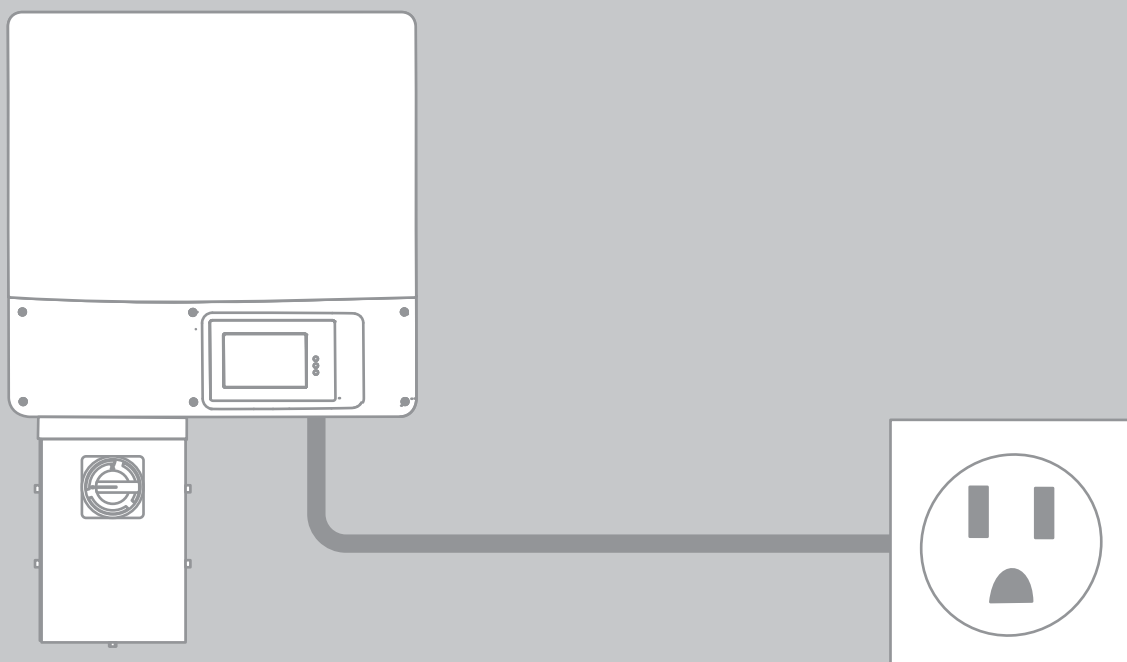




PV Inverter

Emergency Power Supply

Technical Description



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1 Emergency Power Module

The Inverter as an Energy Source

The inverter is equipped with an integrated emergency power module to which an external socket-outlet can be connected.

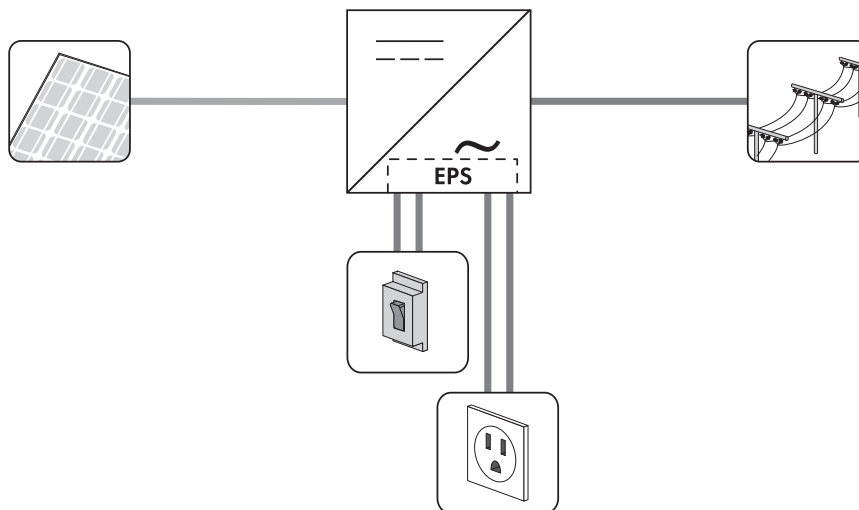


Figure 1: Principle of a PV system for emergency power supply

If there is sufficient solar irradiation during a grid failure, you can use the inverter as an energy source via the connected socket-outlet. The inverter can now be used in emergency power operation and is able to supply power to phone chargers, laptops, flashlights, small appliances, and televisions.

