

# SUNNY BOY 3000TL-US / 3800TL-US / 4000TL-US / 5000TL-US / 6000TL-US



SB 3000TL-US-22 / 3800TL-US-22 / 4000TL-US-22 / 5000TL-US-22 / 6000TL-US-22



**THE WORLD'S ONLY  
SECURE POWER SUPPLY**



## Certified

- UL 1741 and 1699B compliant
- Integrated AFCI meets the requirements of NEC 2011 690.11

## Innovative

- Secure Power Supply provides daytime power during grid outages

## Powerful

- 97.2% maximum efficiency
- Wide input voltage range
- Shade management with OptiTrac Global Peak MPP tracking

## Flexible

- Two MPP trackers provide numerous design options
- Extended operating temperature range

## SUNNY BOY 3000TL-US / 3800TL-US / 4000TL-US / 5000TL-US / 6000TL-US

Setting new heights in residential inverter performance

The Sunny Boy 3000TL-US/3800TL-US/4000TL-US/5000TL-US/6000TL-US represents the next step in performance for UL certified inverters. Its transformerless design means high efficiency and reduced weight. Maximum power production is derived from wide input voltage and operating temperature ranges. Multiple MPP trackers and OptiTrac™ Global Peak mitigate the effect of shade and allow for installation at challenging sites. The unique Secure Power Supply feature provides daytime power in the event of a grid outage. High performance, flexible design and innovative features make the Sunny Boy TL-US series the first choice among solar professionals.



THE NEW  
SUNNY BOY TL-US  
RESIDENTIAL SERIES  
HAS YET AGAIN  
REDEFINED THE  
CATEGORY.

## A NEW GENERATION OF INNOVATION

### **Transformerless design**

The Sunny Boy 3000TL-US / 3800TL-US / 4000TL-US / 5000TL-US / 6000TL-US are transformerless inverters, which means owners and installers benefit from high efficiency and lower weight. A wide input voltage range also means the inverters will produce high amounts of power under a number of conditions.

Additionally, transformerless inverters have been shown to be among the safest string inverters on the market. An industry first, the TL-US series has been tested to UL 1741 and UL 1699B and is in compliance with the arc fault requirements of NEC 2011.

### **Increased energy production**

OptiTrac™ Global Peak, SMA's shade-tolerant MPP tracking algorithm, quickly adjusts to changes in solar irradiation, which mitigates the effects of shade and results in higher total power output. And, with two MPP trackers, the TL-US series can ably handle complex roofs with multiple orientations or string lengths.

An extended operating temperature range of -40 °F to +140 °F ensures power is

produced in all types of climates and for longer periods of time than with most traditional string inverters.

### **Secure Power Supply**

One of many unique features of the TL-US residential series is its innovative Secure Power Supply. With most grid-tied inverters, when the grid goes down, so does the solar-powered home. SMA's solution provides daytime energy to a dedicated power outlet during prolonged grid outages, providing homeowners with access to power as long as the sun shines.

### **Simple installation**

As a transformerless inverter, the TL-US residential series is lighter in weight than its transformer-based counterparts, making it easier to lift and transport. A new wall mounting plate features anti-theft security and makes hanging the inverter quick and easy. A simplified DC wiring concept allows the DC disconnect to be used as a wire raceway, saving labor and materials.

The 3800TL-US model allows installers to maximize system size and energy production for customers with 100 A service panels.

### **Leading monitoring and control solutions**

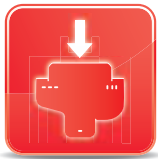
The new TL-US residential line features more than high performance and a large graphic display. The monitoring and control options provide users with an outstanding degree of flexibility. Multiple communication options allow for a highly controllable inverter and one that can be monitored on Sunny Portal from anywhere on the planet via an Internet connection. Whether communicating through RS485, or SMA's new plug-and-play WebConnect, installers can find an optimal solution to their monitoring needs.



