

SUNNY TRIPOWER 60

STP 60-10



Efficient

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

Reliable

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

Flexible

- DC input voltage of up to 1000 V
- Flexible DC solutions with customer-specific PV array combiner boxes

Innovative

- Cutting-edge system design

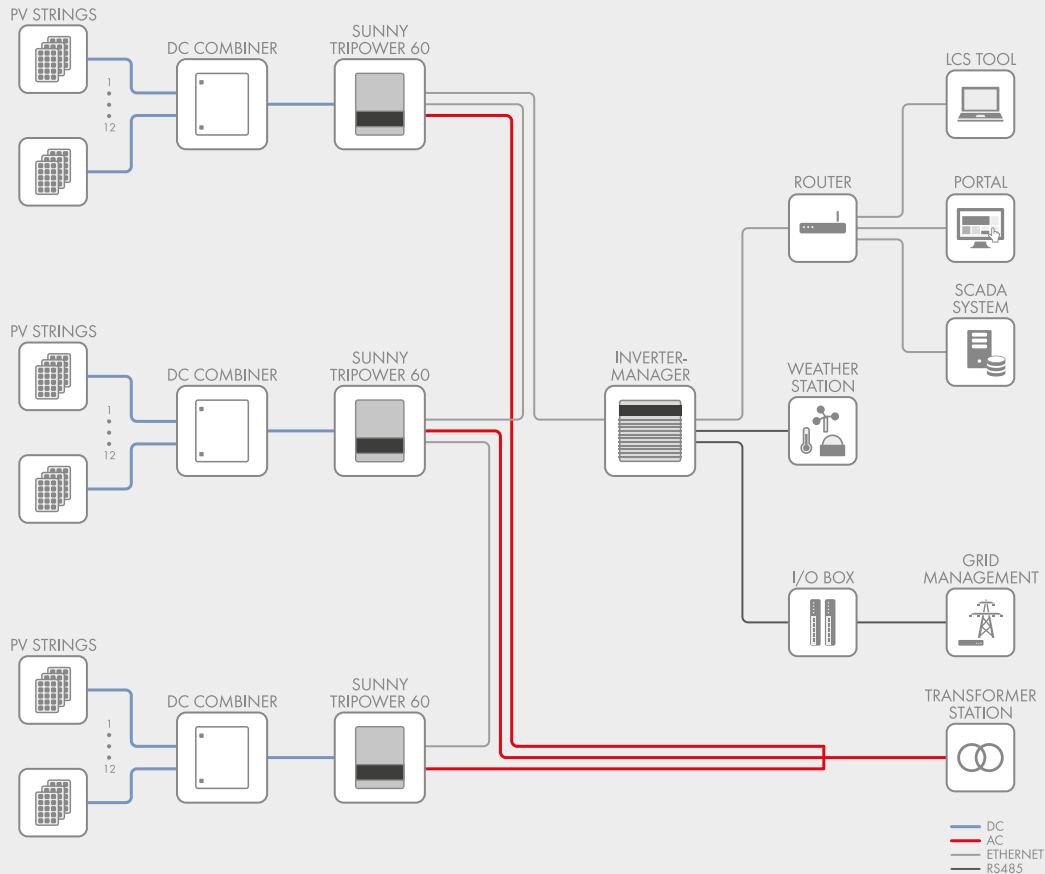
SUNNY TRIPOWER 60

The Best of Two Worlds

The new Sunny Tripower 60 is part of an innovative global system solution for commercial and industrial PV systems. 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.

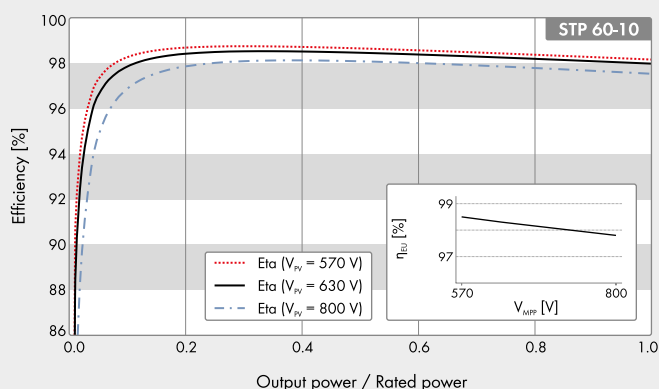
SUNNY TRIPOWER 60

SYSTEM DIAGRAM



Technical Data	SMA Inverter Manager
Voltage supply	
Input voltage	9 to 36 Vdc
Power consumption	< 20 W
General data	
Dimensions (W/H/D)	160 / 125 / 49 mm (6.3 / 4.9 / 1.9 inches)
Weight	940 g (2 lbs)
Maximum allowed number of inverters	42
Degree of protection	IP21
Mounting	DIN top-hat rails or wall mounting
Operating temperature range	-40 °C to +75 °C (-40° F to +167° F)
Relative humidity (non-condensing)	5 % to 95 %
Interfaces	
PC user interface	LCS tool
Sensor interface / protocol	RS485 / Modbus RTU for Sunspec Alliance compatible weather station
Interface to inverter	1 Ethernet port (RJ45)
Interface for external network / protocol	1 Ethernet port (RJ45) / Modbus TCP, SunSpec Alliance
Interface to remote control	6 x DI via external SMA Digital I/O Box
Certificates and approvals (more available upon request)	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, Sub-part B Class A
SMA Inverter Manager type designation	IM-10
SMA Digital I/O Box type designation	IM-DIO-10

