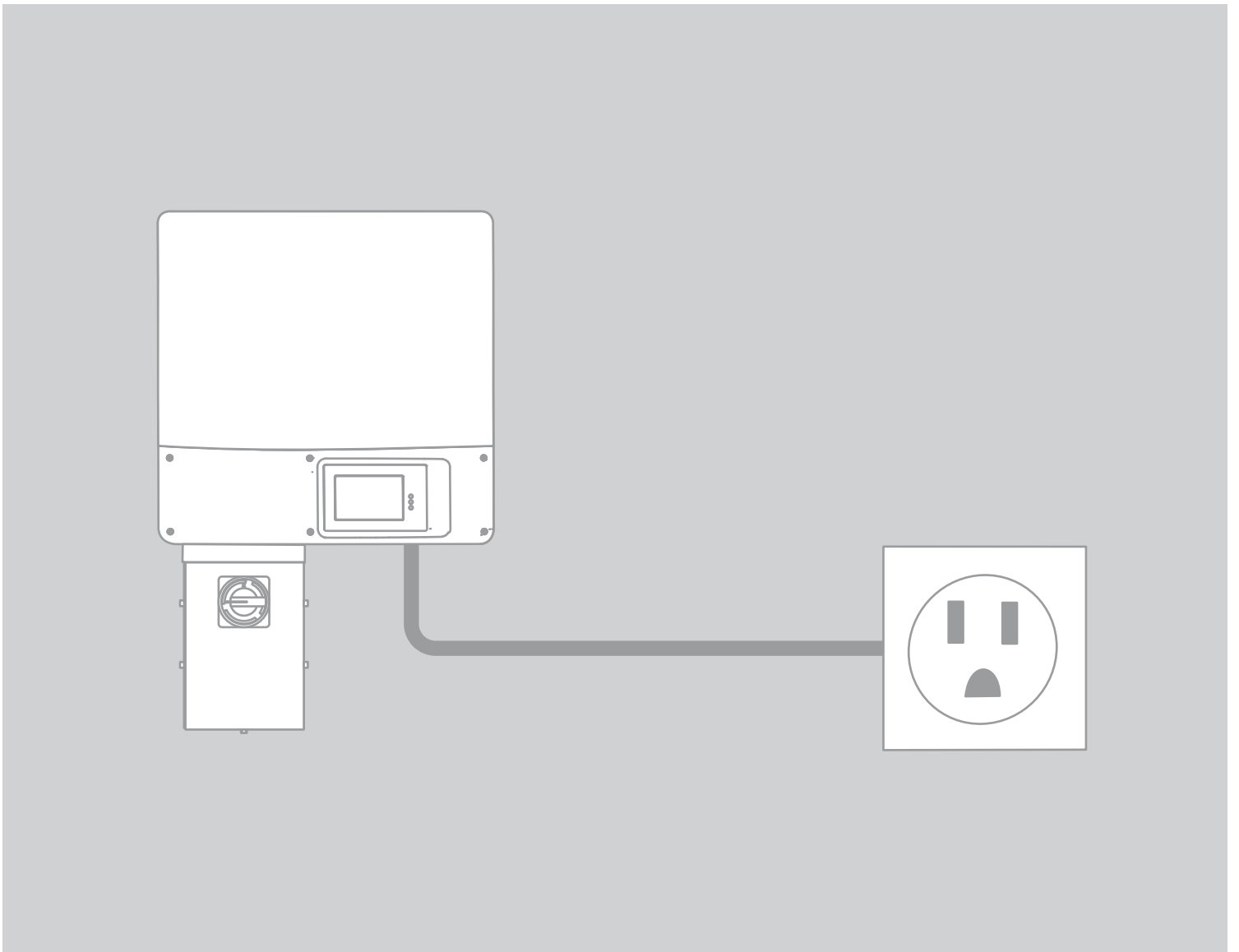




PV Inverter

Secure Power Supply

Technical Description



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1 Secure Power Supply Module

The Inverter as an Energy Source

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

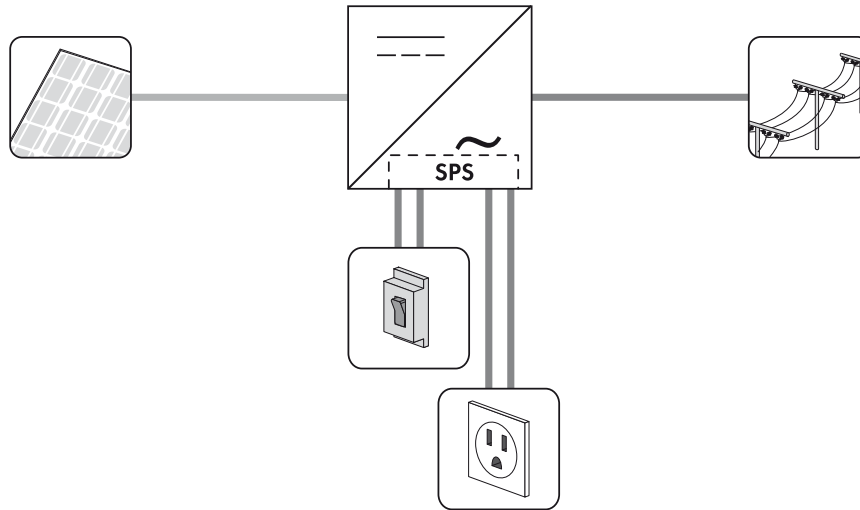


Figure 1: Principle of a PV system for secure power supply

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 secure power supply operation and is able to supply power to phone chargers, laptops, flashlights, small appliances, and televisions.

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

2 Secure Power Supply Operation

Safety during secure power supply operation

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

Energy despite Grid Failure

In order to use the inverter in secure power supply operation, there must be sufficient solar irradiation. However, secure power supply operation is not possible as long as the inverter is in feed-in operation. The inverter activates the secure power supply 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 secure power 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 secure power supply operation by turning the switch to **"OFF"**.

Returning to Feed-In Operation

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

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

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

3 Restrictions for the Secure Power Supply Operation

Power Fluctuation

The power available during secure power supply 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 secure power supply operation that rely on a stable voltage supply, such as medical devices.

Low Solar Irradiation

The inverter interrupts the secure power supply operation when solar irradiation is too low but tries to continue the secure power supply 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 secure power supply operation can be continued as soon as there is sufficient solar irradiation.

Behavior at Night

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

If the inverter is in secure power supply operation at nightfall, it turns off and ends the secure power supply 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 secure power supply operation will not continue automatically, not even when the switch of the socket-outlet is still turned **"ON"**. To restart secure power supply 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 secure power supply operation in the case of an overload of the socket-outlet; however, it will try to continue secure power supply 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 secure power supply 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 secure power supply module comply with *National Electrical Code*® 690.61 for interactive and stand-alone operation.

5 Technical Data of the Secure Power Supply

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

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