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

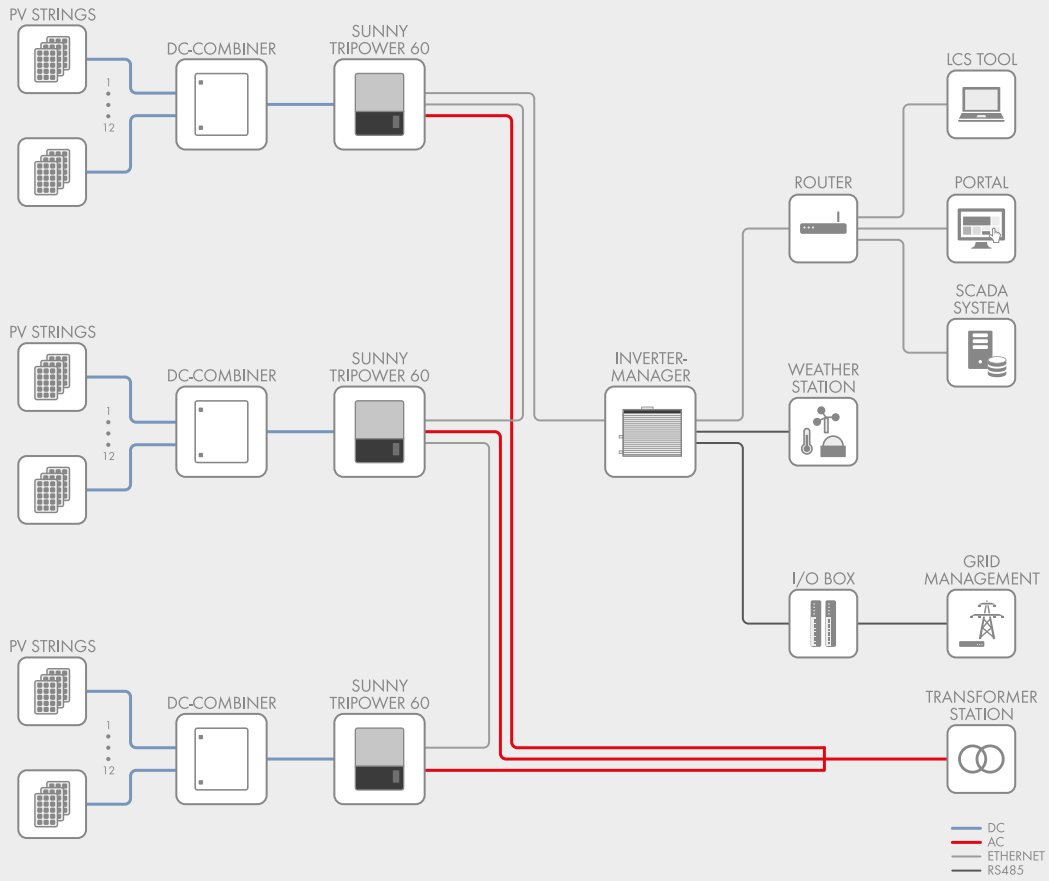
SUNNY TRIPOWER 60

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.

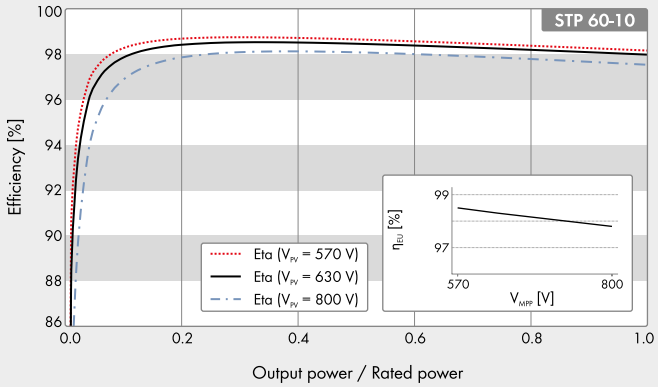
SUNNY TRIPOWER 60

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 +85 °C (−40° F to +185° 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 61000-6-4, EN 55024, FCC Part 15, Sub-part B Class A
SMA Inverter Manager type designation	IM-20
SMA Digital I/O Box type designation	IM-DIO-10

