Flexible

- Global solution for international markets
- For all medium-voltage grids from 6.6 kV to 35 kV
- Various options

Robust

- All components are type-tested
- 5-year statutory warranty
- Optimally suited to extreme ambient conditions

Easy to use

- Plug and play concept
- Ideally suited to be exported to overseas markets
- Transportation in standard shipping container
- Preinstalled and mechanically protected cabling

Cost-effective

- Easy planning and installation
- Increased system availability and longer service life
- Lower transportation costs due to standardized dimensions

MV POWER STATION
500SC / 630SC / 800SC / 900SC / 1000SC

Turnkey system solution with the Sunny Central CP XT or Sunny Central Storage

With power of one robust Sunny Central CP XT inverter in the power class of your choice and with high efficiency transformers according to eco-design-standard, the SMA MV Power Station is a turnkey system solution that is available worldwide. Equipped with the Sunny Central CP XT inverters, the MV Power Station is the optimal system solution for PV power plants compatible with Q at Night, and with the Sunny Central Storage inverter, is ideally suited for integrating large-scale storage systems into PV power plants. Transportion costs go down thanks to the standardized container design principle. Plug and play applies to installation and commissioning. Using type-tested components with high efficiencies maximizes profit.

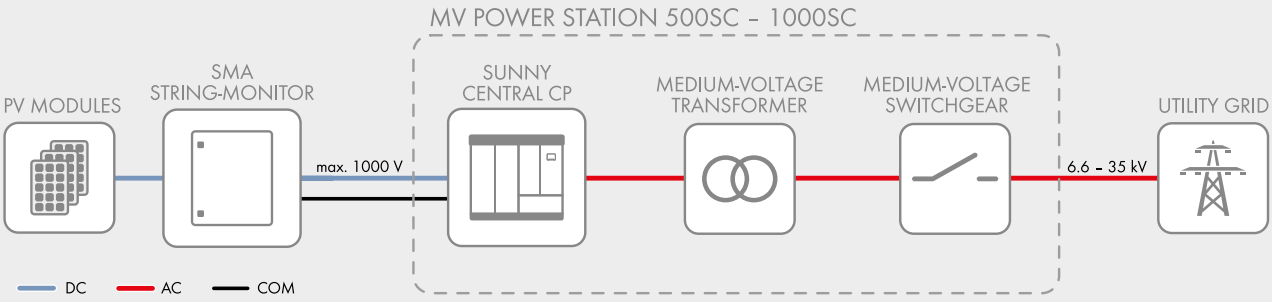
MV POWER STATION
500SC / 630SC / 800SC / 900SC / 1000SC

