



/ STP 20-US-50 / STP 25-US-50 / STP 30-US-50

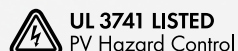


# Sunny Tripower X-US

20 / 25 / 30

Integrated intelligence for  
future-proof system design.

powered by  
**ennexOS**



## Integrated System Manager

- Monitoring and control for up to 5 inverters (max. 150 kVA)
- Remote access with Sunny Portal powered by ennexOS
- SMA Dynamic Power Control

## Enhanced safety

- Integrated SunSpec PLC signal for module-level shutdown
- Advanced DC AFCI arc-fault protection
- Optional DC type 2 and type 1+2 surge protection

## Maximum yields

- Three MPP trackers for flexible array design
- Achieve an optimized design using SMA Sunny Design with NEC 690.8(A)(1)(a)(2) when calculating maximum current on systems over 100kW
- SMA ShadeFix string level optimization
- Integrated I-V curve diagnostics

## Smart monitoring, control and service

- SMA Smart Connected proactive monitoring and service solution
- SMA ennexOS cross-sector energy management platform
- Centerpiece of the proven SMA Energy System Business

## Sunny Tripower X is the new innovative inverter solution for commercial PV systems.

Providing three MPP trackers with SMA ShadeFix string optimization technology for optimal PV array design flexibility and maximum energy yields. SMA's proven integrated rapid shutdown support and reliable DC AFCI arc-fault protection ensure enhanced system safety. And now with the new integrated System Manager, powered by SMA's ennexOS cross-sector energy management platform, Sunny Tripower X becomes the centerpiece of the SMA Energy System Business for comprehensive commercial energy systems now and in the future.

Technical data	Sunny Tripower X 20-US	Sunny Tripower X 25-US	Sunny Tripower X 30-US
Input (DC)			
Maximum array power	30000 Wp	37500 Wp	45000 Wp
Maximum system voltage	1000 V		
Rated MPP voltage range	350 V ... 800 V	430 V ... 800 V	515 V ... 800 V
MPPT operating voltage range	150 V ... 1000 V		
Minimum DC voltage / start voltage	150 V / 188 V		
Maximum usable operating input current / Maximum short circuit current per MPPT	24 A / 37.5 A		
MPP trackers / strings per MPP input	3 / 2		
Output (AC)			
Nominal output power	20000 W	25000 W	30000 W
Maximum apparent power	20000 VA	25000 VA	30000 VA
Output phases / line connection	3 / 3-(N)-PE		
Nominal AC voltage	480 V / 277 V		
AC voltage range	244 V ... 305 V		
Maximum output current	24 A	30 A	36 A
Rated grid frequency / range	60 Hz / -6 Hz ... +6 Hz		
Power factor at rated power / adjustable displacement	1 / 0.8 leading ... 0.8 lagging		
Harmonics (THD)	< 3 %		
Efficiency			
CEC efficiency	97.5 %	98 %	98 %
Protection and safety features			
Load rated DC disconnect	●		
Load rated AC disconnect	○		
Ground fault monitoring / grid monitoring	● / ●		
DC reverse polarity protection / AC short-circuit protection	● / ●		
All-pole sensitive residual-current monitoring unit	●		
DC AFCI arc-fault protection	●		
SunSpec PLC signal for rapid shutdown	●		
DC surge protection: Type 2 / Type 1+2	○ / ○		
Protection class / overvoltage category (as per UL 840)	I / III		
General data			
Device dimensions (W/H/D)	728 mm / 762 mm / 266 mm (28.7 in / 30 in / 10.5 in)		
Device weight	30 kg (77 lbs)		
Operating temperature range	-25°C to +60°C (-13°F to +140°F)		
Audible noise emission (full power @ 1m and 25°C)	59 dB(A)		
Topology / cooling concept	Transformerless / OptiCool (forced convection, variable speed fans)		
Enclosure protection rating	Type 4X (as per UL 50E)		
Corrosion classification	C5		
Maximum permissible relative humidity (non-condensing)	100 %		
Additional information			
Mounting	Vertical rack / wall mount to 15° from horizontal		
DC connection / AC connection	Amphenol H4 Plus / spring-cage terminal		
LED indicators (status / fault / communication)	●		
Network interfaces: Ethernet / WLAN	● (2 ports) / ●		
Data protocols: SMA Modbus / SunSpec Modbus / Speedwire	● / ● / ●		
Multi-function relay / Extension module slot / Digital inputs	● / ● / ● (6 inputs)		
ShadeFix technology for string level optimization	●		
I-V curve diagnostic function	●		
Integrated Plant Control / Q on Demand 24/7	● / ●		
SMA Smart Connected (proactive monitoring and service support)	●		
Standard warranty	10 years		
Optional warranty extensions (total warranty coverage cannot exceed 20 years)	+5 years, +10 years		
Certificates and approvals			
Certificates and approvals	UL 62109-1, UL 1699B Ed. 1, CAN/CSA 22.2 No. 62109-1:16 / 62109-2:16, PV Rapid Shutdown System Equipment in accordance with UL1741:2021, UL 3741		
FCC compliance	FCC Part 15 Class A		
Grid interconnection standards	UL 1741 SB, IEEE 1547:2018, compliance to SRDs: CA Rule 21, HECO Rule 14H, ISO-NE		
Integrated System Manager			
Maximum number of supported inverters / energy meters	5 / 1		
Maximum system power PV inverters (nominal AC power)	150 kVA		
Centralized commissioning of all devices in the system	●		
Remote parameterization of SMA devices	● (via Sunny Portal powered by ennexOS)		
SMA Dynamic Power Control (e.g. zero export / Volt-VAR)	●		
Type designation	STP 20-US-50	STP 25-US-50	STP 30-US-50

● Standard features ○ Optional — Not available Data in nominal conditions Last revision: 04/2025

## Accessories



SMA Data  
Manager M  
EDMM-US-20



DC terminal cover  
DC-TERM-COVER



SMA Sensor  
Module  
MD.SEN-US-40



DC Surge Protection Kits  
T2: DC\_SPD\_KIT6-10  
T1+2: DC\_SPD\_KIT7\_T1T2



Roof Mount Kit  
210462-00.01



AC Disconnect Kit  
210841-00.01