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Sunny Tripower Smart Energy

5.0 / 6.0 / 8.0 / 10.0

The beating heart of every home

SMA Smart Connected

SMA ShadeFix
STRING LEVEL OPTIMIZATION

Store energy
- Three-phase / DC-coupled
- Integrated battery-backup function
- Fast charging
- Compatible with high-voltage batteries from leading manufacturers

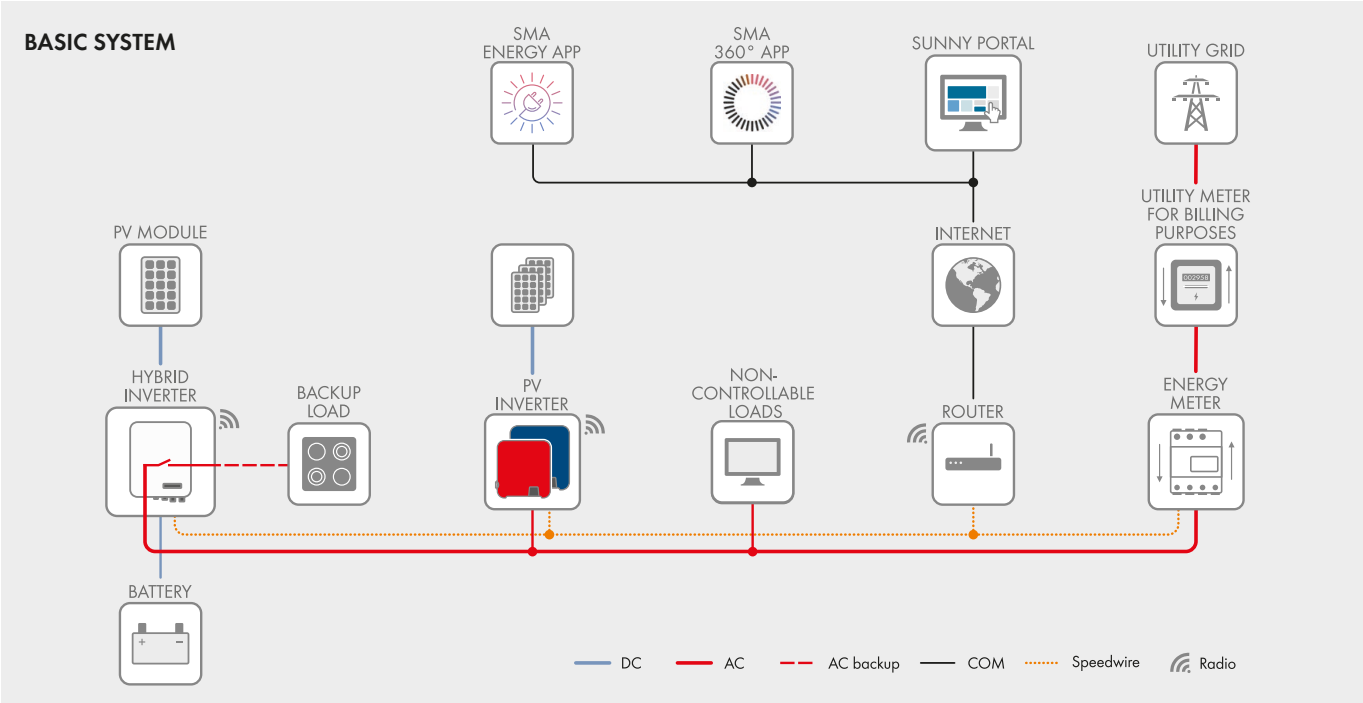
Smart and effective
- Smart energy management with the Sunny Home Manager
- Maximum energy yield thanks to SMA ShadeFix

