



Economical

- Maximum efficiency of 98.2 %
- SMA OptiTrac Global Peak MPP tracking for best MPP tracking efficiency
- *Bluetooth*[®] communication

Reliable

- Triple protection with Optiprotect:
- Electronic string fuse
- Self-learning string failure detection
- DC surge arrester (Type II) can be integrated

Flexible

- DC input voltage up to 1000 V
- Integrated grid management functions
- Custom plant design with Optiflex

Simple

- Three-phase feed-in
- Cable connection without tools
- SUNCLIX DC plug-in system
- Easily accessible connection area

SUNNY TRIPOWER

8000TL / 10000TL / 12000TL / 15000TL / 17000TL

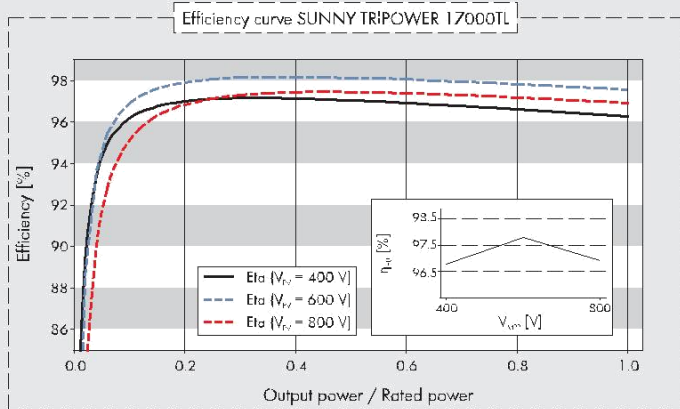
The three-phase inverter for easy plant design

Full of pioneering technology: highly flexible plant design with the three-phase Sunny Tripower inverter. Thanks to Optiflex technology, two MPP inputs and a broad input voltage range, it is suited to almost any module configuration. It meets any requirement such as reactive power supply, grid support thus reliably participating in grid management. The safety concept Optiprotect with its self-learning string-failure detection, electronic string fuse and integrable DC surge arrester type II, ensures maximum availability.

SUNNY TRIPOWER

8000TL / 10000TL / 12000TL / 15000TL / 17000TL

Technical Data	Sunny Tripower 8000TL
Input (DC)	
Max. DC power (@ $\cos \phi=1$)	8200 W
Max. input voltage	1000 V
MPP voltage range / rated input voltage	320 V – 800 V / 600 V
Min. input voltage / initial input voltage	150 V / 188 V
Max. input current input A / input B	22 A / 11 A
Max. input current per string input A* / input B*	33 A / 12.5 A
Number of independent MPP inputs / strings per MPP input	2 / A:4; B:1
Output (AC)	
Rated power (@ 230 V, 50 Hz)	8000 W
Max. apparent AC power	8000 VA
Nominal AC voltage	3 / N / PE; 220 / 380 V 3 / N / PE; 230 / 400 V 3 / N / PE; 240 / 415 V
Nominal AC voltage range	160 V – 280 V
AC power frequency / range	50 Hz, 60 Hz / –6 Hz ... +5 Hz
Rated grid frequency / rated grid voltage	50 Hz / 230 V
Max. output current	16 A
Power factor at rated power	1
Adjustable displacement factor	0.8 overexcited... 0.8 underexcited
Phase conductors / connection phases	3 / 3
Efficiency	
Max. efficiency / European efficiency	98.1 % / 97.5 %
Protection	
Input-side disconnection device	•
Ground-fault monitoring / grid monitoring	• / •
DC surge arrester Type II, can be integrated	○
DC reverse-polarity protection / AC short-circuit current capability / galvanically isolated	• / • / —
All-pole sensitive residual current monitoring unit	•
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III
General Data	
Dimensions (W / H / D)	665 / 690 / 265 mm (26.2 / 27.2 / 10.4 in)
Weight	59 kg (130,07 lb)
Operating temperature range	–25 °C ... +60 °C (–13 °F ... +140 °F)
Noise emission (typical)	51 dB(A)
Self-consumption at night	1 W
Topology / cooling concept	Transformerless / OptiCool
Degree of protection (according to IEC 60529)	IP65
Climatic category (according to IEC 60721-3-4)	4K4H
Maximum permissible value for relative humidity (non-condensing)	100 %
Features	
DC terminal / AC terminal	SUNCLIX / Spring-type terminal
Display	Graphic
Interface: RS485 / Bluetooth / Webconnect / Speedwire ³	○ / • / ○ / ○
Multi-function relay / Power Control Module	○ / ○
Warranty: 5 / 10 / 15 / 20 / 25 years	• / ○ / ○ / ○ / ○
Certificates and approvals (more available on request)	CE, VDE0126-1-1, RD 661/2007, G59/2, PPC, AS4777, SI4777, EN 50438 ¹ , C10/11, PPDS, IEC 61727, UTE C15-712-1, VDE-AR-N 4105, RD 1699, CEI 0-21
• Standard features ○ Optional features — Not available	Data at nominal conditions
Type designation	STP 8000TL-10



