ROAMER
USER MANUAL

Roamer SMART5
LiFePO4 Leisure Battery

www.roamer.com

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Roamer Batteries

Since founding Roamer in 2020, we have strived to create and deliver exceptional products and service that give you the confidence to venture further. The company has grown exponentially in the last few year but our values and quality-first approach are still as strong as they were on day one.

We're committed to supporting off-grid lifestyles through the quality manufacturing of superior LiFePO4 batteries, customer care and expert support. We are confident that you'll be delighted with the quality and performance of your new Roamer battery but if you have any concerns or questions, please get in touch straight away.

Our commitment is not only to our customers, but also the Vanlife, Liveaboard and DIY solar communities. We've had campervans for 12 years, we and our staff live and breathe this lifestyle and we love hearing about your adventures after installing a Roamer battery.

Please don't forget to tag @roamervans in your Facebook, Instagram, Threads and TikTok posts so we can follow along with your journey.

Steve Kennedy
CEO

Roamer Batteries
Powering your Off Grid Adventures

www.roamer.com

Safety

Please read this user manual and the separate safety guide fully before storing or using your battery.

This contains essential safety information and best practice on how to use your battery. Roamer have taken every precaution to ensure that our batteries are as safe as possible and give you complete peace of mind while using our products. No battery is 100% safe however, and caution should always be taken when handling or operating equipment containing, or connected to, high-capacity energy storage devices.

LiFePO4 batteries should only be installed and operated by a competent person. Please read this manual carefully and pay particular attention to the recommended charge, discharge and temperature limits as these may be different to the Battery Management System (BMS) maximum limits.

If you have any concerns or questions about safety, please do not hesitate to contact Roamer at support@roamer.com

Contents

Quick start guide

We've put together a summary of the installation process to help you get started straight away

Installation

Your battery should be installed in a location where it cannot be exposed to extreme temperature fluctuations, freezing temperatures, moisture or vibration. If possible, install your battery, inverter and chargers in the same area to keep cable lengths to a minimum. If installed in a vehicle, fix the battery in place securely.

Connecting Cables

Roamer SMART5 batteries are fitted with female threaded screw terminals and come supplied with the correct length bolts. Connecting cables should be finished with copper tube lugs. The 144SMART5 is slightly different in that it also has fitted brass battery posts which gives you the option to use either copper tube lugs, or existing clamp connections. Roamer do not recommend using screw-in battery post adapters, as these can create additional resistance and excessive heat under load.

You should also avoid connecting more than two cables to each battery terminal, if you need multiple cables at the same voltage then you should install busbars and connect one cable to each stud. Ensure all connections are tight and unable to shake loose, we recommend a torque specification of 16Nm for our M10 sized battery terminal bolts and 12Nm for our M8 sized battery terminals.

Never connect a SMART5 battery to your system in the powered-on state. Instead, power-off the battery via the switch on the top cover, connect the cables (if not already connected) and then turn on your isolator. Only at this point, should the SMART5 battery be powered-on.

Install the Roamer BMS app

SMART4 batteries can be monitored in real time using the free Roamer SMART app for iOS or Android. During installation, make sure that you allow Bluetooth and GPS connections when prompted or you will not be able to connect (don't worry we do not collect your data). You can use the app to check the state of charge, individual cell voltages, current draw, and any fault codes.

Please note that the state of charge reading may be inaccurate until the battery has completeda full cycle, this does not affect the operation of the battery and you can continue to charge the battery when the state of charge suggests it is full, as long as the battery voltage does not exceed 14.4V.

Charging

For safety reasons your battery will be shipped at a low state of charge so you should charge your battery soon after arrival. Battery chargers should ideally be configured with a LiFePO4 profile. If this is not possible, then choose the charge voltage option which most closely matches the recommendations below. Absorption should be set to the shortest time period possible, and equalisation mode and temperature compensation should be disabled. Do not leave the battery unattended while charging and do not allow battery voltage to exceed 14.4V. Please read the charging section of the user manual carefully and see support.roamer.com for guides.

Recommended Charging Voltages for 12V and [24V] LiFePO4 Batteries

Absorption/Boost – 14.4V [28.8V]
Float – 13.5V [27.0V]
Storage – 13.25V [26.4V]

Storing your battery

If you are not ready to install your battery yet or you will not be using it straight away, we recommend charging the battery to between 13.0V and 13.25V (40% and 80%) and then isolating it completely from all external loads and chargers. If you really need to keep the battery turned on when not in use and your charger has a storage mode, you should set this to 13.25V. It is not necessary to trickle or float charge as Roamer Batteries have an extremely low self-discharge rate of just 7% per month in standby, and around 2-3% when turned off via the power button.

