Energy Storage System

User Manual

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TABLE OF CONTENTS

PRODUCT OVERVIEW

The **Taranis 14.3 kWh $LiFePO_4$ battery** is a safe, efficient, and reliable energy storage solution for residential use. Designed for applications such as backup power, off-grid living, and renewable energy integration, it offers long-lasting performance with minimal maintenance.

KEY FEATURES

- **Stable $LiFePO_4$ Chemistry** – Provides high cycle life, superior thermal stability, and maintenance-free operation.
- **Long Lifespan** – Designed to last up to 15 years with over 6,000 charge cycles.
- **Built-in Smart BMS** – Advanced Battery Management System (BMS) ensures safety with multiple protection features.
- **Real-Time Monitoring** – LCD screen displays key battery information for easy status tracking.
- **High Power Output** – Rated for a continuous output of 10,000 watts.
- **Scalable Storage** – Supports parallel operation with up to 15 units, allowing a total capacity of 230 kWh.
- **Seamless Communication** – Connects to inverters via CAN or RS485 for efficient energy management.

SAFETY FEATURES

- **Cell Balance Protection** - To maintain optimal performance and longevity, the BMS continuously monitors and balances individual cells. This ensures that all cells remain within a specific voltage range, preventing imbalances that could impact battery efficiency. Cell balancing is fully automated and requires no user intervention.
- **Environmental Temperature Protection** - Extreme temperatures can negatively affect battery performance and lifespan. The BMS constantly measures ambient and operating temperatures during charging and discharging. If unsafe temperature levels are detected, the battery will shut down automatically to prevent permanent damage.
- **Voltage Protection** - The BMS continuously monitors the voltage of each individual cell to prevent overcharging or deep discharge. If voltage levels exceed safe operating limits, the system will intervene to protect the battery from potential failure.
- **Current Protection** - To safeguard against excessive power draw, the BMS monitors charge and discharge currents in real time. Rapid shutdown will occur if amperage exceeds safe limits.

CONTENTS

LifePo4 Battery
Powerwall
(Qty: 1)

Set of 4AWG, 1m
Cables
(Qty: 2)

Canbus/RS485 Inverter
Comm cable, 1m
(Qty: 1)

RS485 Parallel cable, 1m
(Qty: 1)

SPECIFICATIONS

Unit Parameters	
Energy Capacity	14.3kW
Design Life	+15 Years
Cycle Life	+6,000 Cycles @ 25C
Display	Large 4.3” touch screen
Communication	Canbus/RS485 for Inverter
Paralleling	Upto 16 units for 230kW
Electrical Parameters	
Capacity	14.3kW (280Ah)
Voltage	48 Volts (51.2V Nominal)
Charging Voltage	56.0V
Float Voltage	54.0V
Minimum Voltage	44.0V (2.75V Cell)
Discharge Current	200A Max Continuous
Charge Current	200A Max Continuous
Physical Parameters	
Dimensions (H x W x D)	91.0 x 41.6 x29.5 cm (35.8” x 16.4” x 11.6”)
Weight	116kg (255lbs)
Case	1.5mm Steel
Base	4x Locable caster wheels
Environmental Parameters	
Discharge Temperature	-20C to +45C (-4F to 113F)
Charge Temperature	0C to +45C (32F to 113F)
Storage Temperature	-20C to +45C (-4F to 113F)
Ingress Protection	IP20

BATTERY SAFETY

⚠ WARNING: READ ALL INSTRUCTIONS TO REDUCE THE RISK OF INJURY OR DAMAGE

All work related to this product, including system design, installation, operation, configuration, and maintenance, must be performed by qualified personnel. To prevent the risk of electric shock, do not attempt servicing beyond what is specified in this manual unless you are properly trained and qualified.

Safety Guidelines

- Read all instructions carefully before starting installation. For electrical work, follow all local and national wiring codes and regulations, including the Canadian Standards Association (CSA), National Electrical Code (NEC), ANSI/NFPA 70.
- Utility Grid Connection – This system may only be connected to the utility grid if explicitly permitted by the utility provider. Consult the local Authority Having Jurisdiction (AHJ) for any additional regulations or requirements before installation.
- Label Visibility – Do not remove, cover, or obscure any warning labels or nameplates on the battery. These markings provide critical safety information.
- Safe Installation Location – Install the battery in a location that ensures long-term safety for future users, following the placement guidelines outlined in this manual.
- Keep Children Away – Prevent unauthorized access or misuse of the battery and connected systems, especially by children.