Accessories



RS485 interface
DM-485CB-10



DC surge arrester
(Type II), input A
DCSPD KIT1-10



DC surge arrester (Type II), inputs A and B
DCSPD KIT2-10



Power Control Module
PWCMOD-10



Multi-function relay
MFR01-10



Webconnect interface
SWDM-10

1 Does not apply to all national deviations of EN 50438

2 To be observed in case of a short circuit in the electronic string fuse

3 Planned (certificates, approvals, accessories)

Provisional data, as of September 2012

Sunny Tripower 10000TL	Sunny Tripower 12000TL	Sunny Tripower 15000TL	Sunny Tripower 17000TL
10200 W	12250 W	15340 W	17410 W
1000 V	1000 V	1000 V	1000 V
320 V – 800 V / 600 V	380 V – 800 V / 600 V	360 V – 800 V / 600 V	400 V – 800 V / 600 V
150 V / 188 V	150 V / 188 V	150 V / 188 V	150 V / 188 V
22 A / 11 A	22 A / 11 A	33 A / 11 A	33 A / 11 A
33 A / 12.5 A	33 A / 12.5 A	40 A / 12.5 A	40 A / 12.5 A
2 / A:4; B:1	2 / A:4; B:1	2 / A:5; B:1	2 / A:5; B:1
10000 W	12000 W	15000 W	17000 W
10000 VA	12000 VA	15000 VA	17000 VA
3 / N / PE; 220 / 380 V	3 / N / PE; 220 / 380 V	3 / N / PE; 220 / 380 V	3 / N / PE; 220 / 380 V
3 / N / PE; 230 / 400 V	3 / N / PE; 230 / 400 V	3 / N / PE; 230 / 400 V	3 / N / PE; 230 / 400 V
3 / N / PE; 240 / 415 V	3 / N / PE; 240 / 415 V	3 / N / PE; 240 / 415 V	3 / N / PE; 240 / 415 V
160 V – 280 V	160 V – 280 V	160 V – 280 V	160 V – 280 V
50 Hz, 60 Hz / –6 Hz ... +5 Hz	50 Hz, 60 Hz / –6 Hz ... +5 Hz	50 Hz, 60 Hz / –6 Hz ... +5 Hz	50 Hz, 60 Hz / –6 Hz ... +5 Hz
50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V
16 A	19.2 A	24 A	24.6 A
1	1	1	1
0.8 overexited... 0.8 underexited	0.8 overexited... 0.8 underexited	0.8 overexited... 0.8 underexited	0.8 overexited... 0.8 underexited
3 / 3	3 / 3	3 / 3	3 / 3
98.1 % / 97.7 %	98.1 % / 97.7 %	98.2 % / 97.8 %	98.2 % / 97.8 %
•	•	•	•
• / •	• / •	• / •	• / •
○	○	○	○
• / • / —	• / • / —	• / • / —	• / • / —
•	•	•	•
I / III	I / III	I / III	I / III
665 / 690 / 265 mm (26.2 / 27.2 / 10.4 in)	665 / 690 / 265 mm (26.2 / 27.2 / 10.4 in)	665 / 690 / 265 mm (26.2 / 27.2 / 10.4 in)	665 / 690 / 265 mm (26.2 / 27.2 / 10.4 in)
59 kg (130,07 lb)	59 kg (130,07 lb)	59 kg (130,07 lb)	59 kg (130,07 lb)
–25 °C ... +60 °C (–13 °F ... +140 °F)	–25 °C ... +60 °C (–13 °F ... +140 °F)	–25 °C ... +60 °C (–13 °F ... +140 °F)	–25 °C ... +60 °C (–13 °F ... +140 °F)
51 dB(A)	51 dB(A)	51 dB(A)	51 dB(A)
1 W	1 W	1 W	1 W
Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool
IP65	IP65	IP65	IP65
4K4H	4K4H	4K4H	4K4H
100 %	100 %	100 %	100 %
SUNCLIX / Spring-type terminal	SUNCLIX / Spring-type terminal	SUNCLIX / Spring-type terminal	SUNCLIX / Spring-type terminal
Graphic	Graphic	Graphic	Graphic
○ / • / ○ / ○	○ / • / ○ / ○	○ / • / ○ / ○	○ / • / ○ / ○
○ / ○	○ / ○	○ / ○	○ / ○
• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○
CE, VDE0126-1-1, RD 661/2007, G59/2, PPC, AS4777, SI4777, EN 50438 ¹ , C10/11, PPDS, IEC 61727,	UTE C15-712-1, VDE-AR-N 4105, BDEW 2008, RD 1699, CEI 0-21		
STP 10000TL-10	STP 12000TL-10	STP 15000TL-10	STP 17000TL-10



