

# Lifos<sup>®</sup>

## 105



Solar  
Technology  
International  
Without boundaries

# User manual

Lithium Iron Phosphate Battery  
(LiFePO<sub>4</sub>)



## Lifos 105 quick user guide

**This guide should be read in conjunction with the main instructions included overleaf, but the following points will enable speedy deployment of your Lifos 105 battery.**

1. Your Lifos 105 is supplied partially charged. Please use this charge before connection to a charger.
2. Lifos 105 can be charged by a solar panel (via a suitable charge controller) and any lead acid or lithium phosphate battery charger. However, certain chargers are unable to charge Lifos 105 to 100%. In this case go to [www.lifos.co.uk](http://www.lifos.co.uk) to see a large list of chargers that are approved or to purchase the official Lifos Battery Charger.
3. The Battery Management System (BMS) within each Lifos 105 battery may give inaccurate data via the Bluetooth App until ten charge and discharge cycles have taken place. This is because during these ten cycles the BMS is balancing and calibrating the four lithium cells within Lifos 105.
4. If more than one Lifos 105 has been purchased and you wish to connect them in series, parallel or both please see page 1 of this manual for detailed instructions.

If you have any questions regarding the use or operation of your Lifos 105 battery please contact the Lifos help line on **01684 774000** or see the FAQs on [www.lifos.co.uk](http://www.lifos.co.uk)

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Important: please read before first use.

**Technical helpline 01684 774 000**

**Thank you for purchasing this advanced lithium iron phosphate (LiFePO<sub>4</sub>) battery. Combining the very best lithium cells along with an outstanding battery management system ensures this battery will provide you with incredibly long-lasting power in a super lightweight package.**



**A few tips on how to get the best from your Lifos 105 battery:**

- Protect the battery from direct sunlight although it will work well in a wide temperature range (-20 to +60 degrees C).
- Avoid using Lifos 105 in damp or wet conditions but if you do need to use it in these conditions consider using an all-weather enclosure such as the BB0001 Battery Box.
- Observe the correct polarity otherwise permanent damage could be caused – the battery casing is marked with + and -.
- Don't short circuit Lifos 105 otherwise permanent damage could be caused.
- Lifos 105 can be connected in Parallel (Fig.1). You are able to connect up to 4 Lifos 105 batteries in parallel giving you a battery bank capacity of 420Ah (105A x 4).
- Lifos 105 can be connected in Series (Fig.2). You are able to connect up to 4 Lifos 105 batteries in series giving you a battery bank voltages of 12v (single battery), 24v (2 x batteries) 36v (3 x batteries) or 48v (4 x batteries).

The Lifos 105 can be connected up in parallel or series when needed but only in the below configurations:

Parallel	Series			
	1 (12v)	2 (24v)	3 (36v)	4 (48v)
1	YES	YES	YES	YES
2	YES	YES	YES	YES
3	YES	YES	<b>NO</b>	<b>NO</b>
4	YES	YES	<b>NO</b>	<b>NO</b>

Please note when connecting up multiple batteries you must first fully charge each battery and check they don't have a difference of more than 0.02v (20mv). Note to test all Lifos batteries' voltage over 24 hours after charge to get firm values.

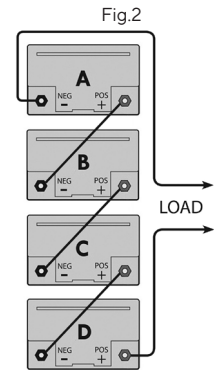
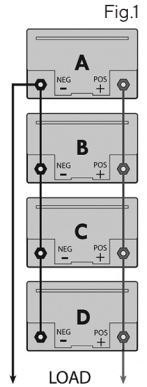
- Most mains lead acid battery chargers will charge the Lifos 105 but some smart chargers might only charge up to 85%. If this is the case we recommend getting a new charger, please see our website for recommendations on the FAQ pages. However you will not cause any damage to the battery if using your old charger. For DC – DC charging please also check our website for recommendations on the FAQ pages.
- Lifos 105 can be used if it is positioned on its side but will give best performance if it is positioned with its terminals facing upward.

**NOTE** – do not mix new Lifos 105 batteries with old batteries, whether in series or parallel.

**Storage of Lifos 105**

Lifos 105 battery has an extremely low rate of self-discharge but if you intend not to use the battery for an extended period of time please charge it 50% to 80% prior to storage. It is recommended to re-charge the Lifos 105 once every 3-6 months.

**NOTE** – allowing the battery to over discharge (+6 months since its last charge) can lead to a shortened life, or even damage the battery.



## Accessing the Lifos App

The App is available for all Apple and Android devices. Search the Apple App store for Lifos and download for free. If using an Android device go to Google Play search Lifos and download for free. The App will give you full visibility of your Lifos 105 battery and its performance. Your device connects to the Lifos App via Bluetooth so you need to be within 10m of the battery to access its data. Each time you wish to view the data you will need to log on via the App but this is quick and easy.

If you are using more than one Lifos 105 battery, you will not be able to identify each battery separately if they are in close proximity to one another.

