

CONTACT

If you have technical problems, first contact your installer. The following information is required in order to provide you with the necessary assistance:

- Inverter device type
- Inverter serial number
- Type and number of PV modules connected
- Blink code or display message of the inverter
- Optional equipment (e.g. communication devices)

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Installer contact



PV Inverter

SUNNY MINI CENTRAL 6000TL / 7000TL / 8000TL

User Manual



SMC6-8TL-BEN101210 | IME-SMCTL_60_70_80 | Version 1.0

EN

VISUAL INSPECTION, MAINTENANCE AND CLEANING

Visual inspection

Check the inverters and the cables for visible external damage. Contact your installer if you find any defects. Do not perform any repair work yourself.

Maintenance and Cleaning

Have your installer check for proper inverter operation at regular intervals.

EXPLANATION OF SYMBOLS

Symbols on the Inverter



Operation display.



Ground fault or varistor defective.
Please inform your installer.



An error has occurred. Please inform your installer **immediately**.



Tap to switch on the display light and switch to the next message.

Symbols on the Type Label



Beware of dangerous electrical voltage.
The inverter operates at high voltages. All electrical work on the inverter may be carried out by qualified personnel only. erfolgen.



Beware of hot surface.
The inverter can become hot during operation. Avoid contact during operation.



Observe enclosed documentation.



The inverter must not be disposed of with the household waste.
Further disposal information can be found in the enclosed installation guide.



CE mark. The inverter complies with the requirements of the applicable EC guidelines.



RAL quality mark for solar products. The inverter complies with the requirements of the German Institute for Quality Assurance and Labeling.



Direct Current (DC)



Alternating current (AC)



The inverter is protected against penetration by dust particles and water jets from any angle.



The inverter is transformerless.

GLOSSARY

AC

Abbreviation for "alternating current".

DC

Abbreviation for "direct current".

Derating

A controlled reduction in performance, usually dependent on component temperatures. Compared with the (also common) practice of completely shutting down the device, the effect on the external grid is smaller with derating.

Electronic Solar Switch (ESS)

The Electronic Solar Switch is part of the inverter's DC switch-disconnector. The Electronic Solar Switch must be securely inserted into the bottom of the inverter and may only be removed by qualified personnel.

MPP (Maximum Power Point)

Operational point of the inverter, dependent on current / voltage of the PV generator. The actual position of the MPP changes constantly, depending on the level of solar irradiation and the cell temperature.

PV

Abbreviation for photovoltaics.

SMA Power Balancer

The SMA Power Balancer is a serial feature of the Sunny Boy. The SMA Power Balancer prevents the formation of an unbalanced load > 5 kVA (in Italy > 6 kVA) during three-phase grid feed-in. To this effect, 3 Sunny Mini Centrals are each connected via a control line to a 3-phase feeding unit.

Varistor

The varistors protect the electronics in the inverter from atmospherically coupled energy peaks, such as those that can occur in the event of nearby lightning strikes.

SAFETY PRECAUTIONS



DANGER!

Electric shock caused by high voltage in the inverter.

Even when no external voltage is present, there can still be high voltages in the device. The following work may be carried out by qualified personnel only:

- Electrical installation
- Repairs
- Modification



CAUTION!

Risk of injury from touching the enclosure during operation. Burns to the body.

- Only touch the lid and display during operation.

NOTICE!

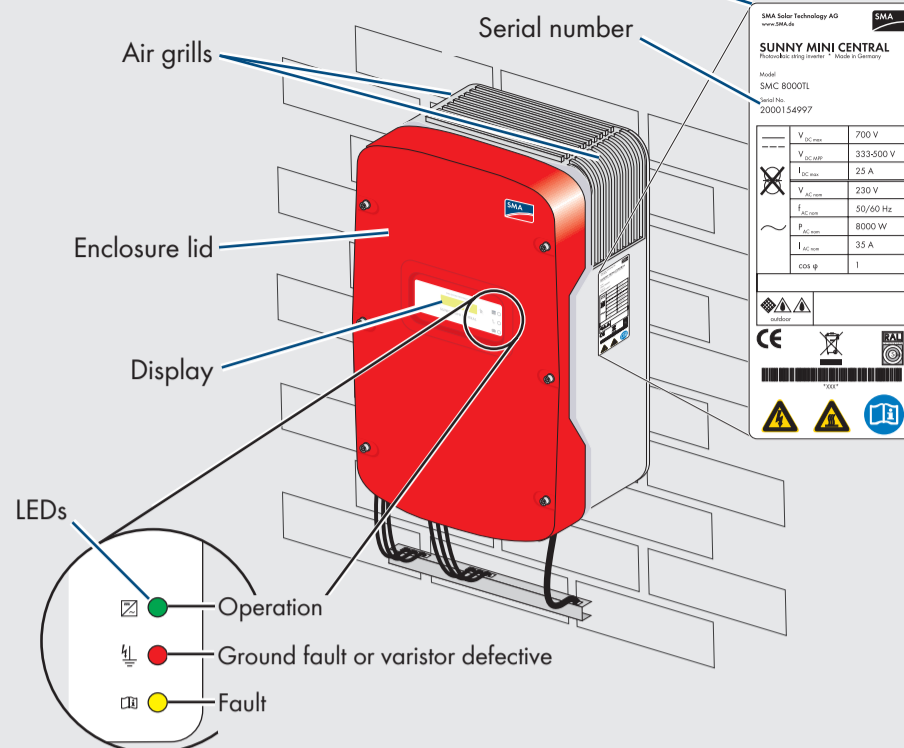
Overvoltage in the inverter if yellow LED flashes 4 times. Destruction of the inverter.

