



USER GUIDE 2023

INTRODUCTION

Thank you for selecting a Lithium Pro Energy Battery and supporting a British company. Whether you've chosen a Lithium Pro battery for use as an auxiliary power supply in your Energy Storage System (ESS) or to power your Motorhome, Campervan, Caravan, or Boat, our SMARTIQ BMS App, is here to assist you. Utilizing the App provides valuable insights that enhance your battery system's performance, optimizing its health, state of charge, and overall longevity.

The SMARTIQ BMS App is an intelligent Battery Monitoring System (BMS) for all SMARTIQ SERIES Batteries, developed by LithiumPro Energy. Integrated advanced Bluetooth 5.0 technology within the SMARTIQ SERIES batteries, enables wireless communication via your smartphone or tablet. It provides the ability to monitor the performance and health data of your battery in 'Real-Time' and from the palm of your hand. SMARTIQ BMS is free to download from the Apple Store for IOS, requiring IOS 11.0 or later. It is also available free from the Google Play Store for Android, requiring Android 5.0 or later.

FEATURE SUMMARY

STATE OF CHARGE (SOC) MONITORING

Stay informed in 'Real-Time' about your batteries State of Charge (SOC). Quickly access and view the Time-Till-Empty (TTE) at the existing consumption rate. The estimated time remaining until your battery is depleted. Or view Time-Till-Full (TTF), how long before your battery is fully charged.

CURRENT & POWER MONITORING

Whether you're charging or discharging your battery, you can now have a live insight into the current in AMPS or the power in Watts being consumed or supplied to your battery system, whether it's through a solar array, vehicle alternator or mains power.

CELL BALANCING

Cell balancing is key to the lifespan of your battery and ensuring you have charged your battery to its optimal capacity. Here you have the ability to closely monitor the charging performance of each individual cell that makes up your battery pack. Track real-time data such as cell voltage, temperature, highest and lowest cell voltages. Keep an eye on individual cell voltages during the balancing process and monitor the delta levels between cells.

MULTI CONNECTION MONITORING

The app allows you not only to monitor a single battery connection but also to monitor multiple batteries when connected together in Series or Parallel configurations. Enabling monitoring of larger battery system for the first time. Batteries can be connected in Series to create a system with an higher overall voltage. Or connected in Parallel to increase the batteries overall capacity. The SMARTIQ App allows you to select your system configuration and effortlessly monitor the entire system's performance on a single screen, whilst simultaneously observing detailed data for each battery in the system.

BATTERY HEALTH MONITORING

On board the battery is a powerful Battery Monitoring System (BMS). Passively assessing the health of your battery during its use. This highly sophisticated BMS acts as the primary line of defence for battery safety. So, if the user exceeds the designed use parameters of the battery, the BMS will safely shutdown the battery to protect it. The user will receive an In-App status notification, warning them of the reason for the BMS shutdown. This notification will provide diagnostics information, advising the user what course of action is required to ensure the battery returns to normal operating conditions.

**SMARTIQ
BMS**



DOWNLOADING THE APP

Scan the appropriate QR code or go to the Google Playstore / Apple Store to download: Search for 'SMARTIQ BMS' & click to INSTALL.

COMPATIBILITY REQUIREMENTS

Minimum requirement for IOS is IOS 11 or later. Minimum requirement for Android 5 or later.

TURN ON BLUETOOTH, LOCATION SERVICES & NOTIFICATIONS

Make sure you enable [Allow] Bluetooth, this ensures your smart device can scan for local Bluetooth devices. Location Services must all be enabled. Also [Allow] Notifications, this will enable you to receive 'In-App' Notifications for status alarms and battery warnings.

NOTE: LithiumPro Energy DOES NOT collect any form of data from your phone or smart device. The above settings must be enabled to allow your smart device can to connect to the battery and work as designed.



DEVICE PAGE - HOW TO CONNECT YOUR BATTERY

Once the above settings have been enabled OPEN the App on your smart device. You will be directed to the DEVICE page where your phone will automatically start to scan for your LithiumPro battery(s). To re-scan 'Pull down' with your finger from the middle of the screen to refresh the SMARTIQ DEVICES.

