KICKASS

AUSTRALIAN OWNED AND OPERATED

ULTRA-X SERIES LITHIUM BATTERIES

OWNER'S MANUAL

KA12230X-LION | KA12230SLIMX-LION | KA12230X-LION-W | KA12230SLIMX-LION-W

V1.4

TABLE OF CONTENTS

WARNING AND SAFETY INFORMATION

- Always use the specified charger designed for the lithium battery. Using an incorrect charger may cause damage or create a safety hazard.
- Do not charge the battery beyond its recommended voltage or current limits. Overcharging can lead to overheating, fire, or explosion.
- Never charge the battery if it is damaged or swollen. Contact your supplier for a replacement.
- Ensure the battery is installed in a well-ventilated area to prevent overheating.
- Do not expose the battery to extreme temperatures. Charge and operate the battery within the temperature range specified in the manual.
- Follow the installation instructions carefully. Incorrect connections can result in damage or hazardous conditions.
- Avoid short-circuiting the battery terminals. Short circuits can lead to overheating, fire, or explosion.
- Do not disassemble or modify the battery. Tampering with the battery can result in safety risks and void the warranty.
- Ensure all connected devices and loads are compatible with the battery's specifications to prevent overloading.
- In case of a battery fire, use a Class D fire extinguisher. Do not use water, as it can worsen the fire.
- Keep the battery away from children and unauthorized personnel.
- Dispose of the battery according to local regulations and guidelines for hazardous waste. Do not throw the battery in the regular trash.
- Pay attention to system alerts and warnings displayed by the Battery Management System (BMS). Follow the instructions provided to address any issues promptly.

PRODUCT SPECIFICATIONS

SKU	KA12230X-LION KA12230X-LION-W	KA12230SLIMX-LION KA12230SLIMX-LION-W
Battery Type	LiFePO4	
Nominal Voltage	12.8V	
Rated Capacity	230Ah	
Energy	2944Wh	
Parallel Connection	Yes (4 Max)	
Series Connection	Yes (4 Max)	
Bluetooth Monitoring	Yes	
Remote Display Monitoring	Yes	
Max Charge Voltage	14.6V	
Charge Temperature	0 ~ +55°C	
Max Continuous Charge Current	230A	
Discharge Temperature	-0 ~ +60°C	
Max Continuous Discharge Current	230A	
Pulse Discharge Current	460A (30 seconds)	
Battery Low Voltage Cutout	10V	
Cycle Life	4000 cycles | 80% DOD | 0.5C	
Dimensions (L x W x H)	360 x 213 x 223mm	500 x 70 x 510 mm
Weight	23.5kg	26.9kg
Storage Temperature	0 ~ +30°C	
Storage SOC	50%	
Humidity Range	0 ~ 85% RH	
Certification	IEC62619	

DIMENSIONS

INCLUDED COMPONENTS

KA12230X-LION

Mounting Bracket

50cm RJ45 cable

2 x MB x 16mm bolt with flat and spring washer

KA12230SLIMX-LION

Mounting Bracket

50cm RJ45 cable

2 x MB x 16mm bolt with flat and spring washer

OPTIONAL ACCESSORIES

KickAss Remote Smart Lithium Battery Display Unit (KARDUV2)

400mm Long Battery Linking cables for KA12230X-LION (BALINK8400)

525mm Long Battery Linking cables for KA12230X-LION (BALINK8525)

PRODUCT FEATURES

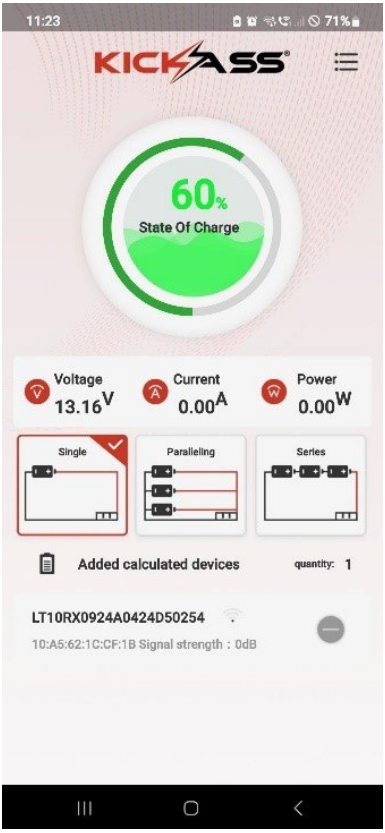
Remote Bluetooth Monitoring

The KA Lithium App allows users to connect and monitor one or multiple batteries simultaneously, whether configured in parallel or series, directly from a mobile device.

