

# SUNNY TRIPOWER

## 15000TL / 20000TL / 25000TL



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



### Efficient

- Maximum efficiency of 98.4%

### 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.

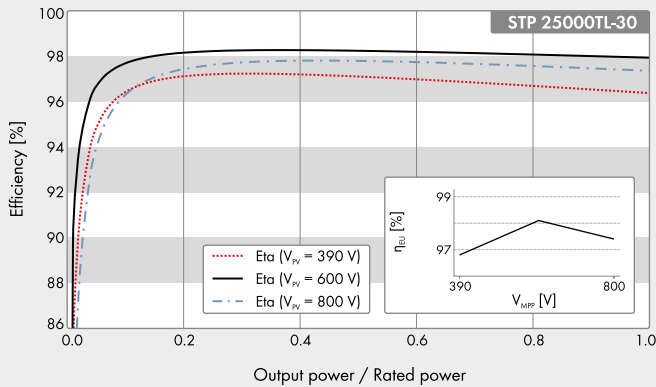
The future is now: the Sunny Tripower comes with cutting-edge grid management functions such as Integrated Plant Control, which allows the inverter to regulate reactive power at the point of common coupling. Separate controllers are no longer needed, lowering system costs. Another new feature—reactive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

# SUNNY TRIPOWER

## 15000TL / 20000TL / 25000TL

Technical Data	Sunny Tripower 15000TL
<b>Input (DC)</b>	
Max. DC power (at $\cos \varphi = 1$ ) / DC rated power	15330 W / 15330 W
Max. input voltage	1000 V
MPP voltage range / rated input voltage	240 V to 800 V / 600 V
Min. input voltage / start input voltage	150 V / 188 V
Max. input current input A / input B	33 A / 33 A
Number of independent MPP inputs / strings per MPP input	2 / A:3; B:3
<b>Output (AC)</b>	
Rated power (at 230 V, 50 Hz)	15000 W
Max. AC apparent power	15000 VA
AC nominal 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 / 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	29 A / 21.7 A
Power factor at rated power / Adjustable displacement power factor	1 / 0 overexcited to 0 underexcited
THD	≤ 3%
Feed-in phases / connection phases	3 / 3
<b>Efficiency</b>	
Max. efficiency / European Efficiency	98.4% / 98.0%
<b>Protective devices</b>	
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)	I / AC: III; DC: II
<b>General data</b>	
Dimensions (W / H / D)	661 / 682 / 264 mm (26.0 / 26.9 / 10.4 inch)
Weight	61 kg (134.48 lb)
Operating temperature range	-25 °C to +60 °C (-13 °F to +140 °F)
Noise emission (typical)	51 dB(A)
Self-consumption (at night)	1 W
Topology / cooling concept	Transformerless / Opticool
Degree of protection (as per IEC 60529)	IP65
Climatic category (according to IEC 60721-3-4)	4K4H
Maximum permissible value for relative humidity (non-condensing)	100%
<b>Features / function / Accessories</b>	
DC connection / AC connection	SUNCLIX / spring-cage terminal
Display	○
Interface: RS485, Speedwire/Webconnect	○ / ●
Data interface: SMA Modbus / SunSpec Modbus	● / ●
Multifunction relay / Power Control Module	○ / ○
OptiTrack Global Peak / Integrated Plant Control / Q on Demand 24/7	● / ● / ●
Off-Grid capable / SMA Fuel Save Controller compatible	● / ●
Guarantee: 5 / 10 / 15 / 20 years	● / ○ / ○ / ○
Planned certificates and permits	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, NBR 16149, NEN EN 50438, NRS 097-2-1, 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, VDEAR-N 4105, VFR 2014
* Does not apply to all national appendices of EN 50438	
Type designation	STP 15000TL-30

## 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: May 2016

## Technical Data

### Input (DC)

Max. DC power (at $\cos \varphi = 1$ ) / 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
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
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### 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
OptiTrack 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)

