



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



Sunny Tripower X-US powered by ennexOS

20 / 25 / 30

Integrated intelligence for future-proof
system design



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
- SMA ShadeFix string level optimization
- Integrated I-V curve diagnostics ¹⁾

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.

1) upcoming

Technical Data*	Sunny Tripower X 20-US	Sunny Tripower X 25-US	Sunny Tripower X 30-US
Input (DC)			
Maximum PV array power	30000 Wp	37500 Wp	45000 Wp
Maximum input voltage	1000 V		
MPP voltage range	350 V to 800 V	430 V to 800 V	515 V to 800 V
Minimum input voltage / initial input voltage	150 V / 188 V		
Maximum operating input current / short-circuit current per MPP tracker	24 A / 37.5 A		
Number of independent MPP trackers / string inputs per MPP tracker	3 / 2		
Output (AC)			
Nominal output power	20000 W	25000 W	30000 W
Maximum apparent power	20000 VA	25000 VA	30000 VA
Nominal AC voltage	480 V / 277 V		
AC voltage range	244 V to 305 V		
Rated grid frequency / range	60 Hz / 50 Hz to 66 Hz		
Maximum output current	24 A	30 A	36 A
Power factor at rated power / adjustable displacement	1 / 0.8 overexcited to 0.8 underexcited		
Output phases / line connection	3 / 3-[N]-PE		
Harmonics (THD)	< 3 %		
Efficiency			
CEC efficiency	97.5 %	98 %	98 %
Protection and safety features			
Load rated DC disconnect	●		
Ground fault monitoring / grid monitoring	● / ●		
DC reverse polarity protection / AC short-circuit protection	● / ●		
All-pole sensitive residual-current monitoring unit	●		
Protection class / overvoltage category	I / III		
DC AFCI arc-fault protection	●		
SunSpec PLC signal for rapid shutdown	●		
DC surge protection type 2 / DC surge arrester type 1+2	○ / ○		
DC terminal cover for conduit connection	○		
General data			
Dimensions (W/H/D)	728 mm / 762 mm / 266 mm (28.7 in / 30 in / 10.5 in)		
Device Weight	35 kg / 77 lbs		
Operating temperature range	-25°C to +60°C (-13°F to +140°F)		
Noise emission (typical)	59 dB(A)		
Topology / cooling concept	Transformerless / OptiCool (forced convection, variable speed fans)		
Enclosure protection rating	Type 4X (as per UL 50E)		
Maximum permissible value for relative humidity (non-condensing)	100 %		
Features / functions / accessories			
Mounting type	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)		
SMA ShadeFix string level optimization	●		
Integrated I-V curve diagnostics ¹⁾	●		
Integrated Plant Control / Q on Demand 24/7	● / ●		
SMA Smart Connected (proactive monitoring and service support)	●		
Warranty: 10 / 15 / 20 years	● / ○ / ○		
Certificates and approvals (pending)			
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		
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) ²⁾	○		
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: 02/2023 *Preliminary technical data, subject to change 1) Upcoming 2) Currently free license

Accessories



SMA Data Manager M
EDMM-US-10



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