

# SUNNY CENTRAL

## 2000-EV-US / 2500-EV-US / 2750-EV-US



SC-2000-EV-US-10 / SC-2500-EV-US-10 / SC-2750-EV-US-10



**FULL POWER  
UP TO 35 °C**

**DC COUPLED BATTERY  
STORAGE OPTION**

### Unmatched Power Density

- Small footprint simplifies site preparation and logistics
- Industry leading over-dimensioning capabilities
- Integrated voltage supply for internal consumption and external loads

### Robust Performance

- Precision air-cooling enables greater reliability and simpler service compared to liquid cooled inverters
- Best-in-class performance in any environment
- DC/AC Ratio up to 250%

### Grid Management

- Conforms to all known grid requirements worldwide
- Provides Q on demand

### Superior Integration

- Improved DC connection area
- Easily accessible bay for connecting site specific equipment
- DC coupled option allows for current or future storage integration

## SUNNY CENTRAL

### 2000-EV-US / 2500-EV-US / 2750-EV-US

Maximum power density and simple integration for 1,500 V PV projects

The Sunny Central family features an output of up to 2,750 kVA with 1,500 V DC systems. Fewer system components are needed due to the integrated DC fuse servicing switches and convenience power. The inverter also includes integrated control power and a network switch. OptiCool™ precision air cooling keeps this central inverter running smoothly, even in extreme ambient temperatures. It also protects against sand and dust intrusion. The Sunny Central inverter is the central component of the SMA Medium Voltage Power Station and offers industry leading DC:AC ratios. Optional DC coupled connection area allows for storage integration now or in the future, giving system owners the opportunity for additional, stacked revenue streams.

# SUNNY CENTRAL 2000-EV-US

Technical Data	SC 2000-EV-US
<b>Input (DC)</b>	
MPP voltage range $V_{DC}$ (at 25 °C / at 35 °C / at 50 °C)	850 V to 1425 V / 1200 V / 1200 V
Min. input voltage $V_{DC, min}$ / Start voltage $V_{DC, Start}$	778 V / 928 V
Max. input voltage $V_{DC, max}$	1500 V
Max. input current $I_{DC, max}$ (up to 50 °C)	2610 A
Max. short-circuit current rating	6400 A
Max. DC current with DC coupling option	4800 A
Number of PV inputs with fuse isolation switches (20 / 24)	● / ○
Number of PV inputs without fuse isolation switches	12, 21, 24, 32
Number of DC inputs with DC battery coupling (optional)	36 x 1 pole PV inputs and 6 x fused battery inputs 18 x 2 pole PV inputs (for ungrounded arrays) and 6 x fused battery inputs 24 x 1 pole PV inputs with isolation switch and 6 x fused battery inputs
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm <sup>2</sup>
Integrated zone monitoring (±0.5% shunt resistors)	○
Available DC fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A
<b>Output (AC)</b>	
Nominal AC power (up to 50 °C)	2200 kVA / 2000 kW
Nominal AC power at $\cos \varphi = 0.8$ (at 35 °C / at 50 °C)	1760 kW
Max. output current $I_{AC, max}$ / Nominal AC current $I_{AC, nom}$	2310 A / 2100 A
Max. total harmonic distortion	< 3% at nominal power
Nominal AC voltage / nominal AC voltage range <sup>1)</sup>	550 V / 440 V to 660 V
AC power frequency	60 Hz / 57 Hz to 63 Hz
Min. short-circuit ratio at the AC terminals	> 2
Power factor at rated power / displacement power factor adjustable <sup>8)</sup>	1 / 0.8 overexcited to 0.8 underexcited
<b>Efficiency</b>	
CEC efficiency* <sup>2)</sup>	98.0%
<b>Protective Devices</b>	
Input-side disconnection point	DC load-break switch
Output-side disconnection point	AC circuit breaker
DC overvoltage protection	Surge arrester, type I
AC overvoltage protection (optional)	Surge arrester, class I
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III
Overcurrent protection device (according to NEC, ANSI/NFPA 70)	3600 A
Ground-fault monitoring / remote ground-fault monitoring / insulation monitoring	○ / ○ / ○
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP65 / IP34 / IP34
Degree of protection (as per UL 50)	Type 3R
<b>General Data</b>	
Dimensions (W / H / D)	2780 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)
Weight	< 3400 kg / < 7496 lb
Self-consumption: max. <sup>3)</sup> / partial load <sup>4)</sup> / average <sup>5)</sup> (standby)	< 8100 W / < 1800 W / < 2000 W (< 370 W)
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer
Operating temperature range	-25 to 60 °C / -13 to 140 °F
Temperature range: standby (storage)	-40 to 60 °C / -40 to 140 °F (-40 to 70 °C / -40 to 158 °F)
Noise emission <sup>6)</sup>	66,3 dB(A)
Max. permissible value for relative humidity: condensing / non-condensing	95% to 100% (2 month/year) / 0 to 95%
Max. operating altitude above MSL 2000 m <sup>7)</sup>	●
Fresh air consumption	6500 m <sup>3</sup> /h
<b>Features</b>	
DC connection	Terminal lug on each input (without fuse)
AC connection	With busbar system (three busbars, one per line conductor)
Communication	Ethernet, Ethernet/IP, Modbus TCP/IP
Enclosure / roof color	RAL 9016 / RAL 7004
Display	HMI touchscreen (10.1")
Supply transformer for external loads	○ (2.5 kVA)
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 6I), UL 1741-SA, NEC 2014/2017, UL 1998, IEEE 1547, IEEE 693, MIL-STD-810G, BDEW, CE, CAN/CSA C22.2 107.1-1
EMC standards (pending)	CISPR 22:2008 modified class A, FCC Part 15 Class A
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001
● Standard features ○ Optional *preliminary	
Type designation	SC-2000-EV-US-10