You should also monitor your battery voltage regularly and try to ensure it does not drop below 12.8V, if voltage drops below this then you will need to top up the charge. If voltage drops to 10.0V then it will enter into protection mode and if it is left in storage without charging, the voltage of the cells will continue to fall and permanent cell damage can occur. If you only have a lead acid charger which is unable to detect a battery that is in protection mode, you can use Emergency Mode to temporarily remove this protection, thus allowing you to charge.

What else is in the box?

- 2x M10 / M8 stainless steel terminal bolts with captive washers
- Battery factory test report
- User manual
- Safety Instructions
- Warranty terms and conditions

Please retain all documentation for future reference, but if you misplace them or decide to recycle them then digital versions are also available on our website.

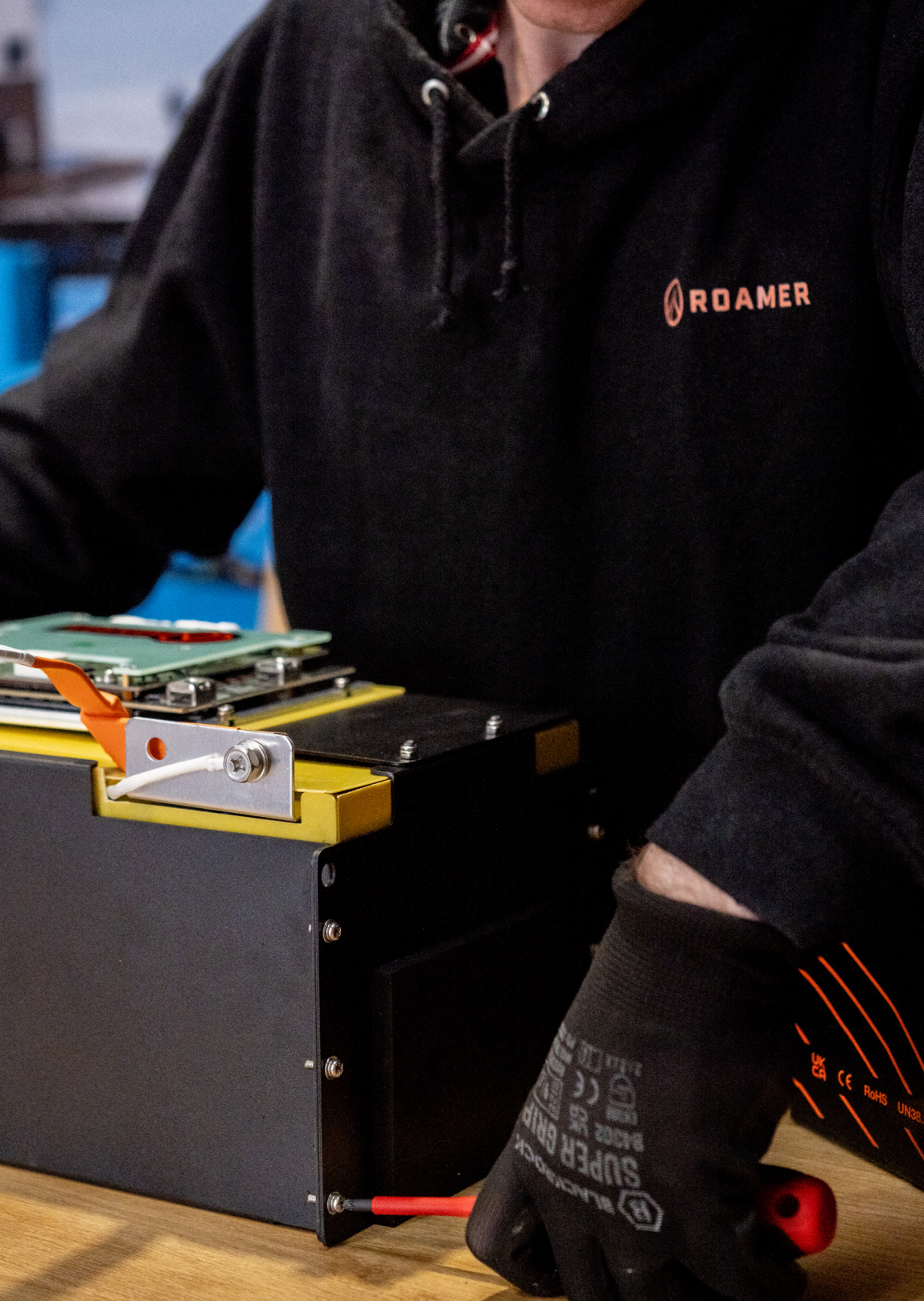
If any of these parts are missing, please contact us at support@roamer.com or call our technical support team on (+44) 113 8878335 to arrange a replacement.

