

# 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

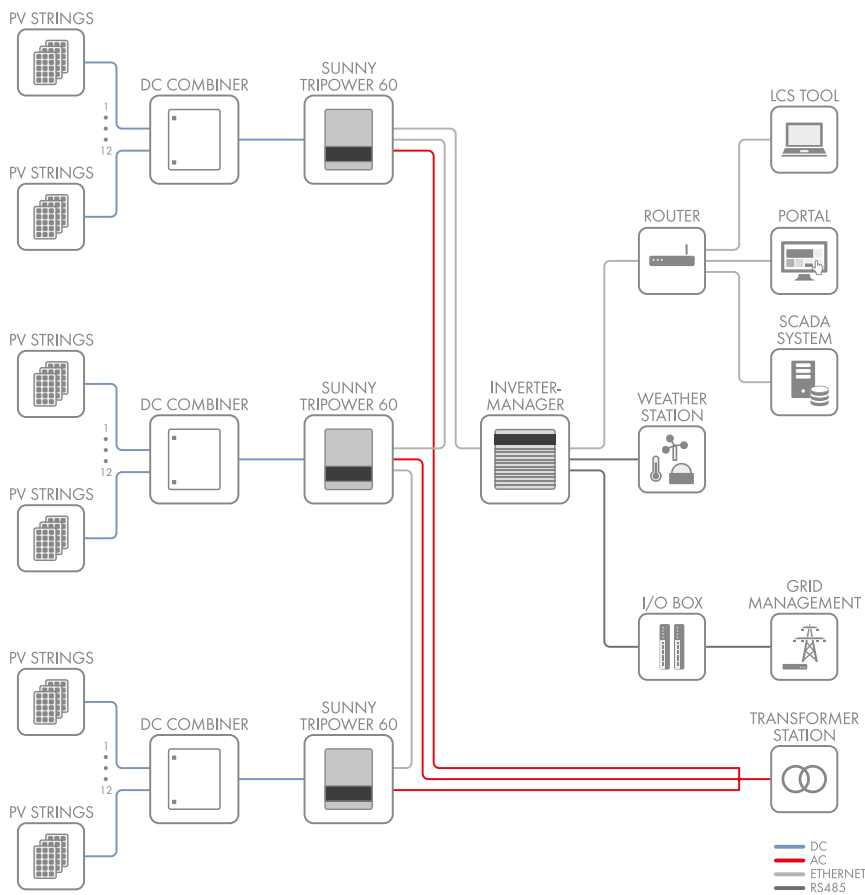
## SUNNY TRIPOWER 60

### 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

### Input (DC)

|  |
|--|
| Max. input voltage                                       |
| MPP voltage range  |
| Min. input voltage                                       |
| Max. input current / short-circuit current               |
| Number of independent MPP inputs / strings per MPP input |
| DC rated power input                                     |

### Output (AC)

|  |
|--|
| Rated power at nominal voltage                                   |
| Max. AC apparent power   |
| Max. reactive power  |
| Nominal AC voltage   |
| Nominal AC voltage range   |
| AC power frequency / range                                       |
| Rated power frequency / rated grid voltage                       |
| Max. output current  |
| Power factor at rated power/displacement power factor adjustable |
| Feed-in phases / connection phases                               |

### Efficiency

|  |
|--|
| Max. Efficiency / Euro-eta / CEC @ 400 Vac / CEC @ 480 Vac |
|--|

### Protective devices

|  |
|--|
| DC-side disconnection device   |
| Ground fault monitoring / grid monitoring  |
| DC surge arrester / AC surge arrester  |
| 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)              |

### General Data

|  |
|--|
| Dimensions (W / H / D) / weight  |
| Operating temperature range  |
| Noise emission, typical  |
| Self-consumption (at night)  |
| Topology / cooling concept / degree of protection (IEC 60529/ UL50E) / climatic category (IEC 60721-3-4) |
| Max. permissible value for relative humidity (non-condensing)  |

