

# SUNNY BOY 1.5 / 2.0 / 2.5

## with SMA SMART CONNECTED



SB1.5-1VL-40 / SB2.0-1VL-40 / SB2.5-1VL-40



**Intelligent service with  
SMA Smart Connected**



**SMA ShadeFix**  
STRING LEVEL OPTIMIZATION

### Compact

- One-person installation due to low weight of 9.2 kg
- Compact design means minimum space requirements

### Easy to Use

- 100% plug and play installation
- Free online monitoring via Sunny Places
- Automated service thanks to SMA Smart Connected

### High Yields

- Use of surplus energy through dynamic active power limitation
- Yield increase without installation effort due to integrated shade management SMA ShadeFix

### Combinable

- Wide input voltage range
- Intelligent energy management and storage solutions can be added anytime
- Can be combined with TS4-R components for module optimization

## SUNNY BOY 1.5 / 2.0 / 2.5

The best standard for small PV systems

The Sunny Boy 1.5 / 2.0 / 2.5 is the perfect inverter for customers with small PV systems. Thanks to its broad input voltage range of 80 V to 600 V, its versatility, flexibility in module compatibility and low weight for easy installation are impressive. After smooth commissioning via the integrated web interface, the Sunny Boy 1.5 / 2.0 / 2.5 is ideal for local monitoring via the device's own wireless home network or for online monitoring with Sunny Portal or Sunny Places. Thanks to its integrated SMA Smart Connected service, this inverter offers ease and comfort for PV system operators and installers. The automatic inverter monitoring by SMA analyzes operation, reports irregularities and thus minimizes downtime.

# SMA SMART CONNECTED

## Integrated service for ease and comfort

SMA Smart Connected\* is free monitoring of an inverter via the SMA Sunny Portal. If an inverter fails, SMA proactively informs the PV system owner and the installer. This saves valuable working time and costs.

With SMA Smart Connected, the installer benefits from rapid diagnoses by SMA. They can thus quickly rectify the fault and score points with the customer thanks to the additional, attractive services.



### ACTIVATION OF SMA SMART CONNECTED

During registration of the system in the Sunny Portal, the installer activates SMA Smart Connected and benefits from automatic inverter monitoring by SMA.



### AUTOMATIC INVERTER MONITORING

SMA takes on the job of inverter monitoring with SMA Smart Connected. SMA automatically checks the individual inverters for anomalies around the clock during operation. Every customer thus benefits from SMA's many years of experience.



### PROACTIVE COMMUNICATION IN THE EVENT OF FAULTS

After a fault has been diagnosed and analyzed, SMA informs the installer and end customer immediately by email. Everyone is thus optimally prepared for the troubleshooting process. This minimizes downtime and saves time and money. Regular power reports also provide valuable information about the overall system.



### REPLACEMENT SERVICE

If a replacement device is necessary, SMA automatically supplies a new inverter within one to three days of the fault diagnosis. The installer can contact the PV system operator of their own accord and replace the inverter.

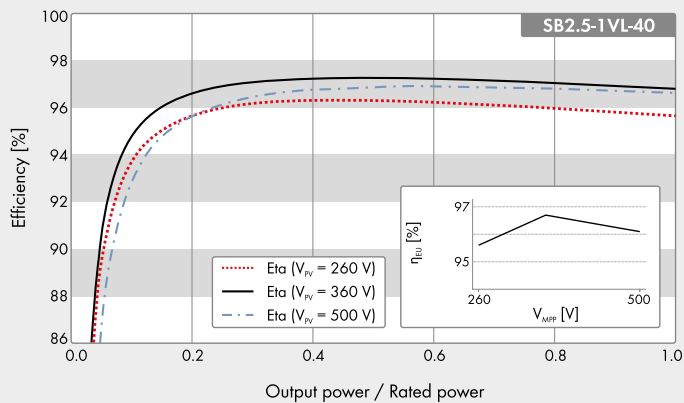


### PERFORMANCE SERVICE

The PV system operator can claim compensation from SMA if the replacement inverter is not delivered within three days.

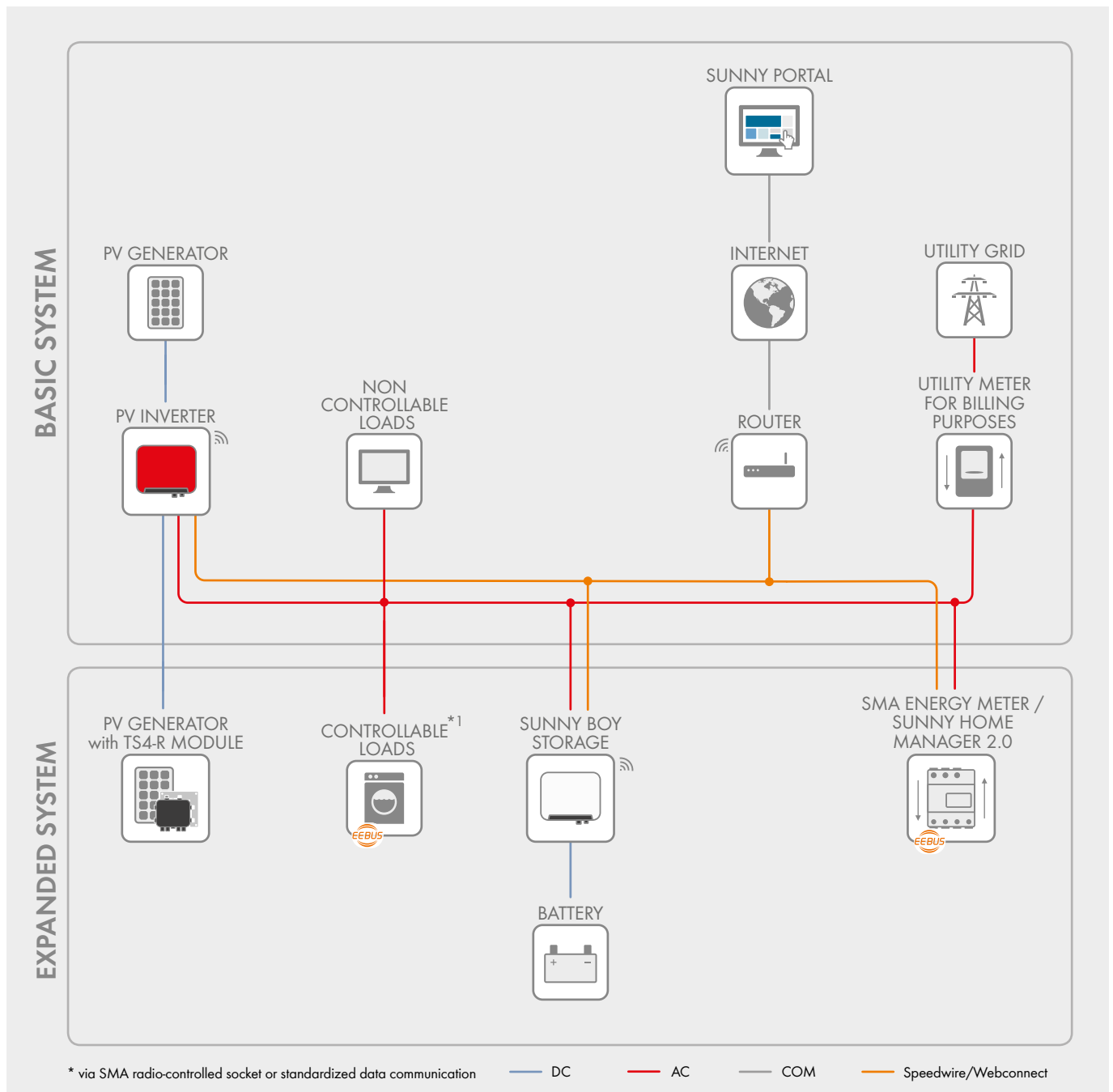
\* Details: see document "Description of Services – SMA SMART CONNECTED"

## Efficiency curve



● Standard features ○ Optional features — not available  
Data in nominal conditions  
Last updated: 11/2019

Technical Data	Sunny Boy 1.5	Sunny Boy 2.0	Sunny Boy 2.5
<b>Input (DC)</b>			
Max. PV array power	3000 W <sub>p</sub>	4000 W <sub>p</sub>	5000 W <sub>p</sub>
Max. input voltage	600 V	600 V	600 V
MPP voltage range	160 V to 500 V	210 V to 500 V	260 V to 500 V
Rated input voltage		360 V	
Min. input voltage / initial input voltage		50 V / 80 V	
Max. input current per string		10 A	
Max. short-circuit current per string		18 A	
Number of independent MPP inputs / strings per MPP input		1 / 1	
<b>Output (AC)</b>			
Rated power (at 230 V, 50 Hz)	1500 W	2000 W	2500 W
Max. apparent power AC	1500 VA	2000 VA	2500 VA
Nominal AC voltage	220 V / 230 V / 240 V		
Nominal AC voltage range	180 V to 280 V		
AC grid frequency / range	50 Hz, 60 Hz / -5 Hz to +5 Hz		
Rated grid frequency / rated grid voltage	50 Hz / 230 V		
Max. output current	7 A	9 A	11 A
Power factor at rated power	1		
Adjustable displacement power factor	0.8 overexcited to 0.8 underexcited		
Feed-in phases / connection phases	1 / 1		
<b>Efficiency</b>			
Max. efficiency / Euro-eta	97.2 % / 96.1 %	97.2 % / 96.4 %	97.2 % / 96.7 %
<b>Protective Devices</b>			
DC side disconnection point	●		
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 61140) / surge category (according to IEC 60664-1)	I / III		
Reverse current protection	Not required		
<b>General Data</b>			
Dimensions (W / H / D)	460 / 357 / 122 mm (18.1 / 14.1 / 4.8 inches)		
Weight	9.2 kg (20.3 lbs)		
Operating temperature range	-40 °C to +60 °C (-40 °F to +140 °F)		
Noise emission, typical	< 25 dB		
Self-consumption (at night)	2.0 W		
Topology	Transformerless		
Cooling concept	Convection		
Degree of protection (according to IEC 60529)	IP65		
Climatic category (as per IEC 60721-3-4)	4K4H		
Max. permissible value for relative humidity (non-condensing)	100 %		
<b>Features</b>			
DC connection / AC connection	SUNCLIX / connector		
Display via smartphone, tablet, laptop	●		
Interfaces: WLAN / Ethernet	● / ●		
Communication protocols	Modbus (SMA, Sunspec), Webconnect		
Integrated shade management SMA ShadeFix	●		
Warranty: 5 / 10 / 15 / 20 years	● / ○ / ○ / ○		
Certificates and permits (more available upon request)	AS4777, C10/11, CE, CEI0-21, DIN EN 62109-1/IEC 62109-1, DIN EN 62109-2/IEC 62109-2, EN50438, G83/2, IEC61727, IEC62116, NBR16149, NEN-EN50438, NRS097-2-1, RfG compliant, VDE-AR-N4105, VDE 0126-1-1, VFR2014		
Country availability of SMA Smart Connected	AU, AT, BE, CH, DE, ES, FR, IT, LU, NL, UK		
Type designation	SB 1.5-1VL-40	SB2.0-1VL-40	SB2.5-1VL-40



#### BASIC SYSTEM functions

- Easy commissioning via integrated WLAN and Speedwire interface
- Maximum transparency thanks to visualization in Sunny Portal/Sunny Places
- Safe investment through SMA Smart Connected
- Modbus as interface for third-party providers

#### Expanded SYSTEM FUNCTIONS

- Basic system functions
- Reduction in purchased electricity and increase in self-consumption through use of stored solar energy
- Maximum energy use thanks to forecast-based charging
- Increased self-consumption thanks to intelligent load control
- Maximum system yield through Smart module technology

#### With SMA Energy Meter

- Maximum system usage through dynamic limiting of feed-in to the grid between 0% and 100%
- Visualization of energy consumption

# SUNNY BOY 3.0 / 3.6 / 4.0 / 5.0 / 6.0 with SMA SMART CONNECTED



SB3.0-TAV-41 / SB3.6-TAV-41 / SB4.0-TAV-41 / SB5.0-TAV-41 / SB6.0-TAV-41



**Intelligent service with  
SMA Smart Connected**



**SMA ShadeFix**  
STRING LEVEL OPTIMIZATION

## Compact

- One-person installation due to low weight of 17.5 kg
- Compact design means minimum space requirements

## Easy to use

- 100% plug and play installation
- Free online monitoring via Sunny Places
- Automated service thanks to SMA Smart Connected

## High yields

- Use of surplus energy through dynamic active power limitation
- Yield increase without installation effort due to integrated shade management SMA ShadeFix

## Combinable

- Intelligent energy management and storage solutions can be added anytime
- Can be expanded with SMA Power Limiter for use of a ripple control receiver

## SUNNY BOY 3.0 / 3.6 / 4.0 / 5.0 / 6.0

Higher yields for private homes – intelligent solar power generation

The new Sunny Boy 3.0–6.0 ensures maximum energy yields for private homes. This inverter combines the integrated Service SMA Smart Connected service and intelligent technology for all ambient requirements. Thanks to its extremely light design, the device can be installed quickly and easily. The Sunny Boy can be commissioned quickly via smartphone or tablet thanks to its integrated web interface. For specific requirements on the roof, SMA ShadeFix maximizes the PV system's yield. Current communication standards make the inverter future-proof, meaning intelligent energy management solutions as well as SMA storage solutions can be flexibly added anytime.

# SMA SMART CONNECTED

## The integrated service for ease and comfort

SMA Smart Connected\* is the free monitoring of the inverter via the SMA Sunny Portal. If there is an inverter fault, SMA proactively informs the PV system operator and the installer. This saves valuable working time and costs.

With SMA Smart Connected, the installer benefits from rapid diagnoses by SMA. They can thus quickly rectify the fault and score points with the customer thanks to the attraction of additional services.



### ACTIVATION OF SMA SMART CONNECTED

During registration of the system in the Sunny Portal, the installer activates SMA Smart Connected and benefits from the automatic inverter monitoring by SMA.



### AUTOMATIC INVERTER MONITORING

SMA takes on the job of inverter monitoring with SMA Smart Connected. SMA automatically checks the individual inverters for anomalies around the clock during operation. Every customer thus benefits from SMA's long years of experience.



### PROACTIVE COMMUNICATION IN THE EVENT OF FAULTS

After a fault has been diagnosed and analyzed, SMA informs the installer and end customer immediately by e-mail. Everyone is thus optimally prepared for the troubleshooting. This minimizes the downtime and saves time and money. The regular power reports also provide valuable information about the overall system.



### REPLACEMENT SERVICE

If a replacement device is necessary, SMA automatically supplies a new inverter within one to three days of the fault diagnosis. The installer can contact the PV system operator of their own accord and replace the inverter.

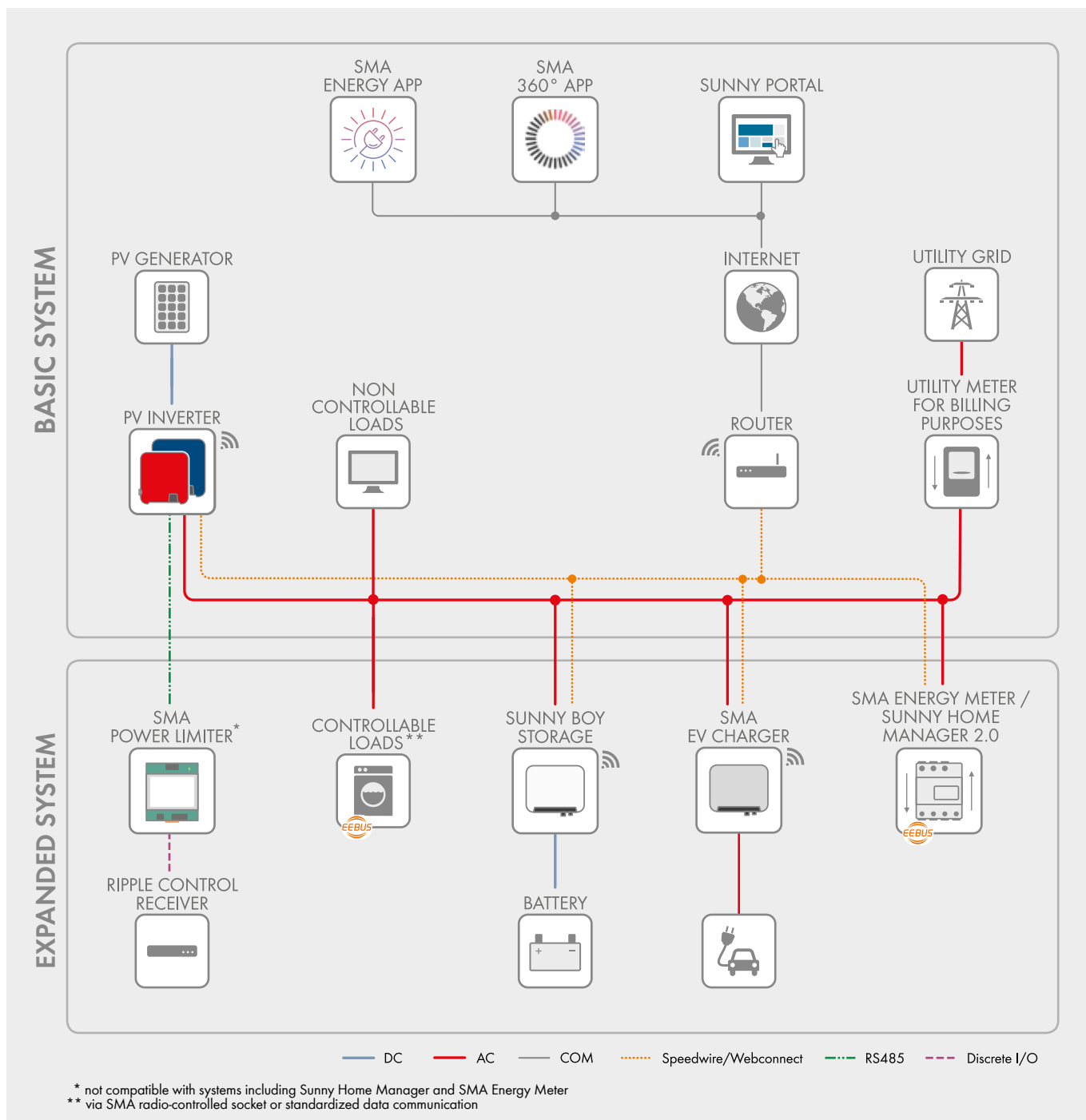


### PERFORMANCE SERVICE

The PV system operator can claim compensation from SMA if the replacement inverter cannot be delivered within three days.

