

SUNNY CENTRAL STORAGE

500 / 630 / 720 / 760 / 800 / 850 / 900



SCS 500 / SCS 630 / SCS 720 / SCS 760 / SCS 800 / SCS 850 / SCS 900



Durable

- Full nominal power in continuous operation at ambient temperatures up to 50 °C
- Optimized for temperatures between -40 °C and 62 °C
- Active temperature management with OptiCool™

Flexible

- Usable with lead-acid, lithium-ion, high-temperature and flow-batteries
- Allows battery control via standard communication protocol

Versatile

- Grid management functions like dynamic grid support
- Customized computer platform for optimal monitoring and control of inverters

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Inverter for Large-Scale Battery Storage Systems

Grid-connected storage systems enable the integration of large amounts of intermittent renewable energy into the utility grid while ensuring maximum grid stability. The Sunny Central Storage is the central component of the SMA system solution for integration of large-scale storage systems. It is designed to compensate for fluctuations in solar energy generation and offers comprehensive grid management services. The battery inverter is optimized for the continuous operation at nominal load and temperatures of -40°C to +50°C and is compatible with different types of battery technologies.

SUNNY CENTRAL STORAGE

500 / 630 / 720 / 760 / 800 / 850 / 900

Technische Daten	Sunny Central Storage 500	Sunny Central Storage 630
DC connection		
Max. DC power (@ cos φ =1)	560 kW	713 kW
Voltage range	430 V – 850 V	500 V – 850 V
Rated voltage	449 V	529 V
Max. DC current	1400 A	1400 A
AC connection		
Rated power (@ 25 °C) / nominal AC power (@ 50 °C)	550 kVA / 500 kVA	700 kVA / 630 kVA
Nominal AC voltage / nominal AC voltage range	270 V / 243 – 310 V	315 V / 284 – 362 V
AC power frequency / range	50 Hz, 60 Hz / 47 ... 63 Hz	50 Hz, 60 Hz / 47 ... 63 Hz
Rated power frequency / rated grid voltage	50 Hz / 270 V	50 Hz / 315 V
Max. AC current / max. total harmonic distortion	1411 A / 0.03	1411 A / 0.03
Power factor at rated power / displacement power factor adjustable	1 / 0.0 leading ... 0.0 lagging	
Feed-in phases / connection phases	3 / 3	3 / 3
Efficiency³		
Max. efficiency	98.6 %	98.7 %
Protective devices		
DC side disconnection device	Motor-driven load-break switch	
AC side disconnection device	AC circuit breaker	AC circuit breaker
DC overvoltage protection	Type I surge arrester	Type I surge arrester
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	Lightning Protection Level III
Stand-alone grid detection active / passive	● / –	● / –
Grid monitoring	●	●
Ground fault monitoring / remote-controlled ground fault monitoring	○ / ○	○ / ○
Insulation monitoring	○	○
Surge arrester for auxiliary power supply	●	●
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	I / III
General data		
Dimensions (W / H / D)	2562 / 2272 / 956 mm (101 / 89 / 38 inch)	
Weight in kg	1900 kg / 4200 lb	1900 kg / 4200 lb
Operating temperature range	–25 ... 62 °C / –13 ... 144 °F	–25 ... 62 °C / –13 ... 144 °F
Noise emission ⁴	60 db(A)	60 db(A)
Max. self-consumption (operation) ⁵ / self-consumption (night)	1900 W / < 100 W	1900 W / < 100 W
External auxiliary supply voltage	230 / 400 V (3 / N / PE)	230 / 400 V (3 / N / PE)
Cooling concept	OptiCool	OptiCool
Degree of protection: electronics / connection area (according to IEC 60529) / according to IEC 60721-3-4	IP54 / IP43 / 4C2, 4S2	IP54 / IP43 / 4C2, 4S2
Application in unprotected outdoor environments / indoor	● / ○	● / ○
Maximum permissible value for relative humidity (non-condensing)	15 ... 95 %	15 ... 95 %
Maximum operating altitude above MSL 2,000 m / 3,000 m	● / ○	● / ○
Fresh air consumption (inverter)	3000 m ³ /h	3000 m ³ /h
Features		
DC connection / AC connection	Ring terminal lug / ring terminal lug	
Display	HMI touch display	
Communication / protocols	Ethernet (optical fiber optional), Modbus	
Color enclosure / door / base / roof	RAL 9016 / 9016 / 7004 / 7004	
Guarantee: 5 / 10 / 15 / 20 / 25 years	● / ○ / ○ / ○ / ○	
Configurable grid management functions	Reactive power setpoint, dynamic grid support (e.g. LVRT)	
Certificates and approvals (more available on request)	EN 61000-6-2, EN 61000-6-4, EMC-conformity, CE-conformity, BDEW-MSRL-manufacturer's declaration, Arrêté du 23/04/08	
<p>● Standard features ○ Optional features – Not available</p>		
Type designation	SCS 500	SCS 630

