethernet
- Worldwide access to PV plant via Sunny Portal

SUNNY MULTIGATE-US

The link between micro inverter and power distribution grid

Sunny Multigate-US is a smart termination point designed to connect micro inverter systems to the power distribution grid. The PV plant is directly connected to Sunny Portal via Ethernet communication and can be conveniently monitored. This enables customers to have quick access to the most important plant data – and, in particular, it allows the modules to be monitored in real time. With its free standard access to Sunny Portal, Sunny Multigate-US is the ideal product solution for intelligent energy monitoring.



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Simple

- Optimal design for grid-connected PV plants
- Tips aimed at plant optimization
- Free registration

Comprehensive

- Database of current PV modules
- Use of high-resolution meteorological data
- Generation of design proposals
- Energetic evaluation of an operational year
- Forecast of projected self-consumption
- Custom calculation of the optimum dimensioning for inverters

Flexible

- Worldwide location support
- Import of your own load profiles and meteorological data
- Access via Web browser, iPad, or Android tablet

SUNNY DESIGN WEB

Plant design made easy – now also online

Designing PV plants is easier than ever now, with Sunny Design Web. You can open Sunny Design Web in any Web browser or on an iPad/Android tablet. Then simply enter all the required information and within a few minutes you will receive the optimum plant configuration. The Web application provides solar power professionals and plant designers with a user-friendly interface. Along with the technical inspection of different components, the software also provides data for economic evaluation of the plant. The end customer gains a customized PV plant and the solar power professional saves valuable time. Once you have completed the free registration, you will have access to exclusive features to serve you better.

Sunny Design Web also contains important SMA inverter data and specifications on all available PV modules. Like the desktop version of Sunny Design, it is easy to use and guides the planner through the entire design process. You can easily and quickly view a set of design recommendations for the optimum configuration, making it possible to configure even complex PV plants with several different types of substrings and inverters. This saves time and allows different configuration options to be simulated without the need for complicated calculations.

Potentially critical operating states are detected and identified. This ensures that the planner is notified of any deviations from the standard design. Although this notification does not necessarily mean that the design is not permissible, it serves to indicate that a thorough check is required.

The software also helps estimate the effect of the most important parameters on the yield, the potential rate of self-consumption and the investment costs, thus offering a customized plant.

Additionally, realistic operation is evaluated over a calendar year on the basis of the integrated meteorological database. Although a precise yield forecast cannot be expected from Sunny Design (further simulation programs are necessary for this), it can determine the yield differences between various designs, including a technical performance verification.

Finally, a technical assessment of the plant design is clearly illustrated in an individually customized results report. As a printed document or an electronic PDF file, this summary is the ideal supplement to any offer.

New online functions

The new Sunny Design Web offers even more advantages: Plant monitoring can now be scheduled and evaluated. Plus, Sunny Backup storage systems can now be included when determining the potential rate of self-consumption. In addition, if the inverters are configured for polystring operation, module strings in different alignments can now also be operated with one single MPP tracker.

Registered users have access to exclusive, user-only features such as online project management and an area for personal settings.

www.SMA.de/SunnyDesign

Note

For more background information on calculating the optimum dimensioning for inverters using Sunny Design, see the Know-how section.



Use of real, high-resolution meteorological data



Database of current PV modules



Database of all SMA inverters



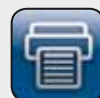
Provides tips aimed at plant optimization



Worldwide support



Generation of design proposals



Results report with individual layout for integration into plant quotes



Planning of the plant monitoring system



Outdoor

- Compact and weatherproof enclosure for outdoor installation
- Opticool™ cooling system for ambient temperatures of up to 55 °C

Efficient

- Peak efficiency of 98 %
- Cost reduction thanks to low self-consumption
- OptiTrac™

Durable

- Resistant to salt corrosion
- Resists sand and dust
- Suitable for all climate zones

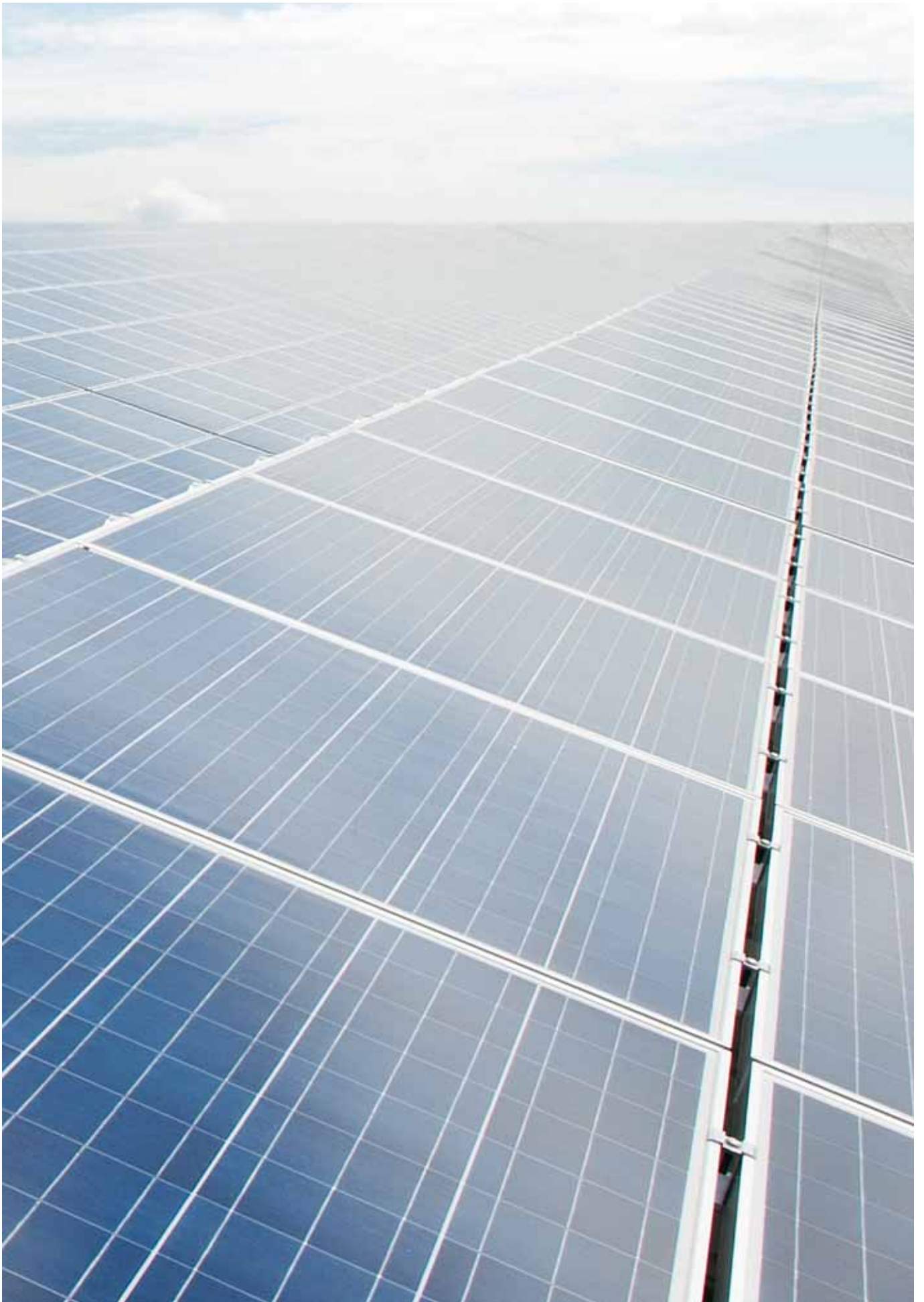
Reliable

- High operational safety and easy to maintain
- Powerful grid management functions (including LVRT)

SUNNY CENTRAL 500CP-JP

The perfect solution for PV power plants in Japan

The durable and high-performance Sunny Central 500CP-JP guarantees maximum yields in all climate zones. This has been clearly demonstrated in numerous stress tests. With the integrated OptiCool™ cooling system, the Sunny Central 500CP-JP can continue to feed solar power into the power distribution grid even at ambient temperatures up to 55 °C. The compact and durable enclosure for the equipment allows easy and uncomplicated outdoor installation – without complex enclosures and external cooling systems. This significantly reduces costs and self-consumption. With its comprehensive grid management functions, the Sunny Central 500 CP-JP already fulfills future requirements for grid operators.