- Inform your installer immediately if the yellow LED starts flashing and the following display message appears.

!PU- Overvoltage!
!Disconnect DC!

PRODUCT OVERVIEW

Identification of the Sunny Mini Central by the type label



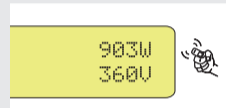
LED MODES

State	Description	Function
	All LEDs are on	Initialization The inverter is initializing.
	All LEDs are off	Deactivation The inverter has detected a DC input voltage that is too low for grid feeding.
	Green LED is glowing continuously	Feeding Operation The inverter is feeding power into the public grid.
	Green LED is flashing	Waiting, Grid Monitoring The inverter monitors the grid and waits for the DC voltage to reach a certain level so that it can start feeding the grid.
		Stop Interruption of operation.
		Derating Power limitation in the inverter.
	Red LED is glowing	Error A grounding error has occurred, or one of the thermally monitored varistors on the DC input side is defective. Please inform your installer.
	Yellow LED is glowing continuously	Disturbance The inverter is operating in "Operation constantly disabled" mode. This can have several causes. Please inform your installer.
	Yellow LED is flashing	Disturbance The inverter displays a disturbance. This can have several causes. Please inform your installer.

DISPLAY

Operation

The display shows current values of your system. The displayed values are updated every 5 seconds. The display is operated by tapping on it.



Tap once

The background illumination is switched on. After 2 minutes, the illumination switches off automatically.

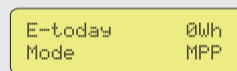
Tap again

The display switches to the next message.

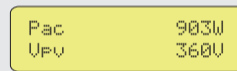
Display messages

In operation

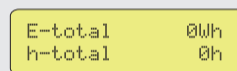
Upon error-free connection of the inverter to the grid, the following messages are shown in turn after approximately 1 minute. Each message appears for 5 seconds, then the cycle starts again.



Power produced on the current day
Operating state



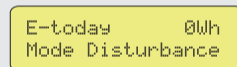
Current feed-in power
Voltage of the PV generator



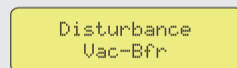
Power produced so far
Total number of grid-feeding operational hours

Disturbance

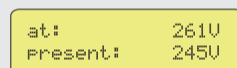
In the event of a disturbance, the inverter will display the status "Disturbance" and an error message. Please inform your installer. The following messages will be issued:



Power produced on the current day
Operating state "Disturbance"

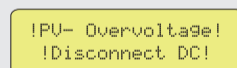


Operating state
Error message



Measured value at time of disturbance
Current measured value (only displayed if a measured value is responsible for the disturbance)

DC overvoltage



The DC input voltage connected to the inverter is too high. Please inform your installer **immediately**.

MEASURING CHANNELS

If your inverter is equipped with a communication component, then numerous measuring channels and messages can be transmitted for diagnosis.

Measuring channel	Description
Balancer	Displays the currently active operating mode of the inverter which is set under the operating parameter "PowerBalancer".
Error	Identification of the current disturbance / error.
E-total	Total amount of feeding-in energy
Event-Cnt	Number of events that have occurred
Fac	Grid frequency
h-On	Total number of operating hours
h-total	Total number of grid-feeding operational hours
Iac	Grid current
Ipv	DC current
Mode	Display of the current operating mode
Pac	Generated AC power
Power On	Total number of grid connections
Riso	Insulation resistance of the PV system to the power supply line
Serial number	Inverter serial number
Vac	Grid voltage
Vpv	PV input voltage
Vpv-Setpoint	PV target voltage

STATUS MESSAGES

Your inverter can be in various operating modes. These are displayed as status messages, which can vary according to the method of communication.

Message	Description
Balanced	The inverter has disconnected itself from the grid, or is limiting its output to 5 kVA over a 10 minute average. The inverter is part of a three-phase system with two further inverters and equipped with the Power Balancer for preventing unbalanced loads.
Derating	Overtemperature in the inverter. The inverter will reduce its output to prevent overheating. To avoid unnecessary output losses, the design of the PV plant should be checked. Please inform your installer.
Disturbance	Disturbance. This message appears for safety reasons and prevents the inverter from connecting to the grid. Please inform your installer.
Error	An error has been detected. Please inform your installer.
grid mon.	Grid monitoring This display appears during the start phase, before the inverter is connected to the grid, predominantly in the mornings and evenings when the solar irradiation is low and after an error.
MPP	The inverter is operating in MPP mode. MPP is the standard display message when operating under normal irradiation conditions.
Off Grid	The inverter is in "Island" mode. This mode is specially designed for operation in island system.
offset	Offset adjustment of measurement electronics.
Riso	Measurement of the insulation resistance of the PV system.
Stop	Interruption of operation.
V-Const	Constant voltage operation.
waiting	The switch-on conditions are not (yet) fulfilled.