Technische Daten	Sunny Central Storage 720	Sunny Central Storage 760
DC connection		
Max. DC power (@ cos φ =1)	808 kW	853 kW
Voltage range	480 V – 850 V	505 V – 850 V
Rated voltage	577 V	609 V
Max. DC current	1400 A	1400 A
AC connection		
Rated power (@ 25 °C) / nominal AC power (@ 50 °C)	792 kVA / 720 kVA	836 kVA / 760 kVA
Nominal AC voltage / nominal AC voltage range	324 V / 292 – 372 V	342 V / 308 – 393 V
AC power frequency / range	50 Hz, 60 Hz / 47 ... 63 Hz	50 Hz, 60 Hz / 47 ... 63 Hz
Rated power frequency / rated grid voltage	50 Hz / 324 V	50 Hz / 342 V
Max. AC current / max. total harmonic distortion	1411 A / 0.03	1411 A / 0.03
Power factor at rated power / displacement power factor adjustable	1 / 0.0 leading ... 0.0 lagging	
Feed-in phases / connection phases	3 / 3	3 / 3
Efficiency³		
Max. efficiency	98.6 %	98.6 %
Protective devices		
DC side disconnection device	Motor-driven load-break switch	
AC side disconnection device	AC circuit breaker	AC circuit breaker
DC overvoltage protection	Type I surge arrester	Type I surge arrester
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	Lightning Protection Level III
Stand-alone grid detection active / passive	● / –	● / –
Grid monitoring	●	●
Ground fault monitoring / remote-controlled ground fault monitoring	○ / ○	○ / ○
Insulation monitoring	○	○
Surge arrester for auxiliary power supply	●	●
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	I / III
General data		
Dimensions (W / H / D)	2562 / 2272 / 956 mm (101 / 89 / 38 inch)	
Weight in kg	1900 kg / 4200 lb	1900 kg / 4200 lb
Operating temperature range	-25 ... 62 °C / -13 ... 144 °F	-25 ... 62 °C / -13 ... 144 °F
Noise emission ⁴	60 db(A)	60 db(A)
Max. self-consumption (operation) ⁵ / self-consumption (night)	1900 W / < 100 W	1900 W / < 100 W
External auxiliary supply voltage	230 / 400 V (3 / N / PE)	230 / 400 V (3 / N / PE)
Cooling concept	OptiCool	OptiCool
Degree of protection: electronics / connection area (according to IEC 60529) / according to IEC 60721-3-4	IP54 / IP43 / 4C2, 4S2	IP54 / IP43 / 4C2, 4S2
Application in unprotected outdoor environments / indoor	● / ○	● / ○
Maximum permissible value for relative humidity (non-condensing)	15 ... 95 %	15 ... 95 %
Maximum operating altitude above MSL 2,000 m / 3,000 m	● / ○	● / ○
Fresh air consumption (inverter)	3000 m ³ /h	3000 m ³ /h
Features		
DC connection / AC connection	Ring terminal lug / ring terminal lug	
Display	HMI touch display	
Communication / protocols	Ethernet (optical fiber optional), Modbus	
Color enclosure / door / base / roof	RAL 9016 / 9016 / 7004 / 7004	
Guarantee: 5 / 10 / 15 / 20 / 25 years	● / ○ / ○ / ○ / ○	
Configurable grid management functions	Reactive power setpoint, dynamic grid support (e.g. LVRT)	
Certificates and approvals (more available on request)	EN 61000-6-2, EN 61000-6-4, EMC-conformity, CE-conformity, BDEW-MSRL-manufacturer's declaration, Arrêté du 23/04/08	
● Standard features ○ Optional features – Not available		
Type designation	SCS 720	SCS 760