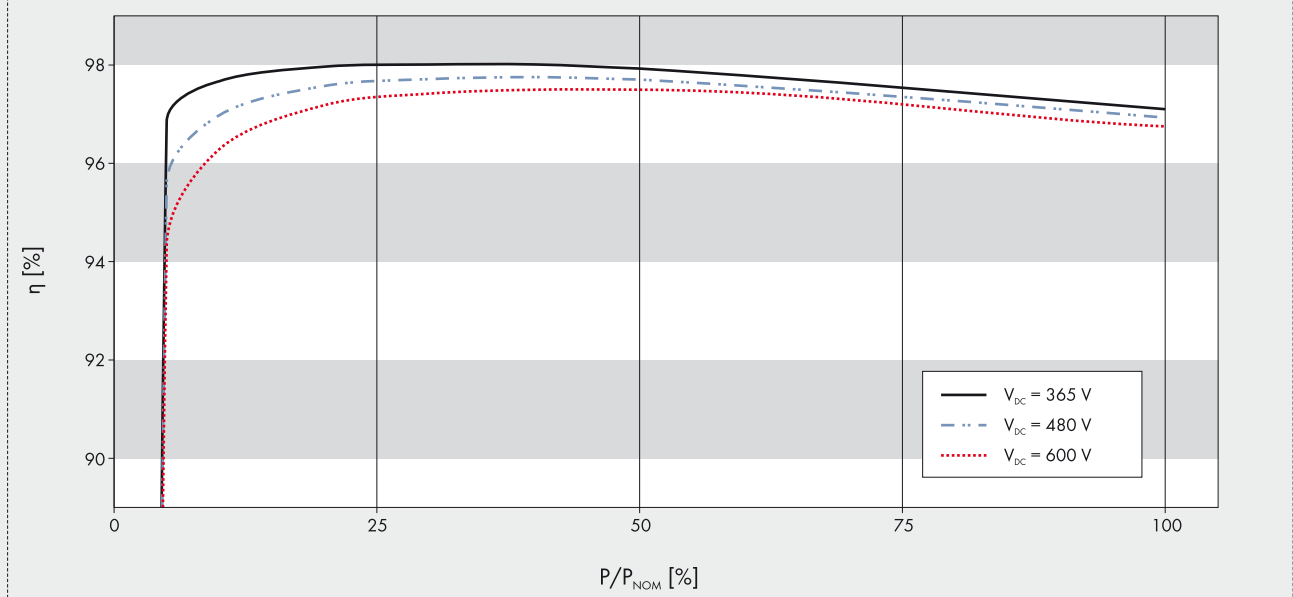


SUNNY CENTRAL 500CP-JP

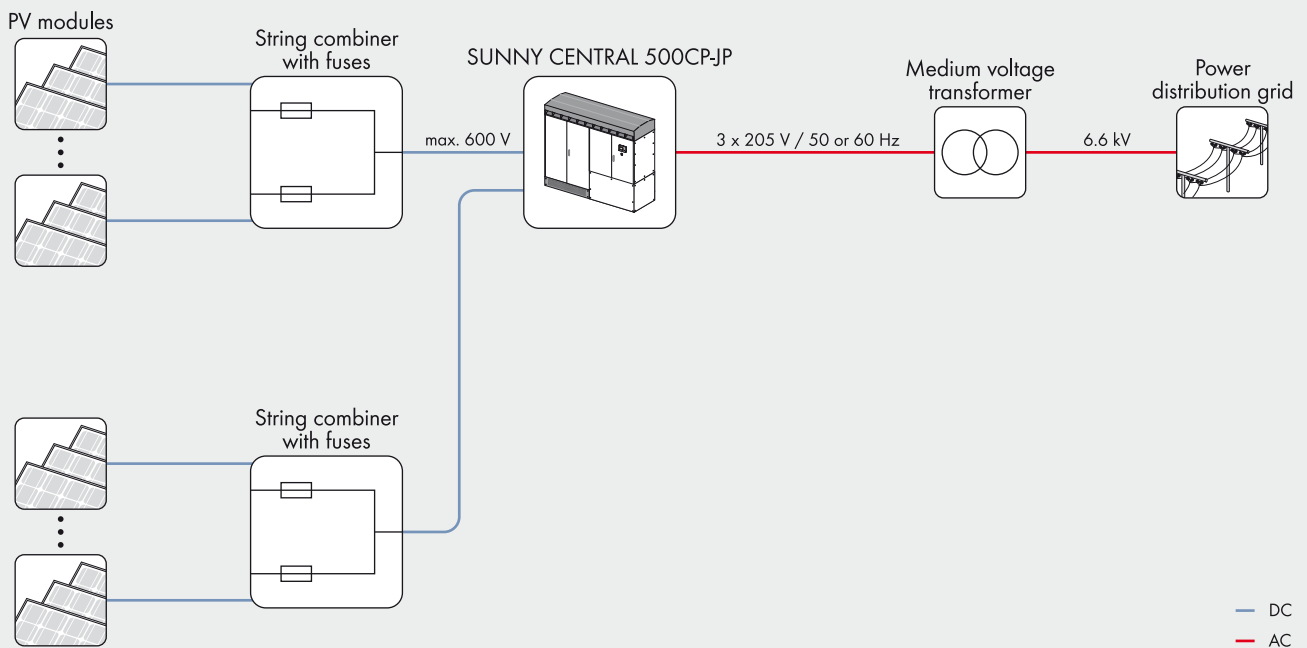
Technical data	Sunny Central 500CP-JP
Input (DC)	
Max. DC power (@ $\cos \varphi = 1$)	511 kW
Max. input voltage	600 V
MPP voltage range (@ 25 °C / @ 50 °C at 50 Hz)	365 V - 600 V / 332 V - 600 V ¹
MPP voltage range (@ 25 °C / @ 50 °C at 60 Hz)	365 V - 600 V / 332 V - 600 V ¹
Max. input current	1400 A
Min. input voltage (at 50 Hz / 60 Hz)	311 V / 321 V
Number of independent MPP inputs	1
Number of DC inputs	9 inputs equipped with fuses
Output (AC)	
Rated output power (@ 25 °C) / Rated AC output power (@ 50 °C)	500 kVA / 455kVA
AC nominal voltage / range	205 V / 185 V - 225 V
AC power frequency / range	50 Hz, 60 Hz / 47 Hz ... 63 Hz
Rated power frequency / rated grid voltage	50 Hz/205 V
Max. output current	1411 A
Max. THD	< 3 %
Power factor at rated power/adjustable shift factor	1 / 0.9 overexcited - 0.9 lagging
Feed-in phases / connection phases	3 / 3
Efficiency⁴	
Nominal efficiency ⁵	97.1 %
Max. efficiency / European weighted efficiency / CEC efficiency	98 % / 97.7 % / 97.4 %
Protective devices	
DC disconnect device	Motor-driven DC switch disconnecter
Output-side disconnection device	AC circuit breaker
DC overvoltage protection	Type I surge arrester
Lightning protection (according to IEC 62305-1)	Lightning protection level III
Grid monitoring	●
Stand-alone grid detection	Active, passive
Ground-fault monitoring/remote-controlled ground-fault monitoring	○ / ○
Insulation Monitoring	○
Surge arrester for auxiliary supply	●
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III
General data	
Dimensions (W / H / D)	2562 / 2279 / 956 mm (101 / 90 / 38 inch)
Weight	1800 kg / 4000 lb
Operating temperature range	-20 °C ... +55 °C / -4 °F ... +131 °F
Noise emission ³	60 db(A)
Max. self-consumption (operation) / consumption (night)	1700 W ² / < 100 W
External auxiliary supply voltage	230 / 400 V (3/N/PE)
Cooling concept	OptiCool
Degree of protection: electronics / connection area (according to IEC 60529)	IP54 / IP43
Application	In unprotected outdoor environments
Max. permissible value for relative humidity (non-condensing)	15 % ... 95 %
Max. operating altitude above MSL	2000 m
Fresh-air consumption	3000 m ³ /h
Features	
DC connection	Ring terminal lug
AC connection	Ring terminal lug
Display	HMI touchscreen
Communication protocols	Ethernet (optical fiber optional), Modbus
Sunny String-Monitor	RS485
Color enclosure, door, base, roof	RAL 9016 / 9016 / 7005 / 7004
Configurable grid management functions	Power reduction, reactive power setpoint, dynamic grid support (e.g. LVRT)
Certificates and approvals (additional on request)	EN 61000-6-2, EN 61000-6-4, CE-compliant, Renewable Energy Source Act-compliant, BDEW-MSRL / FGW / TR8 ⁶ , Arrêté du 23/04/08, R.D. 1663 / 2000, R.D. 661 / 2007
● Standard feature ○ Optional feature – Not available	
Type designation	SC 500CP-10-JP

