



## Secure Power Supply

### Technical Note

## 1 Introduction

The Secure Power Supply (SPS) feature is a factory-installed option to the following types of inverters:

- Sunny Boy 3000TL-US (SB 3000TL-US-22)
- Sunny Boy 3800TL-US (SB 3800TL-US-22)
- Sunny Boy 4000TL-US (SB 4000TL-US-22)
- Sunny Boy 5000TL-US (SB 5000TL-US-22)
- Sunny Boy 6000TL-US (SB 6000TL-US-22)
- Sunny Boy 7000TL-US (SB 7000TL-US-22)
- Sunny Boy 7700TL-US (SB 7700TL-US-22)

When equipped with an SPS module the inverter is capable of switching from interactive operation to stand-alone operation. In stand-alone operation the inverter can supply standby power to a dedicated power outlet that has been wired to the SPS module within the inverter. When sufficient sunlight is available this outlet can be used to run small appliances and charge electronic devices during prolonged utility power outages.

## 2 Code Compliance

Article 690 Solar Photovoltaic (PV) Systems of ANSI/NFPA 70, *National Electrical Code*<sup>®</sup> 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."

Sunny Boy TL-US inverters are intended to be installed and operated primarily in utility-interactive systems. When equipped with the SPS module the inverter is capable of switching from interactive operation to stand-alone operation to supply power to a dedicated 120 V power outlet.

Section 690.61 of ANSI/NFPA 70, *National Electrical Code*<sup>®</sup>, permits a normally interactive system to operate as a stand-alone system when disconnected from the utility electrical power system.

Sunny Boy TL-US inverters equipped with the SPS module comply with *National Electrical Code*<sup>®</sup> 690.61 for interactive and stand-alone operation.

Section 690.10(B) of ANSI/NFPA 70, *National Electrical Code*<sup>®</sup> requires overcurrent protection for conductors "between the inverter output and the building or structure disconnecting means" in a stand-alone system. When installed and wired according to the installation manual, the SPS outlet conductors form a dedicated circuit that is isolated from other premises wiring of the building or structure. Power to the SPS outlet can only be supplied from the inverter and the inverter operates as a current limited device. Therefore, the conductors between the inverter and the SPS outlet should not require additional overcurrent protection.

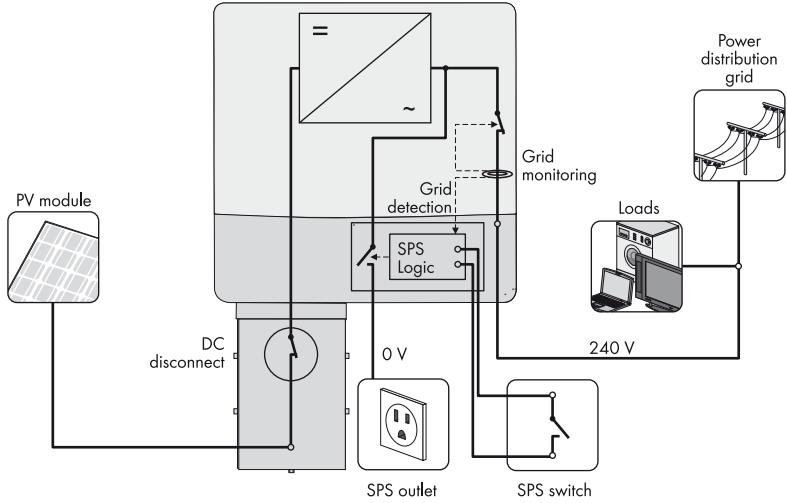


Figure 1: Inverter in utility-interactive operation

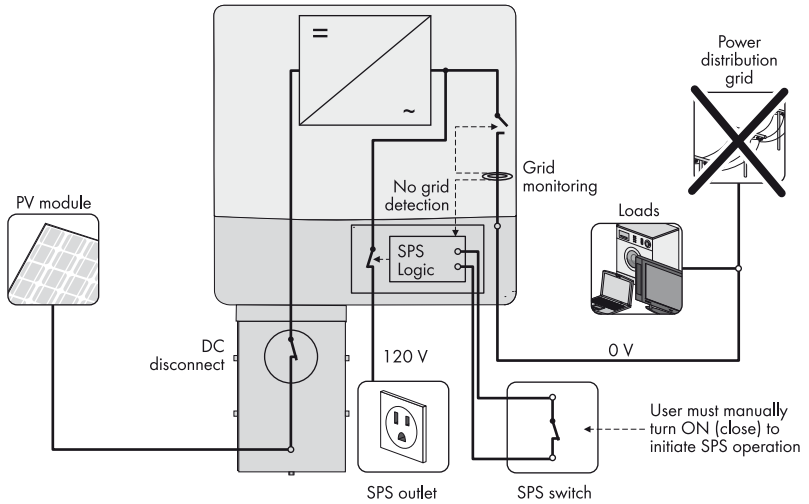


Figure 2: Inverter in stand-alone operation (secure power)

### 3 Installation and Wiring

#### **i** Safety during secure power operation

Refer to the inverter installation guide for complete installation instructions.

The installer is responsible for supplying and installing a switch and outlet to enable the SPS feature. The figure below illustrates the wiring of a typical combination switch and outlet to the SPS module in the inverter. Note that the switch and socket-outlet are wired to operate independently and it is not necessary that the switch and outlet are part of a single device.

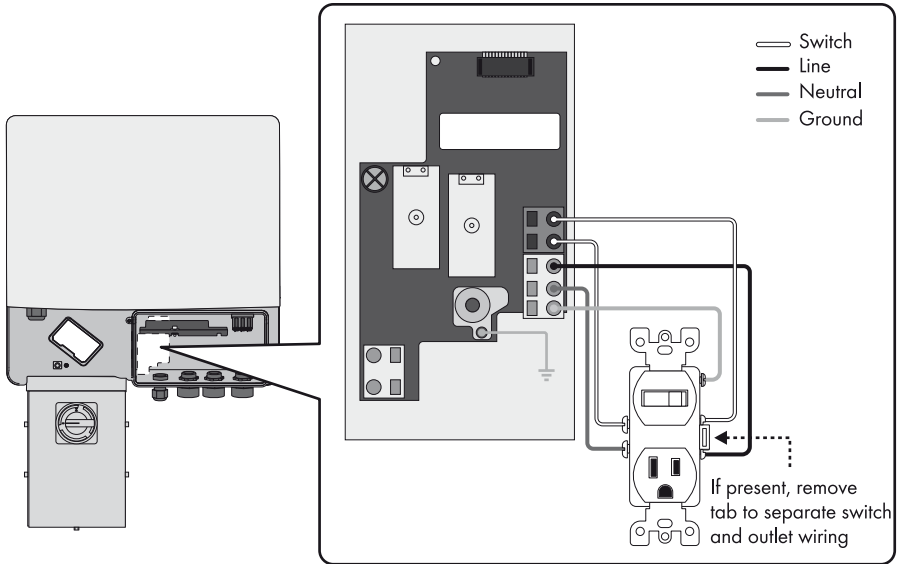


Figure 3: Sample wiring of combination switch and socket-outlet

## 4 Technical Data

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