

HANTECH SPF6000

Instruction Manual: Growatt SPF 6000 ES Plus Off-Grid Inverter

Model: SPF6000 | Brand: HANTECH

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of your Growatt SPF 6000 ES Plus Off-Grid Inverter. Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage to the unit or injury to personnel. Keep this manual for future reference.

2. SAFETY INFORMATION

WARNING! This section contains important safety instructions that must be followed during installation and operation of the inverter. Failure to follow these instructions may result in serious injury or death.

- Only qualified personnel should install or maintain this device.
- Before installation, ensure all power sources are disconnected.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Ensure proper grounding of the inverter.
- Do not operate the inverter in wet environments or near flammable materials.
- Verify that the input voltage and current from the PV array and battery are within the inverter's specifications.

3. PACKAGE CONTENTS

Upon unpacking, please verify that all items listed below are included in the package:

- Wechselrichter (Inverter)

- WiFi Dongle
- User Manual (this document)

4. PRODUCT OVERVIEW

The Growatt SPF 6000 ES Plus is a high-performance off-grid inverter designed for solar island systems, offering robust power conversion and smart management features.

4.1. Key Features



Eingangsleistung: 8000 W

Ausgangsleistung: 6000W

2 MPPT-Tracker

WiFi, APP, Webanwendung

Max. Effizienz: 93 %

Kostenloser Fernsupport durch den Hersteller

**Off-Grid Inverter
KEINE Netzanbindung**

Geeignet für Inselanlagen

 **10 Jahre Herstellergarantie**

 **VDE konform**

Figure 4.1: Key Features Summary

An illustration of the inverter with an overlay detailing its main specifications: 8000W PV input, 6000W output, dual MPPT trackers, WiFi/App/Web monitoring, 93% max efficiency, free remote support, off-grid capability, and 10-year manufacturer warranty.

- **High Yields:** Offers 8000W PV input power and high performance with 93% efficiency.
- **Scalable and Flexible:** Features two AC inputs with integrated transfer switch and supports parallel operation of up to 6 units for capacity expansion. Plug-and-play quick-connect PV terminals simplify installation.
- **Intelligent and Reliable:** Supports WiFi and GPRS remote monitoring, as well as timing charge and power

control. Integrated dust protection set safeguards the inverter in harsh environments.

4.2. Inverter Components



Figure 4.2: Front Panel Overview

This image shows the front of the Growatt SPF 6000 ES Plus inverter, featuring the display screen and control buttons for user interaction.



Figure 4.3: Rear Panel Connections

The rear panel of the inverter, displaying various connection terminals for PV input (PV1, PV2), AC input/output, battery, and communication ports (RS485, USB, WiFi/GPRS).

5. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your inverter. Please follow these general guidelines. For detailed wiring diagrams, refer to the full technical documentation.

5.1. Mounting the Inverter

- Choose a suitable location: dry, well-ventilated, and protected from direct sunlight and moisture.
- Ensure sufficient clearance around the inverter for proper airflow and heat dissipation.
- Mount the inverter vertically on a solid surface using appropriate mounting hardware.

5.2. Wiring Connections

Before making any electrical connections, ensure all power sources (PV array, battery, AC grid) are disconnected and secured against accidental re-connection.

1. **Battery Connection:** Connect the battery bank to the inverter's battery terminals, observing correct polarity.
2. **PV Array Connection:** Connect the solar PV array to the designated PV input terminals (PV1, PV2). Ensure the PV voltage and current are within the inverter's operating range.
3. **AC Input/Output Connection:** Connect the AC grid (if applicable) and your loads to the respective AC input and output terminals.
4. **Grounding:** Ensure the inverter is properly grounded according to local electrical codes.

5.3. Initial Power-Up

1. Once all connections are secure, switch on the battery breaker.
2. Switch on the PV array breaker.
3. Switch on the AC input breaker (if connected to grid/generator).
4. Finally, switch on the inverter's power switch. The display should illuminate, indicating successful power-up.

6. OPERATING THE INVERTER

The inverter features a user-friendly display and control buttons for monitoring and configuration.