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

## Sunny Tripower 20000TL

## Sunny Tripower 25000TL

20440 W / 20440 W	25550 W / 25550 W
1000 V	1000 V
320 V to 800 V / 600 V	390 V to 800 V / 600 V
150 V / 188 V	150 V / 188 V
33 A / 33 A	33 A / 33 A
2 / A:3; B:3	2 / A:3; B:3
20000 W	25000 W
20000 VA	25000 VA
3 / N / PE; 220 V / 380 V	3 / N / PE; 230 V / 400 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
50 Hz / 44 Hz to 55 Hz	60 Hz / 54 Hz to 65 Hz
50 Hz / 230 V	29 A / 29 A
36.2 A / 36.2 A	1 / 0 overexcited to 0 underexcited
≤ 3%	3 / 3
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

○
○ / ●
● / ●
○ / ○
● / ● / ●
● / ●
● / ○ / ○ / ○

ANRE 30, AS 4777, BDEW 2008, C10/11:2012, CE, CEI 0-16, CEI 0-21, EN 50438:2013\*, GS9/3, IEC 60068-2-x, IEC 61727, IEC 62109-1/2, IEC 62116, MEA 2013, NBR 16149, NEN EN 50438, NRS 097-2-1, PEA 2013, 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-AR-N 4105, VFR 2014

