



#### 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

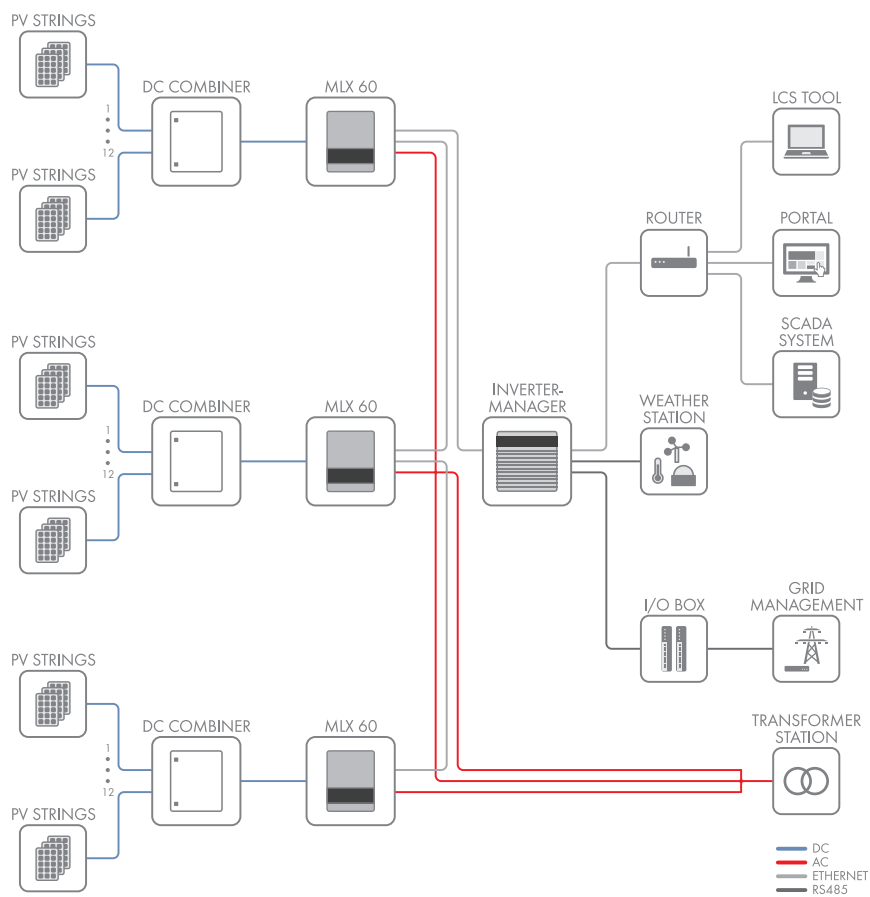
- Cutting-edge system design

## MLX 60

### The Best of Two Worlds

The new MLX 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 MLX 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 MLX 60 so unique and guarantees a high level of performance along with maximum flexibility in system planning and design.

### **MLX 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 MLX 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).

#### **SYSTEM INFORMATION**

##### **Perfect interaction between MLX system components**

The SMA inverter manager functions as a central interface for the 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 MLX 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.

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**

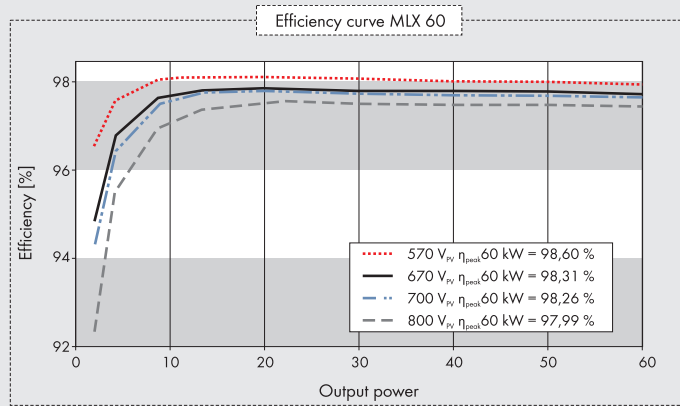
The specially developed LCS tool (Local Commissioning and Service Tool) makes commissioning easy, saves time and reduces costs. The inverter is configured by simply selecting the system-specific configuration files and then transmitting them to all inverters. Furthermore, by reading the status, current 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.

