/ SBSE3.6-50 / SBSE4.0-50 / SBSE5.0-50 / SBSE6.0-50

preliminary

Sunny Boy Smart Energy

3.6 / 4.0 / 5.0 / 6.0

Higher yields. Faster charging.
Faster installation. Full control.

powered by ennexOS

SMA Smart Connected | SMA ArcFix | SMA ShadeFix STRING LEVEL OPTIMIZATION

Maximum energy yields
- Fast charge and discharge ability
- Overdimensioning on PV side provides for more energy to use and store
- SMA ShadeFix for integrated PV performance optimization

Fast commissioning, easy installation
- Sunny Design planning tool
- Step-by-step support at system & device level
- Hassle-free assembly with one twist

Unmatched flexibility
- 3 MPP trackers for flexible design
- Low startup voltage
- Secure Power Supply integrated
- Optional additional backup*

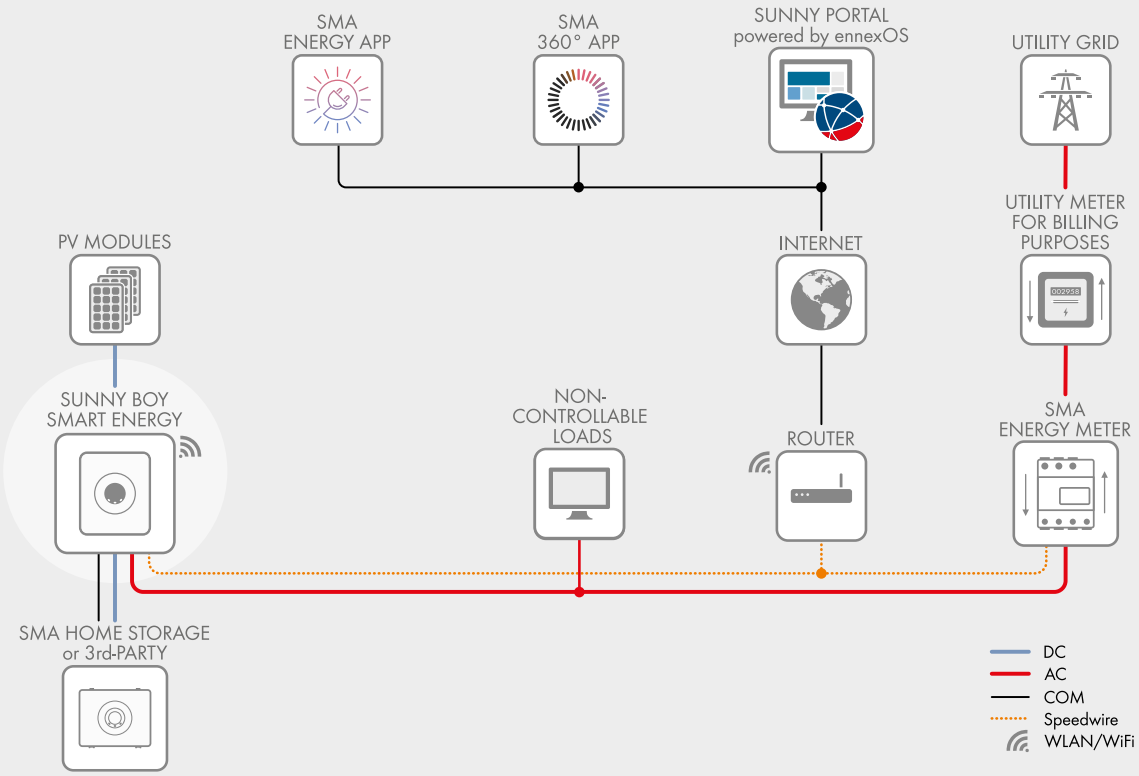
With the Sunny Home Manager
- Integrated AI optimizes the energy flow
- Increased self-consumption and independence
- Forecast and consumption-based charging
- Integration of heating, EV and other solutions

For over 40 years, SMA has made using solar energy easier and more efficient. Through its next-generation technology, the SMA Home Energy Solution empowers homeowners to generate and use even more sustainable energy. A top-of-the-line new asset to the solution is the future-proof hybrid inverter, the Sunny Boy Smart Energy.

