

SUNWAY™ TG 1800 1500V TE

Central Inverter 1500 Vdc for PV Application



Datasheet

Review: November 2nd 2020

Designed for utility scale applications, the **SUNWAY TG** inverters feature best-in-class technology and deliver the highest power density and reliability.

Thanks to its intrinsic flexibility, the **SUNWAY TG** product range allows optimal configuration of medium and large PV plants, at the lowest system costs and with maximum yield.

The **SUNWAY TG** inverters are designed and manufactured in Italy by the technicians and engineers of Enertronica Santerno S.p.A..

DESCRIPTION OF OPERATION

The SUNWAY TG are grid connected solar inverters, suitable for connection to LV or MV distribution lines, as well as HV grids.

Advanced grid interface, certified in compliance with the most advanced requirements, ensures reliability and maximum uptime, providing grid support features such as FRT, active power modulation, voltage control. Utility Interactive Features are embedded, software-controlled, completely configurable based on the applicable grid code.

Moreover, the SUNWAY TG inverters can be integrated in smart grid plants, installed together with off-grid inverters.

Best reliability is ensured by design. All electronics PCBs are coated for best protection against harsh environments. Redundant protection systems and auto-diagnostic functions are also implemented.

Auxiliary power and LVRT are self-supplied. Neither external power nor UPS is needed; however, an external source may be connected, if desired.

PV EARTHING

Optionally, the SUNWAY TG inverters can be provided with positive or negative earth connection of the PV field. PV earthing is recommended whenever modules sensitive to PID (potentially induced degradation) are used. Earthing configuration shall be defined upon ordering the equipment.

STANDARD SUPPLY

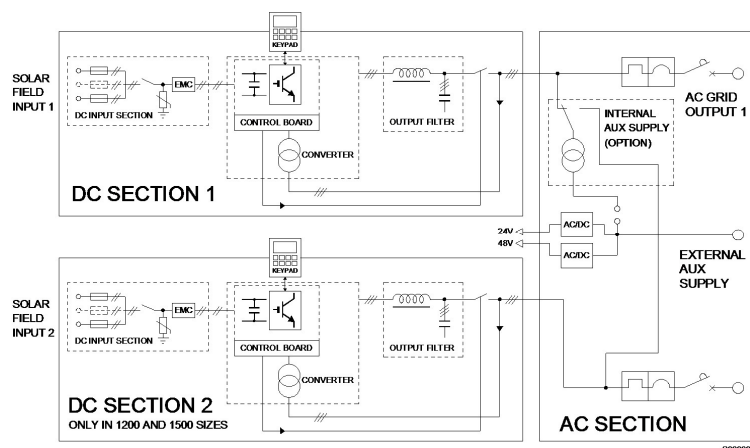
All inverters are supplied with user manuals, technical documents complying with the regulations in force, keys and lifting hooks, special pallets for easy and safe transport.

MAIN NORMATIVE REFERENCES

The SUNWAY TG inverters have been developed, designed and manufactured in accordance with up-to-date requirements of the Low Voltage directives, Electromagnetic Compatibility directives and Grid Connection standards (as per applicable parts).

BENEFITS

- Very high conversion efficiency with a single power conversion stage, optimized for minimum losses
- Modular construction and cabinet industrialization for maximum reliability and easy access to all components for maintainability and ease of on-site servicing
- Grid Code integrated features (LVRT, Reactive Power Control, Frequency and Voltage control) in compliance with the most advanced European and worldwide standards
- Remote monitoring via Santerno.io website and REMOTE SUNWAY™ software, both for single- and multi-inverter installations
- Integrated DC-side protection provided by disconnect switch with release coil
- Integrated miswiring protection on DC side
- Integrated AC-side protection with automatic-disconnection on load breaker
- Integrated active monitoring of DC isolation
- Integrated Modbus on RS485 and TCP-IP on Ethernet data connection
- Integrated inputs for environmental sensors
- Compatible with photovoltaic modules requiring one earthed pole (positive or negative pole)
- Made in Italy with first class materials



