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## SUNWAY TG COMPACT OUTDOOR series

# SUNWAY TG120 800V OD

## Outdoor Application

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di Carraro S.p.A.



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

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

**SUNWAY TG** inverters are designed and manufactured in Italy by 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 with 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 TG120 800V OD
MPPT voltage range <sup>(1)</sup>	415 - 760 V
Number of independent MPPT	1
Max. Open-circuit voltage	880 V
Rated AC voltage	400 V $\pm$ 15 %
Rated output frequency	50 Hz (up to -3 / +2 Hz)
Power Factor @ rated power	1 - 0.9 lead/lag
Operating temperature range	-10 $\div$ 50 °C
Application / Degree of protection	Outdoor / IP54
Maximum operating altitude <sup>(2)</sup>	4000 m

Input Ratings (DC)	
Suggested PV peak power	106 kWp
Rated input power	94 kW
Maximum short circuit PV input current	250 A
PV Voltage Ripple	<1%

Output Ratings (AC)	
Rated output power @ 40°C	91.4 kVA
Rated output current	131.9 A
Power threshold	1% of Rated AC output power
Total AC current distortion	$\leq$ 3%

Inverter efficiency <sup>(4)</sup>	
Maximum / EU/ CEC efficiency <sup>(3)</sup>	96.2 % / 94.8 % / 98.0 %

Dimensions and weight	
Inverter Dimensions (WxHxD)	1000 x 2066 x 800 mm
Inverter Weight	835 kg

Auxiliary Consumptions	
Stop mode losses/Night losses	20 W / 20 W
Auxiliary consumption	260 W
Optional Anticondensation heater consumption <sup>(4)</sup>	250 W

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

**NOTE**

<sup>(1)</sup> At Vac rated and Cos  $\phi$  =1

<sup>(2)</sup> Up to 1000 m without derating

<sup>(3)</sup> Auxiliary consumptions are not considered when measuring the conversion efficiency

<sup>(4)</sup> Optional recommended for Outdoor application in cold climate environments

Additional information	
Integrated galvanic insulation transformer	YES
Protection against overvoltage (SPD)	DC Side: Yes - AC Side: Optional
Maximum value for relative humidity	100% condensing
Cooling system / Fresh air consumption	Forced air / 2100 m3/h
Thermal protection	Integrated, sensors both on cabinet and power stack
Environmental sensors	Optional, up to 6 embedded inputs
Digital communications channels	RS485 with Modbus Optional 2xRS485 with Modbus + Ethernet with TCP/IP
Noise emission @ 1m	77 dB
Connection phases	3
Max DC inputs per pole/ fuse protected <sup>(5)</sup>	4 / 0
DC Parallel included	No
DC inputs current monitoring	No
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	Alphanumerical 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**

<sup>(5)</sup> Fuses to be ordered separately

## Description of Operation

**SUNWAY TG** are grid connected solar inverters, suitable for connection to LV or MV distribution lines.

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, 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 environment. 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.

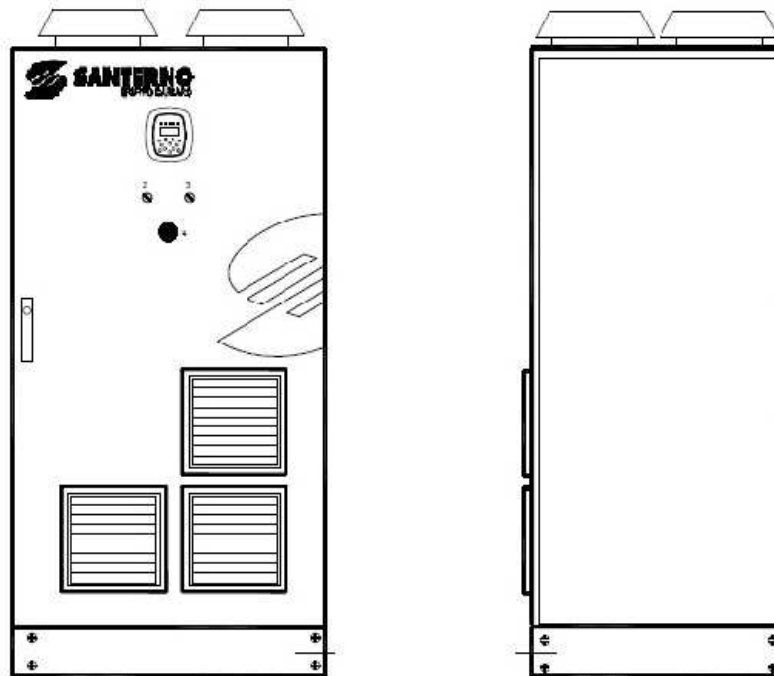
## PV earthing

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 in case of modules sensitive to the PID (potentially induced degradation) are adopted.

## Standard Supply

All inverters are supplied with user manuals, technical documents complying with the regulations in force, 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 <sup>(6)</sup>	
Certification	CE
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, IEC 62109-2, UL 1741/CSA C22.2
Grid connection	CEI 0-21, A.70, VDE 0126-1-1

NOTE

<sup>(6)</sup> Only on specific models