EnergyPro 13K

Energy Storage System

User Manual V1.0

BLUETTI

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About the Manual

Purpose

This user manual describes the installation, electrical connection, commissioning, maintenance and troubleshooting of EnergyPro 13K Energy Storage System (hereinafter referred to as EnergyPro 13K). **Please read and understand all instructions in this manual before use.**

Symbol Conventions

This manual uses the following symbols to highlight important information:

	**Danger** It indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	**Warning** It indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	**Caution** It indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	**Attention** It indicates a potentially hazardous situation which, if not avoided, could cause substantial damage to property and the environment.
	**Instruction** It contains important additional information as well as useful tips for safe, efficient and hassle-free operation of the EnergyPro 13K energy storage system.

Contents

About the Manual
1. Safety Guideline **07**
1.1 Safety Instructions 07
1.2 Installation Safety 10
1.3 Battery Safety 11
1.4 Electrical Safety 15
1.5 Maintenance Requirements 16
1.6 Transportation Requirements 17
1.7 Storage Requirements 17
1.8 Handling Requirements 17
1.9 Label Description 18
2. EnergyPro 13K Energy Storage System **19**
2.1 Introduction 19
2.2 Working Modes 20
3. EnergyPro 13K Inverter **24**
3.1 Features 24
3.2 Overview 25
3.3 LED Indicators 26
3.4 Buzzer Alarm 26
3.5 Maintenance and Care 26
4. EnergyPack 500 Battery **26**
4.1 Introduction 26
4.2 Overview 27
4.3 LED Indicators 28
4.4 Maintenance and Care 28
5. EMS Controller **28**
5.1 Communication Principle 28
5.2 Key Features and Interfaces 29
5.3 Installation 30
5.4 Safety Instructions 32
5.5 Connection and Operations 32
5.6 EMS Controller Interface 35

Contents

6. System Installation **35**

6.1 EnergyPro 13K & EMS Controller Packing List 36

6.2 EnergyPack 500 Packing List 39

6.3 Base Packing List 40

6.4 Installation Requirements 41

6.5 Prepare the Necessary Tools 44

6.6 Installation 46

7. Electrical Connection **47**

7.1 EnergyPack 500 Interface Instructions 47

7.2 EnergyPro 13K Inverter Interface Instructions 49

7.3 Power Cable 51

7.4 Communication Cable 53

7.5 Grounding Protection (G) 54

7.6 PV Cable 56

7.7 Grid and Backup Cables 58

7.8 Other Ports 60

8. System Commissioning **66**

8.1 Preliminary Check 66

8.2 System Trial 66

8.3 Firmware Upgrade 66

8.4 Power off 67

9. System Disposal **67**

9.1 Remove the Inverter 67

9.2 Recycle the Inverter and Battery Pack 67

10. Troubleshooting **68**

10.1 EnergyPro 13K Inverter 68

10.2 EnergyPack 500 Battery 76

11. Specifications **79**

1. Safety Guideline
1.1 Safety Instructions
1.1.1 Statement
Before installing, operating, or maintaining this equipment, please read this manual thoroughly and follow all safety precautions indicated on the equipment and in this manual.

Look for and follow all "Instruction", "Attention", "Caution", "Warning", and "Danger" statements in this manual. The safety guidelines provided herein do not cover all possible safety considerations. Please follow all relevant international, national, or regional standards, as well as industry practices. Our company shall not be liable for damages resulting from non-compliance with these safety requirements or standards.

For issues or operations not covered in this manual, please contact BLUETTI support, otherwise we are not responsible for any damage or injury caused by unauthorized operations.

Always consider the actual on-site conditions when using this equipment. Use it only in environments that meet the requirements outlined in this manual. Failure to do so may cause equipment malfunctions or damage, which are not covered by the warranty. Our company is not liable for any injuries or property damage caused by improper use.

Thus, for proper installation and operation of this equipment, it's crucial to adhere to the following guidelines:

• Always operate or store the equipment in the conditions specified in this manual.

• The installation and ambient conditions must comply with the regulations in the relevant international, national or regional standards.

• Avoid unauthorized disassembly, equipment alterations, or software code modifications.

Our company shall also not be liable for the following situations or their consequences:

• Damage caused by force majeure events such as earthquakes, fires, storms, floods, or mudslides.

• Transport-related damages during customer handling.

• Equipment damage due to improper storage conditions as outlined in the manual.

• Hardware or data loss resulting from customer negligence, improper use, or intentional damage.

• System damage caused by third parties or customers, including improper handling or installation not in line with the manual's instructions.

• Damage from adjustments, modifications, or removal of labels not authorized in the manual.

• Use of the equipment in environments not compliant with relevant international,

national, or regional standards.

• Installation or operation by unauthorized personnel.

• Unauthorized disassembly, alteration of equipment, or modification of software code.

• Use of customer-provided materials or tools that do not meet local legal requirements or relevant standards.



Attention

Follow these guidelines for proper operation.

• This equipment is not intended for use with devices that have high-performance requirements for UPS (Uninterruptible Power Supply), including but not limited to data servers, workstations, medical equipment, and similar devices. Our company shall not be liable for any data loss or equipment damage resulting from the violation of this requirement.

1.1.2 General Requirements



Danger

Follow these guidelines for proper operation.

• Do not install, use, or maintain the equipment in adverse weather conditions such as lightning, rain, snow, and strong breezes (including handling, operating, plugging and unplugging signal connections for outdoor facilities, working at heights, and outdoor installations).

• Always turn off the power source before starting any electrical work.

• Do not clean the equipment with water.

• Do not disassemble, modify, tamper with or repair the equipment on your own.

• Regularly inspect the equipment and its accessories for signs of damage or deterioration.

• Use a tester to check for dangerous voltage before touching any conductor or terminal.

• In the event of a fire, prioritize personal safety. If safe to do so, immediately disconnect power at the distribution box and use a CO_2, FM-200, or ABC dry powder fire extinguisher.

• If a fire occurs, EVACUATE the building or affected area promptly. Activate the nearest FIRE ALARM system and CONTACT local emergency services.

• Use only cables and accessories provided or recommended by BLUETTI.

• Keep the equipment away from heat sources or high temperatures, and do not expose it to direct sunlight.

• Do not store flammable or explosive materials near the equipment.

• Maintain a well-ventilated and spacious installation area.

• Do not block or cover the vents of the equipment.

• Use the equipment only for its intended purpose and refrain from stacking objects on or near it during storage or use.

• Do not move the equipment during operation, as vibrations and shocks from movement can damage internal hardware.

• In case of malfunction, immediately power off the equipment and contact BLUETTI support or your local BLUETTI dealer if the manual does not adequately explain the issue.

• Do not place the equipment on unstable or inclined surfaces.

• Do not insert foreign objects into any ports or vents of the equipment.

• Keep the equipment out of the reach of children and pets.

• Do not install the equipment where it may be exposed to water or submerged.

• Do not touch the equipment, as the shell may become hot and pose a risk of burns when it's running.



Instruction
Comply with applicable laws and regulations.

• When handling, installing, wiring, or maintaining this equipment, comply with the country or region's legal regulations and standards.

• Use materials and tools that meet applicable legal requirements and standards.

• Understand the operational principles and standards relevant to the energy storage system in the location.

1.1.3 Personnel Requirements

• The EnergyPro 13K installation should be performed by a certified professional electrician. Users must not disassemble, repair, or modify the equipment without authorization, as improper handling can result in serious personal injury or property damage. For safety, always consult and have a licensed electrician perform installation, commissioning, and maintenance, following proper safety precautions and operating guidelines.

• The personnel who need to work on the equipment must possess the necessary qualifications and electrical certifications required by local regulatory authorities.

1.2 Installation Safety



Danger

Follow these guidelines for proper operation.

• Avoid working with live electrical components.

• Before installation, double check the equipment for any signs of damage or defects to minimize potential risks.

• Make sure that the equipment and all associated switches are in the "OFF" position to prevent electric shock.

• Do not touch any terminal while the equipment is running, as it may pose a risk of electric shock.

• Use a tester to check for dangerous voltage before touching any conductor or terminal.



Warning

Follow these guidelines for proper operation.

• All cables should be securely connected with proper insulation and meet required standards.



Attention

When moving the equipment, be mindful of its weight and balance. Take care to avoid tipping or dropping it, as that could result in damage to the equipment or injury.

1.2.1 General Requirements

• After installing the equipment, remove the idle package materials from the site such as cardboard, foam, plastic, nylon ties, etc.

• Keep people other than the installers away from the equipment.

• Handle the equipment and accessories carefully during transport; use original or protective packaging.

• Seal wiring ports securely with fireproof and waterproof materials.

• Do not alter or cover equipment markings or nameplates.

• Check and make sure all safe guards, including screws and waterproof rings, are in place and properly tightened.

• Secure the unit firmly to the floor or other stable objects, such as walls or mounting brackets before operation.

• Clean the equipment and accessories with a soft cloth; avoid water or harsh chemicals.

• Do not make any changes to the equipment's structure, installation sequence, or any other aspects without permission.

1.2.2 Drilling Requirements

When drilling holes in the wall or on the ground, follow these safety measures:

• Wear goggles and protective gloves at all times.

• Shield the equipment to prevent debris from falling into it, and remove all debris after drilling.

• Drill holes on the equipment is forbidden as it may damage the equipment's electromagnetic shielding performance. The metal shavings may cause short circuits on the circuit board.

• Make sure to check for any embedded pipes or cables before drilling to prevent short circuits or other hazards.

1.3 Battery Safety

1.3.1 Statement

Our company shall not be liable for equipment malfunctions, component damage, personal injury, property loss, or other issues caused by the following:

• Failure to charge the battery in time after installation, leading to overdischarge and damage.

• Improper battery maintenance as per the user manual, including irregular charging, incorrect capacity expansion, or prolonged incomplete charging, and frequent over-discharging of the battery. Contact BLUETTI support within 6 months of installation for any expansion needs; do not attempt this on your own.

• Incorrect battery operational settings.

• Failure to charge the battery as required during storage, resulting in capacity loss or irreparable damage.

• Improper operation or connection errors causing battery short-circuits, damage, drops, or leaks.

• Using the battery in ways not specified in the user manual, such as using batteries from other brands or those with different rated capacities, whether by users or third parties.

• Battery damage caused by operating conditions or external power parameters that

do not meet environmental requirements.

1.3.2 Installation Requirements

• Install the battery away from liquids and avoid locations near vents, windows, or water pipes to prevent leaks that could damage equipment or cause short circuits.

• Before installation, inspect the packaging for any signs of damage.

• After unpacking the battery, place it as directed. Do not invert, tilt, stack, or place it sideways to prevent damage from impacts or falls.

• Use a torque wrench to tighten screws correctly during installation and check them regularly.

• Prevent the positive and negative terminals of the battery from touching each other or any metal objects to avoid heat generation or electrolyte leakage.

• Remove unused packaging materials such as foam, cardboard, plastic, and excess cables from the equipment area after installation.

1.3.3 General Requirements



Danger

Follow these guidelines for proper operation.

• Use the battery within the specified temperature range.

• Do not expose the battery to humidity or corrosives, as this may cause the battery to rust, corrode, and leak chemicals.

• Keep the battery away from high temperatures or heat sources such as sunlight, fire, transformers, and heaters. Excessive heat can cause leaks, smoke, release of flammable gases, overheating, fires, or explosions.

• Do not dismantle, alter, or damage the battery, as this could lead to fire or explosion risks. For instance, do not insert foreign objects into the battery or submerge it in water or other liquids.

• If any part of the battery has been submerged in water, do not touch it to prevent electric shock. Contact the battery company immediately for assistance.

• Never short-circuit the battery terminals, as this can create a sudden surge of electricity and release significant energy, leading to leaks, smoke, release of flammable gases, overheating, fires, or explosions. Do not attempt to maintain a powered battery to prevent short circuits.

• Do not use damaged batteries or components. Improper use or misuse of damaged batteries or components can cause overheating, which may lead to leakage, smoke, release of flammable gases, thermal runaway, fire, or explosion.

• Avoid welding or grinding near batteries to prevent fire from sparks or arcs.

• Store damaged batteries away from flammable materials and undamaged ones. Only professionals should handle damaged batteries.

• Lithium-ion batteries may pose a risk of fire. Be aware of the following safety risks:

a. Thermal runaway can release flammable and harmful gases such as CO and HF. Vapors from burning batteries may irritate the eyes, skin, and throat.

b. Flammable gas concentration from thermal runaway batteries can cause deflagration and explosion.

c. Battery electrolyte is flammable, toxic, and volatile.

• If a battery leaks or emits odors, don't approach it — contact professionals for safe disposal. Use protective gear like goggles, rubber gloves, gas masks, and protective clothing.

• Electrolyte is corrosive and can cause irritation and chemical burns. If you come into direct contact with battery electrolyte:

a. Inhalation of Vapors: Evacuate the contaminated area, get fresh air immediately, and seek medical attention.

b. Eye Contact: Immediately flush eyes with water for at least 15 minutes, do not rub eyes, and seek medical attention immediately.

c. Skin Contact: Immediately wash the infected area with soap and water and seek medical attention immediately.

d. Ingestion: Seek medical attention immediately.

• Handle the battery with care. Do not invert, tilt, or stack the battery improperly to avoid damage.

• Avoid mechanical vibrations, drops, impacts, punctures, or pressure shocks to the battery, as these can cause damage or fires.

• Pay attention to the status indicators on the battery and related products.

1.3.4 Other Requirements



Danger

Fire Emergency Measures

Follow these guidelines for proper operation.

• In case of fire, power off the system if it is safe to do so.

• Use carbon dioxide, FM-200, or ABC dry powder fire extinguisher.

• Remind firefighters to avoid contact with components carrying dangerous voltage to prevent the risk of electric shock.

• Overheating may cause the battery to deform and leak corrosive electrolytes or toxic gas. Keep away from batteries to avoid skin irritation and chemical burns.

Danger

Battery Drop Emergency Measures

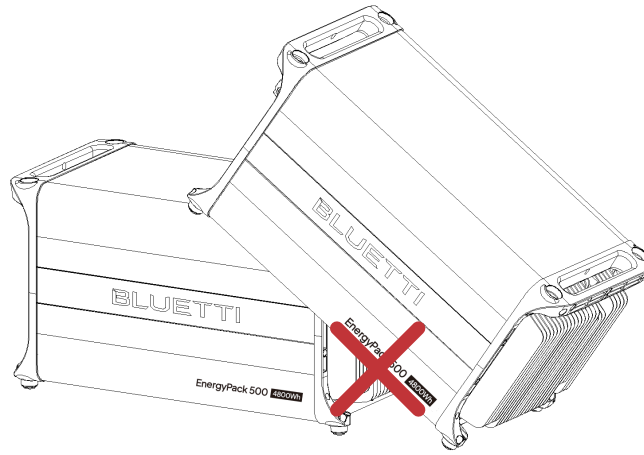
Follow these guidelines for proper operation.

• If the battery pack is dropped, violently impacted or tilted during installation, internal damage may occur. So do not use such battery packs to avoid safety risks such as battery leakage and electric shock.

• If the dropped battery is not obviously deformed or damaged, and there is no abnormal smell, smoke or fire, please contact a professional to transfer the battery to an open and safe place, and contact BLUETTI support.

• If the battery is obviously damaged or there is an abnormal smell, smoke or fire, please evacuate immediately, and contact a professional or BLUETTI support. Professionals can use fire extinguishing facilities to extinguish the fire under safety protection.

Fig. 1-1



1.3.5 Battery Disposal

• Safely and carefully dispose of used batteries by the provisions of local laws and regulations. Avoid treating batteries as regular household waste, as improper disposal can lead to environmental pollution.

• If you find a leaking or damaged battery pack, contact us immediately or an authorized battery recycling partner for expert assistance.

• If the battery pack reaches the end of its lifespan, please contact the battery recycling company for further assistance.

• To maintain battery integrity, do not expose used batteries to high temperatures or

direct sunlight.

• Protect used batteries from moisture and corrosive substances to avoid potential hazards.

1.4 Electrical Safety

1.4.1 General Requirements

• Ensure all electrical connections comply with national/regional electrical standards.