Technical Data	MV Power Station 500SC	MV Power Station 630SC
Input (DC)		
Max. DC power (at cos φ = 1)	560 kW	713 kW
Max. input voltage	1,000 V	1,000 V
MPP voltage range (at 25°C / at 50°C)[1, 2]	449 V to 850 V / 430 V to 850 V	529 V to 850 V / 500 V to 850 V
Rated input voltage	449 V	529 V
Max. input current	1,250 A	1,350 A
Number of independent MPP inputs	1	1
Number of DC inputs	9	9
Output (AC) on the Medium-Voltage Side		
AC power (at 25°C / at 40°C / at 50°C)[3]	550 kVA / 520 kVA / 500 kVA	700 kVA / 655 kVA / 630 kVA
Nominal AC voltage	20 kV	20 kV
Optional nominal voltages	6.6 to 35 kV	6.6 to 35 kV
AC power frequency	50 Hz / 60 Hz	50 Hz / 60 Hz
Transformer vector group Dy11 / YNd11	● / ○	● / ○
Max. output current at 20 kV	16 A	21 A
Max. total harmonic distortion	< 3%	< 3%
Power factor at rated power / displacement power factor adjustable[3]	1 / 0.9 overexcited to 0.9 underexcited	
Feed-in phases / connection phases	3 / 3	3 / 3
Overall Efficiency[4]		
Max. efficiency	97.4%	97.5%
European efficiency	97.2%	97.3%
Protective Devices		
Input-side disconnection point	Motor-driven DC load-break switch	
Output-side disconnection point	○ (Load-break switch with HV/HVR fuses or circuit breaker)	
DC overvoltage protection	Surge arrester type I	
Grid monitoring / PV system monitoring	● / ○ (via Sunny Portal)	
DC ground-fault monitoring / remote ground-fault monitoring	○ / ○	○ / ○
DC insulation monitoring	○	○
Galvanic isolation	●	●
Protection class (according to IEC 62103)[3]	I	I
Arc fault resistance (according to IEC 62271-202)	IAC A 20 kA 1 s	IAC A 20 kA 1 s
General Data		
Dimensions (W / H / D)[8]	6.058 m / 2.591 m / 2.438 m	6.058 m / 2.591 m / 2.438 m
Weight	< 10 t	< 10 t
Operating temperature range -25°C to +40°C / +55°C[5]	● / ○	● / ○
Self-consumption (at rated operation) / self-consumption (at night)[6]	< 1,900 W[3] / < 100 W + 510 W	< 1,900 W[3] / < 100 W + 600 W
Internal auxiliary supply voltage	230 / 400 V (3 / N / PE), 50/60 Hz	230 / 400 V (3 / N / PE), 50/60 Hz
Degree of protection according to IEC 60529[7]	IP23D, IP00	IP23D, IP00
Degree of protection according to IEC 60721-3-4 (4C1, 4S2 / 4C2, 4S2)	● / ○	● / ○
Application / use in chemically active environment	In unprotected outdoor environments / ○	
Maximum permissible value for relative humidity	15% to 95%	15% to 95%
Max. operating altitude above mean sea level 1,000 m / >1,000 m to 3,000 m	● / ○	● / ○
Fresh air consumption (inverter)	3,000 m³/h	3,000 m³/h
Features		
DC connection	Ring terminal lug	Ring terminal lug
AC connection, MV side	Outer-cone angle plug	Outer-cone angle plug
Display	LC graphic display	
Communication / protocols	Ethernet (optical fiber optional) / Modbus	
SC-COM / Communit	● / ○	
Station enclosure color	RAL 7004	
Transformer for internal power supply 6 kVA / 10 kVA / 20 kVA / 30 kVA	○	
Medium-voltage switchgear	○	
Standards (more available on request)	IEC 62271-202, IEC 62271-200, IEC 60076, IEC 61439-1	
Available SUNNY CENTRAL inverters	1 x SC 500CP-XT	1 x SC 630CP-XT
Available SUNNY CENTRAL STORAGE battery inverters	1 x SCS 500	1 x SCS 630
● Standard features ○ Optional features – Not available		
Type designation	MVPS 500SC 21	MVPS 630SC 21

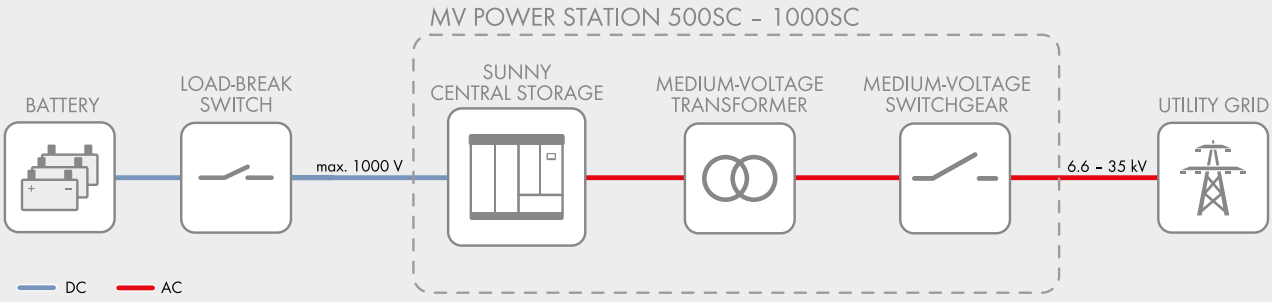
1) At 1.05 $V_{AC, nom}$ and cos φ = 1
2) Further DC voltages upon request
3) Information based on inverter
4) Efficiency measured without internal power supply
5) Ambient temperatures: MVPS 500 to 900SC at 50°C at 100% load and at 55°C at 50% load
MVPS 1000SC at 50°C at 90% load and at 55°C at 40% load
6) Separated according to consumption of the inverter and open-circuit losses of the transformer
7) Degree of protection based on station building (medium-voltage compartment IP23D, transformer and inverter compartment IP00), inverters include additional degrees of protection
8) Dimensions without feet, service platforms and protection roofs