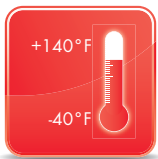
More efficient



Shade management



Easier



Broad temperature range

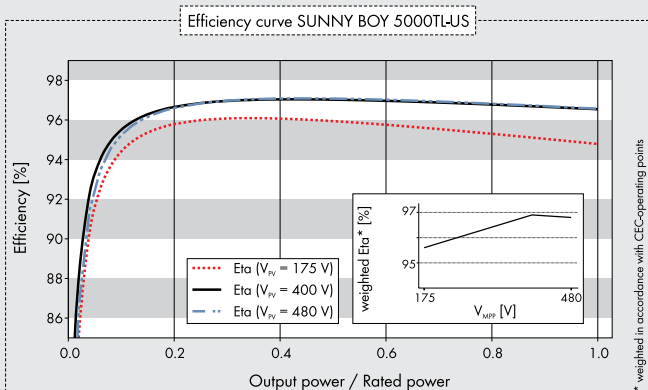


Secure Power Supply



Flexible communications

Technical data	Sunny Boy 3000TL-US		Sunny Boy 3800TL-US	
	208 V AC	240 V AC	208 V AC	240 V AC
<b>Input (DC)</b>				
Max. usable DC power (@ cos φ = 1)	3200 W		4200 W	
Max. DC voltage	600 V		600 V	
Rated MPPT voltage range	175 - 480 V		175 - 480 V	
MPPT operating voltage range	125 V - 500 V		125 V - 500 V	
Min. DC voltage / start voltage	125 V / 150 V		125 V / 150 V	
Max. input current / per MPP tracker	18 A / 15 A		24 A / 15 A	
Number of MPP trackers / strings per MPP tracker	2 / 2			
<b>Output (AC)</b>				
AC nominal power	3000 W		3330 W	3840 W
Max. AC apparent power	3000 VA		3330 VA	3840 VA
Nominal AC voltage / adjustable	208 V / ●	240 V / ●	208 V / ●	240 V / ●
AC voltage range	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V
AC grid frequency; range	60 Hz / 59.3 - 60.5 Hz		60 Hz / 59.3 - 60.5 Hz	
Max. output current	15 A		16 A	
Power factor (cos φ)	1		1	
Output phases / line connections	1 / 2		1 / 2	
Harmonics	< 4%		< 4%	
<b>Efficiency</b>				
Max. efficiency	96.8%	97.1%	96.8%	97.2%
CEC efficiency	96%	96.5%	96%	96.5%
Protection devices				
DC disconnection device			●	
DC reverse-polarity protection			●	
Ground fault monitoring / Grid monitoring			● / ●	
AC short circuit protection			●	
All-pole sensitive residual current monitoring unit			●	
Arc fault circuit interrupter (AFCI) compliant to UL 1699B			●	
Protection class / overvoltage category			1 / IV	
<b>General data</b>				
Dimensions (W / H / D) in mm (in)	490 / 519 / 185 (19.3 / 20.5 / 7.3)			
DC Disconnect dimensions (W / H / D) in mm (in)	187 / 297 / 190 (7.4 / 11.7 / 7.5)			
Packing dimensions (W / H / D) in mm (in)	617 / 597 / 266 (24.3 / 23.5 / 10.5)			
DC Disconnect packing dimensions (W / H / D) in mm (in)	370 / 240 / 280 (14.6 / 9.4 / 11.0)			
Weight / DC Disconnect weight	24 kg (53 lb) / 3.5 kg (8 lb)			
Packing weight / DC Disconnect packing weight	27 kg (60 lb) / 3.5 kg (8 lb)			
Operating temperature range	-40 °C ... +60 °C (-40 °F ... +140 °F)			
Noise emission (typical)	≤ 25 dB(A)		< 25 dB(A)	
Internal consumption at night	< 1 W		< 1 W	
Topology	Transformerless		Transformerless	
Cooling concept	Convection		Convection	
Electronics protection rating	NEMA 3R		NEMA 3R	
<b>Features</b>				
Secure Power Supply	●		●	
Display: graphic	●		●	
Interfaces: RS485 / Speedwire/Webconnect	○/○		○/○	
Warranty: 10 / 15 / 20 years	●/○/○		●/○/○	
Certificates and permits (more available on request)	UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1			
NOTE: US inverters ship with gray lids				
Type designation	SB 3000TL-US-22		SB 3800TL-US-22	