If you have connected your batteries in parallel then you only need to look at any one battery (it does not matter which one) to see the total power for the complete battery bank (SOC).

If you have connected your batteries in series then you also only need to look at one battery to see the total power for the complete battery bank, however you will only see the voltage of the battery bank from the single battery and not the battery bank as a whole.

If you have any questions about this connectivity please visit [www.lifos.co.uk](http://www.lifos.co.uk) for help.

**NOTE** – only one Apple/Android device at a time can be connected to each battery.

## Lifos 105 battery load limitation

The Lifos 105 battery is perfectly suited to heavy DC loads such as motor movers, but its Battery Management System (BMS) will not allow any load higher than 120A or 1350w at 12.5vdc or 1200w at 230vAC through an inverter. It should be noted that inductive loads, even if rated at 800w may not be powered by the Lifos 105 because the inrush current of these devices can often be many times the rated load during initial start up. Examples of inductive loads are microwave ovens.

Resistive AC loads (via a suitable 12vDC to 230AC inverter) that can be powered by Lifos 105 include: toasters, travel kettles, travel irons, hair dryers, heaters etc (Max 1200W).

**NOTE** – in the event an AC load higher than 1200w is connected to Lifos 105 the battery will shut down and will not power the device but the battery will not be damaged because its BMS will protect it. In this circumstance the Lifos 105 will be instantly reset so it is able to power loads within its approved power range as noted above.

## Connecting up your Lifos 105 battery

Your Lifos 105 battery has removable battery pole terminals.

Generally the pole connections are great for quick release connections found in caravans, RVs and boats. However if you unscrew the pole connections you will then be able to use ring terminals directly onto the battery.

When connecting to the Lifos 105 using the bolts and washers provided, we recommend a torque setting of 8Nm.

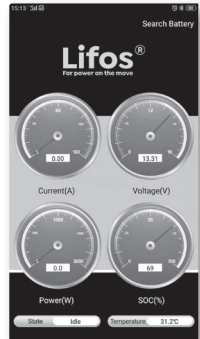
Please connect the Positive (+) connection first before connecting the Negative (-) connection.

Disconnection is the reverse process, Negative (-) first, Positive (+) last. (This is standard disconnection procedure for connection and disconnection of batteries and will help to avoid short circuits).

Lifos App Icon



Lifos App



## Disposal

Disposal of a used or damaged Lifos 105 battery must be done at a certified recycling location. There are many of these nationwide – please see [www.lifos.co.uk](http://www.lifos.co.uk) for details.



## Warranty

A Lifos 105 battery is supplied with a 5-year warranty from the date of purchase (please keep your proof of purchase) or 2750 battery cycles, whichever comes first. Note a full battery cycle is determined by a fully discharged Lifos 105 (down to 10% of its gross capacity) and charged to 100%. The 5 year warranty period assumes no more than one full cycle per 24hr period. In the event of a valid warranty claim the manufacturer will, at its discretion, supply a new or re-conditioned Lifos 105 battery dependent on how many years have passed since the date of purchase or how many cycles the battery has undertaken.

## Conditions

- a. Any warranty claim can only be validated by a proof of purchase.
- b. The warranty is invalid if the battery has been subject to misuse, abuse or physical damage.
- c. This Lifos 105 battery must be of the correct size, design and capacity for the intended application.
- d. The battery should be installed and operated at a temperature not exceeding the batteries design limits as noted on the previous page and on the battery itself.
- e. The warranty shall be voided if the battery becomes unserviceable due to: fire, freezing, abuse, alteration, modification or it suffers from an over discharged state.
- f. Installation of the battery must be performed by a responsible adult.

## Warranty claims

1. Contact the original point of purchase for instructions.
2. The battery must only be returned in compliance with the transport and packaging regulations ruling at the date of return. Failure to do this may result in the carrier refusing to ship the battery.

## Lifos 105 safety and product limitations

- Keep out of the reach of children
- Do not under any circumstances disassemble this battery
- Do not immerse the battery in liquid
- Do not use the battery with damaged cables or terminals
- This battery is not designed for cranking and starter Applications
- Do not expose the battery to fire or crush or puncture its casing
- Do not mix Lifos 105 batteries with other brands of batteries, whether in series or parallel
- Do not short circuit battery positive (+) and negative (-), which can cause spark, fire, or even explosion.

## Limited liability

The manufacturer nor any of its employees, agents, distributors or resellers are liable for any third-party damage howsoever caused. The extent to which the manufacturer is liable to a customer is limited to the purchase price paid by the customer for the Lifos battery.



### We want your photos and videos!

Here is your chance for you and your Lifos battery to be a star! Just send in pics or videos of you and your Lifos in a great location and if selected we will not only give you ever lasting recognition on our online favourite users wall of fame but we will send you a Freeloader Sixer, 6000mAh solar power bank worth £70 completely free!

Please send to [hello@solartechtechnology.co.uk](mailto:hello@solartechtechnology.co.uk) including your address details and best of luck!

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