• User-provided cables should meet local legal requirements.

• Use specialized insulated tools for electrical work.

• Both AC and DC voltage sources are terminated inside this equipment. Each circuit must be individually disconnected before servicing. When the photovoltaic array is exposed to light, it supplies a DC voltage to this equipment.

1.4.2 Grounding Requirements

• Always make the ground connection first during installation and remove it last during disassembly.

• Take care not to damage the grounding conductor.

1.4.3 Wiring Requirements

• Keep cables away from heat sources and devices that emit heat. High temperatures can cause insulation to age or become damaged.

• Group cables of similar types together to reduce electromagnetic interference. Separate different types of cables and avoid twisting or crossing them.

• Cables used in energy storage systems must be securely connected, well-insulated, and of suitable specifications.

• Take necessary measures to protect cables when passing through pipes or holes.

• In cold temperatures, severe impacts or vibrations can cause the plastic coating of cables to become brittle and crack. To ensure safe installation:

a. Lay and install all cables at temperatures above 0°C (32°F). Handle cables with care, especially when working in cold environments.

b. If cables have been stored in temperatures below 0°C (32°F), store them at room temperature for at least 24 hours before installation.

1.5 Maintenance Requirements



Danger
Follow these guidelines for proper operation.

• Always turn off and disconnect all power sources before performing any

maintenance on the equipment. Follow the safety guidelines provided in this manual and other relevant documents strictly. Failure to do so may result in electric shock, serious injury, or substantial property damage.

• Warning – Servicing should only be done by qualified personnel. To reduce the risk of electric shock, do not perform any servicing other than that specified in the operating instructions unless you are qualified to do so.

• The equipment has multiple input channels. Before performing any operations, disconnect all electrical connections and ensure the system is fully discharged. Follow these steps:

Step 1: Disconnect the power grid.

Step 2: Disconnect the inverter from the solar and battery systems.

Step 3: Wait at least 5 minutes for the equipment to discharge completely.

• For any maintenance needs, please contact your local authorized service center.

• Place temporary warning signs or erect fences to prevent unauthorized access to the maintenance site.

• Before use, ensure a reliable grounding connection for personal safety and proper equipment function.

• Wear personal protective equipment (PPE) during operation. Stop operation immediately and take precautions if there's a risk of injury or equipment damage.

• Use tools correctly to avoid injury or damage to equipment. Never touch energized components.

• Do not clean the electrical components inside and outside the cabinet with water.

• Do not stand, lean on, or sit on top of the equipment, and take care not to damage the equipment modules.

• When the battery fails, avoid touching the battery and be careful of high temperature.

• Do not disassemble or damage the battery. The released electrolyte is harmful to your skin and eyes. Avoid contact with electrolyte.

• Batteries can cause electric shock and high short-circuit current. When using batteries, please note the following:

a. Remove any metal objects like watches and rings.

b. Use tools with insulated handles and wear rubber gloves and boots.

c. Prevent metal objects or conductive liquids from contacting battery terminals or enclosures.

d. Do not place tools or metal parts on top of the battery.

e. Disconnect the charging power source before connecting or disconnecting battery terminals.

1.6 Transportation Requirements

All components of the EnergyPro 13K energy storage system leave the factory in optimum electrical and mechanical state. It's necessary to use original or appropriate packaging to ensure the product safety during transportation. When you receive the product, inspect for any kind of damage and note the damage on the delivery receipt. The shipping company will be responsible for any damage or loss of the product during transportation. If necessary, please contact us for further assistance.

1.7 Storage Requirements

- When not using the EnergyPro 13K for extended periods of time, power it off and remove all electrical connections.
- Charge the system to 40%-60% SoC before storage.
- In order to keep the battery healthy, fully charge and discharge the system every 3 months.
- Store the system in a well-ventilated and spacious area.
- Do not store the system in flammable or explosive environments.
- It is recommended to clean the surface frequently with a dry soft cloth.
- Keep the system out of the reach of children and pets.
- Do not stack anything on top of the equipment during storage.
- Avoid exposing the equipment to rain, humidity or direct sunlight.
- For details of storage temperature, please refer to Chapter 11. Specifications.

1.8 Handling Requirements

Table 1-1 Recommended Number of People Based on the Weight of Product

Weight	Number of people
<18kg (39.7lbs)	1
18kg-32kg (39.7lbs-70.5lbs)	2
32kg-55kg (70.5lbs-121.3lbs)	3
>55kg (121.3lbs)	4 or a cart

1.9 Label Description

Table 1-2

Label	Name	Description
	Discharge delay	There is still residual voltage after the equipment is powered off. Wait 5 minutes for complete discharge before performing maintenance.
 Caution! Heat!	High temperature	This equipment generates heat during operation and may remain hot even after shutdown. Please use appropriate heat protection.
	Electrical shock warning	High voltage is present during operation. Only qualified and authorized personnel should handle this equipment.
	Warning	Hazards may occur during operation. Take necessary precautions.
	Read manual	Read the manual carefully before operating the equipment.
	This side up	Handle, transport, and store in this orientation at all times. The arrow should always point upwards.
	Grounding	Grounding terminal

2. EnergyPro 13K Energy Storage System

2.1 Introduction

The EnergyPro 13K energy storage system is a complete energy solution designed to provide continuous and efficient power to homes. The system includes the EnergyPro 13K inverter, EnergyPack 500 battery packs, and an intelligent EMS controller, as well as key components like current transformers, rapid shutdown devices, and safety switches, ensuring comprehensive protection and seamless integration with solar panels and the home's main electrical panel.

Engineered for regions experiencing energy shortages or unreliable power, the system provides uninterrupted power supply, efficiently storing excess solar energy for later use. It intelligently manages energy flow, balancing power between solar generation, battery storage, and grid usage to minimize energy costs and maximize sustainability.

With its intuitive app, the system allows real-time monitoring and control, offering a practical way to track energy consumption, optimize performance, and ensure a stable power supply. Whether enhancing energy independence or preparing for outages, the EnergyPro 13K delivers reliable and smart energy management.

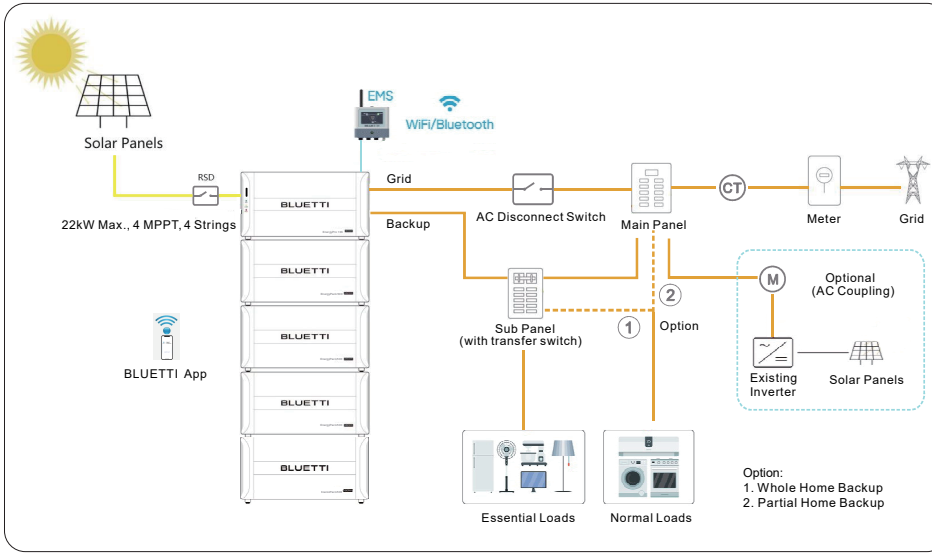
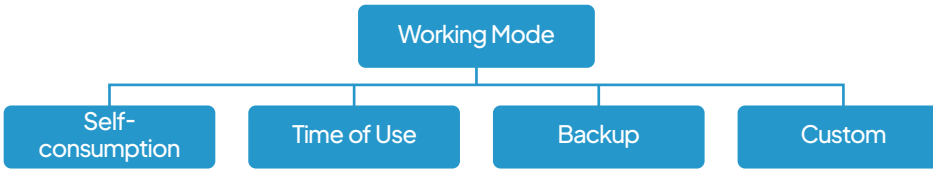


Fig. 2-1

Component	Description	Note
EnergyPro 13K inverter	PV grid-tied inverter.	Please refer to Chapter 3. EnergyPro 13K Inverter for details.
EnergyPack 500 battery pack	LiFePO4 battery pack to power the EnergyPro 13K.	Please refer to Chapter 4. EnergyPack 500 Battery for details.
EMS controller	Monitors EnergyPro 13K's operations.	Please refer to Chapter 5. EMS Controller for details.
Grid communication module	Enables utility companies to collect real-time data from inverters and regulate the power grid via WiFi. It facilitates efficient energy interconnection and maximizes benefits from energy subsidy policies.	Connects to utility company servers that comply with the IEEE 2030.5 protocol, offering plug-and-play, remote scheduling, and data monitoring features.
BLUETTI app	Communicates with the EnergyPro 13K inverter via Bluetooth for nearby control or WiFi for remote access.	Please refer to the *EnergyPro 13K Energy Storage System App User Manual* for details.
AC meter (CT, M2)	CT or M1: Tracks power from the grid. M2: Monitors solar inverter output.	/
Rapid shutdown device (RSD)	Instantly disconnects the DC input from the solar system for quick safety response in emergencies.	/
AC rapid shutdown switch	Protects grid-connected circuits.	/
AC maintenance switch	Allows for manual switching to grid power in the event of the EnergyPro 13K malfunction.	/

2.2 Working Modes

The EnergyPro 13K provides four working modes that users can select based on their setup and preferences.

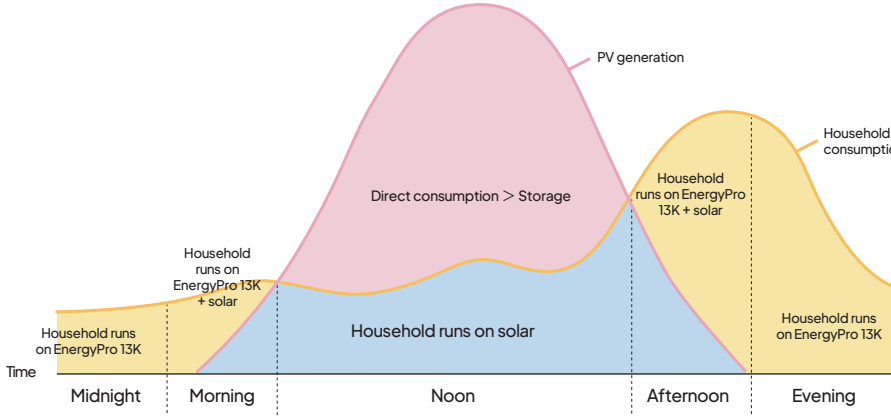


Instruction

The introduction highlights the key features and components of the EnergyPro 13K ESS. Users can set working modes using the BLUETTI app.

2.2.1 Self-consumption Mode

The EnergyPro 13K operates by default in a mode that prioritizes using solar energy directly to meet immediate household needs. Any surplus solar energy generated is intelligently stored in battery packs for use during peak hours or in case of a power outage. This approach ensures a reliable and efficient power supply, reducing dependence on the grid and promoting energy independence.

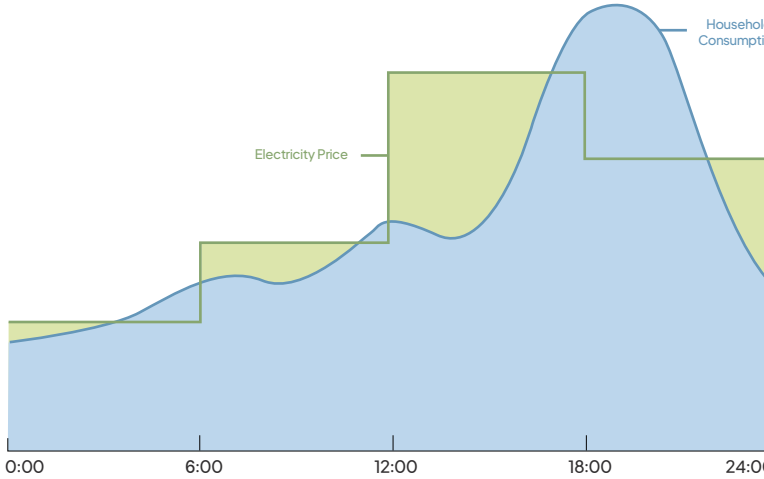


EnergyPro 13K Operation	Discharging	Discharging	Charging	Discharging	Discharging
Load Power	EnergyPro 13K	EnergyPro 13K + Solar	Solar	EnergyPro 13K + Solar	EnergyPro 13K
Solar Used	/	Loads	Loads + battery packs	Loads	/

Fig. 2-2

2.2.2 Time of Use Mode

Optimized for regions with varying electricity costs and a reliable power grid, this mode allows users to customize charging schedules. When electricity rates peak, set the system to discharge, using solar and battery power to meet energy needs. Conversely, in low-rate periods, schedule the grid and solar energy to charge the battery packs while using the grid power to supply the needs. Users can also adjust State of Charge (SoC) limits to manage grid power use by the EnergyPro 13K while preserving battery capacity for solar energy. In off-grid scenarios, rely on solar and battery power to sustain the load.



Period	Charge	Discharge	Discharge	Discharge
Load Power	Grid	EnergyPro 13K or EnergyPro 13K + Solar	EnergyPro 13K or EnergyPro 13K + Solar	EnergyPro 13K

Fig. 2-3

2.2.3 Backup Mode

In this mode, the EnergyPro 13K acts as a reliable home backup power source that only kicks in when the grid fails. It prioritizes the use of solar energy over the grid to charge batteries, making it an environmentally friendly and sustainable choice for home energy plans. With ample energy reserves, it provides a seamless power supply, perfect for areas with unreliable grids.

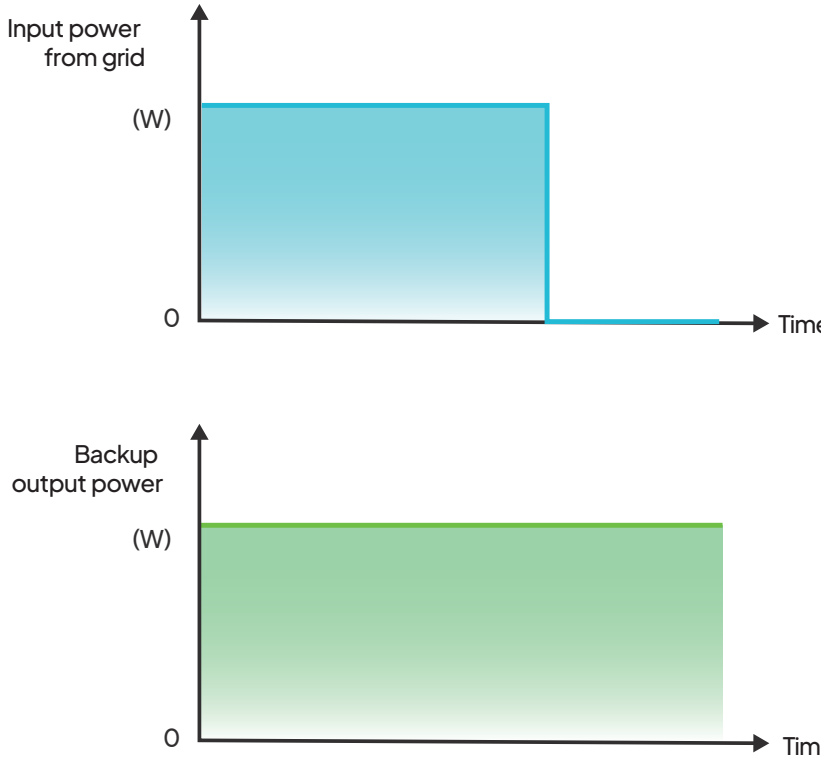
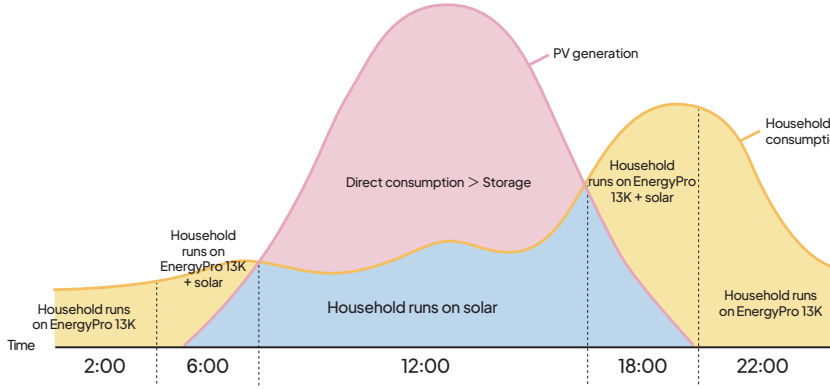


Fig. 2-4

2.2.4 Custom Mode

In this mode, users can customize all of the above mode settings to their preferences.