Only SMARTIQ SERIES LithiumPro Batteries within a radius of 10- 15m will now be listed in the SMARTIQ DEVICES menu. **NOTE:** The SMARTIQ BMS App is proprietary to LithiumPro Energy, so it will only display SMARTIQ SERIES batteries here. Other Bluetooth compatible batteries will NOT work with this App.

To connect to your battery(s) via your smart device simply 'tap' on the container with your battery(s) serial number. Once selected the container will be highlighted and you will see the ACTIVE badge appear in the bottom right hand corner. If you wish to disconnect the battery, simply tap the same container and the battery will now become DE-ACTIVATED. Once connected, tap the DASHBOARD icon at the bottom of the page to be taken to the DASHBOARD page.


If you would like to SKIP the above process every time you restart the APP you must select the battery you wish to auto connect to, make it ACTIVE then 'swipe' the container to the left. This will reveal a yellow 'AUTO CONNECT' button. Click this button and the AUTO CONNECT badge will appear in place of the ACTIVE badge. You can now proceed to the DASHBOARD icon at the bottom of the screen to take you to the DASHBOARD page. The next time you restart your SMARTIQ BMS App you will be directed straight to the DASHBOARD page without having to select a battery device manually.


If you wish to disconnect a device, select the DEVICE icon at the bottom left of the screen. When in the SMARTIQ DEVICE's menu 'swipe' the container left again to reveal a 'CANCEL AUTO CONNECT' button. 'Tap' this button and this device will no longer AUTO CONNECT.

DEVICE PAGE

The SMARTIQ BMS App is able to monitor multiple batteries when they are part of a larger battery system connected in SERIES or PARALLEL configurations. You can now monitor the main parameters for your entire battery system all on a single screen. (Up to 4 batteries in SERIES [48v] or up to 4 batteries in a PARALLEL configuration.)

HOW TO CONNECT MULTIPLE BATTERIES.

Select the DEVICE icon at the bottom of the screen. By 'pulling'  down from the middle of the screen to refresh the SMARTIQ DEVICES list. A list of LithiumPro Batteries will be ready for selection.

To connect to your battery simply follow the steps in the section above 'CONNECTING TO THE BATTERY' by 'tapping'  the container to make the desired battery ACTIVE. Complete this step for every battery you wish to add to the system. Once selected press the DASHBOARD icon at the bottom of the page and a prompt will appear, requesting how you wish to connect your battery system, in a SERIES or PARALLEL configuration. Once the appropriate system configuration has been selected the DASHBOARD page will now display your battery system as a whole. Updating the capacity and voltages respectively.

In SERIES operation the battery voltage will increase by a factor of 1 for every battery connected to the system up to 48V whilst the Amp hour rating will remain the same.

In PARALLEL operation the battery voltage will remain at 12V whilst the Amp hour capacity will increase by a factor proportional to the number of batteries connected in Parallel, up to a maximum of 4.

If you would like to SKIP the above process every time you restart the APP you must select the batteries you wish to regularly connect in your system and **AUTO CONNECT** them as illustrated in the previous section. By 'swiping' each battery container to the left, to reveal the **AUTO CONNECT** button. Clicking this button the AUTO CONNECT badge will appear in place of the ACTIVE badge. This process must be completed for all the batteries in the system. The next time you restart your SMARTIQ BMS App, you will be automatically redirected to the DASHBOARD page and without having to select any devices manually.

If you wish to disconnect a battery(s) from the system, simply go to the DEVICE icon at the bottom of the page and swipe left on the battery container to reveal the **CANCEL AUTO CONNECT** button. Select this button and this device will not longer AUTO CONNECT.




DASHBOARD PAGE

Here you will see the main battery tracking features of the App that are transmitted to your smart device via the SMARTIQ LINK in Real-time. Your unique battery name is displayed at the top of the screen. The main dial below, illustrates the current flow through the battery, and is defaulted to AMPS. By 'swiping' left on the main dial, it will change the dial to display power in WATTAGE. The units around the perimeter shows the amount of Current/Power being charged or discharged from the battery. The number will be illustrated in the centre of the dial as a (-Negative) if Discharging. Conversely, the Current/Power being generated by the charging system will be represented as a positive number, flowing into the battery(s).