Features of the KA Lithium App:

- State of Charge (SOC): Displays the remaining charge in the battery/battery pack.
- Battery Pack Voltage: Shows the overall voltage of the connected battery pack.
- Charge/Discharge Current: Monitors the current flowing into or out of the battery.
- Power: Provides real-time power usage data.
- Time to Full / Time to Empty: Estimates the time required to fully charge or deplete the battery.
- Cycle Count: Tracks the number of charge/discharge cycles the battery has undergone.
- Cell Voltage: Monitors the voltage of individual cells within the battery pack.
- Temperature: Measures the temperature of the battery to ensure safe operation.
- System Warnings and Alerts: Provides notifications for any system warnings or alerts.

To download the app, visit the iOS App Store or Google Play Store and search “KA Lithium.



Bluetooth Connection to a single battery

KA Lithium
KickAss Products

Monitoring via Remote Display

The remote display offers a fixed monitoring solution for your KickAss Battery, or battery bank. It connects via an RJ45 cable and provides the following information:

- State of Charge (SOC): Displays the remaining charge in the battery.
- Battery Pack Voltage: Shows the overall voltage of the connected battery, or battery bank.
- Charge/Discharge Current: Monitors the current flowing into or out of the battery or battery bank.
- Time to Full / Time to Empty: Estimates the time required to fully charge or deplete the battery.
- Cycle Count: Tracks the number of charge/discharge cycles the battery has undergone.
- Cell Voltage: Monitors the voltage of individual cells within the battery pack.
- Temperature: Measures the temperature of the battery to ensure safe operation.
- System Warnings and Alerts: Provides notifications for any system warnings or alerts.

Parallel and Series Configuration

The Ultra-X batteries can be connected in either parallel or series configurations, but not simultaneously in both. You can connect up to a maximum of 4 batteries in series or 4 batteries in parallel.

NOTE: Only batteries of the same model and batch can be connected in parallel and series

In a parallel configuration, the system voltage remains constant while the capacity (measured in Ah) and the total continuous charge and discharge ratings of the battery bank increase.

	System Voltage (V)	System Capacity (Ah)	System Watthours (Wh)	Max Continuous Discharge Rate (A)
1 x 230Ah Battery	12.8V	230Ah	2944Wh	230A
2 x 230Ah Battery	12.8V	460Ah	5888Wh	460A
3 x 230Ah Battery	12.8V	690Ah	8832Wh	690A
4 x 230Ah Battery	12.8V	920Ah	11776Wh	920A

Table 1. Parallel Configuration

In a series configuration, the system voltage increases while the capacity (measured in Ah) and the total continuous charge and discharge ratings remain consistent

	System Voltage (V)	System Capacity (Ah)	System Watthours (Wh)	Max Continuous Discharge Rate (A)
1 x 230Ah Battery	12.8V	230Ah	2944Wh	230A
2 x 230Ah Battery	25.6V	230Ah	5888Wh	230A
3 x 230Ah Battery	38.4V	230Ah	8832Wh	230A
4 x 230Ah Battery	51.2V	230Ah	11776Wh	230A

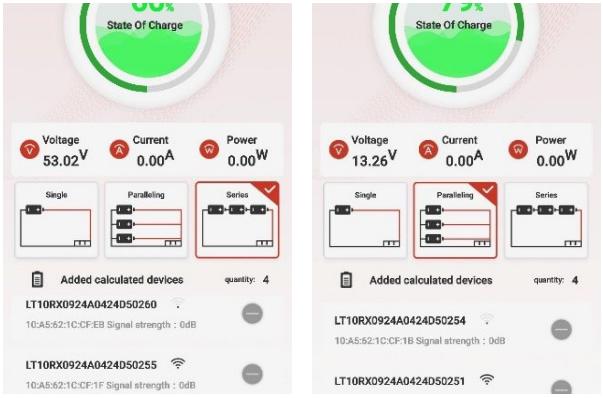
Table 2. Series Configuration

Remote Display Monitoring For Series And Parallel Configuration

The Ultra-X battery range can be configured either in parallel or series and supports communication between multiple batteries and a single monitoring device. This includes the KA Lithium App or the remote display.

KA Lithium App

The KA Lithium App can simultaneously connect to multiple devices. It is configurable based on whether the batteries are connected in parallel or series, and it displays the State of Charge (SOC), Voltage, Current, and Power of the battery bank in the selected configuration.



Parallel and Series Power Calculations

When configured as a parallel battery bank, the KA Lithium App calculates the State of Charge (SOC) and Voltage as the average values across all connected batteries. In this configuration, the app displays the total Current and Capacity for the entire parallel battery bank, reflecting the combined output.