Period	Discharging	Discharging	Charging	Discharging	Discharging
EnergyPro 13K Operation		Discharging	Discharging	Discharging	Discharging
Solar Used	/	Battery packs	Loads + battery packs	Battery packs	/
Load Power	Grid	EnergyPro 13K + Solar	EnergyPro 13K + Solar	EnergyPro 13K + Solar	EnergyPro 13K

Fig. 2-5

3. EnergyPro 13K Inverter

EnergyPro 13K inverter serves as a versatile PV grid-tied component essential to the energy storage system.

3.1 Features

• **Solar Integration:** Makes the most of solar energy with four MPPT channels, efficiently handling both battery charging and power that feeds into the grid.

• **Energy Management:** Features a dedicated app that automatically adjusts system operations to match user preferences and needs.

• **Uninterruptible Power Supply (UPS):** Provides seamless power transition with a switch-over time of less than 20 milliseconds, and supports unbalanced loads for reliable performance.

• **Battery Expansion:** Allows connection of 2 to 4 EnergyPack 500 battery packs to increase system capacity as needed.

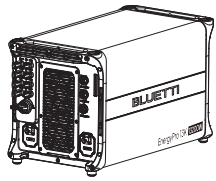
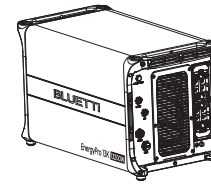
• **Smart Monitoring:** With WiFi or Bluetooth connection, you can check system operation anytime, anywhere via the BLUETTI app.

• **Robust Protection:** Built to handle tough conditions with a NEMA 4X rating, making it reliable for a variety of environments.

3.2 Overview

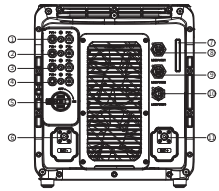
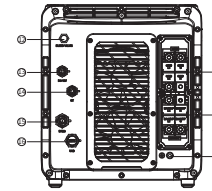
3.2.1 Appearance

Table 3-1

	
Left	Right

3.2.2 Interfaces

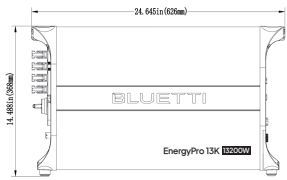
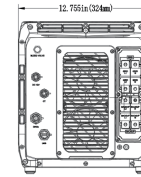
Table 3-2

	
Left	Right

No.	Name	No.	Name
1	PV1 Input	11	BAT + (Battery+)
2	PV2 Input	12	Bleed Valve
3	PV3 Input	13	12V Power Port
4	PV4 Input	14	CT
5	DC Disconnect	15	Generator Port (DRMs) / Meter COM
6	BAT - (Battery-)	16	USB Port
7	LED Indicator	17	Grid Block
8	Link Port 1	18	Backup Block
9	Link Port 2	19	System Grounding
10	Link Port 3		

3.2.3 Dimensions

Table 3-3 (Unit: in/mm)

	
Front	Right

3.3 LED Indicators



Table 3-4

Situation	Run	Alarm	Fault
Normal	On	/	/
Alarm	On	On	/
Fault	/	/	On
Alarm and fault	/	On	On
Standby	Flashing	/	/

3.4 Buzzer Alarm

When a fault occurs, the buzzer emits a series of 10 beeps. Each time lasts for 5 seconds with a 1-second interval between each beep.

Note: The buzzer alarm can be turned off in the BLUETTI app.

Table 3-5

Error Code	Description
B005	Hardware BUS Overvoltage
B007	Hardware Battery Overvoltage
B008	Hardware Inverter Overcurrent
B009	Hardware Inverter 2 Overcurrent

3.5 Maintenance and Care

The EnergyPro 13K inverter requires regular maintenance, including:

- Inspect and clean the fan, fan guard, and heat sink if dust or blockages are present.
- Ensure that the fan operates without any abnormal noise.
- Check and tighten AC and DC cable connections annually using a torque wrench.

4. EnergyPack 500 Battery

4.1 Introduction

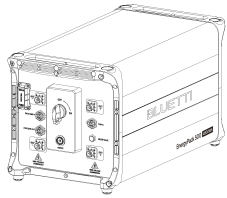
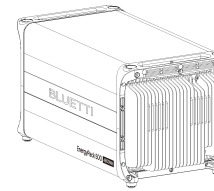
The EnergyPack 500 is a flexible battery storage system designed for homes and small businesses. Each pack delivers 4.8 kWh of capacity, and when paired with the EnergyPro 13K, up to four packs can be connected in parallel, providing 19.2 Wh—enough to power a home for several days.

It's equipped with an intelligent Battery Management System (BMS) that actively monitors voltage, current, and temperature during both charging and discharging. This ensures protection from over-voltage, under-voltage, over-current, and extreme temperatures.With built-in safety redundancies, the system meets high safety standards, and its DC-DC converter simplifies parallel connections, allowing batteries of different capacities and lifespans to work seamlessly together.

4.2 Overview

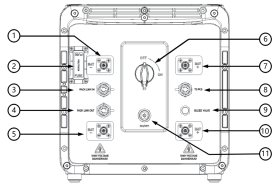
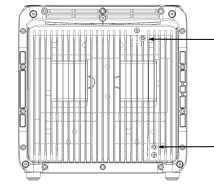
4.2.1 Appearance

Table 4-1

	
Left	Right

4.2.2 Interfaces

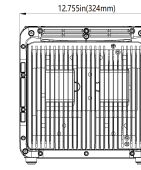
Table 4-2

	
Left	Right

No.	Name	No.	Name
1	BAT - (Battery -)	8	TO PCS (PCS Comm Signal)
2	FUSE (Battery Fuse)	9	Bleed Valve
3	PACK LINK IN (Pack Comm Signal)	10	BAT + (Battery +)
4	PACK LINK OUT (Pack Comm Signal)	11	ON/OFF(Power ON/OFF Button with LED)
5	BAT - (Battery -)	12	Grounding 1
6	DC Disconnect	13	Grounding 2
7	BAT + (Battery +)		

4.2.3 Dimensions

Table 4-3 (Unit: in/mm)

	
Front	Right

4.3 ON/OFF LED

Table 4-4

Status	Description	Note
OFF	EnergyPack 500 is off.	DC disconnect switch can be operated.
ON	EnergyPack 500 is working normally.	DC disconnect switch cannot be operated.
Flashes once every second	EnergyPack 500 is upgrading.	DC disconnect switch cannot be operated.
Flashes once every 0.5s	EnergyPack 500 is not working with alarm or fault.	The battery pack is malfunctioning. Please contact BLUETTI or your local BLUETTI dealers for assistance.

4.4 Battery Maintenance

• If indicator lights are off on parallel-connected battery packs, please contact BLUETTI support or your local BLUETTI dealers.

• If there's an issue with the EnergyPack 500, please contact BLUETTI support or your local BLUETTI dealers.

• To ensue safe operation, do not turn off the DC disconnect switch while the EnergyPack 500 is in normal operation.

• Do not disassemble the metal enclosure of the EnergyPack 500 to prevent electric shock or explosion hazards.

• Do not disassemble, repair, or replace components on your own.

5. EMS Controller

5.1 Communication Principle

The EMS controller supports WiFi and Bluetooth connectivity, allowing users to monitor the EnergyPro 13K's operating status via the app. Everything about the system, including power generation and consumption, and alarms, can be uploaded to the BLUETTI server via the WiFi network.

Note: Users need to register a BLUETTI account and scan the EnergyPro 13K's QR code to bind the system.

The EMS controller supports the following communication methods:

Table 5-1

Communication	Note
WiFi	Standard
Bluetooth	Standard

5.2 Key Features and Interfaces

• Manage up to three inverters in parallel and monitor their performance from anywhere.

• Intelligently balance loads, maximize battery efficiency, and optimize solar energy across up to three inverters.

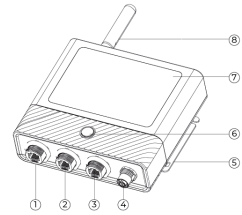


Fig. 5-1

No.	Name	Description
1-3	PCS Ports 1-3	Connects to the link port 1 of inverters or to compatible devices.
4	Multi-use Port	For RS485 communication with third-party meters and charging stations, as well as external ATS control. **Note:** Make sure any connected meter is compatible with the inverter. It's recommended to use the EMS to gather data from solar inverters and grid meters, including solar power output and grid energy usage.
5	Bracket	For mounting the EMS controller on the wall. Pre-assembled with the EMS controller. Remove it before installing the EMS controller.
6	Alarm Indicator / HOME Button	Steady Green: Normal operation Steady Yellow: Minor alarm Steady Red: Severe alarm Off: Power off During normal operation, press to access the homepage.
7	Touch Screen	View EMS controller status, energy settings, and more.
8	Antenna	For internal WiFi and Bluetooth signal.

Definitions for PCS Ports 1-3

PCS Connector	Function	Description
1	GND	Reference ground for power input
2	9V-15VDC	9V-15VDC power input
3	CANH	For communication with PCS and BMS
4	CANL	
5	PCS_CANH	For parallel connection of PCS units
6	PCS_CANL	
7	PCS_485A+	
8	PCS_485B-	

Attention: PCS ports 1-3 are RJ45 ports. Do not connect Ethernet cables or other device cables to avoid damage to the equipment.

Definitions for RJ45 Cable

RJ45 Connector (EMS Controller)	Function	9-pin Connector (Inverter)	Description
1	GND	1	Reference ground for power input
2	9V-15VDC	2	9V-15VDC power input
/	/	3	NC
3	CANH	4	For communication with PCS and BMS
4	CANL	5	
5	PCS_CANH	6	For parallel connection of PCS units
6	PCS_CANL	7	
7	PCS_485A+	8	
8	PCS_485B-	9	

Definitions for Multi-use Port

Connector	Function	Description	Note
1	RS485-B2	Charging station RS485 communication	Connects to RS485-B-
2	RS485-A2		Connects to RS485-A+
3	RS485-B1	Meter RS485 communication (Two meters on a single bus)	Connects to grid meter and AC PV meter RS485-B-
4	RS485-A1		Connects to grid meter and AC PV meter RS485-A+
5	GND	I/O reference ground	For both 9V-15VDC output and DRMs input
6	EXT_IN	DRMs signal input	Signal input, active low (connect to I/O reference ground for a low level)
7	9V-15VDC	9V-15VDC/0.2A output	Power supply for ATS control
8	GEN_NO	SPDT relay NO terminal	I/O control for ATS

Attention: The multi-use port requires enhanced insulation.

5.3 Installation



Danger

Make sure to check for any cables or pipes before drilling into the wall.

For a strong and uninterrupted wireless signal, install the EMS controller in an open area, away from obstructions. Keep it close to the home WiFi router.

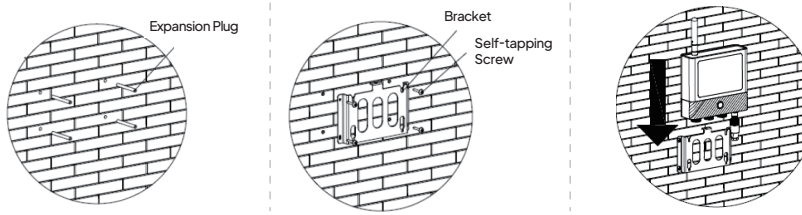
Do not place the controller near walls made of steel-reinforced concrete or metal, as these materials can disrupt both WiFi and Bluetooth signals.

Step 1: Remove the screws from the top of the bracket.

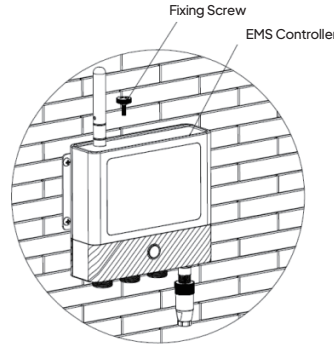
Step 2: Drill 4 holes in the wall with an electric drill (5mm). The depth of the holes is 1.02in (26mm).



Step 3: Put the bracket back on and snap the controller into position.



Step 4: Secure the EMS controller using the screws removed in step 1.

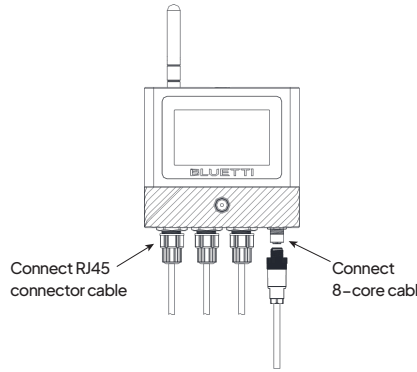


5.4 Safety Instructions

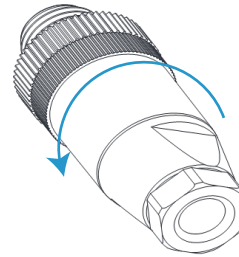
Warning
Follow these guidelines for proper operation.

• The EMS controller is ONLY applicable to BLUETTI products.
• Only authorized personnel should handle the internal component replacements. No end-user serviceable components available.
• Do not insert foreign objects into any ports of the product.
• Keep the product out of reach of children.
• Keep the product away from heat sources.
• Do not store or use the product in areas with flammable materials, explosive gases, or smoke.
• In the event of a fire, use a dry powder fire extinguisher.

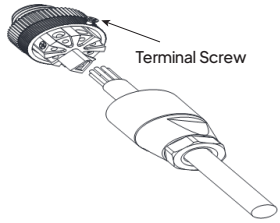
5.5 Connection and Operations

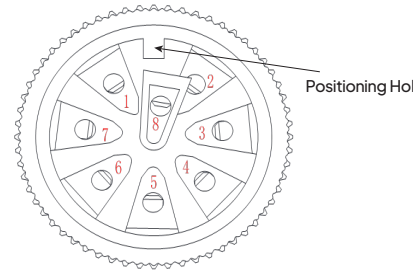


Connecting 8-core cable:
Step 1: Prepare an 8-core cable (recommended: UL2238, 24AWG) of the appropriate length.
Step 2: Twist off the end cap of the 8-core cable.



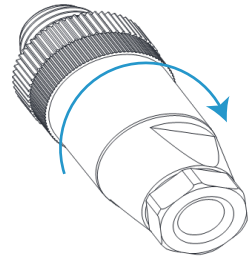
Step 3: Pass the 8-core cable through the cap. Loosen the terminal screw. Refer to the 8-core terminal sequence in the table, insert the cores accordingly, and tighten the screw.





Connector	Function	Description	Note	Reference Diagram
1	RS485-B2	Charging station RS485 communication	Connects to RS485-B-	
2	RS485-A2		Connects to RS485-A+	
3	RS485-B1	Meter RS485 communication (Two meters on a single bus)	Connects to grid meter and AC PV meter RS485-B-	
4	RS485-A1		Connects to grid meter and AC PV meter RS485-A+	
5	GND	I/O reference ground	For both 9V-15VDC output and DRMs input	
6	EXT_IN	DRMs signal input	Signal input, active low (connect to I/O reference ground for a low level)	
7	9V-15VDC	9V-15VDC/0.2A output	Power supply for ATS control	
8	GEN_NO	SPDT relay NO terminal	I/O control for ATS	

Step 4: Twist the cap back into place.