Below the main dial are 3 smaller 'Quick' reference dials that show the remaining battery system Capacity, the Current/Power being (+) pushed into the system or being (-) drawn from the system and the remaining Charge as a % of the overall capacity. The 4 boxes below show the Time-till-Full (TTF) in hours and minutes at the existing charge rate. Whilst the adjacent box shows the Time-Till-Empty (TTE) when discharging at the existing discharge rate. The Temperature units can be displayed in °F or °C by 'tapping' the container. The last box is the battery system Voltage.


DASHBOARD PAGE - OVERVIEW SECTION.

Scroll the page upwards  to reveal the OVERVIEW section. Here you will see a summary of all the important battery data for reference at a quick glance.

The battery name is displayed on the left and at the top of the page, this can be changed by the user. Tap on the 3 dots in the top right of the container and a prompt will appear to 'change the device name'. Next is a battery gauge illustrating the overall charge of the battery in %. Followed by battery Voltage, Power, Current, Temperature and Capacity in Ah.



SYSTEM OVERVIEW - IN MULTIPLE CONNECTION MODE

Scroll up  on the DASHBOARD page up to reveal the SYSTEM OVERVIEW section. Here you will see a summary of all the important battery data for monitoring your entire battery system.

When in Multiple Connection Mode the 'OVERVIEW' section is replaced by 'SYSTEM OVERVIEW'. All batteries connected in your system are listed here. You can also find a "SYSTEM OVERVIEW" on the STATUS page. The system configuration will be highlighted in the top left of the container, it shows whether it is a SERIES system or a PARALLEL system. In this section you can scroll through the entire system of batteries connected and are able to monitor the individual parameters at a quick glance.

To make the system more personal, you can change the name of your batteries for your ease of reference. Simply click the 3 dots [...] in the top right of each battery container and you will be able to rename your battery device here.

NOTE: When batteries are new their capacity often far exceeds their nominal capacity stated on the battery. It will take a few charge cycles for the BMS to accurately learn the battery(s) State of Charge (SOC) status. So ensure you fully charge the battery(s) for the first few cycles.

WARNING: Never physically connect batteries in series or parallel of varying capacities. This can damage your batteries. Only ever physically connect batteries of the same brand, capacity and age in series or parallel configurations.

CHARGING STATUS PAGE



CHARGING STATUS IS HIGHLIGHTED WHEN ACTIVE

TIME TILL FULL 37MINS

CELL NUMBER

CELL DELTA IN mV

CELL VOLTAGE

BATTERY CAPACITY REMAINING IN %

BATTERY CAPACITY REMAINING IN Ah

OVERVIEW

The CHARGING STATUS page provides the important data for tracking the batteries State of Charge (SOC) during the charging and discharging phases.

When the battery is actively charging, this phase is indicated by CHARGING being highlighted. Also the charging time remaining Time-Till-Full (TTF) is also highlighted and displayed in hours and minutes. Conversely, during the DISCHARGING phase, the corresponding box is highlighted and the remaining Time-Till-Empty (TTE) is then active.

The battery system is discharging when your appliances are active, but can simultaneously be charging from numerous charging source(s) connected to the battery(s). Therefore, the active status will be highlighted based on whichever load—CHARGING or DISCHARGING—is the greater of the two values.

CELL BALANCING

Cell balancing is an essential part of battery maintenance, it maximises the state of charge and therefore the lifespan of the battery(s). The Battery Management System (BMS) is constantly monitoring the cell voltages in the battery(s) during the charging process. Balancing takes place towards the end of the charging cycle, during the Constant Voltage CV phase of the charging cycle, when the battery(s) are almost full.

The BMS will passively monitor individual cell voltages and selectively activate balancing resistors to maintain a harmonised voltage across all the cells to within a few millivolts, providing the optimal state of charge.

During balancing the cell numbers will glow in the 'CELL STATUS' section to indicate which cells are in the balancing phase.

INFO PAGE



SUMMARY

The INFO page is where you can find helpful information about the battery or battery system you are connected to. Select the INFO icon and the bottom of the screen to access this section.

ABOUT

This section provides an overview of the App along with the Firmware revision the App is operating on. You can click the 'CHECK FOR UPDATES' button here to ensure you always have the most up-to-date level of the App running.

