

SUNNY TRIPOWER

12000TL-US / 15000TL-US / 20000TL-US / 24000TL-US



STP 12000TL-US-10 / STP 15000TL-US-10 / STP 20000TL-US-10 / STP 24000TL-US-10

**RATED FOR
1000 V DC & 600 V DC
SYSTEMS**

Design flexibility <ul style="list-style-type: none">• 1000 V DC or 600 V DC• Two independent DC inputs• 15° to 90° mounting angle range• Detachable DC Connection Unit	System efficiency <ul style="list-style-type: none">• 98% CEC, 98.5% Peak• 1000 V DC increases system efficiency• OptiTrac advanced MPPT• OptiTrac Global Peak MPPT	Enhanced safety <ul style="list-style-type: none">• Integrated DC AFCI• Floating system with all-pole sensitive ground fault protection• Reverse polarity indicator	Future-proof <ul style="list-style-type: none">• Cluster Controller, WebConnect/Speedwire• Bi-directional Ethernet communications• Complete grid management feature set• Ability to satisfy future utility requirements
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SUNNY TRIPOWER 12000TL-US / 15000TL-US / 20000TL-US / 24000TL-US

The ultimate solution for decentralized PV plants

SMA's new Sunny Tripower TL-US is raising the level of performance for decentralized commercial PV plants. This three-phase transformerless inverter is UL listed for up to 1000 V DC maximum system voltage and has peak efficiency above 98 percent, while OptiTrac Global Peak minimizes the effects of shade for maximum energy production. The Sunny Tripower delivers a future-proof solution with full grid management, and communications and monitoring features. The Sunny Tripower is also equipped with all-pole ground fault protection and integrated AFCI for a safe, reliable solution. It offers unmatched flexibility with a wide input voltage range and two independent MPP trackers. Suitable for both 600 V DC and 1,000 V DC applications, the Sunny Tripower allows for flexible design and a lower levelized cost of energy.





THE TOTAL PACKAGE

The Sunny Tripower TL-US is engineered to optimize design, production, and reliability—reducing a project’s leveled cost of energy and improving its financial returns.

Unmatched flexibility

Available in four power classes, the Sunny Tripower TL-US features a wide operating window, two MPP trackers, and 600 V DC or 1,000 V DC operation, making it ideal for any decentralized project. System engineering is made simple and repeatable, resulting in a shortened design cycle.

Easy to transport and install, the Sunny Tripower can be mounted in a variety of ways from vertical to nearly horizontal. Concrete pads usually required by central inverters are unnecessary, preserving site real estate.

Enhanced power production

Leading efficiency and SMA’s proprietary OptiTrac Global Peak MPP tracking means owners benefit from superior power production and improved economics. When operated at 1,000 V DC, balance of system costs can also be significantly reduced.

The Sunny Tripower TL-US also features advanced diagnostics, including a reverse polarity indicator via the Connection Unit 1000-US.

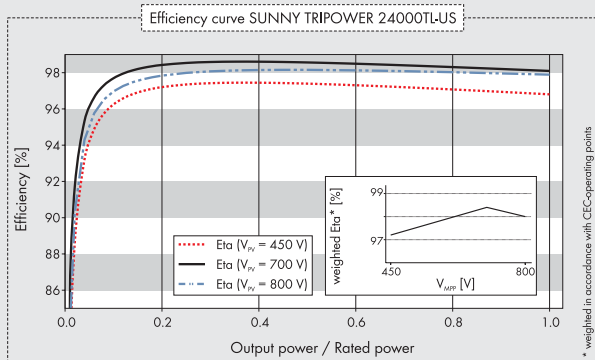
Future proof

The Sunny Tripower TL-US includes a number of technologies designed to meet tomorrow’s requirements. Full grid management functionality is available, as are cutting edge communication options like SMA’s Cluster Controller and Speedwire.

SMA Service can also simplify long-term planning with comprehensive packages covering inverters through plant-wide operations and maintenance (O&M). And, as a decentralized technology, inverter-level O&M is reduced from the beginning compared to centralized architecture.

Optimized cost

The Sunny Tripower TL-US allows integrators to optimally use real estate, shorten design and installation time, and produce more power. Inverter-level O&M is reduced through string technology and long-term support is made simple through SMA’s service organization, making the Sunny Tripower TL-US the ultimate solution for decentralized PV.