Efficiency Curve



● Standard features ○ Optional – Not available
 Data at nominal conditions
 Last revision: December 2015

Technical Data

Input (DC)

Max. DC power (where $\cos \varphi = 1$) / rated power (DC)
 Max. input voltage
 MPP voltage range (at 400 Vac / 480 Vac)
 Min. input voltage (at 400 Vac / 480 Vac)
 Start input voltage (at 400 Vac / 480 Vac)
 Max. input current / max. short-circuit current
 Number of independent MPP inputs/strings per MPP input
 Rated DC input voltage (at 400 Vac / 480 Vac)

Output (AC)

Rated power at nominal voltage
 Max. apparent AC power
 Max. reactive power
 Nominal AC voltage
 AC voltage range
 AC power frequency/range
 Rated power frequency/rated grid voltage
 Max. output current (at 400 Vac / 480 Vac) / rated output current
 Power factor at rated power / displacement power factor adjustable
 THD
 Feed-in phases/connection phases

Efficiency

Max. efficiency / Euro-eta / CEC at 400 Vac / CEC at 480 Vac

Protective devices

Input-side disconnection point
 Ground fault monitoring/grid monitoring
 Integrable DC surge arrester / AC surge arrester
 AC short-circuit current capability / galvanically isolated
 All-pole sensitive residual-current monitoring unit
 Protection class (as per IEC 62109-1) / overvoltage category (as per IEC 62109-1)

General data

Dimensions (W/H/D)
 Weight
 Operating temperature range
 Noise emission, typical
 Self-consumption (at night)
 Topology / cooling concept
 Degree of protection (according to IEC 60529 / UL 50E)
 Climatic category (as per IEC 60721-3-4)
 Max. permissible value for relative humidity (non-condensing)

Features / function / accessories

DC connection / AC connection
 Display
 Data interface
 Off-grid capable / PV-diesel capable
 Warranty: 5/10/15/20/25 years
 Certificates and approvals (more available upon request)

* Does not apply to all national annexes of EN 50438
 ** Restricted [Note Manufacturer's Declaration]

Sunny Tripower 60

61240 W / 61240 W
 1000 V
 570 V to 800 V / 685 V to 800 V
 565 V / 680 V
 600 V / 720 V
 110 A / 150 A
 1/1 (split up in external combiner box)
 630 V / 710 V

60000 W
 60000 VA
 60000 Var
 3 / PE, 400 V to 480 V, $\pm 10\%$
 360 V to 530 V
 50 Hz / 44 Hz to 55 Hz
 60 Hz / 54 Hz to 65 Hz
 50 Hz / 400 V
 87 A / 72 A / 87 A
 1 / 0 overexcited to 0 underexcited
 $\leq 1\%$
 3 / 3

98.8 % / 98.3 % / 98.0 % / 98.5 %

●
 ● / ●
 Type II / type II + III (combined)
 ● / –
 ●
 I / AC: III; DC: II

570 / 740 / 300 mm (22.4 / 29.1 / 11.8 inches)
 75 kg (165.3 lb)
 -25°C to $+60^{\circ}\text{C}$ (-13°F to $+140^{\circ}\text{F}$)
 58 dB(A)
 < 3 W
 Transformerless / active
 IP65 / NEMA 3R
 4K4H/4Z4/4B2/4S3/4M2/4C2
 95%

Screw terminal / screw terminal
 Graphical
 SunSpec Modbus TCP (via external SMA Inverter Manager)
 – / ●
 ● / ○ / ○ / ○ / ○

ANRE 30, AS 4777, BDEW 2008, C10/11:2012**, CEI 0-16, CEI 0-21, DEWA 2015,
 EN 50438*, G59/3, IEC 60068-2-x, IEC 61727, IEC 62109-1/2, IEC 62116, IEC N° 20751,
 NEN EN 50438, NRS 097-2-1, PEA 2013, Res. n°7:2013, SI4777, TORD4**, UTE C15-712-1,
 VDE 0126-1-1, VDE-AR-N 4105**, VFR 2014

Type designation

STP60-10

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 kW 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 controlling the entire system. 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 Modbus TCP (SunSpec Alliance) Communication, it can be easily integrated into a larger communication system. Moreover, the SMA Inverter Manager provides grid management functions and exchanges data with the grid operator.

Easy commissioning with the LCS commissioning tool

The specially developed LCS tool (Local Commissioning and Service) 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 combiner 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.

*Different configurations can be delivered upon request