\* Details: see document "Description of Services – SMA SMART CONNECTED"

Technical data	Sunny Boy 3.0	Sunny Boy 3.6	Sunny Boy 4.0	Sunny Boy 5.0	Sunny Boy 6.0
Input (DC)					
Max. generator power	5500 Wp	5500 Wp	7500 Wp	7500 Wp	9000 Wp
Max. input voltage	600 V				
MPP voltage range	110 V to 500 V	130 V to 500 V	140 V to 500 V	175 V to 500 V	210 V to 500 V
Rated input voltage	365 V				
Min. input voltage / initial input voltage	100 V / 125 V				
Max. input current input A / input B	15 A / 15 A				
Max. DC short-circuit current input A / input B	20 A / 20 A				
Number of independent MPP inputs / strings per MPP input	2 / A:2; B:2				
Output (AC)					
Rated power (at 230 V, 50 Hz)	3000 W	3680 W	4000 W	5000 W <sup>1)</sup>	6000 W
Max. apparent power AC	3000 VA	3680 VA	4000 VA	5000 VA <sup>1)</sup>	6000 W
Nominal AC voltage / range	220 V, 230 V, 240 V / 180 V to 280 V				
AC power frequency / range	50 Hz, 60 Hz / –5 Hz to +5 Hz				
Rated power frequency / rated grid voltage	50 Hz / 230 V				
Max. output current	16 A	16 A	22 A <sup>2)</sup>	22 A <sup>2)</sup>	26.1 A
Power factor at rated power	1				
Adjustable displacement power factor	0.8 overexcited to 0.8 underexcited				
Feed-in phases / connection phases	1 / 1				
Efficiency					
Max. efficiency / European Efficiency	97.0% / 96.4%	97.0% / 96.5%	97.0% / 96.5%	97.0% / 96.5%	97.0 % / 96.6 %
Protective devices					
Input-side disconnection point	●				
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 (as per IEC 61140) / overvoltage category (according to IEC 60664-1)	I / III				
General data					
Dimensions (W / H / D)	435 mm / 470 mm / 176 mm (17.1 inches / 18.5 inches / 6.9 inches)				
Weight	17.5 kg (38.5 lb)				
Operating temperature range	–25°C to +60°C (–13°F to +140°F)				
Noise emission, typical	25 dB(A)				
Self-consumption (at night)	5.0 W				
Topology	Transformerless				
Cooling method	Convection				
Degree of protection (as per IEC 60529)	IP65				
Climatic category (as per IEC 60721-3-4)	4K4H				
Max. permissible value for relative humidity (non-condensing)	100%				
Equipment					
DC connection / AC connection	SUNCLIX / AC connector				
Display via smartphone, tablet, laptop	●				
Interfaces: WLAN / Ethernet / RS485	● / ● / ●				
Communication protocols	Modbus (SMA, Sunspec), Webconnect, SMA Data				
Shade management: integrated SMA ShadeFix	●				
Warranty: 5 / 10 / 15 years	● / ○ / ○				
Certificates and approvals (more available upon request)	AS 4777.2, C10/11, CE, CEI 0-21, Dansk Energi DK1/2, DEWA, DIN EN 62109 / IEC 62109, EN 50438, EN 50549-1, G98/1, G99/1, IEC 61727, IEC 62116, IE-EN50438, NBR16149, NEN-EN50438, NRS 097-2-1, NT_Ley20.571, ÖVE/ÖNORM E 8001-4-712 & TOR Erzeuger Typ A, PPC, PPDS, RD1699, RfG compliant, SI4777, UTE C15-712, VDE0126-1-1, VDE-AR-N 4105, VFR 2014				
Country availability of SMA Smart Connected	AU, AT, BE, CH, DE, ES, FR, IT, LU, NL, UK				
● Standard features   ○ Optional features – Not available Data at nominal conditions   Status: 03/2021					
1) 4600 W / 4600 VA according to VDE-AR-N 4105 2) AS 4777: 21.7 A					
Type designation	SB3.0-1AV-41	SB3.6-1AV-41	SB4.0-1AV-41	SB5.0-1AV-41	SB6.0-1AV-41



#### BASIC SYSTEM functions

- Easy commissioning via integrated WLAN and Speedwire interface
- Maximum transparency thanks to visualization in the Sunny Portal / Sunny Places
- Safe investment through SMA Smart Connected
- Modbus as interface for third-party providers

#### EXPANDED SYSTEM functions

- Basic system functions
- Reduction in purchased electricity and increase in self-consumption through use of stored solar energy
- Maximum energy use thanks to forecast-based charging
- Increased self-consumption thanks to intelligent load control
- Easy integration of ripple control receivers via SMA Power Limiter

#### With SMA Energy Meter

- Maximum system usage through dynamic limiting of feed-in to the grid between 0% and 100%
- Visualization of energy consumption



SBS2.5-1VL-10



## Flexible

- Multiple configuration options and extendable PV design
- For new and existing systems
- Compatible with high-voltage lithium-ion batteries

## Easy to use

- One-person installation
- WLAN and intuitive web interface
- Transparency thanks to its direct connection to Sunny Portal / Sunny Places

## Efficient

- Most cost-efficient AC-connected system on the market
- 97% efficiency
- Dynamic export control for SMA PV inverters with Webconnect

## SUNNY BOY STORAGE 2.5

### Simply greater independence

Sunny Boy Storage is the battery inverter designed for new high voltage batteries from leading manufacturers. With a charge and discharge power of 2.5 kW, it is ideally suited to handle the electricity demand of a private household. The device combines the flexibility of the AC coupling with the advantages of high-voltage technology, enabling a significant reduction in system and installation costs. Thanks to the integrated web server and the direct portal access, commissioning is simple, and the energy flows in the household are as transparent as possible.

No matter how the energy is produced and consumed—whether with existing or new PV systems, wind energy or a CHP plant—Sunny Boy Storage can handle everything, today and in the future. Systems with Sunny Boy Storage also have complete flexibility to meet a system owner's changing needs allowing either the generator or battery storage to be individually extended or upgraded at any time.

# SUNNY BOY STORAGE 2.5

## KEEP UP WITH EVERYTHING

THE RIGHT SOLUTION, NOW AND IN THE FUTURE



Systems with the Sunny Boy Storage can be flexibly adapted to individual needs at any time. Whether the family situation changes, perhaps with the purchase of an electric car, which needs charging daily, or with a swimming pool in the garden for pleasure—with the Sunny Boy Storage, storage systems and PV systems can always be designed or expanded to suit specific requirements. The battery inverter is also versatile when it comes to the method of generating energy. From the photovoltaic system and the wind turbine system to the combined heat and power plant, anything is possible. For a secure electricity supply at any time and greater independence from rising electricity costs.

## SUITABLE FOR ANY INITIAL SITUATION



### NEW INSTALLATION: PV SYSTEM WITH BATTERY STORAGE

A PV system with a storage system makes the user independent of conventional power generators and rising electricity costs.

With the Sunny Boy Storage, this is particularly easy and cost-effective.



### MODERNIZE: RETROFIT PV SYSTEM WITH BATTERY STORAGE

PV system operators require only three additional components—Sunny Boy Storage, battery and Energy Meter—to turn their PV system into a fully-fledged storage system. In this way, they can use even more self-generated solar energy in their own home.

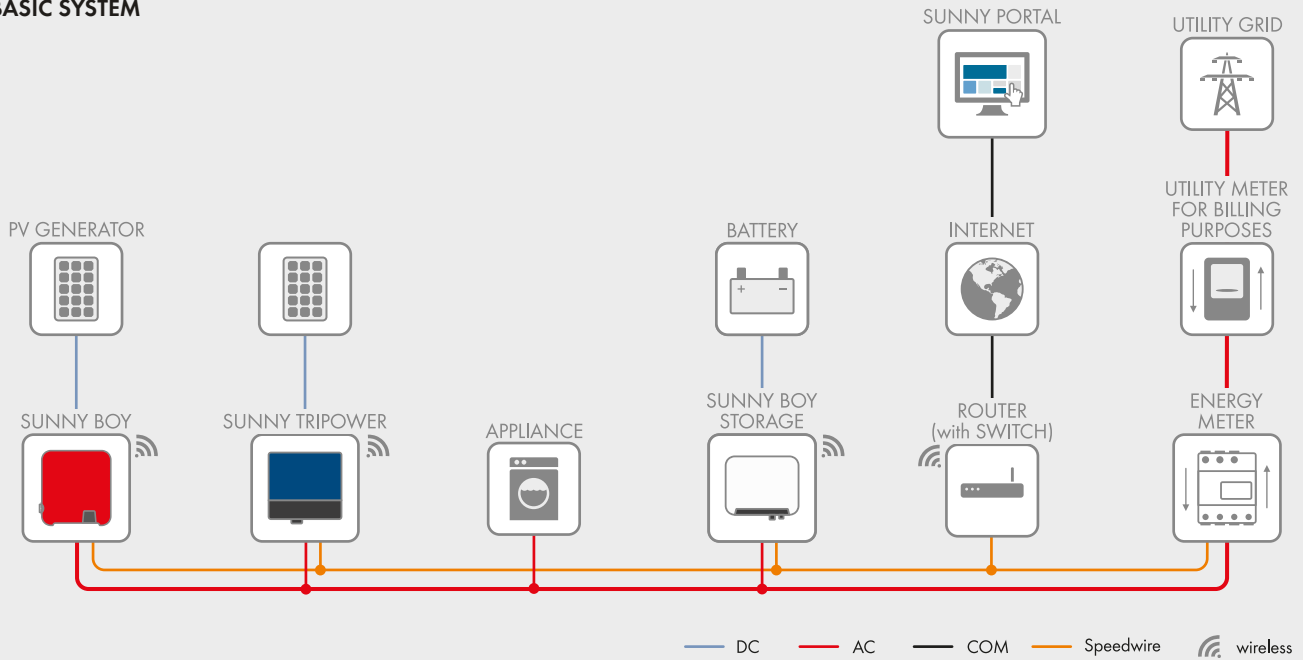


### EXPAND: ALIGN AN EXISTING PV STORAGE SYSTEM TO INCREASING DEMAND

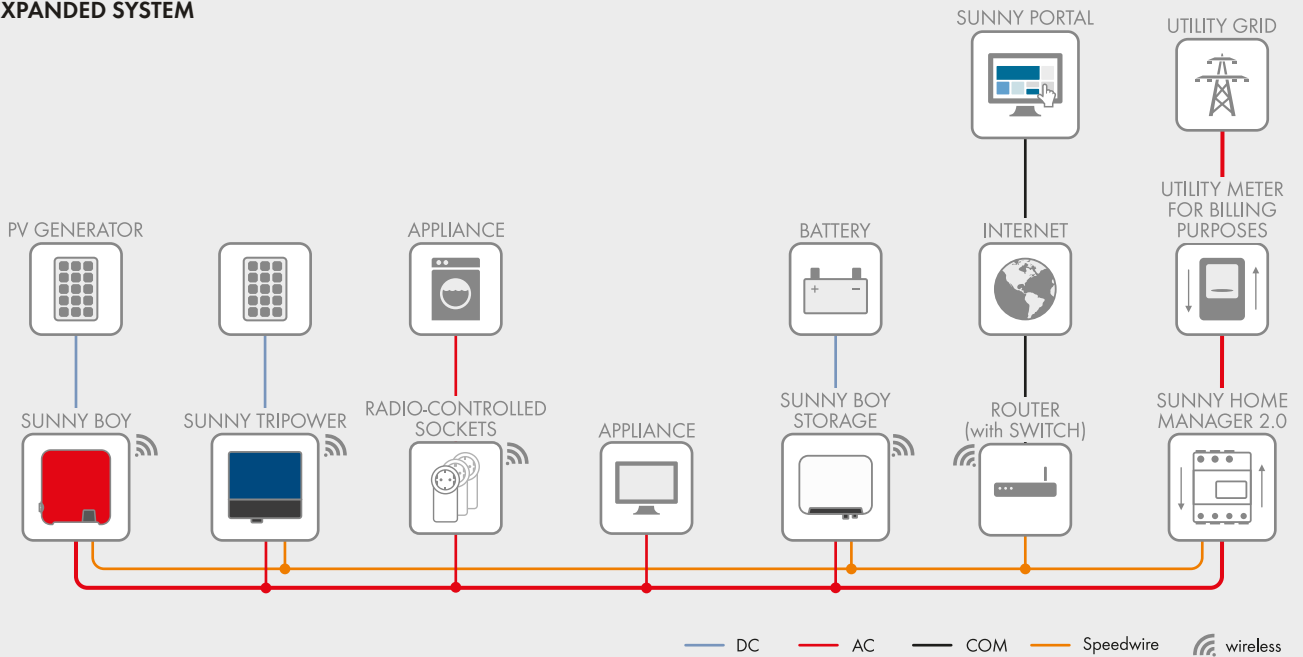
Retrospective system expansion is possible at any time. The PV system and the Sunny Boy Storage system can be expanded independently of each other and flexibly adapted to individual demand.