What's inside a Roamer battery?

Roamer only use the highest quality components including matched grade A cells purchased directly from top tier manufacturers. We also provide cell serial numbers for complete transparency and traceability. These are logged by Roamer before shipping and are printed on the factory test sheet and via the QR code on the battery case. This can be scanned to view the serial numbers.

Our custom high-power BMS and Roamer app give you complete protection and visibility of what is going on inside your battery, and our integrated active balancer helps keep all cells perfectly in line for a long and healthy life.

Your battery is professionally constructed using precision engineered brackets, CNC-cut epoxy insulation board and high-capacity flexible copper busbars. We take immense pride in the quality and reliability of our batteries, but we also make them fully serviceable in case of problems or if an upgrade becomes available. While the case can be opened for repairs and upgrades, please do not try to do this yourself without speaking to Roamer Technical Support as you will invalidate your warranty.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Installation

Your battery can be installed in any orientation, including on its side, but not upside down. If installing in a vehicle, then it is crucial that the battery is securely fixed down so it cannot slide while the vehicle is moving. It must also be accessible so it can be removed or disconnected in an emergency. We recommend having tools readily available including cable cutters, a spanner or socket, and ratchet of the correct size.

You should install the battery in a way that avoids exposing it to extreme hot or cold temperatures and facilitates an even temperature distribution across the whole battery pack. If installing the battery on the floor of a vehicle, you should fit insulation and/or an air gap between it and the floor's surface as this will prevent cold bridging from the metal sub-floor.

Your battery comes supplied with bolts, flat washers, and spring washers. You should therefore terminate your battery cables with copper tube ring terminals. Before connecting cables, check that the battery on/off switch on the top of the battery is turned off and that your main battery isolator is also in the off position. The cable terminal should be placed flat, directly onto the battery terminal. Next place the flat washer, then the spring washer, then feed the bolt through this stack. The bolts should be tightened to a torque specification of 16Nm on a dry thread.

Do not tighten or loosen battery terminals immediately after high loads or if they are warm to the touch, wait for the terminals to cool down to ambient temperatures. Loose connections can introduce contact resistance which will cause the termination to heat up during high current flow. If you are upgrading from a lead acid battery with clamp posts, you must re-terminate your cables as described above, instead of fitting screw-in battery posts.

You should only have a maximum of 2 cables connected to each battery terminal bolt. If you have multiple chargers and other components to connect, then you should use busbars or a distribution system. Too many cable connections on one bolt adds excessive resistance, which under high current flow can become extremely hot.

Be very careful not to short-circuit the positive and negative terminals. The resulting current surge could cause damage to the battery and any external components it flows through. Double check the polarity of the battery and any equipment before connecting them. Connecting a battery the wrong way around can cause irreparable damage to the battery and any components connected to it.


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The Roamer SMART Bluetooth App

Before you install and use your battery, we recommend downloading the Roamer SMART app, available for iOS and Android devices. When you first open the app, it will immediately search for SMART5 batteries nearby. If your battery doesn't show up, ensure the battery is powered on, and the power button is illuminated orange. To connect your battery, select it from the list, and type in the password when prompted.

The default Bluetooth pairing password for your battery is 1234

You are able to change the Bluetooth pairing password once connected. Simply connect to your battery then press the Bluetooth icon in the top left of the app, to return to the bluetooth menu. From here, you can press the pencil icon to change the Bluetooth password of the connected battery. The Bluetooth pairing password is secure and cannot be recovered if you forget it. If you change the password make sure it is memorable and written down somewhere safe, such as on the battery case.

Core pages of the app can be accessed from the bottom menu buttons, while other functions can be accessed by pressing the 'three dots' in the top right corner. To go back to the battery scanning page, click the Bluetooth symbol in the top left corner.

The Home page of the app provides an overview of the key information about your battery such as state of charge, current and voltage. The Details page provides more specific data such as cell voltage and temperatures. The Settings and Controls page allows you to control the battery BMS functions and edit the BMS parameters. You will need a password to access the Settings and Controls page.

The default Settings and Controls password for your battery is 638203

This password can also be changed for security. As with the Bluetooth pairing password, if you change this then make sure it is memorable and written down somewhere safe as it cannot be recovered if you forget it.

IMPORTANT - The BMS parameters are configured at the factory to match the battery requirements exactly and should not be changed without speaking to Roamer first. If you want to change any settings on your battery (for example to change charge parameters to match a specific inverter or to install in a hybrid setup) please contact Roamer support at support@roamer.com. All changes will be logged in the BMS memory, unauthorised changes may invalidate the battery warranty.


