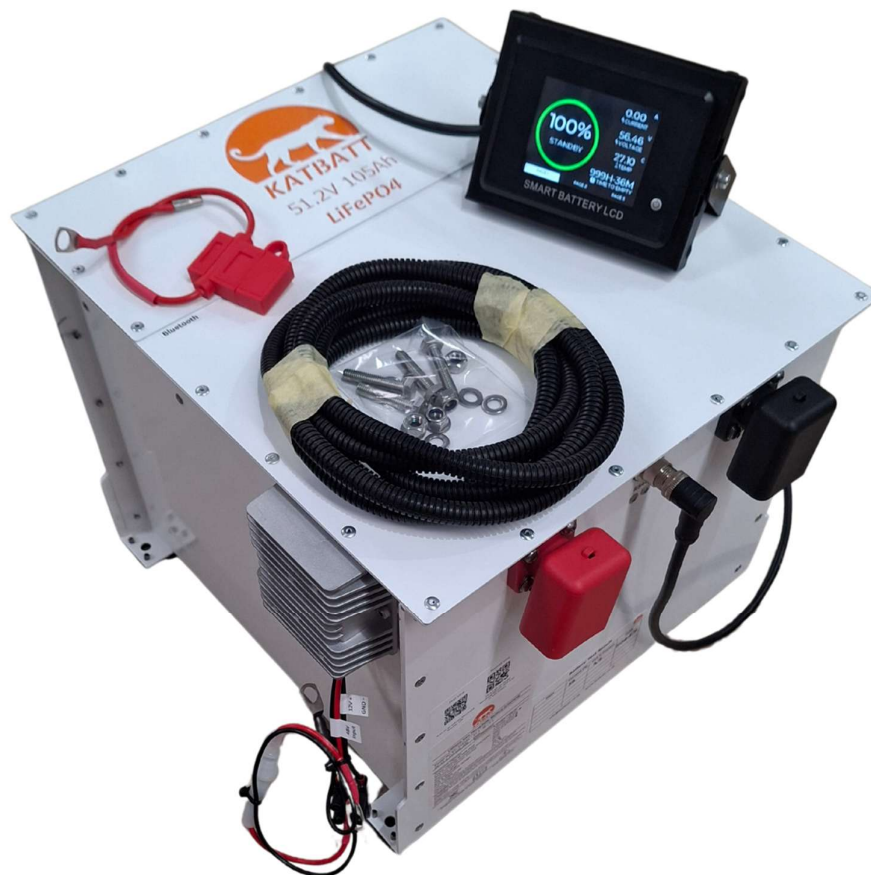


105Ah 51.2V KATBATT Golf Cart LiFePO4 Lithium Battery Manual





Product overview

The **KATBATT Lithium Golf Cart Battery** is designed and manufactured locally in **Kirkwood**, near **Port Elizabeth**. This battery has been specifically designed with a bracket to match the **26cm form factor** of older lead-acid golf carts. This allows for a **drop-in replacement**, making installation straightforward and requiring minimal modifications to the battery compartment.

Package

The KATBATT 105Ah 51.2V LiFePO4 battery for golf carts package includes:

- 1. 1 x 105Ah 51.2V Nominal LiFePO4 Lithium Battery
- 2. 1 x Smart Battery LCD display with mounting bracket
- 3. 1 x 12V 10A Buck converter to power lights and accessories on your golf cart

Battery Specifications

Parameter	Specification
Nominal Voltage	51.2V
Bulk & Absorption Voltage	56.8V
Float Voltage	54.5V
Low Voltage Cut-Off	48V
Ingress Protection Rating	IP52
Operating Temperature Range	0°C to 40°C
Mass	48 kg
Dimensions (L × W × H)	26.5 × 32.1 × 30 cm
Cycle Life	4000 cycles @ 80% Depth of Discharge (DoD)
Peak Discharge Current	270A for 20 seconds (≤5% duty cycle)
Continuous Discharge Current	105A
Maximum Charge Current	Up to 30A (100A regen braking)
Warranty	5 Years

