

SUNWAY TG OUTDOOR series

SUNWAY TG610 1000V TE - 360 OD
500 kVAac
Outdoor Application



Designed for utility scale applications, the **SUNWAY TG** inverters feature best-in-class technology without compromises providing the highest power density and reliability.

Thanks to its intrinsic flexibility, **SUNWAY TG** product range allow the optimal configuration of medium and large PV plants providing the lowest system cost and the maximum yield.

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

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 service on site
- Grid Code integrated features (LVRT, Reactive Power Control, Frequency and Voltage control) in compliance with the most advanced European and WW standards
- Remote monitoring possibility via the SunwayPortal and REMOTE SUNWAY™ software both for a single device and a multi-inverter installation
- 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
- Possibility to install photovoltaic modules requiring one earthed pole, both positive and negative pole
- Thorough manufacture with first class materials, fully Made in Italy

Main features	
Model	SUNWAY TG610 1000V TE - 360 OD
MPPT voltage range ⁽¹⁾	550 - 820 V
Number of independent MPPT	1
Max. Open-circuit voltage	1000 V
Rated AC voltage	360 V ± 10 %
Rated output frequency	50 / 60 Hz (up to -3 / +2 Hz)
Power Factor @ rated power	1 - 0.9 lead/lag
Operating temperature range	-25 ÷ 52 °C
Application / Degree of protection	Outdoor / IP54
Maximum operating altitude ⁽²⁾	4000 m

Input Ratings (DC)	
Rated input power	515 kW
Maximum short circuit PV input current	1260 A
PV Voltage Ripple	<1%
Output Ratings (AC)	
Rated output power @ 50°C	500 kVA
Rated output current	800 A
Power threshold	1% of Rated AC output power
Total AC current distortion	≤ 3%
Inverter efficiency	
Maximum / EU/ CEC efficiency ⁽³⁾	98.5 % / 98.2 % / 98.0 %
Dimensions and weight	
Inverter Dimensions (WxHxD)	2766 x 2303 x 1006 mm
Inverter Weight	2050 kg
Auxiliary Consumptions	
Stop mode losses/Night losses	45 W / 45 W
Auxiliary consumption	1730 W
Optional Anticondensation heater consumption ⁽⁴⁾	1 kW

Elettronica Santerno reserves the right to make any technical changes to this document without prior notice.

NOTE

⁽¹⁾ At Vac rated and Cos φ =1

⁽²⁾ Up to 1000 m without derating

⁽³⁾ Auxiliary consumptions are not considered when measuring the conversion efficiency

⁽⁴⁾ Optional recommended for Outdoor application in cold climate environments

Additional information	
Protection against overvoltage (SPD)	DC Side: Yes - AC Side: Not
Maximum value for relative humidity	95% no condensing
Cooling system / Fresh air consumption	Forced air / 9600 m ³ /h
Thermal protection	Integrated, 5 sensors, both on cabinet and power stack
Environmental sensors	4 embedded inputs
Digital communications channels	2xRS485 with Modbus + Ethernet with TCP/IP
Noise emission @ 1m / 10m ⁽⁵⁾	75 / 55 dB (A)
Connection phases	3
Max DC inputs per pole/ fuse protected ⁽⁶⁾	8 + 8 / 8 + 8
DC Parallel included	Yes
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	Via Remote Control (RS485, Ethernet) and analog
RAL	RAL 7035
PV plant monitoring	Optional (Via Sunway Portal)

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NOTE

⁽⁵⁾ Noise level measured in central and front position

⁽⁶⁾ Fuses to be ordered separately

Description of Operation

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

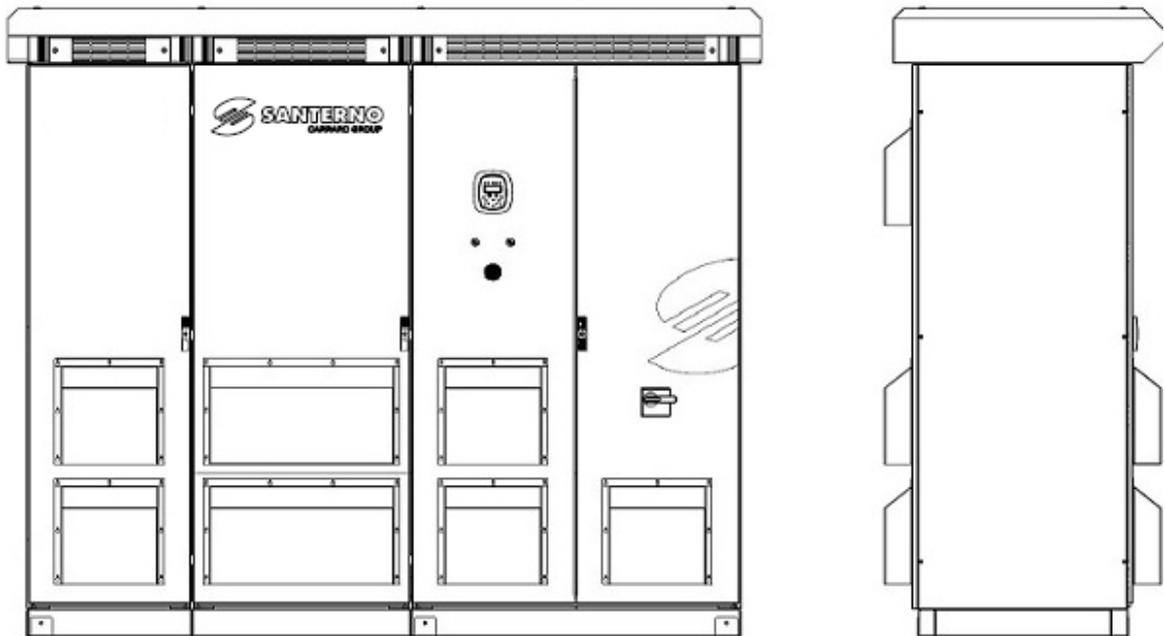
PV earthing

Optionally, the **SUNWAY TG** inverters can be provided with positive- or negative- ground connection of the PV field. That configuration shall be defined when ordering the equipment and it is recommended when using modules sensitive to PID (potentially induced degradation) are adopted.

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.

Layout



Main Normative References

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

Standards ⁽⁷⁾	
Certification	CE, BDEW , CQC ,CSA
Immunity	IEC 61000-6-4, IEC 61000-6-2
Harmonics	IEC 61000-3-2, IEC 61000-3-12
Emissions	IEC 61000-6-3, IEC 61000-6-1
Safety	EN50178, IEC 62109-1
Grid connection	CEI 0-16, A.70, BDEW, Arrêté du 23 Avril 2008, RD 1699/2011, RD 661/2007, CQC, IEEE 1547

NOTE

⁽⁷⁾ Some standard are applicable only to specific models