/ STM-BMS-10 / STM-BM-4.09-10

SMA Storage M

Easy installation. Efficient use.
Flexible performance.

Designed for dynamic tariffs

- Designed for frequent charge/discharge cycles
- Up to 7.2 MWh/kWh energy throughput[1)]
- 10-year warranty for tariff-optimized use over many years
- Suitable for dynamic tariffs, energy trade and virtual power plant (VPP) scenarios
- Cybersecurity architecture developed and operated by SMA (cloud operations within an ISO 27001 certified organizational unit)

Easy installation

- Stackable modules without costly cabling
- Automatic commissioning via plug and play
- Compact design
- Suitable for indoor and outdoor installation (IP66, −20 °C to +50 °C)
- SOC/state of charge display via LED

Flexible scaling

- 12.3 kWh to 49.1 kWh per tower[2)]
- Extendable within two years
- Compatible with Sunny Tripower Hybrid X and Sunny Boy Smart Energy

The SMA Storage M is a modular high-voltage battery storage system for residential users and small commercial applications. Together with the Sunny Tripower Hybrid X and Sunny Boy Smart Energy inverters, it forms a reliable solution for storing and using solar energy.

The battery utilizes long-lasting LFP technology and is designed for daily charge and discharge cycles. With capacities ranging from 12.3 kWh to 49.1 kWh per tower, the system can be adapted to various requirements. The 36 kg modules can be stacked easily; internal cable connections are not necessary. The compact, space-saving design allows it to be installed in virtually any environment, even where space is limited. Installation is via plug and play, and thanks to a protection rating of IP66 and a temperature range from −20 °C to +50 °C, it can be used both indoors and outdoors. The high charge and discharge capacity means that the energy available can be fully utilized at any time.

1) Guaranteed nominal energy throughput depending on country of installation, see warranty conditions
2) Depending on the inverter

Technical Data	SMA Storage M 12.3	SMA Storage M 16.4	SMA Storage M 20.5	SMA Storage M 24.6	SMA Storage M 28.7
Electrical Data					
Number of battery modules	3	4	5	6	7
Nominal energy capacity	12.99 kWh	17.33 kWh	21.66 kWh	25.99 kWh	30.32 kWh
Usable energy capacity[1)]	12.28 kWh	16.37 kWh	20.47 kWh	24.56 kWh	28.65 kWh
Nominal voltage	172.8 V	230.4 V	288 V	345.6 V	403.2 V
Operating voltage range	151.2 V to 191.7 V	201.6 V to 255.6 V	252 V to 319.5 V	302.4 V to 383.4 V	352.8 V to 447.3 V
Charging/discharging current	30 A (Sunny Boy Smart Energy); 50 A (Sunny Tripower Hybrid X)				
Efficiency					
Round-trip efficiency (RTE)	93.5% at a C rate of 0.2				
General Data					
Battery dimensions (W/H/D)	530 × 605.5 × 405 mm	530 × 738.5 × 405 mm	530 × 871.5 × 405 mm	530 × 1004.5 × 405 mm	530 × 1137.5 × 405 mm
Component dimensions (W/H/D)	Battery module: 530 × 133 × 405 mm; BMS unit: 530 × 140 × 405 mm				
Battery weight	120 kg	155.8 kg	191.6 kg	227.4 kg	263.2 kg
Component weights	Battery module: 36 kg; BMS unit: 11.3 kg				
Optimum operating temperature	15°C to 30°C				
Operating temperature range	−20°C to 50°C				
Cooling	Natural cooling				
Degree of protection	IP66				
Maximum permissible value for relative humidity (non-condensing)	5% to 100%				
Storage conditions: temperature, relative humidity (non-condensing)	−30°C to 60°C / 7 days −20°C to 45°C / 6 months 5% to 95%				
Installation height	<3000 m				
Protective Devices					
Input-side disconnection point	●				
DC reverse polarity protection	●				
Overvoltage category battery / inverter	II / II				
Equipment					
DC connection	MC4 Evo 2				
Communication interface	RJ45 (CAN)				
Communication protocols	SMA battery interface				
Warranty: 2 / 10 years[2)]	● / ●				
Certificates and approvals (more available on request)	CE, UN 38.3, IEC 62619, IEC 62477, VDE 2510-50				
Compatible SMA products	Sunny Tripower Hybrid X 5 - 15 → up to SMA Storage M 36.9 Sunny Tripower Hybrid X 20 - 30 → up to SMA Storage M 49.1 Sunny Boy Smart Energy → up to SMA Storage M 28.6				
Article designation	STM-BMS-10: SMA Storage M BMS Unit STM-BM-4.09-10: SMA Storage M Battery Module				
Order code	1 x STM-BMS-10 + 3 x STM-BM-4.09-10	1 x STM-BMS-10 + 4 x STM-BM-4.09-10	1 x STM-BMS-10 + 5 x STM-BM-4.09-10	1 x STM-BMS-10 + 6 x STM-BM-4.09-10	1 x STM-BMS-10 + 7 x STM-BM-4.09-10

