SMA COMMERCIAL PRODUCTS

SUNNY TRIPOWER CORE1

Stands on its own.

inter solar award WINNER

Up to 60% faster installation of commercial PV systems

SMA

SUNNY TRIPOWER CORE1

The Preferred Choice for Commercial PV Systems

Scalability for maximum energy yields

With a capacity of 50 kW, the Sunny Tripower CORE1 is scalable up to the megawatt range. The unique design enables up to 200% over-dimensioning of the PV array (and even beyond). At the same time, equipped with six independent MPP trackers and SMA ShadeFix technology, it guarantees optimum energy production in all situations: shade, different inclinations or orientations.

Consistently integrated concept

The innovative, fully integrated design of the CORE1 takes care of low BoS costs, simpler project processes and lower material expenses. Alongside the twelve direct string inputs, the CORE1 contains a DC disconnector and, as an option, AC and DC overvoltage protection.

Proving its value in practice

The CORE1 has proven its value. Thanks to its versatility, it has become the first choice for commercial PV projects, enjoys great popularity and has unlimited delivery capacity.

OptiCool™ Active Cooling System

SMA's intelligent OptiCool™ cooling system is reliable and ensures maximum energy production, even in challenging conditions. Secure your solar investment and reduce your service costs with high-performance technology, which has proved its worth worldwide in over 70 GW installed power.

Top performance and maximum efficiency thanks to innovative design

The Sunny Tripower CORE1 sets new standards: It is the first inverter to establish the free-standing string inverter concept for decentralized rooftop and ground-based PV systems as well as for covered parking lots. The groundbreaking new design allows installation times to be cut by up to 60% while also lowering the total cost of ownership (OPEX).

Saving costs: GP protection included

The CORE1 now features grid and PV system protection (GP protection) in accordance with VDE-AR-N-4105. This means that external tie switches are no longer needed, resulting in a significant decrease in capital expenditure when CORE1 is used.

Fast commissioning through Smart Inverter Screen

One-click commissioning: You can access the Smart Inverter Screen via WLAN by simply scanning the QR code – no need to waste time entering login details. Thanks to "Captive Portal," you can access the website of the Commissioning Wizard directly – allowing you to save time and money instantly.

Ease and comfort with SMA SMART CONNECTED Free automatic inverter monitoring

- Automatic inverter monitoring
- Proactive communication in the event of malfunction
- Simplified logistics thanks to automatic replacement service
- Shorter and plannable servicing

Maximum reliability

The integration of safety functions into the inverter ensures greater reliability of the PV system thanks to the reduced complexity of the installation:

- String failure detection
- Arc Fault Circuit Interruption (AFCI) NEW
- I-V Curve Diagnostics NEW

SUNNY TRIPOWER CORE1

Compact Performance for Maximum Efficiency

The flexible solution for rooftop and ground-based PV systems and covered parking lots

Sunny Tripower CORE1
Save costs — from logistics to services

The CORE1 is the third generation in the successful Sunny Tripower product family and is revolutionizing the world of commercial inverters with its innovative design. The challenge for the SMA engineers was to combine a unique design with an innovative installation method in order to significantly increase the installation speed, resulting in the optimal return on investment for all target groups.

From delivery and installation to operation, the Sunny Tripower CORE1 allows for widespread savings in logistics, labor, materials and services. With integrated WLAN access for fast commissioning, advanced plug-and-play communication and smart grid support functions, PV installations are quicker and easier to complete than ever before.

SUNNY TRIPOWER CORE1 FOR DISTRIBUTORS

Ordering, storage and logistics for inverters have been substantially simplified as a result of the maximum integration of the CORE1. Additional savings are achieved thanks to:

- **Flexible use with just one product**
- **Worldwide platform for universal use**
- **Fewer components and BoS components**
- **Comprehensive support and service**

SUNNY TRIPOWER CORE1 FOR PLANNERS AND DEVELOPERS

Attractive margins can only be achieved through reduced costs for purchasing, installation and maintenance. This is exactly what was considered when developing CORE1. You benefit from:

- **Plug and play concept**
- **Faster installation and lower labor costs**
- **Reduced material costs**
- **Free tool for system planning**
- **Very fast commissioning through Smart Inverter Screen**