1) At nominal AC voltage < 550V, nominal AC power decreases in the same proportion  
2) Efficiency measured with internal power supply  
3) Self-consumption at rated operation

4) Self-consumption at < 75% P<sub>n</sub> at 25 °C  
5) Self-consumption averaged out to 5% to 100% P<sub>n</sub> at 25 °C  
6) Sound pressure level at a distance of 32.8 ft (10 m)

7) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.  
8) Depending on the DC voltage

# SUNNY CENTRAL 2500-EV-US / 2750-EV-US

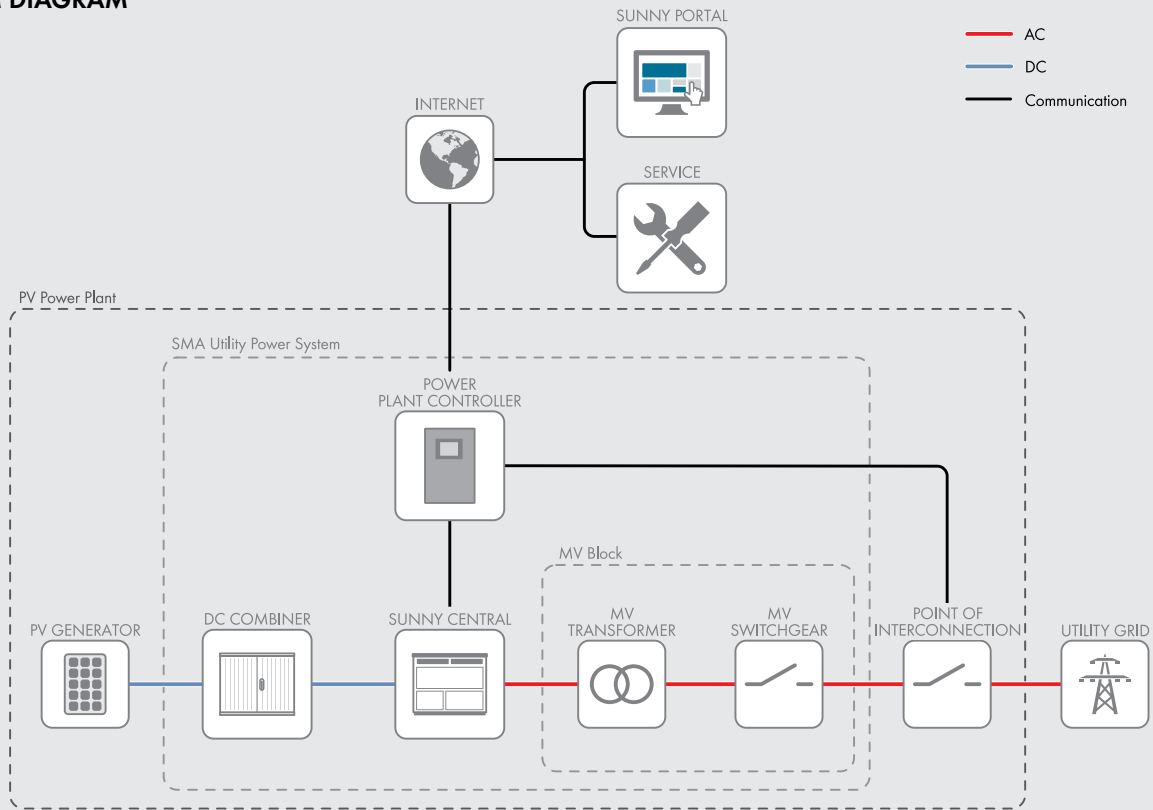
Technical Data	Sunny Central 2500-EV-US		Sunny Central 2750-EV-US	
Input (DC)				
MPP voltage range V <sub>DC</sub> (at 25 °C / at 35 °C / at 50 °C)	850 V to 1425 V / 1200 V / 1200 V		875 V to 1425 V / 1200 V / 1200 V	
Min. input voltage V <sub>DC, min</sub> / Start voltage V <sub>DC, Start</sub>	778 V / 928 V		849 V / 999 V	
Max. input voltage V <sub>DC, max</sub>	1500 V			
Max. input current I <sub>DC, max</sub> (at 35 °C / at 50 °C)	3200 A / 2956 A			
Max. short-circuit current rating	6400 A			
Max. DC current with DC coupling option	4800 A			
Number of PV inputs with fuse isolation switches (20 / 24)	● / ○			
Number of PV inputs without fuse isolation switches	12, 21, 24, 32			
Number of DC inputs with DC battery coupling (optional)	36 x 1 pole PV inputs and 6 x fused battery inputs 18 x 2 pole PV inputs (for ungrounded arrays) and 6 x fused battery inputs 24 x 1 pole PV inputs with isolation switch and 6 x fused battery inputs			
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm²			
Integrated zone monitoring	○			
Available DC fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A			
Output (AC)				
Nominal AC power at cos φ = 1 (at 35 °C / at 50 °C)	2500 kVA / 2250 kVA		2750 kVA / 2500 kVA	
Nominal AC power at cos φ = 0.9 (at 35 °C / at 50 °C)	2250 kW / 2025 kW		2475 kW / 2250 kW	
Max. output current I <sub>AC, max</sub> = Nominal AC current I <sub>AC, nom</sub>	2624 A		2646 A	
Max. total harmonic distortion	< 3% at nominal power		< 3% at nominal power	
Nominal AC voltage / nominal AC voltage range <sup>1)</sup>	550 V / 440 V to 660 V		600 V / 480 V to 690 V	
AC power frequency	60 Hz / 57 Hz to 63 Hz		60 Hz / 57 Hz to 63 Hz	
Min. short-circuit ratio at the AC terminals	> 2		> 2 <sup>8)</sup>	
Power factor at rated power / displacement power factor adjustable <sup>9)</sup>	1 / 0.8 overexcited to 0.8 underexcited			