DEVICE

Below 'DEVICE' states the battery name you are connected too for quick reference. If you are connected to more than one battery, the battery configuration will be shown here as 'Parallel System' or a 'Series System'.

The page shows various battery parameters of the device(s) connected, for example: It will display the battery name, the model, battery serial number, the battery capacity, the number of cycles the battery has completed, the watt hour rating and the important charging parameters of that battery.

If you have a multiple batteries connected - All the above data will be listed for each battery consecutively.

DOWNLOADS

This page will link you back to the manufacturers website www.lithiumpro.co.uk where you will be able to find all the relevant technical information you may need for your battery(s). On this support page you can download the latest Datasheets, User manuals, Quick start guides etc for your battery(s).

SUGGEST A FEATURE

Is a section where we would like to hear from you, if you think you have a feature that would improve the use-ability, function or performance of your experience then please let us know. If you click the email link on this page you will be directed to your devices email system ready for you to inform us of what feature you would like to see in the next update.

REPORT AN ISSUE

This section is similar to the above but is relating to the performance of the App. We hope you have a great user experience when operating the SMARTIQ BMS App. However, if you spot a glitch or a bug in the system please use this section to notify us of any issues. If you click the email link on this page you will be directed to your devices email system ready for you to inform us of what the issue you are experiencing. Please be as descriptive as possible about what is happening and when and we will endeavour to resolve the issue as soon as possible.

INFO PAGE Continued...



BATTERY HEALTH

The BATTERY HEALTH page records and displays very important and critical safety information about your battery. On this page you will find a list of parameters that the Battery Monitoring System BMS is constantly reviewing to keep your battery system operating safely.

The BMS is the brains of the battery and keeps it operating within safe parameters. It is an essential component of a lithium battery pack. Its core function is to monitor and control the individual cells within the battery to ensure safe and efficient operation in all circumstances. In order for the BMS to maintain safe operation it has to monitor for a series of parameters. The significant parameters are listed adjacent and should the BMS detect the battery is operating outside of these parameters, it will safely and promptly shutdown the battery before any long term damage maybe caused.

NOTIFICATIONS

If the battery has shutdown due to improper use or malfunction, the App will display an 'In-App' WARNING NOTIFICATION. This notification will indicate why the battery has been shutdown. When you open the BATTERY HEALTH page you will see the reason for the battery shutting down. It will be highlighted in green and the 'bell icon' will also be green. The number to right-hand-side records the number of times this error has occurred.

NOTE: Notifications will only be displayed if they are enabled in the smart devices App settings.

HOW TO RESOLVE THE ISSUE.

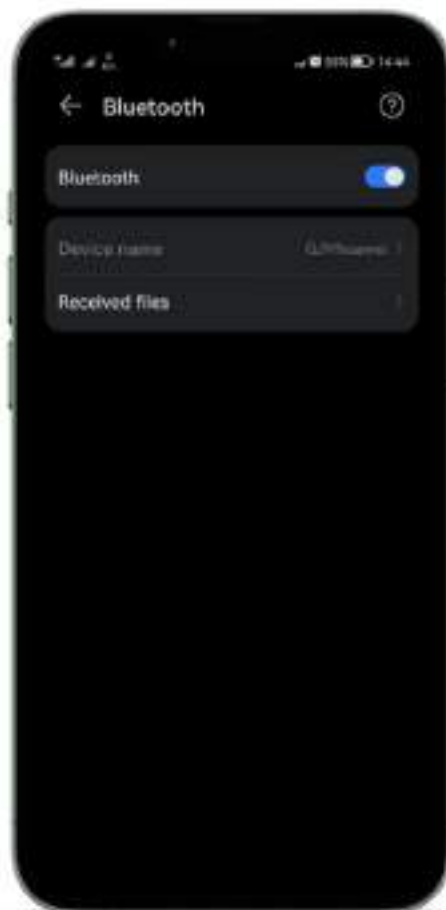
By 'clicking' on the green-highlighted parameter, it will prompt the system to present a WARNING screen detailing the reason for the battery shutdown. It will also offer a possible explanation for the occurrence and provide some basic instruction to help the user restore the battery(s) to normal operating conditions.