- ¹ At $1.05 U_{AC, nom}$ and $\cos \varphi = 1$
- ² Self-consumption at rated operation
- ³ Sound pressure level at a distance of 10 m
- ⁴ Efficiency measured without internal power supply
- ⁵ At nominal power

Efficiency curve SUNNY CENTRAL 500CP-JP [50Hz]



PLANT DIAGRAM





Flexible

- For all plant topologies
- Modular system concept for individual requirements
- Easy to expand with new protocols and with standards

Precise

- Exact grid voltage control
- Regulation of active and reactive power and power factor
- Individual activation of single inverters in the farm

Easy to use

- Configuration or parameterization via RemoteControl
- Simple installation thanks to compact design
- Integrated Web Server

Profitable

- Reliable plant operation with low downtimes
- Fulfillment of further requirements for grid integration and international plant certification

POWER PLANT CONTROLLER

Flexible farm control for all PV power plants

The Power Plant Controller offers particularly fast reactions and data exchange for intelligent and flexible farm control. In addition to this, it is simple to expand for new communication protocols and standard data transfers. Before commissioning the PV power plant, precise simulation of the farm's response permits precise statements on its reaction and design. Remote Control facilitates particularly simple and safe parameterization and configuration of central and decentralized farm architectures with the Power Plant Controller. Together with the SMA inverter and system technology portfolio, it makes a key contribution to the stability of the transmission lines.

Top yields – Stable power distribution grids

The Power Plant Controller guarantees plant operators maximum yields and contributes to the stability of transmission lines. It fulfills global requirements by grid operators with its ability to regulate voltage, reactive and active power, or the power factor at the grid feed-in point quickly and precisely. The SMA Power Plant Controller allows large-scale PV power plants to meet all requirements of modern competitive PV power plants.

Higher yields for plant operators

Quick and precise regulation guarantees plant operators optimized yields. Downtime can be reduced and trouble free plant operation can be guaranteed. Remote configuration and monitoring reduce maintenance costs in the module array.

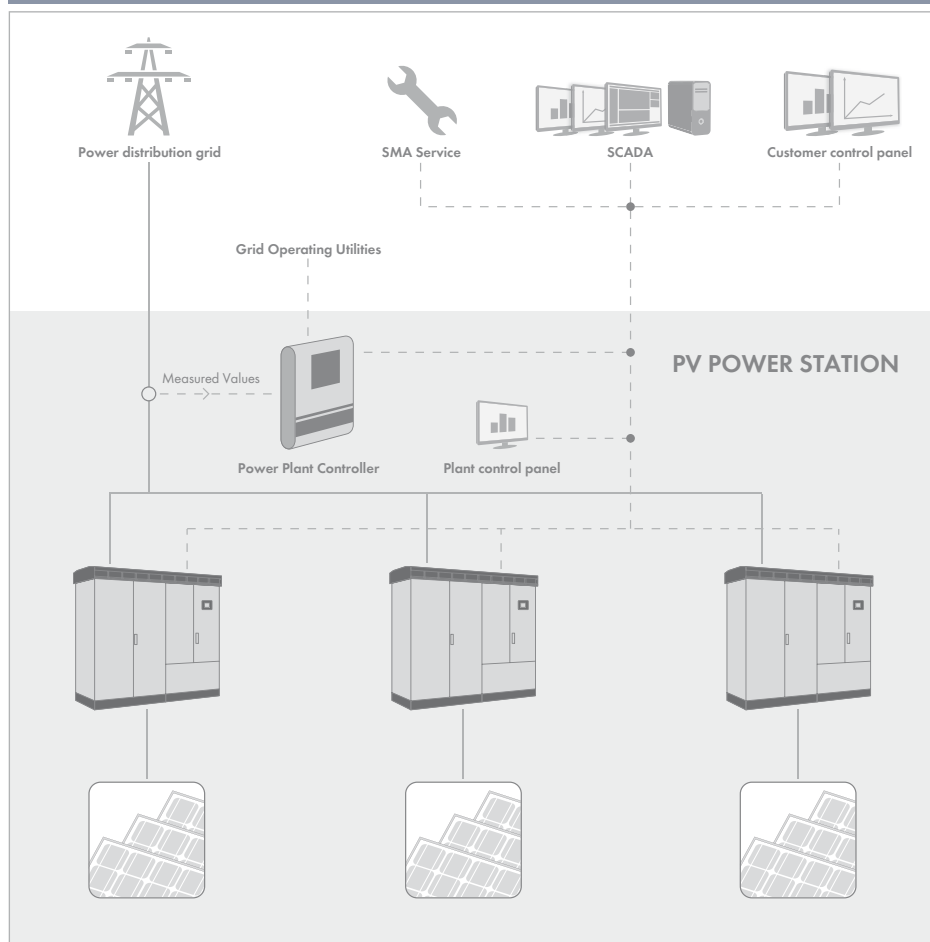
Greater stability for grid operators

Power Plant Controller makes your PV farm's reactions a calculable variable in the power distribution grid. It fulfills all requirements for grid control, guaranteeing grid stability at all times. The advantage: reliable integration of large PV power plants in transmission lines.

Greater security for planners

Implement megawatt-scale power plant projects with SMA solutions. The Power Plant Controller is compliant with grid operators' requirements worldwide. Its compact design allows simple and flexible use in all plant topologies.

SMA Plant Control System



Power Plant Controller – central control unit in PV power plant

The Power Plant Controller controls PV power plants to ensure that they adapt to the requirements from the power distribution grid or grid operator in every operating phase.

- Efficient PV system controllers with fast communication infrastructure
- Central hub for recording, evaluating and implementing measurements
- Receiver for all internal and external control and regulation commands
- Central control unit for coordinating inverters in the power plant
- Real-time recording of all conditions in the power distribution grid (V, f, Q) and in the power plant
- Flexible, expandable concepts for individual hardware and software solutions

- | | |
|-------|---------------------------|
| — | Energy flow |
| - - - | Communication and control |
| ○ | Grid transfer point |



For more information go to
www.sma.de/SunnyIsland

Simple

- OptiUse: fast installation and commissioning, simplified operation
- OptiBat: charge status display keeps you informed at all times

Durable

- IP54: optimum protection against dust and moisture
- OptiCool: greater temperature range
- OptiPower: secure operation in any situation

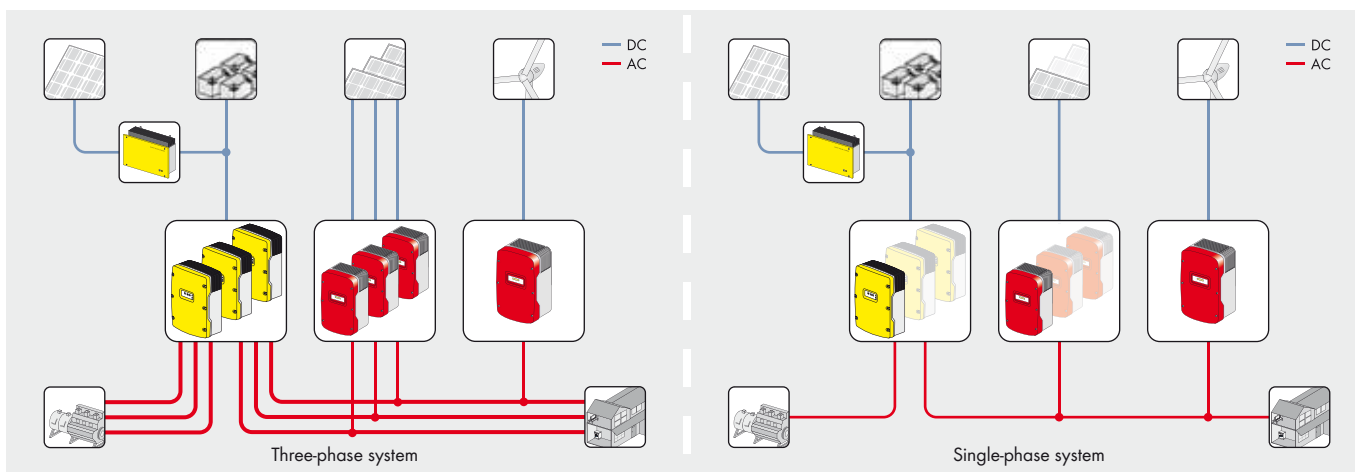
Flexible

- For systems from 3 to 300 kW
- Precise design
- Supports multicluster technology

SUNNY ISLAND 6.0H / 8.0H

Easy to use. Durable. Flexible.