9:41
ROAMER
40%
Remaining
13.28V
Your battery is running perfectly
Charge on
Discharge on
Balance on
Precharge on
Charging at
140A current
1792W power
16°C
Cell temp
16°C
BMS temp
0.01V
Cell delta
3.32V
Av. cell volt

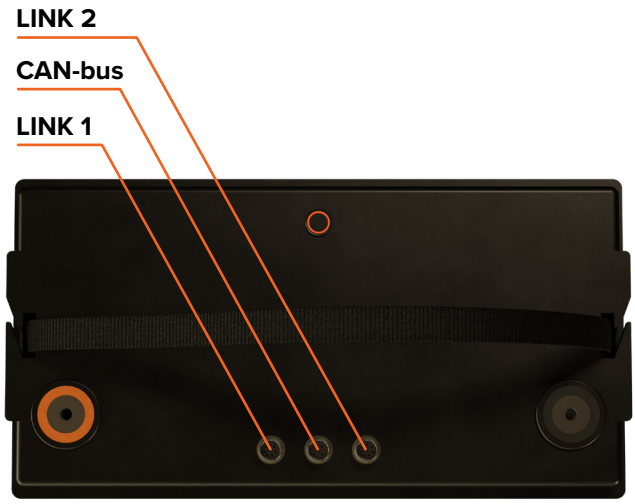
Data communication ports

SMART5 batteries have additional data communication ports which allow you to link multiple batteries together and pass internal battery information to a connected inverter or battery monitor/display. It is also possible to program the BMS and update BMS firmware.

From left to right, the connectors on the battery are Link 1, CAN and Link 2. These are waterproof, stainless steel M12 screw connectors. The two Link ports are 8 pin RS485 communication ports which can be used to connect multiple batteries together in a chain via the **Roamer LINK cable** (supplied separately). You can also use these ports to communicate directly with the BMS using PC software in order to update firmware, via the **Roamer PROGRAM cable** (supplied separately). The two ports are linked internally so it doesn't matter which one you use.

The CAN port is a 5 pin CANbus communication port which can be connected directly to an inverter or battery monitor using the **Roamer CAN cable** (supplied separately). The Roamer BMS supports communication protocols for a wide range of third party manufacturers. The default protocol is for Victron Energy BMS-Can but this can be changed in the Roamer SMART app.

Roamer can supply the cables you need to connect to these ports but if you need longer cables or have other specific requirements, its possible to make up your own cables - please contact Roamer Support for the wiring pin-out diagram.



Third party integrations and Victron GX setup

Roamer SMART5 batteries offer plug-and-play integration with Victron GX devices such as the Cerbo GX and other third party touchscreen monitoring systems. This allows you to display live and historic battery data either on the Touchscreen panel, on your phone or online. This guide explains connection to a Victron GX device, other third party system setup guides can be found on our website at support.roamer.com

You will need a compatible Victron GX device as well as a **Roamer CAN cable** (supplied separately).

When connecting any cables to the battery, ensure the battery is first powered off. Next, take your Roamer CAN cable, and line up the slot inside the M12 connector with the slot on the connector in the battery, the cable should point towards the middle of the battery. Push the cable gently down into the connector, and then turn the metal collar clockwise to screw the connector in place - keep pushing gently whilst you do this, as the process of screwing the collar into the connector will pull the connection in, making for a snug fit.

Your Victron GX device should have two ports labelled BMS-Can. Take the other end of your Roamer CAN cable and connect to one of the BMS-Can ports on the GX Device. Now take a CANbus terminator (one of the blue plugs supplied with the GX device) and connect to the other BMS-Can port on the GX device. Now turn the Roamer SMART4 battery on via the power switch on the top of the case.

To monitor multiple batteries, simply use Roamer LINK cables to connect one of the Link ports on each battery. You can connect up to 16 batteries in this way, simply link them all together in a chain. Designate the end battery as the ‘Master’ and connect this battery to the GX device as outlined above.

When monitoring multiple batteries, you will need to ‘address’ each battery - this can be done using the Roamer SMART app. Go to the settings page and unlock using your password. Scroll down to the setting labelled ‘Device Address’. By default, this will be set to 0. Leave the Master battery set to 0 but change the address of the other linked batteries - the next battery would be addressed as 1, then 2 and so on up to a maximum of 15.

Parallel and series connection

Multiple batteries can be wired together in parallel or series to create higher capacity and/or higher voltage battery banks.

Parallel configuration is achieved by connecting the positive terminals of multiple batteries together to create one common positive node and connecting the negative terminals together to create one common negative node. The capacities and maximum current outputs are added together but the voltages are not. For example, two 230SMART5 batteries in parallel will have a total capacity of 460Ah, a peak delivery current of 600A, and a nominal system voltage of 12.8V.