Installing your Battery

1. **Label Cables:** Mark all cables before removing them from the old batteries, especially the main positive (+) and main negative (–) cables from the controller.
2. **Remove Old Batteries:** Remove your old batteries and clean the battery compartment thoroughly to remove any acid residue and rust.
3. **Measure Mounting Area:** Measure the centre point of where the battery will be mounted.
4. **Mark Mounting Holes:** Position the new battery and mark the four mounting holes on the compartment surface.
5. **Drill Holes:** Drill the marked positions using a 6.5mm drill bit.
6. **Insert New Battery:** Place the 105Ah 51.2V LiFePO4 KATBATT battery into the battery compartment.
7. **Mount Battery:** Use M6×30mm bolts and M6 nuts to securely fasten the battery.
8. **Connect Smart Display Cable:** Plug the smart display cable into the battery.
9. **Disable DSG (Discharge):** On page 2 of the smart display, turn off the DSG (discharge) function off before connecting main cables.
10. **Install Fuse and Charging Cable:**
 - Open the female charge port.
 - Take a picture of the existing positive and negative wires in the charge port. Getting the polarity right is extremely important.
 - Remove the old cables and clean the contacts.
 - Fasten the red charge cable to the positive of the female charging port. (If you have an older EZGO it is important to add the existing thin positive wire to the positive of your charge port as well).
 - The extra black wire is for directly connecting the female charge port negative to your battery negative terminal.
11. **Prepare Terminals:**
 - Remove the battery terminal covers and All-in-One bolts on the battery.
12. **Connect Negative Terminal:**
 - Connect the main negative (–) cable from the golf cart controller, then the negative charge cable from the charge port, and then add the buck converter's black wire last on the bolt (only if you have lights and 12V accessories) to the black negative terminal.

The sequence is important as the controller cable which draws the most current must be the first connected the terminal.

- Fasten the terminal bolt back into the negative terminal.

13. Connect Positive Terminal:

- Connect the main positive (+) cable from the golf cart controller, then the positive charge cable from the charge port, and then add the buck converter's red wire last on the bolt (only if you have lights and 12V accessories) to the red positive terminal. The sequence is important as the controller cable which draws the most current must be the first connected the terminal.
- Fasten the terminal bolt back into the positive terminal.

14. Verify Charge Plug Polarity: Ensure correct polarity: + to +, - to -.

-  ***Incorrect polarity may damage the battery.***

15. Connect Accessories (Optional):

- For 12V lights/accessories, connect the black and red wires from the buck converter to the battery terminals, on top of the controller and charging cables.
- Connect the correct wiring to the Buck Converter's yellow and black wire to give power to accessories.

16. Torque Bolts: Tighten all M8 bolts to 7Nm torque.

-  ***Do not over-tighten.***

17. Enable DSG (Discharge): Return to page 2 of the smart display and turn on the DSG (discharge) function.

18. Mount the Display:

- Mark and drill 3mm mounting holes.
- Secure the display holder using the supplied screws.
- Route and cable-tie the display cable neatly under the golf cart inside a protective Sprague/Sleeve.
- Fasten the end of the display cable nicely with a cable tie inside the display holder allowing flexibility and preventing unnecessary forces on the display plug.

19. Connect Display Cable to Battery: Hand-tighten the display cable plug.

-  ***Properly align display cable plug with the battery plug.***
-  ***Do not force it. It has fit easily.***
-  ***Do not over-tighten.***

20. Test & Enjoy: Test your golf cart to confirm everything works. **Enjoy your new KATBATT battery!**

Charging

It is important to use the correct Lithium charger to charge your new Golf Cart Lithium battery. KATBATT's 10A 51.2V lithium battery charger charges your battery to 56V to reset the SOC and fully charge your battery.

⚠ IMPORTANT NOTE: Your charge plug fitted to your golf cart must be connected to your new lithium battery directly, not through a relay or other disconnecting device as these devices were relevant for lead acid and is not to be used between your lithium charger and lithium battery. A 30A fuse is suggested.