Case 1: 4 x Batteries Connected in Parallel

Battery ID	SOC	Voltage	Current	Capacity
001	58%	13.64	10A	100Ah
002	60%	13.64	10A	100Ah
003	58%	13.64	10A	100Ah
004	65%	13.64	10A	100Ah
KA Lithium App Display	60% (Average)	13.64V (Average)	40A (Total)	400Ah (Total)

Table 3. Parallel Configuration Example

When configured as a series battery bank, the KA Lithium App calculates the Voltage as the sum of the voltages of all connected batteries. The Current and Capacity are averaged across the series-connected batteries. The State of Charge (SOC) displayed for a series battery bank will be the lowest SOC reported among all connected batteries.

Case 2: 4 x Batteries Connected in Series

Battery ID	SOC	Voltage	Current	Capacity
001	58%	13.64	10A	100Ah
002	60%	13.64	10A	100Ah
003	58%	13.64	10A	100Ah
004	65%	13.64	10A	100Ah
KA Lithium App Display	58% (Total)	54.56V (Total)	10A (Average)	100Ah (Average)

Table 4. Series Configuration Example

Battery Management System

The Battery Management System (BMS) is a crucial component of the Ultra-X battery range, ensuring its safe and efficient operation. The BMS performs two primary functions:

- Monitoring: Continuously tracks key parameters such as cell voltage, charge/discharge rates, and temperature to maintain safe operating conditions for the battery.
- Cell Balancing: Balances the voltages of individual LiFePO4 cells during charging to ensure even cell performance, thereby enhancing battery longevity.

If the BMS detects deviations from acceptable parameters, it will initiate protective measures to prevent unsafe operation and alert the user with a safety warning. The BMS will automatically resume normal operation and clear the safety alert once conditions return to within safe limits.

The BMS monitors the following parameters:

- Battery Pack Under/Over Voltage
- Cell Under/Over Voltage
- Continuous Overcharge/Discharge Current
- Pulse Overcharge/Discharge Current (30s)
- Short Circuit
- Charge Over/Under Temperature
- Discharge Over/Under Temperature

See the troubleshooting section of this manual for further information on system alerts.