Series configuration is achieved by connecting the positive terminal of one battery to the negative terminal of another. The negative terminal of the first battery is used as the system negative node, while the positive terminal of the second battery is used as the system positive node. The voltages are added together but the capacities and maximum current outputs are not. Two 230SMART5 batteries in series will have a total capacity of 230Ah, a peak delivery current of 300A, and a nominal system voltage of 25.6V.

- Up to 16 battery modules can be connected in parallel with the SMART5 series. If you want to monitor all batteries, these must also be addressed within the Roamer app and the data-link cables installed for communication between modules.
- While series connection is possible, we do not recommend this. Roamer also sell 24V and 48V batteries if required, natively running at these voltages. Systems should not be configured to run over 48V nominal.
- All batteries must be fully charged and allowed to settle to within 0.05V of each other before connecting in series or parallel.
- Batteries in series should be the same brand, model and voltage, and should be the same capacity and age.
- If connecting two batteries in parallel, you should take the positive cable to loads/chargers from battery A and the negative cable from loads/chargers to battery B. This helps to evenly distribute loads across both batteries.
- If connecting more than two batteries in parallel, you should connect each battery to a busbar rather than connecting together directly. If you use this method then it is vital you use connecting cables that are exactly the same length and size.

Discharging

Your Roamer battery can deliver extremely high continuous discharge currents and allows the operation of high-power appliances either directly at DC 12V or 24V, or at mains AC voltages (230V in the UK and mainland Europe) via an inverter. You should ensure that connecting cables and the main battery cables are sized appropriately for the loads, and the correct size and type of protective fuse is used. Please refer to the inverter manual for guidance. Recommended maximum inverter sizes for each Roamer battery model are given in the table below.

	105SMART	144SMART	230SMART	230SEATBASE	340SMART	460SMART	24-230SMART
Max BMS discharge current [A]	150	200	300	300	300	300	300
Recommend max discharge current [A]	105	144	230	230	300	300	300
Recommended max inverter power [VA]	1200	1800	2500	2500	3000	3600	5000

Pre-charging your Inverter

Inverters contain large internal capacitors which, when connected to a LiFePO4 battery for the first time can draw a very high inrush current up to 3000A. This surge current can damage a LiFePO4 battery BMS and other connected equipment and is also potentially dangerous. The solution is to pre-charge the capacitors in the inverter. We recommend that any inverter larger than 1500VA should be pre-charged on first connection. This also applies if the battery has been isolated from the inverter for prolonged periods of time.

Pre-charging involves slowing down the inrush current, thereby filling the capacitors with charge in a steady and controlled way. In order to prevent a spark when connecting battery cables, never connect a SMART5 battery to your system in the powered-on state. Instead, power-off the battery via the switch on the top cover, connect the cables (if not already connected) and then turn on your isolator. Only at this point, should the SMART5 battery be powered-on.

Charging

SMART5 batteries will accept a wide range of charge voltages and work with almost all lead-acid and lithium chargers. However, choosing the best chargers for your system and setting them up correctly will help you get the best performance from your batteries and can also extend their useful life. The Roamer BMS will automatically prevent you from overcharging the battery by disabling charging when the high voltage threshold is reached. This is a 'last resort' protection however and is not a substitute for charging your battery correctly.

The ideal charge profile for your battery involves bulk charging at a constant current up to a target voltage of 14.4V and then stopping. The active balancer in your Roamer battery means an absorption or float stage is not required although we recommend a short absorption period (up to 1 hour) if this cannot be disabled.

Most modern multi-stage chargers have bulk, absorption and float stages that can be configured via a Bluetooth app or selector switch. Some brands use different terminology but the functions are the same. They will charge at constant current (bulk) until the battery reaches the target voltage, then hold at this voltage for a set time period (absorption) before finally settling at a maintenance (float) voltage that keeps the battery full. You should choose the voltage profile that most closely matches the recommended settings below.

- Bulk/Absorption/Boost/Target Voltage: 14.4V
- Float/Storage Voltage: Disabled or 13.5/13.25V
- Absorption Time: Disabled or up to 1 hour
- Equalisation: Disabled or set equal to bulk charge voltage, with duration of 0.
- Temperature Compensation: Disabled

You should ideally have at least one charger in your system that is able to 'wake up' a lithium battery in low voltage protection mode. Many lead acid (and even some lithium-ion) chargers cannot detect the battery in this instance and will not send a charge. Roamer SMART4 batteries have an emergency function if you get stuck in this situation without a suitable charger, see the troubleshooting section for details.

If you would like to upgrade any chargers, or need help setting up a specific charger model then please get in touch with Roamer support. We can supply a range of suitable chargers and our Support hub also provides several detailed set-up guides.