Type designation

STP 20000TL-30

STP 25000TL-30

# www.SunnyPortal.com

Professional PV system monitoring, management and data display



www.SMA-Solar.com

SMA Solar Technology

# 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.

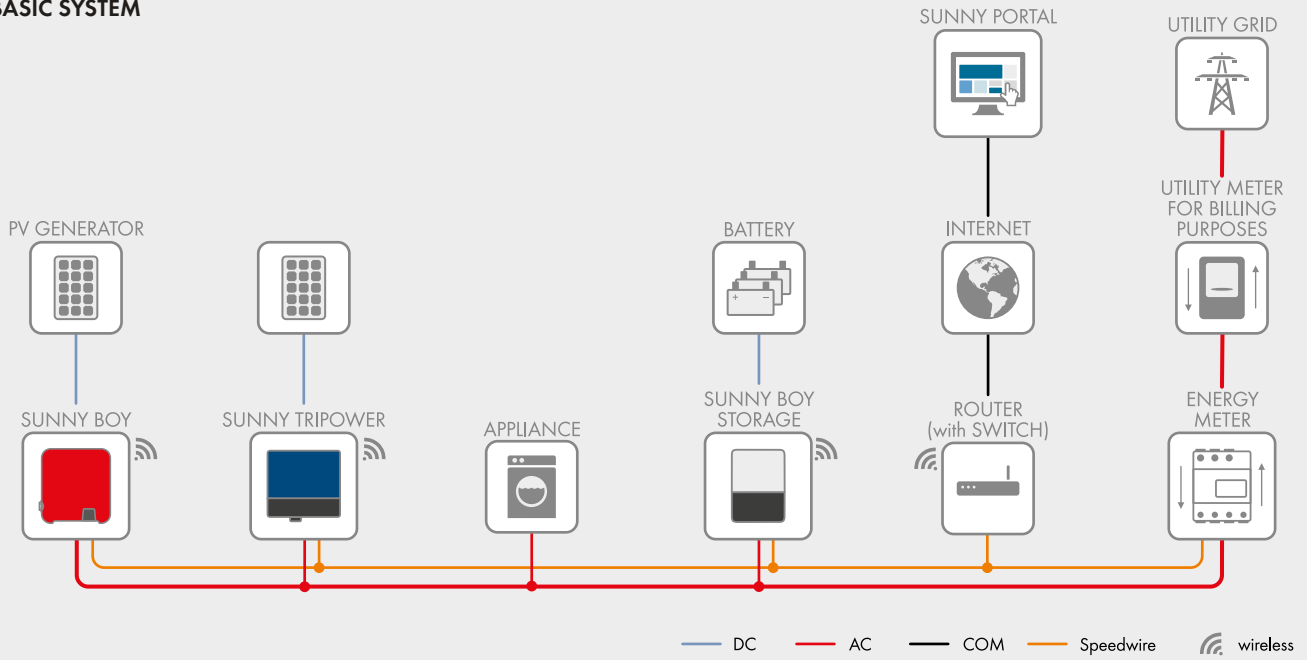


### EXPAND: ADAPT AN EXISTING BATTERY STORAGE SYSTEM TO INCREASING DEMAND

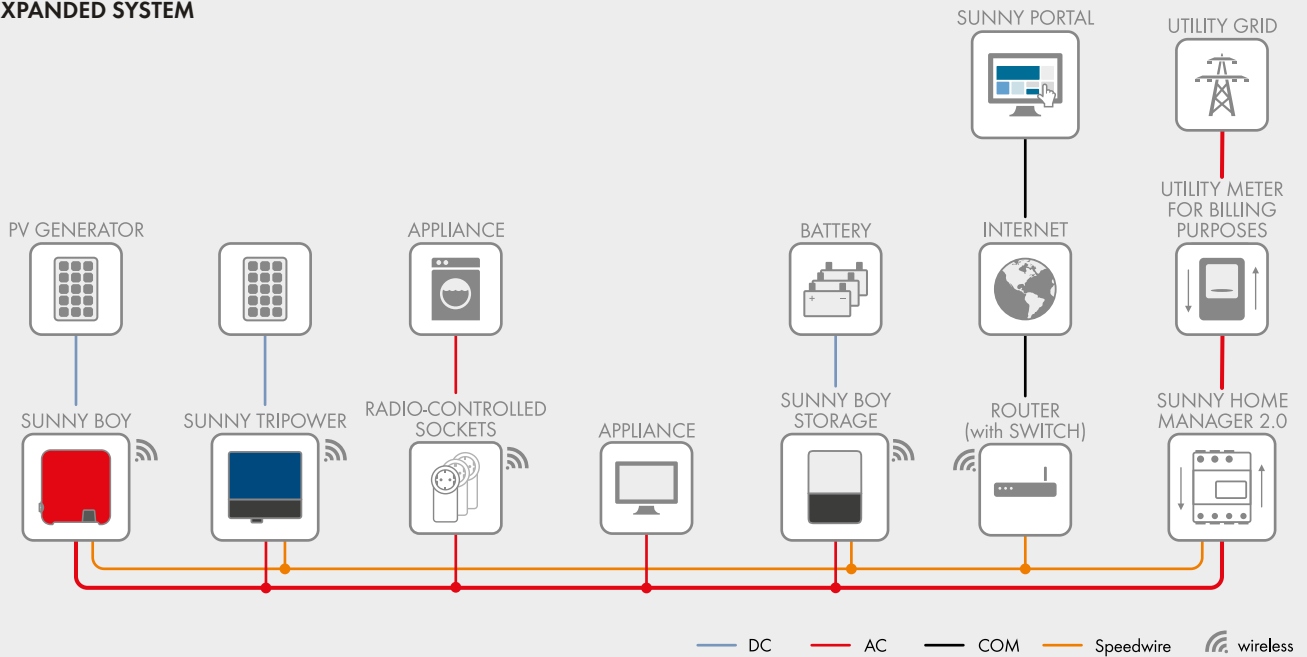
For the first time, the multistring battery inverter offers the option to connect up to three high-voltage batteries made by different manufacturers. The system can therefore be expanded in the future due to rising energy demand without any problems. To connect larger batteries, three separate battery 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
<b>AC connection</b>			
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		
<b>Battery DC input</b>			
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>
<b>Efficiency</b>			
Max. efficiency	97.5%	97.5%	97.5%
<b>Protective devices</b>			
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
<b>General data</b>			
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%		
<b>Features / function</b>			
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 webservice / 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		
<b>Accessories</b>			
Automatic transfer switch for battery backup system	Available from external suppliers		
Sunny Home Manager / Home Manager 2.0	Compatible		
SMA Energy Meter	Compatible		
<p>● Standard features   ○ Optional   – Not available</p> <p>All information is preliminary—last update: December 2017</p> <p>1) VDE: AR-N 4105; PAC, r 4600 W; Smax 4600 VA</p> <p>2) only in battery-backup operation with an automatic transfer switch; overload capacity depends on the battery used</p> <p>3) AS4777: Iac max.: 21.7 A</p> <p>4) Battery types approved by SMA, e.g., LG Chem, BYD, etc. (see www.SMA-Solar.com)</p>			
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 BOY 3.0 / 3.6 / 4.0 / 5.0 including SMA SMART CONNECTED



**What's new:  
The complete solution for  
100% ease and comfort**

## SMA Smart Connected

- Investment security included
- Automatic monitoring by SMA
- Proactive information and automatic service

## Easy to Use

- Safe plug and play installation
- Commissioning via smartphone or tablet
- WLAN and intuitive webservice