⚠ IMPORTANT NOTE: If your golf cart gets charged on top of a hill and you drive down the hill immediately after charging, you must request that we lower the charge voltage of the charger as well as change the state of charge voltage on your battery. This is to allow more room for regen charging. It is still important for safety to assist the cart with braking using the brake pedal when going downhill.

Using a Lead Acid charger on your Lithium Battery will result in:

- Battery SOC will not reach 100% and will keep decreasing as the Lead Acid chargers does not charge to 56V to fully charge and reset the battery SOC to 100%.
- Battery cells will not reach the balancing voltage of 41.4V to allow for cell balancing.

Using an unsupported charger that does not comply with the specifications will void your battery warranty.

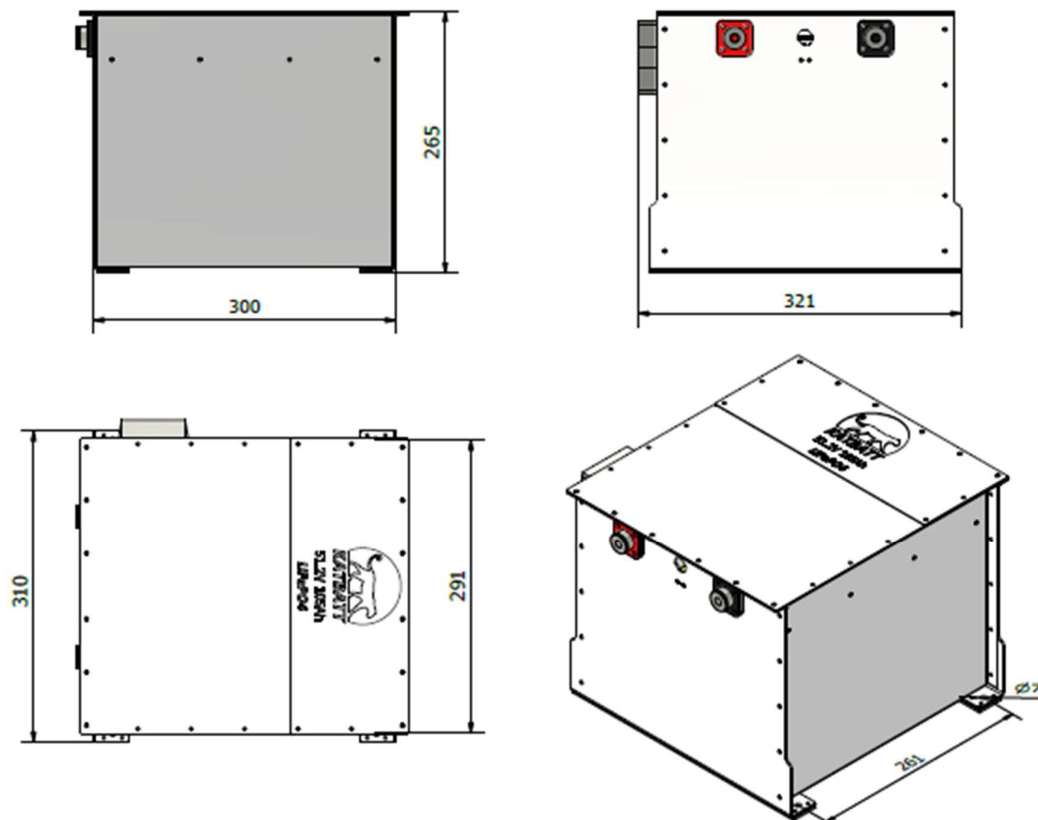
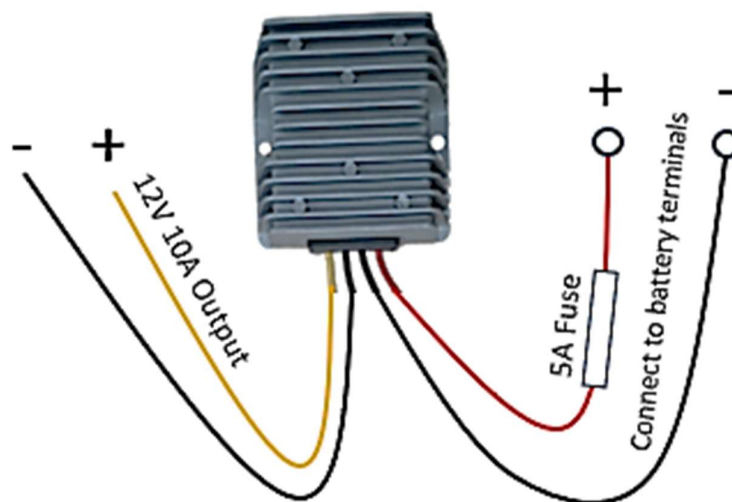


