

SUNNY TRIPOWER 60

STP 60-10



Efficient

- Maximum efficiency of 98.8%
- Superior power density: 60 kVA with only 75 kg of weight

Safe

- Highest PV system availability with 60-kW units
- SMA Inverter Manager as central control unit

Flexible

- DC input voltage of up to 1,000 V
- Flexible DC solutions with PV array junction boxes

Innovative

- Cutting-edge system design

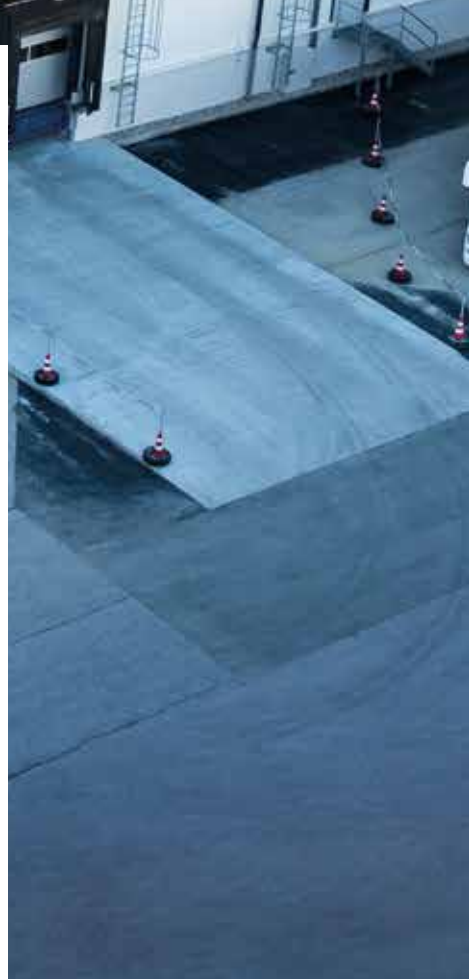
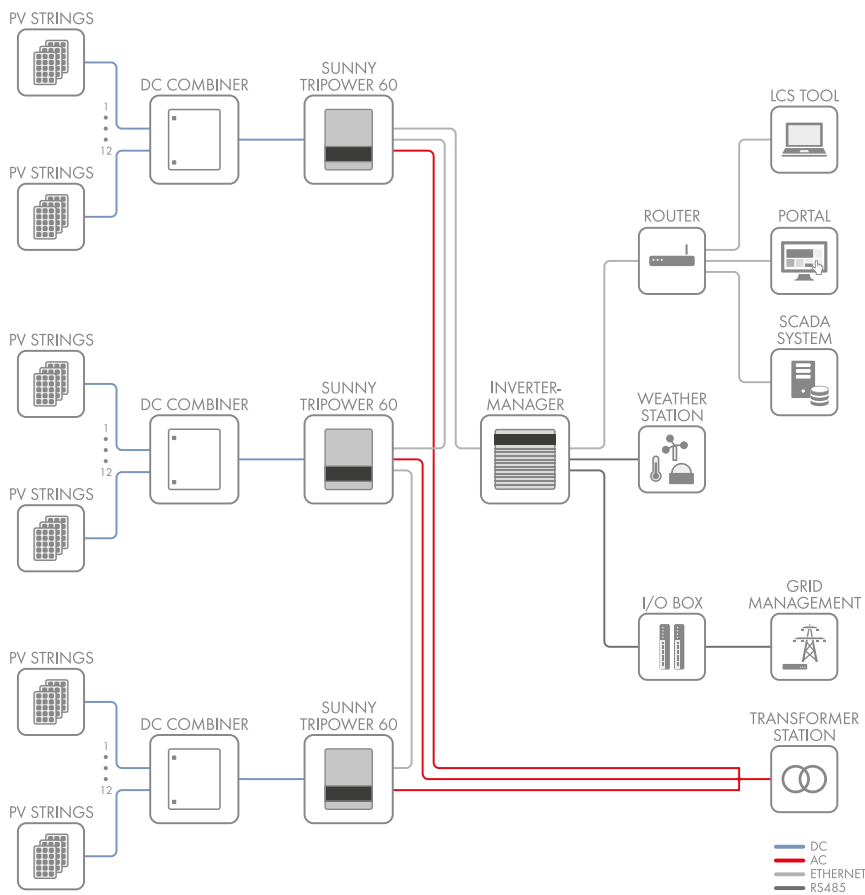
SUNNY TRIPOWER 60