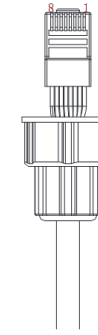


Step 5: Align the 8-core connector with the multi-use port and tighten it up.

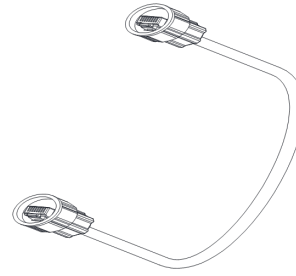
Connecting RJ45 Ethernet cable:

Step 1: Prepare an Ethernet cable of appropriate length (less than 33ft/10m, CAT6).

Step 2: Refer to the table below, and pass the Ethernet cable through the cap. Use a crimping tool to properly crimp one end of the cable.

Pin	Function	Color	Description	Reference Diagram
1	GND	Solid Brown	Reference ground for power input	
2	9V-15VDC	Brown White	9V-15VDC power input	
3	CANH	Solid Green	For communication with PCS and BMS	
4	CANL	Blue White		
5	PCS_CANH	Solid Blue	For parallel connection of PCS units	
6	PCS_CANL	Green White		
7	PCS_485A+	Solid Orange		
8	PCS_485B-	Orange White		

Step 3: Repeat the above steps to crimp the other end of the cable.



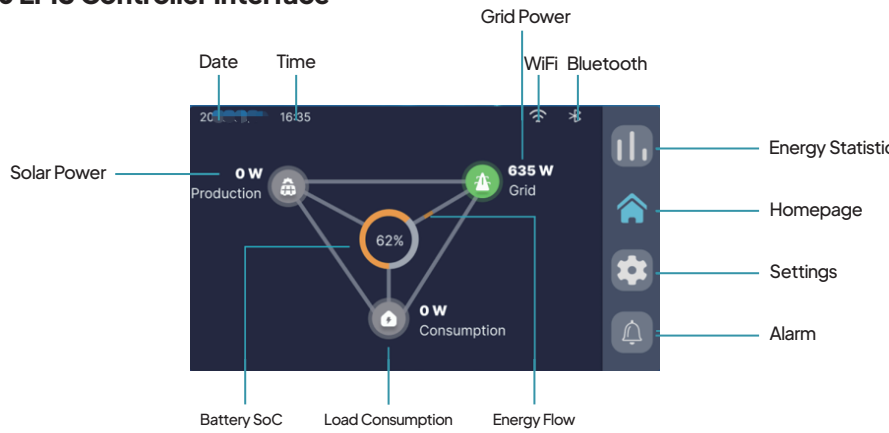
Step 4: Connect one end of the Ethernet cable to the PCS port and the other end to the inverter's link port 1. Then, twist up both caps.

Note:

- Connections vary on a case-by-case basis.
- Safely secure the end cap when the PCS port is not in use.

	Instruction
	Please refer to the user manual for details regarding the EMS controller.

5.6 EMS Controller Interface



Tap to view the Grid feed-in, Grid purchase, Consumption, and PV production by day, month, year, or up to now.

Tap to monitor the energy flow within the system.

Tap to configure:

- Charging and discharging settings. Besides using the BLUETTI app, you can also adjust system settings with the EMS controller. Please refer to the *EMS Controller Interface User Manual* for details.
- Display settings, including brightness, alarm sounds, and more.

Tap to check the alarm information. Please refer to Chapter 10. Troubleshooting for details.

6. System Installation

	Danger
	Disconnect all electrical connections from the equipment. Do not install the equipment below pipes, windows, or areas prone to water leaks and accumulation.
	Warning
	Do not block ventilation openings or heat dissipation pathways while operating to prevent overheating and fire risks.
	Caution
	When moving the equipment, be mindful of its weight and balance. Take care to avoid tipping or dropping it, as that could result in damage to the equipment or injury.

6.1 EnergyPro 13K & EMS Controller Packing List

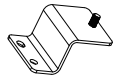
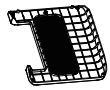
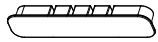
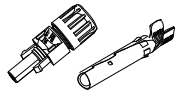
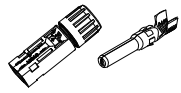
No.	Picture	Description	Qty.
1		EnergyPro 13K inverter	1
2		Bracket #1	2
3		Bracket #2	2
4		M5 hex nut	2
5		Plastic cover (PV)	1
6		Plastic cover (AC)	1
7		Handle seal strip	2
8		AC cable protection case	1
9		Plastic housing (PV+ Input) Metal core (PV+ Input)	4
10		Plastic housing (PV- Input) Metal core (PV- Input)	4
11		MC4 spanner	2
12		M4*12 screw (for AC cable protection case)	6
13		M8*16 screw (for the grid and backup blocks)	8

Table 6-1

Table 6-1

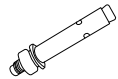
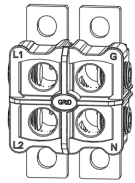
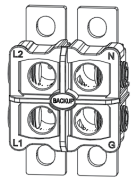
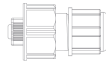
No.	Picture	Description	Qty.
14		M6*12 screw	1
15		M5*10 screw (4 for bracket fixing, 4 for PV grounding)	8
16		M4*8 screw (for plastic covers)	10
17		M8*60 expansion bolt	2
18		Grid block	1
19		Backup block	1
20		RNB3.5-5S OT terminal (for PV grounding)	4
21		12V DC power cable (13ft/4m)	1
22		CT cable (13ft/4m)	1
23		DRMs communication cable (13ft/4m)	1

Table 6-1

No.	Picture	Description	Qty.
24		Ethernet cable (10ft/3m)	1
25		M20 6-pin connector	3
26		CT	2
27		Silicone plug	2
28		Spare screw kit	1

EMS Controller Packing List (packaged separately)

29		EMS controller	1
30		Bracket	1
31		RJ45 male connector	6
32		RJ45 cable (spare)	3
33		Self-tapping screw	4
34		Expansion plug	4

6.2 EnergyPack 500 Packing List

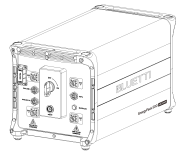
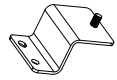
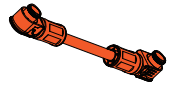
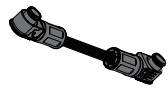
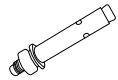
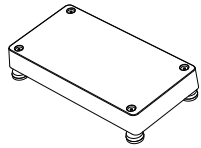
No.	Picture	Description	Qty.
1		EnergyPack 500 battery	1
2		Bracket #1	2
3		Bracket #2	2
4		M5 hex nut	2
5		Left cover	1
6		Right cover	1
7		M4*8 screw	10
8		M5*10 screw	4
9		Communication cable	1
10		Red battery expansion cable (positive)	1
11		Black battery expansion cable (negative)	1

Table 6-2

Table 6-2

No.	Picture	Description	Qty.
12		Grounding busbar	1
13		M8*60 expansion bolt	2
14		M6*12 screw (for grounding)	2
15		Spare screw kit	1

6.3 Base Packing List

No.	Picture	Description	Qty.
1		Base	1

6.4 Installation Requirements

6.4.1 Environment Requirements

• Choose a dry and clean location for installation.

• Avoid direct sunlight; indoor installation is recommended.

• The enclosure and heat sink are very hot while the inverter is working, therefore do NOT install the inverter in places where you might touch inadvertently.

• Keep the EnergyPro 13K away from flammable liquids, gases, or explosive materials.

• Keep away from children and pets.

• Do not install the EnergyPro 13K outdoors in salt-affected areas, as the accumulation of salt may corrode the system. Salt-affected areas are those within 1,640.42ft (500m) from the coast or susceptible to sea breezes. Salt accumulation is influenced by seawater, sea breeze, precipitation, air humidity, topography and forest cover of adjacent sea areas.

• Install the EnergyPro 13K in a well-ventilated and spacious area to ensure good heat dissipation.

• Do not install in low-lying areas prone to water to prevent water ingress and system failure.

• Ambient temperature range: -4°F to 131°F/-20°C to 55°C.

• Relative humidity: 5%-95% (non-condensing).

• Maximum height: 6,561.68ft/2,000m.

	Attention
	If the battery pack is dropped, violently impacted or tilted during installation, it may result in internal damage. So do not use such battery packs to avoid safety risks such as battery leakage and electric shock.

6.4.2 Location Requirements

• Install the EnergyPro 13K on a sturdy, flat, and level surface.

• Do not install the system on flammable materials.

• Consider the weight and placement of components to ensure adequate structural support.

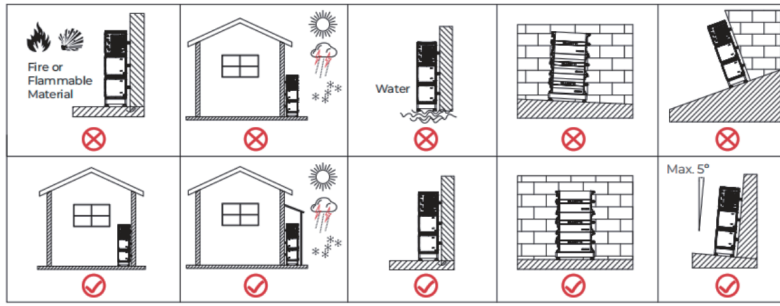


Fig. 6-1

6.4.3 Space Requirements

Danger

Make sure to check for any cables or pipes before drilling into the wall.

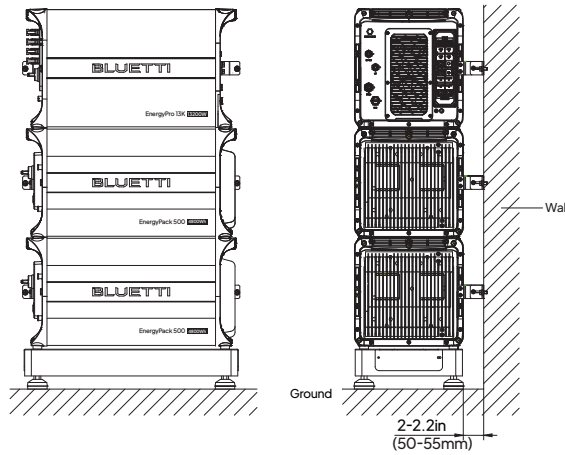


Fig. 6-2

Hole Positions

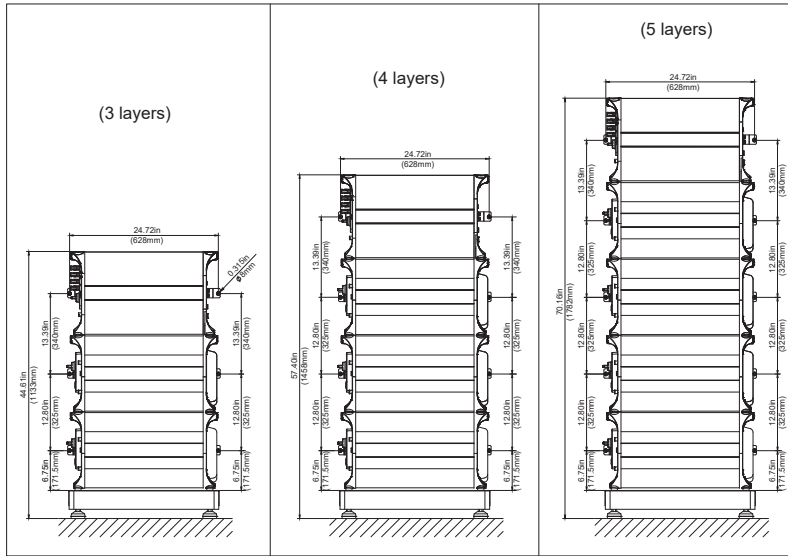


Fig. 6-3 (Unit: in/mm)

Note: Stack up to 5 layers of equipment on the base, including the EnergyPro 13K inverter. For each added or removed battery pack, adjust the installation holes accordingly, and make sure there's at least 12.8 inches (325 mm) between the holes of adjacent packs.

Layout Position

Note: The EnergyPro 13K ESS installation requires a minimum space of 50.85m³, as shown in the specific space reference below.

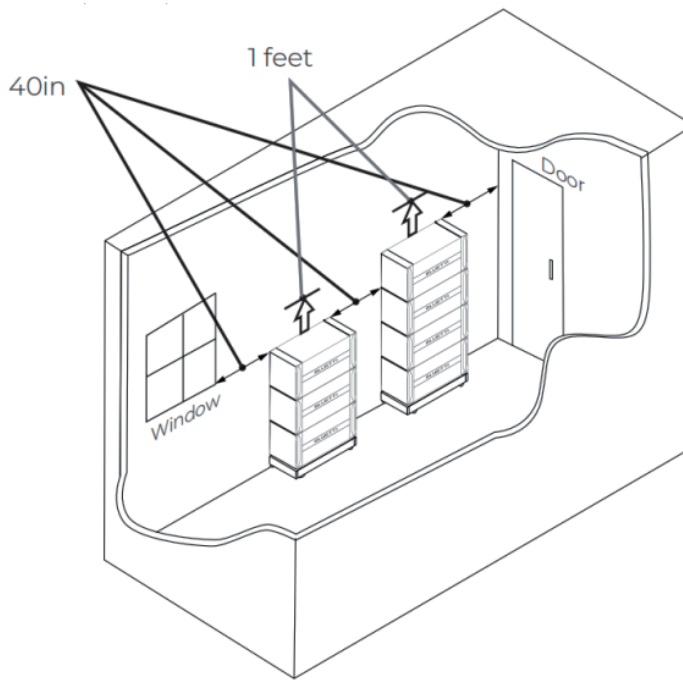


Fig. 6-4

6.4.4 Base Dimensions

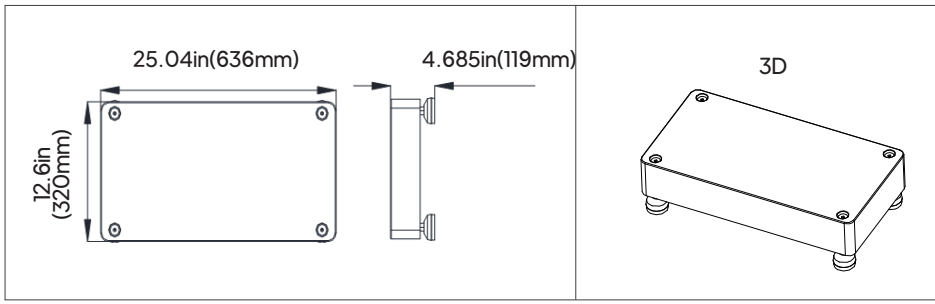
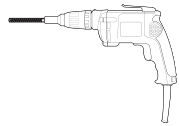
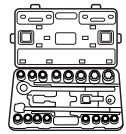
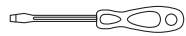
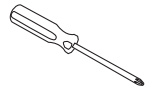
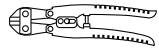
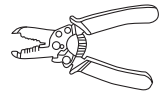
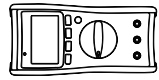
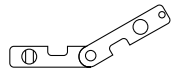
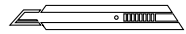
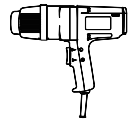
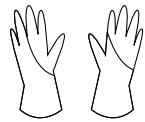


Fig. 6-5

6.5 Prepare the Necessary Tools

Table 6-4

No.	Picture	Description
1		Electric drill (0.394in/10mm)
2		Socket wrench set
3		Torque wrench
4		Flat screwdriver
5		Cross screwdriver (0.157in/4mm) (for AC connector)
6		MC4 spanner
7		Cable cutter
8		Cable stripper
9		Cable crimper (for grid and backup cables, and PV terminals)
10		Multimeter (DC voltage ≥ 1,000VDC)
11		Marker

No.	Picture	Description
12		Measuring tape
13		Level ruler
14		Box cutter
15		Heat shrink tubing
16		Heat gun
17		Cable tie
18		Anti-static gloves
19		Protective goggle
20		Mask
21		Safety-toe shoes
22		Vacuum cleaner

6.6 Installation

Step 1: Place the base on the ground and adjust the height of leveling feet so that the base stands stably on the ground. Don't forget to tighten the nuts to secure the leveling feet.