## Everything at a Glance

- Free online monitoring
- PV system data viewable via smartphone

## Future-Proof

- SMA storage solutions, intelligent energy management and Smart-module technology can be added at any time
- Dynamic feed-in control

## SUNNY BOY 3.0 / 3.6 / 4.0 / 5.0

More than just an inverter. Smaller, simpler and more convenient with SMA Smart Connected

The new Sunny Boy 3.0 – 5.0 succeeds the globally successful Sunny Boy 3000 – 5000TL. It is more than just a PV inverter: with the integrated SMA Smart Connected service, it offers all-round comfort for PV system operators and installers alike. The automatic inverter monitoring by SMA analyzes operation, reports irregularities and thus minimizes downtime.

The Sunny Boy is ideally suited to solar power generation in private homes. Thanks to its extremely light design and location of the external connections, the device can be quickly installed and easily commissioned thanks to the intuitive webservice.

Current communication standards mean that intelligent energy management solutions as well as SMA storage solutions can be flexibly added to the inverter at any time.

# 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.

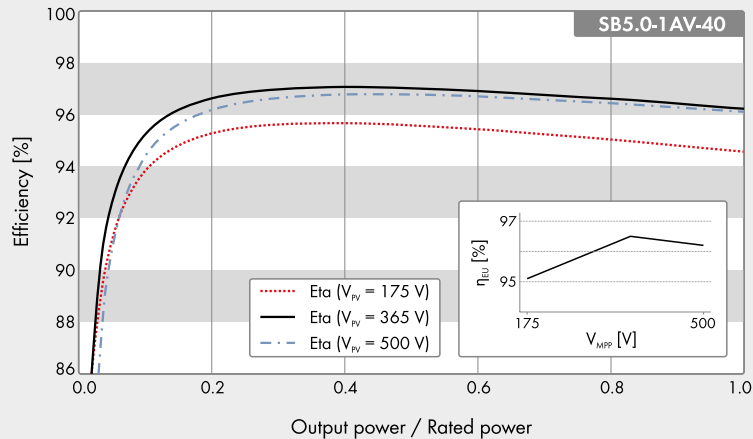


### PERFORMANCE SERVICE

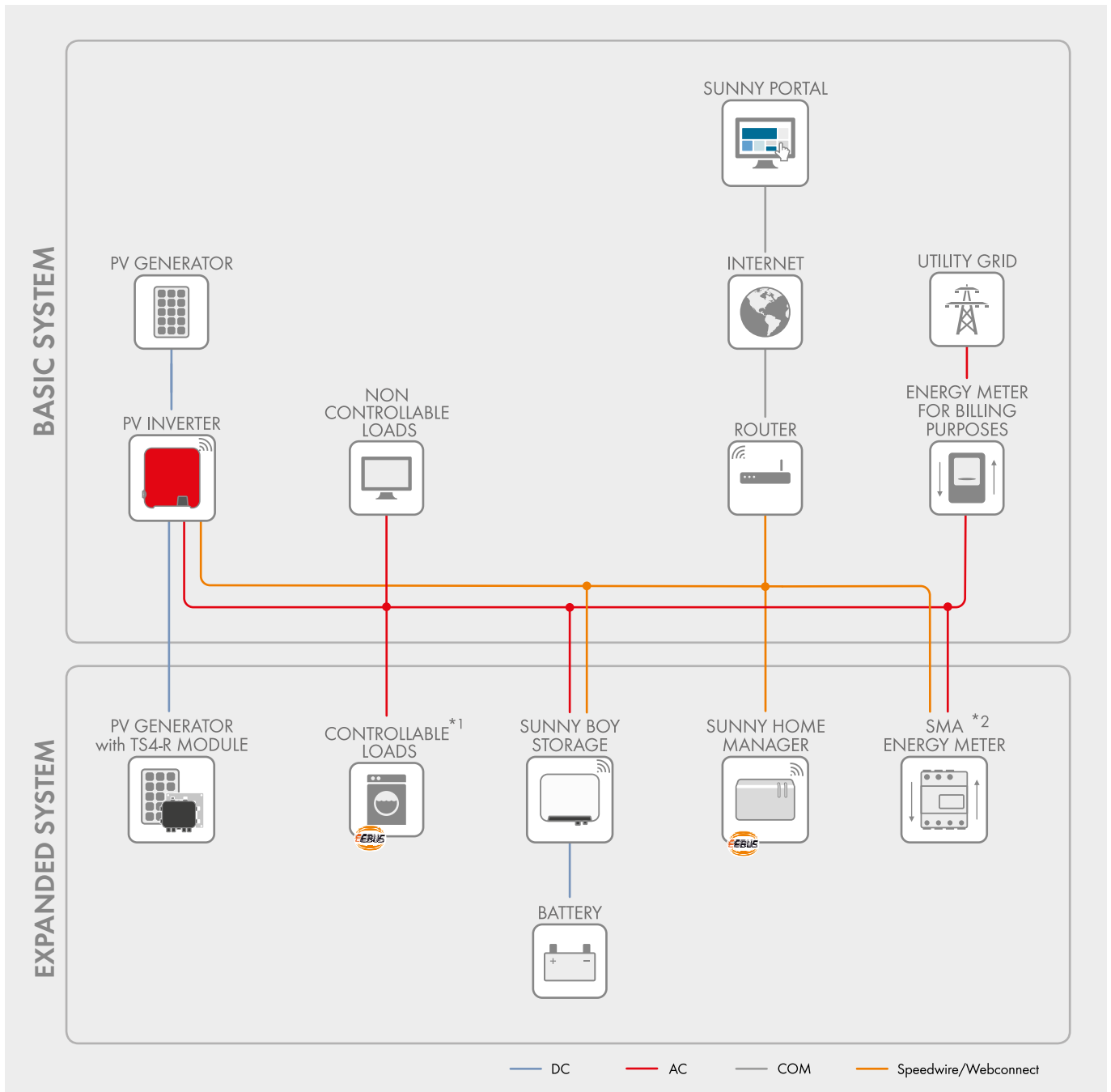
The PV system operator can claim compensation from SMA if the replacement inverter cannot be delivered within three days.