Technical Data	SMA Storage M 32.8	SMA Storage M 36.9	SMA Storage M 40.9	SMA Storage M 45.0	SMA Storage M 49.1
Electrical Data					
Number of battery modules	8	9	10	11	12
Nominal energy capacity	34.65 kWh	38.98 kWh	43.32 kWh	47.65 kWh	51.98 kWh
Usable energy capacity[1)]	32.75 kWh	36.84 kWh	40.93 kWh	45.03 kWh	49.12 kWh
Nominal voltage	460.8 V	518.4 V	576 V	633.6 V	691.2 V
Operating voltage range	403.2 V to 511.2 V	453.6 V to 575.1 V	504 V to 639 V	554 V to 702.9 V	604 V to 766.8 V
Charging/discharging current	50 A (Sunny Tripower Hybrid X)				
Efficiency					
Round-trip efficiency (RTE)	93.5% at a C rate of 0.2				
General Data					
Battery dimensions (W/H/D)	530 × 1270.5 × 405 mm	530 × 1403.5 × 405 mm	530 × 1536.5 × 405 mm	530 × 1669.5 × 405 mm	530 × 1802.5 × 405 mm
Component dimensions (W/H/D)	Battery module: 530 × 133 × 405 mm; BMS unit: 530 × 140 × 405 mm				
Battery weight	299 kg	334.8 kg	370.6 kg	406.4kg	442.2 kg
Component weights	Battery module: 35.8 kg; BMS unit: 11.3 kg				
Optimum operating temperature	15°C to 30°C				
Operating temperature range	−20°C to 50°C				
Cooling	Natural cooling				
Degree of protection	IP66				
Maximum permissible value for relative humidity (non-condensing)	5% to 100%				
Storage conditions: temperature, relative humidity (non-condensing)	−30°C to 60°C / 7 days −20°C to 45°C / 6 months 5% to 95%				
Installation height	<3000 m				
Protective Devices					
Input-side disconnection point	●				
DC reverse polarity protection	●				
Overvoltage category battery / inverter	II / II				
Equipment					
DC connection	MC4 Evo 2				
Communication interface	RJ45 (CAN)				
Communication protocols	SMA battery interface				
Warranty: 2 / 10 years[2)]	● / ●				
Certificates and approvals (more available on request)	CE, UN 38.3, IEC 62619, IEC 62477, VDE 2510-50				
Compatible SMA products	Sunny Tripower Hybrid X 5 - 15 → up to SMA Storage M 36.9 Sunny Tripower Hybrid X 20 - 30 → up to SMA Storage M 49.1				
Article designation	STM-BMS-10: SMA Storage M BMS Unit STM-BM-4.09-10: SMA Storage M Battery Module				
Order code	1 x STM-BMS-10 + 8 x STM-BM-4.09-10	1 x STM-BMS-10 + 9 x STM-BM-4.09-10	1 x STM-BMS-10 + 10 x STM-BM-4.09-10	1 x STM-BMS-10 + 11 STM-BM-4.09-10	1 x STM-BMS-10 + 12 x STM-BM-4.09-10