Technical Data	Sunny Boy Storage 2.5
<b>AC connection</b>	
Rated power (at 230 V, 50 Hz)	2500 W
Max. apparent AC power	2500 VA
Nominal AC voltage / range	220 V, 230 V, 240 V / 180 V to 280 V
AC power frequency / range	50 Hz, 60 Hz / -5 Hz to +5 Hz
Rated power frequency / rated grid voltage	50 Hz / 230 V
Max AC current	11 A
Power factor at rated power	1
Adjustable displacement power factor	0.8 overexcited to 0.8 underexcited
Feed-in phases / connection phases	1 / 1
<b>Battery DC input</b>	
Max. DC power (at $\cos \varphi = 1$ )	2650 W
Max. DC voltage	500 V
DC voltage range / DC rated voltage	100 V to 500 V / 360 V
Min. DC voltage / start DC voltage	100 V / 100 V
Max. DC current	10 A
Max. DC short-circuit current	18 A
Battery type	Li-ion*
<b>Efficiency</b>	
Max. efficiency / Euro-eta	96.8 % / 96.1 %
Self-consumption with no load and battery consumption / standby	$\leq 10 \text{ W}$ / $\leq 2 \text{ W}$
<b>Protective devices</b>	
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 (as per IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III
<b>General Data</b>	
Dimensions (W / H / D)	450 mm / 357 mm / 122 mm (17.7 inches / 14.1 inches / 4.8 inches)
Inverter weight	9.2 kg (20.3 lbs)
Operating temperature range in battery operation	-40°C to +60°C (-40°F to +140°F)
Noise emission, typical	< 25 dB
Topology	Transformerless
Cooling method	Convection
Degree of protection (according to IEC 60529) / climate category (according to IEC 60721-3-4)	IP65 / 4K4H
Max. permissible value for relative humidity (non-condensing)	100%
<b>Features / function / accessories</b>	
DC connection / AC connection	SUNCLIX / AC connector
Display via Smart Phone, Tablet, Laptop	●
Integrated webserver	●
Interfaces: Ethernet / WLAN	● / ●
Communication protocols	Modbus (SMA, Sunspec), Webconnect
Battery communication	CAN bus
Integrated dynamic active power limitation (0% to 100%)	●
Warranty: 5 / 10 years	● / ●**
Certificates and approvals (more available upon request)	AS4777, C10/11-IV1:2018, C10/11-IV2:2018, CE, DIN EN 62109-1 / IEC 62109-1, EN50549-1:2018, EN50549-2:2018, G98/1:2018, G99/1:2018, NEN 50438, UNE206007/UNE206006/ RD1699, VDE0126-1-1, VDE-AR-N4105:2018, VFR 2014, IEC61727, NRS097, PPC, PPDS
Certificates and approvals (planned)	
Sunny Home Manager / SMA Energy Meter	○ / ○
Retrofittable battery-backup function	-
SMA inverter with Webconnect	●
SMA inverter without Webconnect	○
Retrofit with inverters from other suppliers	○
* see "List of Approved Batteries" at <a href="http://www.SMA-Solar.com">www.SMA-Solar.com</a>	
** with registration in Sunny Portal / Sunny Places	
● Standard features   ○ Optional features   - not available	
Data in nominal conditions	
Technical data is subject to change; last update 08/2020	
Type designation	SBS2.5-1VL-10

## BASIC SYSTEM



## EXPANDED SYSTEM



### Basic system functions

- Very easy commissioning via integrated WLAN and Speedwire interface
- Maximum transparency thanks to visualization in Sunny Portal / Sunny Places
- Maximum system yield thanks to dynamic limit of feed-in to the grid between 0 and 100%

\* 1) SMA single-phase / three-phase PV inverter **with** Webconnect

### Expanded system functions

- Basic system functions
- Maximum energy use thanks to forecast-based charging
- Increased self-consumption thanks to intelligent load control
- Reduction in energy costs thanks to usage of time-based electricity tariffs

\* 2) SMA single-phase / three-phase PV inverter **without** Webconnect

\* 3) via SMA radio-controlled socket or standardized data communication, e.g. EEBus

# SUNNY BOY STORAGE 3.7 / 5.0 / 6.0

SBS3.7-10 / SBS5.0-10 / SBS6.0-10



## Reliable Supply

- Integrated secure power supply function
- Fully automated battery-backup function
- 10-year warranty

## Flexible Design

- Can be extended at any time by connecting up to three batteries
- Various PV system sizes and choice of batteries
- Ideal for both retrofitting and new installations

## Simple Handling

- Easy installation
- Quick commissioning with WebUI via WLAN using a smartphone or tablet

- Direct integration into Sunny Portal / Sunny Places via the Webconnect function

## SUNNY BOY STORAGE 3.7 / 5.0 / 6.0

The first multistring battery inverter—always reliably supplied

With the SUNNY BOY STORAGE multistring battery inverter, for the first time, up to three different high-voltage batteries can be connected to one battery inverter. To connect larger batteries, three DC inputs can also be connected in parallel. The Sunny Boy Storage has integrated emergency power, which can be switched manually. Furthermore, it can even take over the entire electricity supply of the three line conductors via the optional automatic transfer unit. Thanks to proven AC coupling, the Sunny Boy Storage is ideally suited to new and retrofitted systems. The integrated webserver enables fast and easy commissioning, which is also possible via smartphone or laptop. Energy flows in the household are fully transparent thanks to the direct connection to Sunny Portal and Sunny Places.

# SUNNY BOY STORAGE 3.7 /5.0 / 6.0

## A RELIABLE SUPPLY AT ALL TIMES THE FIRST MULTISTRING BATTERY INVERTER



Systems with the Sunny Boy Storage can be flexibly adapted to individual needs at all time. Whether the family situation changes, perhaps with the purchase of an electric car, which needs charging daily, or with a swimming pool in the garden for pleasure—with the Sunny Boy Storage, storage systems and PV systems can always be designed or expanded to suit specific requirements. The **multistring battery inverter** is unique, particularly when choosing and connecting different batteries. For a guaranteed electricity supply at any time, the Sunny Boy Storage offers twice as much security.

## SUITABLE FOR ANY INITIAL SITUATION



### NEW INSTALLATION OR RETROFIT: PV SYSTEM WITH BATTERY STORAGE

A PV system with a storage system makes the user independent from conventional power generators and rising electricity costs. With the Sunny Boy Storage, this is particularly easy and quick. Whether a new set-up or an existing system, the Sunny Boy Storage can be retrofitted in any existing PV system.



### SAFE: SUPPLY GUARANTEED EVEN DURING POWER OUTAGES

PV system operators always have a reliable supply during power outages. In the event of grid failure, the inverter can be manually switched to the emergency power supply with the integrated Secure Power Supply function. Secure Power Supply supplies a line conductor with nominal device power of up to 3.7 kW from the battery. The optional transfer switch can even take over the household's entire electricity supply of all three line conductors, fully automatically, in the event of grid failure. This means that you will have a reliable energy supply any time of the day and night.

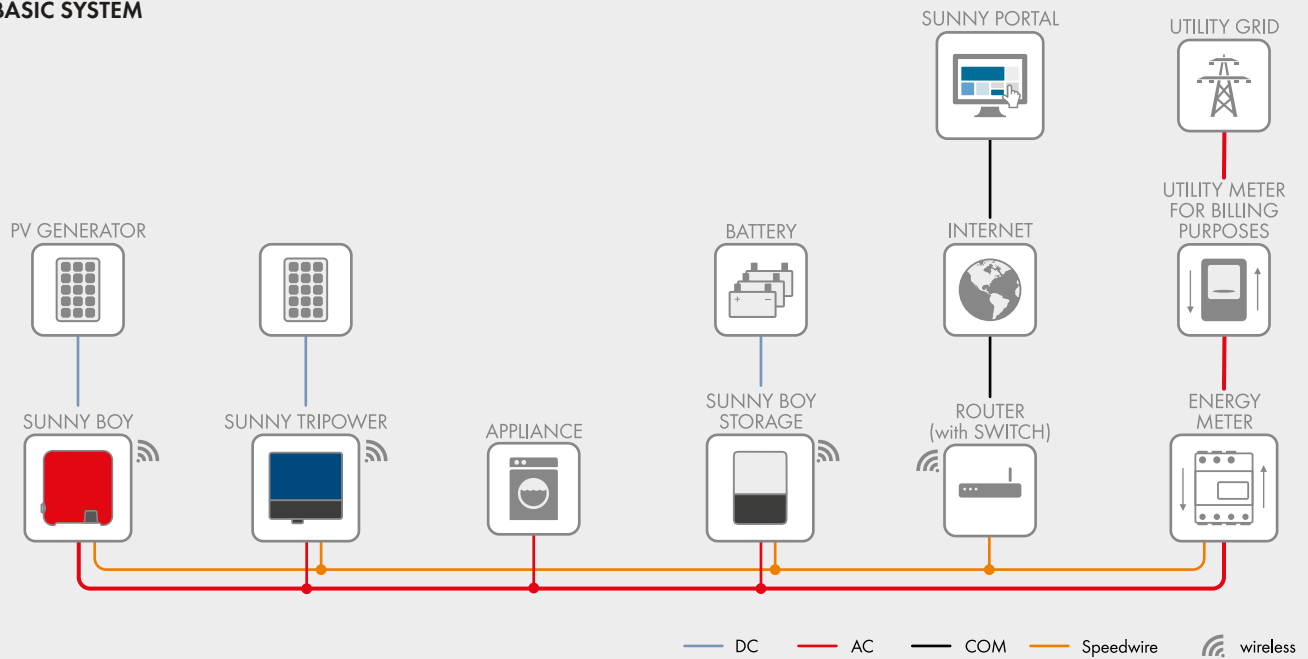


### EXPAND: ADAPT AN EXISTING BATTERY STORAGE SYSTEM TO INCREASING DEMAND

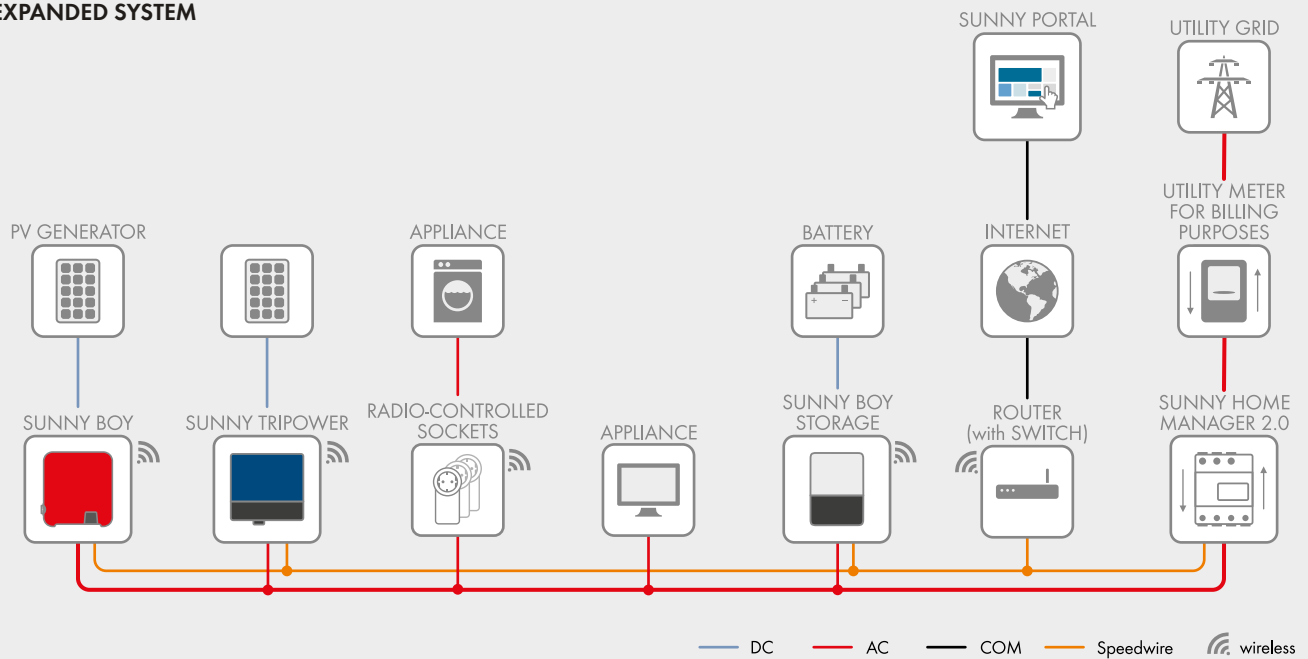
For the first time, the multistring battery inverter offers the option to connect up to three high-voltage batteries made by different manufacturers. The system can therefore be expanded in the future due to rising energy demand without any problems. To connect larger batteries, three separate battery inputs can also be connected in parallel.

Technical data (preliminary)	Sunny Boy Storage 3.7	Sunny Boy Storage 5.0	Sunny Boy Storage 6.0
AC connection			
Rated power (at 230 V, 50 Hz)	3680 W	5000 W <sup>1)</sup>	6000 W <sup>1)</sup>
Overload capacity (at 25 °C to max. 60 sec) <sup>2)</sup>	4600 W	6300 W	7500 W
AC nominal current output (at 230 V, 50 Hz)	16 A	21.7 A <sup>3)</sup>	26 A
Nominal AC voltage / AC voltage range	230 V / 172.5 V to 264.5 V		
AC grid frequency / range	50 Hz / 45 Hz to 65 Hz		
Adjustable displacement power factor	0.8 overexcited to 0.8 underexcited		
Feed-in phases / connection phases	1/1		
Battery DC input			
Max. DC voltage	600 V	600 V	600 V
DC voltage range / DC rated voltage	100 V to 550 V / 360 V	100 V to 550 V / 360 V	100 V to 550 V / 360 V
Min. DC voltage / start DC voltage	100 V / 100 V	100 V / 100 V	100 V / 100 V
Max. DC current per DC input / number of DC inputs	10 A / 3 x 10 A	10 A / 3 x 10 A	10 A / 3 x 10 A
Max. short-circuit current	40 A	40 A	40 A
Battery types	Li-ion <sup>4)</sup>	Li-ion <sup>4)</sup>	Li-ion <sup>4)</sup>
Efficiency			
Max. efficiency	97.5%	97.5%	97.5%
Protective devices			
DC reverse polarity protection / AC short-circuit current capability	● / ●	● / ●	● / ●
Ground fault monitoring / grid monitoring	● / ●	● / ●	● / ●
All-pole-sensitive residual-current monitoring unit	●	●	●
Protection class / surge category	I/IV	I/IV	I/IV
General data			
Dimensions (W / H / D)	535 mm / 730 mm / 198 mm (21.1 inches / 28.5 inches / 7.8 inches)		
Dimensions incl. packaging (W / H / D)	600 mm / 800 mm / 300 mm (23.6 inches / 31.5 inches / 11.8 inches)		
Weight / weight incl. packaging	26 kg (57 lbs) / 30 kg (66 lbs)		
Operating temperature range in battery operation	-25 °C to +60 °C (-13 °F to +140 °F)		
Max. installation height above MSL	3000 m		
Noise emission, typical (at 1 m distance)	39 dB(A)		
Self-consumption standby / self-consumption with no load	< 5 W / < 10 W (without supply for batteries or grid switching unit)		
Topology	Transformerless		
Cooling method	Convection		
Ingress protection	IP65		
Climatic category	4K4H		
Max. permissible value for relative humidity	100%		
Features / function			
Secure Power Supply emergency electricity supply function	● (max. 16 A, activated by manual switch)		
Interfaces	Ethernet / WLAN / CAN / RS485		
Communication / protocols	Modbus (SMA / Sunspec) / Webconnect / Modbus RTU (RS485)		
Battery communication	CAN bus		
Display / Web User Interface	Integrated webserver / via smartphone, tablet, laptop		
Remote monitoring	Sunny Portal via Webconnect		
Warranty	5 years / 10 years with registration in Sunny Portal / Sunny Places		
Certificates, approvals and manufacturer declarations	www.SMA-Solar.com		
Accessories			
Automatic transfer switch for battery backup system	Available from external suppliers		
Sunny Home Manager / Home Manager 2.0	Compatible		
SMA Energy Meter	Compatible		
● Standard features   ○ Optional   – Not available			
All information is preliminary—last update: December 2017			
1) VDE: AR-N 4105; PAC, r 4600 W; Smax 4600 VA			
2) only in battery-backup operation with an automatic transfer switch; overload capacity depends on the battery used			
3) AS4777: Iac max.: 21.7 A			
4 )Battery types approved by SMA, e.g., LG Chem, BYD, etc. (see www.SMA-Solar.com)			
Type designation	SBS3.7-10	SBS5.0-10	SBS6.0-10

## BASIC SYSTEM



## EXPANDED SYSTEM



## BASIC SYSTEM functions

- Energy management at grid-connection point
- Maximum system yield thanks to dynamic limit of feed-in to the utility grid between 0% and 100%
- Maximum transparency thanks to visualization in Sunny Portal / Sunny Places
- External Modbus interface
- Optional: fully automated battery-backup function for a complete household grid

## Expanded SYSTEM FUNCTIONS

- Basic system functions
- Reduction in energy costs thanks to usage of time-based electricity tariffs
- Maximum energy use thanks to forecast-based charging
- Increased self-consumption thanks to intelligent load control



# SUNNY ISLAND 4.4M / 6.0H / 8.0H FOR ON-GRID AND OFF-GRID APPLICATIONS



SI4.4M-13 / SI6.0H-13 / SI8.0H-13



## Communicative

- Sunny Portal powered by ennexOS
- State-of-the-art communication via Ethernet
- Commissioning via WLAN
- Webconnect
- Optimized data logging

## Reliable

- 5 + 5-year warranty
- Very high overload capability
- IP54 for reliable operation in extreme environments

## Flexible

- For use with self-consumption systems, battery backup systems and off-grid systems
- For single- and three-phase systems
- Modular and extendable

- For lead-acid batteries and approved lithium-ion batteries from various manufacturers

## SUNNY ISLAND 4.4M / 6.0H / 8.0H

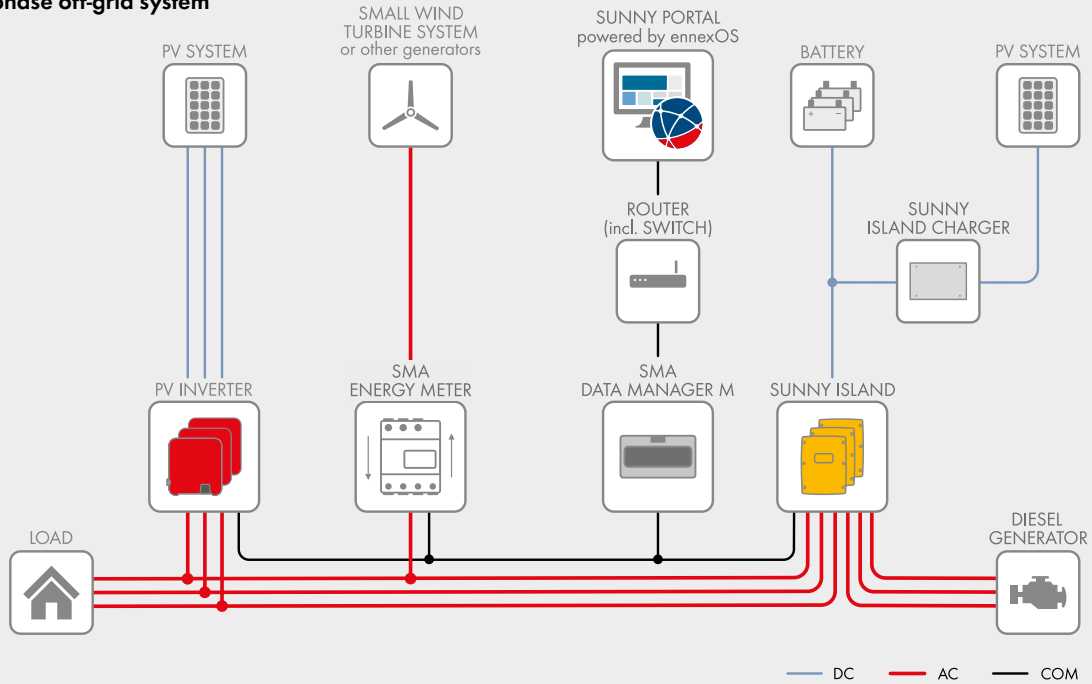
The most reliable all-purpose solution – easier than ever

The Sunny Island battery inverter supports a wide range of on- and off-grid installations with compelling product features – from operation in off-grid areas to home energy management. Users can benefit from SMA's experience in having installed more than 100,000 Sunny Island inverters worldwide. Thanks to its integrated user interface and standard WLAN and Ethernet interfaces, the Sunny Island 4.4M / 6.0H / 8.0H can be immediately and easily commissioned and configured via smartphones or tablets. And being a core element in the SMA Flexible Storage System, the Sunny Island temporarily stores self-generated power in the battery thus making it possible to use solar power around-the-clock.