Technische Daten	Sunny Central Storage 800	Sunny Central Storage 850
DC connection		
Max. DC power (@ cos φ = 1)	898 kW	954 kW
Voltage range	530 V - 950 V	568 V - 950 V
Rated voltage	641 V	681 V
Max. DC current	1400 A	1400 A
AC connection		
Rated power (@ 25°C) / nominal AC power (@ 50°C)	880 kVA / 800 kVA	935 kVA / 850 kVA
Nominal AC voltage / nominal AC voltage range	360 V / 324 - 414 V	386 V / 348 - 443 V
AC power frequency / range	50 Hz, 60 Hz / 47 ... 63 Hz	50 Hz, 60 Hz / 47 ... 63 Hz
Rated power frequency / rated grid voltage	50 Hz / 360 V	50 Hz / 386 V
Max. AC current / max. total harmonic distortion	1411 A / 0.03	1411 A / 0.03
Power factor at rated power / displacement power factor adjustable	1 / 0.0 leading ... 0.0 lagging	
Feed-in phases / connection phases	3 / 3	3 / 3
Efficiency³		
Max. efficiency	98.6 %	98.6 %
Protective devices		
DC side disconnection device	Motor-driven load-break switch	
AC side disconnection device	AC circuit breaker	AC circuit breaker
DC overvoltage protection	Type I surge arrester	Type I surge arrester
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	Lightning Protection Level III
Stand-alone grid detection active / passive	● / -	● / -
Grid monitoring	●	●
Ground fault monitoring / remote-controlled ground fault monitoring	○ / ○	○ / ○
Insulation monitoring	○	○
Surge arrester for auxiliary power supply	●	●
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	I / III
General data		
Dimensions (W / H / D)	2562 / 2272 / 956 mm (101 / 89 / 38 inch)	
Weight in kg	1900 kg / 4200 lb	1900 kg / 4200 lb
Operating temperature range	-25 ... 62 °C / -13 ... 144 °F	-25 ... 62 °C / -13 ... 144 °F
Noise emission ⁴	61 db(A)	61 db(A)
Max. self-consumption (operation) ⁵ / self-consumption (night)	1900 W / < 100 W	1900 W / < 100 W
External auxiliary supply voltage	230 / 400 V (3 / N / PE)	230 / 400 V (3 / N / PE)
Cooling concept	OptiCool	OptiCool
Degree of protection: electronics / connection area (according to IEC 60529) / according to IEC 60721-3-4	IP54 / IP43 / 4C2, 4S2	IP54 / IP43 / 4C2, 4S2
Application in unprotected outdoor environments / indoor	● / ○	● / ○
Maximum permissible value for relative humidity (non-condensing)	15 ... 95 %	15 ... 95 %
Maximum operating altitude above MSL 2,000 m / 3,000 m	● / ○	● / ○
Fresh air consumption (inverter)	3000 m ³ /h	3000 m ³ /h
Features		
DC connection / AC connection	Ring terminal lug / ring terminal lug	
Display	HMI touch display	
Communication / protocols	Ethernet (optical fiber optional), Modbus	
Color enclosure / door / base / roof	RAL 9016 / 9016 / 7004 / 7004	
Guarantee: 5 / 10 / 15 / 20 / 25 years	● / ○ / ○ / ○ / ○	
Configurable grid management functions	Reactive power setpoint, dynamic grid support (e.g. LVRT)	
Certificates and approvals (more available on request)	EN 61000-6-2, EN 61000-6-4, EMC-conformity, CE-conformity, BDEW-MSRL-manufacturer's declaration, Arrêté du 23/04/08	
<p>● Standard features ○ Optional features - Not available</p>		
Type designation	SCS 800	SCS 850

Technische Daten
Sunny Central Storage 900
DC connection

Max. DC power (@ $\cos \varphi = 1$)	1010 kW	
Voltage range	596 V - 950 V	
Rated voltage	722 V	
Max. DC current	1400 A	

AC connection

Rated power (@ 25°C) / nominal AC power (@ 50°C)	990 kVA / 900 kVA	
Nominal AC voltage / nominal AC voltage range	405 V / 365 - 465 V	
AC power frequency / range	50 Hz, 60 Hz / 47 ... 63 Hz	
Rated power frequency / rated grid voltage	50 Hz / 405 V	
Max. AC current / max. total harmonic distortion	1411 A / 0.03	
Power factor at rated power / displacement power factor adjustable	1 / 0.0 leading ... 0.0 lagging	
Feed-in phases / connection phases	3 / 3	