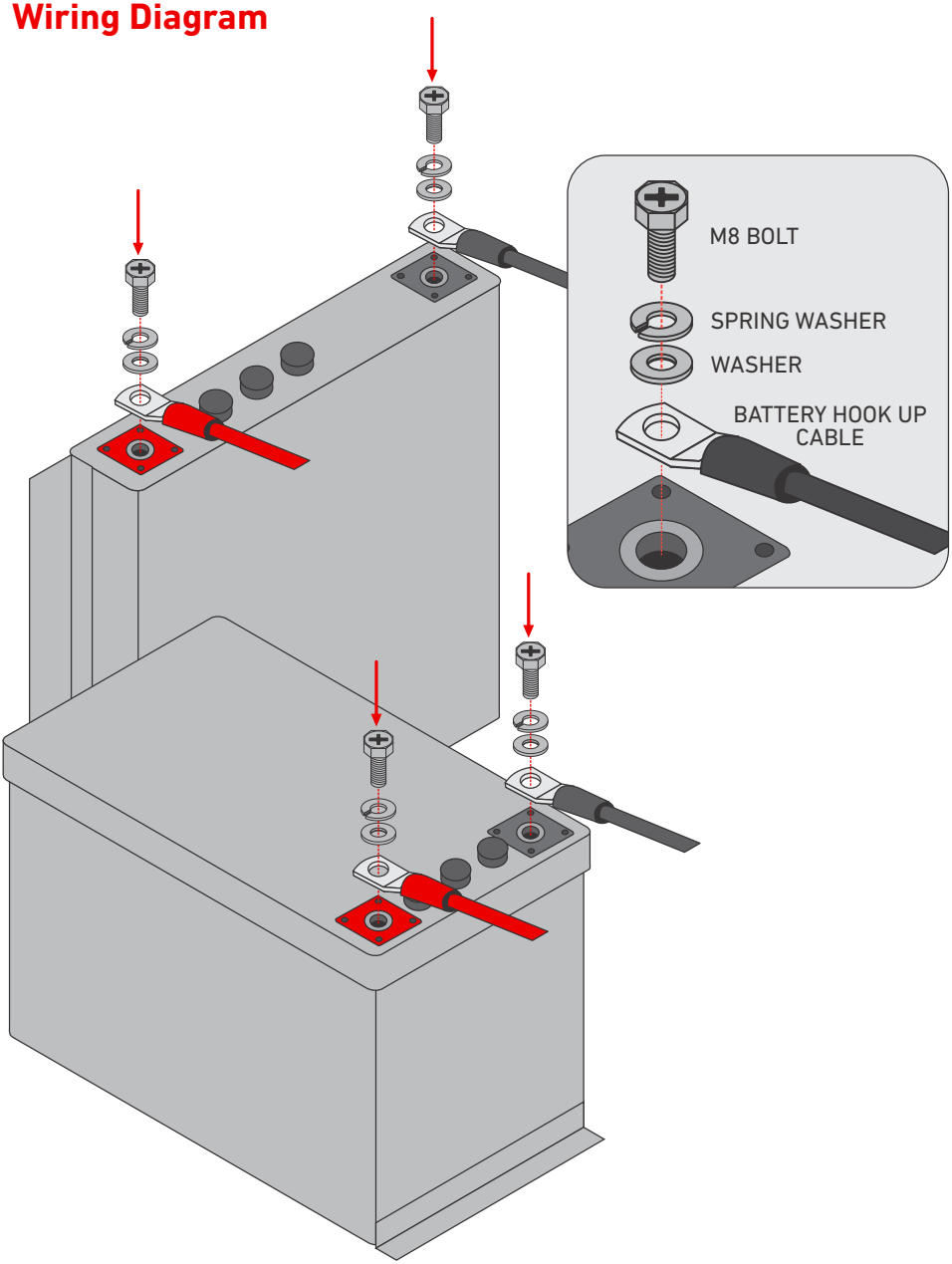
PRODUCT INSTALLATION

Installing Mounting Brackets

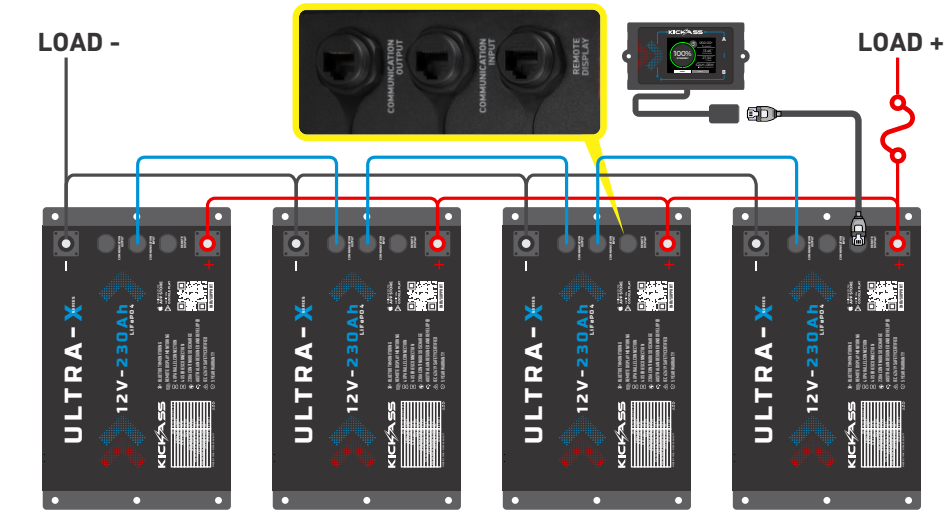
M8 Mounting Hardware (not supplied). Please use appropriate mounting hardware for the material the battery will be mounted to.

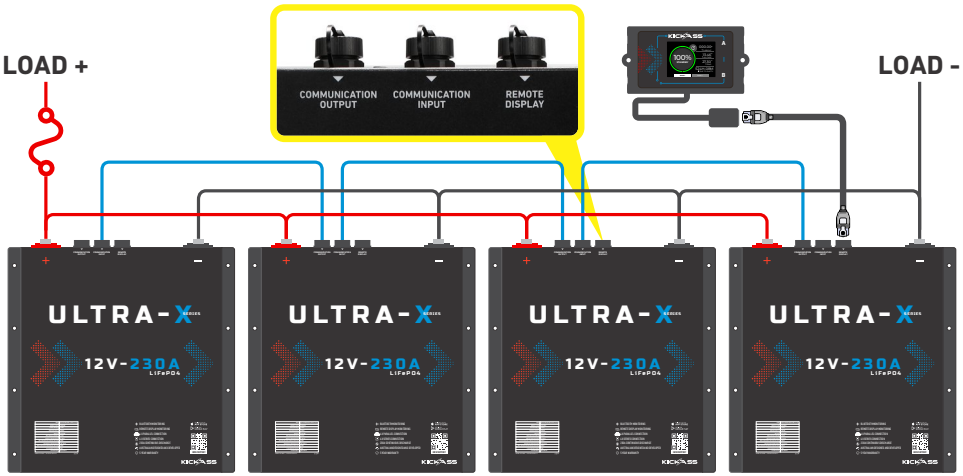
M8 Mounting Hardware (not supplied). Please use appropriate mounting hardware for the material the battery will be mounted to.