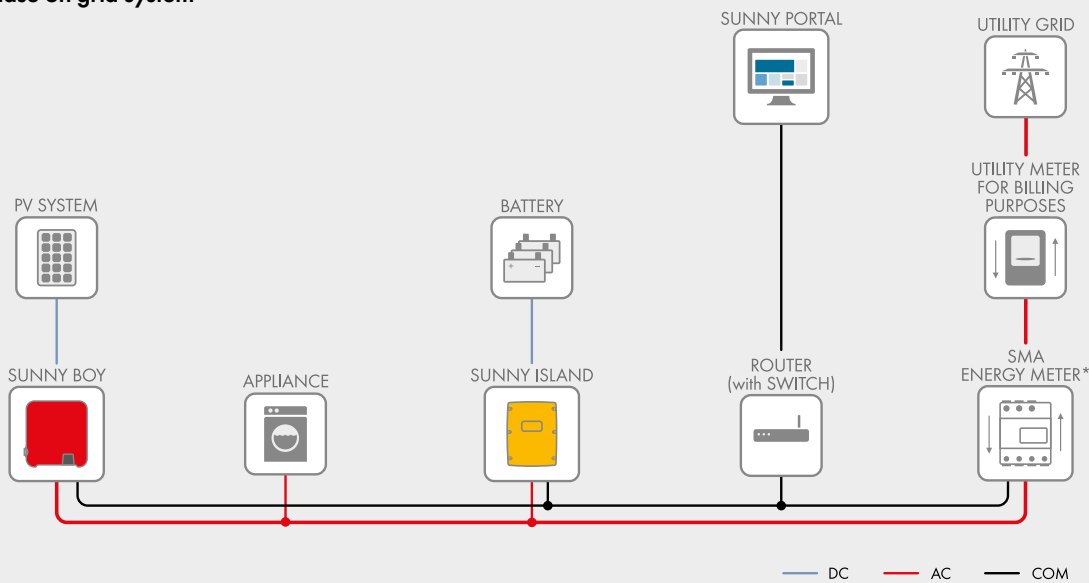
Its high protection class, wide temperature range and exceptional overload capacity always provide the kind of reliability needed for any kind of application. Intelligent load and energy management keeps the system running even in critical situations. The Sunny Island is the ultimate all-purpose solution – and includes a 10-year warranty\*.

\*) When registered in Sunny Portal.

### Three-phase off-grid system

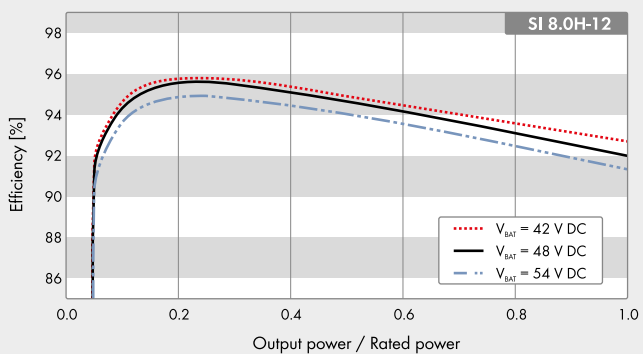


### Single-phase on-grid system

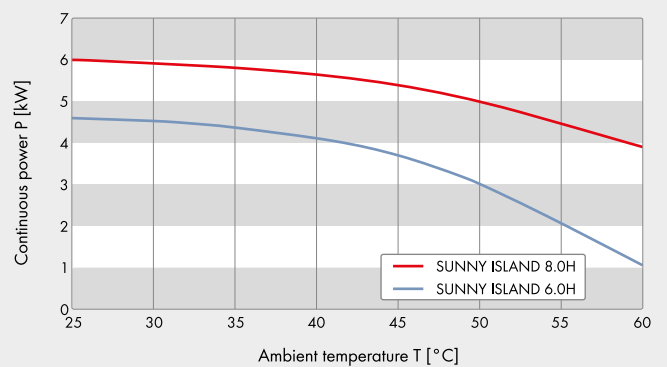


\* Other functions with SMA Energy Meter powered by ennexOS and Sunny Home Manager 2.0 are possible.

### Efficiency curve



### Power-temperature curve



Technical data	Sunny Island 4.4M	Sunny Island 6.0H	Sunny Island 8.0H
<b>Operation on the utility grid or generator</b>			
Rated grid voltage / AC voltage range	230 V / 172.5 V to 264.5 V		
Rated grid frequency / permitted frequency range	50 Hz / 40 Hz to 70 Hz		
Maximum AC current for increased self-consumption (grid operation)	14.5 A	20 A	26 A <sup>6)</sup>
Maximum apparent AC power for increased self-consumption (grid operation)	3.3 kVA	4.6 kVA	6 kVA <sup>6)</sup>
Maximum AC input current	50 A	50 A	50 A
Maximum AC input power	11 500 W	11 500 W	11 500 W
Adjustable displacement power factor	0.8 overexcited to 0.8 underexcited		
<b>Stand-alone or emergency power operation</b>			
Rated grid voltage / AC voltage range	230 V / 202 V to 253 V		
Rated frequency / frequency range (adjustable)	50 Hz / 45 Hz to 65 Hz		
Rated power (at Unom, fnom / 25 °C / cos φ = 1)	3300 W	4600 W	6000 W
AC power at 25 °C for 30 min / 5 min / 3 sec	4400 W / 4600 W / 5500 W	6000 W / 6800 W / 11000 W	8000 W / 9100 W / 11000 W
AC power at 45 °C continuously	3000 W	3700 W	5430 W
Rated current / maximum output current (peak)	14.5 A / 60 A	20 A / 120 A	26 A / 120 A
Total harmonic distortion output voltage / power factor at rated power	< 5% / −1 to +1	< 1.5% / −1 to +1	< 1.5% / −1 to +1
<b>Battery DC input</b>			
Rated input voltage / DC voltage range	48 V / 41 V to 63 V	48 V / 41 V to 63 V	48 V / 41 V to 63 V
Maximum battery charging current / rated DC charging current / DC discharging current	75 A / 63 A / 75 A	110 A / 90 A / 103 A	140 A / 115 A / 130 A
Battery type / battery capacity (range)	Li-Ion <sup>1)</sup> , FLA, VRLA / 100 Ah to 10000 Ah (lead-acid) 50 Ah to 10000 Ah (li-Ion)		
Charge control	IUoU charge procedure with automatic full charge and equalization charge		
<b>Efficiency / self-consumption of the device</b>			
Maximum efficiency	95.5 %	95.8 %	95.8 %
No-load consumption / standby	18 W / 6.8 W	25.8 W / 6.5 W	25.8 W / 6.5 W
<b>Protective devices (equipment)</b>			
AC short-circuit / AC overload	● / ●		
DC reverse polarity protection / DC fuse	− / −		
Overtemperature / battery deep discharge	● / ●		
Overvoltage category as per IEC 60664-1	III		
<b>General Data</b>			
Dimensions (W / H / D)	467 mm / 612 mm / 242 mm (18.4 inches / 21.1 inches / 9.5 inches)		
Weight	44 kg (97 lbs)	63 kg (138.9 lbs)	63 kg (138.9 lbs)
Operating temperature range	−25 °C to +60 °C (−13 °F to +14 °F)		
Protection class as per IEC 62103	I		
Climatic category as per IEC 60721	3K6		
Degree of protection according to IEC 60529	IP54		
RoHS-III compliant	●		
<b>Features / function</b>			
WLAN, Speedwire / Webconnect / SI-SYSCAN (Multiclustar)	● / ● / −	● / ● / ○	● / ● / ○
Direct connection to Sunny Portal via Webconnect	●		
Sunny Portal powered by ennexOS via SMA Data Manager M or L	●		
Micro SD memory card for extended data logging	○		
Display via smartphone, tablet, laptop / multifunction relay	● / 2		
Three-phase systems (including rotating magnetic field) <sup>2)</sup> / battery-backup function	● / ●		
State of charge calculation / full charge / equalization charge	● / ● / ●		
Battery temperature sensor / data cables	○ / ●		
Certificates and approvals	www.SMA-Solar.com		
Cover color yellow / aluminum white	○ / ○		
Warranty 5/10 years	● / ● <sup>3)</sup>		
<b>For off-grid applications</b>			
Switching times for backup operation (without switch box or MC-Box) <sup>4)</sup>	−	0 ms (high impedance) / 20 ms (low impedance)	
Automatic rotating magnetic field detection / generator support	● / ●		
Parallel connection / Multiclustar	− / −	● / ●	● / ●
Integrated soft start	●		
<b>Accessories</b>			
<b>For off-grid applications</b>			
Multiclustar boxes: MC-BOX-6.3 / MC-BOX-12.3 / MC-BOX-36.3	○		
Battery fuse <sup>5)</sup>	○		
Sunny Island Charger: SIC50-MPT <sup>5)</sup> / SI Charger Piggy Back SIC-PB	○ / ○		
Data Manager M	○		
<b>For on-grid applications</b>			
Sunny Home Manager / SMA Energy Meter	○ / ○		
Automatic transfer switch for battery backup <sup>5)</sup>	○		
Type designation	SI4.4M-13	SI6.0H-13	SI8.0H-13

● Standard feature ○ Optional feature - Not available All specifications as of 09/2020

1) See "List of Approved Batteries" at www.SMA-Solar.com 2) 3 x Sunny Island 3) When registering in Sunny Portal 4) See "Switchovertime-T1en-11 | Version 1.1" at www.SMA-Solar.com

5) Procurement from external suppliers 6) Different limitation depending on the configured country data set (e.g., VDE-AR-N 4105:2018= 4.6 kVA and 20 A)

# SUNNY PORTAL powered by ennexOS

## Energy Balance and System Analysis at a Glance



# SUNNY TRIPOWER 3.0 / 4.0 / 5.0 / 6.0

## With SMA SMART CONNECTED



STP3.0-3AV-40 / STP4.0-3AV-40 / STP5.0-3AV-40 / STP6.0-3AV-40



**Intelligent service with  
SMA Smart Connected**



**SMA ShadeFix**  
STRING LEVEL OPTIMIZATION

### Compact

- One-person installation due to low weight of 17 kg
- Compact design means minimum space requirements

### Easy to use

- 100% plug and play installation
- Free online monitoring via Sunny Places
- Automated service thanks to SMA Smart Connected

### High yields

- Use of surplus energy through dynamic active power limitation
- Yield increase without installation effort due to integrated shade management SMA ShadeFix

### Combinable

- Intelligent energy management and storage solutions can be added anytime
- Can be combined with TS4-R components for module optimization

## SUNNY TRIPOWER 3.0 / 4.0 / 5.0 / 6.0

Higher yields for private homes – intelligent solar power generation

The new Sunny Tripower 3.0–6.0 ensures maximum energy yields for private homes. This inverter combines the integrated Service SMA Smart Connected service and intelligent technology for all ambient requirements. Thanks to its extremely light design, the device can be installed quickly and easily. The Sunny Tripower can be commissioned quickly via smartphone or tablet thanks to its integrated web interface. For specific requirements on the roof, such as shading, the TS4-R module optimizers can be added into the system, with all communication and monitoring facilitated through the inverter. Current communication standards make the inverter future-proof, meaning intelligent energy management solutions as well as SMA storage solutions can be flexibly added anytime.

# SMA SMART CONNECTED

## The integrated service for ease and comfort

SMA Smart Connected\* is free monitoring of an inverter via the SMA Sunny Portal. If an inverter fails, SMA proactively informs the PV system owner and the installer. This saves valuable working time and costs.

With SMA Smart Connected, the installer benefits from rapid diagnoses by SMA. They can thus quickly rectify the fault and score points with the customer thanks to the additional, attractive services.



### ACTIVATION OF SMA SMART CONNECTED

During registration of the system in the Sunny Portal, the installer activates SMA Smart Connected and benefits from automatic inverter monitoring by SMA.



### AUTOMATIC INVERTER MONITORING

SMA takes on the job of inverter monitoring with SMA Smart Connected. SMA automatically checks the individual inverters for anomalies around the clock during operation. Every customer thus benefits from SMA's many years of experience.



### PROACTIVE COMMUNICATION IN THE EVENT OF FAULTS

After a fault has been diagnosed and analyzed, SMA informs the installer and end customer immediately by e-mail. Everyone is thus optimally prepared for the troubleshooting process. This minimizes downtime and saves time and money. Regular power reports also provide valuable information about the overall system.



### REPLACEMENT SERVICE

If a replacement device is necessary, SMA automatically supplies a new inverter within one to three days of the fault diagnosis. The installer can contact the PV system operator of their own accord and replace the inverter.

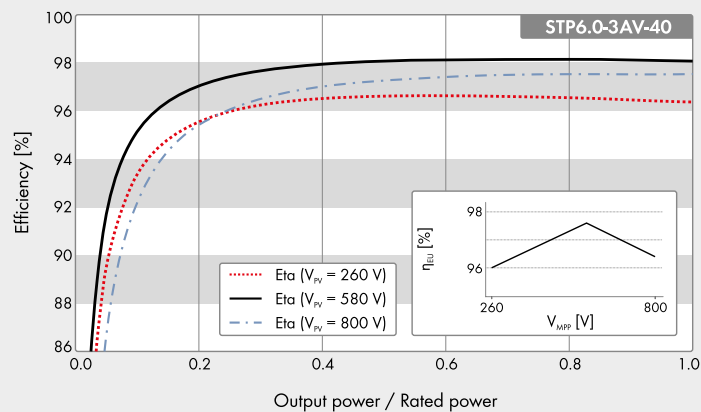


### PERFORMANCE SERVICE

The PV system operator can claim compensation from SMA if the replacement inverter is not delivered within three days.