SUNNY TRIPOWER CORE1 FOR ELECTRIC UTILITY COMPANIES

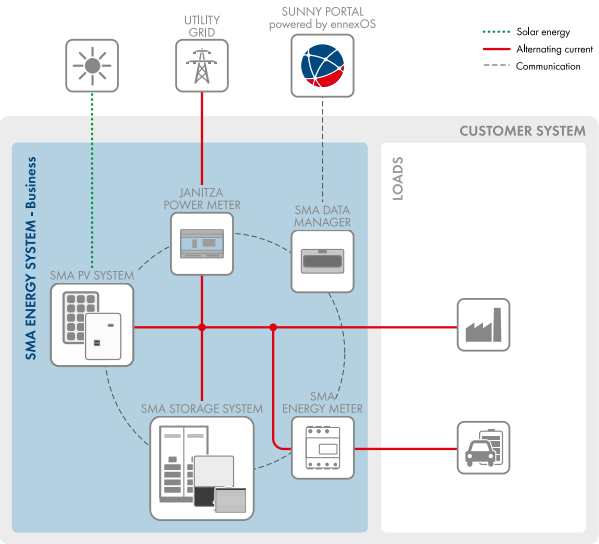
SMA knows that efficient operations and maintenance costs across the entire useful life and trouble-free performance are of crucial importance to energy companies. Therefore, CORE1 offers:

- **The lowest LCOE**
- **24/7 remote monitoring thanks to a strong SMA service team**
- **An effective interface for customer monitoring**
- **Intelligent grid management service**

SUNNY TRIPOWER CORE1

CORE1 – The Heart of Every PV System

But the CORE1 offers more: It acts as the core of entire energy systems that do so much more than simply supply alternating current. As a central inverter in SMA Energy System Business, for example, it helps commercial enterprises cut energy costs across the board.



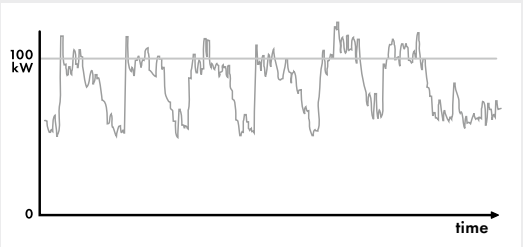
Integration into commercial storage systems

So not only does it help cut electricity costs, it can also reduce energy costs in companies and lower mobility costs – all while making an active contribution to the environment. Based on ennexOS – the IoT platform for energy management – and in conjunction with the SMA Data Manager M, storage inverters, battery-storage systems, the Sunny Design planning tool and Sunny Portal powered by ennexOS monitoring portal, the solution can help increase the self-consumption of self-produced solar power and cap load peaks, thus making it a highly attractive proposition for businesses.

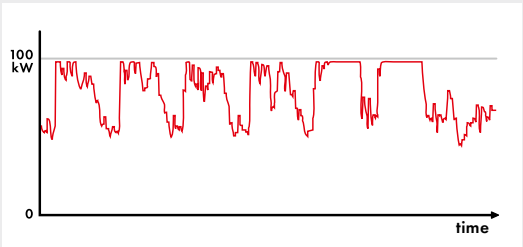
Thanks to SMA Energy System Business, major cost-savings can be achieved in a very short time, so investments pay for themselves very quickly. In the example shown, the savings you achieve mean that you will have recovered your investment after just six years.

SMA Energy System sample calculation – load peak capping*

before



after



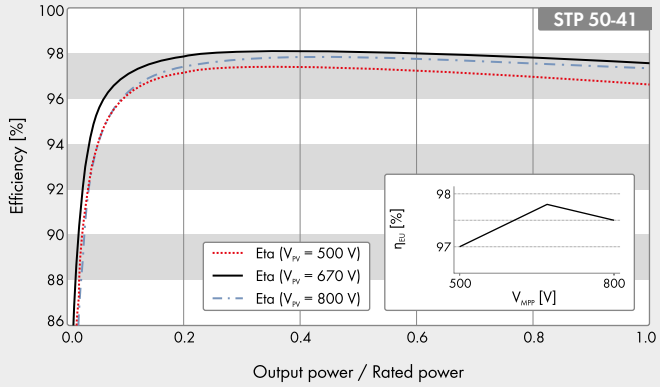
* Data relating to the sample property: Medium-sized supermarket (aktiv&irma) in Oldenburg, Germany; planned energy system: PV system (199 kWp) with self-consumption; battery-storage system for load peak capping (Sunny Tripower Storage 60, SMA Storage Business (14 modules), 67 kWh). Details regarding the simulation of the SMA Energy System "Business XL" can be found online at go.sma.de/SESde.