MV Power Station 800SC	MV Power Station 900SC	MV Power Station 1000SC	
898 kW	1,010 kW	1,122 kW	
1,000 V	1,000 V	1,000 V	
641 V to 850 V / 583 V to 850 V	722 V to 850 V / 656 V to 850 V	688 V to 850 V / 596 V to 850 V	
641 V	722 V	688 V	
1,400 A	1,400 A	1,635 A	
1	1	1	
9	9	8	
880 kVA / 832 kVA / 800 kVA	990 kVA / 936 kVA / 900 kVA	1,100 kVA / 1,000 kVA / 900 kVA	
20 kV	20 kV	20 kV	
6.6 to 35 kV	6.6 to 35 kV	6.6 to 35 kV	
50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	
● / ○	● / ○	● / ○	
26 A	29 A	32 A	
< 3%	< 3%	< 3%	
1 / 0.9 overexcited to 0.9 underexcited			
3 / 3	3 / 3	3 / 3	
97.4%	97.4%	97.5%	
97.2%	97.2%	97.2%	
Motor-driven DC load-break switch			
○ (Load-break switch with HV/HVR fuses or circuit breaker)			
Surge arrester type I			
● / ○ (via Sunny Portal)			
○ / ○	○ / ○	○ / ○	
○	○	○	
●	●	●	
I	I	I	
IAC A 20 kA 1 s	IAC A 20 kA 1 s	IAC A 20 kA 1 s	
6.058 m / 2.591 m / 2.438 m	6.058 m / 2.591 m / 2.438 m	6.058 m / 2.591 m / 2.438 m	
< 10 t	< 10 t	< 10 t	
● / ○	● / ○	● / ○	
< 1,900 W³ / < 100 W + 650 W	< 1,900 W³ / < 100 W + 710 W	< 3,800 W³ / < 200 W + 770 W	
230 / 400 V (3 / N / PE), 50/60 Hz	230 / 400 V (3 / N / PE), 50/60 Hz	230 / 400 V (3 / N / PE), 50/60 Hz	
IP23D, IP00	IP23D, IP00	IP23D, IP00	
● / ○	● / ○	● / ○	
In unprotected outdoor environments / ○	In unprotected outdoor environments / ○	In unprotected outdoor environments / ○	
15% to 95%	15% to 95%	15% to 95%	
● / ○	● / ○	● / ○	
3,000 m³/h	3,000 m³/h	3,000 m³/h	
Ring terminal lug	Ring terminal lug	Ring terminal lug	
Outer-cone angle plug	Outer-cone angle plug	Outer-cone angle plug	
LC graphic display			
Ethernet (optical fiber optional) / Modbus			
● / ○			
RAL 7004			
○			
○			
IEC 62271-202, IEC 62271-200, IEC 60076, IEC 61439-1			
1 x SC 720 / 760 / 800CP-XT	1 x SC 850 / 900CP-XT	1 x SC 1000CP-XT	
1 x SCS 720 / 760 / 800	1 x SCS 850 / 900	1 x SCS 1000	
MVPS 800SC 21	MVPS 900SC 21	MVPS 1000SC 21	

PLANT DIAGRAM WITH SUNNY CENTRAL CP



PLANT DIAGRAM WITH SUNNY CENTRAL STORAGE



DESIGN NOTES

Inverter compartment
The Sunny Central CP XT or Sunny Central Storage inverters are installed in the center of the inverter compartment with an air outlet facing backward. The terminals for the DC area can be connected to either the front or the back.
The MV POWER STATION's inverter compartment includes two standard service platforms and two standard sun protection roofs.
When transporting to overseas countries, the transformer compartment is also equipped with service platforms and protection roofs, and additional base plates are installed in the shipping container.

Transformer compartment
Outdoor transformer optimized for PV without active fan for reduced maintenance. The side panels are equipped with protective grids. The following features can be shipped with the transformer: oil tray, biodegradable oil instead of mineral oil. The organic oil has the following benefits: optimal environmental protection, increased fire safety, oil tray often not required, depending on the local regulations.

Medium-voltage compartment
The following features are installed:
Medium-voltage switchgear with three panels, including two cable panels with load-break switch, one transformer panel with circuit breaker, or load-break switch with fuses. For optimal user protection, the medium-voltage switchgear contains the standard internal arc classification IAC AFL 20 kA 1s according to IEC 62271-200. For larger PV farms, the medium-voltage switchgear can also be equipped with an daisy-chain control.
The auxiliary transformer is available in the power classes 6, 10, 20 and 30 kVA and delivered, including EMC filters.
The station subdistribution board and circuit breakers for the control unit can optionally be equipped with up to two low-voltage meters.
In addition, communication components such as Communit can be integrated.