Efficiency Curve



● Standard features ○ Optional – Not available
Data at nominal conditions
Last revision: May 2018

Technical Data	Sunny Tripower 60
Input (DC)	
Max. generator power	90000 Wp
Rated power (DC)	61240 W
Max. input voltage	1000 V
MPP voltage range (at 400 Vac / 480 Vac)	570 V to 800 V / 685 V to 800 V
Min. input voltage (at 400 Vac / 480 Vac)	565 V / 680 V
Start input voltage (at 400 Vac / 480 Vac)	600 V / 720 V
Max. input current / max. short-circuit current	110 A / 150 A
Number of independent MPP inputs/strings per MPP input	1/1 (split up in external combiner box)
Rated DC input voltage (at 400 Vac / 480 Vac)	630 V / 710 V
Output (AC)	
Rated power at nominal voltage	60000 W
Max. apparent AC power	60000 VA
Max. reactive power	60000 Var
Nominal AC voltage	3 / PE, 400 V to 480 V, ±10 %
AC voltage range	360 V to 530 V
AC power frequency/range	50 Hz / 44 Hz to 55 Hz 60 Hz / 54 Hz to 65 Hz
Rated power frequency/rated grid voltage	50 Hz / 400 V
Max. output current (at 400 Vac / 480 Vac) / rated output current	87 A / 72 A / 87 A
Power factor at rated power / displacement power factor adjustable	1 / 0 overexcited to 0 underexcited
THD	≤ 1 %
Feed-in phases/connection phases	3 / 3
Efficiency	
Max. efficiency / Euro-eta / CEC at 400 Vac / CEC at 480 Vac	98.8 % / 98.3 % / 98.0 % / 98.5 %
Protective devices	
Input-side disconnection point	●
Ground fault monitoring/grid monitoring	● / ●
Integrated DC surge arrester / AC surge arrester	Type II / type II + III (combined)
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)	I / AC: III; DC: II
General data	
Dimensions (W/H/D)	570 / 740 / 306 mm (22.4 / 29.1 / 12.0 inches)
Weight	75 kg (165.3 lb)
Operating temperature range	-25°C to +60°C (-13°F to +140°F)
Noise emission, typical	58 dB(A)
Self-consumption (at night)	< 3 W
Topology / cooling concept	Transformerless / active
Degree of protection (according to IEC 60529 / UL 50E)	IP65 / NEMA 3R
Climatic category (as per IEC 60721-3-4)	4K4H/4Z4/4B2/4S3/4M2/4C2
Max. permissible value for relative humidity (non-condensing)	95%
Features / function / accessories	
DC connection / AC connection	Screw terminal / screw terminal
Display	Graphical
Data interface	SunSpec Modbus TCP (via external SMA Inverter Manager)
Off-grid capable / PV-diesel capable	– / ●
Warranty: 5 / 10 / 15 / 20 years	● / ○ / ○ / ○
Certificates and approvals (more available upon request) * Does not apply to all national appendixes of EN 50438 ** Restricted (Note Manufacturer's Declaration)	ANRE 30, AS 4777, BDEW 2008, C10/11:2012**, CEI 0-16, DEWA 2015, EN 50438*, G59/3, IEC 60068-2-x, IEC 61727, IEC 62109-1/2, IEC 62116, LEY N° 20751, NBR16149, NEN EN 50438, NRS 097-2-1, PEA 2015, R.D.661/2007, Res. n°7:2013, SI4777, TORD4**, UTE C15-712-1, VDE 0126-1-1, VDE-AR-N 4105**, VFR 2014
Type designation	STP 60-10

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