More durable than its predecessors: The new Sunny Island impresses with its high protection class and wide temperature range. Moisture, dust and temperature fluctuations will not impair its operation, even after 20 years. Thanks to OptiCool, there is no need to compromise when it comes to overload capacity and economic viability. And there is more: OptiPower, the intelligent load and energy management system, ensures operation even in critical situations. OptiUse makes installation, commissioning and daily use easier than ever with automatic rotary field detection, an optimized quick configuration guide and intuitive operation. And the intelligent OptiBat battery management system automatically controls the most important charging and discharging procedures, which extends the service life of sensitive energy storage. Sunny Island is a truly comprehensive package for a worry-free, reliable and self-sufficient electricity supply.



Technical data	Sunny Island 6.0H	Sunny Island 8.0H
AC output (loads / stand-alone grid)		
Rated grid voltage / AC voltage range	230 V / 202 V - 253 V	230 V / 202 V - 253 V
Rated frequency / frequency range (adjustable)	50 Hz / 45 Hz ... 65 Hz	50 Hz / 45 Hz ... 65 Hz
Rated power (at $U_{nom}, f_{nom} / 25\text{ °C} / \cos \varphi = 1$)	4600 W	6000 W
AC power at 25 °C for 30 min / 5 min / 3 sec	6000 W / 6800 W / 11000 W	8000 W / 9100 W / 11000 W
Rated current / max. output current (peak)	20 A / 120 A	26 A / 120 A
Total harmonic factor Output voltage / power factor with rated power	< 4 % / -1 ... +1	< 4 % / -1 ... +1
AC input (PV array, grid or MC-Box)		
Rated input voltage / AC input voltage range	230 V / 172.5 V - 264.5 V	230 V / 172.5 V - 264.5 V
Rated input frequency / allowable input frequency range	50 Hz / 40 Hz ... 70 Hz	50 Hz / 40 Hz ... 70 Hz
Max. AC input current	50 A	50 A
Max. AC input power	11.5 kW	11.5 kW
Battery DC input		
Rated input voltage / DC voltage range	48 V / 41 V - 63 V	48 V / 41 V - 63 V
Max. battery charging current / DC rated charging current	110 A / 100 A	140 A / 115 A
Battery type / battery capacity (range)	FLA, VRLA / 100 Ah ... 10000 Ah	FLA, VRLA / 100 Ah ... 10000 Ah
Charge control	IUoU charge procedure with automatic full charge and equalization charge	IUoU charge procedure with automatic full charge and equalization charge
Efficiency / self-consumption		
Max. efficiency	95 %	95 %
Self-consumption without load / standby	< 26 W / < 4 W	< 26 W / < 4 W
Protective devices (equipment)		
AC short circuit / AC overload	● / ●	● / ●
DC reverse polarity protection / DC fuse	- / -	- / -
Overtemperature / battery deep discharge	● / ●	● / ●
Overvoltage category according to IEC 60664-1	III	III
General data		
Dimensions (W / H / D)	467 / 612 / 242 mm (18.4 / 24.1 / 9.5 inch)	467 / 612 / 242 mm (18.4 / 24.1 / 9.5 inch)
Weight	63 kg	63 kg
Operating temperature range	-25 °C ... +60 °C	-25 °C ... +60 °C
Protection class (according to IEC 62103)	I	I
Climatic category according to IEC 60721	3K6	3K6
Degree of protection according to IEC 60529	IP54	IP54
Features / function		
Operation and display / multifunction relay	External via SRC-20/2	External via SRC-20/2
Three-phase systems / parallel connection	● / ●	● / ●
Integrated bypass / multicuster operation	- / ●	- / ●
State of charge calculation / full / equalization charge	● / ● / ●	● / ● / ●
Integrated soft start / generator support	● / ●	● / ●
Battery temperature sensor / communication cables	● / ●	● / ●
Warranty (5 / 10 / 15 / 20 / 25 years)	● / ○ / ○ / ○ / ○ / ○	● / ○ / ○ / ○ / ○ / ○
Certificates and approvals	www.SMA-Solar.com	www.SMA-Solar.com
Accessories		
Battery cable / battery fuse	○ / ○	○ / ○
Interface SI-COMSMA (RS485) / SI-SYSCAN (Multicuster)	○ / ○	○ / ○
Extended generator start "GenMan"	○	○
Load-shedding protection/battery current measurement	○ / ○	○ / ○
● Standard feature ○ Optional feature - Not available		
Provisional data, as of April 2012 data at nominal conditions		
Type designation	SI6.0H-10	SI8.0H-10



RESIDENTIAL SYSTEM



COMMERCIAL PV PLANT



PV POWER PLANT

The right solution for every application

Why is it so important to monitor the plant?

From residential systems to giant PV power plants: Reliable monitoring is essential for achieving long-term high yields in electricity production. A plant that operates continuously is the only way to ensure you receive the ecological and economical benefits, i.e., to ease the burden on the environment and your wallet. SMA offers monitoring solutions that provide more than just continuous monitoring for any application. Intelligent concepts and products for comprehensive plant monitoring as a part of the global energy revolution.

What aspects do you need to have in mind when choosing a residential system?

SMA offers solutions for residential systems that enable you to keep an eye on electricity production and provide intelligent energy management in the household. For PV plants on single-family homes, SMA recommends using the Sunny Home Manager, Sunny View, or the Sunny Explorer software or going online to the Sunny Portal.

Solar power professionals benefit from the ability to help their customers with a remote diagnosis of problems, which saves travel time and cuts costs, in addition to the broad product portfolio.

Modern PV plant monitoring is much more than simple control, especially for residential systems. It provides information regarding plant operation in an easy-to-read manner and, thanks to apps for iPhone and Android mobile devices, is accessible from any location in the world. Plant data, such as the current PV power generation capacity, is presented in a simple, clear, and professional format.

Communications via the Sunny Portal thanks to Webconnect: Plant monitoring is attractive even for very small plants due to integration of the new data interface. Basically, it's plug-and-play. Once configured, key plant data can be accessed and displayed in a clear format whenever you need it.

What guarantees my smart investment in a commercial PV plant?

For larger PV plants, a variety of components can be assembled to create a customized monitoring solution. In combination with SMA inverters, operators and solar power professionals benefit from a perfectly-coordinated system. The product spectrum includes Sunny Portal, Sunny WebBox, Sunny WebBox with *Bluetooth* and the SMA Meteo Station to professionally measure power-relevant meteorological data.

SMA plant monitoring also provides many benefits to solar power professionals. In the event of a problem, installers have quick access to all plant data. This information allows contractors to draw conclusions about a specific event and troubleshoot problems remotely. This can sometimes save on the need for long distance service visits. SMA products are also useful for plant maintenance and configuration.

How is plant management of PV power plants guaranteed to be performed professionally?

The larger the PV plant, the faster small reductions in power negatively affect yields – if they remain undiscovered. Even megawatt-scale plants can be accurately and comprehensively monitored with our solutions designed especially for PV power plants. They help to reduce costs and guarantee yields in this manner. The modular system concept with the Power Plant Controller, Cluster Controller, and the Ethernet-based Speedwire fieldbus enable you to flexibly scale the power from the plant, regardless of whether it's a decentralized or central plant architecture.

SMA products with their features and the flexible solutions for farm management comply with the global requirements for grid management capabilities for PV power plants up to the three-digit megawatt range. Our central inverters, together with the SMA Power Plant Controller, feature state-of-the-art data interfaces. All major serial and Ethernet-based protocols are supported.

1



RESIDENTIAL SYSTEM

3



COMMERCIAL PV PLANT

2



Wireless communication

4



Remote monitoring

Local monitoring

The right product for every solution

Why is SMA the right partner for your plant management needs, too?

Because we are aware that there is a variety of requirements in terms of monitoring. Because plant operators have specific needs. Because each PV plant is simply different than all the others and because our products meet these needs in terms of power, functions, and features. The basic scenarios here are just an example of what is possible.

