



# Medium Voltage Power Station

2200-S2-US / 2475-S2-US / 2900-S2-US

Turnkey solution for large-scale storage systems



## Robust

- Complete station is UL1741 listed for higher safety and lower risk
- Station and all individual components type-tested for maximum reliability
- Optimally suited to extreme ambient conditions with galvanized base frame

## Simple Integration

- Plug and play concept
- Completely pre-assembled for easy set-up and commissioning

## Cost-Effective

- Fully integrated transformer and switchgear simplifies logistics
- Minimum O&M requirements create lowest cost of ownership

## Flexible

- One product for all markets and applications
- Ideally suited for PV applications, PV plus storage (DC coupled) and storage applications (AC coupled)

**With the power of the robust central inverter, the Sunny Central or Sunny Central Storage, and with perfectly adapted medium-voltage components, the Medium Voltage Power Station (MVPS) offers even more power density and is a turnkey solution available worldwide.**

Being the ideal choice for new generation storage power plants operating at 1100 VDC, the integrated system solution is easy to transport and quick to assemble and commission. The MVPS and all components are type-tested. The UL1741-listed MVPS combines rigorous plant safety with maximum energy yield and minimized deployment and operating risk.

# MV POWER STATION

## 2200-S2-US / 2475-S2-US

Technical Data	MVPS 2200-S2-US	MVPS 2475-S2-US
<b>Input (DC)</b>		
Available inverters	1 x SCS 2200-US / 1 x SC 2200-US	1 x SCS 2745-US
Max. input voltage	1000 V	1000 V
Number of DC inputs	dependent on the selected inverters	
Integrated zone monitoring	○	
<b>Output (AC) on the medium-voltage side</b>		
Rated power (at -25 °C to +25 °C / 40 °C optional 50 °C) <sup>1)</sup>	2200 kVA / 2000 kVA	2475 kVA / 2250 kVA
Typical nominal AC voltages	12 kV to 34.5 kV	12 kV to 34.5 kV
AC power frequency	50 Hz / 60 Hz	50 Hz / 60 Hz
Transformer vector group Dy11 / YNd11 / YNy0	● / ○ / ○	● / ○ / ○
Transformer cooling methods	KNAN <sup>2)</sup>	KNAN <sup>2)</sup>
Transformer no-load losses Standard / Eco Design 1 / Eco Design 2	● / ○ / ○	● / ○ / ○
Transformer short-circuit losses Standard / Eco Design 1 / Eco Design 2	● / ○ / ○	● / ○ / ○
Max. total harmonic distortion	< 3%	
<b>Inverter efficiency</b>		
Max. efficiency <sup>2)</sup> / European efficiency <sup>3)</sup>	98.6% / 98.4%	98.6% / 98.4%
<b>Protective devices</b>		
Input-side disconnection point	DC load-break switch	
Output-side disconnection point	Medium-voltage vacuum circuit breaker	
DC overvoltage protection	Surge arrester type I	
Galvanic isolation	●	
Internal arc classification medium-voltage control room (according to IEC 62271-202)	IAC A 20 kA 1 s	
<b>General data</b>		
Dimensions (W / H / D)	6058 mm / 2896 mm / 2438 mm	
Weight	< 18 t	
Self-consumption (max. / partial load / average) <sup>1)</sup>	< 8.1 kW / < 1.8 kW / < 2.0 kW	
Self-consumption (stand-by) <sup>1)</sup>	< 300 W	
Ambient temperature -25 °C to +45 °C / -25 °C to +55 °C / -37 °C to +45 °C	● / ○ / ○	
Degree of protection according to IEC 60529	Control rooms IP23D, inverter electronics IP54	
Environment: standard / harsh	● / ○	
Maximum permissible value for relative humidity	95% (for 2 months/year)	
Max. operating altitude above mean sea level 1000 m / 2000 m	● / ○	
Fresh air consumption of inverter	6500 m <sup>3</sup> /h	
<b>Features</b>		
DC terminal	Terminal lug	
AC connection	Outer-cone angle plug	
Tap changer for MV-transformer: without / with	● / ○	
Shield winding for MV-Transformer: without / with	● / ○	
Monitoring package	○	
Station enclosure color	RAL 7004	
Transformer for external loads: without / 10 / 20 / 30 / 40 / 50 / 60 kVA	● / ○ / ○ / ○ / ○ / ○ / ○ / ○	
Medium-voltage switchgear: without / 1 feeder / 3 feeders	● / ○ / ○	
2 cable feeders with load-break switch, 1 transformer feeder with circuit breaker, internal arc classification IAC A FL 25 kA 1s according to IEC 62271-200	● / ○ / ○	
Short circuit rating medium voltage switchgear (25 kA 1s)	●	
Accessories for medium-voltage switchgear: without / auxiliary contacts / motor for transformer feeder / monitoring	● / ○ / ○ / ○	
Integrated oil containment: without / with	● / ○	
Industry standards (for other standards see the inverter datasheet)	UL 1741, UL 1998, UL 840 Category IV, IEC / EN 61000-6-4, IEC / EN 61000-6-2, EN 55022, CISPR 22:2008 modified class A, FCC Part 15 Class A	
● Standard features ○ Optional features — Not available		
* For operation with power factor from 1 / 0.8 underexcited to 0.8 overexcited		
Type designation	MVPS-2200-S2-US	MVPS-2475-S2-US

