SMA SUNNY TRIPOWER X 60

The SMA Sunny Tripower X 60 is a next-generation three-phase photovoltaic inverter designed for medium-sized commercial and industrial installations. With a rated output of 60 kW, five independent MPPT trackers and integrated advanced energy management features, it delivers outstanding performance, maximum design flexibility and seamless integration into modern, future-ready photovoltaic systems.

The **Sunny Tripower X 60** represents a new generation of intelligent photovoltaic inverters developed by SMA to meet the needs of today's commercial solar installations. Beyond converting the energy generated by solar modules, this inverter integrates advanced monitoring, energy management and cybersecurity features that simplify the operation of the entire photovoltaic system.

With a rated output of **60 kW** and the ability to connect up to **90 kWp** of photovoltaic power, it is the ideal solution for businesses, industrial facilities, commercial buildings and energy communities looking to maximize self-consumption and optimize return on investment.

Its **five independent MPPT trackers**, each with two string inputs, allow photovoltaic systems to be designed with different orientations, inclinations or module layouts, maximizing energy production even on complex rooftops or in installations affected by partial shading.

SMA ShadeFix technology automatically optimizes the operating point of the photovoltaic modules to minimize production losses caused by temporary shading, while **SMA Smart Connected** continuously monitors the inverter's status, detecting potential issues at an early stage to reduce downtime and simplify maintenance.

One of the key features that sets the Sunny Tripower X 60 apart is its integrated **System Manager** function, which enables centralized management of up to five SMA inverters and one Energy Meter through **Sunny Portal powered by ennexOS**. This allows dynamic control of active and reactive power, complete system monitoring and seamless integration with battery storage systems and electric vehicle charging infrastructure.

In terms of safety, it incorporates **SMA ArcFix (AFCI)** for arc fault detection, DC Type I+II and AC Type II surge protection, residual current monitoring and a robust **IP65** enclosure designed to operate reliably in demanding environmental conditions.

It also features **Ethernet, Wi-Fi, SMA Speedwire, SMA Modbus and SunSpec Modbus** communications, ensuring easy integration with monitoring platforms, SCADA systems and advanced energy management solutions.

The Sunny Tripower X 60 also stands out for its advanced **cybersecurity** features, including SMA ID access control, automatic software updates, encrypted communications and compliance with the latest European digital security standards, making it a future-ready solution for modern energy systems.

Key Features

- 60 kW rated output power.
- Supports up to 90 kWp of installed photovoltaic capacity.
- 5 independent MPPT trackers with two string inputs per tracker.
- Compatible with high-power and bifacial photovoltaic modules.
- SMA ShadeFix technology for optimized performance under partial shading.
- Integrated System Manager for centralized system management.
- Intelligent monitoring with SMA Smart Connected.
- SMA ArcFix (AFCI) arc fault protection.
- Ethernet, Wi-Fi, Speedwire, SMA Modbus and SunSpec Modbus communication.
- IP65 protection rating for outdoor installation.
- OptiCool active cooling system.
- Advanced cybersecurity features compliant with European regulations.

Applications

- Commercial photovoltaic installations.
- Industrial rooftops.
- Industrial facilities and logistics centres.
- Commercial buildings.
- Energy communities.
- Industrial self-consumption systems.
- Integration with battery energy storage systems.
- Electric vehicle charging infrastructure.
- Grid-connected photovoltaic power plants.

Advantages

- Maximum solar energy production thanks to five independent MPPT trackers.
- Outstanding flexibility for complex PV system designs.
- Centralized intelligent energy management through the integrated System Manager.
- Automatic optimization under partial shading conditions.
- Enhanced electrical safety with SMA ArcFix technology.
- Easy integration with monitoring platforms and SCADA systems.
- Ready for battery storage and electric mobility projects.
- Advanced cybersecurity and data protection.
- High reliability with reduced maintenance costs.

SPECIFICATIONS

Datos técnicos del SMA Sunny Tripower X 60	
Entrada CC	
Potencia máxima del generador fotovoltaico	90.000 Wp STC
Tensión máxima de entrada	1.100 V
Rango de tensión MPP a potencia nominal	500 V – 850 V
Tensión nominal de entrada	630 V
Rango de tensión MPP	200 V – 850 V
Tensión mínima de entrada	200 V
Tensión de arranque	250 V
Corriente máxima de entrada por MPPT	40 A
Corriente máxima de cortocircuito por MPPT	50 A
Número de seguidores MPPT independientes	5
Strings por MPPT	2
Salida CA	
Potencia nominal	60.000 W
Potencia aparente nominal	60.000 VA
Potencia aparente máxima	60.000 VA
Tensión nominal de CA	230 V / 400 V
Rango de tensión de CA	180 V – 305 V
Frecuencia nominal de red	50 Hz
Rango de frecuencia de red	45 Hz – 65 Hz
Corriente nominal de salida	86,6 A
Corriente máxima de salida	95,3 A
Factor de potencia a potencia nominal	1
Factor de desfase ajustable	0,8 sobreexcitado – 0,8 subexcitado
Distorsión armónica total	< 3 % a potencia nominal
Fases de inyección	3
Conexión de CA	3-N-PE
Eficiencia	
Rendimiento máximo	98,1 %
Eficiencia europea	97,8 %
Protecciones	
Seccionador del lado de entrada	Incluido
Monitorización de fallo a tierra	Incluida
Monitorización de red	Incluida
Protección contra inversión de polaridad CC	Incluida
Protección contra cortocircuito CA	Incluida
Monitorización de corriente residual	Incluida
Clase de protección	Clase I
Categoría de sobretensión	CA: III / CC: II
Protección contra arco eléctrico	Cumple con IEC 63027
Diagnóstico I-V de strings	Incluido
Protección contra sobretensiones	CC tipo I+II / CA tipo II
Datos generales	
Dimensiones (ancho × alto × fondo)	680 × 717,5 × 332 mm
Peso	Aprox. 50,5 kg
Temperatura de funcionamiento	–25 °C a +60 °C
Emisión acústica máxima a 1 m	63 dB(A)
Topología	Sin aislamiento galvánico
Sistema de refrigeración	OptiCool
Grado de protección	IP65
Equipamiento, comunicación y montaje	
Conexión de CC	Sunclix
Conexión de CA	Terminal de cable de hasta 240 mm²
Indicadores LED	Estado, error y comunicación
Ethernet	2 puertos
Wi-Fi	Incluido
Protocolos de comunicación	SMA Modbus, SunSpec Modbus y Speedwire
Relé multifunción	Contacto inversor libre de potencial
Entradas digitales para limitación de potencia	4
Entradas digitales para parada rápida	2

Datos técnicos del SMA Sunny Tripower X 60	
Tipo de montaje	Pared o techo
Garantía y modelo	
Garantía estándar	5 años
Ampliaciones de garantía	10, 15 o 20 años
Modelo	STP 60-80

Nota: se admiten tensiones de entrada de hasta 1.000 V, aunque pueden provocar una reducción de la potencia de salida.

DOWNLOADS