Diagram of Buck Converter

Each of our Golf Cart Lithium batteries comes standard with a Buck Converter. The buck converter takes the 36V from your battery and provides a **12V, 10A power supply**, perfect for powering accessories like lights, radios, and USB ports.

Wiring Guide:

- **Yellow Wire** → **12V Positive Output** [connects to your 12V accessory's Positive (+)]
- **Black Wire (next to yellow)** → **12V Negative Output** [connects to your accessory's Negative (-)]
- **Red Wire** → **Connects to Battery Positive (+) Terminal, through a 5A Fuse**
- **Black Wire (next to red)** → **Connects to Battery Negative (-) Terminal**



Troubleshooting

Below are listed a couple of occurrences that can help you to resolve some of the most common problems.

Error - Occurrence	Cause	Solution
Battery % drops suddenly to 0% from above 20%	Charging cables from the female charge port in your cart is not directly connected to the battery terminals (goes via a disconnect relay).	Connect both the Positive (+) and Negative (-) charge cables directly from the golf cart female charge port to your Lithium battery terminals (with a 30 A inline fuse).
Battery % drops suddenly to 0% from above 20%	Battery cells are not being charged to above 3.550V per cell (This can be seen on page 3). Not internally resetting the capacity to fully charged (even though it may say 100% SOC)	Use the correct Lithium battery charger from KATBATT for your Golf Cart.
Cart does not want to drive. (solenoid clicks)	Small sensor cable from charge plug is not connected to the controller.	Connect the small sensor cable from the female charge plug to your controller.
Cart does not want to drive. (solenoid clicks)	Throttle pedal speed controller is faulty.	Replace throttle pedal speed controller.
Cart does not want to charge.	Charge cables are not directly connected from the female charge plug to the battery terminals	Connect both the Positive (+) and Negative (-) charge cables directly from the golf cart female charge port to your Lithium battery terminals (with a 30 A inline fuse).
Cart does not want to drive. (solenoid does not click) Lights on the cart will also not be able to shine, no power at all.	BMS is in locked state not allowing discharge.	Go to page 2 of the smart LCD display, set the DSG from OFF to ON . 
BMS in soft locked sleep (zzz) mode but allows driving.	Extender period of not being used.	Go to page 2 of the smart LCD display, Switch on both the DSG and CHG 
Battery does not charge at all.	1. DSG off on the screen (page 2). 2. Charger faulty	1. Go to page 2 of the of the LCD Display, switch on the CHG. 



		2. Plug the charger into the wall outlet. Using a multimeter, measure the output voltage at the charger’s connector. Take clear photos of the multimeter display showing the voltage reading. Send the photos to KATBATT or your supplier for verification.
Battery drops percentage fast. Example 95% - 40%	When the battery is left unused for a long period, the buck converter slowly discharges the battery over time. However, because the current draw is very small, the Battery Management System (BMS) does not detect it. This can result that the battery shows a higher percentage than it is.	If not gonna use for a long period of time, go to page 2 of the of the LCD Display, switch off the DSG. 

Good practice:

If any anomaly should occur, take some photos of **Page 1, Page 2 and Page 3** as it helps us, should further assistance be needed.