76V 105AH USER MANUAL

GOLF CARTS MODIFIED®

www.GCMOD.com

GOLF CARTS MODIFIED®

REGISTER YOUR BATTERY

To qualify for the Limited Lifetime Warranty, your battery must be registered within 60 days of purchase. If not registered within 60 days, the battery will carry a one-year limited warranty only.

www.ecobattery.com/register

READ BEFORE INSTALL

HEAVY
TEAM LIFT REQUIRED

HIGH VOLTAGE
HANDLE WITH CARE

DO NOT PRESSURE
WASH OR SUBMERGE

CHARGE BATTERY
BEFORE USE

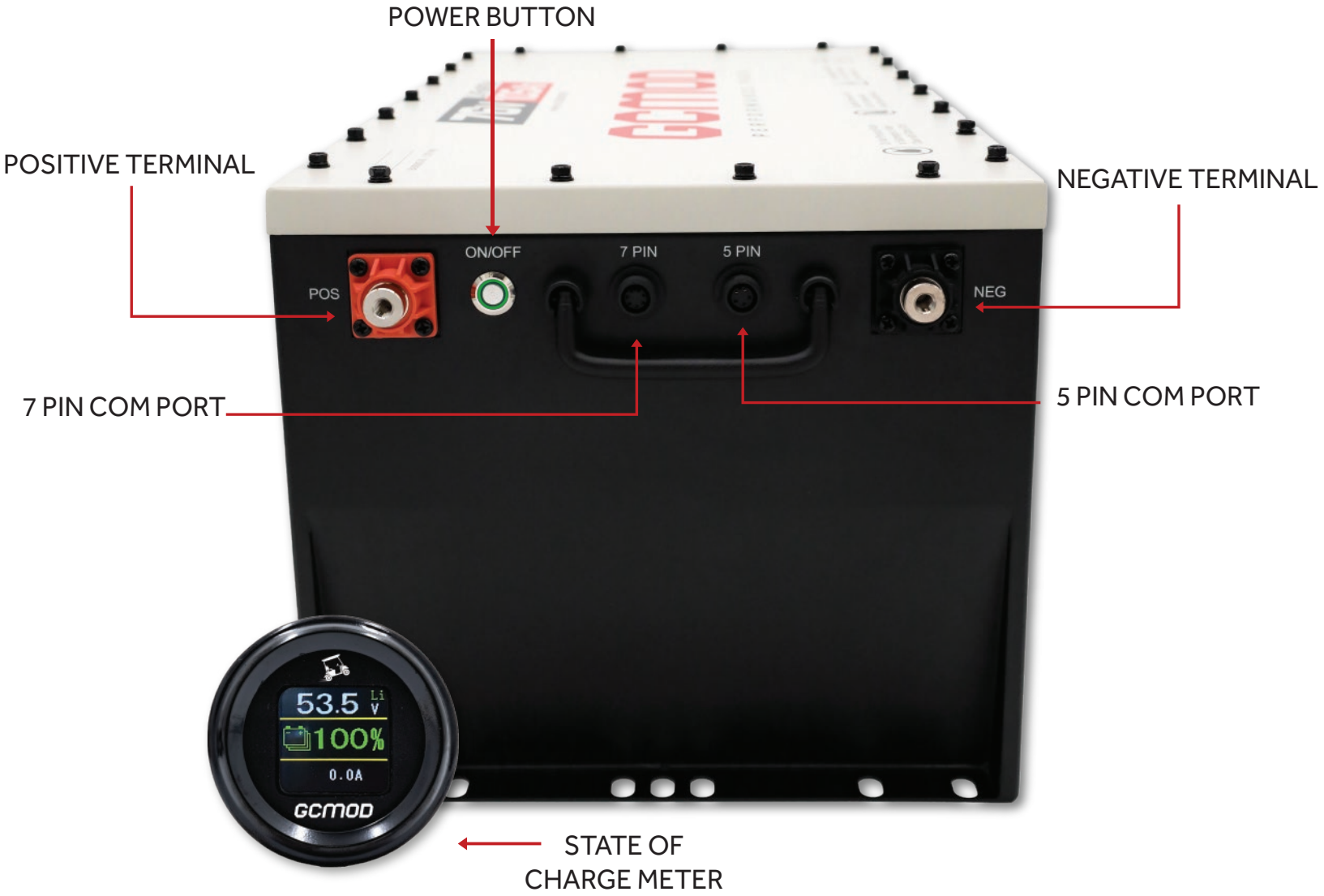
WARNINGS

- High Voltage. DO NOT install or service this battery unless you are properly trained.
- Use only with components that have the same voltage and current rating as the battery.
- DO NOT touch or connect to the terminals unless the battery is manually turned off.
- DO NOT open or attempt to service the battery, there are no user serviceable parts inside.