Wiring Diagram



Parallel Wiring Diagram





The KA Lithium App must now be used to configure the battery bank for parallel operation. Please see Bluetooth Connection – Parallel Configuration for setup instructions.

Note:

A) All batteries must be fully charged and allowed to rest for 30 minutes before being connected parallel. Failure to follow this procedure may affect the performance and lifespan of the Ultra-X range batteries.

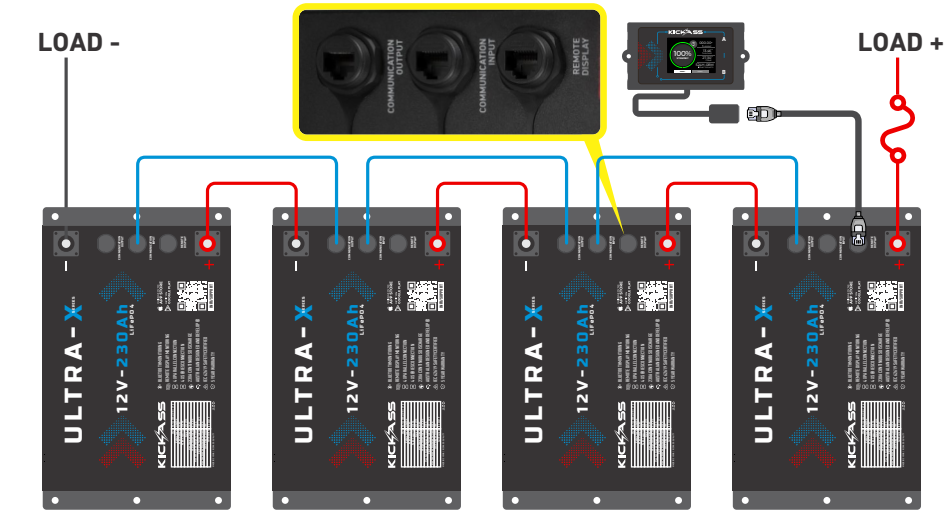
B) It is recommended to use KickAss Battery Linking Cables, 2AWG, 400mm length (BALINK8400) with KA12230X-LION, and KickAss Battery Linking Cables, 2AWG, 525mm length (BALINK8525) with KA12230SLIMX-LION when connecting in parallel.

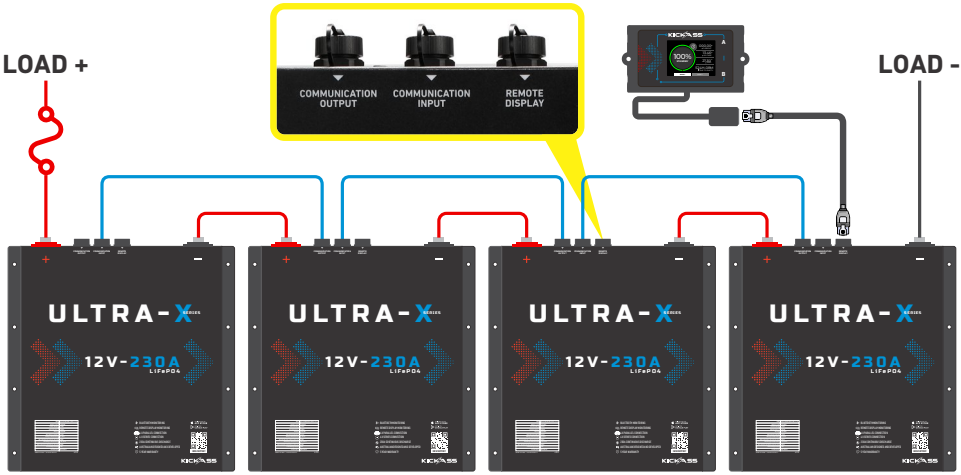
WARNING: Never connect the remote display port of one battery directly to the remote display port of another battery. Doing so may damage the Remote Display Communication port.

WARNING: Verify that all loads or devices to be powered by the KickAss LiFePO4 battery are turned off before starting the installation.

WARNING: Ensure any isolation devices used in the installation are switched off before beginning.

Series Wiring Diagram





The KA Lithium App must now be used to configure the battery bank for series operation. Please see Bluetooth Connection – Series Configuration for setup instructions.