The Best of Two Worlds

The new Sunny Tripower 60 is part of an innovative, global system solution for commercial and industrial PV plants. This solution combines the advantages of a decentralized system layout with the benefits of centralized inverter designs in order to get the best of two worlds. High efficiency, flexible system design, easy installation, simple commissioning and low maintenance requirements contribute decisively to reducing the operating costs for the entire system.



THE SMART SUNNY TRIPOWER SYSTEM PHILOSOPHY





FLEXIBLE SYSTEM DESIGN

With Maximum Efficiency

The new SMA system solution consists of four components: highly efficient inverters, the flexible combiner boxes, the central SMA inverter manager and the LCS commissioning tool. It is precisely this systemized approach that makes the Sunny Tripower 60 so unique and guarantees a high level of performance along with maximum flexibility in system planning and design.

Sunny Tripower 60 inverters with impressive design

No other inverter weighing only 75 kg with an output of 60 kVA offers this. With its compact design, the Sunny Tripower 60 requires little space, reduces on-site preparation work, simplifies installation and lowers maintenance costs.

Innovative system management with the SMA Inverter Manager

The SMA inverter manager is the central communications component and sole interface for the entire system control. It handles all the important inverter and system management functions for up to 42 inverters in

one system (up to 2.5 MW).

Based on the Modbus TCP and SunSpec Alliance Communication, it can be easily integrated into a superior communication system while also ensuring data exchange with external providers. Moreover, the SMA inverter manager handles grid management function exchanges with the grid operator.

Easy commissioning with the LCS commissioning tool

The specially developed LCS tool (Local Commissioning and Service Tool) makes commissioning easy, saves time and reduces costs. The inverter is configured by simply selecting the system-specific configuration files and then transmitting them to all inverters. Furthermore, by reading the status, current values and incidents at the inverter level can make troubleshooting and bug-fixing considerably easier.

External Combiner Box for flexible system design

The module strings are connected to the inverters using the external PV array junction boxes.* This allows the system to flexibly adapt to various regional standards and the generator configuration. This new design decisively contributes to reducing system costs.

SYSTEM INFORMATION

Perfect interaction between Sunny Tripower system components

The SMA inverter manager functions as a central interface for up to 42 inverters in the system and handles necessary local adjustments.

External combiner boxes ensure an optimal connection between the PV array and inverter.

Summary: The Sunny Tripower 60 together with the system components is the innovative solution for medium to large-scale power ranges and offers users the best of two worlds.

*Different configurations can be delivered upon request

Technical Data, as of February 2015

Sunny Tripower 60

Input (DC)

Max. input voltage	1000 V
MPP voltage range	570 V - 800 V @400 Vac, 685 V - 800 V @480 Vac
Min. input voltage	565 V @400 Vac, 680 V @480 Vac
Max. input current / short-circuit current	110 A / 150 A
Number of independent MPP inputs / strings per MPP input	1/1 (split up by external PV array junction box)
DC rated power input	630 Vdc @ 400 Vac, 710 Vdc @ 480 Vac

Output (AC)

Rated power at nominal voltage	60000 W
Max. AC apparent power	60000 VA
Max. reactive power	60000 Var
Nominal AC voltage	3 / PE, 400 V - 480 V, ±10 %
Nominal AC voltage range	400 V - 480 V
AC power frequency / range	50 Hz / 60 Hz ±10 %
Rated power frequency / rated grid voltage	50 Hz, 60 Hz / 400 V, 480 V
Max. output current	3 x 87 A
Power factor at rated power/displacement power factor adjustable	1 / 0.8 overexcited to 0.8 underexcited
Feed-in phases / connection phases	3 / 3