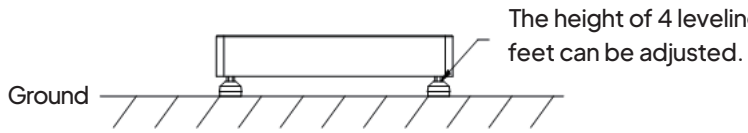


Fig. 6-6

Step 2: Mark the drilling positions with tape and marker. Drill holes with the electric drill and insert M8 expansion bolts. For wooden walls, use ST8*40 self-tapping screws (purchased separately).

Step 3: Move the EnergyPack 500 battery pack to the base. Two people are required to transport the EnergyPack 500. Align the bumps on the battery with the notches on the base to secure the battery in place.

Step 4: Fix 2 brackets #1 to two sides of EnergyPack 500 with 4 M5*10 screws. Put the bracket #2 through the compression rivet screw of bracket #1 and M8 expansion bolts. Secure the connection with M8 and M5 nuts.

Step 5: Repeat steps 3 and 4 to secure all battery packs.

Step 6: Follow the same steps to install the EnergyPro 13K inverter on top.

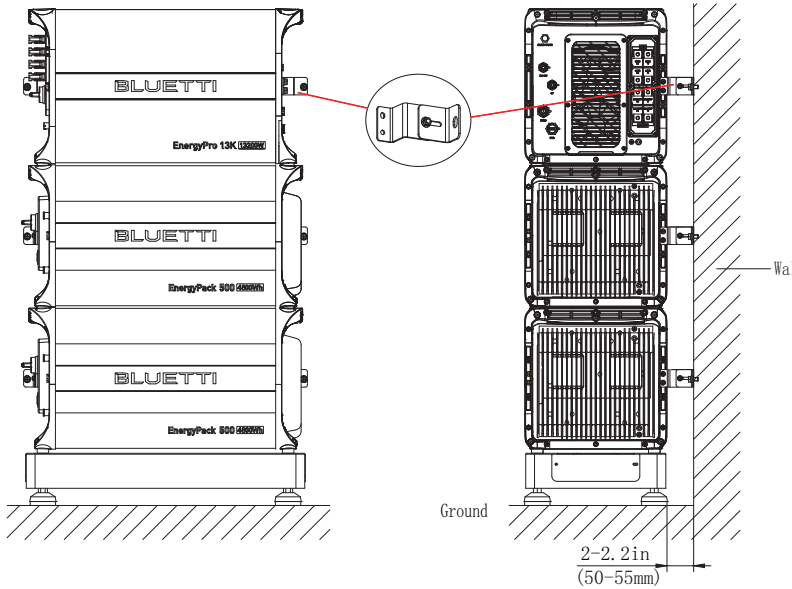


Fig. 6-7

7. Electrical Connection

Before installation or maintenance, make sure both AC and DC sides are powered off. After disconnecting the inverter, wait for 5 minutes to ensure complete discharge, as failure to do so may pose safety risks.



Danger

Before connecting DC electrical components, ensure the inverter and battery pack's DC disconnect switches are turned off.



Warning

Only authorized personnel should perform the electrical connection.
All cables should be securely connected with proper insulation and meet required standards.
Incorrect wiring may cause damage to the system.



Attention

Only authorized personnel should perform the installation and maintenance. When working with inverters and batteries, wear rubber gloves, safety glasses, safety boots, and other protective clothing.



Instruction

Ensure that the solar panels connected to the EnergyPro 13K have an open-circuit voltage not exceeding 520V and comply with the IEC61730A standard.

Table 7-1 Current Parameters

Model	PV I_{SC} (Absolute Maximum)	Max. Input Overcurrent Protection
EnergyPro 13K	18A × 4	18A × 4

7.1 EnergyPack 500 Interface Instructions

Table 7-2

Interface	Description
TO PCS (PCS Comm Signal)	For communication between inverter and battery packs. Only the top EnergyPack 500 needs to be connected to the link port 3 of the inverter.
PACK LINK IN (Pack Comm Signal)	For communication between battery packs. Connect to the PACK LINK OUT port of the upper battery when multiple EnergyPack 500s are stacked (except for the top EnergyPack 500).
PACK LINK OUT (Pack Comm Signal)	For communication between battery packs. Connect to the PACK LINK IN port of the lower battery when multiple EnergyPack 500s are stacked (except for the bottom EnergyPack 500).
BAT + (Battery +)	Connect to the BAT+ terminal of another EnergyPack 500 or the inverter.
BAT - (Battery -)	Connect to the BAT- terminal of another EnergyPack 500 or the inverter.

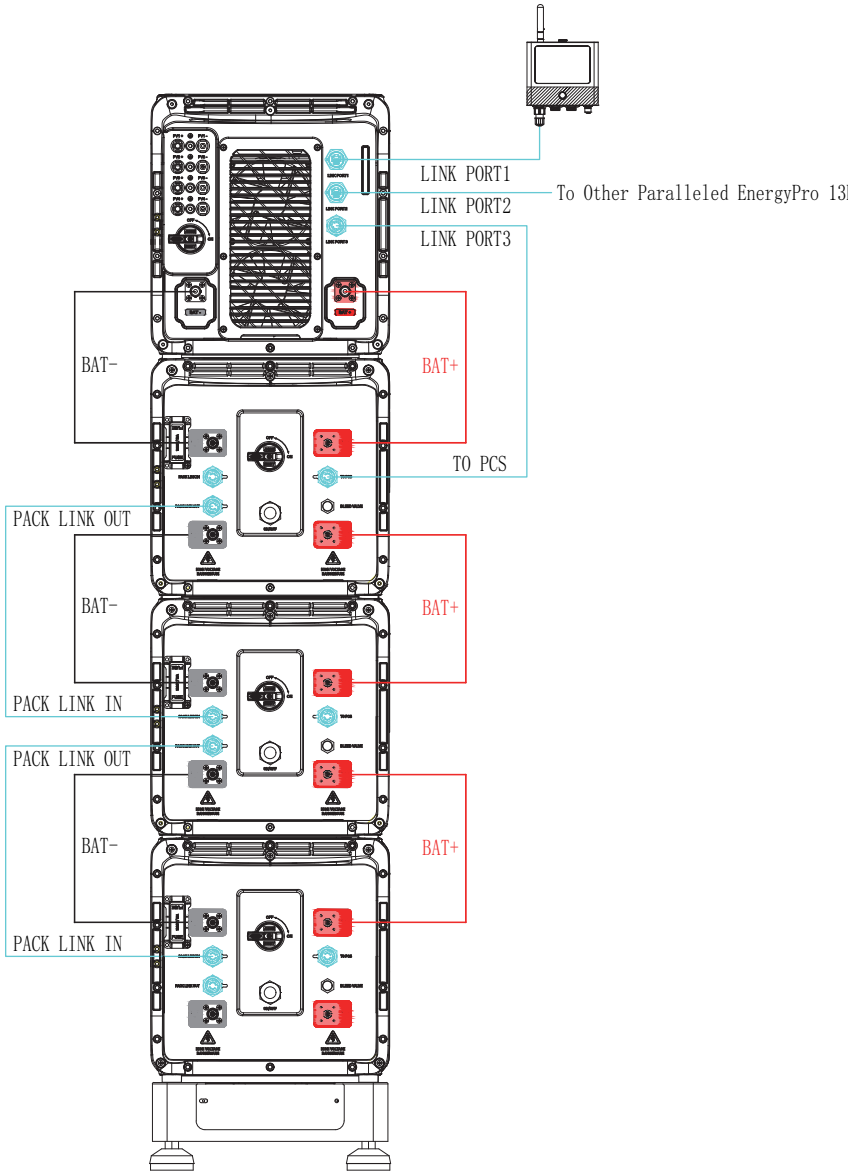

LINK PORT1
To Other Paralleled EnergyPro 13K
LINK PORT2
LINK PORT3
BAT-
BAT+
TO PCS
PACK LINK OUT
BAT-
BAT+
PACK LINK IN
PACK LINK OUT
BAT-
BAT+
PACK LINK IN

Fig. 7-1

7.2 EnergyPro 13K Inverter Interface Instructions

Table 7-3-1

Terminal	Description	Type of Cable Required	Cable Specs
	BAT+: to the battery BAT+ terminal	Standard accessories	/
	BAT-: to the battery BAT- terminal	Standard accessories	
	PV1+: to the positive terminal of solar panel PV1−: to the negative terminal of solar panel PV1 G: PV1 grounding	Outdoor multi-core copper cable	Conductor cross-sectional area: 12AWG
	PV2+: to the positive terminal of solar panel PV2−: to the negative terminal of solar panel PV2 G: PV2 grounding	Outdoor multi-core copper cable	Conductor cross-sectional area: 12AWG
	PV3+: to the positive terminal of solar panel PV3−: to the negative terminal of solar panel PV3 G: PV3 grounding	Outdoor multi-core copper cable	Conductor cross-sectional area: 12AWG
	PV4+: to the positive terminal of solar panel PV4−: to the negative terminal of solar panel PV4 G: PV4 grounding	Outdoor multi-core copper cable	Conductor cross-sectional area: 12AWG

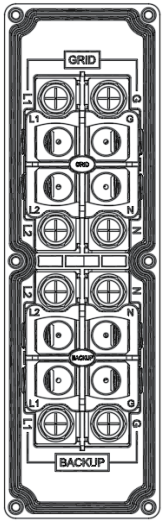
Terminal	Description		Type of Cable Required	Cable Specs
	Grid block	G	Outdoor multi-core copper cable	Choose cables from the table below (up to 155A). Install the appropriate cables based on your needs, and ensure N and G cables are properly connected in the distribution box.
		L1		
		N		
		L2		
	Backup block	L1	Outdoor multi-core copper cable	Choose cables from the table below (up to 155A). Install the appropriate cables based on your needs, and ensure N and G cables are properly connected in the distribution box.
		N		
		L2		
		G		

Table 7-3-2 Cable/Breaker Specs for Grid and Backup Blocks

Max. Continuous Current	Breaker	Cable
56A	70A	6AWG / 90°C copper cable
64A	80A	4AWG / 90°C copper cable
80A	100A	3AWG / 90°C copper cable
100A	125A	2AWG / 90°C copper cable
115A	150A	1AWG / 90°C copper cable
135A	175A	0AWG / 90°C copper cable
155A	200A	00AWG / 90°C copper cable

7.3 Power Cable

Step 1: Connect two EnergyPack 500 battery packs via the battery expansion cables - black cable for negative terminals, red for positive terminals. You should hear clicks when they're properly connected.

Step 2: Connect the top EnergyPack 500 to EnergyPro 13K inverter via the battery expansion cables - black cable for negative terminals, red for positive terminals. You should hear clicks when they're properly connected.

Step 3: Check if the cables are properly connected as shown below.

Step 4: Once the wiring is complete, cover any unused terminals (usually the bottom two) on the battery pack with two silicone plugs. Press them in until secure, as shown in Fig. 7-2-3. If silicone caps are present, remove them before installing the plugs.

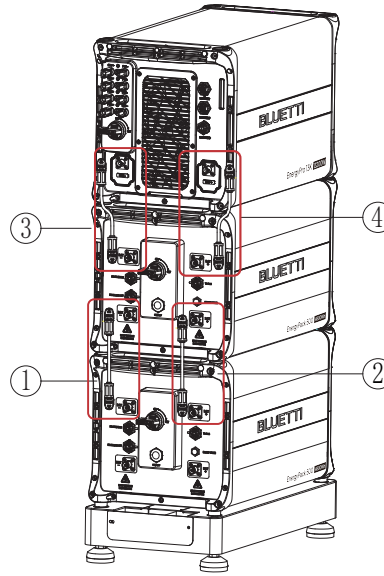


Fig. 7-2-1

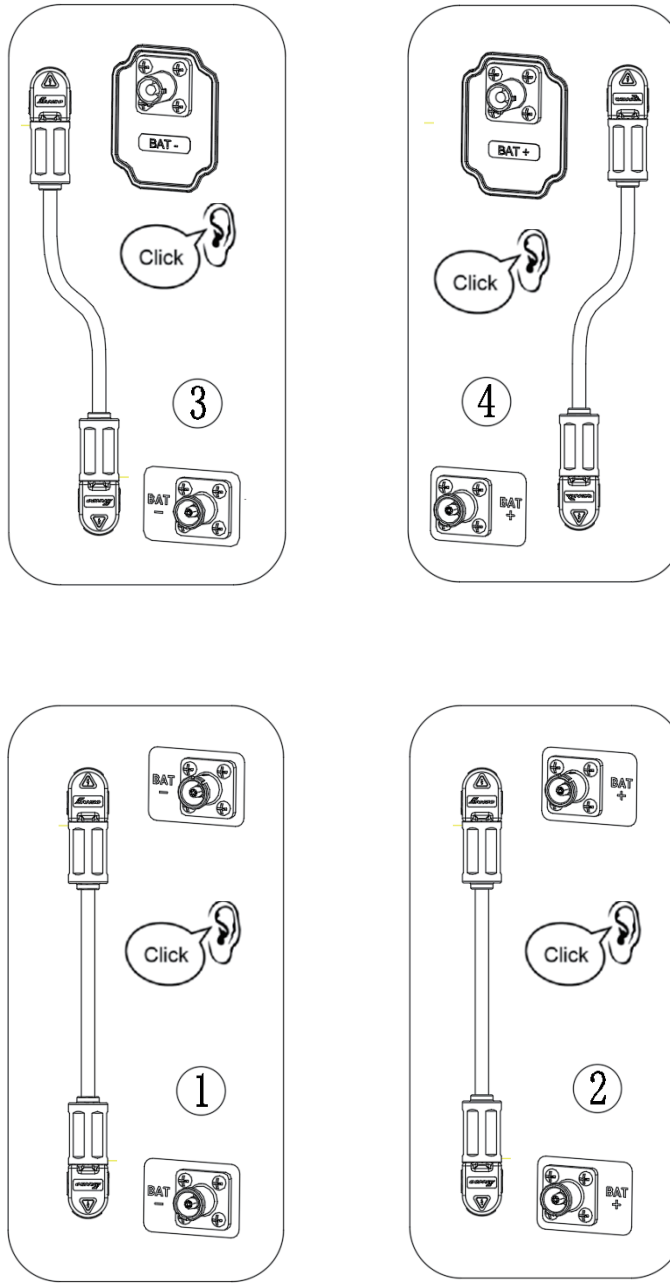


Fig. 7-2-2

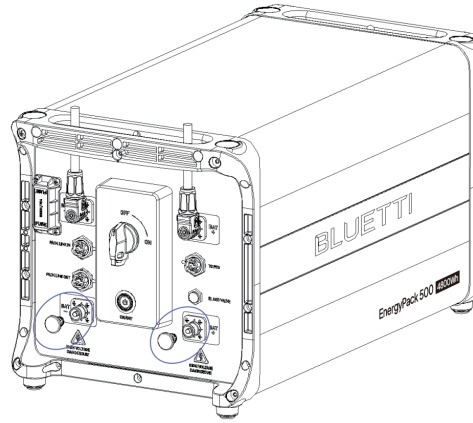


Fig. 7-2-3

7.4 Communication Cable

Step 1: Plug one end of the communication cable to the lower EnergyPack 500's battery signal (PACK LINK IN) port, and the other end to the upper EnergyPack 500's battery signal (PACK LINK OUT) port, as shown in Fig. 7-3. You should hear clicks when they're properly connected.

Step 2: Plug one end of the communication cable to the top EnergyPack 500's inverter signal (TO PCS) port, and the other end to the link port 3 of the EnergyPro 13K inverter, as shown in Fig. 7-3. You should hear clicks when they're properly connected.

Step 3: Prepare the Ethernet cable of the appropriate length (less than 33ft/10m, CAT6) using the RJ45 male connector. Refer to chapter 7.8.3 for detailed instructions.

Step 4: Connect the EMS controller to the link port 1 of the EnergyPro 13K inverter using the RJ45 cable and twist up the caps, as shown in Fig. 7-3.

Note: For how to integrate multiple EnergyPack 500s to the EnergyPro 13K, please refer to chapter 7.1.