Residential system, scenario 1: The all-inclusive service package

The ideal package for private plant operators looking for an automatic monitoring solution. It provides an elegant means to keep all the key factors in sight. A local monitoring solution is provided by the new Sunny View and communications using *Bluetooth* as a live stream and in color: The large, easy-to-read five-inch touchscreen shows all key PV data. If you need a residential system with efficient remote monitoring capability, then the plant data can be sent to the Sunny Portal directly thanks to the Webconnect technology.

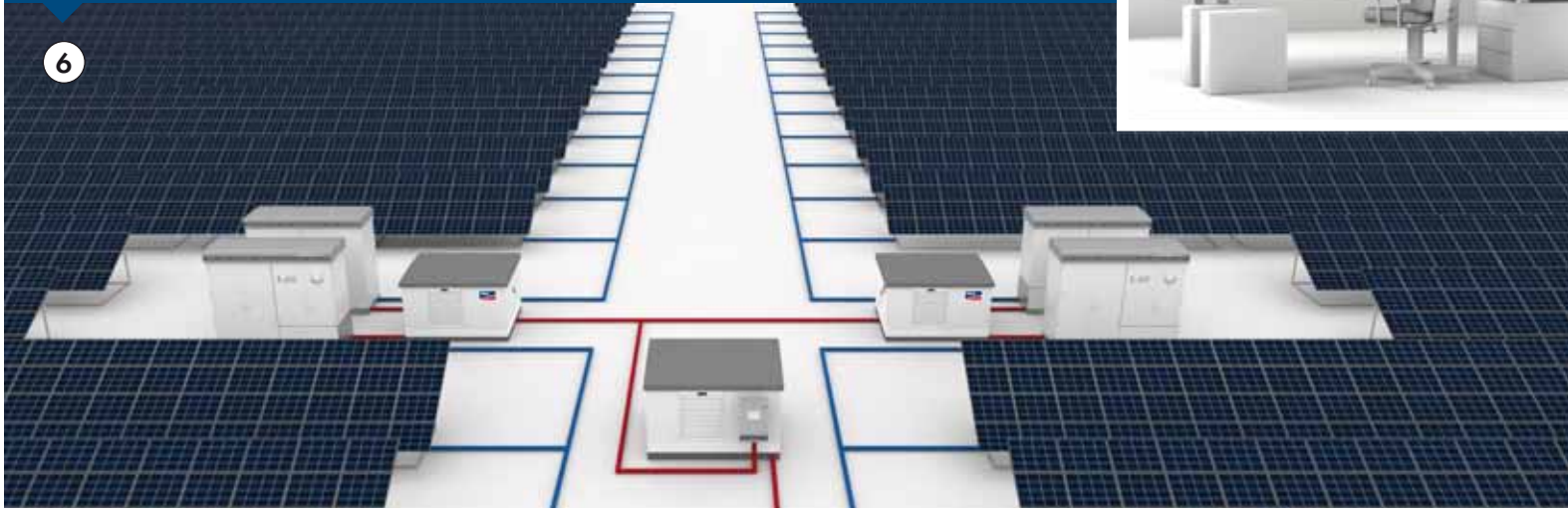
Plant operators and installers have access to key data at any time and from anywhere thanks to this tool with monitoring, management, and display features.

5



PV POWER PLANT

6



Wired communications

Connection to the operation control system

Residential system, scenario 2: Intelligent energy management

The Sunny Home Manager, Sunny Portal, and Sunny Backup work in concert here in order to optimize the use of the generated solar power as well as make plant monitoring more convenient. It enables plant operators to have an overview of all energy flows in the household, to display the recommended actions and to automatically control up to ten household appliances via SMA radio-controlled sockets. The advantages are clear: They can increase self-consumption and reduce their overall power consumption.

Commercial PV plant, scenario 3: The basic solution: smart and wireless

Clever monitoring: Customers stay up-to-date on the operational status of their commercial PV plant around the clock and from anywhere wirelessly and only spend minimal effort on installation. The Sunny WebBox with Bluetooth wirelessly receives the sent plant data and compiles it with the meteorological data from the Sunny SensorBox. It is prepared for use in professional analyses and visualizations over the Sunny Portal.

Commercial PV plant, scenario 4: Complete monitoring, wired

For plants greater than 100 kWp, a wired investment: The Sunny WebBox and Power Reducer Box enable you to monitor all aspects of solar power production over the Sunny Portal. The new SMA Meteo Station with pyranometer professionally measures power-relevant meteorological data. This monitoring solution helps to guarantee yields and, at the same time, provide the required grid management.



**PV power plant, scenario 5:
The perfect solution for decentralized
PV power plants**

Modular structure and high-performance: the optimum solution for decentralized large-scale PV plants with the SMA Cluster Controller, Power Plant Controller, and new Ethernet-based Speedwire fieldbus. In this manner, SMA guarantees an absolutely sustainable plant management, including the optimum data transmission rates for plant monitoring and a fast processing of the measured values, status updates, and plant control commands. One SMA Cluster Controller can reliably monitor and control up to 75 inverters per cluster. You can operate PV power plants of any size with the central PV park management using the Power Plant Controller and, at the same time, comply with all valid directives and standards.

**PV power plant, scenario 6:
Plant management, up to the giga-
watt range**

Bundled monitoring expertise in the spotlight: Industrial-sized power plants with centralized architecture can benefit from the special qualities of the Sunny Central inverters and their accessories and features for plant monitoring and control. This includes the Power Plant Controller with an integrated interface and Optiprotect for intelligent string monitoring. Power plant operators have the possibility to monitor, regulate, and optimize their yields and power plant functioning.





User-friendly

- Large, easy-to-read color touchscreen
- Freely configurable user interface

Innovative

- Slideshow with automatically changing information
- WLAN interface for the display of online data

Simple

- Intuitive operation via touch screen
- Easy-to-understand display of all key plant data

Safe

- Audio and visual alarm
- Data archiving and backup via microSD

SUNNY VIEW

Stylish visualization for the home

Now your plant data is live and in color: The Sunny View offers you more than just a reliable visualization of the solar power yield. Plant operators can use the large, easy-to-read five-inch color touchscreen to display all key PV data, as well as to receive news, meteorological data, and posts from social networks via WLAN. All relevant information will be presented in an individually configurable slideshow. Including fully-automatic monitoring – the device uses *Bluetooth* to communicate with up to 12 inverters and can send a visual and acoustic warning signal in the event of a failure.



Wireless communication with inverters via *Bluetooth*



Large, easy-to-read color touchscreen



Visual and acoustic alarms



microSD card slot for data archiving, storage, and export



WLAN interface for news and weather

Technical data	Sunny View	
Communication		
Inverter communication	<i>Bluetooth</i>	
PC communication	SDHC card (micro SD)	
Number of SMA devices		
<i>Bluetooth</i>	Max. 12	
Max. communication range		
<i>Bluetooth</i> in free-field conditions	up to 100 m (can be extended with an SMA <i>Bluetooth</i> Repeater)	
Voltage supply		
Voltage supply	External plug-in power supply	
Input voltage	90 V - 240 V, 50 / 60 Hz	
Power consumption	Type. 3,75 W, max. 8 W	
Ambient conditions in operation		
Ambient temperature	0 °C ... 40 °C / 32 °F ... 104 °F	
Max. permissible value for relative humidity (non-condensing)	5 % ... 95 %	
Degree of protection (according to IEC 60529)	IP20	
Memory		
Internal	16 MB as ring buffer	
External	SDHC carte (microSD), max. 8 GB	
General data		
Dimensions (W / H / D) with tabletop stand	152 / 109 / 25.5 mm (6 / 4.3 / 0.9 inch)	
Dimensions (W / H / D) without tabletop stand	152 / 109 / 23.5 mm (6 / 4.3 / 0.9 inch)	
Weight with tabletop stand	0.293 kg / 0.6 lb	
Weight without tabletop stand	0.245 kg / 0.5 lb	
Mounting location	Indoor	
Mounting type	Wall mounting, tabletop device	
Software languages	German, English, Italian, French, Dutch, Greek, Japanese	
Languages of the manual	German, English, Italian, French, Dutch, Greek, Japanese	
Features		
Display	5 inch (12.75 cm), 16 million colors, resolution 480 x 800 pixels	
Operation	Touch screen	
Warranty	5 years	
Certificates and approvals	www.SMA-Solar.com	
Accessories		
USB plug-in power supply	●	
SMA <i>Bluetooth</i> Repeater	● For extending the maximum <i>Bluetooth</i> -Communication range	
● Standard feature ○ Optional feature – Not available		
Type designation	Sunny View	



Innovative

- Load analysis, even for each individual load
- Regional weather forecasts are incorporated
- Display of recommended actions for load management

Simple

- Automatic, intelligent control of loads with maximum 10 SMA radio-controlled sockets
- Convenient commissioning with the plant setup assistant.
- Free standard access to Sunny Portal with all basic functions

Transparent

- Convenient plant monitoring via Sunny Portal
- Overview of all energy flows in the home
- Visualization of the weather forecast and PV forecast data

Flexible









- Several standardized meter interfaces
- Specifications for controllable devices

SUNNY HOME MANAGER

The control center for intelligent energy management¹

The Sunny Home Manager is the ideal solution for convenient plant monitoring and intelligent energy management thanks to the standard access to Sunny Portal. It offers an overview of all energy flows in the home, provides recommended actions, and can even automatically control loads via the SMA radio-controlled sockets. The device will learn the household's typical consumption behavior and connect this information to PV forecast data specific to the plant. The result: The Sunny Home Manager is a program that can substantially increase self-consumption and optimize energy use in an environmentally-friendly manner, among other things.