Note:

A) All batteries must be fully charged and allowed to rest for 30 minutes before being connected in series Failure to follow this procedure may affect the performance and lifespan of the Ultra-X range batteries.

B) It is recommended to use KickAss Battery Linking Cables, 2AWG, 400mm length (BALINK8400), for connecting batteries in series.

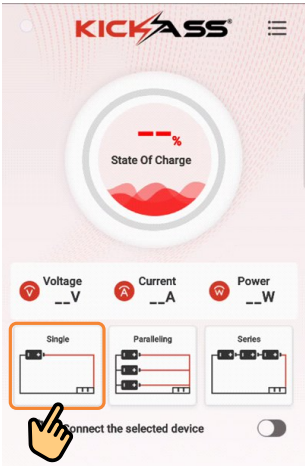
WARNING: Never connect the remote display port of one battery directly to the remote display port of another battery. Doing so may damage the Remote Display Communication port.

WARNING: Verify that all loads or devices to be powered by the KickAss LiFePO4 battery are turned off before starting the installation.

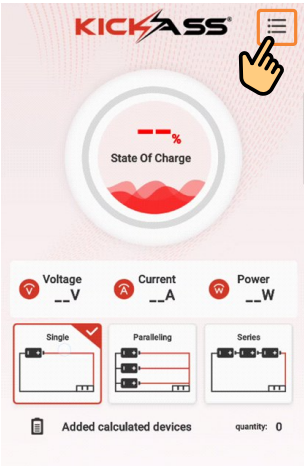
WARNING: Ensure any isolation devices used in the installation are switched off before beginning.

Bluetooth Connection

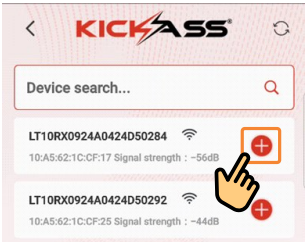
Download and open the KA Lithium App.



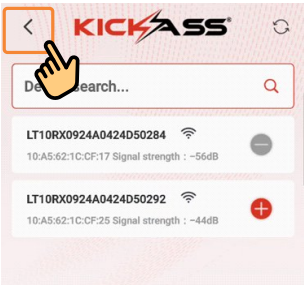
1. Select “Single”.



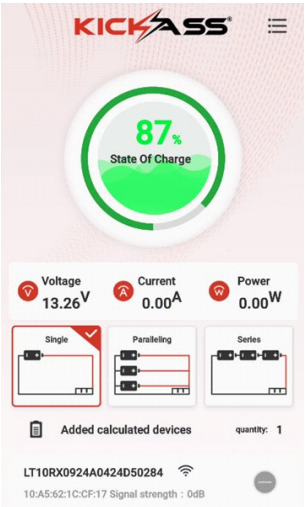
2. Select the battery selection menu to connect.



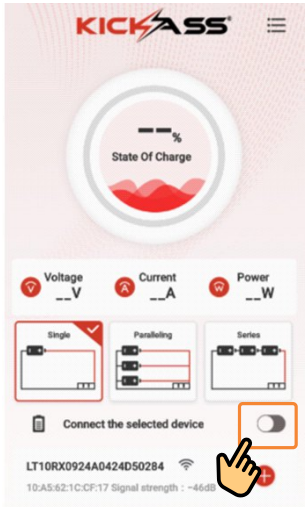
3. Select the desired battery.



4. Select the back button.

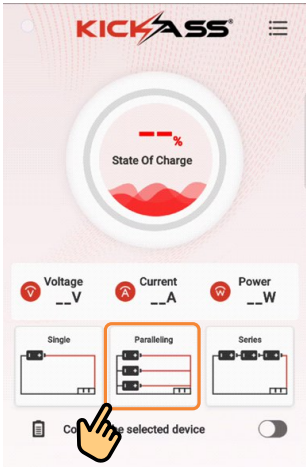


5. The battery is now connected.

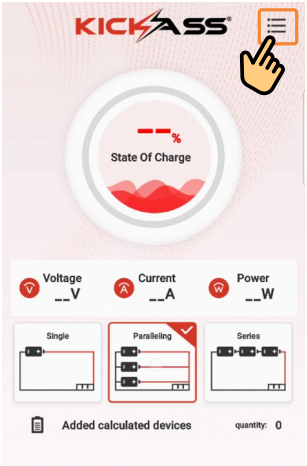


6. For quick connection after the App is closed, select the “Connect the selected device” slider.

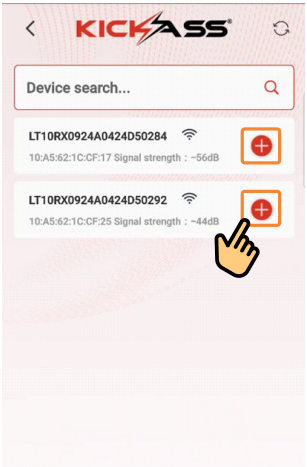
Bluetooth Connection – Parallel Configuration