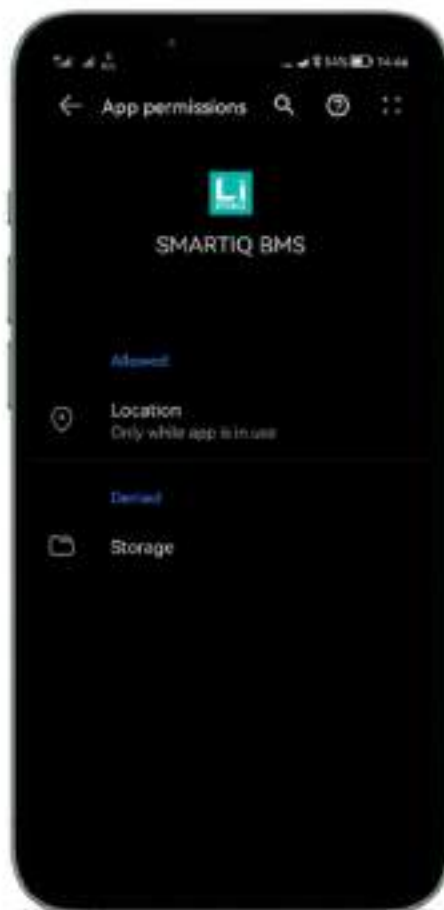
TROUBLESHOOTING

Should your device not connect to the battery, please try these steps below;

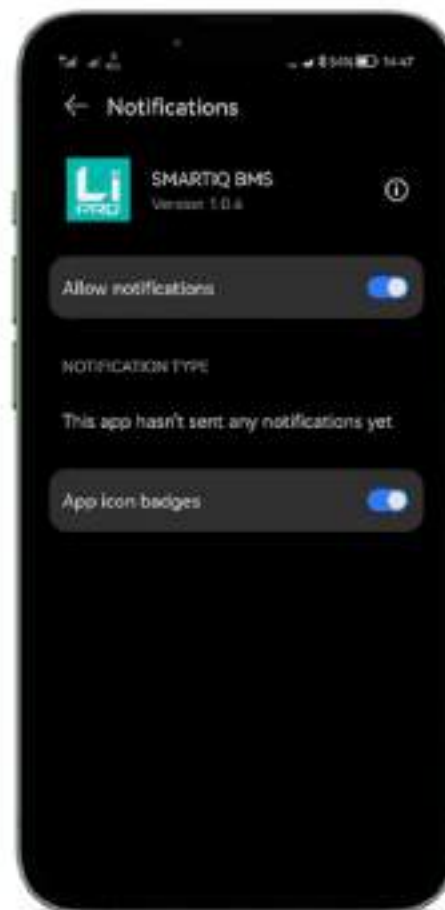
- Ensure the smart device has Bluetooth switched on.
- Make sure you have 'Allowed' permissions for 'Location Services' for the SMARTIQ BMS App.
- Turn on Notifications for the SMARTIQ BMS App.
- When scanning for Bluetooth devices make sure you are located within a few meters of the battery.
- Restart your smart device to reset the cache.
- If none of the above work contact LithiumPro Energy by email and submit a 'SUPPORT REQUEST' at tech@lithiumpro.co.uk



BLUETOOTH SETTINGS



LOCATION SETTINGS



NOTIFICATION SETTINGS

FEEDBACK

How was your experience with LithiumPRO Energy?

We are here to stay, and dedicated to producing innovative, state-of-the-art products, so feedback on our App, our products and customer service is crucial to our future success. So make sure you go to the Apple Store or the GooglePlay Store and rate our App, this provides us the feedback to improve the user experience. Feel free to drop us a line at suggest@lithiumPro.co.uk, and let us know what we can do better. Alternatively, you can leave us a review on Google, as this helps others find out about our innovative products too.

FOLLOW US

Be sure to 'Follow Us' on Instagram @Lithiumpro_Energy for all the latest updates on new products. We are passionate about our products and would love to see any photos, videos or clips of your installations. We encourage you to upload them to our hashtag #Lithiumpro_Energy

ENJOY

We hope you enjoy the powerful and reliable energy solutions that we create at LithiumPRO Energy. As we continue to innovate and advance, striving to exceed your expectations becomes our priority. We look forward to being your trusted partner powering your dreams and adventures.

The team at

LITHIUMPRO ENERGY

@LITHIUMPRO_ENERGY