Accessories



RS485 interface
DM-485CB-US-10



SMA Cluster Controller
CLCON-10

- Standard features ○ Optional features – Not available
Data at nominal conditions

Technical data	Sunny Tripower 12000TL-US	Sunny Tripower 15000TL-US	Sunny Tripower 20000TL-US	Sunny Tripower 24000TL-US
Input (DC)				
Max. usable DC power (@ $\cos \phi = 1$)	12250 W	15300 W	20400 W	24500 W
Max. DC voltage*	1000 V	1000 V	1000 V	1000 V
Rated MPPT voltage range	300 V...800 V	300 V...800 V	380 V...800 V	450 V...800 V
MPPT operating voltage range	150 V...1000 V	150 V...1000 V	150 V...1000 V	150 V...1000 V
Min. DC voltage / start voltage	150 V / 188 V	150 V / 188 V	150 V / 188 V	150 V / 188 V
Number of MPP tracker inputs	2	2	2	2
Max. input current / per MPP tracker input	66 A / 33 A	66 A / 33 A	66 A / 33 A	66 A / 33 A
Output (AC)				
AC nominal power	12000 W	15000 W	20000 W	24000 W
Max. AC apparent power	12000 VA	15000 VA	20000 VA	24000 VA
Output phases / line connections	3 / 3-N-PE			
Nominal AC voltage	480 / 277 V WYE			
AC voltage range	244 V...305 V			
Rated AC grid frequency	60 Hz			
AC grid frequency / range	50 Hz, 60 Hz / -6 Hz...+5 Hz			
Max. output current	14.4 A	18 A	24 A	29 A
Power factor at rated power / adjustable displacement	1 / 0.8 leading...0.8 lagging			
Harmonics	< 3 %			
Efficiency				
Max. efficiency	98.2 %	98.2 %	98.5 %	98.5 %
CEC efficiency	97.5%	97.5%	97.5%	98.0%
Protection devices				
DC reverse polarity protection	●	●	●	●
Ground fault monitoring / Grid monitoring	●	●	●	●
All-pole sensitive residual current monitoring unit	●	●	●	●
DC AFCI compliant to UL 1699B	●	●	●	●
AC short circuit protection	●	●	●	●
Protection class / overvoltage category	I / IV	I / IV	I / IV	I / IV
General data				
Dimensions (W / H / D) in mm (in)	665 / 690 / 265 (26.1 / 27.1 / 10.4)			
Packing dimensions (W / H / D) in mm (in)	780 / 790 / 380 (30.7 / 31.1 / 15.0)			
Weight	55 kg (121 lbs)			
Packing weight	61 kg (134.5 lbs)			
Operating temperature range	-25 °C...+60 °C			
Noise emission (typical)	51 dB(A)			
Internal consumption at night	1 W			
Topology	Transformerless			
Cooling concept	OptiCool			
Electronics protection rating	NEMA 3R			
Features				
Display / LED indicators (Status / Fault / Communication)	- / ●	- / ●	- / ●	- / ●
Interfaces: Speedwire / RS485	● / ○	● / ○	● / ○	● / ○
Mounting angle range	15°...90°	15°...90°	15°...90°	15°...90°
Warranty: 10 / 15 / 20 years	● / ○ / ○	● / ○ / ○	● / ○ / ○	● / ○ / ○
Certifications and approvals	UL 1741, UL 1998, UL 1699B, IEEE 1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1			
NOTE: US inverters ship with gray lids				
*Suitable for 600 V DC max. systems				
Type designation	STP 12000TL-US-10	STP 15000TL-US-10	STP 20000TL-US-10	STP 24000TL-US-10

CONNECTION UNIT 1000-US

CU 1000-US-10



The Connection Unit is an optional system component of the Sunny Tripower TL-US series and includes combiner box and disconnect functionality in one convenient housing. Its integrated reverse polarity indicator supports safe installation.

Technical data	Connection Unit 1000 V	
Input (DC)		
Max. DC voltage	1000 V	
Number of input source circuits (strings)	8 (4 + 4)	
Input conductor size	#12 to #6 AWG	
Max. fuse size	20 A	
Output (DC)		
Output circuits	2	
Output conductor size	#8 to #2 AWG	
Max. rated continuous current / per output circuit	66 A / 33 A	
Protection devices		
Touchsafe fuse holders	●	
Reverse polarity indicator	●	
Load-break rated output disconnect	●	
General data		
Dimensions (W / H / D) in mm (in)	466 / 398 / 136 (18.4 / 15.7 / 5.4)	
Packing dimensions (W / H / D) in mm (in)	563 / 543 / 240 (22.2 / 21.4 / 9.5)	
Weight	10 kg (22 lbs)	
Packing weight	11 kg (24 lbs)	
Protection rating	NEMA 3R	
Features		
Certificates and permits	UL 1741, CAN/CSA C22.2 107.1-1	
● Standard features ○ Optional features – Not available		
Type designation	CU 1000-US-10	

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