1. Select “Paralleling”.

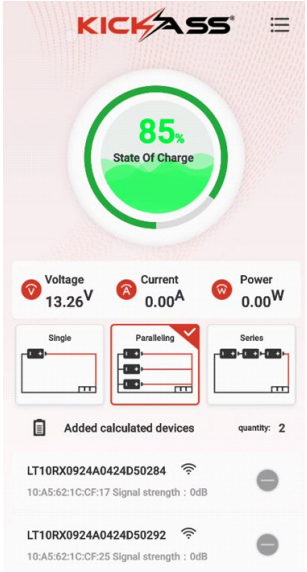


2. Select the battery selection menu to connect.

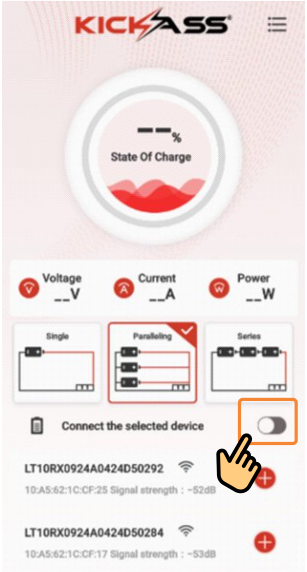


3. Select the desired batteries.

4. Select the back button.

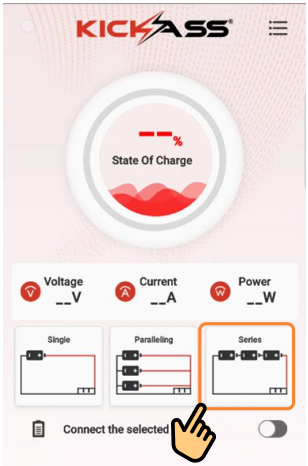


5. Batteries are now configured for parallel configuration. All data shown on the main display relates to the parallel battery bank.

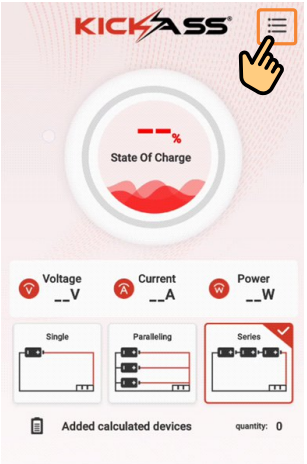


6. For quick connection after the App is closed, select the “Connect the selected device” slider.

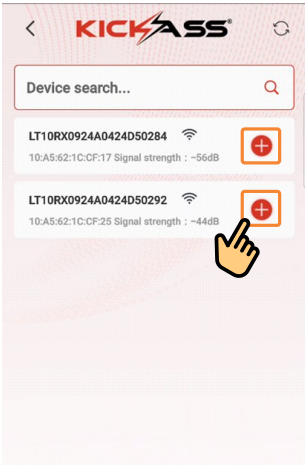
Bluetooth Connection – Series Configuration



1. Select “Series”.

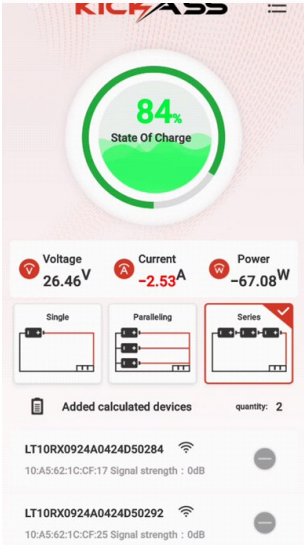


2. Select the battery selection menu to connect.

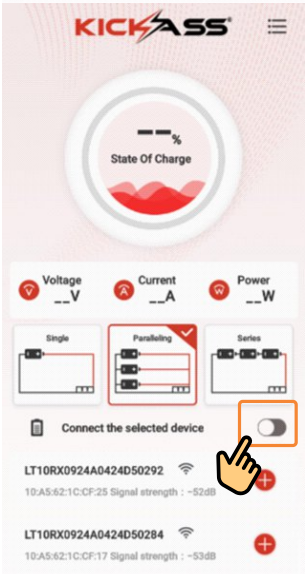


3. Select the desired batteries.

4. Select the back button.



5. Batteries are now configured for series configuration. All data shown on the main display relates to the series battery bank.



