

# SUNNY CENTRAL STORAGE

500 / 630 / 720 / 760 / 800 / 850 / 900 / 1000



SCS 500 / SCS 630 / SCS 720 / SCS 760 / SCS 800 / SCS 850 / SCS 900 / SCS 1000



## Durable

- Full nominal power in continuous operation at ambient temperatures up to 50°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

- Designed for Systems between 500kW up to 2000kW
- Containerized solution available with SMA Medium Voltage Power Station

## Versatile

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

# SUNNY CENTRAL STORAGE

## 500 / 630 / 720 / 760 / 800 / 850 / 900 / 1000

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 -25°C to +50°C and is compatible with different types of battery technologies.

# SUNNY CENTRAL STORAGE

## 500 / 630 / 720 / 760 / 800 / 850 / 900 / 1000

Technical data	Sunny Central Storage 500	Sunny Central Storage 630	Sunny Central Storage 720
<b>DC connection</b>			
Max. DC power (at $\cos \varphi = 1$ )	560 kW	713 kW	808 kW
Voltage range	430 V to 850 V	500 V to 850 V	480 V to 850 V
Rated voltage	449 V	529 V	577 V
Max. input current	1400 A	1400 A	1400 A
<b>AC connection</b>			
Rated power (at 25 °C) / nominal AC power (at 50 °C)	550 kVA / 500 kVA	700 kVA / 630 kVA	792 kVA / 720 kVA
Nominal AC voltage / nominal AC voltage range	270 V / 243 V to 310 V	315 V / 284 V to 362 V	324 V / 292 V to 372 V
AC power frequency / range		50 Hz, 60 Hz / 47 Hz to 63 Hz	
Rated power frequency / rated grid voltage	50 Hz / 270 V	50 Hz / 315 V	50 Hz / 324 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 to 0.0 lagging	
Feed-in phases / connection phases		3 / 3	
<b>Efficiency<sup>1)</sup></b>			
Max. efficiency	98.6%	98.7%	98.6%
<b>Protective devices</b>			
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	
<b>General data</b>			
Dimensions (W / H / D)	2562 / 2272 / 956 mm (101 / 89 / 38 inch)		
Weight in kg	1900 kg / 4200 lb		
Operating temperature range	-25 °C to 62 °C / -13 °F to 144 °F		
Noise emission <sup>2)</sup>	63 db(A)	64 db(A)	64 db(A)
Max. self-consumption (operation) <sup>3)</sup> / self-consumption (night)	1900 W / < 100 W	1900 W / < 100 W	1950 W / < 100 W
External auxiliary supply voltage	230 V / 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% to 95%		
Maximum operating altitude above MSL 2000 m / 3000 m	● / ○		
Fresh air consumption (inverter)	3000 m <sup>3</sup> /h		
<b>Features</b>			
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	SCS 720

Technical data	Sunny Central Storage 760	Sunny Central Storage 800	Sunny Central Storage 850
<b>DC connection</b>			
Max. DC power (at $\cos \phi = 1$ )	853 kW	898 kW	954 kW
Voltage range	505 V to 850 V	530 V to 950 V	568 V to 950 V
Rated voltage	609 V	641 V	681 V
Max. input current	1400 A	1400 A	1400 A
<b>AC connection</b>			
Rated power (at 25 °C) / nominal AC power (at 50 °C)	836 kVA / 760 kVA	880 kVA / 800 kVA	935 kVA / 850 kVA
Nominal AC voltage / nominal AC voltage range	342 V / 308 V to 393 V	360 V / 324 V to 414 V	386 V / 348 V to 443 V
AC power frequency / range		50 Hz, 60 Hz / 47 Hz to 63 Hz	
Rated power frequency / rated grid voltage	50 Hz / 342 V	50 Hz / 360 V	50 Hz / 386 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 to 0.0 lagging	
Feed-in phases / connection phases		3 / 3	
<b>Efficiency<sup>1)</sup></b>			
Max. efficiency		98.6%	
<b>Protective devices</b>			
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	
<b>General data</b>			
Dimensions (W / H / D)	2562 / 2272 / 956 mm (101 / 89 / 38 inch)		
Weight in kg	1900 kg / 4200 lb		
Operating temperature range	-25 °C to 62 °C / -13 °F to 144 °F		
Noise emission <sup>2)</sup>	64 db(A)	64 db(A)	63 db(A)
Max. self-consumption (operation) <sup>3)</sup> / self-consumption (night)	1950 W / < 100 W		
External auxiliary supply voltage	230 V / 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% to 95%		
Maximum operating altitude above MSL 2000 m / 3000 m	● / ○		
Fresh air consumption (inverter)	3000 m <sup>3</sup> /h		
<b>Features</b>			
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 760	SCS 800	SCS 850