1) Data based on inverter. Further details can be found on the data sheet of the inverter.

2) KNAN = Natural ester with natural air cooling

3) Efficiency measured at inverter without internal power supply

4) Efficiency measured at inverter with internal power supply

# MV POWER STATION

## 2900-S2-US

Technical Data	MVPS 2900-S2-US
<b>Input (DC)</b>	
Available inverters	1 x SCS 2900-US
Max. input voltage	1100 V
Number of DC inputs	dependent on the selected inverters
Integrated zone monitoring	○
<b>Output (AC) on the medium-voltage side</b>	
Rated power (at -25 °C to +25 °C / 40 °C optional 50 °C) <sup>1)</sup>	2940 kVA / 2670 kVA
Typical nominal AC voltages	12 kV to 34.5 kV
AC power frequency	50 Hz / 60 Hz
Transformer vector group Dy11 / YNd11 / YNy0	● / ○ / ○
Transformer cooling methods	KNAN <sup>2)</sup>
Transformer no-load losses Standard / Eco Design 1 / Eco Design 2	● / ○ / ○
Transformer short-circuit losses Standard / Eco Design 1 / Eco Design 2	● / ○ / ○
Max. total harmonic distortion	< 3%
<b>Inverter efficiency</b>	
Max. efficiency <sup>2)</sup>	98.6%
<b>Protective devices</b>	
Input-side disconnection point	DC load-break switch
Output-side disconnection point	Medium-voltage vacuum circuit breaker
DC overvoltage protection	Surge arrester type I
Galvanic isolation	●
Internal arc classification medium-voltage control room (according to IEC 62271-202)	IAC A 20 kA 1 s
<b>General data</b>	
Dimensions (W / H / D)	6058 mm / 2896 mm / 2438 mm
Weight	< 18 t
Self-consumption (max. / partial load / average) <sup>1)</sup>	< 8.1 kW / < 1.8 kW / < 2.0 kW
Self-consumption (stand-by) <sup>1)</sup>	< 300 W
Ambient temperature -25 °C to +45 °C / -25 °C to +55 °C / -37 °C to +45 °C	● / ○ / ○
Degree of protection according to IEC 60529	Control rooms IP23D, inverter electronics IP54
Environment: standard / harsh	● / ○
Maximum permissible value for relative humidity	95% (for 2 months/year)
Max. operating altitude above mean sea level 1000 m / 2000 m	● / ○
Fresh air consumption of inverter	6500 m <sup>3</sup> /h
<b>Features</b>	
DC terminal	Terminal lug
AC connection	Outer-cone angle plug
Tap changer for MV-transformer: without / with	● / ○
Shield winding for MV-Transformer: without / with	● / ○
Monitoring package	○
Station enclosure color	RAL 7004
Transformer for external loads: without / 10 / 20 / 30 / 40 / 50 / 60 kVA	● / ○ / ○ / ○ / ○ / ○ / ○ / ○
Medium-voltage switchgear: without / 1 feeder / 3 feeders	● / ○ / ○
2 cable feeders with load-break switch, 1 transformer feeder with circuit breaker, internal arc classification IAC A FL 25 kA 1s according to IEC 62271-200	● / ○ / ○
Short circuit rating medium voltage switchgear (25 kA 1s)	●
Accessories for medium-voltage switchgear: without / auxiliary contacts / motor for transformer feeder / monitoring	● / ○ / ○ / ○
Integrated oil containment: without / with	● / ○
Industry standards (for other standards see the inverter datasheet)	UL 1741, UL 1998, UL 840 Category IV, IEC / EN 61000-6-4, IEC / EN 61000-6-2, EN 55022, CISPR 22:2008 modified class A, FCC Part 15 Class A
● Standard features ○ Optional features — Not available	
* For operation with power factor from 1 / 0.8 underexcited to 0.8 overexcited	
Type designation	MVPS-2900-S2-US

1) Data based on inverter. Further details can be found on the data sheet of the inverter.