6.1. Display and Buttons

The LCD display provides real-time operational data. Use the navigation buttons (ESC, UP, DOWN, ENTER) to browse menus and adjust settings.

- **ESC:** Exit current menu or return to previous screen.
- **UP/DOWN:** Navigate through menu options or adjust values.
- **ENTER:** Confirm selection or enter a submenu.

6.2. Remote Monitoring (WiFi/GPRS)

The included WiFi Dongle allows for remote monitoring via a dedicated app or web application. Follow the instructions provided with the WiFi Dongle for setup and connection to your local network.

- Download the official Growatt monitoring app.
- Register your inverter using the device ID.
- Monitor system performance, energy production, and consumption from anywhere.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a soft, dry cloth. Do not use liquid cleaners.
- **Dust Protection:** The inverter features an integrated dust protection set. Ensure it is kept clear of obstructions to maintain proper ventilation.
- **Connections:** Annually inspect all electrical connections for tightness and signs of corrosion.
- **Environment:** Ensure the operating environment remains within specified temperature and humidity ranges.

8. TROUBLESHOOTING

This section provides solutions to common issues you might encounter. For problems not listed here, please contact technical support.

Problem	Possible Cause	Solution
Inverter not powering on	No battery connection; Battery voltage too low; Power switch off.	Check battery connections; Charge battery; Turn on power switch.
No PV input/charging	PV array disconnected; Insufficient sunlight; PV voltage too low/high.	Check PV connections; Ensure clear sky; Verify PV array voltage.
No AC output	Overload; Short circuit; AC output breaker tripped.	Reduce load; Check for short circuits; Reset AC output breaker.
Error code on display	Specific system fault.	Refer to the full technical manual for specific error code definitions and solutions.

9. SPECIFICATIONS

Detailed technical specifications for the Growatt SPF 6000 ES Plus Off-Grid Inverter.

Datasheet		SPF 6000 ES Plus
Battery Voltage		48VDC
Battery Type		Lithium/Lead-acid
Inverter Output		
Rated Power		6000VA/6000W
Parallel Capability		Yes, 6 units maximum
AC Voltage Regulation (Battery Mode)		230VAC \pm 5% @ 50/60Hz
Surge Power		12000VA
Efficiency (Peak)		93%
Waveform		Pure sine wave
Transfer Time		10ms typical, 20ms Max
Solar Charger		
Maximum PV Array Power		8000W
MPPT Range @ Operating Voltage		120VDC – 450VDC
Number of Independent MPP Trackers/ Strings Per MPP Tracker		2/1
Max. input current per MPP tracker		16A
Maximum PV Array Open Circuit Voltage		500VDC
Maximum Solar Charge Current		100A
AC Charger		
Charge Current		80A
AC Input Voltage		230VAC
Selectable Voltage Range		170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances)
Frequency Range		50Hz/60Hz (Auto sensing)
Physical		
Protection Degree		IP20
Dimension (W/H/D)		460/395/132mm
Net Weight (kgs)		13.5
Operating Environment		
Humidity		5% to 95% Relative Humidity(Non-condensing)
Altitude		<2000m
Operating Temperature		0°C - 55°C
Storage Temperature		-15°C - 60°C

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Figure 9.1: Detailed Technical Datasheet

This image provides a comprehensive table of the inverter's technical specifications, including input/output parameters, charger details, and physical characteristics.

Feature	Value
Model Name	Wechselrichter Growatt SPF 6000 ES Plus
Manufacturer	Hantech
Wattage	6000 Watt
Power Source	Solarbetrieben (Solar Powered)
Recommended Applications	Zuhause (Home)
Country of Origin	China
First Available on Amazon.de	19. November 2024

10. WARRANTY AND SUPPORT

The Growatt SPF 6000 ES Plus Inverter comes with a **10-year manufacturer warranty**, underscoring confidence in its quality and reliability. This warranty ensures maximum security and protection for your investment. For technical support, warranty claims, or further assistance, please contact HANTECH customer service through your point of purchase or refer to the official Growatt website for support resources.