\* Details: see document "Description of Services—SMA SMART CONNECTED"

## Efficiency curve



## Accessories (optional)

TS4-R-X

M: Monitoring  
S: Shutdown  
O: Optimization

Gateway (GTWY)

SMA Energy Meter

• Standard features ○ Optional features — not available  
Data in nominal conditions  
Last revision: 07/2020

Technical data	Sunny Tripower 3.0	Sunny Tripower 4.0	Sunny Tripower 5.0	Sunny Tripower 6.0
<b>Input (DC)</b>				
Max. PV array power	6000 Wp	8000 Wp	9000 Wp	9000 Wp
Max. input voltage	850 V	850 V	850 V	850 V
MPP voltage range	140 V to 800 V	175 V to 800 V	215 V to 800 V	260 V to 800 V
Rated input voltage	580 V			
Min. input voltage / initial input voltage	125 V / 175 V			
Max. input current input A / input B	12 A / 12 A			
Max. DC short-circuit current input A/input B	18 A / 18 A			
Number of independent MPP inputs / strings per MPP input	2/A: 1; B: 1			
<b>Output (AC)</b>				
Rated power (at 230 V, 50 Hz)	3000 W	4000 W	5000 W	6000 W
Max. apparent power AC	3000 VA	4000 VA	5000 VA	6000 VA
Nominal AC voltage	3/N/PE; 220 V / 380 V 3/N/PE; 230 V / 400 V 3/N/PE; 240 V / 415 V			
AC voltage range	180 V to 280 V			
AC grid frequency / range	50 Hz / 45 Hz to 55 Hz 60 Hz / 55 Hz to 65 Hz			
Rated grid frequency / rated grid voltage	50 Hz / 230 V			
Max. output current	3 x 4.5 A	3 x 5.8 A	3 x 7.6 A	3 x 9.1 A
Power factor at rated power / Displacement power factor, adjustable	1 / 0.8 overexcited to 0.8 underexcited			
Feed-in phases / connection phases	3 / 3			
<b>Efficiency</b>				
Max. efficiency / European efficiency	98.2% / 96.5%	98.2% / 97.1%	98.2% / 97.4%	98.2% / 97.6%
<b>Protective devices</b>				
Input-side disconnection point	•			
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 61140) / surge category (according to IEC 60664-1)	I / III			
<b>General data</b>				
Dimensions (W / H / D)	435 mm / 470 mm / 176 mm (17.1 inches / 18.5 inches / 6.9 inches)			
Weight	17 kg (37.4 lbs)			
Operating temperature range	-25°C to +60°C (-13°F to +140°F)			
Noise emission, typical	30 dB(A)			
Self-consumption (at night)	5.0 W			
Topology / Cooling concept	Transformerless / Convection			
Degree of protection (according to IEC 60529)	IP65			
Climatic category (according to IEC 60721-3-4)	4K4H			
Max. permissible value for relative humidity (non-condensing)	100%			
<b>Equipment</b>				
DC connection / AC connection	SUNCLIX / AC connector			
Display via smartphone, tablet, laptop	•			
Interfaces: WLAN / Ethernet / RS485	• / • / •			
Communication protocols	Modbus (SMA, Sunspec), Webconnect, SMA Data, TS4-R			
Shade management: SMA ShadeFix (integrated) / TS4-R	• / ○			
Warranty: 5 / 10 / 15 years	• / ○ / ○			
Certificates and permits (more available upon request)	AS 4777, C10/11, CE, CEI 0-21, DIN EN 62109-1/IEC 62109-1, DIN EN 62109-2/IEC 62109-2, EN 50438, G59/3, G83/2, NEN-EN 50438, ÖVE / ÖNORM E 8001-4-712, PPDS, PPC, RD 1699, SI 4777, TR 3.2.1, UTE C15-712, VDE-AR-N 4105, VDE-0126-1-1, VFR 2014, RfG compliant			
Certificates and approvals (currently being planned)	DEWA 2016, EN 62116, IEC 61727, IEC-EN 50438, NBR 16149, NRS 097-2-1			
Country availability of SMA Smart Connected	AU, AT, BE, CH, DE, ES, FR, IT, LU, NL, UK			
Type designation	STP3.0-3AV-40	STP4.0-3AV-40	STP5.0-3AV-40	STP6.0-3AV-40





# SUNNY TRIPOWER 8.0 / 10.0 with SMA SMART CONNECTED



STP8.0-3AV-40 / STP10.0-3AV-40



**Intelligent service with  
SMA Smart Connected**



**SMA ShadeFix**  
STRING LEVEL OPTIMIZATION

## Compact

- One-person installation due to low weight of 20.5 kg
- Compact design means minimum space requirements

## Easy to use

- 100% plug and play installation
- Free online monitoring via Sunny Places
- Automated service thanks to SMA Smart Connected

## High yields

- Use of surplus energy through dynamic active power limitation
- Yield increase without installation effort due to integrated shade management SMA ShadeFix

## Combinable

- Intelligent energy management and storage solutions can be added anytime
- Can be combined with TS4-R components for module optimization

## SUNNY TRIPOWER 8.0 / 10.0

Higher yields for private homes – intelligent solar power generation

The new Sunny Tripower 8.0–10.0 ensures maximum energy yields for private homes. This inverter combines the integrated SMA Smart Connected service with intelligent technology for all ambient conditions. Thanks to its extremely light design, the device can be installed quickly and easily. The Sunny Tripower can be commissioned quickly via smartphone or tablet thanks to its integrated web interface. For specific requirements on the roof, such as shading, the TS4-R module optimizers can be added into the system, with all communication and monitoring facilitated through the inverter. Current communication standards make the inverter future-proof, meaning intelligent energy management solutions as well as SMA storage solutions can be flexibly added anytime.

# SMA SMART CONNECTED

## Integrated service for ease and comfort

SMA Smart Connected\* is free monitoring of an inverter via the SMA Sunny Portal. If an inverter fails, SMA proactively informs the PV system owner and the installer. This saves valuable working time and costs.

With SMA Smart Connected, the installer benefits from rapid diagnoses by SMA. They can thus quickly rectify the fault and score points with the customer thanks to the additional, attractive services.



### ACTIVATION OF SMA SMART CONNECTED

During registration of the system in the Sunny Portal, the installer activates SMA Smart Connected and benefits from automatic inverter monitoring by SMA.



### AUTOMATIC INVERTER MONITORING

SMA takes on the job of inverter monitoring with SMA Smart Connected. SMA automatically checks the individual inverters for anomalies around the clock during operation. Every customer thus benefits from SMA's many years of experience.



### PROACTIVE COMMUNICATION IN THE EVENT OF FAULTS

After a fault has been diagnosed and analyzed, SMA informs the installer and end customer immediately by email. Everyone is thus optimally prepared for the troubleshooting process. This minimizes downtime and saves time and money. Regular power reports also provide valuable information about the overall system.



### REPLACEMENT SERVICE

If a replacement device is necessary, SMA automatically supplies a new inverter within one to three days of the fault diagnosis. The installer can contact the PV system operator of their own accord and replace the inverter.

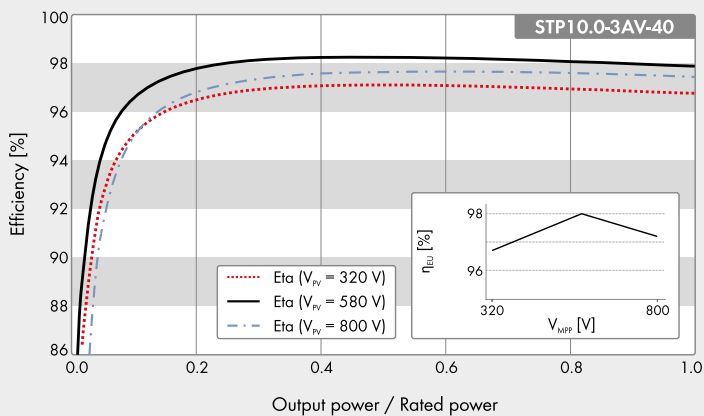


### PERFORMANCE SERVICE

The PV system operator can claim compensation from SMA if the replacement inverter is not delivered within three days.

\* Details: see document "Description of Services – SMA SMART CONNECTED"

## Efficiency curve



## Accessories (optional)

TS4-R-X

Gateway (GTWY)

SMA Energy Meter

- M: Monitoring
- S: Shutdown
- O: Optimization

● Standard features ○ Optional features — not available

Data in nominal conditions

Last updated: 11/2019

## Technical data

### Input (DC)

Max. PV array power
Max. input voltage
MPP voltage range
Rated input voltage
Min. input voltage / initial input voltage
Max. input current input A / input B
Max. DC short-circuit current input A / input B
Number of independent MPP inputs / strings per MPP input

### Output (AC)

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

### Efficiency

Max. efficiency / European efficiency
---------------------------------------

### Protective devices

Input-side disconnection point
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 61140) / surge category (according to IEC 60664-1)

### General data

Dimensions (W / H / D)
Weight
Operating temperature range
Noise emission, typical
Self-consumption (at night)
Topology / cooling method
Degree of protection (according to IEC 60529)
Climatic category (according to IEC 60721-3-4)
Max. permissible value for relative humidity ( non-condensing )

### Features

DC connection / AC connection
Display via smartphone, tablet, laptop
Interfaces: WLAN / Ethernet / RS485
Communication protocols
Shade management: SMA ShadeFix (integrated) / TS4-R
Warranty: 5 / 10 / 15 years
Certificates and permits (more available upon request)

Certificates and approvals (planned)

Country availability of SMA Smart Connected

Type designation

## Sunny Tripower 8.0

15000 Wp
1000 V
260 V to 800 V

## Sunny Tripower 10.0

15000 Wp
1000 V
320 V to 800 V

580 V
125 V / 150 V
20 A / 12 A
30 A / 18 A
2 / A:2; B:1

8000 W
8000 VA
3 / N / PE; 220 V / 380 V
3 / N / PE; 230 V / 400 V
3 / N / PE; 240 V / 415 V
180 V to 280 V
50 Hz / 45 Hz to 55 Hz
60 Hz / 55 Hz to 65 Hz
50 Hz / 230 V
3 x 12.1 A
1 / 0.8 overexcited to 0.8 underexcited
3 / 3

98.3 % / 97.7 %
98.3 % / 98.0 %

•
• / •
• / • / -
•
I / III

460 mm / 497 mm / 176 mm (18.1 inches / 19.6 inches / 6.9 inches)
20.5 kg (45.2 lbs)
-25 °C to +60 °C (-13 °F to +140 °F)
30 dB(A)
5.0 W
Transformerless / convection
IP65
4K4H
100%

SUNCLIX / AC connector

•
• / • / •
Modbus (SMA, Sunspec), Webconnect, SMA Data, TS4-R
• / ○
• / ○ / ○

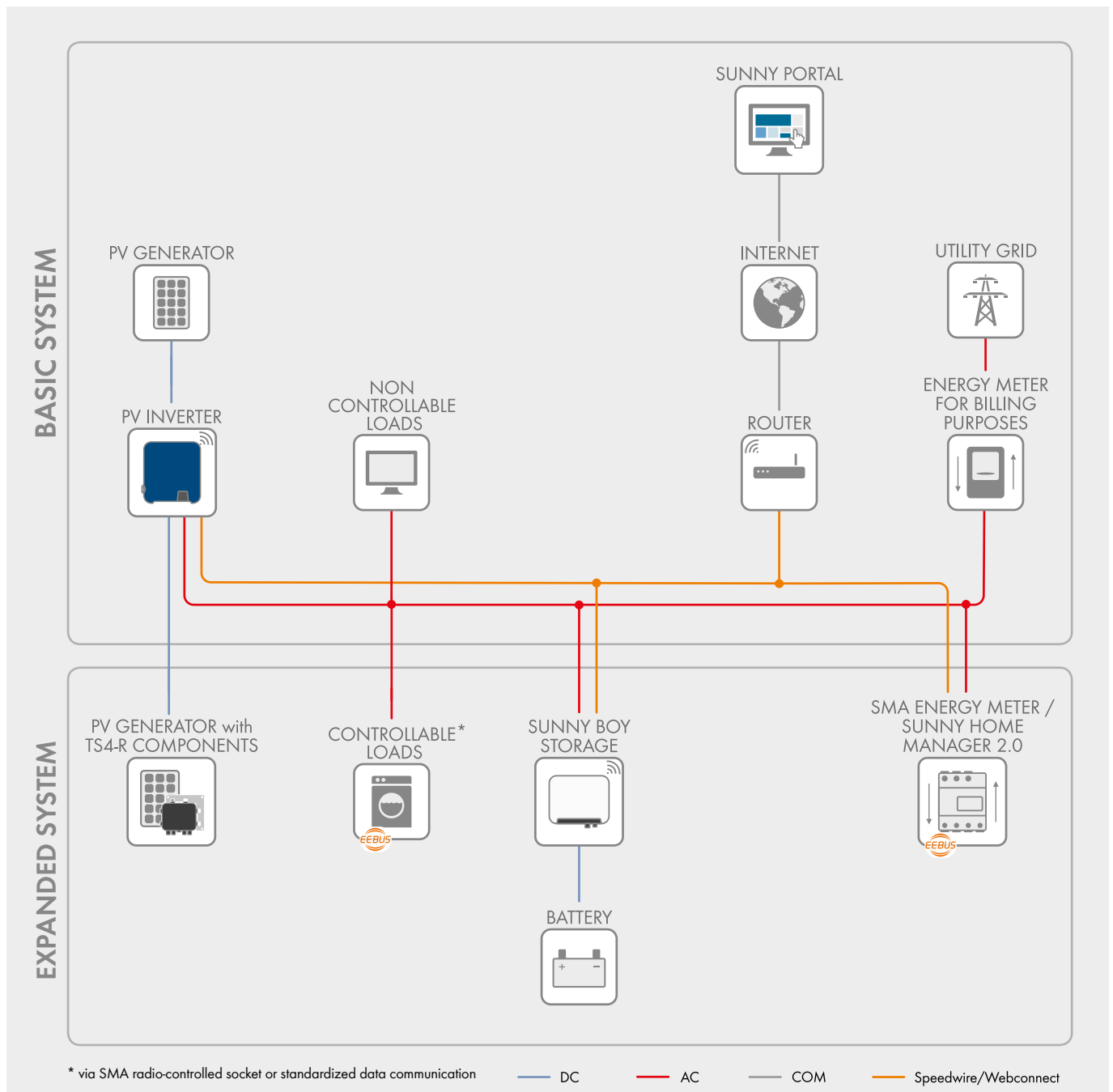
AS 4777.2, C10/11, CE, CEI 0-21, EN 50438, G59/3-4, G83/2-1, DIN EN 62109 / IEC 62109, NEN-EN50438, ÖVE/ÖNORM E 8001-4-712 & TOR D4, PPC, PPDS, RD1699, SI4777, TR3.2.1, UTE C15-712, VDE-AR-N 4105, VDE0126-1-1, VFR 2014, RfG compliant

DEWA, IEC 61727, IEC 62116, IEC-EN50438, MEA, NBR16149, NT\_Ley20.571, PEA, TR3.2.2

AU, AT, BE, CH, DE, ES, FR, IT, LU, NL, UK

STP8.0-3AV-40

STP10.0-3AV-40



#### BASIC SYSTEM functions

- Easy commissioning via integrated WLAN and Speedwire interface
- Maximum transparency thanks to visualization in Sunny Portal / Sunny Places
- Safe investment through SMA Smart Connected
- Modbus as interface for third-party providers

#### Expanded SYSTEM FUNCTIONS

- Basic system functions
- Reduction in purchased electricity and increase in self-consumption through use of stored solar energy
- Maximum energy use thanks to forecast-based charging
- Increased self-consumption thanks to intelligent load control
- Maximum system yield through Smart module technology

#### With SMA Energy Meter

- Maximum system usage through dynamic limiting of feed-in to the grid between 0% and 100%
- Visualization of energy consumption

# SUNNY TRIPOWER

## 15000TL / 20000TL / 25000TL



STP 15000TL-30 / STP 20000TL-30 / STP 25000TL-30



**Intelligent service with  
SMA Smart Connected**



**SMA ShadeFix**  
STRING LEVEL OPTIMIZATION

### Efficient

- Maximum efficiency of 98.4%
- Yield increase without installation effort due to integrated shade management SMA ShadeFix

### Safe

- DC surge arrester (SPD type II) can be integrated

### Flexible

- DC input voltage of up to 1000 V
- Multistring capability for optimum system design
- Optional display

### Innovative

- Cutting-edge grid management functions with Integrated Plant Control
- Reactive power available 24/7 (Q on Demand 24/7)

## SUNNY TRIPOWER 15000TL / 20000TL / 25000TL

The versatile specialist for large-scale commercial plants and solar power plants

The Sunny Tripower is the ideal inverter for large-scale commercial and industrial plants. Not only does it deliver extraordinary high yields with an efficiency of 98.4%, but it also offers enormous design flexibility and compatibility with many PV modules thanks to its multistring capabilities and wide input voltage range.

The future is now: the Sunny Tripower comes with cutting-edge grid management functions such as Integrated Plant Control, which allows the inverter to regulate reactive power at the point of common coupling. Separate controllers are no longer needed, lowering system costs. Another new feature—reactive power provision on demand (Q on Demand 24/7).

# SMA SMART CONNECTED

## The integrated service for ease and comfort

SMA Smart Connected\* is the free monitoring of the inverter via the SMA Sunny Portal. If there is an inverter fault, SMA proactively informs the PV system operator and the installer. This saves valuable working time and costs.

With SMA Smart Connected, the installer benefits from rapid diagnoses by SMA. They can thus quickly rectify the fault and score points with the customer thanks to the attraction of additional services.



### ACTIVATION OF SMA SMART CONNECTED

During registration of the system in the Sunny Portal, the installer activates SMA Smart Connected and benefits from the automatic inverter monitoring by SMA.



### AUTOMATIC INVERTER MONITORING

SMA takes on the job of inverter monitoring with SMA Smart Connected. SMA automatically checks the individual inverters for anomalies around the clock during operation. Every customer thus benefits from SMA's long years of experience.



### PROACTIVE COMMUNICATION IN THE EVENT OF FAULTS

After a fault has been diagnosed and analyzed, SMA informs the installer and end customer immediately by e-mail. Everyone is thus optimally prepared for the troubleshooting. This minimizes the downtime and saves time and money. The regular power reports also provide valuable information about the overall system.



### REPLACEMENT SERVICE

If a replacement device is necessary, SMA automatically supplies a new inverter within one to three days of the fault diagnosis. The installer can contact the PV system operator of their own accord and replace the inverter.