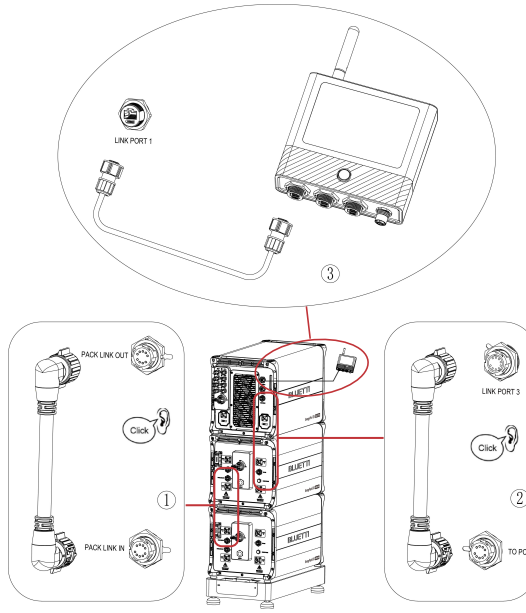


Fig. 7-3

7.5 Grounding Protection (G)

	Danger
!	It's essential to keep both positive and negative terminals of the solar system ungrounded to prevent inverter malfunctions. Make sure all non-current-carrying metal components, like brackets, distribution boxes, and the inverter and battery pack chassis, are properly grounded.

Prerequisite: Prepare the ground cable (recommended to use 12AWG outdoor power cable and RNB3.5-5S OT terminals).

Step 1: Strip the insulation layer of the grounding cable with a cable stripper to a proper length, as shown in Fig. 7-4-1.

Step 2: Insert the exposed core wires into the OT terminal and crimp them with a crimper, as shown in Fig. 7-4-2.

Step 3: Fix the OT terminal with M5 screws at the position shown in Fig. 7-4-3.

Recommended torque: 3 Nm.

Note: L3 is the length between the insulation of the cable and the crimped part. L4 is the length between the crimped part and core wires protruding from the crimped part.

The cavity formed after crimping the conductor crimp strip shall wrap the core wires completely. The core wires shall contact the terminal closely.

Step 4: Fix the grounding busbar with M6 screws at the position shown in Fig. 7-4-3.

Recommended torque: 4.8 Nm.

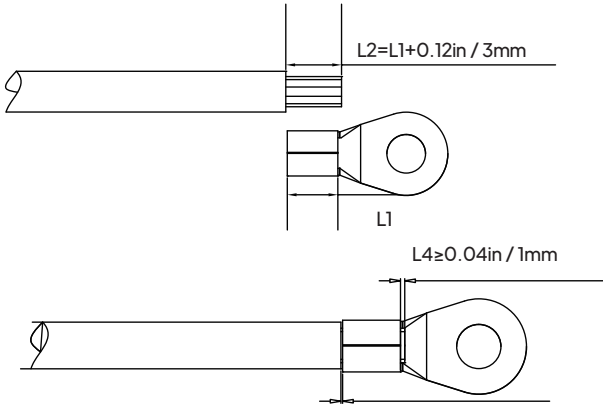


Fig. 7-4-1

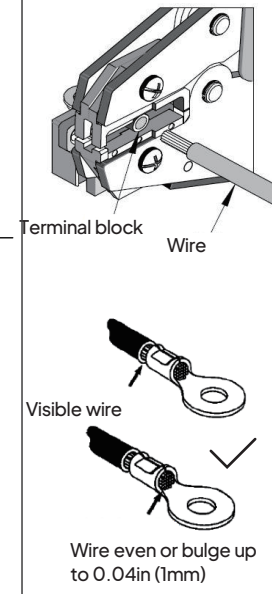


Fig. 7-4-2

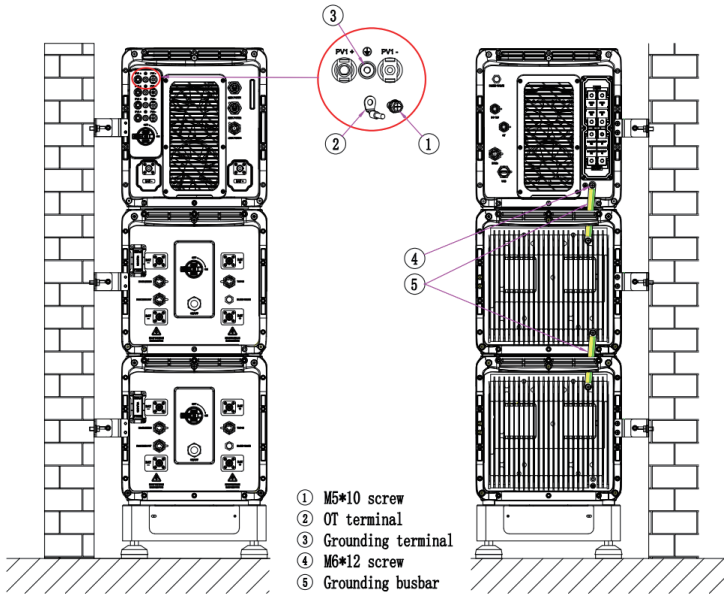


Fig. 7-4-3

Fig. 7-4

7.6 PV Cable

Danger

Do not connect 2 or more PV inputs in parallel.
Make sure that the PV1, PV2, PV3, and PV4 cables are properly connected without reversing their polarity.

Attention

Before removing the PV input positive and negative connectors, make sure the DC disconnect switch on the inverter is "OFF".

Step 1: It is recommended to use 12AWG outdoor power cables and disconnect the cable connectors from the EnergyPro 13K PV input positive and negative connectors. (You're strongly recommend to distinguish the positive and negative connectors with different colors.)

Step 2: Use a cable stripper to remove the insulation from the positive and negative cables to the right length, refer to Fig. 7-5-1.

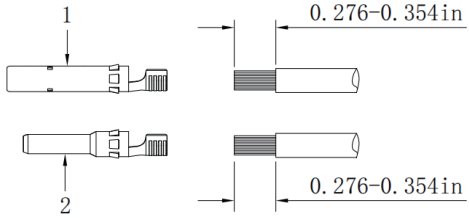
Step 3: Insert the bare cables into the positive and negative metal terminals respectively. Use a cable crimper to securely crimp them in place, as shown in Fig. 7-5-2.

Step 4: Insert the crimped positive and negative cables through the locking nuts and into the corresponding plastic housings. You'll hear clicks when the metal cores are securely in place. Tighten the locking nuts to secure, as shown in Fig. 7-5-3 and 7-5-4.

Step 5: Use a multimeter to confirm the positive and negative poles, as shown in Fig. 7-5-5.

Step 6: Once confirmed, insert the positive and negative connectors into the EnergyPro 13K's PV input ports, as shown in Fig. 7-5-6.

Note: To detach the PV positive and negative connectors from the inverter, use the MC4 spanner. Insert the bayonet and press down firmly to release the connectors, as shown in Fig. 7-5-7.



1. Positive metal core
2. Negative metal core

Fig. 7-5-1

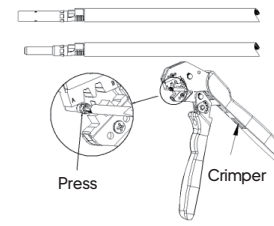
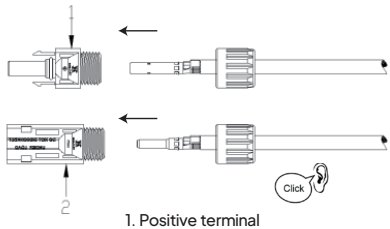


Fig. 7-5-2



1. Positive terminal
2. Negative terminal

Fig. 7-5-3

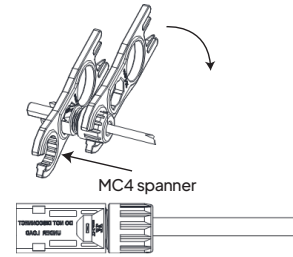


Fig. 7-5-4

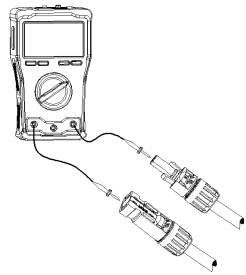


Fig. 7-5-5

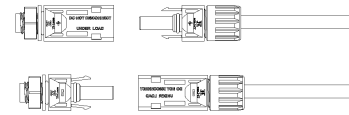


Fig. 7-5-6

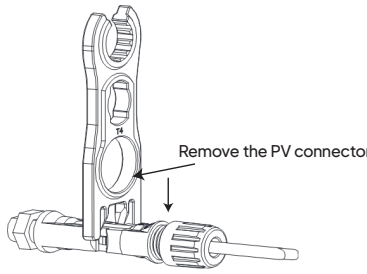


Fig. 7-5-7

Fig. 7-5

7.7 Grid and Backup Cables

Prerequisite: Prepare the neutral, live, and ground cables (recommended using cable gauge between 6AWG and 00AWG: N in white, L2 in red, L1 in black, and G in yellow-green).

Step 1: Select the appropriate specs of cables based on the grid current, refer to Table 7-3-2. Strip the cables to the length as shown in Fig. 7-6-1.

Step 2: Attach the NPT hose connector (purchased separately) to the AC cable protection cover. Tighten the hexagon nut at the bottom with a socket tool, as shown in Fig. 7-6-2.

Step 3: Insert the stripped cables from step 1 into the labeled holes (L1, L2, N, G) of the grid and backup blocks, and secure them using an Allen wrench, as shown in Fig. 7-6-3.

Step 4: Use M8 screws to secure the grid and backup blocks to the designated "GRID" and "BACKUP" positions in the AC cable case, as shown in Fig. 7-6-4.

Step 5: Pass the grid and backup cables through the NPT hose connectors on the protection cover, and secure the cover with M4 screws. Then, insert the cables into the hoses, attach the hoses to the NPT connectors, and tighten the connectors with the compression nuts, as shown in Fig. 7-6-5.

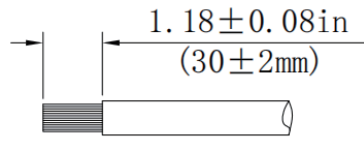
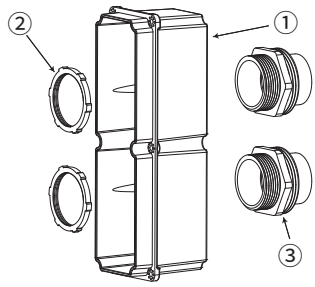
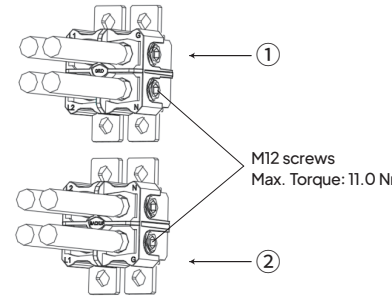


Fig. 7-6-1



① AC cable protection cover
② NPT hose connector nut
③ NPT hose connector

Fig. 7-6-2



① Grid block
② Backup block

Fig. 7-6-3

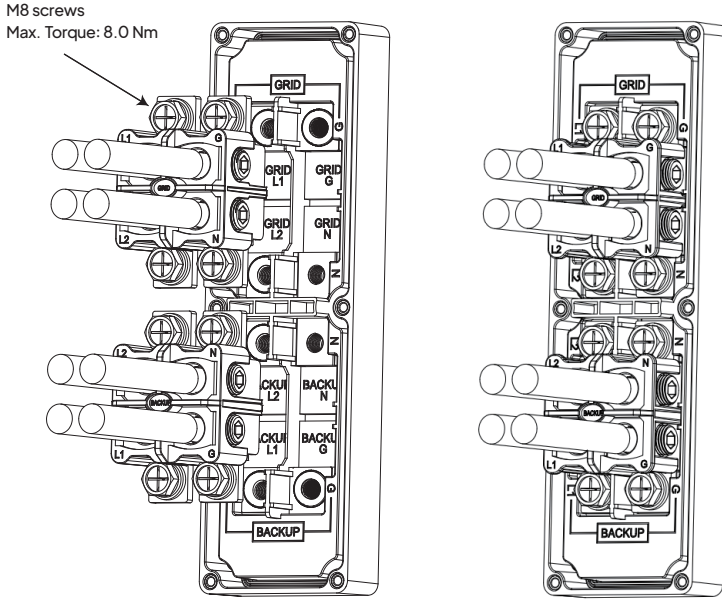
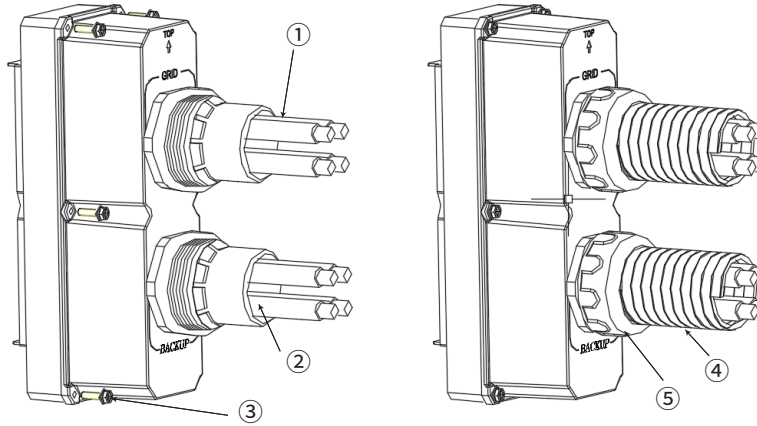


Fig. 7-6-4



① Grid cables
② Backup cables
③ M4*12 screws (Max. Torque: 1.2 Nm)
④ Hose
⑤ NPT connector compression nut

Fig. 7-6-5

Fig. 7-6

7.8 Other Ports

7.8.1 USB Port

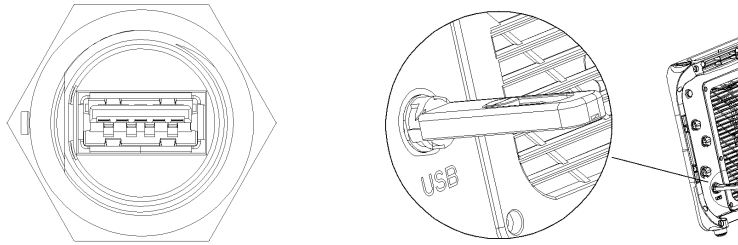


Fig. 7-7

The port is used for EnergyPro 13K inverter firmware upgrade.

The USB flash drive should be formatted as FAT32 with no more than 32GB in size.

Warning

Operation by professional personnel.
For USB flash drive access only, not for USB charging.

7.8.2 Generator / Meter Port

Table 7-4

Pin	Category	Definition	Specifications
1	GEN COM	SPDT relay common terminal	External DC input limit: 30Vdc/3A (For generator input)
2	GEN NC	SPDT relay NC terminal	
3	GEN NO	SPDT relay NO terminal	
4	——	——	
5	485-A3	A: RS485 differential signal+	① Connects to the solar inverter meter (optional), prioritizing the EMS controller's connection to the meter. ② When a solar inverter is installed, the EnergyPro 13K ESS operates in AC-coupled mode. A meter must be installed at the solar inverter's AC output port, with the RS485 interface used for communication. It's recommended to use the EMS controller to communicate with the solar inverter's meter.
6	485-B3	B: RS485 differential signal-	

Step 1: Rotate the M20 6-pin connector cap counterclockwise and take it off.

Step 2: Pass the extended DRMs communication cable through the connector cap. Identify the connector pins and connect the signal wires according to the table below.

Pin	1	2	3	4	5	6
Wire	Red	Black	Green	N/A	Yellow	Orange

Step 3: Tighten the screws with a cross screwdriver.

Step 4: Make sure the cables are secured so they cannot be pulled out.

Step 5: Tighten the connector cap and nut clockwise.