Low temperature charging

LiFePO4 batteries should not be fast charged at temperatures below 0°C as this can permanently damage the cells. Roamer batteries therefore include a low temperature charge protection function in the BMS which will prevent you charging once the internal battery temperature reaches this point. This protection will remain in place until the temperature rises back above 5°C. Due to the size and bulk of the battery cells, it can take several hours for the internal temperature to match the ambient temperature, and for all cell temperatures to equalise.

We do not recommend applying an external source of direct heat to either the cells or the battery casing. If you need to warm the battery to enable charging, then gently heat the air around the battery, not the battery itself. This is another reason why leaving an air gap underneath the battery is a good idea.

Applying heat directly to the cells (via internal heating) or to the battery case can cause premature ageing of the battery cells, by warming the outer skin of the cells above the BMS protection threshold, whilst still leaving the inner core of the cell at unsafe charging temperatures. This can fool the BMS temperature sensors into allowing a charge current into battery pack before it is ready.

To maintain a long and healthy life for your battery and to minimise safety risks, you should also reduce charge currents according to the battery temperature. Please pay attention to the recommended charge currents are given below.

	105SMART	144SMART	230SMART	230SEATBASE	340SMART	460SMART	24-230SMART
BMS charge current limit [A]	105	160	230	230	300	300	300
Recommended max charge current at 25°C [A]	50	72	115	115	170	230	115
Recommended max charge current at 10°C [A]	20	28	46	46	68	92	46
Recommended max charge current at 5°C [A]	10	14	23	23	34	46	23

Troubleshooting

Q) I cannot connect to my battery via Bluetooth

A) Please check that the battery is powered on, the power switch should be illuminated orange. Next check you are within around 10m of the battery, and your device has permissions to allow access to bluetooth. If using an Android device, you will need to provide all security permissions including location (this is to enable the use of Bluetooth Low Energy, Roamer do not collect your data and we do not track your location).

Due to the nature of Bluetooth Low Energy, only one device can be connected at a time. If you have the app open on a different device then it will not appear in the scan results. Make sure you fully close the app on all other devices before trying again.

NOTE: SMART4 and SMART5 batteries use a different app compared to the older SMART2 and SMART3 ranges. Make sure you are using the Roamer SMART app.
If you still cannot connect, you should try charging your battery. If the battery is completely flat then the Bluetooth will stop working.

Q) My battery doesn't show up on the Victron GX device

A) Ensure you have plugged into a BMS-Can port, and that the CAN Terminator is also fitted in the adjacent port on the GX device. If you have a Cerbo GX MK2, Cerbo-S GX or Ekrano GX, you may need to change the VE.CAN Port function:

1. Go to settings on the GX Device
2. Scroll down to Services and select it
3. Select VE.CAN Port
4. Select CAN-bus Profile
5. Select CAN-bus BMS LV (500 kbit/s)

If your battery still doesn't show up, you might need to select the battery as the "Battery Monitor":

1. Go to settings on the GX Device
2. Scroll down to System Setup and select it
3. Select Battery Monitor
4. Select the Roamer Battery

Q) My battery won't charge / discharge

A) First step is to check the Roamer SMART app. Are there any protection modes active? There are many reasons why the BMS would go into protection mode but the app should provide enough information to be able to rectify the problem.

Q) State of charge on the Roamer SMART app is incorrect

A) This is common when the battery is brand new, or hasn't been cycled for a while. All you need to do is fully charge the battery to 14.4V or discharge to below 10.8V and the state of charge will calibrate accordingly. State of charge is a calculated value and is for information only - it does not have any effect on the operation of the battery, or protection modes. You can refer to the voltage chart to double check the state of charge if needed.

Q) I cannot resolve my issue.

A) Please get in contact with the Roamer Support Team on **support@roamer.com** and we will be more than happy to assist. Please provide your battery model, serial number, and order number along with a detailed description of your system and the nature of the fault. Where possible, please also provide screenshots of the home page of your Roamer SMART App, full details page, and the protection state page.

Monitoring state of charge

The Roamer BMS app should keep a fairly accurate track of the state of charge of your battery but it is helpful to have a second point of reference for comparison and troubleshooting.

There are subtle differences in the voltages of different batteries so the below parameters are for reference only. The table below shows approximate SoC at different voltages for a single cell, a 12V battery and a 24V battery. With the exception of the first line, all voltages are 'resting' voltages i.e., after the battery has been sat without charging or discharging for 30 minutes.