¹ PV forecast data and SMA radio-controlled sockets are not available in all countries

	Precise determination of generation, consumption and self-consumption		All energy data displayed live in Sunny Portal		PV forecast data and variable electricity tariffs taken into account		Info page with recommendations for optimizing load management
	Presentation and management of home consumption – even from remote locations		Analysis of power consumed by individual devices via SMA radio-controlled sockets		Safe transmission of energy data		SimpleMonitoring via Sunny Portal

Technical data	Sunny Home Manager	
Communication		
Inverter communication	Bluetooth	
Sunny Portal communication	Ethernet	
Connections		
Inverters	See inverter communication	
Ethernet	10 / 100 Mbit, RJ45	
Energy meter	Three 2 x 4-pole plugs for connection of SO cable or DO reading heads	
Max. number of SMA devices		
Bluetooth	16	
Max. communication range		
Bluetooth in free-field conditions	up to 100 m (can be extended with an SMA Bluetooth Repeater)	
Voltage supply		
Voltage supply	External plug-in power supply	
Input voltage	100 V – 240 V AC; 50 / 60 Hz	
Power consumption	< 6 W (max. 14.3 W)	
Ambient conditions in operation		
Ambient temperature	-25 °C ... +60 °C / -13 °F ... +140 °F	
Degree of protection (according to EN IEC 60529)	IP20	
Max. permissible value for relative humidity (non-condensing)	5 % ... 95 %	
Memory		
Internal	Up to 5 days portal buffer	
Daily energy values	Up to 5 days	
General data		
Dimensions (W / H / D)	170 / 124.5 / 41.5 mm (6.7 / 4.9 / 1.6 inch)	
Weight	0.22 kg / 0.5 lb	
Mounting location	Indoor	
Application	Top-hat rail mounting, wall mounting	
Status display	2 LEDs	
Languages of the manual	German, English, Italian, Spanish, French, Dutch, Portuguese, Greek, Czech	
Features		
Operation	Via Sunny Portal	
Warranty	5 years	
Certificates and approvals	www.SMA-Solar.com	
Accessories		
SMA radio-controlled socket with Bluetooth Wireless Technology	For automated management of loads	
SMA Bluetooth Repeater	For extending the max. Bluetooth-Communication range	
Type designation	Sunny Home Manager	

Versatile system with many benefits

The Sunny Home Manager increases your lucrative self-consumption of solar energy, but it does much more than that. It provides you with intelligent energy management in your household. In combination with the Sunny Backup system, it even allows you to store solar power. Its use of weather forecasts to predict solar power generation is unparalleled. The Sunny Home Manager is also the first system ever to take variable electricity tariffs into account, ensuring comprehensive load management. In this way, the device can adjust the power consumption in your home to the actual power of your PV plant, as well as to the energy supply in the main power distribution grid at any given time. Via *Bluetooth* the Sunny Home

Manager can control any standard, off-the-shelf household appliance via SMA radio-controlled sockets. It is also designed for future communication standards of building automation and is therefore ultimately future-proof.

Intuitive Serviceability

The Sunny Home Manager is operated and configured via the Sunny Portal. Therefore, users have the utmost flexibility when it comes to choosing how and where they access it – any web browser and internet connection will do. In addition to the special pages for the Sunny Home Manager, users can also access all of the basic functions

of the Sunny Portal for analysis, visualization, and presentation of the plant data. The status screen shows the current energy data as an animated real-time graph and as actual numbers.

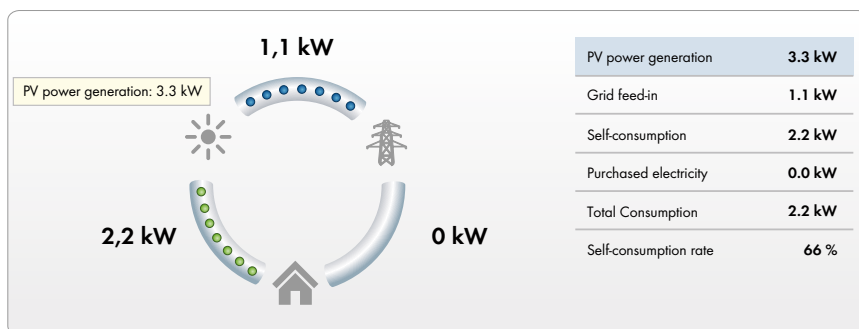


Shining advantages as an overview

- » Increased self-consumption and environmentally-friendly use of energy
- » Up to 10 per cent lower power consumption
- » Automatic access to favorable electricity prices
- » Free standard access to the Sunny Portal
- » Maximum protection for your long-term investment

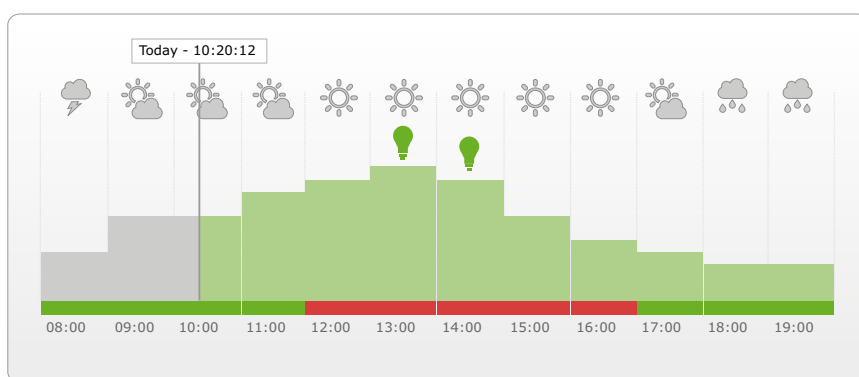
Current status

The status screen shows the current energy data as an animated real-time graph and as actual numbers.



Forecast and recommended action

The planning screen displays the weather forecast for the plant's location and the corresponding generation forecast for the coming hours. In addition to an automatically generated timetable for the controlled loads, the Sunny Home Manager also provides visual prompts to encourage and increase self-consumption.



Energy balance

The analysis page displays the energy balance for the desired time period and facilitates a variety of generation, consumption, and self-consumption analyses.





Professional

- Measurement of the global radiation using pyranometers
- Capture additional meteorological data (air temperature, air pressure, relative humidity, PV module temperature)

Easy to use

- Data analysis via Sunny WebBox or Sunny Portal
- Flexible integration into the existing RS485 communication

Simple

- Simple and safe mast mounting
- Fast installation with just one cable

SMA METEO STATION

The professional weather station, including pyranometer

A must-have for professional measurement of power-relevant meteorological data: The SMA Meteo Station does not only measure air temperature, air pressure, and relative humidity with great accuracy; it also determines global radiation. Different plants can now be compared to one another by using the horizontally installed pyranometer to measure the incident light. This enables you to determine the key parameters required for an optimum configuration, such as the module tilt angle. All measured values are made available for analysis via the Sunny WebBox or Sunny Portal.



Simple

- Straightforward plug-&-play commissioning
- Other SMA devices are not required

Economical

- Reasonable investment costs and low installation effort
- Most favorable way of plant monitoring

Communicative

- Free online monitoring via Sunny Portal
- Clear display of the most important plant data with Sunny Portal

Direct

- Data exchange with Sunny Portal without data logger
- Free Sunny Portal app for data visualization on smartphones

WEBCONNECT

Direct data exchange with Sunny Portal

Ideally suited for online monitoring of small PV plants with a maximum number of up to four inverters: Webconnect provides free access to Sunny Portal without additional data logger – easily via an existing Internet access and a DSL router. After the simple installation of the inverter interface which is optionally available or already integrated at the factory, you can commission the Webconnect. Basically, it's plug-n-play. Once configured, key plant data can be accessed and displayed in a clear format whenever you need it. Moreover, automatic product updates ensure that the device firmware is always up-to-date.