Cold Temperature Warning

The battery is designed to stop charging if the internal temperature falls below 0°C (32°F). If charging current is detected while the internal temperature is below 0°C (32°F), immediately disconnect the battery and contact your distributor for assistance.

IMPORTANT SAFETY

1. **Do Not Disassemble** – The battery must not be opened or disassembled under any circumstances. If repairs are needed, contact the authorized distributor for service and handling instructions. Incorrect servicing or reassembly may result in electric shock, fire, or permanent damage to the unit and will void the warranty.
2. **Wear Protective Equipment** – Installers must use appropriate Personal Protective Equipment (PPE), such as insulated gloves, eye protection, and fire-resistant clothing, to reduce the risk of injury.

3. **Inspect Wiring Before Installation** – Before setting up, operating, or servicing the system, thoroughly inspect all wiring to confirm compliance with required specifications and safety standards.
4. **No Live Connections or Disconnections** – Never connect or disconnect battery terminals while the system is operating. Doing so may cause electrical arcing, component damage, or personal injury due to electrical shock.
5. **Use Caution with Metal Tools** – When working around the battery and power system, use extreme caution with metal tools. Contact with terminals can cause electrical arcs, short circuits, and serious injury or equipment damage.
6. **Avoid Short Circuits** – Never short-circuit the DC inputs. Doing so can cause electric shock, fire, severe injury, death, and irreparable damage to the battery and connected equipment.
7. **High Current Awareness** – Before installing or servicing the battery, ensure that all module breakers and power switches are in the "open" (off) position. Always use a voltmeter to verify that no voltage is present before working on the system to prevent electric shock.
8. **Proper Grounding** – Ensure that the battery and all system components are correctly grounded to prevent electrical hazards.

INSTALLATION

LOCATION

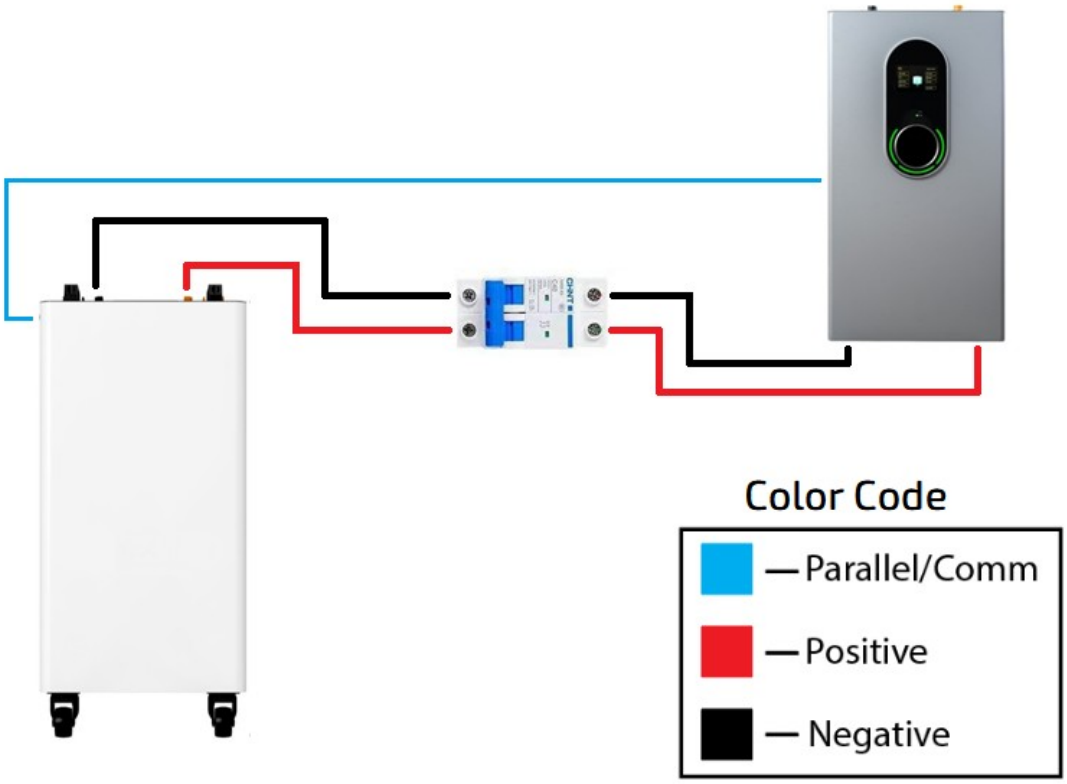
To ensure safe and optimal performance, the battery must be installed in a suitable location that meets the following conditions:

- **Stable Surface** – The battery must be placed on a firm, level surface capable of supporting its weight.
- **Waterproof Area** – The installation site must be dry and protected from water exposure.
- **No Flammable or Explosive Materials** – The battery must not be installed near combustible or hazardous substances.
- **Controlled Temperature** – The ambient temperature should remain between 0°C and 45°C (32°F to 113°F) for proper operation.
- **Consistent Environment** – Temperature and humidity levels should be stable to prevent condensation and damage.
- **Clean Installation Area** – The site should have minimal dust and dirt to maintain system efficiency and longevity.
- **Clearance** – Maintain a 30cm clearance around the unit. If unit is against a wall, ensure it is not a flammable material and there are no heating issues.