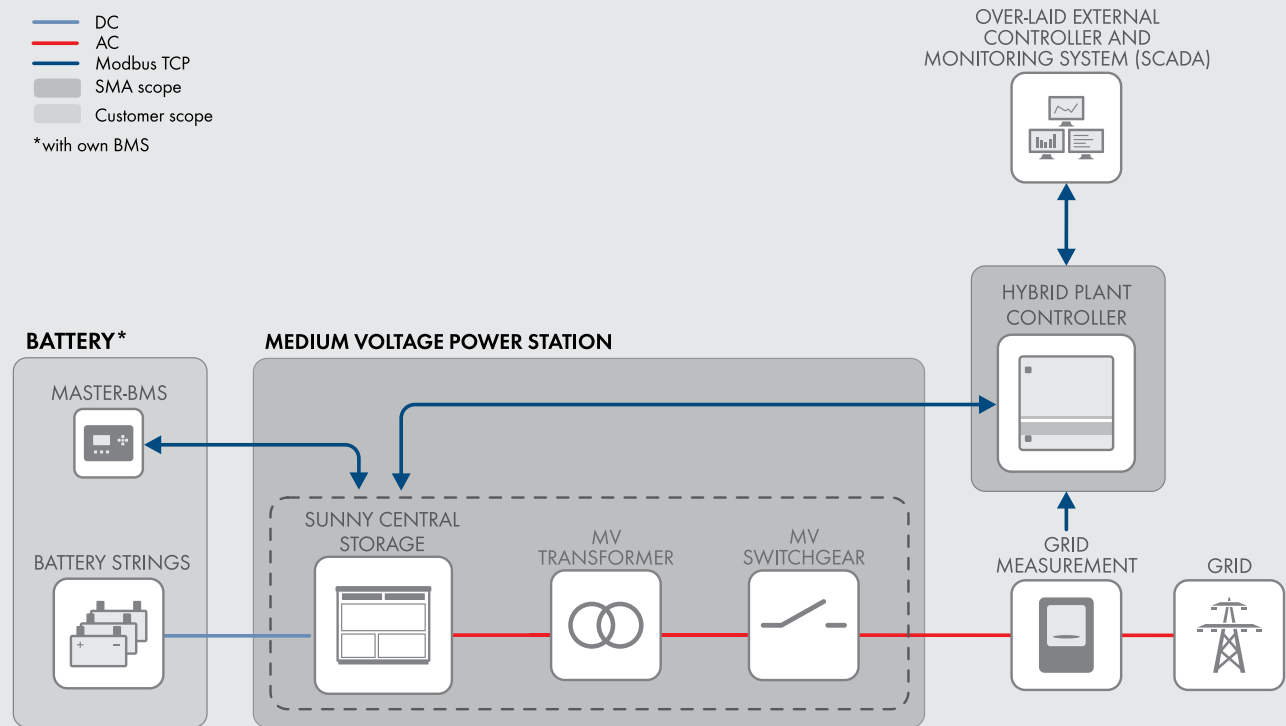
2) KNAN = Natural ester with natural air cooling

3) Efficiency measured at inverter without internal power supply

4) Efficiency measured at inverter with internal power supply

## SUNNY CENTRAL STORAGE APPLICATIONS

- Provides ancillary grid services
- Supports the growth of renewable energy in public grids
- Increases fuel saving potential in PV hybrid diesel systems



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

### Grid-connected functions

- Setpoints for active and reactive power
- Static grid support Q(U), P(f)
- Dynamic grid support (FRT)
- Active islanding detection (AID)
- High compatibility with different battery types

### Compatible with energy management system functionalities

- External static grid supporting functions
- Ramp-rate control of PV power
- Peak shaving
- Energy shifting
- Genset optimization control
- Reducing necessary spinning reserve of gensets
- Battery start-up and stop sequence
- Operates the battery within optimal operation window
- Grid forming
- Black start