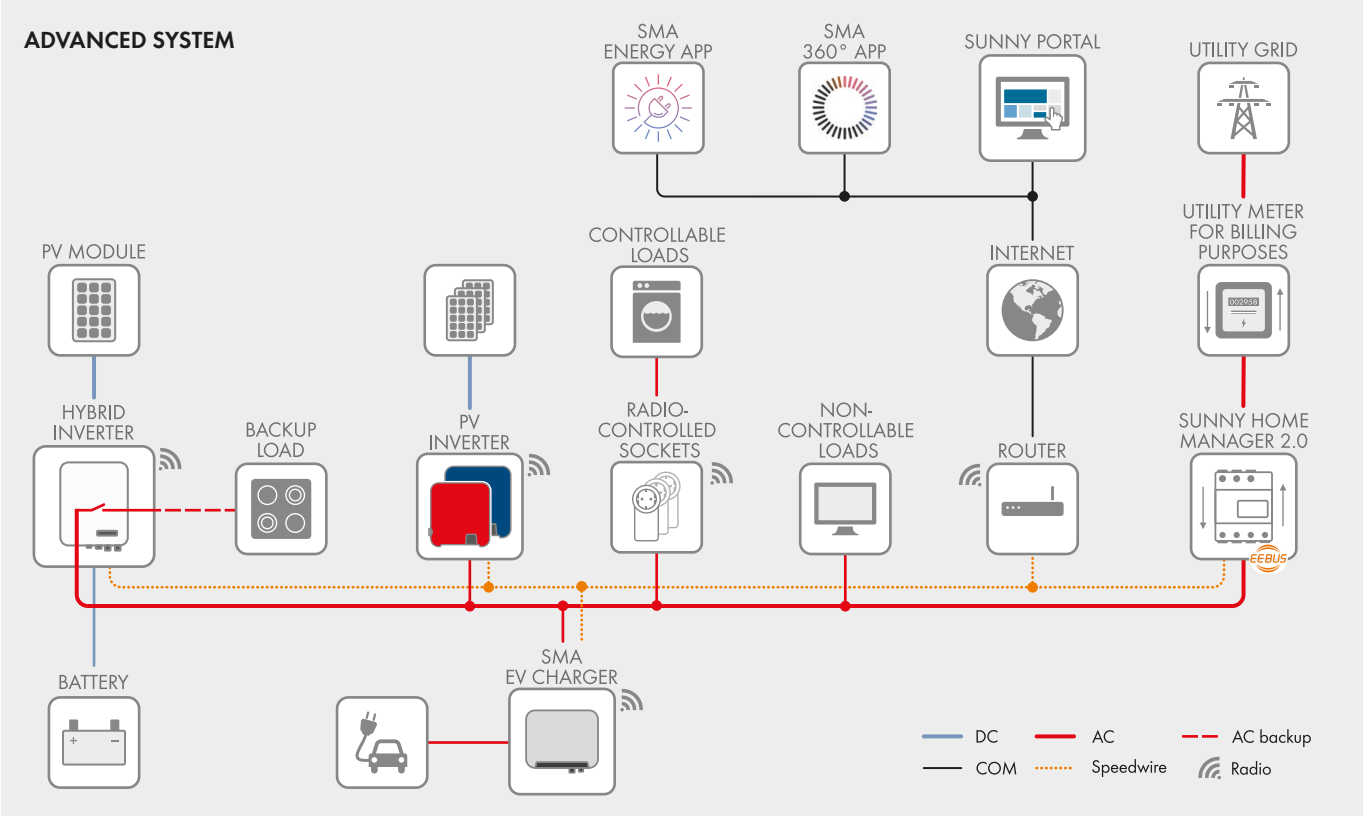
Connect to the grid easily
- Intuitive commissioning via app
- Quick and easy to install thanks to external terminals
- Compact design means minimum space requirements

Convenient all round
- Full-scale professional support for solar power professionals
- Automated service thanks to SMA Smart Connected
- Warranty extension from 5 to 10 years – free of charge

The Sunny Tripower Smart Energy hybrid inverter is the two-in-one system for supplying solar power at home.

With this, SMA has combined smart technology and integrated services to create a compact, space-saving system, drawing on more than 30 years of experience in storage. With Sunny Tripower Smart Energy, users can easily and conveniently generate, use and store solar power. It is possible to make additions to the system at any time, incorporating e-mobility or heat pumps. The integrated battery-backup function safeguards the household electricity supply even in the event of a grid failure. That makes domestic PV systems comprehensive, smart energy systems with solar energy self-sufficiency of up to 100 percent.





Functions of the basic system with SMA Energy Meter

- Maximum system yield and reduced electricity procurement costs thanks to dynamic limits on grid feed-in of between 0% and 100%*
- Reliable supply for selected loads even in the event of grid failure thanks to integrated automatic backup power supply
- Flexible battery use via PV inverter installed in parallel thanks to DC and AC charging
- Easy commissioning via 360° APP and intuitive installation wizard

* Does not apply to multiple inverters in one system

Functions of the advanced system with Sunny Home Manager 2.0

- Basic system functions
- Increased energy self-sufficiency, ideally matched to your specific installation site and usage by means of artificial intelligence
- Smart combination with heat pumps
- Smart combination with electric vehicles
- Maximum energy use thanks to forecast-based charging
- Visualization of energy consumption
- Dynamic limits on grid feed-in of between 0% and 100% with multiple SMA inverters