High Yields

- Maximum efficiency of 97 %
- Multi-String technology*
- Transformerless, with H5 topology
- Shade management with

OptiTrac Global Peak

Safe

- Integrated ESS DC switch-disconnector

Simple

- Easily accessible connection area
- Cable connection without tools
- DC plug system SUNCLIX

Communicative

- *Bluetooth*[®] technology as standard
- Multilingual graphic display
- Multi-function relay as standard

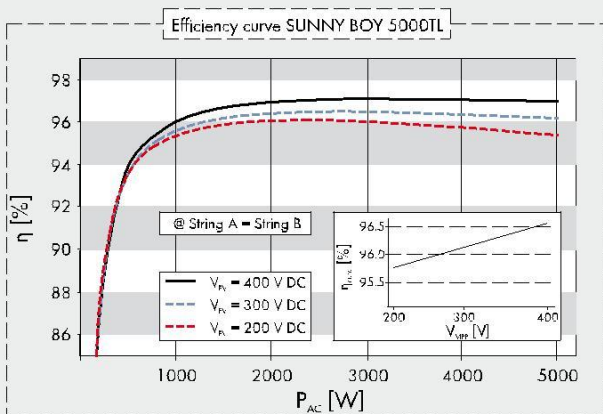
Sunny Boy 3000TL / 4000TL / 5000TL

Perfection Plus. Usability. The transformerless Sunny Boy generation

More communicative, easier to use and more efficient than ever: this Sunny Boy is setting new standards in inverter technology. A modern graphic display, readout of daily values even after sunset, simplified installation concept and wireless communication via *Bluetooth*[®]: The new Sunny Boys fulfill every wish. With the new OptiTrac Global Peak shade management and an optimal efficiency of 97 %, the inverters ensure optimum solar yield. As transformerless, multi-string devices, the Sunny Boy 4000TL and 5000TL provide maximum flexibility for plant design, and are the first choice for demanding generator designs.

