User Manual – Off-Grid Solar Power System (21kW / 30kWh / 21.12kW)

1. Introduction

Thank you for choosing our complete off-grid solar power solution. This system integrates solar generation, energy storage, and inverter-based power delivery to provide stable AC output for residential or commercial use.

This manual covers the installation, configuration, and safe operation of the following components:

- 6 × Growatt SPF3500T 3.5kW Inverters (parallel-connected)
- 6 × Growatt AXE5.0 Lithium Batteries (30kWh total)
- 48 × 440W Monocrystalline Solar Panels (21.12kW array)

---

2. System Overview

➢ Total Output:

- **AC Output**: 21kW (110V / 220V split-phase)
- **Battery Capacity**: 30kWh (6 × 5kWh AXE5.0 modules)
- **Solar Input**: 21120W (48 × 440W panels)

➢ Core Features:

- Off-grid inverter with built-in MPPT solar charger
- Lithium battery storage with modular expansion
- Parallel inverter operation with load balancing
- Pure sine wave output, suitable for sensitive electronics

---

3. Installation Instructions

Installation must be performed by a qualified electrician or solar technician.

A. Solar Panels

- Mount on rooftop or ground frame with optimal tilt (e.g. 30–45°).
- Connect strings in appropriate configuration based on inverter MPPT specs.
- Use MC4 connectors and PV-rated cables.
- Ensure proper grounding.

B. Inverters (SPF3500T)

- Mount in a cool, dry, ventilated space indoors.
- Connect in **parallel** using the provided parallel communication cables.
- Wire battery input (48V DC), solar input, and AC output according to wiring diagram.
- Configure inverter settings via LCD or monitoring app.

C. Batteries (AXE5.0)

- Stack vertically or install in rack/cabinet.
- Connect in parallel (6 × 48V) using included communication and power cables.
- Connect BMU (Battery Management Unit) and confirm CAN/RS485 settings.
- Ensure tight BMS communications and proper grounding.

---

4. Initial Power-Up Sequence

- **Connect batteries** and power on the BMU.
- Power on each AXE5.0 module and ensure LEDs indicate readiness.
- Turn on each inverter one by one.
- Check inverter LCD for voltage, battery SOC, and solar input.
- Connect loads once all systems are active.

---

5. Safety & Maintenance

- Never short circuit solar, battery, or inverter terminals.
- Keep all vents and air paths unobstructed.
- Clean panels with soft brush and water as needed.
- Periodically inspect wiring, breakers, and connectors.

- Do not expose batteries to moisture or extreme temperatures.

---

6. Troubleshooting (Basic)

Issue	Solution
Inverter not starting	Check battery voltage, breaker, polarity
No solar charging	Check PV connectors, panel voltage input
Battery not communicating	Verify CAN/RS485 cable & BMU setup
AC output unstable	Ensure parallel sync & proper load split

---

7. Technical Support

For technical assistance or warranty service, please contact your distributor or installation provider with system serial number and error codes if applicable.