You can find the exact procedure for the emergency power operation in the user manual of your inverter.

2 Emergency Power Operation

Safety during emergency power operation

Refer to the user manual of your inverter for all safety precautions and for the exact procedure for safe emergency power operation.

Energy despite Grid Failure

In order to use the inverter in emergency power operation, there must be sufficient solar irradiation. However, emergency power operation is not possible as long as the inverter is in feed-in operation. The inverter activates the emergency power module automatically only when the utility grid fails or the line voltage is below the permitted value.

If the switch of the socket-outlet is set to **"ON"**, the electrical power can be used. Hence, the inverter regulates the emergency energy supply automatically at the socket-outlet as long as there is sufficient solar irradiation.

If the power is no longer needed, despite the grid failure, you can shut off the emergency power operation by turning the switch to **"OFF"**.

Returning to Feed-In Operation

If the grid failure has stopped during the emergency power operation, there is still voltage present at the socket-outlet. The inverter remains in emergency power operation and does not return to feed-in operation automatically.

Emergency power operation only stops when the switch of the socket-outlet has been turned **"OFF"**. The inverter feeds into the utility grid again.

Emergency power operation will no longer be possible when the grid failure has ended and the socket-outlet has been switched off.

3 Restrictions for the Emergency Power Operation

Power Fluctuation

The power available during emergency power operation depends on the solar irradiation on the PV modules. The power can fluctuate considerably depending on the weather or may not be available at all.

Therefore, you should not supply loads with the emergency power operation that rely on a stable voltage supply, such as medical devices.

Low Solar Irradiation

The inverter interrupts the emergency power operation when solar irradiation is too low but tries to continue the emergency power operation automatically after 20 seconds.

In case the inverter turned off due to the solar irradiation being too low, the switch of the socket-outlet must once again be operated so that the emergency power operation can be continued as soon as there is sufficient solar irradiation.

Behavior at Night

Since there is no solar irradiation present, emergency power operation is not possible at night.

If the inverter is in emergency power operation at nightfall, it turns off and ends the emergency power operation.

Behavior after Sunrise

After sunrise, the inverter automatically tries to feed into the utility grid again as soon as there is sufficient solar irradiation.

If the grid failure still persists after sunrise, the emergency power operation will not continue automatically, not even when the switch of the socket-outlet is still turned **"ON"**. To restart emergency power operation, the switch of the socket-outlet must be operated again.

If the grid failure has stopped after sunrise, the inverter feeds into the utility grid again automatically, even when the switch of the socket-outlet is still turned **"ON"**.

Overload of the Socket-Outlet

The inverter will interrupt emergency power operation in the case of an overload of the socket-outlet; however, it will try to continue emergency power operation automatically every 20 seconds. This can lead to the inadvertent starting of a connected load.

Only connect loads that have a power consumption of 1,500 watts or less. If you connect a power strip, the sum of the input power of all loads connected to the power strip, may not exceed 1,500 watts as well.

4 Compliance with the National Electrical Code®

Article 690 Solar Photovoltaic (PV) Systems of ANSI/NFPA 70, *National Electrical Code*® defines an interactive system as "A solar photovoltaic system that operates in parallel with and may deliver power to an electrical production and distribution network," and a stand-alone system as "A solar photovoltaic system that supplies power independently of an electrical production and distribution network."

SMA inverters are intended to be installed and operated primarily in grid interactive systems. When equipped with an Emergency Power Module, Sunny Boy TL-US inverters are capable of being switched from interactive to stand-alone operation to supply power to a dedicated 120 V power outlet.

Section 690.61 of ANSI/NFPA 70, *National Electrical Code*®, permits a normally grid interactive system to operate as a stand-alone system when disconnected from utility electrical power system. Sunny Boy inverters equipped with the Emergency Power Module comply with *National Electrical Code*® 690.61 for interactive and stand-alone operation.

5 Technical Data of the Emergency Power Supply

Maximum AC voltage	125 V
Maximum AC current	12 A
Maximum power output	1,500 W

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