Technical data	Sunny Central Storage 900	Sunny Central Storage 1000
<b>DC connection</b>		
Max. DC power (at $\cos \varphi = 1$ )	1010 kW	1122 kW
Voltage range	596 V to 950 V	596 V to 900 V
Rated voltage	722 V	688 V
Max. input current	1400 A	1635 A
<b>AC connection</b>		
Rated power (at 25 °C) / nominal AC power (at 40 °C / at 50 °C)	990 kVA / 900 kVA	1100 kVA / 1000 kVA / 900 kVA
Nominal AC voltage / nominal AC voltage range	405 V / 365 V to 465 V	
AC power frequency / range	50 Hz, 60 Hz / 47 Hz to 63 Hz	
Rated power frequency / rated grid voltage	50 Hz / 405 V	
Max. AC current / max. total harmonic distortion	1411 A / 0.03	1568 A / 0.03
Power factor at rated power / displacement power factor adjustable	1 / 0.0 leading to 0.0 lagging	
Feed-in phases / connection phases	3 / 3	
<b>Efficiency<sup>1)</sup></b>		
Max. efficiency	98.6%	98.7%
<b>Protective devices</b>		
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	
<b>General data</b>		
Dimensions (W / H / D)	2562 / 2272 / 956 mm (101 / 89 / 38 inch)	
Weight in kg	1900 kg / 4200 lb	
Operating temperature range	–25 °C to 62 °C / –13 °F to 144 °F	
Noise emission <sup>2)</sup>	64 db(A)	68 db(A)
Max. self-consumption (operation) <sup>3)</sup> / self-consumption (night)	1950 W / < 100 W	
External auxiliary supply voltage	230 V / 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% to 95 %	
Maximum operating altitude above MSL 2000 m / 3000 m	● / ○	
Fresh air consumption (inverter)	3000 m <sup>3</sup> /h	
<b>Features</b>		
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	SCS 1000

1) Efficiency measured without internal power supply

2) Sound pressure level at a distance of 10 m

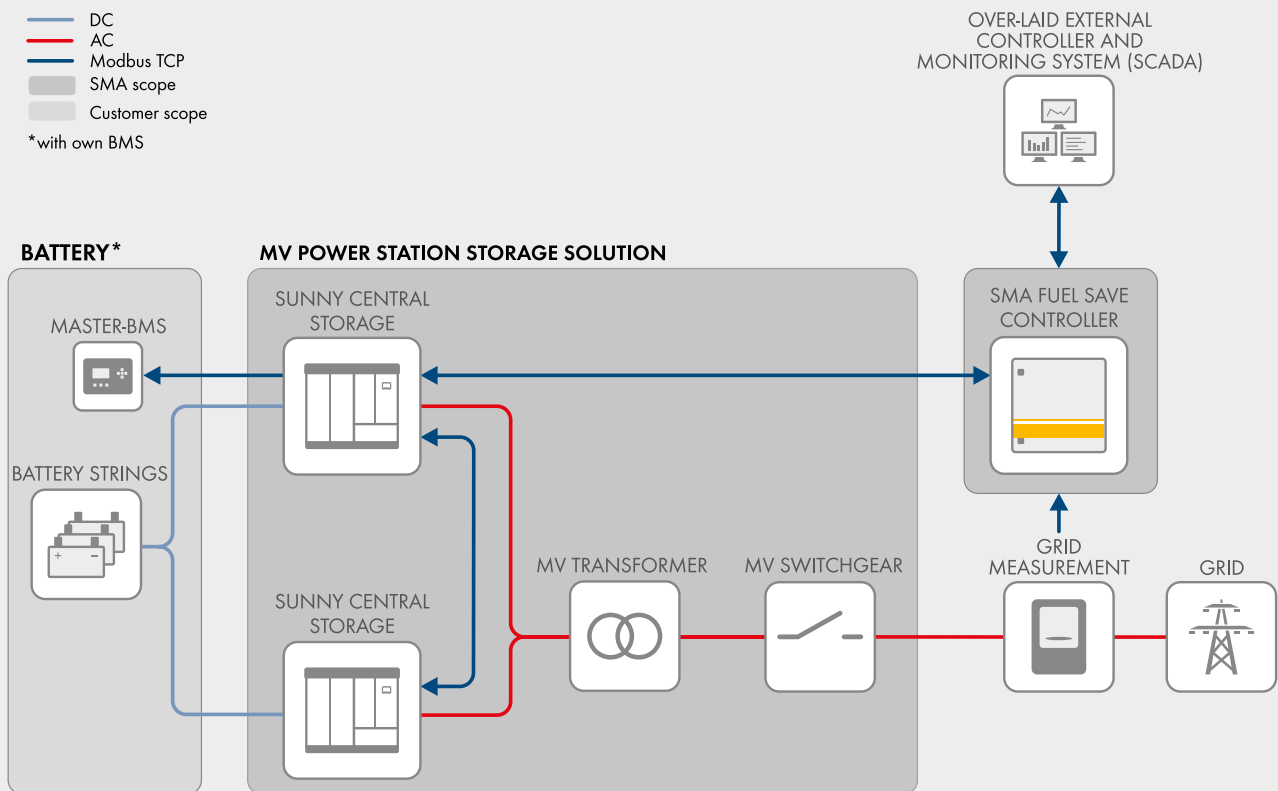
3) Self-consumption at rated operation

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## APPLICATIONS

- Supports the growth of renewable energy in public grids
- Increases fuel saving potential in PV Hybrid Diesel systems
- Provision of grid ancillary services



By combining several of these schemes, higher power systems can be realized

## FUNCTIONS

- Set point for active and reactive power
- Four quadrant operation
- Frequency and voltage control thru P(f) and Q(U)
- Ramp-Rate Control of PV power
- Peak shaving and peak shifting
- Optimized operation of genset
- Reducing necessary spinning reserve of gensets
- Battery start up and stop sequence
- Always stays in the battery normal operation window