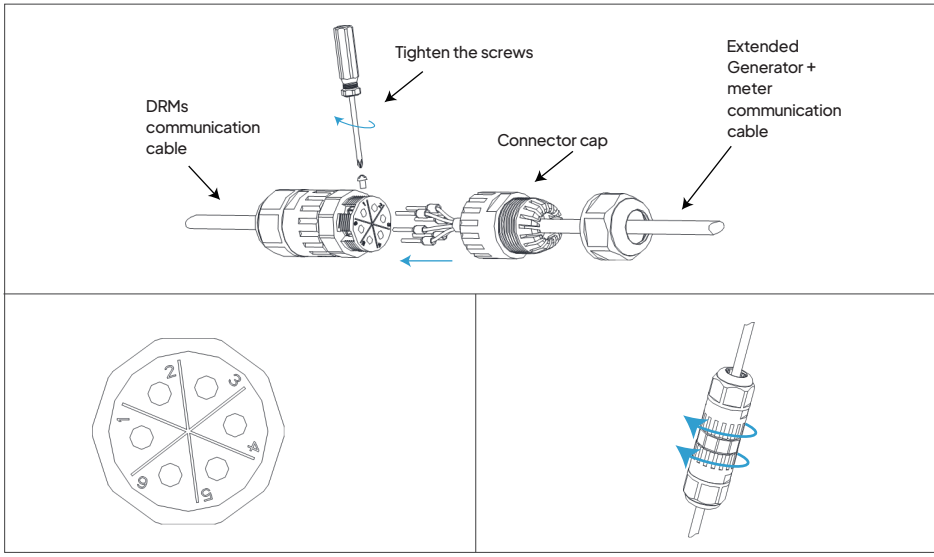


Fig. 7-8

7.8.3 Link Port 1, 2 & 3

Interface	Function	Note
Link Port 1	Connect the EMS controller	Refer to Fig. 7-3 for details.
Link Port 2	Connect the other EnergyPro 13K for parallel operation	
Link Port 3	Connect the EnergyPack 500 battery pack	

Table 7-5

For connection to link port 1 and link port 2 with RJ45 connectors:

Step 1: Prepare an Ethernet cable of the appropriate length.

Step 2: Refer to the table below, and pass the Ethernet cable through the RJ45 male connector. Use a crimping tool to properly crimp one end of the cable.

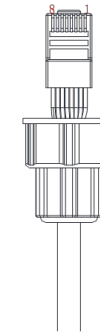
Pin	Function	Color	Description	Reference Diagram
1	GND	Solid Brown	Reference ground for power input	
2	9V-15VDC	Brown White	9V-15VDC power input	
3	CANH	Solid Green	For communication with PCS and BMS	
4	CANL	Blue White		
5	PCS_CANH	Solid Blue	For parallel connection of PCS units	
6	PCS_CANL	Green White		
7	PCS_485A+	Solid Orange		
8	PCS_485B-	Orange White		

Table 7-6

Step 3: Repeat the above steps to crimp the other end of the cable.

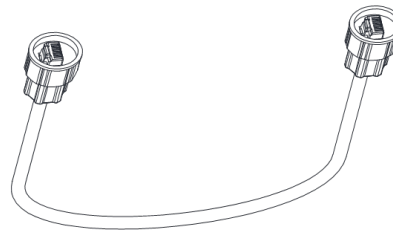


Fig. 7-9

Step 4: Connect one end of the RJ45 cable to the link port 1 of the EnergyPro 13K inverter and the other end to the PCS port of the EMS controller. Then, twist up the caps.

7.8.4 CT Port

Attention

The CT is for measuring grid current. If a meter is installed on the grid side and communicates with the EMS controller, the CT is not required. Related settings can be configured in the BLUETTI app.

Table 7-7

Pin	Definition	Description	Note
1	CT-L1+ (White)	CT output positive terminal	Connects to the Phase L1 CT in the grid.
2	CT-L1- (Black)	CT output negative terminal	
3	CT-L2+ (White)	CT output positive terminal	Connects to the Phase L2 CT in the grid.
4	CT-L2- (Black)	CT output negative terminal	

Step 1: Rotate the M20 6-pin connector cap counterclockwise and take it off.

Step 2: Pass the extended CT cable through the connector cap. Identify the connector pins and connect the signal wires according to the table below.

Pin	1	2	3	4	5	6
Wire	Pink	Black-White	Purple	Gray	N/A	N/A

Step 3: Tighten the screws with a cross screwdriver.

Step 4: Make sure the cables are secured so they cannot be pulled out.

Step 5: Tighten the connector cap and nut clockwise.

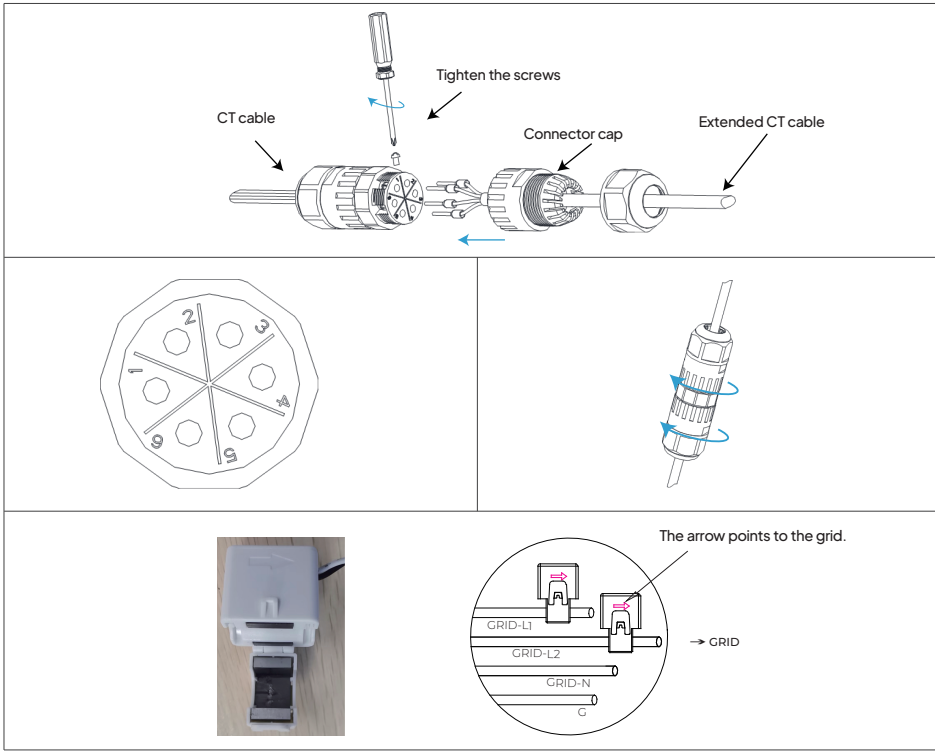


Fig. 7-10

Follow the diagram below for the correct CT direction from the grid-tied inverter to the grid.

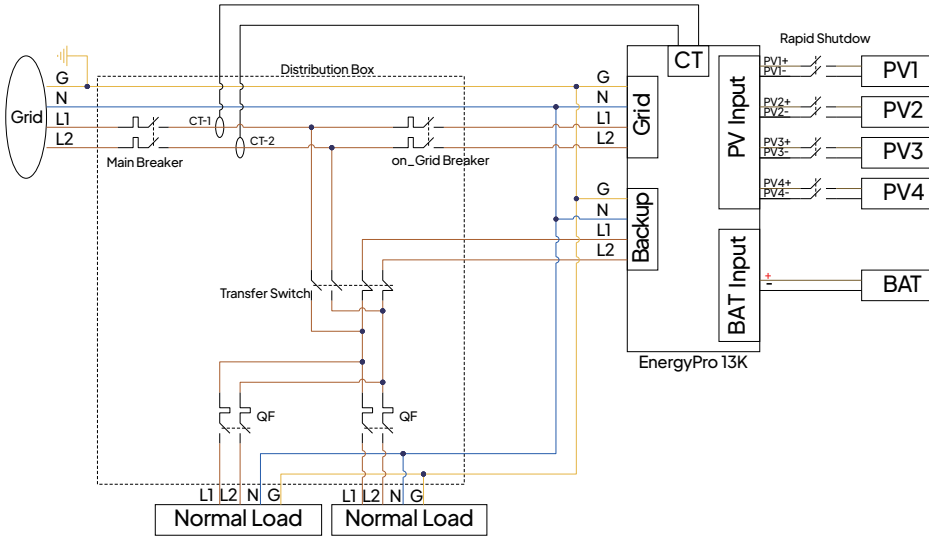


Fig. 7-11

7.8.5 12V Power Port

Pin	Definition	Description	Note
1	12V+	12V power output positive terminal	12V power supply (maximum output: 1A)
2	12V-	12V power output negative terminal	
3	12V+	12V power output positive terminal (controlled by PCS software)	
4	12V-	12V power output negative terminal	
5	NC	——	——
6	NC	——	

Table 7-8

Step 1: Rotate the M20 6-pin connector cap counterclockwise and take it off.

Step 2: Pass the extended 12V DC power cable through the connector cap. Identify the connector pins and connect the signal wires according to the table below.

Pin	1	2	3	4	5/6
Wire	Pink	Black-White	Purple	Gray	N/A

Step 3: Tighten the screws with a cross screwdriver.

Step 4: Make sure the cables are secured so they cannot be pulled out.

Step 5: Tighten the connector cap and nut clockwise.

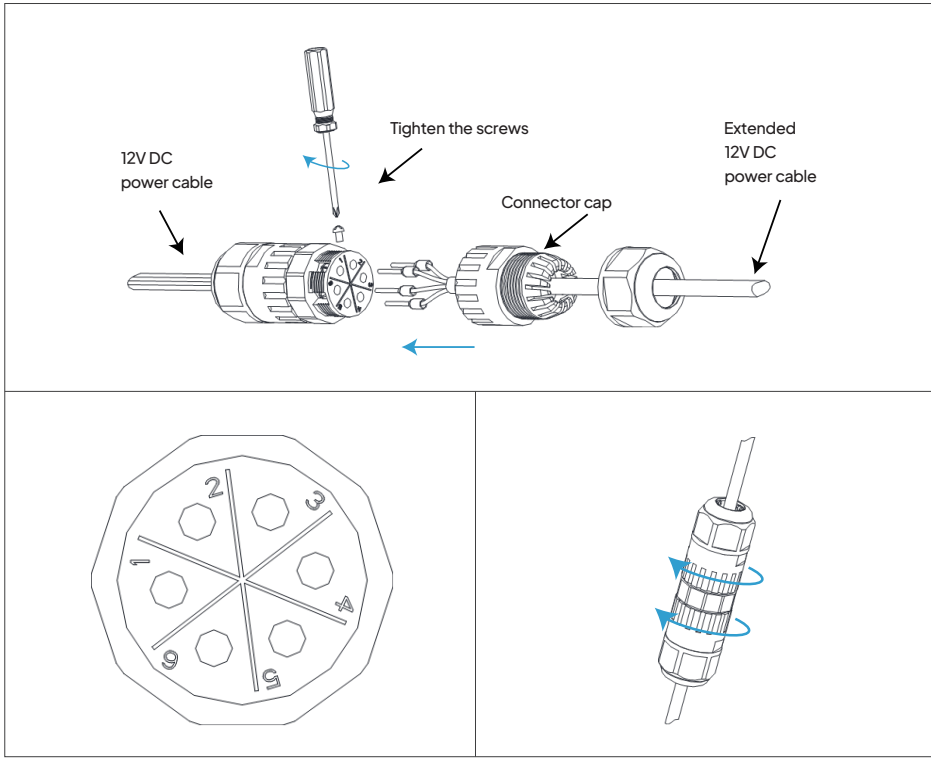


Fig. 7-12

8. System Commissioning

8.1 Preliminary Check

Before powering up the EnergyPro 13K ESS, double check:

- All system components are installed properly.
- The PV+/PV- and BAT+/BAT- cables are connected with proper polarity and voltage.
- The DC disconnect switches and AC circuit breaker are switched off.
- AC circuit breaker used meet manual requirements and local regulations.
- Grid and load cables are held firmly in place.
- Safety signs and warning labels are firmly attached and clearly visible.

8.2 System Trial

Step 1: Switch on the DC disconnect switch on the EnergyPro 13K inverter.

Step 2: Switch on the DC disconnect switches on all EnergyPack 500 battery packs. Press and hold the power button on any EnergyPack 500 till the indicator on the button lights up green.

Step 3: Wait about 40 seconds for the inverter indicator to stay steady green.

Step 4: Switch on the AC circuit breakers for the inverter's grid block.

Step 5: Turn on "System Switch" in the BLUETTI app. For details, please refer to the *BLUETTI App User Manual.*

Step 6: Check the output voltage of the backup block.

Step 7: Switch on the AC circuit breakers for the inverter's backup block.

Step 8: Monitor EnergyPro 13K system status using the BLUETTI app.

8.3 Firmware Upgrade

8.3.1 USB Flash Drive Upgrade

The EnergyPro 13K inverter supports firmware upgrade via a USB flash drive to optimize its performance and avoid failures caused by software errors.

Step 1: Insert the USB flash drive into your computer.

Step 2: Download the upgrade file*, unzip, and save it to the USB flash drive.

Step 3: Insert the USB flash drive into the inverter's USB port.

Step 4: Power on the EnergyPro 13K.

Step 5: The firmware upgrade starts automatically once the upgrade files are detected.

Step 6: Once the upgrade is complete, the buzzer will beep. Unplug the USB flash drive immediately to avoid a format error. The system is now ready for use.

Step 7: If any of the following issues occur, try the provided solutions. If the issue persists after 5 attempts, please contact BLUETTI support.

* Please contact BLUETTI support for further assistance.

Table 8-1

Error Description	Solution
USB flash drive upgrade failed	Please contact BLUETTI support.
USB flash drive format error	1. Make sure the USB flash drive is formatted as FAT32 with no more than 32GB in size. 2. Check if the upgrade files exist or expire. Please download the latest upgrade files.
Firmware version not updating or abnormal	Please download the latest upgrade files. If the issue persists, contact BLUETTI support.

8.3.2 OTA Upgrade

For details, please refer to "Firmware Upgrade" in the *EnergyPro 13K Energy Storage System BLUETTI App User Manual*.

8.4 Power off

Warning

After powering off the EnergyPro 13K, residual voltage may still be present, which can cause electric shock or burns. Please wait at least 5 minutes and wear protective gloves before handling the system.

Step 1: Turn off the "System Switch" in the BLUETTI app.
Step 2: Switch off the AC circuit breakers for the inverter's grid and backup blocks.
Step 3: Switch off the DC disconnect switch on the inverter.
Step 4: Press the power button on any EnergyPack 500 till the indicator on the button flashes green.
Step 5: The indicator continues to flash.
Step 6: When the indicator is off, the EnergyPack 500 turns off.
Step 7: Switch the DC disconnect switches on all EnergyPack 500 to "OFF" and the system powers off.

9. System Disposal

9.1 Remove the Inverter

When the inverter is no longer in use, follow these steps to dispose of it properly:
Step 1: Power off the system.
Step 2: Unplug all cables connected to the inverter, including communication cables, PV input cables, power cables, AC output cables, and grounding cables.
Step 3: Remove the inverter and any associated components.

9.2 Recycle the Inverter and Battery Pack

When the inverter and battery pack reach the end of their lifespan, dispose of them safely and responsibly according to local laws and regulations.