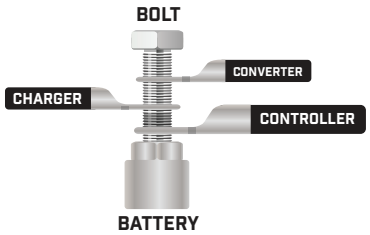
USE & CARE

- Charge the battery daily to ensure it is always fully charged and ready to use.
- Batteries will not charge if the internal battery temperature falls below 34F.
- DO NOT pressure wash, submerge, or use chemical agents to clean your battery.
- Clean the battery using a damp cloth that does not include chemical agents.

BATTERY COMPONENTS



QUICKSTART GUIDE



Ring terminals should be stacked largest to smallest, with the largest cable (highest draw) nearest to the battery.

SOLENOID

MOTOR CONTROLLER

B+ B-

POSITIVE

NEGATIVE

110v - 220v AC Outlet

BATTERY CHARGER

OFF ON

+POSITIVE KEY ON

YELLOW 16AWG

BLACK 16AWG

ORANGE 16 AWG

Lights, Stereo, Fuse Box Input

12V- BLACK 12 AWG

12V+ RED 12 AWG

12V DEVICES

SOC METER

12V CONVERTER

Connect the orange wire to a switched B+ power source, such as the ON side of key switch.

Alternatively, if constant 12V power is required, connect the orange wire directly to the positive terminal on the battery.

POWERING ON YOUR BATTERY

POWER BUTTON

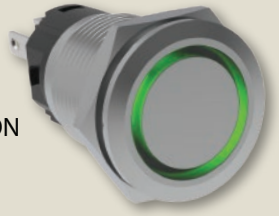
POWER BUTTON

The GCMod 76V lithium battery utilizes a momentary (non-latching) on/off button. To power the battery ON, press/hold the button until the green LED illuminates (~1 sec), then release. The LED indicator on the button will illuminate anytime the battery is powered on.

To power the battery OFF, press/hold the power button, then release it when the LED indicator begins to flash (~3 sec). The LED indicator will continue to flash, indicating it is powering down, and will turn off when the battery is completely powered down.

The battery does not need to be turned off after each use. It is recommended to leave the power button on and the battery charger connected if the cart will be used within 15 days. If the cart will be unused for longer than 15 days, charge the battery to above 50%, disconnect the AC power cord from the charger, and turn the battery off.

WAKE-UP BUTTON



WAKE UP BUTTON

The Remote Wake-Up Button can be used to power on or awaken a battery that has entered Power Save Mode.

The button can be routed and installed on the dash or anywhere that is convenient. For safety reasons and to avoid inadvertent shutdowns, the remote wake up button cannot turn the battery OFF, it can only turn the battery ON. To power on or to wake a battery that has gone into Power Save Mode, simply press and release the wake-up button. The LED indicator on the Remote Wake-Up Button will be solid green anytime the battery is powered ON.

CHARGING

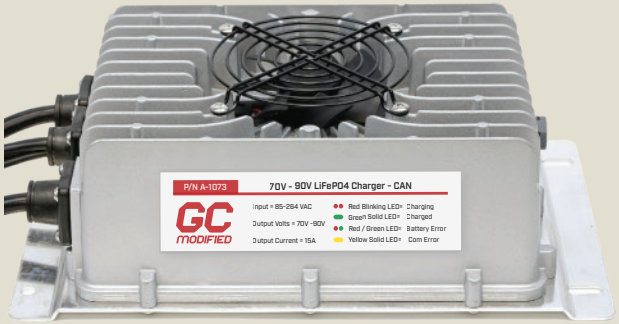
CHARGER

Your GCMod/ Eco Battery charger utilizes CAN, and you will need to connect the CAN connector from the charger into either of the two CAN ports on the meter cable.

DO NOT USE UNAPPROVED BATTERY CHARGERS OR TENDERS.

DO NOT CONNECT DC OUTPUT CABLES TO BATTERY WITH REVERSE POLARITY.

Doing so will cause irreversible damage and is not covered under warranty.



BATTERY CHARGER

CHARGING INSTRUCTIONS

1. Connect the DC output ring terminals to the battery terminals.
2. Connect AC input to AC power.
3. Charger LED will blink red when charging and will be a solid green when complete.

Battery must be powered on with the power button illuminated to accept a charge.

Note: Because your charger utilizes CAN charging, you will need to connect the CAN connector from the charger into either of the two CAN ports on the meter cable.