SUNNY TRIPOWER CORE1 – Technical Data

Technical Data	Sunny Tripower CORE1
Input (DC)	
Max. generator power	75000 Wp STC
Max. input voltage	1000 V
MPP voltage range / rated input voltage	500 V to 800 V / 670 V
Min. input voltage / start input voltage	150 V / 188 V
Max. operating input current / per MPPT	120 A / 20 A
Max. short circuit current per MPPT / per string input	30A / 30A
Number of independent MPPT inputs / strings per MPP input	6 / 2
Output (AC)	
Rated power (at 230 V, 50 Hz)	50000 W
Max. apparent AC power	50000 VA
AC nominal voltage	220 V / 380 V 230 V / 400 V 240 V / 415 V
AC voltage range	202 V to 305 V
AC grid frequency / range	50 Hz / 44 Hz to 55 Hz 60 Hz / 54 Hz to 65 Hz
Rated power frequency / rated grid voltage	50 Hz / 230 V
Max. output current / Rated output current	72.5 A / 72.5 A
Output phases / AC connection	3 / 3-(N)-PE
Power factor at rated power / Adjustable displacement power factor	1 / 0.0 leading to 0.0 lagging
THD	< 3%
Protective devices	
Input-side disconnection device	●
Ground fault monitoring / grid monitoring	● / ●
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	● / ● / –
All-pole sensitive residual-current monitoring unit	●
Protection class (according to IEC 62109-1) / overvoltage category (according to IEC 62109-1)	I / AC: III; DC: II
AC/DC surge arrester (type 2, type 1/2)	○

Technical Data	Sunny Tripower CORE1
Efficiency	
Max. efficiency / European efficiency	98.1% / 97.8%
General data	
Dimensions (W/H/D) without feet or DC load break switch	569 mm / 733 mm / 621 mm (22.4 in / 28.8 in / 24.4 in)
Weight	84 kg (185 lb)
Operating temperature range	–25°C to +60°C (–13°F to +140°F)
Noise emission (typical)	< 65 dB(A)
Self-consumption (at night)	4.8 W
Topology / Cooling concept	Transformerless / OptiCool
Degree of protection (as per IEC 60529)	IP65
Climatic category (according to IEC 60721-3-4)	4K4H
Max. permissible value for relative humidity (non-condensing)	100%
Features / functions / accessories	
DC connection / AC connection	SUNCLIX / screw terminal
Mounting feet	●
LED indicators (status / fault / communication)	●
LC display	○
Interface: Ethernet / WLAN / RS485	● (2 ports) / ● / ○
Data interface: SMA Modbus / SunSpec Modbus / Speedwire, Webconnect	● / ● / ●
Multi-Function relay / Expansion Module Slots	● / ● (2 ports)
Shade management SMA ShadeFix / Integrated Plant Control / Q on Demand 24/7	● / ● / ●
Arc-fault circuit interrupter (AFCI) / I-V Generator diagnosis	● / ●
Off-grid capable / SMA Fuel Save Controller compatible	● / ●
Guarantee: 5/10/15/20 years	● / ○ / ○ / ○
Certificates and permits (more available on request)	C10/11:2019; EN 50549:2013
● Standard features ○ Optional – Not available	
Data at nominal conditions - preliminary data, status: 11/2021	
Type designation	STP 50-41

Efficiency Curve



Assessories

SMA
Sensor Module
MD.SEN-40

SMA IO-Module
MD.IO-40

SMA
RS485 Module
MD.485-40

Universal Mounting System
UMS_KIT-10

AC Surge Protection Module Kit type 2, type 1/2
AC_SPD_Kit1-10, AC_SPD_KIT2_T1T2
DC Surge Protection Module Kit type 2, type 1/2
DC_SPD_Kit4-10, DC_SPD_KIT5_T1T2

Data at nominal conditions | Date: April 2021

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CHANGES

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