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

## Efficiency curve



Technical data	Sunny Boy 3.0	Sunny Boy 3.6	Sunny Boy 4.0	Sunny Boy 5.0
<b>Input (DC)</b>				
Max. DC power (at cos φ = 1)	3200 W	3880 W	4200 W	5250 W <sup>1)</sup>
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
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. input current per string input A / input B	15 A / 15 A			
Number of independent MPP inputs / strings per MPP input	2 / A;2; B:2			
<b>Output (AC)</b>				
Rated power (at 230 V, 50 Hz)	3000 W	3680 W	4000 W	5000 W <sup>2)</sup>
Max. apparent power AC	3000 VA	3680 VA	4000 VA	5000 VA <sup>2)</sup>
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>3)</sup>	22 A <sup>3)</sup>
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 / European Efficiency	97.0% / 96.4%	97.0% / 96.5%	97.0% / 96.5%	97.0% / 96.5%
<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 (as per IEC 62103) / overvoltage 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	16 kg (35.3 lb)			
Operating temperature range	-25°C to +60°C (-13°F to +140°F)			
Noise emission, typical	25 dB(A)			
Self-consumption (at night)	1.0 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%			
<b>Equipment</b>				
DC connection / AC connection	SUNCLIX / AC connector			
Display via smartphone, tablet, laptop	●			
Interfaces: WLAN, Speedwire / Webconnect	● / ●			
Warranty: 5 / 10 years	● / ○			
Certificates and approvals (more available upon request)	AS 4777, C10/11, CE, CEI 0-21, EN 50438, G59/3, G83/2, DIN EN 62109 / IEC 62109, NEN-EN50438, VDE-AR-N 4105, VDE0126-1-1 IEC 61727, RD1699, RD 661, SI 4777, UTE C15-712, VFR 2014, NRS 097-2-1			
Certificates and approvals (planned)				
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: January 2017				
1) 4825 W according to VDE-AR-N 4105				
2) 4600 W / 4600 VA according to VDE-AR-N 4105				
3) AS 4777: 21.7 A				
Type designation	SB3.0-1AV-40	SB3.6-1AV-40	SB4.0-1AV-40	SB5.0-1AV-40



### 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\*<sup>3</sup>
- 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\*<sup>2</sup>

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

\*1) via SMA radio-controlled socket or standardized data communication

\*2) scheduled for mid-2017 via software update

\*3) SMA Smart Connected for systems with Sunny Home Manager, scheduled for mid-2017 via software update