State of Charge at 25°C	Single Cell LiFePO4 [V]	12V LiFePO4 [V]	24V LiFePO4 [V]
100% (Charging)	3.60	14.40	28.80
100% (Resting)	3.40	13.60	27.20
99%	3.35	13.40	26.80
90%	3.33	13.32	26.64
80%	3.31	13.24	26.48
70%	3.29	13.16	26.32
60%	3.28	13.12	26.24
50%	3.26	13.04	26.08
40%	3.25	13.00	26.00
30%	3.24	12.96	25.92
20%	3.20	12.80	25.60
10%	3.03	12.12	24.24
0%	2.50	10.00	20.00

Note how the voltage at 99% is very different to 100% but there is hardly any difference in voltage between 20% and 80%. Voltage is therefore more useful as a guide when the battey is nearly full, or nearly empty. For example, you can consider any resting voltage of 13.6V or above as being full. You can also consider anything below 12.8V to be very low and if you see this as a resting voltage, you should aim to recharge as soon as possible.


victron energy
charger
mains on
bulk
absorption
float
charger only
off
on
inverter
inverter on
overload
low battery
temperature
current limit
multi control
victron energy
SmartSolar charge controller
MPPT 100 I 30
IP43
15:39
Settings
Battery voltage
Max charge current
Charger enabled
Battery preset
12V
Expert mode
Charge voltages
Smart Lithium (LiFePo4)
Absorption voltage
30A
Float voltage
Equalization
Equalization voltage
14.20V
13.50V
Automatic equalization
Manual equalization
Disabled
Voltage compensation
Temperature compensation
Battery limits
START NOW
Low temperature cut-off
Disabled
5°C

Storing your battery

If you happen to need to store your battery for an extended period of time – for example through the winter months – we have a few recommended tips to prolong the life of your battery.

- Before putting into storage, you should discharge it to between 13.0V and 13.25V (equivalent to 40% to 80% state of charge) and fully isolate the battery from any chargers or loads. With SMART5 batteries, you should also press and hold the power button to turn the battery off entirely and all chargers/solar.
- Never store your battery at 100% state of charge or continuously charge the battery via solar or a trickle charger. This is one of the worst things you can do to a lithium battery as it will degrade the LiFePO4 cells and reduce the life of your battery. If you need to leave the battery connected and on charge then set the charger to a storage voltage of 13.2V.
- Keep it in a dry location with a stable temperature. While cold temperatures are generally ok for storage, you should avoid very warm temperatures (above 40 °C).
- Your battery can self-discharge by approximately 3% every month if left powered on, so it is normal to find it in a lower condition than you left it, especially if the cells are slightly out of balance.
- Cells will be damaged if you allow voltage to drop below 2.5V per cell. You should check the battery app regularly and top up the charge if needed.
- Note that the BMS app will not record any self discharge while in storage so you should use voltage as a guide, not the percentage shown on the app. The State of Charge calibration may also need to be reset when using the battery again after a long period of storage.

Disposing of your Battery

Although we hope your battery will keep you running off-grid for many years, it will eventually reach a point where it has to retire. Batteries and electrical components should be recycled responsibly and must not be disposed of in domestic waste. If in any doubt, please get in touch with us and we'll be more than happy to advise you on how best to go about this.

As a responsible manufacturer we conform with WEEE / 140001 which means we can handle this process for you. Simply get in touch with us through the usual routes and we'd be more than happy to arrange disposal and recycling for you.


FRAGILE
THIS WAY UP
ROAMER
UN3480
LITHIUM ION BATTERIES
9
4G/Y45/S/22
CN/C530156
PI:194

Tech specs

Each table contains detailed technical parameters for our batteries including charging information, operating conditions and more. Do not use the battery outside of the recommended ranges.

	105SMART5	144SMART5	230SMART5
Battery Specification			
Nominal Voltage [V]	12.8	12.8	12.8
Current Capacity [Ah]	105	144	230
Energy Capacity [Wh]	1344	1843	2944
Cell Chemistry	Lithium Iron Phosphate / LFP / LiFePO4 Prismatc Cells		
Physical Specification			
Length [mm]	260	359	502
Width [mm]	173	178	192
Depth [mm]	229	189	250
Weight [kg]	11	15	21
Electrical Specification			
Min/Max Safe Voltage [V]	10.0/14.6		
Recommended Absorption Voltage [V]	14.4		
Recommended Float Voltage [V]	Disabled or 13.5		
Max BMS Discharge Current [A]	150	200	300
Max Recommended Discharge Current [A]	105	144	230
Max Recommended Inverter Power [VA]	1200	2000	3000
Max BMS Charge Current [A]	150	200	300
Recommended Max Charge Current at 25°C [A]	50	72	115
Recommended Max Charge Current at 10°C [A]	20	28	46
Recommended Max Charge Current at 5°C [A]	10	14	23
Operating Specification			
Storage Temperature [°C]	-20 to 40 (recommended 10 to 35 at voltage between 13.0V and 13.2V)		
Charging Temperature [°C]	0 to 60		
Discharge Temperature [°C]	-20 to 60		
Typical Cycle Life	8000 cycles @ 80% Depth of Discharge (25°C) 4000 cycles @ 100% Depth of Discharge (25°C)		

Tech specs cont.