Main Features			
Number of Independent MPPTs	2		
Static / Dynamic MPPT efficiency	99.8 % / 99.7 %		
Maximum open-circuit voltage	1500 V		
Rated output frequency	50 / 60 Hz (up to -3 / +2 Hz)		
Power Factor ⁽³⁾	Circular Capability		
Operating temperature range	-25 ÷ 62 °C		
Application / Degree of protection	Outdoor / IP54 or Indoor / IP20		
Maximum operating altitude ⁽⁴⁾	4000 m		
Maximum short circuit PV input current	2 x 1500 A		
Voltage Ripple	< 1%		
Rated output current (@ ambient temperature)	1800 A (@ 25°C)	1600 A (@ 45°C)	1500 A (@ 50°C)
Power threshold	1% of Rated output power		
Total AC current distortion	≤ 3%		
Efficiency Max / EU / CEC ^{(1) (5)}	98.7 % / 98.4 % / - %		
Dimensions (W x H x D)	Outdoor: 3224 x 2470 x 1025 mm	Indoor: 3000 x 2100 x 800 mm	
Weight	Outdoor: 2930 kg	Indoor: 2700 kg	
Stop mode losses / Night losses	90 W / 90 W		
Auxiliary consumptions	1800 W		

Main Configurations								
Model	Min MPPT Voltage ⁽¹⁾	Max MPPT Voltage ⁽¹⁾	Min Extended MPPT Voltage ⁽¹⁾⁽²⁾	Max Extended MPPT Voltage ⁽¹⁾⁽²⁾	Rated AC voltage (± 10%)	Rated output power @ 25°C	Rated output power @ 45°C	Rated output power @ 50°C
	V	V	V	V	V	kVA	kVA	kVA
SUNWAY™ TG 1800 - 1500V TE - 600	880	1200	860	1500	600	1870	1662	1558
SUNWAY™ TG 1800 - 1500V TE - 610	890		870		610	1902	1690	1584
SUNWAY™ TG 1800 - 1500V TE - 620	910		880		620	1932	1718	1610
SUNWAY™ TG 1800 - 1500V TE - 630	920		900		630	1964	1746	1636
SUNWAY™ TG 1800 - 1500V TE - 640	935		910		640	1996	1774	1662
SUNWAY™ TG 1800 - 1500V TE - 650	950		930		650	2026	1802	1688
SUNWAY™ TG 1800 - 1500V TE - 660	960		940		660	2058	1830	1714
SUNWAY™ TG 1800 - 1500V TE - 670	980		960		670	2088	1856	1740
SUNWAY™ TG 1800 - 1500V TE - 680	990		970		680	2120	1884	1766
SUNWAY™ TG 1800 - 1500V TE - 690	1000		980		690	2152	1912	1792

NOTES:

(1) @ rated Vac and Cos φ = 1

(2) With power derating

(3) Default range: 1 - 0.85 lead/lag

(4) Up to 1000 m without derating

(5) IEC 61683 certificate



Additional Information	
Protection against overvoltage (SPD)	DC Side: Yes - AC Side: Optional
Maximum value for relative humidity	95 % non-condensing
Cooling system / Fresh air consumption	Forced air / 5650 m ³ /h
Thermal protection	Integrated, 5 sensors, both on cabinet and power stack
Environmental sensors	4 embedded inputs
Digital communications channels	2 x RS485 with Modbus + Ethernet with TCP/IP
Noise emission @ 1m / 10m ⁽¹⁾	78 / 58 dBA
Connection phases	3Ø3W
Max DC inputs per pole / fuse protected ⁽²⁾	14 / 14
DC inputs current monitoring	Optional
DC side disconnection device	DC disconnect switch
AC side disconnection device	AC circuit breaker
Ground fault monitoring, DC side	Yes
Ground fault monitoring, AC side	Optional
Grid fault monitoring	Yes
Display	Alphanumeric display/keypad
Power modulation	Digital, via RS485 or Ethernet
RAL	RAL 7035
PV plant monitoring	Optional, via Santerno.io

NOTES:

(1) Noise level measured in central and front position

(2) DC Fuses not included. Number and current rating of DC fuses configurable

Standards ⁽¹⁾	
Certification	CE
Efficiency	IEC 61683
Electromagnetic Compatibility (EMC)	IEC 61000-6-2, IEC 61000-6-4
Harmonics and Flickers	IEC 61000-3-12, IEC TS 61000-3-5
Safety	IEC 62109-1, IEC 62109-2
Grid connection	CEI 0-16, IEC 61727, IEC 62116, P.O. 12.3/10.06

NOTES:

(1) Some standards apply to specific models only



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