Efficiency

Max. Efficiency / Euro-eta / CEC @ 400 Vac / CEC @ 480 Vac	98.8 % / 98.3 % / 98.0 % / 98.5 %
--	-----------------------------------

Protective devices

DC-side disconnection device	•
Ground fault monitoring / grid monitoring	• / •
Type I DC surge arrester / type I AC surge arrester	Type II / type II + III (combined)
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	• / • / -
All-pole sensitive residual-current monitoring unit	•
Protection class (as per IEC 61140) / overvoltage category (as per IEC 60664-1)	I / AC: III; DC: II

General Data

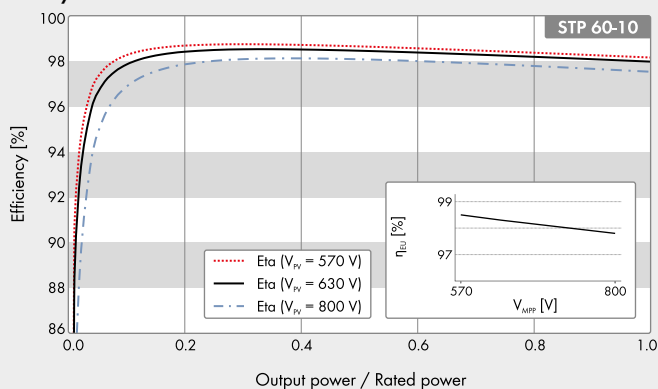
Dimensions (W / H / D) / weight	570 / 740 / 300 mm (22.4 / 29.1 / 11.8 inch) / 75 kg (165.3 lbs)
Operating temperature range	-25 °C to +60 °C (-13 °F ... +140 °F)
Noise emission, typical	58 dB(A)
Self-consumption (at night)	3W
Topology / cooling concept / degree of protection (IEC 60529/ UL50E) / climatic category (IEC 60721-3-4)	Transformerless / active / IP65 / 3R, 4K4H
Max. permissible value for relative humidity (non-condensing)	95 %

Features

DC connection / AC connection	Screw terminal / screw terminal
Display	Graphic
Interface	using external SMA Inverter Manager: SunSpec Modbus TCP

• Standard features ◦ Optional features - Not available, Data at nominal conditions

Efficiency Curve



Ordering Codes

STP 60:
 STP60-10: EU version with integrated DC disconnect
 STP60-10-US: US version with integrated DC disconnect

SMA inverter manager:

IM-10: SMA inverter manager for up to 42 inverters

SMA Digital I/O Box:

IM-DIO-10: SMA Digital I/O Box with 6 digital inputs

Certificates and approvals

STP 60: IEC 62109-1/IEC 62109-2 (Class I, grounded-communication Class II, PELV), UL1741-w. Non-Isolated EPS Interactive PV Inverters, IEEE 1547

SMA Inverter Manager: UL 508, UL 60950-1, CSA C22.2 No. 60950-1-07, EN 60950-1, EN 55022 Class A, EN 61000-3-2 Class D, EN 61000-3-3, EN 55024, FCC Part 15, Subpart B Class A

SMA Inverter Manager

Voltage Supply

Input voltage	9 - 36 Vdc
Power consumption	< 20 W

General Data

Dimensions (W / H / D) / weight	160 / 125 / 49 mm (6.3 / 4.9 / 1.9 inch) / 940 g (2 lbs)
Degree of protection / assembly	IP21 / DIN top-hat rails or wall mounting
Operating temperature range / relative humidity	-40 °C to +85 °C / 5 % ... 95 % (non-condensing)

Interfaces

User interface	LCS tool for PC
Sensor interface	RS485 for SunSpec Alliance compatible weather stations
Active/reactive power setpoint)	Constant value, curve, remotely controlled
Interface to inverter	1 Ethernet port (RJ45)
Interface to external network	1 Ethernet port (RJ45) Modbus TCP, SunSpec Alliance
Interface to remote control	6 x DI, Modbus TCP via external I/O module