Technical data	Sunny Boy 3000TL	Sunny Boy 4000TL	Sunny Boy 4000TL/V	Sunny Boy 5000TL
Input (DC)				
Max. DC power (@ $\cos \phi = 1$)	3200 W	4200 W	4200 W	5300 W
Max. DC voltage	550 V	550 V	550 V	550 V
MPP voltage range	188 V – 440 V	175 V – 440 V	175 V – 440 V	175 V – 440 V
DC nominal voltage	400 V	400 V	400 V	400 V
Min. DC voltage / start voltage	125 V / 150 V	125 V / 150 V	125 V / 150 V	125 V / 150 V
Max. input current / per string	17 A / 17 A	2 x 15 A / 15 A	2 x 15 A / 15 A	2 x 15 A / 15 A
Number of MPP trackers / strings per MPP tracker	1 / 2	2 / A: 2, B: 2	2 / A: 2, B: 2	2 / A: 2, B: 2
Output (AC)				
AC nominal power (@ 230 V, 50 Hz)	3000 W	4000 W	3680 W	4600 W
Max. AC apparent power	3000 VA	4000 VA	4000 VA	5000 VA
Nominal AC voltage; range	220, 230, 240 V; 180 – 280 V	220, 230, 240 V; 180 – 280 V	220, 230, 240 V; 180 – 280 V	220, 230, 240 V; 180 – 280 V
AC grid frequency; range	50, 60 Hz; ± 5 Hz	50, 60 Hz; ± 5 Hz	50, 60 Hz; ± 5 Hz	50, 60 Hz; ± 5 Hz
Max. output current	16 A	22 A	22 A	22 A
Power factor ($\cos \phi$)	1	1	1	1
Phase conductors / connection phases	1 / 1	1 / 1	1 / 1	1 / 1
Efficiency				
Max. efficiency / Euro-eta	97.0 % / 96.3 %	97.0 % / 96.4 %	97.0 % / 96.4 %	97.0 % / 96.5 %
Protection devices				
DC reverse-polarity protection	•	•	•	•
ESS switch-disconnector	•	•	•	•
AC short circuit protection	•	•	•	•
Ground fault monitoring	•	•	•	•
Grid monitoring (SMA Grid Guard)	•	•	•	•
Galvanically isolated / all-pole sensitive fault current monitoring unit	—/•	—/•	—/•	—/•
Protection class / overvoltage category	I / III	I / III	I / III	I / III
General data				
Dimensions (W / H / D) in mm	470 / 445 / 180	470 / 445 / 180	470 / 445 / 180	470 / 445 / 180
Weight	22 kg	25 kg	25 kg	25 kg
Operating temperature range	-25 °C ... +60 °C	-25 °C ... +60 °C	-25 °C ... +60 °C	-25 °C ... +60 °C
Noise emission (typical)	≤ 25 dB(A)	≤ 29 dB(A)	≤ 29 dB(A)	≤ 29 dB(A)
Internal consumption (night)	< 0.5 W	< 0.5 W	< 0.5 W	< 0.5 W
Topology	transformerless	transformerless	transformerless	transformerless
Cooling concept	Convection	OptiCool	OptiCool	OptiCool
Electronics protection rating / connection area (as per IEC 60529)	IP65 / IP54	IP65 / IP54	IP65 / IP54	IP65 / IP54
Climatic category (per IEC 60721-3-4)	4K4H	4K4H	4K4H	4K4H
Features				
DC connection: SUNCLIX	•	•	•	•
AC connection: screw terminal / plug connector / spring-type terminal	—/—/•	—/—/•	—/—/•	—/—/•
Display: text line / graphic	—/•	—/•	—/•	—/•
Interfaces: RS485 / Bluetooth®	○/•	○/•	○/•	○/•
Warranty: 5 / 10 / 15 / 20 / 25 years	●/○/○/○/○	●/○/○/○/○	●/○/○/○/○	●/○/○/○/○
certificates and permits (more available on request)	CE, VDE 0126-1-1, DK 5940, RD 661, RD 1663, G83/1-1, PPC, AS4777, EN 50438*, C10/C11, PPDS, KEMCO (only SB 3000TL-20)			
* Does not apply to all national deviations of EN 50438				
● Standard features ○ Optional features — not available Data at nominal conditions				
Type designation	SB 3000TL-20	SB 4000TL-20	SB 4000TL-20/V 0159	SB 5000TL-20

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Accessories



RS485 interface
DM-485CB-10

SUNNY BOY 1300TL/1600TL/2100TL



Combining a broad input voltage range and a broad input current range, the transformerless Sunny Boy can be connected to nearly all standard crystalline PV modules. As a proven entry-level device in the field of transformerless inverters, it offers top-class efficiency. Its low weight and robust enclosure allow simple installation, both indoors and outdoors. With its two power classes, it is the ideal inverter for smaller PV plants.

Efficient

- Efficiency of up to 96 %
- Transformerless

Reliable

- Integrated ESS DC switch disconnecter (optional)

Reliable

- Proven technology
- Maintenance free, thanks to convection cooling

Simple

- SUNCLIX DC plug-in system

<u>-Input (DC)</u>	SUNNY BOY 1300TL	SUNNY BOY 1600TL	SUNNY BOY 2100TL
Max. DC power (@ $\cos \varphi = 1$)	1400 W	1700 W	2200 W
Max. input voltage	600 V	600 V	600 V
MPP voltage range	115 V ¹ – 480 V	155 V – 480 V	200 V – 480 V
Rated input voltage	400 V	400 V	400 V
Min. input voltage / initial input voltage	100 V ¹ / 120 V ¹	125 V / 150 V	125 V / 150 V
Max. input current / max. input current per string	12 A ¹ / 12 A ¹	12 A ¹ / 12 A ¹	12 A ¹ / 12 A ¹
Number of independent MPP inputs / strings per MPP input	1 / 1	1 / 1	1 / 2
<u>-Output (AC)</u>			
Rated power (@ 230 V, 50 Hz)	1300 W	1600 W	1950 W
Max. apparent AC power	1300 VA	1600 VA	2100 VA