\*Different configurations can be delivered upon request

Preliminary Technical Data, 09/2014	MLX 60
<b>Input (DC)</b>	
Max. input voltage	1000 V
MPP voltage range	570 V - 800 V @400 Vac, 685 V - 800 V @480 Vac
Min. input voltage	565 V @400 Vac, 680 V @480 Vac
Max. input current / short-circuit current	110 A / 150 A
Number of independent MPP inputs / strings per MPP input	1/1 (split up by external PV array junction box)
<b>Output (AC)</b>	
Rated power at nominal voltage	60,000 W
Max. apparent AC power	60,000 VA
Nominal AC voltage	3 / PE, 400 V - 480 V, +/-10 %
Nominal AC voltage range	400 V - 480 V
AC power frequency / range	50 Hz / 60 Hz +/-10 %
Rated power frequency / rated grid voltage	50 Hz, 60 Hz / 400 V, 480 V
Max. output current	3 x 87 A
Power factor at rated power/displacement power factor adjustable	1/0.8 lagging ... 0.8 leading
Feed-in phases / connection phases	3 / 3
<b>Efficiency</b>	
Max. efficiency / European weighted efficiency / CEC	98.8 % / 98.0 % / 98.5 %
<b>Protective Devices</b>	
DC-side disconnection point	●
Ground fault monitoring / grid monitoring	● / ●
DC surge arrester (type II) can be integrated	●
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	● / ● / -
All-pole sensitive residual-current monitoring unit	●
Protection class (acc. to IEC 62103)/overvoltage category (acc. to IEC 60664-1)	I / III
<b>General Data</b>	
Dimensions (W / H / D) / weight	570 / 740 / 300 mm (22.4 / 29.1 / 11.8 inch) / 75 kg (165.3 lbs)
Operating temperature range	-25 °C ... +60 °C (-13 °F to +140 °F)
Noise emission, typical	55 dB(A)
Self-consumption (at night)	3W
Topology / cooling concept, degree of protect. (IEC 60529/UL50E), climatic cat. (IEC 60721-3-4)	Transformerless / active, IP65 / 3R, 4K4H
Maximum permissible value for relative humidity (non-condensing)	95 %
<b>Furnishings</b>	
DC connection / AC connection	Screw terminal / screw terminal
Display	Graphic
Interface	Using external inverter manager: Modbus TCP
● Standard features ○ Optional features – Not available, data at nominal conditions	



#### Ordering Codes

**MLX 60:**  
 139f5003: MLX 60 EU version with integrated DC-end disconnection point  
 139f5001: MLX 60 UL version with integrated DC-end disconnection point

**SMA inverter manager:**  
 IM-10 SMA inverter manager for max. 42 inverters

**I/O Module:**  
 139F0216: I/O module 8 x DI / 8 x DO

#### Certificates and Approvals

**MLX 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, EN55024, FCC Part 15, Subpart B Class A

	SMA Inverter Manager
<b>Voltage Supply</b>	
Input voltage	9 - 36 Vdc
Power consumption	< 20 W
<b>General Data</b>	
Dimensions (W / H / D) / weight	160 / 125 / 49 mm (6.3 / 4.9 / 1.9 inch) / 940 g (2 lbs)
Degree of protection / assembly	IP21 / DIN top-hat rails or wall mounting
Operating temperature range / relative humidity	-40 to +85 °C / 5 - 95 % (non-condensing)
Cooling concept	Convection
<b>Interfaces</b>	
User interface	LCS tool for PC
Sensor interface	RS-485 for Sunspec Alliance compatible weather stations
Active power setpoint	Constant value, curve, remotely controlled
Reactive power setpoint	Constant value, curve, remotely controlled
Interface to inverter network	1 Ethernet port (RJ45)
Interface to external network	1 Ethernet port (RJ45) Modbus TCP, SunSpec Alliance
Interface to remote control	Modbus TCP, 8xDI+8xDO via external I/O module