



**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

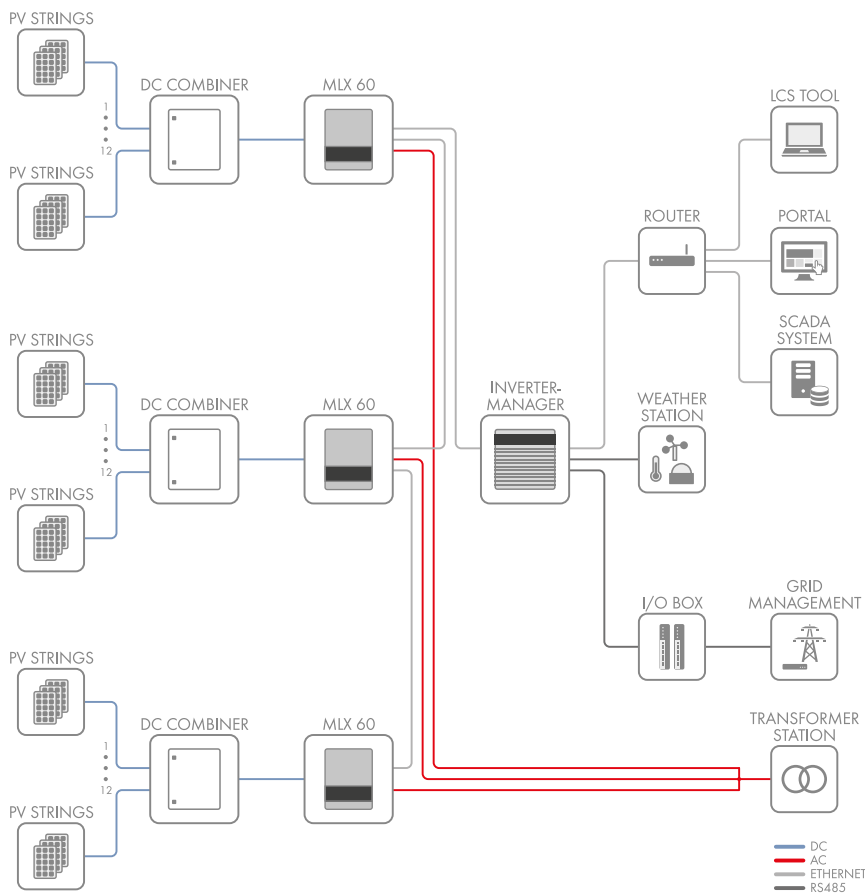
## MLX 60

### 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).

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 MLX 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 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.

\*Different configurations can be delivered upon request

## Technical Data, as of November 2014

### 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
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### Protective devices

DC-side disconnection device
Ground fault monitoring / grid monitoring
Type I DC surge arrester / type I 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

## MLX 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

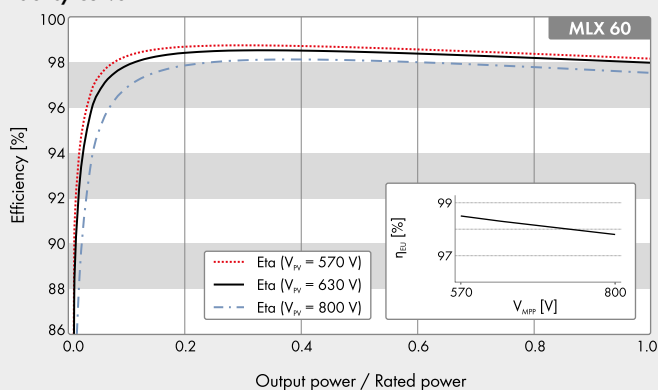
98.8 % / 98.2 % / 98.0 % / 98.5 %
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●
● / ●
Type II / type II + III (combined)
● / ● / –
●
I / AC: III; DC: II

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 inverter manager: Modbus TCP

### Efficiency Curve



### 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: SMA I/O Modul 6 x DI

### 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

### 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

### SMA Inverter Manager

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