CHARGE TIME

The charge time can be calculated by the formula below:

Ah Capacity of Battery / Charging Amps of Charger

Example : 105Ah Battery / 15A Charger = 7 hours

(assuming the battery is fully depleted)

Recommended extension cord lengths:

Up to 15' = 12 -14 AWG

10 to 25' = 10 -12 AWG

>25' = not recommended

CAN CONNECTOR FROM CHARGER

It is a common misconception that lithium batteries develop a "memory" while charging and that they need to be completely discharged and charged with each use. This is not the case with GCMod lithium batteries. Charging every night will not harm the battery and will ensure that you are always topped off and ready for your next adventure. Topping off or partially charging to extend range is perfectly acceptable.

The GCMod charger is capable of accepting AC input of 100 - 250 VAC, single-phase, 50 or 60 Hz.

CAN COMMUNICATIONS

CAN
CONNECTORS

CAN CONNECTORS

The two connectors on your meter cable are CAN communication ports used for diagnostics or to communicate with a charger or motor controller.

GCMod/Eco Battery chargers are CAN-enabled and will have a male CAN plug to connect to either one of the two CAN ports on the meter cable. Since your charger is CAN-enabled, the charger will NOT charge unless CAN is connected

If your motor controller is CAN-enabled and compatible with the GCMod/Eco Battery CAN protocol, connect the controller's CAN connector to either of the CAN ports on the meter cable.

CAN RESISTOR

The GCMod/Eco Battery system uses CAN communication to connect batteries, chargers, controllers, and displays. A proper CAN network requires 60-1200 of resistance, typically provided by one or two 1200 resistors.

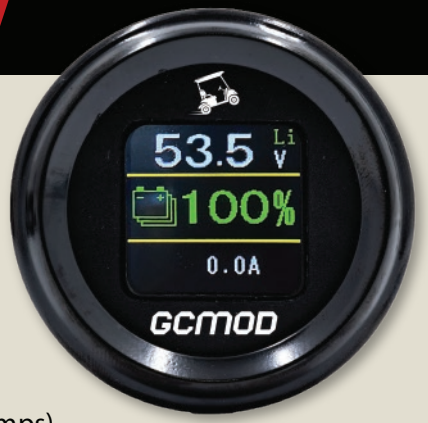
GCMod lithium batteries are manufactured without a 1200 CAN resistor. Most golf carts have one built into the OEM controller or touch-screen, but some may not. If missing, communication can degrade or fail, necessitating the addition of a resistor.

If needed, Eco Battery offers a 1200 CAN Resistor Pass-Through (#A-4209), which may or may not be included with your battery bundle, meter, or charger. If your charger isn't working or if advised by Eco Battery Support, plug the pass-through into a battery CAN receptacle and connect downstream devices as usual.

To check CAN resistance, power off all devices, set a multimeter to Ω, and measure between CAN H and CAN L on any CAN connector.

- **0-50Ω:** Do not add a resistor.
- **130Ω or higher:** Add the pass-through resistor.

STATE OF CHARGE METER (SOC)



BATTERY VOLTAGE: The voltage will vary based on the current load or charge placed on the battery.

STATE OF CHARGE: The state of charge is displayed in percent. 0% = empty | 100% = full

BATTERY CURRENT: Discharge current (in amps) is displayed as a negative number. Charging current (in amps) is displayed as a positive number.

CALIBRATION: The SOC meter does not require end-user calibration because it receives data directly from the battery's BMS. The BMS will perform a self-calibration at the end of each full charge cycle and periodically during rest periods. Accuracy is +/- 5%.

SLEEP TIMER: Depending on BMS settings, your meter may power off after periods of inactivity. To wake the meter, the battery needs to see current in or out of it. Pressing the remote wake-up button, driving your cart a few feet, connecting the charger, or cycling the power button will awaken the meter.

ERROR CODES: The GCMod meter is programmed to display Diagnostic Trouble Codes (DTCs) if a battery fault is detected. These faults can vary in severity depending on the situation. (See Page 11 for Error Codes)

If a trouble code appears on your meter, please record it and contact your dealer to discuss the code and, if necessary, take any required actions to correct it.

Due to lithium's flat voltage curve, reading the SOC% on the GCMod meter is the most accurate method for monitoring your battery's state of charge. Using voltage to determine the state of charge is not recommended.

TIP: Avoid running the battery completely dead. Although the BMS protects against detrimental discharge, it is not advised to run your battery below 20%. When driving your cart, be aware of your state of charge, just as you would monitor your vehicle's fuel gauge. The further you are from a charging location, the more battery capacity you should reserve.

POWER SAVE MODE

Your battery is programmed to enter Power Save Mode after extended periods of inactivity. Power Save Mode will ensure your battery is not fully depleted if your cart sits for an extended period. All golf carts have some power consumption while sitting idle (even with the key off), and Power Save Mode ensures your battery will not be completely depleted upon your return. The time required for Power Save Mode to activate depends on SOC (see below).