CABLE CONNECTION

- **Qualified Installation** – All work must be performed by a licensed professional and comply with local regulations and electrical codes.
- **Power Off** – Ensure that all power sources are completely turned off before beginning any installation or maintenance work.
- **Personal Protective Equipment (PPE)** – Always wear appropriate safety gear, including insulated gloves, safety goggles, and protective clothing, to minimize the risk of injury.
- **In Series Configuration** – Do not install this battery in Series. It will result in permanent damage to the battery.
- **Paralleling** - When installing multiple batteries or adding a battery to an existing rack, please ensure all batteries are charged to 100% before paralleling together
- **Circuit Breakers** – Every battery should be individually isolated behind a suitable Circuit Breaker. 250 Amp recommended.
- **Bus Bars** – If using more than One (1) battery, the use of a suitable Bus Bar is recommended.

Figure 1. One (1) Inverter and One (1) Battery



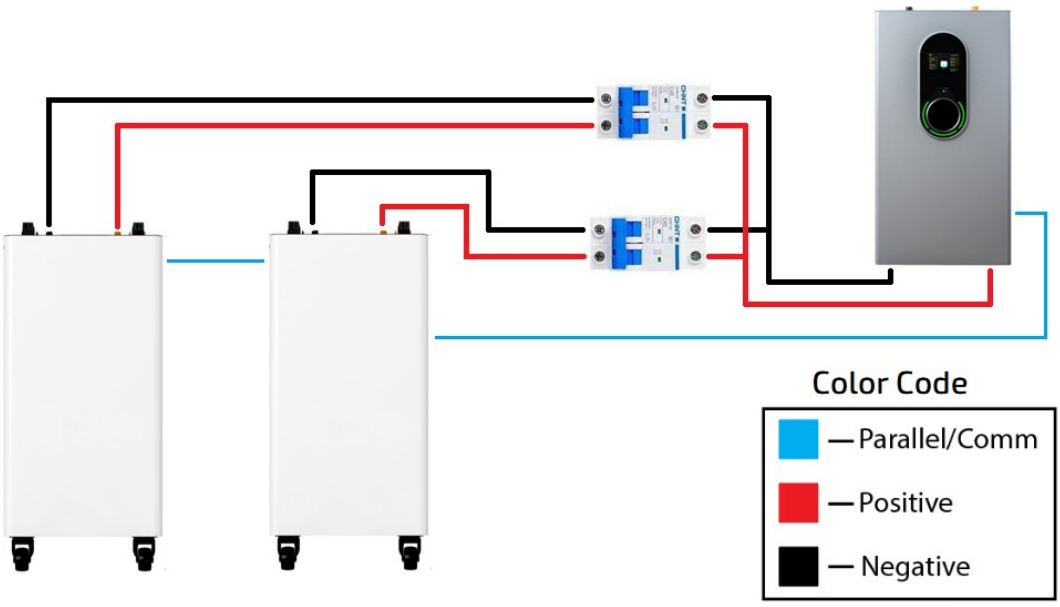
BATTERY PARALLELING

Up to 16 batteries can be connected in parallel. Before making connections, ensure that the DIP switches are properly configured according to (DIP Switch Table).

Installation Steps:

1. Charge All Batteries – When installing multiple batteries or adding a new battery to an existing rack, ensure that all batteries are fully charged to 100% before connecting them in parallel.
2. Power Off – Turn OFF all battery breakers and BMS units before making any connections.
3. Master Battery Connection – The battery with DIP Switch ID 1 (designated as the Master) must be connected to the inverter using a properly pinned RS485/CAN communication cable, as per the inverter's specifications.
4. Install battery paralleling cables between batteries.

Figure 2. One (1) Inverter and Two (2) Batteries



BATTERY COMMUNICATION

You can connect upto 16 batteries in parallel. Battery #1 designating a “Master” battery (DIP switch ID No. 1) is connected directly to the Inverter, the other batteries are connected to each other.