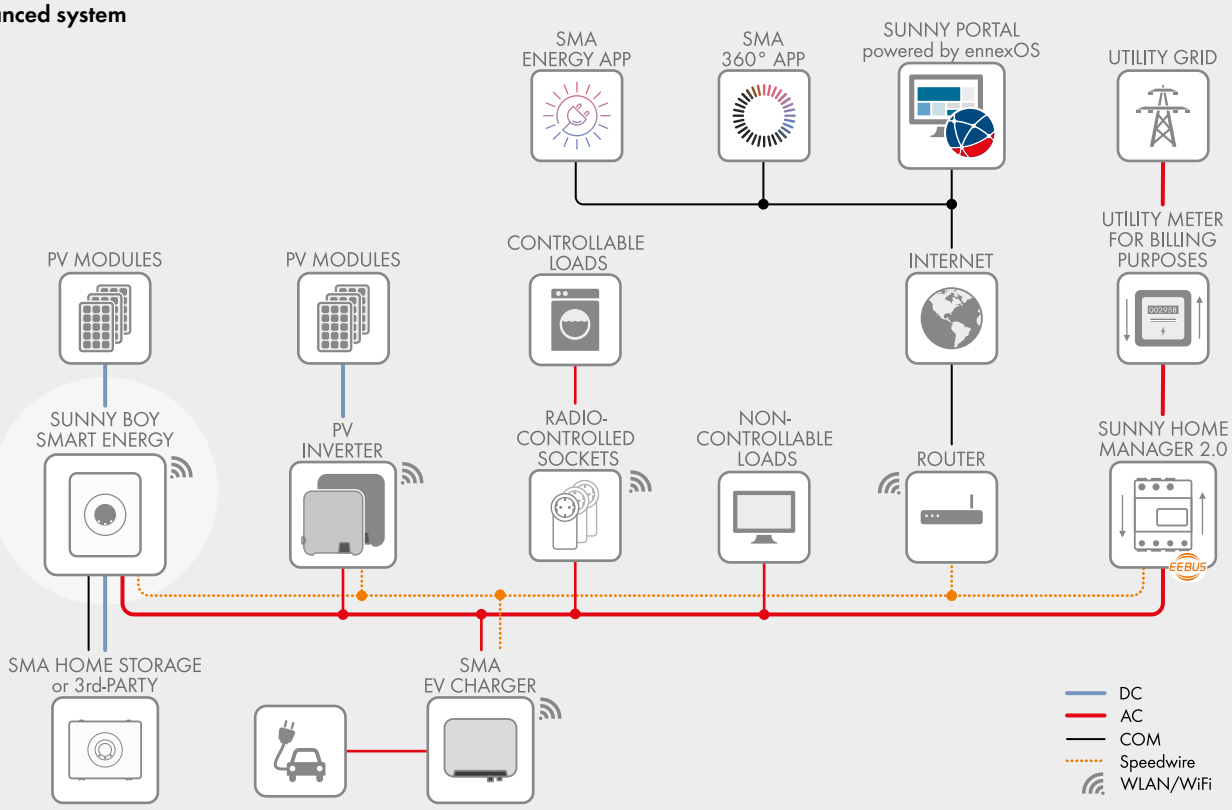
This 1-phase 2-in-1 inverter enables both immediate energy use and energy storage in a single device, with integrated Secure Power Supply and an additional back-up option*. The Sunny Boy Smart Energy shines with its fast battery charging capability. Conventional charging performance is challenged in northern climate by few hours of sunshine and plenty of cloud cover. The Sunny Boy Smart Energy's fast charging allows more solar power to be harvested and stored in those few hours, ready to power homes and reduce homeowners' energy costs. Enjoy the uncompromising German durability and 10 years warranty**.

* available with a later hardware release
** Device registration via the SMA product registration homepage (my.sma-service.com). The conditions of the SMA limited factory warranty apply. You can find additional information at SMA-Solar.com