Efficiency³

Max. efficiency	98.6 %	
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Protective devices

DC side disconnection device	Motor-driven load-break switch	
AC side disconnection device	AC circuit breaker	
DC overvoltage protection	Type I surge arrester	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Stand-alone grid detection active / passive	● / -	
Grid monitoring	●	
Ground fault monitoring / remote-controlled ground fault monitoring	○ / ○	
Insulation monitoring	○	
Surge arrester for auxiliary power supply	●	
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	

General data

Dimensions (W / H / D)	2562 / 2272 / 956 mm (101 / 89 / 38 inch)	
Weight in kg	1900 kg / 4200 lb	
Operating temperature range	-25 ... 62 °C / -13 ... 144 °F	
Noise emission ⁴	61 db(A)	
Max. self-consumption (operation) ⁵ / self-consumption (night)	1900 W / < 100 W	
External auxiliary supply voltage	230 / 400 V (3 / N / PE)	
Cooling concept	OptiCool	
Degree of protection: electronics / connection area (according to IEC 60529) / according to IEC 60721-3-4	IP54 / IP43 / 4C2, 4S2	
Application in unprotected outdoor environments / indoor	● / ○	
Maximum permissible value for relative humidity (non-condensing)	15 ... 95 %	
Maximum operating altitude above MSL 2,000 m / 3,000 m	● / ○	
Fresh air consumption (inverter)	3000 m ³ /h	

Features

DC connection / AC connection	Ring terminal lug / ring terminal lug
Display	HMI touch display
Communication / protocols	Ethernet (optical fiber optional), Modbus
Color enclosure / door / base / roof	RAL 9016 / 9016 / 7004 / 7004
Guarantee: 5 / 10 / 15 / 20 / 25 years	● / ○ / ○ / ○ / ○
Configurable grid management functions	Reactive power setpoint, dynamic grid support (e.g. LVRT)
Certificates and approvals (more available on request)	EN 61000-6-2, EN 61000-6-4, EMC-conformity, CE-conformity, BDEW-MSRL-manufacturer's declaration, Arrêté du 23/04/08

● Standard features ○ Optional features - Not available

Type designation	SCS 900
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1) At 1.05 $U_{AC, nom}$ and $\cos \varphi = 1$

2) Further AC voltages, DC voltages and power classes can be configured (for more detailed information, see technical information „Innovations_CP“ at www.SMA.de)

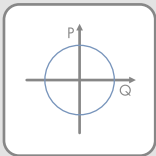
3) Efficiency measured without internal power supply

4) Sound pressure level at a distance of 10 m

5) Self-consumption at rated operation

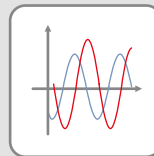
ANCILLARY SERVICES

Renewable energy plus storage secure grid stability



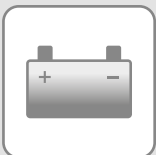
Four quadrant operation

Full four quadrant operation allows for all combinations of P and Q.



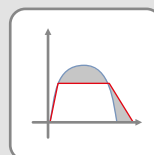
Reactive power control

Reactive power supply can be controlled via different methods to meet any grid requirement.



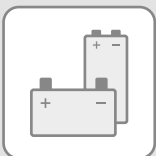
Battery Control

A reliable controller ensures continuous monitoring and control of the battery under all circumstances.



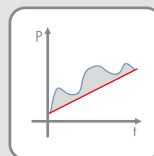
Peak shaving and -shifting

Peaks in power production can be shaved, stored in batteries and delivered when needed.



Tested and compatible

A wide DC voltage range and an advanced controller allows the use of li-ion-, lead-acid-, flow- and high-temperature batteries.



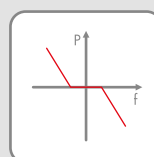
Ramp rate control

Buffering of output changes of intermittent renewable energy sources.



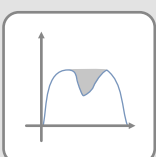
Modular & scalable

SMA inverters are modular and blocks can be replicated easily in the existing control structure.



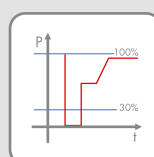
Active power management

Frequency-dependent control of active power to support the grid.



Renewable firming

Batteries provide backup-power to tighten the output of the PV system and ensure a continuous power supply.



Fault ride through

Compliance with local FRT requirements.