Efficiency				
Max. efficiency <sup>2)</sup> / European efficiency <sup>2)</sup> / CEC efficiency <sup>3)</sup>	98.6% / 98.3% / 98.0%		98.7% / 98.5% / 98.5%	
Protective Devices				
Input-side disconnection point	DC load-break switch		DC load-break switch	
Output-side disconnection point	AC circuit breaker		AC circuit breaker	
DC overvoltage protection	Surge arrester, type I		Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I		Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III		Lightning Protection Level III	
Overcurrent protection device (according to NEC, ANSI/NFPA 70)	3600 A		3600 A	
Ground-fault monitoring / remote ground-fault monitoring / insulation monitoring	○ / ○ / ○			
Degree of protection: electronics / air duct / connection area (as per IEC 60529)	IP65 / IP34 / IP34		IP65 / IP34 / IP34	
Degree of protection (as per UL 50)	Type 3R		Type 3R	
General Data				
Dimensions (W / H / D)	2780 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)			
Weight	< 3400 kg / < 7496 lb			
Self-consumption: max. <sup>4)</sup> / partial load <sup>5)</sup> / average <sup>6)</sup> (standby)	< 8100 W / < 1800 W / < 2000 W (< 370 W)			
Internal auxiliary power supply	Integrated 8.4 kVA transformer			
Operating temperature range	−25 to 60 °C / −13 to 140 °F			
Temperature range: standby (storage)	−40 to 60 °C / −40 to 140 °F (−40 to 70 °C / −40 to 158 °F)			
Noise emission <sup>7)</sup>	66.3 dB(A)		64.3 dB(A)	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month / year) / 0 % to 95%			
Maximum operating altitude above MSL 1000 m / 2000 m	● / ○ (earlier temperature-dependent derating)			
Fresh air consumption	6500 m³/h			
Features				
DC connection	Terminal lug on each input			
AC connection	With busbar system (three busbars, one per line conductor)			
Communication	Ethernet, Ethernet/IP, Modbus TCP/IP			
Enclosure / roof color	RAL 9016 / RAL 7004			
Display	HMI touchscreen (10.1")			
Supply transformer for external loads	○ (2.5 kVA)			
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 6I), UL 1741-SA, NEC 2014/2017, UL 1998, IEEE 1547, IEEE 693, MIL-STD-810G, BDEW, CE, CAN/CSA C22.2 107.1-1			
EMC standards (pending)	CISPR 22:2008 modified class A, FCC Part 15 Class A			
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001			
● Standard features    ○ Optional				
Type designation	SC-2500-EV-US-10		SC-2750-EV-US-10	