Base system



Advanced system



Technical Data	Sunny Boy Smart Energy 3.6	Sunny Boy Smart Energy 4.0	Sunny Boy Smart Energy 5.0	Sunny Boy Smart Energy 6.0
PV DC				
Max. PV array power	7200 Wp	8000 Wp	10000 Wp	12000 Wp
Max. input voltage	600 V			
Min. input voltage	60 V			
MPP voltage range	60 V to 480 V			
Startup input voltage	66 V			
Max. usable input current input A / B / C	15 A			
Max. DC short-circuit current input A / B / C	30 A			
Number of independent MPP inputs / inputs per MPP	3 / 1			
Connection of MPP inputs in parallel possible	A and B			
Battery DC				
Battery type	Lithium-Ion batteries[1)]			
Voltage range	90 V to 500 V			
Max. charging current / max. discharging current	30 A / 30 A			
Number of independent battery inputs	1			
Max. charging power	10000 W			
Max. discharging power	3750 W	4200 W	5250 W	6300 W
Grid AC				
Rated power (at 230 V, 50 Hz)	3600 W	4000 W	5000 W [2)]	6000 W
Max. apparent AC power (at 230 V, 50 Hz)	3600 VA	4000 VA	5000 VA [2)]	6000 VA
Rated AC voltage	230 V / 240 V			
AC voltage range	184 V to 264 V			
AC grid frequency / range	50 Hz / 60 Hz / 44 Hz to 66 Hz			
Rated / Max. output current	16 A / 16 A	17.4 A / 20 A	21.7 A / 25 A	26.0 A / 30 A
Power factor at rated power / adjustable displacement power factor	1 / 0.8 overexcited to 0.8 underexcited			
Efficiency				
Max. efficiency / European efficiency	97,5% / 96,8%			
SPS Output (AC backup) during off-grid mode				
Rated power (at 230 V)	3680 W			
Max. apparent AC power (at 230 V, 50 Hz)	3680 VA			
Nominal AC voltage	230 V / 240 V			
AC frequency	50 Hz / 60 Hz			
Switching mode	manual			
Backup output [3)] (AC backup) during off-grid mode, 1-phase				
Rated power (at 230 V, 50 Hz)	7300 W			
Max. apparent AC power (at 230 V, 50 Hz)	7300 VA			
Output power / Output apparent power < 100 ms	11040 W / 11040 VA			
Output power / Output apparent power < 30 s	9200 W / 9200 VA			
Nominal AC voltage	230 V / 240 V			
AC frequency	50 Hz / 60 Hz			
Switching mode / Switching time to backup mode	automatic / TBD			
Protective devices				
Input-side disconnection point	●			
Arc-fault circuit interrupter (AFCI)	●			
Ground fault monitoring / grid monitoring	● / ●			
DC reverse polarity protection / AC short circuit current capability	● / ●			
All-pole-sensitive residual-current monitoring unit	●			
Protection class	I			
Overvoltage category grid / battery / PV	IV / II / II			
DC Type II SPD with monitoring (external, 3rd party)	○			
General Data				
Dimensions (W/H/D)	500 mm x 586 mm x 236 mm			
Weight	ca. 17.5 kg			
Operating temperature range	−25 °C bis +60 °C (−13 °F bis +140 °F) with derating			
Noise emission, max.	TBD			
Self-consumption (at night)	TBD			
Topology / cooling method	transformerless / natural convection			
Environmental protection rating	IP65			
Climatic category for operation	4K26			
Equipment				
PV connection / BAT connection	Lever clamp / Push in clamp			
Display via smartphone, tablet, laptop	●			
Communication protocols	Modbus (SMA, Sunspec), Speedwire/Webconnect, SMA Battery Interface, MODBUS RTU			
Interfaces: WLAN / Ethernet / BAT-CAN / RS-485	● / ● / ● / ●			
Ethernet ports	2			
Number of digital outputs	SG-Ready (Multi function relay 30 Vdc /1 A[4)])			
Shade management: SMA ShadeFix (integrated)	●			
Warranty: 5 / 10 / 15 / 20 years	● / ●[5)] / ○ / ○			
Planned Certificates and permits (more available upon request)	AS4777-2; C10/11; CEI0-21; EN50549-1; IEC 62109-1 / IEC 62109-2; TED749; VDE-AR-N4105			
Country availability of SMA Smart Connected	BE, DE, ES, LU, NL, IT			
Type designation	SBSE3.6-50	SBSE4.0-50	SBSE5.0-50	SBSE6.0-50

● Standard features ○ Optional Information refers to nominal conditions "TBD" to be determined Status: 06/2023 1) See "List of Approved Batteries" at www.SMA-Solar.com
2) 4600 W / 4600 VA according to VDE-AR-N 4105 3) available with a later hardware release 4) available with a later firmware release 5) Device registration via the SMA product registration homepage (my.sma-service.com). The conditions of the SMA limited factory warranty apply. You can find additional information at SMA-Solar.com

Sunny Boy Smart Energy

SMA ShadeFix – Intelligent energy yield optimization

Established product features and integrated software solutions will provide yield optimization throughout the system's entire service life. Even in the shade. SMA ShadeFix is a proprietary inverter software that optimizes energy yield in nearly every situation. SMA Smart Connected inverter monitoring offers additional safety by detecting errors at an early stage and automatically reporting them to the installer.

SMA ArcFix – Effectively preventing electric arcs

The arc-fault circuit interrupter (AFCI) effectively detects possible electric arcs in the PV system and the inverter stops feed-in operation before a fire can develop. SMA was one of the pioneers when AFCIs were introduced in the U.S. and has kept steadily improving this solution over the last decade. We will be equipping all our string inverters worldwide with our AFCI solution SMA ArcFix in the future. In this way, we will consistently raise the already high safety standard of PV systems yet further.

SMA Smart Connected – Proactive communication in the event of faults

SMA Smart Connected* allows you to monitor your inverter via the SMA Sunny Portal for free. If an inverter fails, SMA will proactively inform the system operator and the installer. This saves valuable working time and costs.

With SMA Smart Connected, the installer benefits from rapid diagnostics by SMA. This allows the installer to rectify the fault quickly and offer customers a range of additional and highly attractive services.

* For details, see document "Description of Services - SMA SMART CONNECTED"