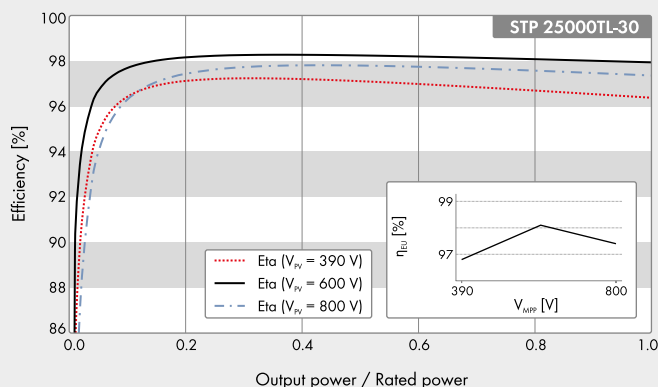


### PERFORMANCE SERVICE

The PV system operator can claim compensation from SMA if the replacement inverter cannot be delivered within three days.

\* Details: see document "Description of Services – SMA SMART CONNECTED"

## Efficiency Curve



## Accessory



RS485 interface  
DM-485CB-10



Power Control Module  
PWCMOD-10



DC surge arrester Typ II,  
inputs A and B  
DCSPD KIT3-10



Multifunction relay  
MFR01-10

● Standard features ○ Optional features — Not available  
Data at nominal conditions  
Status: 02/2021

### Technical Data

#### Input (DC)

Max. generator power
DC rated power
Max. input voltage
MPP voltage range / rated input voltage
Min. input voltage / start input voltage
Max. input current input A / input B
Max. DC short-circuit current input A/input B
Number of independent MPP inputs / strings per MPP input

#### Output (AC)

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

#### Efficiency

Max. efficiency / European Efficiency
---------------------------------------

#### Protective devices

DC-side disconnection device
Ground fault monitoring / grid monitoring
DC surge arrester (Type II) can be integrated
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated
All-pole sensitive residual-current monitoring unit
Protection class (according to IEC 62109-1) / overvoltage category (according to IEC 62109-1)

#### General data

Dimensions (W / H / D)
Weight
Operating temperature range
Noise emission (typical)
Self-consumption (at night)
Topology / cooling concept
Degree of protection (as per IEC 60529)
Climatic category (according to IEC 60721-3-4)
Maximum permissible value for relative humidity (non-condensing)

#### Features / function / Accessories

DC connection / AC connection
Display
Interface: RS485, Speedwire/Webconnect
Data interface: SMA Modbus / SunSpec Modbus
Multifunction relay / Power Control Module
Shade management SMA ShadeFix / Integrated Plant Control / Q on Demand 24/7
Off-Grid capable / SMA Fuel Save Controller compatible
Guarantee: 5 / 10 / 15 / 20 years
Certificates and permits (more available on request)

\* Does not apply to all national appendices of EN 50438

#### Type designation

Sunny Tripower 15000TL	Sunny Tripower 20000TL	Sunny Tripower 25000TL
27000 W <sub>p</sub>	36000 W <sub>p</sub>	45000 W <sub>p</sub>
15330 W	20440 W	25550 W
1000 V	1000 V	1000 V
240 V to 800 V / 600 V	320 V to 800 V / 600 V	390 V to 800 V / 600 V
150 V / 188 V	150 V / 188 V	150 V / 188 V
33 A / 33 A	33 A / 33 A	33 A / 33 A
43 A / 43 A	43 A / 43 A	43 A / 43 A
2 / A:3; B:3	2 / A:3; B:3	2 / A:3; B:3
15000 W	20000 W	25000 W
15000 VA	20000 VA	25000 VA
	3 / N / PE; 220 V / 380 V	
	3 / N / PE; 230 V / 400 V	
	3 / N / PE; 240 V / 415 V	
	180 V to 280 V	
	50 Hz / 44 Hz to 55 Hz	
	60 Hz / 54 Hz to 65 Hz	
	50 Hz / 230 V	
29 A / 21.7 A	29 A / 29 A	36.2 A / 36.2 A
	1 / 0 overexcited to 0 underexcited	
	≤ 3%	
	3 / 3	
98.4% / 98.0%	98.4% / 98.0%	98.3% / 98.1%
	●	
	● / ●	
	○	
	● / ● / —	
	●	
	I / AC: III; DC: II	
	661 / 682 / 264 mm (26.0 / 26.9 / 10.4 inch)	
	61 kg (134.48 lb)	
	−25 °C to +60 °C (−13 °F to +140 °F)	
	51 dB(A)	
	1 W	
	Transformerless / Opticool	
	IP65	
	4K4H	
	100%	
	SUNCLIX / spring-cage terminal	
	○	
	○ / ●	
	● / ●	
	○ / ○	
	● / ● / ●	
	● / ●	
	● / ○ / ○ / ○	
	AS 4777, BDEW 2008, C10/11, CE, CEI 0-16, CEI 0-21, CNS 15382, CNS 15426, DEWA 2.0, DK1, DK2, EN 50549-1, EN 50549-2, G99/1, EN 50438:2013*, IEC 60068-2-x, IEC 61727, IEC 62109-1/2, IEC 62116, IS 16221-1/2, IS 16169, MEA 2013, NBR 16149, NEN EN 50438, NRS 097-2:1, PEA 2013, NTS, PPC, RD 1699/413, RD 661/2007, Res. n°7:2013, RfG compliant, SI4777, TOR generator, UTE C15-712-1, VDE 0126-1-1, VDE-AR-N 4105, VDE-AR-N 4110, VFR 2014	
STP 15000TL-30	STP 20000TL-30	STP 25000TL-30

# www.SunnyPortal.com

Professional PV system monitoring, management and data display





**SUNNY  
TRIPower  
CORE1**

SMA COMMERCIAL PRODUCTS

# Stands on its own.



**Up to 60% faster installation  
for commercial PV systems**

ENERGY  
THAT  
CHANGES



**SUNNY  
TRIPOWER  
CORE1**

# The future for commercial PV systems

## **Scalability for maximum energy yields**

With a capacity of 50 kW, the Sunny Tripower CORE1 is scalable up to the megawatt range. The unique design enables over-dimensioning of the PV array of up to 150%. At the same time, the six independent MPP trackers guarantee optimal energy production for every use, even in shading.

## **Consistently integrated concept**

The innovative, fully integrated design of the CORE1 takes care of low BoS costs, simpler processes and lower material expenses. Alongside the 12 direct string inputs, the CORE1 also contains a DC disconnect and, as an option, AC and DC overvoltage protection.

## **Efficient and economical**

The CORE1 can be installed directly onto a roof without additional mounting racks. Only a simple substructure is needed for other commercial PV applications. There are additional savings from the considerably lower expenditure on logistics, installation and materials.



A white SMA Sunny Tripower CORE1 string inverter is shown from a side-front perspective. It features a black top cover with a ventilation grille, a small SMA logo on the front, and a terminal block at the bottom with multiple connection points labeled A through F. The device is mounted on a white surface.

## Top performance and maximum efficiency thanks to innovative design

The Sunny Tripower CORE1 is the world's first free-standing string inverter for decentralized roof- and ground mount PV systems as well as covered parking spaces. The groundbreaking new design allows increases in installation speed of up to 60 % and, at the same time, lowers the total cost of ownership (OPEX).

### Opticool™ Active Cooling System

SMA's intelligent OptiCool™ cooling system is reliable and ensures maximum energy production, even in challenging conditions. Secure your solar investment and reduce your service costs with high-performance technology, which has proved its worth world-wide in over 50 GW installed power.

### Fast, easy communication

The integrated WLAN interface makes easy and efficient access to CORE1 possible with any mobile device. Thanks to the SMA online assistant, configuration and commissioning are much simpler and can be completed in a short time.

### Seamless grid integration

Thanks to cutting-edge grid management, SunSpec ModBus® compatibility and optional 24/7 remote monitoring, CORE1 offers high-performance PV system monitoring and control functions. Users benefit from easy configuration and fast, smooth grid connection.



SUNNY  
TRIPower  
CORE1

# Compact power for maximum efficiency

The flexible solution for roof- and ground-based  
PV systems and covered parking spaces





## Sunny Tripower CORE1. Save costs – from logistics to services

The CORE1 is the third generation of the successful Sunny Tripower product family and is revolutionizing the world of commercial inverters with its innovative design. The challenge for the SMA engineers was to combine a unique design with an innovative installation method in order to increase the installation speed significantly. The result: the optimal return on investment for all target groups.

From delivery and installation to operation, the Sunny Tripower CORE1 makes widespread savings in logistics, labor, materials and services possible. With integrated WLAN access for fast commissioning, up-to-date plug-and-play communication and smart functions for grid support, PV installations are quicker and easier to complete than ever before.



### SUNNY TRIPOWER CORE1 FOR DISTRIBUTORS

Ordering, storage and logistics for inverters have been substantially simplified as a result of the maximum integration of the CORE1. Additional savings are achieved thanks to:

- Flexible use with just one product
- Worldwide platform for universal use
- Fewer components and BoS components
- Extensive support and service



### SUNNY TRIPOWER CORE1 FOR EPCS AND DEVELOPERS

Attractive margins are achieved only with reduced costs for purchasing, installation and maintenance. That is exactly what was taken into account in the development of CORE1. Benefit from:

- Plug-and-play concept
- Faster installation and lower labor
- Reduced material costs
- Free tool for system planning



### SUNNY TRIPOWER CORE1 FOR ELECTRIC UTILITY COMPANIES

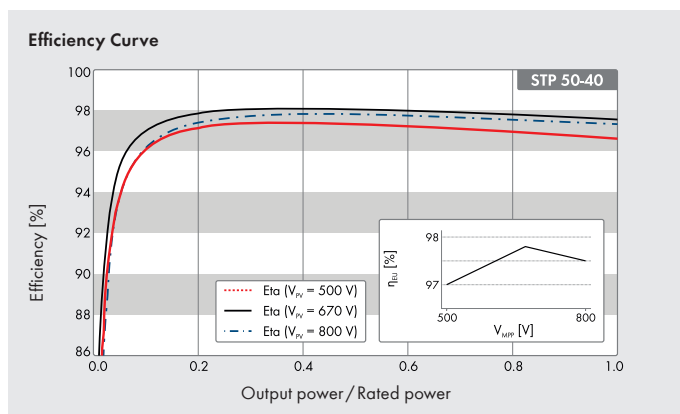
SMA knows that efficient operations and maintenance costs across the entire useful life and trouble-free performance are of crucial significance to energy companies. Therefore, CORE1 offers:

- The lowest LCOE
- 24/7 remote monitoring thanks to the worldwide number one service team
- An effective interface for customer monitoring
- Intelligent grid management service



TECHNICAL DATA	SUNNY TRIPOWER CORE1
<b>Input (DC)</b>	
Max. generator power	75000 Wp STC
Max. input voltage	1000 V
MPP voltage range / rated input voltage	500 V to 800 V / 670 V
Min. input voltage / start input voltage	150 V / 188 V
Max. operating input current / per MPPT	120 A / 20 A
Max. short circuit current per MPPT / per string input	30 A / 30 A
Number of independent MPPT inputs / strings per MPP input	6 / 2
<b>Output (AC)</b>	
Rated power (at 230 V, 50 Hz)	50000 W
Max. apparent AC power	50000 VA
AC nominal voltage	220 V / 380 V 230 V / 400 V 240 V / 415 V
AC voltage range	202 V to 305 V
AC grid frequency / range	50 Hz / 44 Hz to 55 Hz 60 Hz / 54 Hz to 65 Hz
Rated power frequency / rated grid voltage	50 Hz / 230 V
Max. output current / Rated output current	72.5 A / 72.5 A
Output phases / AC connection	3 / 3-(N)-PE
Power factor at rated power / Adjustable displacement power factor	1 / 0.0 leading to 0.0 lagging
THD	< 3%
<b>Protective devices</b>	
Input-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 62109-1) / overvoltage category (according to IEC 62109-1)	I / AC: III; DC: II
AC/DC surge arrester (Type II)	○ / ○

● Standard features   ○ Optional   – Not available



TECHNICAL DATA	SUNNY TRIPOWER CORE1
<b>Efficiency</b>	
Max. efficiency / European efficiency	98.1% / 97.8%
<b>General data</b>	
Dimensions (W / H / D)	621 mm / 733 mm / 569 mm (24.4 in / 28.8 in / 22.4 in)
Weight	84 kg (185 lb)
Operating temperature range	-25°C to +60°C (-13 °F to +140 °F)
Noise emission (typical)	< 65 dB(A)
Self-consumption (at night)	4.8 W
Topology / Cooling concept	Transformerless / OptiCool
Degree of protection (as per IEC 60529)	IP65
Climatic category (according to IEC 60721-3-4)	4K4H
Max. permissible value for relative humidity (non-condensing)	100%
<b>Features / functions / accessories</b>	
DC connection / AC connection	SUNCLIX / screw terminal
Mounting feet	●
LED indicators (status / fault / communication)	●
Interface: Ethernet / WLAN / RS485	● (2 ports) / ● / ○
Data interface: SMA Modbus / SunSpec Modbus / Speedwire, Webconnect	● / ● / ●
Multi-Function relay / Expansion Module Slots	● / ● (2 ports)
OptiTrac Global Peak / Integrated Plant Control / Q on Demand 24/7	● / ● / ●
Off-grid capable / SMA Fuel Save Controller compatible	● / ●
Guarantee: 5 / 10 / 15 / 20 years	● / ○ / ○ / ○
Certificates and permits (more available on request)	ANRE 30, AS 4777, BDEW 2008, C10/11:2012, CE, CEI 0-16, CEI 0-21, EN 50438:2013*, G59/3, IEC 60068-2-x, IEC 61727, IEC 62109-1/2, IEC 62116, MEA 2016, NBR 16149, NEN EN 50438, NRS 097-2-1, PEA 2016, PPC, RD 1699/413, RD 661/2007, Res. n°7:2013, SI4777, TOR D4, TR 3.2.2, UTE C15-712-1, VDE 0126-1-1, VDE-ARN 4105, VFR 2014, P.O.12.3, NTCO-NTCyS, GC 8.9H, PR20, DEWA
*Does not apply to all national appendices of EN50438	
Type designation	STP 50-40

Data at nominal conditions | status: 07/2017

<b>Assessories</b>	
	SMA SensorModule MD.SEN-40
	SMA IO-Module MD.IO-40
	SMA RS485 Module MD.RS485-40
	Antenna Extension Kit EXTANT-40
	AC Surge Protection Module Kit AC_SPD_Kit1-10
	DC Surge Protection Module Kit DC_SPD_Kit4-10

# The combination of flexibility and efficiency

Innovative design for  
maximum return on investment



## Dimensions

621 mm / 733 mm / 569 mm (24.4 in x 28.8 in x 22.4 in)

## Weight

84 kg (185 lb)



MIX  
Paper from responsible sources  
Papier aus verantwortungsvollen Quellen  
FSC® C044084



ENERGY  
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# SUNNY HIGHPOWER PEAK3

SHP 100-20 / SHP 150-20



## Efficient

- High power density with 150 kW thanks to its compact structure
- Max. yield due to possible DC/AC ratio of up to 150%

## Reliable

- Superior PV system availability with 150 kW units
- Innovative digital features aligned with the energy management platform ennexOS

## Flexible

- For DC input voltages up to 1500 V
- Flexible DC solutions with customer-specific PV array junction boxes

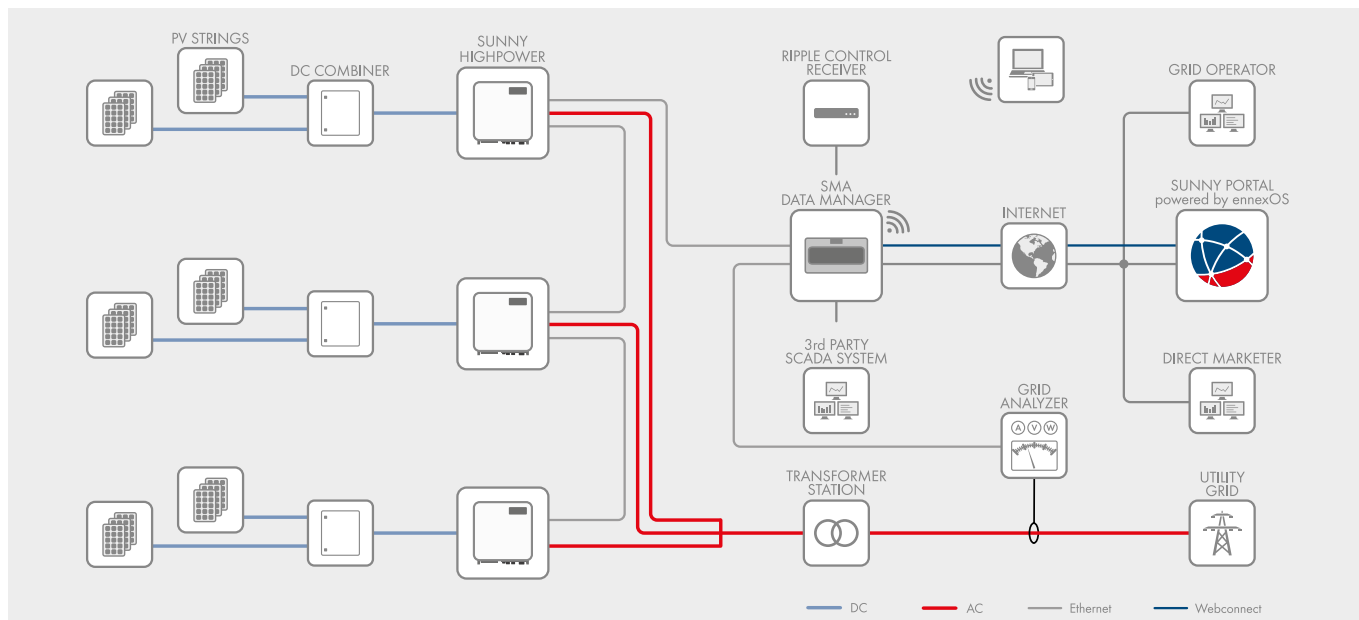
## Easy to install

- Ergonomic handling and simple connection for quick installation
- Centralized commissioning and control of the PV power plant via SMA Data Manager

## SUNNY HIGHPOWER PEAK3

Customized for tomorrow today

The Sunny Highpower PEAK3 is the central component of the SMA solution for PV power plants with a decentralized architecture and system voltages of 1500 V DC. This compact string inverter enables cost-optimized solutions for industrial PV applications thanks to its high power density. It also provides a simple way of transport and allows for quick installation and commissioning. This string inverter with 150 kW of power is equipped with the automatic SMA Smart Connected service for proactive servicing that facilitates operation and maintenance and reduces service costs throughout the entire project lifetime.