## Accessories



Speedwire/Webconnect interface  
SWDM-US-10



RS485 interface  
DM-485CB-US-10



Fan kit  
FANKIT02-10

● Standard feature ○ Optional feature – Not available  
Data at nominal conditions

Technical data	Sunny Boy 4000TL-US		Sunny Boy 5000TL-US		Sunny Boy 6000TL-US	
	208 V AC	240 V AC	208 V AC	240 V AC	208 V AC	240 V AC
<b>Input (DC)</b>						
Max. usable DC power (@ cos φ = 1)	4200 W		5300 W		6300 W	
Max. DC voltage	600 V		600 V		600 V	
Rated MPPT voltage range	175 - 480 V		175 - 480 V		210 - 480 V	
MPPT operating voltage range	125 V - 500 V		125 V - 500 V		125 V - 500 V	
Min. DC voltage / start voltage	125 V / 150 V		125 V / 150 V		125 V / 150 V	
Max. input current / per MPP tracker	24 A / 15 A		30 A / 15 A		30 A / 15 A	
Number of MPP trackers / strings per MPP tracker			2 / 2			
<b>Output (AC)</b>						
AC nominal power	4000 W		4550 W		5200 W	
Max. AC apparent power	4000 VA		4550 VA		5200 VA	
Nominal AC voltage / adjustable	208 V / ●		240 V / ●		208 V / ●	
AC voltage range	183 - 229 V		211 - 264 V		183 - 229 V	
AC grid frequency; range	60 Hz / 59.3 - 60.5 Hz		60 Hz / 59.3 - 60.5 Hz		60 Hz / 59.3 - 60.5 Hz	
Max. output current	20 A		22 A		25 A	
Power factor (cos φ)	1		1		1	
Output phases / line connections	1 / 2		1 / 2		1 / 2	
Harmonics	< 4%		< 4%		< 4%	
<b>Efficiency</b>						
Max. efficiency	96.8%		97.2%		96.8%*	
CEC efficiency	96%		96.5%		96%*	
<b>Protection devices</b>						
DC disconnection device			●			
DC reverse-polarity protection			●			
Ground fault monitoring / Grid monitoring			● / ●			
AC short circuit protection			●			
All-pole sensitive residual current monitoring unit			●			
Arc fault circuit interrupter (AFCI) compliant to UL 1699B			●			
Protection class / overvoltage category			I / IV			
<b>General data</b>						
Dimensions (W / H / D) in mm (in)			490 / 519 / 185 (19.3 / 20.5 / 7.3)			
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Weight / DC Disconnect weight			24 kg (53 lb) / 3.5 kg (8 lb)			
Packing weight / DC Disconnect packing weight			27 kg (60 lb) / 3.5 kg (8 lb)			
Operating temperature range			-40 °C ... +60 °C (-40 °F ... +140 °F)			
Noise emission (typical)	< 25 dB(A)		< 29 dB(A)		< 29 dB(A)	
Internal consumption at night	< 1 W		< 1 W		< 1 W	
Topology	Transformerless		Transformerless		Transformerless	
Cooling concept	Convection		Convection		Active Cooling	
Electronics protection rating	NEMA 3R		NEMA 3R		NEMA 3R	
<b>Features</b>						
Secure Power Supply	●		●		●	
Display: graphic	●		●		●	
Interfaces: RS485 / Speedwire/Webconnect	○/○		○/○		○/○	
Warranty: 10 / 15 / 20 years	●/○/○		●/○/○		●/○/○	
Certificates and permits (more available on request)	UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1					
* Preliminary data as of February 2014. NOTE: US inverters ship with gray lids						
Type designation	SB 4000TL-US-22		SB 5000TL-US-22		SB 6000TL-US-22	