10. Troubleshooting
10.1 EnergyPro 13K Inverter

Table 10-1

No.	Error Description	Solution
B001	BUS Overvoltage	Check if the DC disconnect switches on all EnerCell 500 battery packs are turned on. If so, power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B002	/	——
B003	BUS Undervoltage	Check if the DC disconnect switches on all EnerCell 500 battery packs are turned on. If so, power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B004	/	——
B005	Hardware BUS Overvoltage	Check if the DC disconnect switches on all EnerCell 500 battery packs are turned on. If so, power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B006	/	——
B007	Hardware Battery Overvoltage	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B008	Hardware Inverter Overcurrent	Check the AC side connections (grid and backup blocks). If connections are correct, power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B009	Hardware Inverter 2 Overcurrent	

No.	Error Description	Solution
B010 - B011	/	——
B012	Overcurrent in Balance Circuit	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B013	Auxiliary Power Undervoltage	
B014	DC Component Exception	
B015	Relay Failure	
B016	PV Connection Error	Power off the system and check if the PV input cable is connected correctly. If the polarity is reversed, correct the connection and restart the system. If the issue persists, please contact BLUETTI support.
B017	PV1 Overcurrent	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B018	PV2 Overcurrent	
B019	PV3 Overcurrent	
B020	PV1 Voltage High	Check if the solar system's open-circuit voltage exceeds the specific limit. Adjust the number of solar panels in series. The system resumes operation after calibration.
B021	PV2 Voltage High	
B022	PV3 Voltage High	
B023	PV ISO Failure	Check insulation resistance between solar system and ground. Repair promptly if a short circuit is detected.
B024 - B025	/	——
B026	Hardware PV1 Failure	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B027	Hardware PV2 Failure	

No.	Error Description	Solution
B028	Hardware PV3 Failure	
B029	GFCI Hardware Circuit Failure	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B030	GFCI Failure	Check if the AC side connections (grid and backup blocks) meet the installation requirements. Inspect for abnormalities such as leaks or damaged insulation.
B031	/	——
B032	Fan Failure	Check if the inverter fan operates well.
B033	Zero Drift Abnormal	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B034	/	——
B035	DC Input Voltage Low	Check if the battery configuration meets the maximum load requirements. If so, power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B036 - B039	/	——
B040	L1 Inverter Overload	Check if the power rating and load type on the backup block meet specific requirements. If so, power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B041	L2 Inverter Overload	
B042	/	——
B043	L1 Inverter Output Failure	Check if the power rating and load type on the backup block meet specific requirements. If so, power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B044	L2 Inverter Output Failure	
B045	/	——
B046	Overtemperature Protection	Please contact BLUETTI support for assistance.

No.	Error Description	Solution
B047	Communication Failure	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B048	/	
B049	DSP Communication Interrupted	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B050	BMS Communication Interrupted	Check the external communication connections. If properly connected, restart the system. If the issue persists, please contact BLUETTI support.
B051	IoT (EMS) Communication Interrupted	
B052	Zero Drift Abnormal-ARM	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B053	RTC Read/Write Exception	
B054	Inverter Leakage Current Too High	
B055	Ambient Environment Abnormal	Make sure to use the system within a specified temperature range. If not, move the system to a suitable environment. If the issue persists after a restart, please contact BLUETTI support.
B056	Temperature 1 Abnormal	
B057	Temperature 2 Abnormal	
B058	Temperature 3 Abnormal	
B059	Temperature 4 Abnormal	

No.	Error Description	Solution
B060	BMS Charge Protection	Check if the system discharges without grid or solar charging. If not, please contact BLUETTI support.
B061	BMS Discharge Protection	
B062	BMS System Failure	
B063	Parallel Operation Abnormal (inverter)	Ensure the parallel communication cables are securely connected. Restart the equipment. If the issue persists, please contact BLUETTI support.
B064	/	——
B065	PV Input Voltage Too High	Check if the solar system's open-circuit voltage exceeds the specific limit. Adjust the number of solar panels in series. The system resumes operation after calibration.
B066	/	——
B067	BUS Soft Start Abnormal	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B068 – B069	/	——
B070	PV4 Overcurrent	Power off the inverter, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B071	PV4 Voltage High	Check if the solar system's open-circuit voltage exceeds the specific limit. Adjust the number of solar panels in series. The inverter resumes operation after calibration.
B072	/	——

No.	Error Description	Solution
B073	Hardware PV4 Failure	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B074 – B096	/	——
B097	Grid Voltage High	If it occurs occasionally, the grid may go through abnormal working conditions. The inverter recovers after the grid resumes. If it occurs many times, check if the grid voltage and frequency support the inverter input specifications. If so, check the inverter AC circuit breaker and wiring. If the voltage and frequency are beyond the range, please contact BLUETTI support.
B098	Grid Voltage Low	
B099	Grid Frequency High	
B100	Grid Frequency Low	
B101	Grid Oscillation	
B102	Grid Loss	
B103	PV1 Voltage Low	Check for issues in the PV configuration. If no problems are found, confirm if poor weather conditions are affecting performance. If neither applies, please contact BLUETTI support.
B104	PV2 Voltage Low	
B105	PV3 Voltage Low	
B106	Generator Voltage Abnormal	Check if the generator's output voltage meets the required specifications. If it does, check the wiring between the generator and inverter. If it is correct, ensure the generator has enough fuel. If the issue persists, please contact BLUETTI support.
B107 – B108	/	——
B109	Grid Re-connection Abnormal	If it occurs occasionally, the grid may go through abnormal working conditions. The inverter recovers after the grid resumes. If it occurs many times, check if the grid voltage and frequency support the inverter input specifications. If so, check the inverter AC circuit breaker and wiring. If the voltage and frequency are beyond the range, please contact BLUETTI support.

No.	Error Description	Solution
B110	PV4 Voltage Low	Check for issues in the PV configuration. If no problems are found, confirm if poor weather conditions are affecting performance. If neither applies, please contact BLUETTI support.
B111 – B128	/	——
B129	EEPROM Read/Write Abnormal	Power off the system, wait 30 minutes, then restart. If the issue persists, please contact BLUETTI support.
B130 – B133	/	——
B134	USB Flash Drive Format Error	Use the USB flash drive formatted as FAT32 with no more than 32GB in size. Check if the upgrade files exist or expire. If they do not exist or have expired, please contact BLUETTI support to get the latest versions.
B135	USB Flash Drive Upgrade Abnormal	Restart the inverter. If the issue persists, please contact BLUETTI support.
B136	Arcing Detection Abnormal	
B137	USB Flash Drive Communication Abnormal	
B138	No Upgrade File in USB Flash Drive	No upgrade files found in the USB flash drive. Please contact BLUETTI support for the latest firmware.
B139	CT Connection Direction Error	Check if the CT connection direction and phase sequence are correct. If so, please contact BLUETTI support.

No.	Error Description	Solution
B140	AC PV Meter Communication Abnormal	Check communication and power supply wiring of the meter used for AC coupling.
B141	Arcing Module Self-test Failure	Restart the inverter. If the issue persists, please contact BLUETTI support.
B142	Arcing Module Communication Failure	
B143	Data Erasure	The equipment is performing data erasure. The alert will disappear once completed.
B144 – B148	/	——
B149	Grid Meter Communication Abnormal	Check communication and power supply wiring of the meter used for anti-backflow function.

10.2 EnergyPack 500 Battery

Table 10-2

No.	Error Description	Solution
P001	Overvoltage	Restart the system. If the issue persists, please contact BLUETTI support.
P002	Charging Overtemperature	Stop using and wait for the battery to cool down.
P003	Single Cell Overvoltage	Restart the system. If the issue persists, please contact BLUETTI support.
P004	Charging Temperature Low	Connect to the grid and activate battery heating.
P005	Discharging Overtemperature	Stop using and wait for the battery to cool down.
P006	Undervoltage	Charge the battery in time.
P007	Discharging Temperature Low	Stop using and move the battery to a warm place.
P008	Single Cell Undervoltage	Charge the battery in time.
P009	Low SoC	Charge the battery in time.
P010 – P016	/	——
P017	Overvoltage Protection	Restart the system. If the issue persists, please contact BLUETTI support.
P018	/	——
P019	Charging Overcurrent Protection 1	Restart the system. If the issue persists, please contact BLUETTI support.
P020	Charging Overcurrent Protection 2	Restart the system. If the issue persists, please contact BLUETTI support.
P021	Charging Overcurrent Protection 3	Restart the system. If the issue persists, please contact BLUETTI support.
P022	Charging Overtemperature Protection	Stop using and wait for the battery to cool down.

No.	Error Description	Solution
P023	Charging Low-Temperature Protection	Connect to the grid and activate battery heating.
P024	Single Cell Overvoltage Protection	Restart the system. If the issue persists, please contact BLUETTI support.
P025	/	——
P026	Busbar+ Overtemperature Protection	Stop using and wait for the battery to cool down.
P027	Busbar- Overtemperature Protection	Stop using and wait for the battery to cool down.
P028 - P032	/	——
P033	Undervoltage Protection	Charge the battery in time.
P034	/	——
P035	Discharging Overcurrent Protection 1	Restart the system. If the issue persists, please contact BLUETTI support.
P036	Discharging Overcurrent Protection 2	Restart the system. If the issue persists, please contact BLUETTI support.
P037	Discharging Overcurrent Protection 3	Restart the system. If the issue persists, please contact BLUETTI support.
P038	Discharging Overtemperature Protection	Stop using and wait for the battery to cool down.
P039	Discharging Low-temperature Protection	Stop using and move the battery to a warm place.
P040	Single Cell Undervoltage Protection	Restart the system. If the issue persists, please contact BLUETTI support.
P041 - P048	/	——
P049	Single Cell Voltage Difference Fault	Restart the system. If the issue persists, please contact BLUETTI support.
P050	/	——

No.	Error Description	Solution
P051	Cell NTC Sampling Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.
P052	Busbar NTC Sampling Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.
P053	Single Cell Sampling Disconnected	Restart the system. If the issue persists, please contact BLUETTI support.
P054	Total Voltage Sampling Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.
P055	AFE Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.
P056 – P073	/	——
P074	PCS Communication Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.
P075	/	——
P076	BMS Power Supply Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.
P077	Heater Failure	Restart the system. If the issue persists, please contact BLUETTI support.
P078	Current Sampling Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.
P079	/	——
P080	DC-DC Communication Abnormal	Restart the system. If the issue persists, please contact BLUETTI support.

11. Specifications

Table 11-1 EnergyPro 13K Inverter

AC Side (On-Grid)		
Item	**Rating**	**Note**
Rated Output Power	13,200W	Maximum power with four EnerCell 500 packs connected
Wiring	L1/L2/N/G	
Rated Voltage	120Vac/240Vac	
Voltage Range	110V to 126V/220V to 252V	
Rated Output Current	55A × 2	
Input Frequency	60Hz	
Frequency Range	55Hz to 65Hz	
Maximum Apparent AC Input Power	37,200VA	Bypass + Charging (Optional: 13,440VA to 37,200VA)
Maximum Continuous Input Current	155A	Bypass + Charging (Optional: 56A/64A/80A /100A/115A/135A/155A)
Power Factor	1.0	0.9 overexcited to 0.9 underexcited
THD-i	＜3% (at rated power)	
Switch Over Time to Backup Power	＜20ms	
Round-trip Efficiency	>85% (AC/AC)	Grid - Battery - Grid
Protection	Anti-islanding protection Output overcurrent protection Short-circuit protection Overtemperature derating Overtemperature shutdown Residual current detection	

AC Side (Off-Grid)		
Item	**Rating**	**Note**
Rated Output Power	13,200W	Maximum power with four EnergyPack 500 packs connected
Output Voltage	120V/240V	
Output Current	55A × 2	
Inrush Current (LRA)	150A (<500ms)	
Nominal Output Frequency	60Hz	
Inverter Efficiency	97.5% Peak	
Output Voltage THD	＜3%	Pure resistive load
Overload	100% to 110% (10min), 110% to 120% (10s), >120%, (500ms)	
Protection	Output overload protection Short-circuit protection Overtemperature protection	

PV Input		
Item	**Rating**	**Note**
Maximum PV Input Power	22,000W	
Number of MPP Tracker	4	
Array in Series	1	Rated 5,000W
Maximum PV Input Voltage Range	100V to 520V	
MPPT Voltage Range/Rated	100V to 480V/350V	
Maximum Input Current per MPPT	15A	
Maximum Short-circuit Current per MPPT	18A	
MPPT Efficiency	99.9%	
PV Inversion Efficiency	97.5% Peak	
Protection	Reverse polarity protection Insulation resistance detection Arcing detection	

General		
Item	**Rating**	**Note**
Relative Humidity	5% to 95%	
Static Power Consumption	30W	
Self-consumption (At Night)	60W	
Operation Temperature Range	-4°F to 131°F/-20°C to 55°C	Output decreases above 113°F/45°C
Noise Emission (Typical)	≤50dB(A)	
Cooling	Forced air cooling	
Degree of Protection	NEMA 4X	
Operating Altitude	≤6,561.68ft/2,000m	
Dimensions (W × H × D)	25in × 12.76in × 14.53in/ 635mm × 324mm × 369mm	
Net Weight	105.82lbs/48kg	
Communicationt	USB/WiFi/Bluetooth	
Warranty	10 years	

Compliance and Certification		
Item	**Rating**	**Note**
System	UL9540	
Inverter	UL1741	
Grid Connections	UL1741 SA, UL1741 SB, IEEE1547, IEEE1547.1, IEEE2030.5, CSA22.2 No.101.1, UL1998, California Rule 21	
Emissions	FCC Part 15 Class B	
Others	NEMA 4X, CEC Efficiency, California Proposition65, SGIP	

Table 11-2 EnergyPack 500

Battery		
Item	**Rating**	**Note**
Battery Chemistry	$LiFePO_4$	
Battery Voltage	48V	3.2V × 15
Rated Capacity	4,800Wh	Charging: 0.5C/3.6V/0.05C (25°C/77°F) Discharging: 0.9C/2.5V (25°C/77°F)
Usable Capacity	4,320Wh	90% DoD Charging: 0.5C (25°C/77°F) Discharging: 0.9C (25°C/77°F)
Maximum Charging Voltage	52.5V	
Minimum Discharging Voltage	42V	
Maximum Charging Current	55A	The continuous input current is affected by temperature and SoC.
Maximum Discharging Current	105A	The continuous output current is affected by temperature and SoC.
Short-circuit Protection	Yes	
Discharging Overtemperature Protection	141.8°F/61°C	
Discharging Overtemperature Recovery	127.4°F/53°C	
Discharging Low Temperature Protection	-9.4°F/-23°C	
Discharging Low Temperature Recovery	1.4°F/-17°C	
Charging Overtemperature Protection	141.8°F/61°C	
Charging Overtemperature Recovery	127.4°F/53°C	
Charging Low Temperature Protection	28.4°F/-2°C	
Charging Low Temperature Recovery	35.6°F/2°C	
Charging Strategy	BMS Orders	CC

General		
Item	**Rating**	**Note**
Output Voltage Range	360V to 500V	
Maximum Discharging Current	12A	
Maximum Charging Current	7A	
Noise Emission (Typical)	<25dB	No fans
Number of Battery in Parallel	Up to 4 batteries supported.	The system output decreases when only 2–3 EnergyPack 500 units are connected.
Charging Temperature Range	32°F to 131°F/ 0°C to 55°C	Output decreases above 104°F/40°C
Discharging Temperature Range	-4°F to 131°F/-20°C to 55°C	Output decreases above 104°F/40°C
Storage Temperature	-4°F to 131°F/-20°C to 55°C / At least one charge cycle per month. 32°F to 77°F/0°C to 25°C / At least one charge cycle every six months.	
Operating Humidity	5% to 95%RH	
Operating Altitude	≤6,561.68ft/2,000m	
Cooling	Natural convention	
Degree of Protection	NEMA 4X	
Mounting	Up to 4 batteries stacked on the ground.	
Net Weight	127.86lbs/58kg	
Certificates and Permits	UL 1973, UL 9540A, UL 60730-1, UN38.3, FCC Part 15 Class B	

Table 11-3 EMS Controller

Item	Rating
Communication Interface	WiFi (2.4GHz) & Bluetooth (4.2)
External Interface	3 × RJ45: connect to inverters or other devices 1 × 8-pin Connector: connect to meter and so on
Antenna	External Rod Antenna
Data Interface	Up to 3 independent CAN (250kbps)
Input Voltage	9V to 15VDC
Input Current	600mA Max.
Rated Typical Power Consumption	＜ 5W
Dimensions (L × W × D)	6.1in × 1.81in × 5.43in/155mm × 46mm × 138mm (Excluding Bracket)
Weight	1.43lbs/0.65kg
Touchscreen	4.3'', 480*272 resolution, color LCD
Number of Connected Inverters	1 to 3 units
Firmware Upgrade	Over-the-air (OTA) upgrade
Warranty	10 years
Operating Temperature	-4°F to 140°F/-20°C to 60°C
Relative Humidity	5% to 95%
Degree of Protection	NEMA 4X
Cooling	Natural convention
Operating Altitude	≤ 6,561.68ft/2,000m

For more information, please visit:

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