Technical Data	Sunny Highpower 100-20	Sunny Highpower 150-20
<b>Input (DC)</b>		
Max. PV array power	150000 Wp	225000 Wp
Max. input voltage	1000 V	1500 V
MPP voltage range / rated input voltage	590 V to 1000 V / 590 V	880 V to 1450 V / 880 V
Max. input current / max. short-circuit current	180 A / 325 A	180 A / 325 A
Number of independent MPP trackers	1	1
Number of inputs	1 or 2 (optional) for external PV array junction boxes	
<b>Output (AC)</b>		
Rated power at nominal voltage	100000 W	150000 W
Max. apparent power	100000 VA	150000 VA
Nominal AC voltage / AC voltage range	400 V / 304 V to 477 V	600 V / 480 V to 690 V
AC grid frequency / range	50 Hz / 44 Hz to 55 Hz 60 Hz / 54 Hz to 66 Hz	50 Hz / 44 Hz to 55 Hz 60 Hz / 54 Hz to 66 Hz
Rated grid frequency	50 Hz	50 Hz
Max. output current	151 A	151 A
Power factor at rated power / displacement power factor adjustable	1 / 0 overexcited to 0 underexcited	
Harmonic (THD)	< 3%	< 3%
Feed-in phases / AC connection	3 / 3-PE	3 / 3-PE
<b>Efficiency</b>		
Max. efficiency / European efficiency	98.8% / 98.6%	99.1% / 98.8%
<b>Protective devices</b>		
Ground fault monitoring / grid monitoring / DC reverse polarity protection	● / ● / ●	● / ● / ●
AC short-circuit current capability / galvanically isolated	● / -	● / -
All-pole-sensitive residual-current monitoring unit	●	●
Monitored surge arrester (type II) AC / DC	● / ●	● / ●
Protection class (according to IEC 62109-1) / overvoltage category (as per IEC 62109-1)	I / AC: III; DC: II	I / AC: III; DC: II
<b>General Data</b>		
Dimensions (W / H / D)	770 mm / 830 mm / 444 mm (30.3 in / 32.7 in / 17.5 in)	
Weight	98 kg (216 lbs)	
Operating temperature range	-25°C to +60°C (-13°F to +140°F)	
Noise emission (typical)	< 65 dB(A)	
Self-consumption (at night)	< 5 W	
Topology	transformerless	
Cooling method	OptiCool, active cooling, speed-controlled fan	
Degree of protection (according to IEC 60529)	IP65	
Max. permissible value for relative humidity (non-condensing)	100%	
<b>Features / function / accessories</b>		
DC connection / AC connection	Terminal lug (up to 300 mm <sup>2</sup> ) / Screw terminal (up to 150 mm <sup>2</sup> )	
LED display (Status / Fault / Communication)	●	
Ethernet interface	● (2 ports)	
Data interface: SMA Modbus / SunSpec Modbus / Speedwire, Webconnect	● / ● / ●	
Mounting type	Rack mounting	
OptiTrac Global Peak / Integrated Plant Control / Q on Demand 24/7	● / ● / ●	
Off-grid capable / SMA Fuel Save Controller compatible	● / ●	
Warranty: 5 / 10 / 15 / 20 years	● / ○ / ○ / ○	
Certificates and approvals (planned)	IEC 62109-1/-2, AR N-4110, AR N-4120, CEI 0-16, C10/11:2012, EN 50549, PEA 2017, DEWA	
● Standard features ○ Optional features — Not available Data at nominal conditions Status: 12/ 2018		
Type designation	SHP 100-20	SHP 150-20



red dot design award

**Quick and easy**

- Easy integration of devices
- Centralized commissioning of all integrated components

**Future-proof and flexible**

- Flexibly expandable anytime
- Access to the energy market of the future based on ennexOS

**Functional**

- Complies with international grid-integration requirements
- Combine storage systems, energy generators and e-mobility

**Reliable and convenient**

- Remote monitoring and parameterization possible
- Detailed analytics, error messages and reporting through Sunny Portal

## SMA DATA MANAGER M LITE / SMA DATA MANAGER M

One system. Many options. For your individual needs.

In combination with the Sunny Portal powered by ennexOS, the Data Manager M enables monitoring, management and grid-compliant power control in decentralized PV systems. Thanks to flexible expansion options, the Data Manager M is already well-equipped for business models in the energy market of the future. Whether as a cost-effective Lite variant for smaller systems with up to five devices and 30 kVA, or as an expanded solution for up to 50 devices and 2.5 MVA – the Data Manager is the ideal professional system interface for electric utility companies, direct sellers, service technicians and PV system operators. Coordinated user interfaces and intuitive assistance functions simplify operation, parameterization and commissioning. Both variants are modularly expandable with many additional functions and interfaces.

# SMA DATA MANAGER M Lite

## Easy monitoring and control of PV applications, battery-storage systems and e-mobility.

The Data Manager M Lite monitors, controls and regulates up to five devices in one application with up to 30 kVA. It therefore meets all current requirements of grid operators for active and reactive power control. We are continuously developing software expansion options tailored to customer needs. Automatic firmware updates keep the device up to date with the latest safety and performance standards.

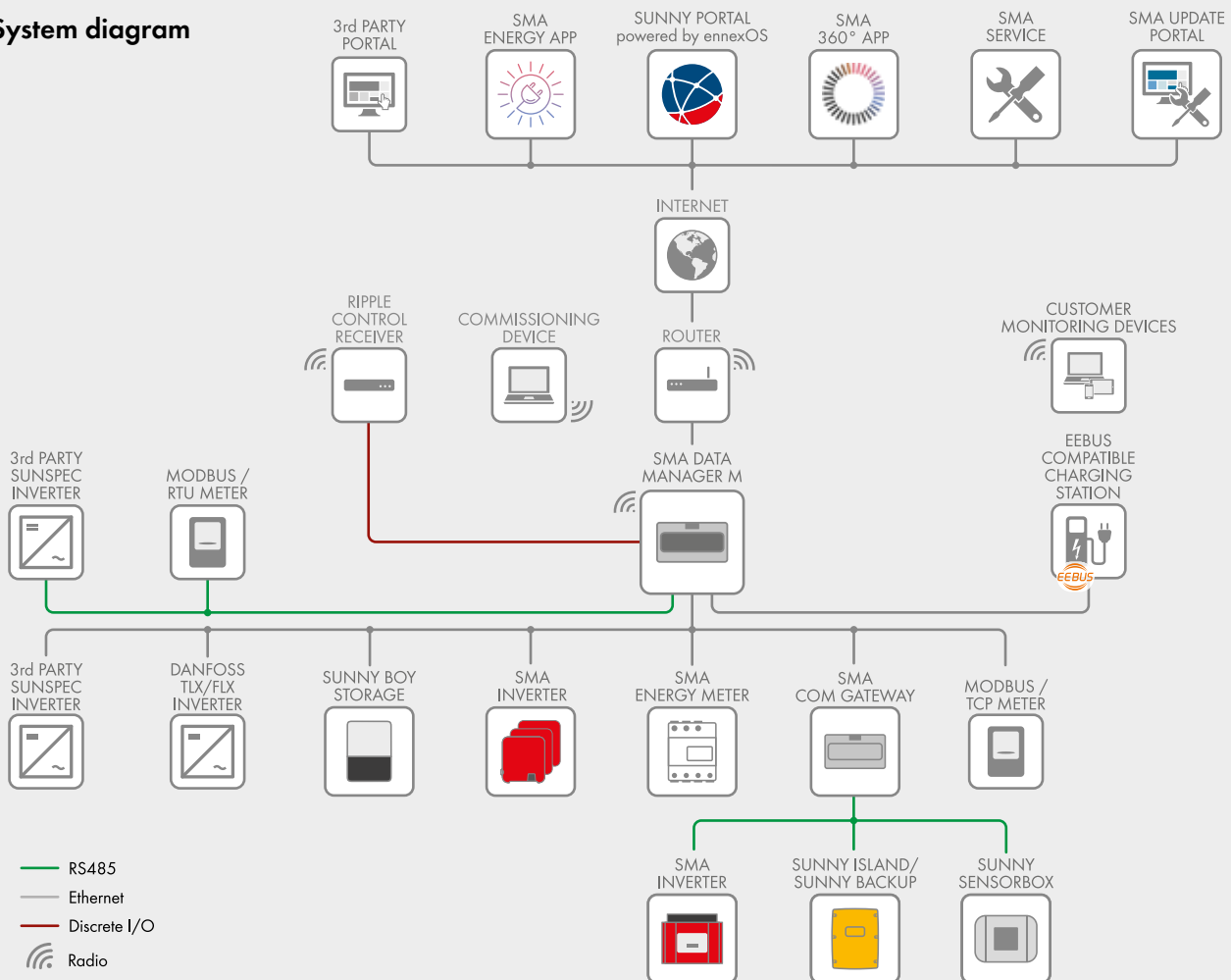
### Benefits at a glance:

- Remote parameterization saves time and money
- Event and information reports for fast error analysis
- Automatic monitoring of PV components thanks to SMA Smart Connected
- Various options for open-loop and closed-loop control of active and reactive power such as zero feed-in or Q(U)
- Compatible with the SMA 360° App (for installers) and the Energy App (for end users)
- Extension for EEBUS, e-mobility support (for example, with Audi e-tron charging system connect)
- Satellite-based performance ratio for 24 months included



With intelligent charging technology from SMA, e-mobility makes sense both environmentally and economically. The Data Manager M Lite ensures that charging electric vehicles takes priority when the PV system is producing enough solar energy or the grid current is particularly favorable. Combined with an EEBUS-compatible charging station, the SMA Data Manager M Lite automatically schedules the charging process for electric vehicles according to the individual requirements of its users. With the Energy App and the Sunny Portal for system monitoring, you can keep constant track of your energy budget and uncover additional energy saving potential.

### System diagram



# SMA DATA MANAGER M

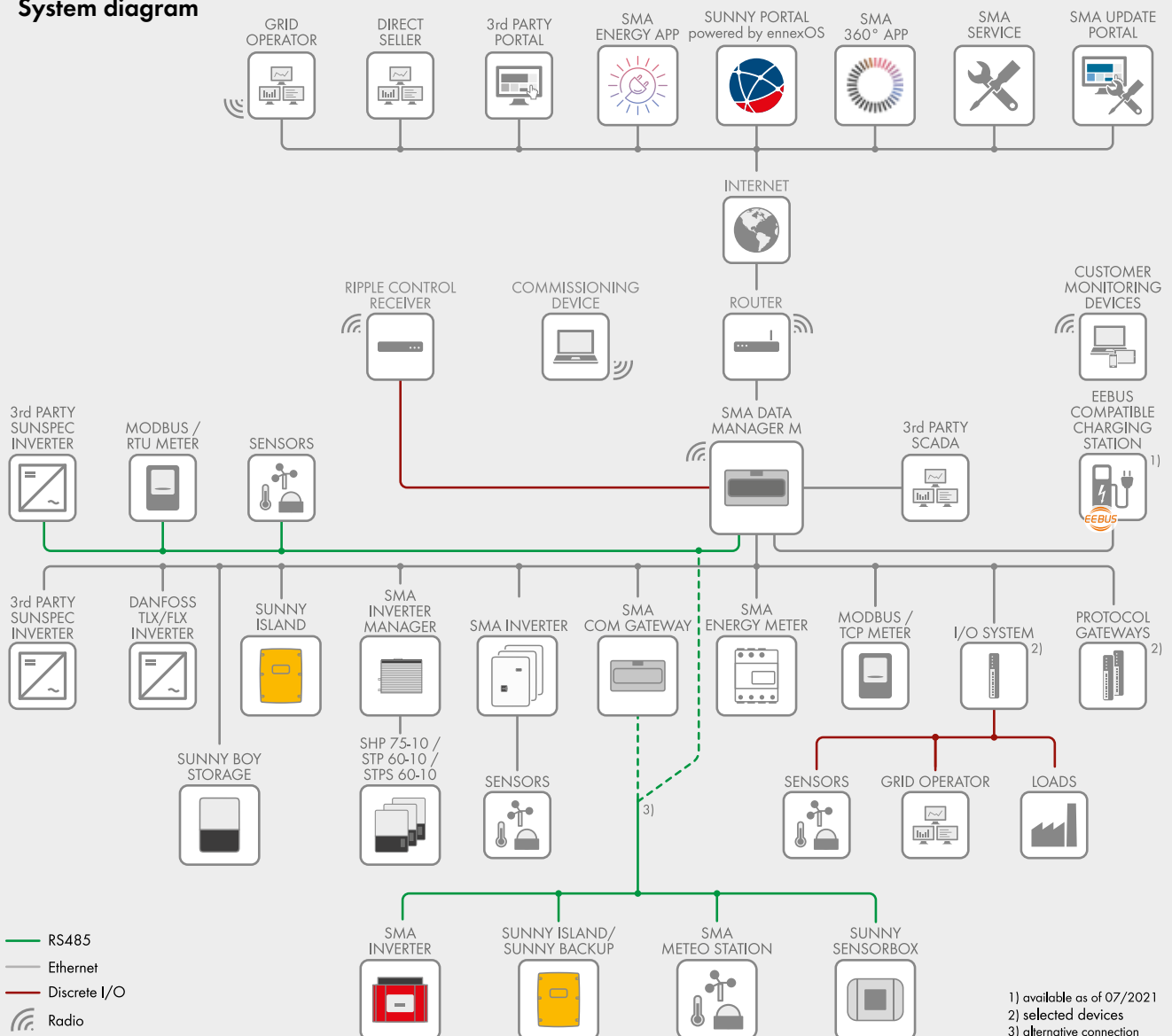
## Professional monitoring and control for decentralized energy systems up to the megawatt range.

The Data Manager M is the perfect monitoring and control solution for decentralized large-scale PV power plants up to 2.5 MVA with up to 50 devices. Thanks to the RS485 and Ethernet interfaces as well as analog and digital input and output systems, users benefit from particularly versatile connection options. The Data Manager M is the professional system interface for electric utility companies, direct sellers, service technicians and PV system operators.