### Features

|                               |
|-------------------------------|
| DC connection / AC connection |
|-------------------------------|

### Display

### Interface

● Standard features ○ Optional features – Not available, Data at nominal conditions

## Sunny Tripower 60

|  |
|--|
| 1000 V   |
| 570 V - 800 V @400 Vac, 685 V - 800 V @480 Vac   |
| 565 V @400 Vac, 680 V @480 Vac                   |
| 110 A / 150 A                                    |
| 1/1 (split up by external PV array junction box) |
| 630 Vdc @ 400 Vac, 710 Vdc @ 480 Vac             |

|   |
|---|
| 60000 W                                 |
| 60000 VA                                |
| 60000 Var                               |
| 3 / PE, 400 V - 480 V, ±10 %            |
| 400 V - 480 V                           |
| 50 Hz / 60 Hz ±10 %                     |
| 50 Hz, 60 Hz / 400 V, 480 V             |
| 3 x 87 A                                |
| 1 / 0.8 overexcited to 0.8 underexcited |
| 3 / 3                                   |

|                                   |
|-----------------------------------|
| 98.8 % / 98.3 % / 98.0 % / 98.5 % |
|-----------------------------------|

|                                    |
|------------------------------------|
| ●                                  |
| ● / ●                              |
| Type II / Type II + III (combined) |
| ● / ● / -                          |
| ●                                  |
| I / AC: III; DC: II                |

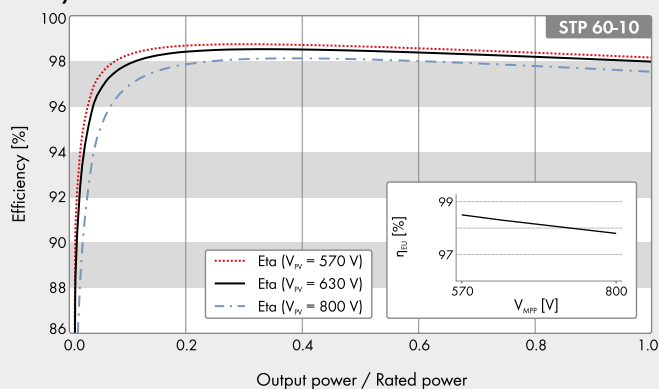
|  |
|--|
| 570 / 740 / 300 mm (22.4 / 29.1 / 11.8 inch) / 75 kg (165.3 lbs) |
| -25 °C to +60 °C (-13 °F ... +140 °F)                            |
| 58 dB(A)   |
| 3W   |
| Transformerless / active / IP65 / 3R, 4K4H                       |
| 95 %   |

|                                 |
|---------------------------------|
| Screw terminal / screw terminal |
|---------------------------------|

### Graphic

using external SMA Inverter Manager: SunSpec Modbus TCP

### 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     |
| Power consumption |

### General Data

|   |
|---|
| Dimensions (W / H / D) / weight                 |
| Degree of protection / assembly                 |
| Operating temperature range / relative humidity |

### Interfaces

|                                 |
|---------------------------------|
| User interface                  |
| Sensor interface                |
| Active/reactive power setpoint) |
| Interface to inverter           |
| Interface to external network   |
| Interface to remote control     |

9 - 36 Vdc

< 20 W

|  |
|--|
| 160 / 125 / 49 mm (6.3 / 4.9 / 1.9 inch) / 940 g (2 lbs) |
| IP21 / DIN top-hat rails or wall mounting                |
| -40 °C to +85 °C / 5 % ... 95 % (non-condensing)         |

LCS tool for PC

RS485 for SunSpec Alliance compatible weather stations

Constant value, curve, remotely controlled

1 Ethernet port (RJ45)

1 Ethernet port (RJ45) Modbus TCP, SunSpec Alliance

6 x DI, Modbus TCP via external I/O module