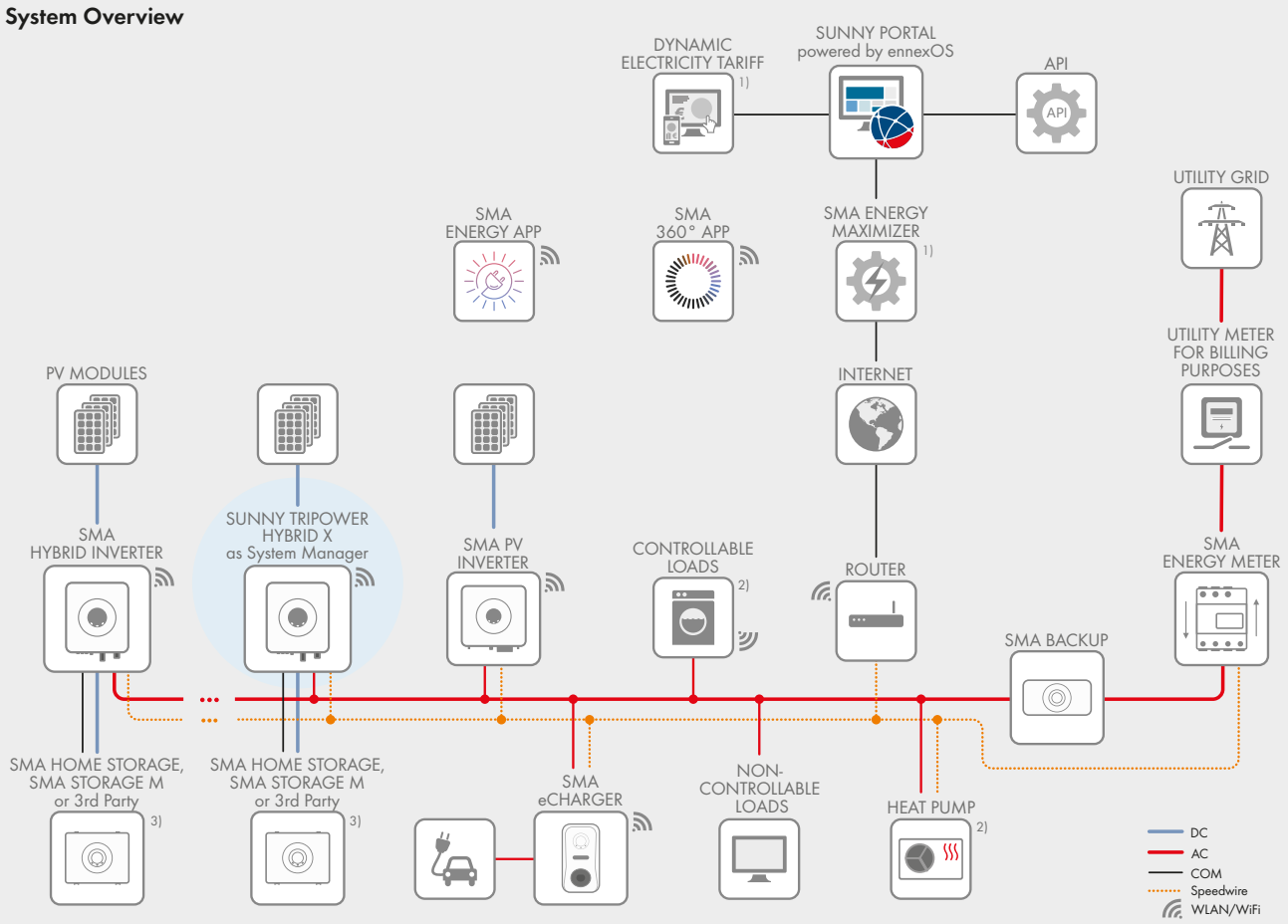
● Standard equipment ○ Optional — Not available Data at nominal conditions Last revised: 09/2026

1) Under specific test conditions (94.5% DOD, 0.2C charge and discharge at +25°C).

2) Device registration via the SMA product registration function at my.sma-service.com required within 30 days after commissioning. The conditions of the SMA Limited Factory Warranty apply.

You can find additional information at SMA-solar.com.

System Overview



1) check country availability 2) later Release 3) Possible compatibilities with battery storage systems are listed in the technical documents of the inverters and in the datasheet of the individual SMA battery storage systems.

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