### Benefits at a glance:

- Centralized management for decentralized large-scale PV power plants thanks to satellite-based data; cluster solutions with several data managers possible (master slave application)
- Remote parameterization saves time and money
- Flexible integration options for battery-storage systems
- Direct selling with SMA SPOT
- Automatic monitoring of PV components thanks to SMA Smart Connected

### System diagram



Technical data	SMA DATA MANAGER M Lite	SMA DATA MANAGER M
<b>Master data</b>		
Total number of supported devices - of which:	5	50
Maximum number of supported PV inverters	5	50
Maximum number of supported PV inverters via Modbus Sunspec (e.g., SMA CORE2)	5	20
Maximum number of supported battery inverters	1	50
Maximum number of supported energy meters (electric current and gas), generators from energy meters, I/O systems, sensors	5	50
Maximum system power PV inverters (nominal AC power)	30 kVA	2.5 MVA
Maximum system power battery inverters (nominal AC power)	30 kVA	2.5 MVA
Automatic data recording for virtual generators from energy meters (PV inverter, combined heat and power plant, gas meter, diesel generator, hydroelectric power plant)	●	●
<b>Connections</b>		
Voltage supply	2-pin connection, MINI COMBICON	
RS485	6-pin connection, MINI COMBICON	
Network (LAN)	2 x RJ45, switched, 10 BaseT/100 BaseT	
USB (for product updates)	1 x USB 2.0, type A	
WLAN access point for commissioning and access to the user interface	●	
<b>Voltage supply</b>		
Voltage supply	External power supply unit (available as an accessory)	
Input voltage	10 V to 30 V DC	
Power consumption	Typically 4 W	
<b>Ambient conditions during operation</b>		
Environment	Restricted class 3K7 reg. IEC60721-3-3	
Ambient temperature	-20 °C to +60 °C	
Permissible range for relative humidity (non-condensing)	5% to 95%	
Maximum operating altitude above MSL	0 m to 3,000 m (≥70 kPa)	
Degree of protection according to IEC 60529	IP20 (NEMA 1)	
<b>General data</b>		
Dimensions (W/H/D)	161.1 mm / 89.7 mm / 67.2 mm	
Weight	220 g	
Mounting location	Indoors	
Mounting type	Top-hat rail mounting / wall mounting	
Status display	LEDs for system and communication status	
<b>Features</b>		
Warranty	2 years	
Certificates and permits (more available upon request)	www.SMA-Solar.com	
<b>Accessories (optional)</b>		
Top-hat rail power supply unit	Input: 100 V to 240 V AC / 45 Hz to 65 Hz / Output: 24 V	
Plug-in power supply	●	
I/O system by Moxa Europe GmbH	ioLogik E1214 (6DI/6 relay outputs), SMA order number: 124179-00.01	
	ioLogik E1241 (4AO), SMA order number: eIO-E1241	
	ioLogik E1242 (4AI/4DI/4DIO), SMA order number: eIO-E1242	
	ioLogik E1260 (6 PT-100), SMA order number: eIO-E1260	
	WAGO-I/O-SYSTEM 750 (8DI, 8DO, 4AI, 4AO, 2 PT-100), SMA order number: 115214-00.01	
I/O system by WAGO Kontakttechnik GmbH & Co. KG		
<b>Communication / protocols</b>		
FTP push (daily / hourly)	● / –	● / ●
WLAN access to the customer network	–	–
SMA Data2+ / SMA Data 1	● / planned for Q2/2021	● / ●
Etherlynx for Danfoss for TLX & FLX		●
Client: Modbus/RTU, Modbus/TCP (also Sunspec)		●
Server: Modbus/TCP		●
<b>Commissioning</b>		
Assistant for local commissioning of connected devices		●
Assistant for parameterization of SMA products connected via Speedwire		●
Remote parameterization of SMA devices with Sunny Portal		●
<b>Updates</b>		
Self-update and connected Speedwire devices via USB		●
Self-update and connected Speedwire devices via SMA Update Portal		●
<b>Grid management services</b>		
Closed-loop control and open-loop control of other SMA Data Managers (master/slave)	–	●
Free configuration of a grid-connection meter (measurement at the point of interconnection)	●	●
Direct selling via SMA SPOT (Germany)	–	●
Various options for open-loop and closed-loop control of active and reactive power		●
Manual inputs or inputs transferred via Modbus		●
Specifications via analog and digital inputs		via external I/O systems
Open-loop and closed-loop active power control (digital inputs)		●
Closed-loop active power control (P(f))		in the SMA inverter

Technical data	SMA DATA MANAGER M Lite	SMA DATA MANAGER M
Open-loop and closed-loop reactive power control (Q(V))	●	
Fast shutdown via the digital input	●	
<b>Parameterization</b>		
Remote parameterization of connected SMA products using Sunny Portal	●	
Parameter adjustment between SMA devices connected via Speedwire (local and remote)	●	
<b>Energy management</b>		
Self-consumption control using battery systems (combined with SBS2.5, SBS3.7-6.0, Sunny Island)	●	●
Self-consumption control using battery systems (combined with STPS60-10)	–	●
Peak load shaving (combined with SBS3.7-6.0)	●	●
Peak load shaving (combined with STPS60-10)	–	●
Optimization of battery systems with time-of-use electricity tariff (combined with SBS3.7-6.0)	●	●
Optimization of battery systems with time-of-use electricity tariff (combined with STPS60-10)	–	●
EEBUS - e-mobility support (for example, with Audi e-tron charging system connect)	○	planned for Q2/2021
Limiting value based switching of digital outputs (additional hardware required)	●	●
<b>System and device monitoring</b>		
Comprehensive visualization of power and energy values, status and events	●	

### Sunny Portal powered by ennexOS in conjunction with SMA Data Manager M

<b>Parameterization</b>		
Remote parameterization of Data Manager and suitable connected devices	●	
<b>System and device monitoring, analysis</b>		
Comprehensive visualization of power and energy values, status and events	●	
Energy monitoring of a large number of systems in one user account	●	
Energy balance visualization (different generators, grid-supplied power and grid feed-in)	●	
Manual data recording for virtual generators from energy meters (PV inverter, combined heat and power plant, gas meter, diesel generator, hydroelectric power plant)	●	
Measured value evaluation of all data channels of devices and systems	●	
Automatic inverter comparison with alerts	●	
Satellite-based meteorological data for performance evaluation (for select countries)	for 24 months	●
<b>Reporting</b>		
Alerts in case of communication faults between portal and system	●	
Preconfigured reports via e-mail	●	
<b>Service</b>		
SMA Smart Connected	●	
Remote support through SMA Service	●	
Direct selling via SMA SPOT (Germany)	–	●
Use of SMA 360° app	●	
Use of SMA Energy app (starting Q3/2020)	●	
SMA monitoring API	○	
Type designation	EDMM-10.A	EDMM-10

● Standard features   ○ Optional features   – Not available   Status: 06/2021

ENERGY  
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CHANGES





EMETER-20



## Easy to Use

- Quick plug-and-play installation
- Graphic visualization of current measured values in Sunny Portal and local web UI

## Flexible

- Space-saving, top-hat rail mounting in household distribution thanks to compact enclosure
- Flexible use in applications > 63 A thanks to external current transformers

- Suitable for universal use regardless of existing energy meter

## High Performance

- Fast three-phase, bidirectional reading for effective energy management\*
- Ideal coordination with SMA devices to ensure control tasks are carried out stably

## SMA ENERGY METER

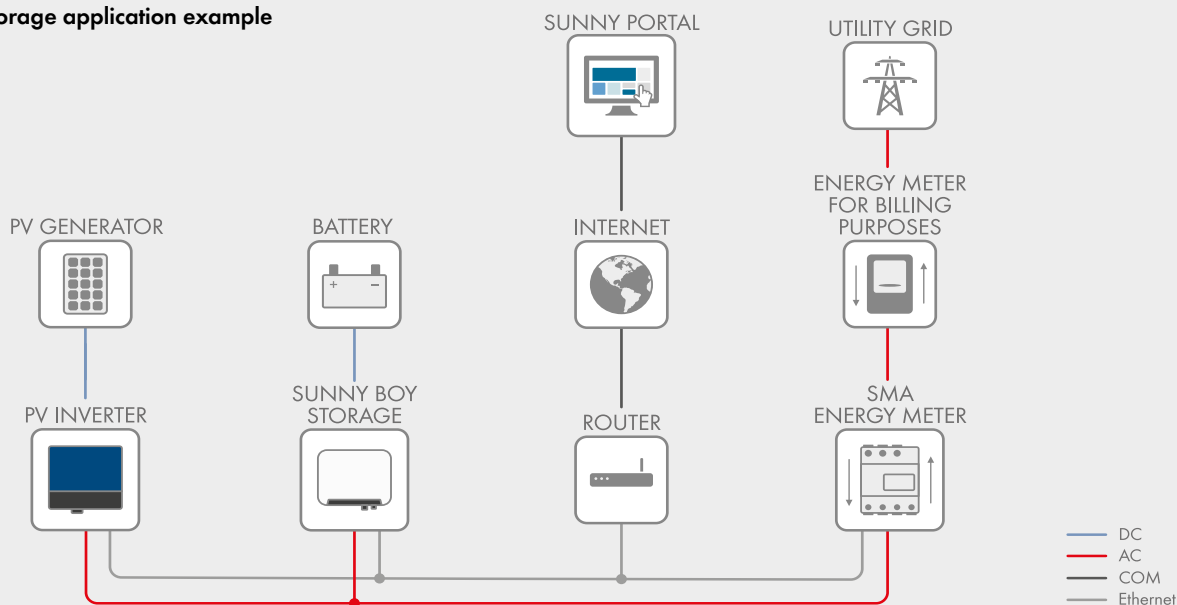
Universal recording of measured values for intelligent energy management

A high-performance measurement solution for intelligent energy management in PV systems with SMA devices. The SMA Energy Meter calculates phase-exact and balanced electrical measured values and communicates these via Ethernet in the local network. In this way, all data on grid feed-in and purchased electricity as well as PV generation by other PV inverters can be communicated to SMA systems frequently and with a high level of precision.

Integrating the SMA Energy Meter establishes, in all systems, an ideally coordinated system configuration that guarantees the highest performance and stability with the best cost savings and increased self-consumption.

\* Can also be used in single-phase systems.

## Storage application example



Technical Data	SMA Energy Meter
<b>Communication</b>	
Connection to the local router	via Ethernet cable (10/100 Mbit/s, RJ45 plug)
<b>Inputs (voltage and current)</b>	
Nominal voltage	230 V/400 V
Frequency	50 Hz/±5%
Nominal current / limiting current per line conductor	5 A/63 A (>63 A can be connected via external current transformers)
Start-up current	< 25 mA
Connection cross-section	10 mm <sup>2</sup> to 16 mm <sup>2</sup> <sup>1)</sup> (for 63 A fusing)
Torque for screw terminals	2.0 Nm
<b>Ambient Conditions in Operation</b>	
Ambient temperature	-25 °C to +40 °C
Storage temperature range	-25 °C to +70 °C
Protection class (according to IEC 62103)	II
Degree of protection (according to IEC 60529)	IP2X
Max. permissible value for relative humidity (non-condensing)	5% to 90% <sup>2)</sup>
Elevation above MSL	0 m to 2000 m
<b>General Data</b>	
Dimensions (W/H/D)	70 mm/88 mm/65 mm
Top hat-rail width units	4
Weight	0.3 kg
Mounting location	Switch or meter cabinet
Mounting type	Top-hat rail mounting
Status display	2 LEDs
Self-consumption	< 3 W
Measurement accuracy, measuring cycle	1%, 1000 ms
<b>Features</b>	
Warranty	2 years
Certificates and permits (more available upon request)	www.SMA-Solar.com
Last updated: January 2019	
1) Mechanical 1.5 mm <sup>2</sup> to 25 mm <sup>2</sup>	
2) 95% only on up to 30 days of the year	
Type designation	
EMETER-20	

# SUNNY HOME MANAGER 2.0

HM-20



## Innovative

- Energy manager with integrated measuring device
- Consumption analysis of individual loads
- Optimized battery charging in SMA storage systems

## Easy to Use

- Quick plug-and-play installation
- Overview of all relevant appliances, PV generation and battery systems
- Use energy more efficiently and reduce electricity costs

## Transparent

- Energy balance and load data shown in interactive diagrams
- Integrated weather and PV forecast data
- PV system monitoring via Sunny Portal

## Flexible

- Appliance connection via standard protocols and switchable devices
- For compatible devices, such as heat pumps, electric vehicles and other household appliances, go to [www.sma-solar.com](http://www.sma-solar.com)

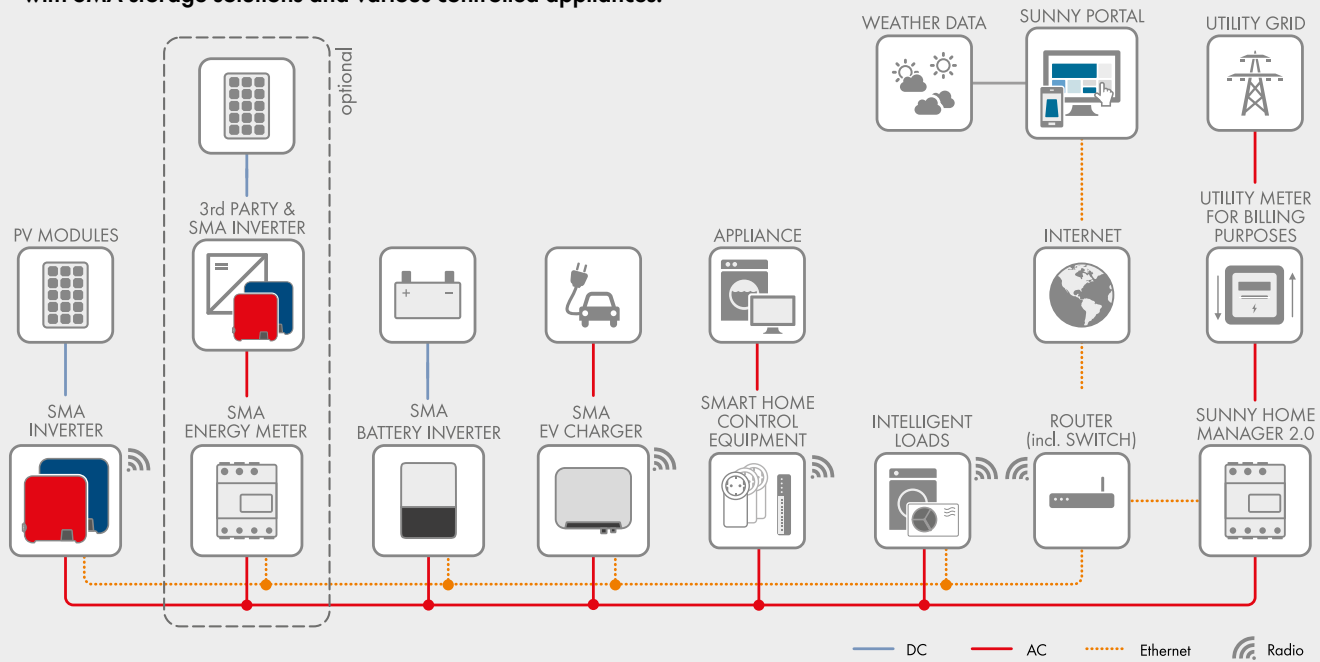
## SUNNY HOME MANAGER 2.0

The control center for smart energy management

The Sunny Home Manager 2.0 is SMA's intelligent energy manager and enables the most efficient use of solar energy in the home. It optimizes PV self-consumption and significantly reduces electricity costs. To do this, it measures the power of PV generation, purchased electricity as well as grid feed-in, and gives an overview of all relevant energy flows in the household. By means of local PV generation forecasts and the measured household consumption profile, the self-learning device prompts the user with energy-related action recommendations. Operation of the controlled appliances is coordinated in a way to optimize the use of self-generated solar energy.

The path to intelligent energy management is quite easy. Simply install the Sunny Home Manager 2.0 at the grid connection point, connect it to the internet router using an Ethernet cable, then register the PV system in Sunny Portal free of charge and join more than 60,000 systems already installed worldwide in benefiting from greater energy efficiency.

**An example of intelligent energy management: PV generation with SMA storage solutions and various controlled appliances.**



Technical Data	Sunny Home Manager 2.0
<b>Energy Manager</b>	
Connection to the local router	via Ethernet cable (10/100 Mbit/s, RJ45 plug)
Connection of SMA PV inverters and battery systems	Ethernet or WLAN via local router
Connection of appliances for energy management	a. Direct data connection (EEBUS, SEMP) b. Indirect data connection (compatible switchable devices)
<b>Integrated Measuring Device</b>	
Measurement accuracy	≤1 %
Measuring cycle	200 ms, 600 ms or 1000 ms
<b>Max. number of devices on the system</b> (excluding the SMA Energy Meter)	
Total number of devices in the system	up to 24
of which devices as appliances in active energy management	up to 12
<b>Inputs (voltage and current)</b>	
Nominal voltage	110 V / 230 V/400 V
Frequency	50 Hz / 60 Hz
Nominal current/limiting current per line conductor	5 A/63 A (>63 A can be covered via external current transformers)
Connection cross-section	10 mm <sup>2</sup> to 16 mm <sup>2</sup> (for 63 A application)
Torque for screw terminals	2.0 Nm
<b>Ambient Conditions in Operation</b>	
Ambient temperature	-25°C to +40°C
Storage temperature range	-25°C to +70°C
Protection class (according to IEC 62103)	II
Degree of protection (according to IEC 60529)	IP20
Max. permissible value for relative humidity (non-condensing)	5% to 90%
Operation altitude range	0 m to 2000 m
<b>General Data</b>	
Dimensions (W/H/D)	70 mm/88 mm/65 mm
Top hat-rail width units	4
Weight	0.3 kg
Mounting location	Switch or meter cabinet
Mounting type	Top-hat rail mounting
Status display	3 x LED
Self-consumption	< 3 W
<b>Features</b>	
Operation and visualization	via Sunny Portal
Update function for the Sunny Home Manager and the connected SMA devices	automatic
Warranty	2 years
Certificates and approvals	www.SMA-Solar.com
<b>Accessories</b>	
SMA Energy Meter as complement to integrated measuring device	Precise three-phase measuring, connection via Ethernet in the local network.
Last updated: 05/2021	
Type designation	HM-20