Easy to use

- Monitoring and controlling up to 75 string inverters
- Exchange realtime data with other devices and systems using the standard Modbus communications protocol

Versatile

- Complies with national and international requirements for grid integration
- Integrated analog and digital interfaces for sensors and active / reactive power setpoints

Professional

- Easy installation due to top-hat rail mounting
- Optimized for industrial use thanks to a robust enclosure and high-quality components

Safe

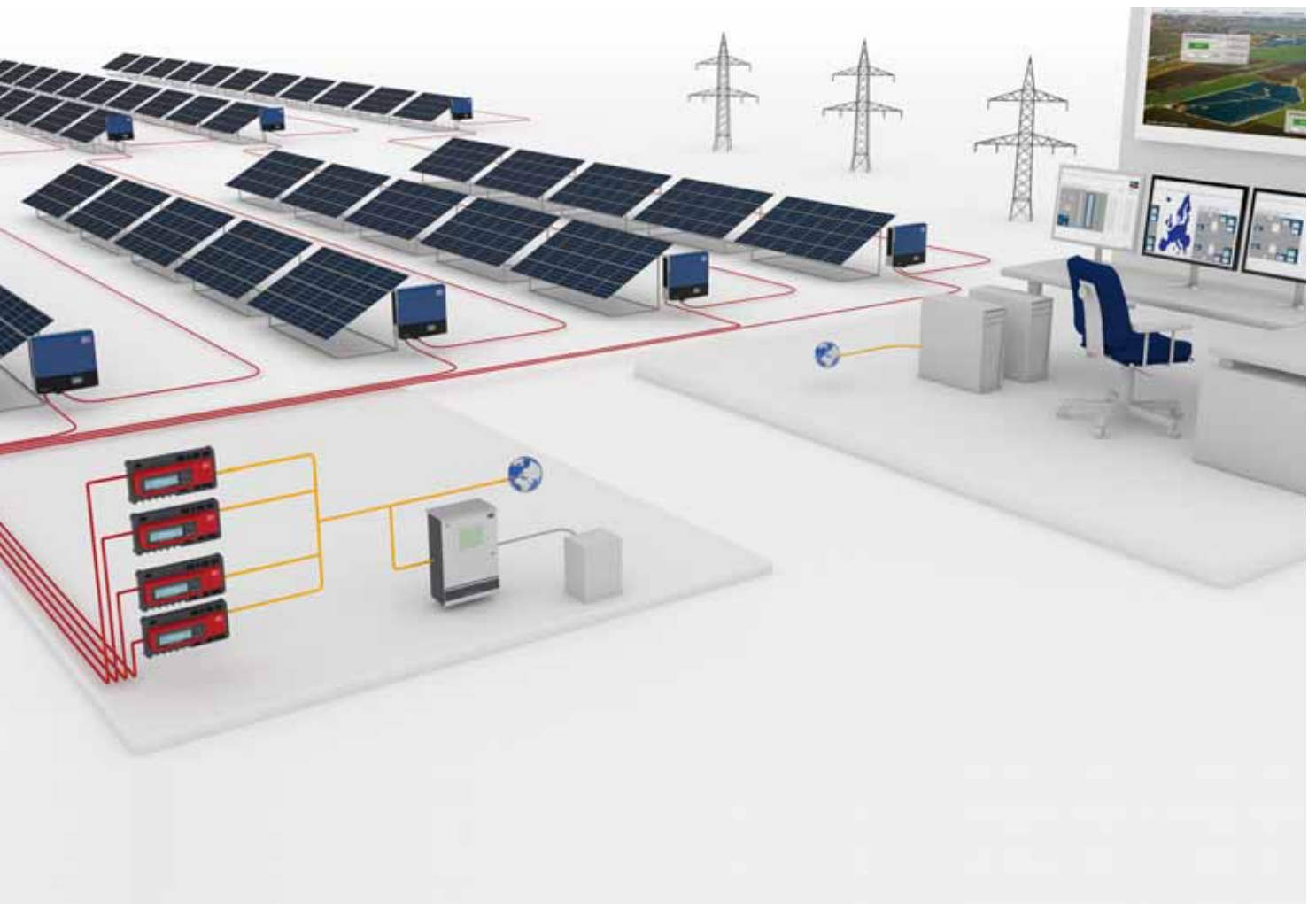
- Immediate e-mail notification in the event of a failure
- Remote monitoring and maintenance over the integrated online interface and Sunny Portal

SMA CLUSTER CONTROLLER

Professional monitoring and controlling for decentralized large-scale PV plants

The SMA Cluster Controller is the ideal system solution for decentralized large-scale PV plants when combined with the highly efficient SMA string inverters. The SMA Cluster Controller offers reliable monitoring and control of up to 75 string inverters thanks to the Ethernet-based Speedwire fieldbus and the high-performance dual-core processor. Plant operators receive advantages such as the optimum data transmission rates for plant monitoring and a fast processing of the measured values, status updates, and plant control commands. Furthermore, the many different connection options for the sensors allow you to evaluate the plant power more precisely. In addition to the status updates, the relevant plant power can be viewed using the Sunny Portal with a variety of features.

Technical data	SMA Cluster Controller
Communication	
Inverters	Speedwire, 10 / 100 Mbit/s
Data network (LAN)	Fast Ethernet, 10 / 100 Mbit/s
Data interfaces	Fast Ethernet, Modbus TCP/IP, Sunny Portal
Connections	
Inverters / data network (LAN)	2 Ports, 10 / 100BASE-TX, RJ45, switched
Data storage	2 USB-2.0-High-Speed sockets, Typ A
Voltage supply / analog/digital signals	Connector, push-in cage clamp terminal
Max. number of SMA devices	
Speedwire	75
Max. radio range	
Speedwire / Fast Ethernet	100 m (between two devices)
Voltage supply	
Voltage supply	External power supply unit (not included in delivery)
Supply voltage range	18 V DC ... 30 V DC
Power consumption	Type 24 W / max. 30 W
Ambient conditions in operation	
Ambient temperature	-25 °C ... +70 °C / -13 °F ... +158 °F
Relative air humidity	4 % ... 95 %, not condensing
Altitude above sea level	0 m ... 3000 m
Display	
Type	LC display, monochromatic, back-lit
Pixels	240 x 64 px
Display languages	German, English
Memory	
Internal	2 GB as ring buffer
External	USB mass storage (optional)
USB-Interfaces	
Quantity / specification / sockets	2 / USB 2.0 High-Speed / Type A
Max. current / max. cable length	500 mA / 3 m
Digital inputs	
Quantity / max. cable length	8 / 30 m
Usage	Specification for active and reactive power
Analog inputs	
Quantity	3 x current signal, 1 x voltage signal
Measuring range	0 mA ... 20 mA or -10 V ... +10 V
Deviation from threshold / max. cable length	±0,3 % of measuring range final value / 30 m
Usage	Irradiation measurement, specification for active and reactive power or current/voltage measurement
Temperature Measurement	
Quantity / sensor type	2 / PT100 / PT1000 (two or four-cable connection)
Measuring range	-40 °C ... +85 °C
Deviation from threshold / max. cable length	±0,5 °C / 20 m (four-cable connection, shielded)
Usage	Measurement of ambient and module temperature
Digital outputs	
Quantity / design	3 / potential-free relay contacts
Max. load tolerance	60 V DC / 1 A
Usage	Fault message, active power limitation message
General data	
Dimensions (W / H / D) in mm	275 / 133 / 71 mm (10.8 / 5.2 / 2.8 inches)
Weight	1.2 kg / 2.6 lb
Installation site / degree of protection provided by enclosure	Indoor / IP20
Electromagnetic compatibility (EMC)	Class A device in accordance with EN 55022
Mounting type	Top-hat rail mounting
Status display	LC-Display, LEDs
Software languages, languages of the manual	German, English, Italian, Spanish, French, Dutch, Portuguese, Greek, Czech
Features	
Operation	Integrated web server, display, keypad
Clock	Real time clock (RTC) with buffer
Advanced functions using the Sunny Portal	Plant and yield monitoring, measured value processing, performance analyses, presentation, status reports, mobile data access
Data interface	Exchange of real-time data with other systems via Modbus TCP
Warranty	5 years
Certificates and approvals	www.SMA-Solar.com
Accessories (Optional)	
Voltage supply	Input: 100 V ... 240 V AC / 45 ... 65 Hz, Output: 24 V DC / 2.5 A
USB flash drive	4 GB, 8 GB, SLC, industrial grade
Type designation	SMA Cluster Controller