Nominal AC voltage / range	220 V, 230 V, 240 V / 180 V – 260 V	220 V, 230 V, 240 V / 180 V – 260 V	220 V, 230 V, 240 V / 180 V – 260 V
AC power frequency / range	50 Hz, 60 Hz1 / –6 Hz ... +5 Hz	50 Hz, 60 Hz1 / –6 Hz ... +5 Hz	50 Hz, 60 Hz1 / –6 Hz ... +5 Hz
Rated power frequency / rated grid voltage	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V
Max. output current	7.2 A	8.9 A	11 A
Power factor at rated power	1	1	1
Feed-in phases / connection phases	1 / 1	1 / 1	1 / 1
<u>-Efficiency</u>			
Max. efficiency / European weighted efficiency	96 % / 94.3 %	96 % / 95 %	96 % / 95.2 %
<u>-Protective devices</u>			
DC disconnect device	opt.	opt.	opt.
Ground fault monitoring / grid monitoring	yes / yes	yes / yes	yes / yes
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	yes / yes / —	yes / yes / —	yes / yes / —
All-pole-sensitive residual-current monitoring unit	yes	yes	yes
Protection class (according to IEC 62103) / overvoltage category (according to IEC 60664-1)	I / III	I / III	I / III
<u>-General data</u>			
Dimensions (W / H / D)	440 / 339 / 214 mm (17.3 / 13.3 / 8.4 inch)	440 / 339 / 214 mm (17.3 / 13.3 / 8.4 inch)	440 / 339 / 214 mm (17.3 / 13.3 / 8.4 inch)
Weight	16 kg (35.3 lb)	16 kg (35.3 lb)	16 kg (35.3 lb)
Operating temperature range	–25 °C ... +60 °C (–13 °F ... +140 °F)	–25 °C ... +60 °C (–13 °F ... +140 °F)	–25 °C ... +60 °C (–13 °F ... +140 °F)
Noise emission (typical)	33 dB(A)	33 dB(A)	33 dB(A)
Self-consumption (night)	0.1 W	0.1 W	0.1 W
Topology	Transformerless	Transformerless	Transformerless
Cooling concept	Convection	Convection	Convection
Degree of protection (according to IEC 60529)	IP65	IP65	IP65
Climatic category (according to IEC 60721-3-4)	4K4H	4K4H	4K4H
Max. permissible value for relative humidity (non-condensing)	100 %	100 %	100 %
<u>-Features</u>			
DC connection / AC connection	SUNCLIX / Connector	SUNCLIX / Connector	SUNCLIX / Connector
Display	Text line	Text line	Text line
Interface: RS485, Bluetooth®, Speedwire/Webconnect	opt. / opt./ opt.	opt. / opt./ opt.	opt. / opt./ opt.
Warranty: 5 / 10 / 15 / 20 / 25 years	yes / opt. / opt. / opt. / opt.	yes / opt. / opt. / opt. / opt.	yes / opt. / opt. / opt. / opt.
Certificates and approvals (more available on request)	AS 4777, C10/11, CE, CEI 0-21, EN 50438 ² , G83/1-1, IEC 62109-1/-2, NRS	AS 4777, C10/11, CE, CEI 0-21, EN 50438 ² , G83/1- 1, IEC 62109-1/-2, NRS 097-2-1, PPC, PPDS,	AS 4777, C10/11, CE, CEI 0-21, EN 50438 ² , G83/1-1, IEC 62109-1/- 2, NRS 097-2-1, PPC,

	097-2-1, PPC, PPDS, RD1699, RD 661/2007, UTE C15-712-1, VDE-AR-N 4105, VDE0126-1-1	RD1699, RD 661/2007, UTE C15-712-1, VDE-AR-N 4105, VDE0126-1-1	PPDS, RD1699, RD 661/2007, UTE C15-712-1, VDE-AR-N 4105, VDE0126-1-1
<u>-Type designation</u>			
Type designation	SB 1300TL-10	SB 1600TL-10	SB 2100TL