When Power Save Mode is active, the battery completely powers down, preventing both charging and discharging. The meter, remote wake-up button LED, and power button LED will all turn off. To exit Power Save Mode, simply press and release either the remote wake-up button or the on/off button on the battery.

When in Power Save Mode, the green LED on the remote wake-up button and the on/off button on the battery will not be illuminated.

If your battery has gone to sleep on its own, we suggest fully charging it before using it again.

When % =	Power Save
0% - 19%	24 hours
20% - 100%	7 days

STORAGE

It is always good practice to turn the key off to your golf cart when not in use.

For long term storage, charge the battery above 50%, unplug the AC power source to the charger, and turn off the power.

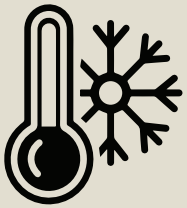
After long term storage, it is advised to fully charge the battery before use, regardless of SOC displayed. During long term storage, the state of charge may drift, and must be fully charged to re-calibrate.

Charge your battery at least once every 6 months.

If your golf cart will be stored below -4°F, remove the battery from the cart and store in temperatures above -4°F. Also, keep in mind that, while the battery will still function between -4°F and 32°F, the battery will not take a charge below 32°F. (See Cold Weather pg 10)

***Do not use non-approved third party battery chargers or tenders. Use of any non-approved Eco Battery chargers will void the warranty on your battery.**

COLD WEATHER



Your battery is equipped with a temperature sensor that will shut it down in temperatures below -4 °F.
This feature protects the battery from cell damage caused by excessively low operating temperatures.

While your battery will discharge down to -4°F, it will not accept any type of charge below 32°F. This includes plug in charging as well as regenerative charging from your cart's motor controller.

It is not recommended to drive a golf cart equipped with regenerative charging/braking systems when the overnight low temperature is under 32°F. Doing so may cause the battery to enter self-protection mode and can lead to braking system faults on certain carts.

It is important to note that the above temperatures are in reference to the core battery temperature and not the ambient air temperature. Your actual core battery temperature could be drastically different from the ambient air temperature as the battery will increase and decrease in temperature at a much slower rate than ambient air temperature.

As with all batteries, you may notice a decrease in performance and range in colder temperatures. This is normal and expected.

CLEANING

Be mindful that there are sensitive electronics in your battery when cleaning your golf cart.

Although your lithium battery is well sealed, **DO NOT CLEAN BY PRESSURE WASHING.**
Pressure washing can lead to premature damage to the lid seal of the battery, and is not covered under the warranty policy.

The recommended procedure for cleaning your battery is blowing it off with a leaf blower, or wiping it off with a clean damp cloth.

NEVER USE CHEMICALS OF ANY SORT TO CLEAN YOUR BATTERY.

BMS ERROR CODES

CODE	ERROR DESCRIPTION	LEVEL
E01	MOS Error	1
E02	External Short Circuit	1
E03	Cell Differential	1
E04	Cell Over Voltage	2
E05	Cell Under Voltage	2
E06	Pack Over Voltage	2
E07	Pack Under Voltage	2
E08	Discharge Over Current	3
E09	Charge Over Current	3
E10	Discharge Temp High	3
E11	Charge Temp High	3
E12	Charge Temp Low	3
E13	Discharge Temp Low	3
E14	MOS Temp High	3
E15	SOC Low	3
E16	External Communication Error	1
E17	Internal Communication Error	1

Level 1 =
Serious Fault.
Will not self-resolve.
Contact Eco Battery

Level 2 =
Major Fault.
Will self-resolve if conditions allow

Level 3 =
Minor Fault.
Will self-resolve if conditions allow

UNMATCHED INTEGRATION

Powered by Eco Battery, the GCMOD Performance Pack offers the class-leading technology of the Eco Battery BMS and when paired with the EB Power AC Controller, there is no greater integration possible.

This combination creates the ECO SYSTEM, delivering unmatched performance and advanced safety features.

NEED MORE HELP

877-326-2288

support@ecobattery.com

For additional product info, user manuals, user guides, and warranty information visit **https://ecobattery.com/pages/quickstart**

DOWNLOAD THE EB POWER APP!

Available on the App Store

ANDROID APP ON Google play

GOLF CARTS MODIFIED

CONNECT WITH US

Our **Golf Carts Modified** group is the largest golf cart–focused social community, bringing together builds, culture, and conversation.

A multi-time fan-voted **Best Facebook Group**, it's where enthusiasts come together to ask questions, share ideas and get inspired.

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