1) At nominal AC voltage, nominal AC power decreases in the same proportion  
2) Efficiency measured without internal power supply  
3) Efficiency measured with internal power supply

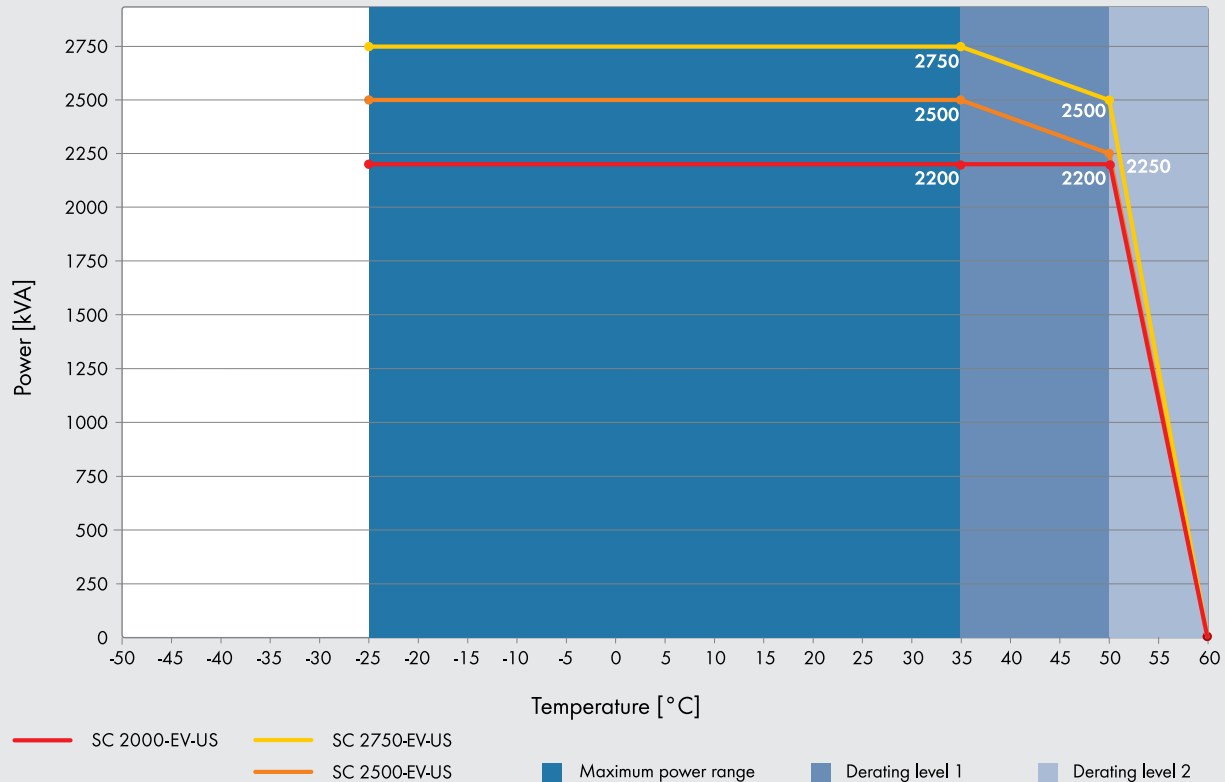
4) Self-consumption at rated operation  
5) Self-consumption at < 75% P<sub>n</sub> at 25 °C  
6) Self-consumption averaged out from 5% to 100% P<sub>n</sub> at 35 °C

7) Sound pressure level at a distance of 10 m  
8) A short-circuit ratio of < 2 requires a special approval from SMA  
9) Depending on the DC voltage

## SYSTEM DIAGRAM



## TEMPERATURE



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