DIP SWITCH TABLE

Address	Band switch position			
	#1	#2	#3	#4
1	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF
3	OFF	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

BATTERY COMMUNICATION CABLES

The battery can be connected to the inverter using either CANbus or RS485 communication. Refer to Figure 3 for the connection diagram.

- CANbus Port – Located at position #7 on the battery.
- RS485 Port – Located at position #13, directly to the left of the CANbus port.

For parallel battery connections, use the two (2) RS485 ports located to the right of the primary RS485 port. These ports are specifically designated for battery-to-battery communication in a multi-unit setup.

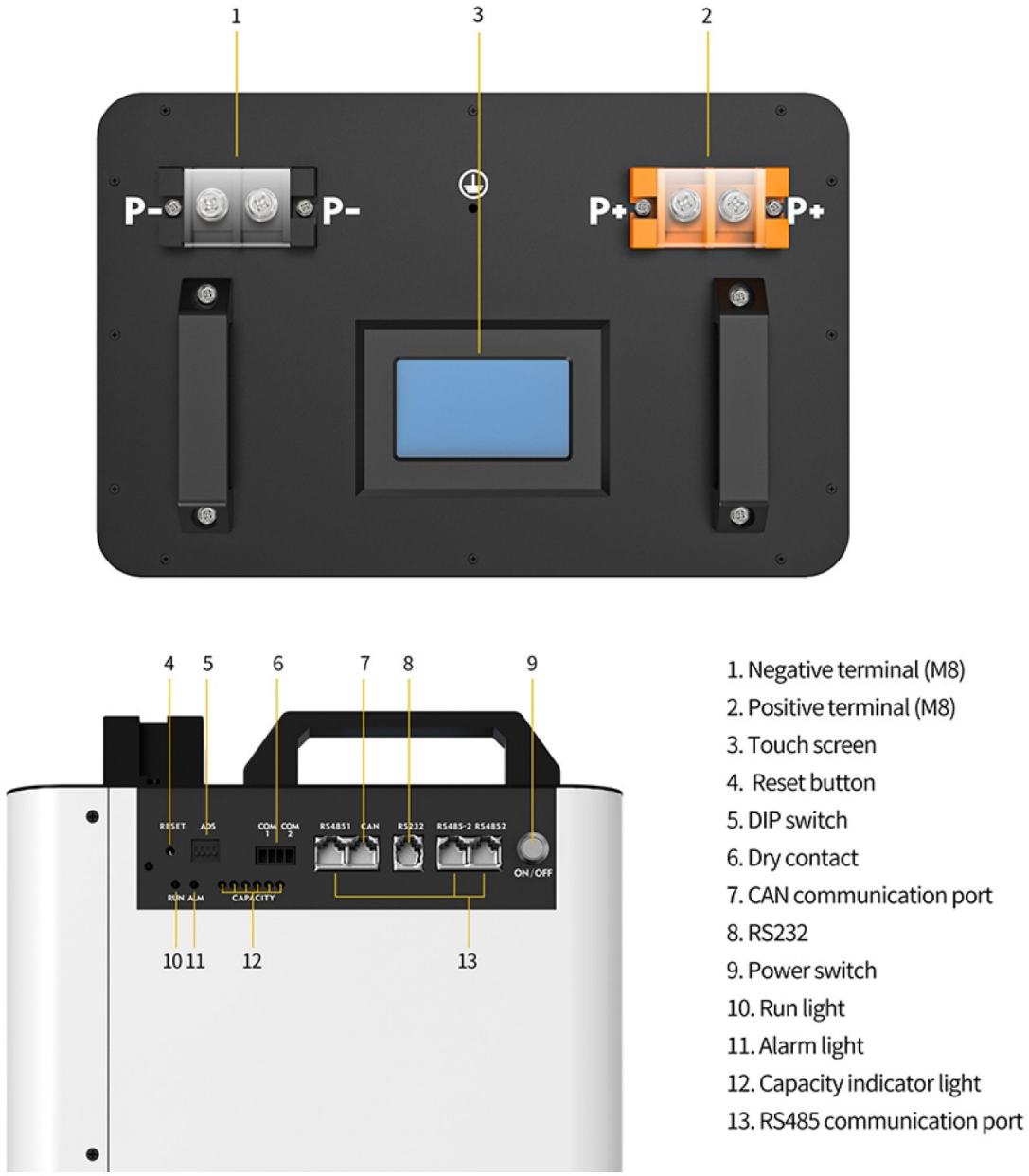


Figure 3. Battery Connections.