6. For quick connection after the App is closed, select the “Connect the selected device” slider.

TROUBLESHOOTING

SOC Calibration

After receiving your KickAss Lithium battery, or if the battery has been in storage or powering only a small load for an extended period, it may require a full charge to recalibrate the State of Charge (SOC). Prolonged inactivity can lead to discrepancies between the reported SOC and the actual battery capacity due to the low self-discharge rate of the battery management system (BMS) or standby current of devices in low power mode.

Remote Display and BT App Support

Issue	Recommended Action
Batteries connected in parallel, but the remote display shows a series configuration	Open the KA Lithium App and configure the batteries as a parallel bank. See "Parallel Bluetooth Connection" for details.
Batteries connected in series, but the remote display shows a parallel configuration	Open the KA Lithium App and configure the batteries as a series bank. See "Series Bluetooth Connection" for details.
The Remote Display is not showing all connected batteries	Check the connection sequence for the RJ45 data cables. Refer to the parallel or series wiring diagram for the correct sequence.
The connection sequence of the RJ45 data cables is correct, but the Remote Display is not showing all connected batteries	Ensure the Remote Display is connected to the first battery in the battery bank, referenced as Battery 001 in the wiring diagrams.

To recalibrate the SOC, perform a full charge cycle using an AC charger. Ensure that the battery is charged until the charger indicates that charging is complete and the SOC reads 100%. This process will recalibrate the SOC to accurately reflect the battery's capacity.

BMS Warning an Fault Codes

WARNING / FAULT CODE	BMS ACTION	RELEASE METHOD	USER ACTION
Over Voltage Protection	The BMS will stop further charging.	Protection is automatically released once the battery cells or pack voltage returns to a safe level.	Ensure you use the correct charger for your lithium battery.
Under Voltage Protection	The BMS will stop further charging.	Protection is automatically released once the battery cells or pack voltage returns to a safe level.	Charge the battery. Monitor connected loads to prevent over-discharging.
Charging High Temperature Protection	The BMS will stop further charging.	Protection is automatically released once the battery cells' internal temperature returns to a safe level.	Ensure adequate ventilation around the battery. Avoid charging at high rates for extended periods in high-temperature environments.
Charging Low Temperature Protection	The BMS will stop further charging.	Protection is automatically released once the battery cells' internal temperature returns to a safe level.	In colder climates, consider installing thermal insulation around the battery.
Discharging High Temperature Protection	The BMS will stop further discharge.	Protection is automatically released once the battery cells' internal temperature returns to a safe level.	Ensure adequate ventilation around the battery. Avoid discharging at high rates for extended periods in high-temperature environments.
Discharging Low Temperature Protection	The BMS will stop the battery from further discharge.	Protection is automatically released once the battery cells' internal temperature returns to a safe level.	In colder climates, consider installing thermal insulation around the battery.
Charging Over Current Protection	The BMS will stop further charging.	Protection is automatically released 30 seconds after the overcurrent condition is resolved.	Ensure the charging current is within the battery's specified limits.
Discharging Over Current Protection	The BMS will stop further discharge.	Protection is automatically released 30 seconds after the overcurrent condition is resolved.	Ensure the discharge current is within the battery's specified limits.
Short Circuit Protection	The BMS will stop further discharge.	Protection is automatically released 5 seconds after the short circuit condition is resolved.	Inspect for and resolve any short circuit issues in the system.

KICKASS PRODUCTS PTY LTD.
WARRANTY DISCLAIMER

At Kickass Products Pty Ltd., we stand behind the quality and durability of our outdoor and camping products. Our product team rigorously tests every item in demanding conditions to ensure performance in normal use environments.

Limited Warranty Coverage

Kickass Products Pty Ltd. warrants that our products are free from manufacturing defects in materials and workmanship for the applicable warranty period. If a defect arises within this period, we will, at our discretion, repair, replace, or provide an appropriate remedy in accordance with Australian Consumer Law (ACL).

Exclusions

Warranty does not cover:

- Normal wear and tear
- Misuse, abuse or improper installation
- Damage caused by accidents, modifications, or lack of proper maintenance
- Consumable parts, unless a defect in materials or workmanship is present

Making a Warranty Claim

To initiate a claim, please retain your proof of purchase and contact our customer service team with details of the defect. We will guide you through the process, including potential return or assessment requirements.

Your Rights Under Australian Consumer Law

This warranty is in addition to any rights or remedies you may have under the ACL and does not exclude, restrict, or modify them.

Thank you for choosing Kickass Products Pty Ltd. We are committed to ensuring your outdoor adventures are backed with confidence.

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KickAss Products Pty Ltd
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Australia

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