Safe

- Futureproof system for plant monitoring, control, and regulation
- Technology implementing standard components

Easy to use

- Efficient plant management thanks to cluster forming
- Monitoring and control of 75 inverters per cluster in line or star topology

Powerful

- Ethernet-based high-performance bus system (100 Mbit technology) right down to the inverter

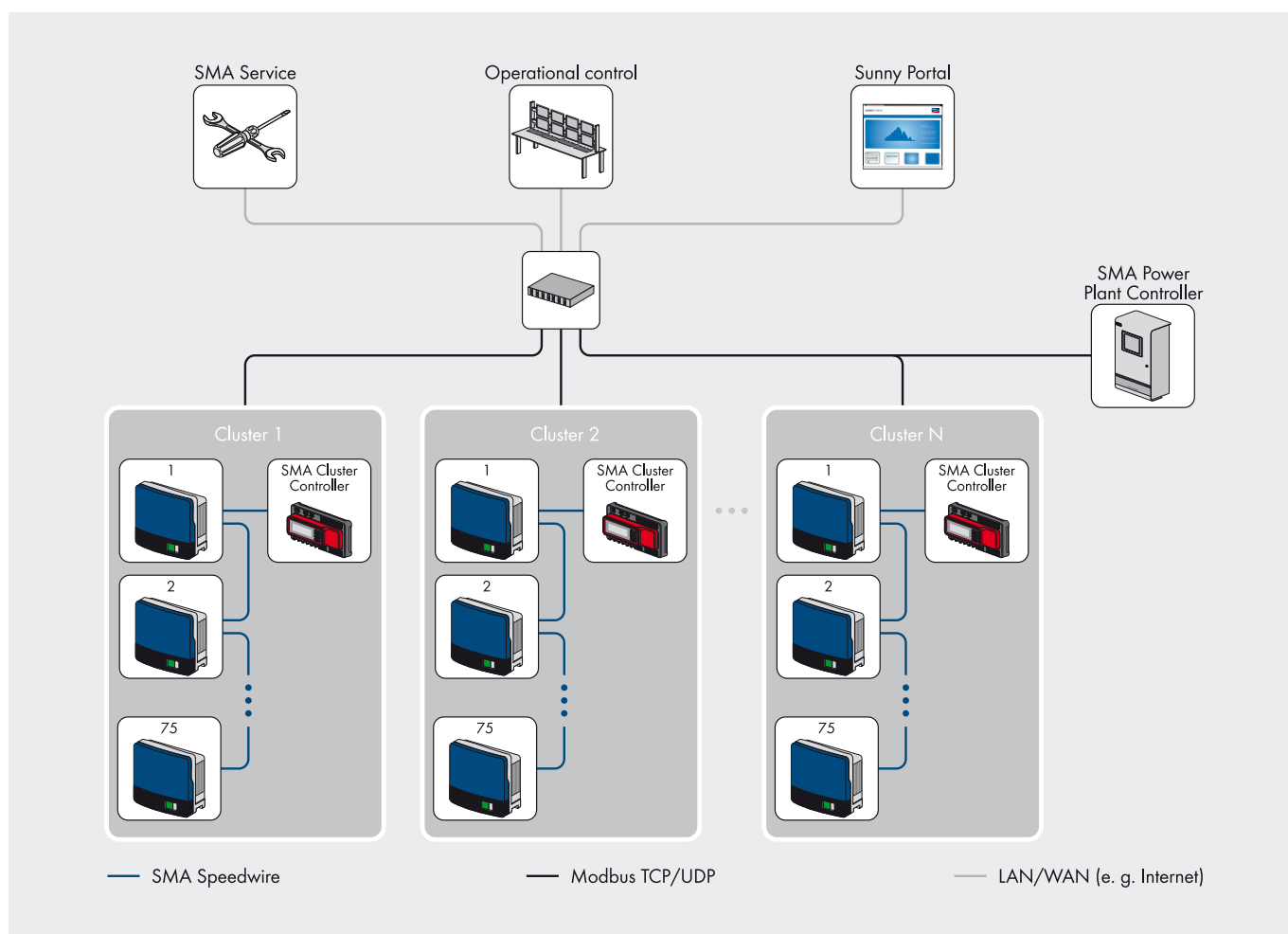
Flexible

- System can be scaled via Cluster Controllers

SPEEDWIRE

The highest data rates thanks to the new Ethernet-based fieldbus

The perfect solution for decentralized PV power plants in terms of functionality and flexibility: Speedwire as a new Ethernet-based fieldbus offers top-notch performance right down to the inverter. The plant can be controlled using the SMA Cluster Controller, the digital interface, or the Modbus TCP, guaranteeing optimum network management and compliance with all directives and standards. The line topology enables you to operate up to 75 inverters per SMA Cluster Controller. The plant can be managed efficiently and this solution offers powerful monitoring and alarm features. Furthermore, the simple "daisy chain" wiring offers flexibility and saves money.



System overview: Decentralized large-scale PV plant with SMA Speedwire fieldbus, SMA Cluster Controllers, SMA Power Plant Controller

Futureproof with wired connection

The SMA Speedwire fieldbus offers more than just a wired connection for the inverters. The system is ideally matched to provide everything as a package: the basis for a futureproof communications network of decentralized PV power plants with a large number of distributed inverters. Up to 75 devices can be integrated, monitored, and controlled in a cluster with the SMA Cluster Controller.

Speedwire is a means to provide a continuous high-speed bus system for a futureproof plant monitoring system that also enables you to reliably control and regulate the plant using the digital interface or Modbus. In this manner, compliance with both national and international directives and standards can be ensured.

High performance for professional plant management

Speedwire from SMA offers continuously fast data rates right down to the inverter. Plant operators can rely on the system's 100 Mbit technology for their monitoring, control, and regulation needs.

The ability to form clusters enables you to efficiently manage plants and provide high-performance monitoring and notifications in the event of a failure. With Speedwire, you are able to conveniently "daisy chain" the wiring, which saves a substantial amount of time and money. It is easy to commission thanks to the plug-and-play option for automatic network configuration (DHCP).

Flexibility provided as a standard

Flexibility is a major factor for integration with operational control. The modular system can be expanded as needed because additional clusters can be conveniently added. It is possible to expand to the cluster level or flexibly integrate in the operational control system or SCADA system via Modbus TCP.

The ability to use standard network components ensures high flexibility and attractive savings in terms of time and money.

In addition, there is the option of using the SMA Power Plant Controller as an interface to the grid operator for expansion purposes.

FAQs: Straightforward answers for frequently asked questions

1. Why is it smart to use Speedwire for communications purposes?

It's not possible to comply with the current standards and directives using the standard RS485 technology. Our solution is the high-performance Speedwire bus system with a futureproof inverter protocol. It enables you to comply with any requirements placed on plants both domestically and internationally.

2. Is Speedwire the same as Ethernet?

No. Speedwire and Ethernet are not the same thing. Speedwire is an Ethernet-based system that uses a protocol optimized for the inverters.

3. Which SMA inverters support Speedwire?

The following inverters feature an optional port for the Speedwire interface:

STP 20000TLHE-10, STP 15000TLHE-10, STP 20000TLEE-10, STP 15000TLEE-10, STP 10000TL-10, STP 12000TL-10, STP 15000TL-10, STP 17000TL-10, SB 2500TLST-21, SB 3000TLST-21, SB 3000TL-21, SB 3600TL-21, SB 4000TL-21, SB 5000TL-21

4. How can I take advantage of the Speedwire interface?

The corresponding interfaces are either offered as an option or directly installed in the inverter.

5. Which solution does SMA offer as a third-party interface?

A Modbus TCP inverter interface is in planning for this situation.

6. Are Speedwire and Webconnect the same thing?

No. Webconnect is a feature based on Speedwire and it's primarily intended for residential systems. It enables data to be sent to the Sunny Portal without the need for additional SMA devices.

7. How can I upgrade an existing system to use the Speedwire bus system?

It's easy. We have an RS485 / Speedwire gateway in planning to be used to integrate the two systems.

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