Technical data	Sunny Tripower 5.0 Smart Energy	Sunny Tripower 6.0 Smart Energy	Sunny Tripower 8.0 Smart Energy	Sunny Tripower 10.0 Smart Energy
Input (PV DC)				
Max. PV array power	7500 Wp	9000 Wp	12000 Wp	15000 Wp
Max. usable input power (P_{DC} max) at input A / input B	4500 W / 4500 W	5400 W / 5400 W	7200 W / 7200 W	6000 W / 12000 W
Max. input voltage	1000 V	1000 V	1000 V	1000 V
MPP voltage range	210 V to 800 V	250 V to 800 V	330 V to 800 V	280 V to 800 V
Rated input voltage	600 V			
Min. input voltage / initial input voltage	150 V / 180 V			
Max. usable input current at input A / input B	12.5 A / 12.5 A			12.5 A / 25 A
Max. DC short-circuit current at input A / input B	20 A / 20 A			20 A / 40 A
Number of independent MPP inputs / strings per MPP input	2/A: 1; B: 1			2/A: 1; B: 2
Battery connection				
Battery type	Lithium-ion[1)]			
Voltage range	150 V to 600 V			
Max. charging current / max. discharging current	30 A[2)] / 30 A[2)]			
Number of independent battery inputs	1			
Max. charging power / max. discharging power[3)]	7500 W / 6000 W	9000 W / 7200 W	10600 W / 10600 W	
AC connection				
Rated power (at 230 V, 50 Hz)	5000 W	6000 W	8000 W	10000 W
Max. apparent AC power	5000 VA	6000 VA	8000 VA	10000 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	156 V to 277 V			
AC grid frequency / range	50 Hz / 45 Hz to 55 Hz			
Rated grid frequency / rated grid voltage	50 Hz / 230 V			
Rated output current	3 x 7.3 A	3 x 8.7 A	3 x 11.6 A	3 x 14.5 A
Max. output current	3 x 7.6 A	3 x 9.1 A	3 x 12.1 A	3 x 15.2 A
Power factor at rated power / adjustable displacement power factor	1 / 0.8 overexcited to 0.8 underexcited			
Feed-in line conductors / connection line conductors	3 / 3			
Efficiency				
Max. efficiency / European efficiency	98.2 % / 97.3 %	98.2 % / 97.5 %	98.2 % / 97.8 %	98.1 % / 97.5 %
Output (AC backup) during on-grid mode				
Max. connectable power for backup load	13800 W			
Max. output current for backup load	3 x 20 A			
Output (AC backup) during off-grid mode				
Rated power 1~/3~ (at 230 V, 50 Hz)	1660 W / 5000 W	2000 W / 6000 W	2660 W / 8000 W	3330 W / 10000 W
Max. apparent AC power	5000 VA	6000 VA	8000 VA	10000 VA
Output power / output apparent power < 5 min	6000 W / 6000 VA	7200 W / 7200 VA	12000 W / 12000 VA	
Output power / output apparent power < 10 s	10000 W / 10000 VA		12000 W / 12000 VA	
Nominal AC voltage	3 / N / PE; 230 V / 400 V			
AC grid frequency	50 Hz			
Switching time to backup operation	30 ms to 10 s (adjustable)			
Protective devices				
Input-side disconnection point (PV DC)	●			
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)	I			
Overvoltage category (according to IEC 60664-1) grid/battery/PV	III/II/II			
Surge Protection Devices (SPD)	DC type II / AC type II			
General data				
Dimensions (W/H/D)	500 mm / 598 mm / 173 mm (19.7 inch / 23.5 inch / 6.8 inch)			
Weight	30 kg (66 lbs)			
Operating temperature range	-25°C to +60°C (–13°F to +140°F)			
Noise emission, typical	30 dB(A)			
Self-consumption (night)	44 W			
Topology / cooling method	Transformerless/convection			
Degree of protection (according to IEC 60529) / climate category (according to IEC 60721-3-4)	IP65/4K26			
Max. permissible value for relative humidity (non-condensing)	100 %			
Equipment				
PV connection / BAT connection	SUNCLIX / MC4, incl. MC4 battery cable, 3 m			
AC terminals	AC CONNECTOR (5 x 1.5 to 10 mm²)			
Display via smartphone, tablet, laptop	●			
Number of interfaces: Wi-Fi/Ethernet/BAT-CAN	1 / 2 / 1			
Number of digital inputs / outputs	5 / 1			
Communication protocols	Modbus (SMA, Sunspec), Speedwire/Webconnect			
Shade management: SMA ShadeFix (integrated)	●			
Warranty: 5/10 years	● / ●[4)]			
Certificates and approvals (more available upon request)	CE, CEI0-21 int./ext., C10/11 int./ext., EN50549-1, G98/G99, IEC 62109-1/2, NA/EEA-NE7, NRS 097-2-1, RD1699/413, TOR generator type A, VDE126-1-1, VDE AR-E2510-2, VDE-AR-N4105			
Country availability of SMA Smart Connected	AT, BE, CH, DE, ES, GB, LU, NL, IT, UK, ZA			
Model type number	STP5.0-3SE-40	STP6.0-3SE-40	STP8.0-3SE-40	STP10.0-3SE-40

● Standard features ○ Optional – Not available Information refers to nominal conditions Status: 07/2025 1) See "List of Approved Batteries" at www.SMA-Solar.com
2) U_{PV} < 700V and U_{BAT} >220 V 3) Depending on battery connected 4) When device is registered via the SMA product registration page (my.sma-service.com). The conditions of the SMA limited factory warranty apply. You can find additional information at SMA-Solar.com

Sunny Tripower 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 enhanced safety by detecting errors at an early stage and automatically reporting them to the installer.

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"

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