230SEATBASE5	340SMART5	460SMART5	24-230SMART5
12.8	12.8	12.8	25.6
230	320	460	230
2944	4352	5888	5888
Lithium Iron Phosphate / LFP / LiFePO4 Prismatc Cells			
331	386	522	522
285	206	270	270
182	278	228	228
22	30	38	38
10.0/14.6			20.0/29.2
14.4			28.8
Disabled or 13.5			Disabled or 27.0
300	300	300	300
230	300	300	230
3000	3000	3000	5000
300	300	300	300
115	170	230	115
46	68	92	46
23	34	46	23
-20 to 40 (recommended 10 to 35 at voltage between 13.0V and 13.2V)			
0 to 60			
-20 to 60			
8000 cycles @ 80% Depth of Discharge (25°C) 4000 cycles @ 100% Depth of Discharge (25°C)			

Warranty

The period of warranty is 12 (TWELVE) years from the date of shipment. Faults and manufacturing defects can occur with any electrical device, and we aim to make the process as simple and pain free as possible. Roamer guarantees to give a free repair, replacement, refund or credit in cases where cells or the BMS have defects proven to be due to manufacturing process (instead of misuse, accidental damage, or general wear & tear).

It is important that you contact us as soon as you notice a fault with your battery. We can talk you through a few simple tests that will help identify any issues or even resolve the problem remotely. If we cannot resolve the problem remotely then we will arrange to collect the battery from you and return it to our warehouse for testing. Any shipping fees incurred for approved warranty returns will be covered by Roamer. In the event of a repair that falls outside of the warranty, we will still be very happy to help but it will result in a charge to the customer agreed upon at the time and based on the scope of the work required.

In the event of a proven manufacturing defect or battery failure that meets the warranty terms and conditions, we will usually repair the battery (by replacing an internal component such as a cell or the BMS) or replace the entire battery with an equivalent (or better) product from our current range. Depending on circumstances, we may instead offer a pro-rated amount based on the remaining warranty term in the form of a refund or a credit towards a replacement. Please note that Bluetooth and Wi-Fi are not essential features for battery operation and any issues with Bluetooth or Wi-Fi (such as no signal or weak signal) are not covered under warranty.

If we cannot reproduce the problem or if the defect or failure is found to have been caused by customer abuse or misuse then we will return the battery to you, or if you prefer, we can recycle the battery. Depending on the state of the battery, we may be able to offer a credit towards an upgrade. Any shipping costs incurred because of a rejected warranty claim will be charged to you.

This Limited Warranty is to the original purchaser of the Product and is not transferable to any other person or entity. If you did not purchase from Roamer directly then please contact the place of purchase regarding any warranty claim Warranty Service is only available for products residing within the UK or Europe. Any warranty claims made from without the stated regions will require the claimant to return the products at their own expense to a location convenient to Roamer within the UK or Europe. Return shipping is only offered to similar locations within the above stated regions.

For full Limited Warranty terms and conditions, refer to the included warranty slip delivered with your battery.


victron energy
lynx distributor
1000
power

Returns & Refund policy

We hope you are happy with your purchase. However, if you are not completely satisfied with your purchase for any reason, you may return it to us for a full refund or an exchange.

Returns

- All return requests must be within 14 days of the delivery date. You have another 14 days to return the item after the initial request. If the product is delivered to an alternative address or held at a courier distribution centre awaiting colletion, the 14 days will be counted from the date when it becomes available to be collected.
- Batteries must be in new and unused condition (we will check the case for scratches and the BMS for usage history).
- If you have installed or cycled your battery then we may still be able to accept your return, however we may offer a reduced amount instead of the full refund.

How to return

- Please email customer service support@roamer.com to obtain a Return Merchandise Authorisation (RMA) number.
- Place the item securely in its original packaging and return your battery to the address below. If you are using a courier then it is your responsibility to ensure that they are aware of the relevant Dangerous Goods transport restrictions.
- Please note, you will be responsible for all return shipping charges. Alternatively we can arrange for collection via our Dangerous Goods shipping service (we will charge £50 shipping fee, each way, per battery).

Refunds

- After receiving your return and inspecting the condition of your item, we will process your return or exchange.
- Please allow up to 14 days from the receipt of your item to process your return or exchange.
- We will notify you by email when your return has been processed.

Contact Roamer

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hello@roamer.com

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