



48V 105Ah BLUETOOTH

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

Item# 48105BT

# USER MANUAL

# Thank You!



**Millertech<sup>®</sup>**  
— PERFORMANCE LITHIUM BATTERIES

For your business, your trust, and  
confidence in Millertech®.

*IT IS OUR PLEASURE  
TO SERVE YOU!*



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# Battery Specifications

## Specifications

Capacity	105Ah
Energy Storage	5.37kWh
Nominal Voltage	51.2V
Float Voltage	54V
Self Discharge Rate	< 4% / MONTH
Torque Setting	10 FT-LBS.

## Charging

Max Charge Voltage	60V or 3.75V per cell
Max Charge Current	100A
Recommended Current	25A
Charge Temperature Range	25-131°F
Recommended Cv	15 MIN

## Discharging

Max Continuous Discharge Current	100A
Discharge Current 5s	300A
Discharge Temp. Range	-4-140°F
Discharge Cut Off Voltage	40V (Any Cell 2.5V)

**SPORT SERIES** 

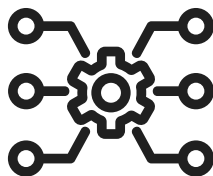
[millertechenergy.com](http://millertechenergy.com)

# Product Overview



- 1 — 48V 105Ah LiFePO4 Millertech® Battery
- 1 — Remote Switch
- 1 — Battery Meter
- 2 — Fold Down Aluminum Handles
- 2 — M8 Terminal Bolts
- 1 — Red Terminal Cover
- 1 — Black Terminal Cover
- 4 — Attached Mounting Brackets

# Charging Parameters



## **BULK/ABSORPTION**

For your Bulk/Absorption stage, the ideal voltage is between 58V-58.4V. For charge and balance, the absorption mode should be set to last for at least 20 minutes per battery (for multiple batteries in parallel).

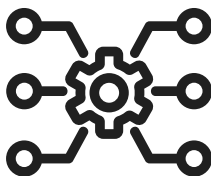
## **FLOAT**

LiFePO<sub>4</sub> batteries do not need a float stage for charging, but a float voltage of 54V can be used when connected to shore power.

## **EQUALIZATION**

Equalization is not recommended for our batteries. Most chargers will allow you to shut this feature off or use a setting that does not use equalization. If you cannot turn off this mode, then you will need to adjust the equalization voltage to below 58.4V and 0 hrs.

# Charging Parameters



## **TEMPERATURE COMPENSATION**

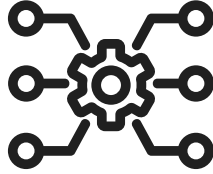
Temperature compensation is not needed with our batteries and in some cases, may trigger the built-in BMS to go into protect mode. For this reason we recommend that temperature compensation be shut off or set to 0.

## **LOW BATTERY DISCONNECT/SHUT DOWN**

If an individual cell falls below 2.5V/40V during discharge, the battery will shut off the output current. At this time there will be only 1 or 2V present at the terminals. When this happens a standard lead acid battery charger will not be able to recognize the battery and will not start the charging process. For this reason we highly recommend using an approved LiFePO<sub>4</sub> lithium battery charger.



# BMS Basic Features



All Millertech® batteries come with a built-in battery management system (BMS) that protects the cells for long-term cycling. The BMS protects against the following conditions.

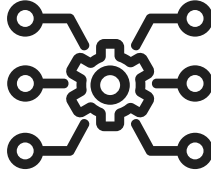
## **■ HIGH VOLTAGE: >60V or 3.75V per cell**

If an individual cell voltage exceeds 3.75V during charging, the BMS will prevent a charge current from continuing. Discharge is always allowed under this condition.

## **■ LOW VOLTAGE: <12.5V**

If an individual cell falls below 2.5V during discharge, the BMS will prevent further discharge. Although the battery is in “low-voltage disconnect” mode, it will still allow a charging current.

# BMS Basic Features



## **| HIGH TEMPERATURE: $>150^{\circ}\text{F}$**

The BMS will not allow a charging current or discharging current.

## **| LOW TEMPERATURE: $<24^{\circ}\text{F}$**

The BMS will not allow a charging current.

## **| HIGH CURRENT**

The BMS allows constant current 100A ( $\pm 5\%$ ) amps, 300A ( $\pm 10\%$ ) amps for 3 seconds.

# Safety Instructions



- When connecting your lithium battery for charging or discharging, always tighten connector bolts to the specified torque setting (Page 1) with a torque wrench set, not by hand.
- If the connection is not secure and stable, the terminals could become very hot and cause internal damage to battery.
- Do not charge battery with an unregulated alternator or other unapproved chargers!
- Do not cross-circuit battery.
- Do not immerse battery in water.
- This battery is water resistant. Do not use in direct rain, spray or other wet conditions.

# Safety Instructions



- Never charge or discharge battery with more than its rated amps.
- Built-in low temp charging protection. Do not charge if under 32°.
- Failure to follow the above instructions could be dangerous and can void the warranty.
- In case of deformation or leakage of the battery, immediately place outside and away from buildings, and contact a Millertech® representative right away. (see back cover for Millertech Energy Solutions, LLC contact information).



- After removing your battery from the box and packaging, connect it to a charger and charge it completely. Batteries are not fully charged upon arrival due to shipping restrictions.
- Connect with app (Bluetooth versions) and familiarize yourself with it's basic features and functions.
- After the battery has been charged you are ready to install the battery in your application. If you have any questions about your install application, please feel free to contact us (see back cover for contact info).

# Installation

The batteries may be connected in any orientation (parallel), however, care must be taken in connecting to the battery terminals. The positive and negative terminals are marked on battery (see below).

## **WARNING!**

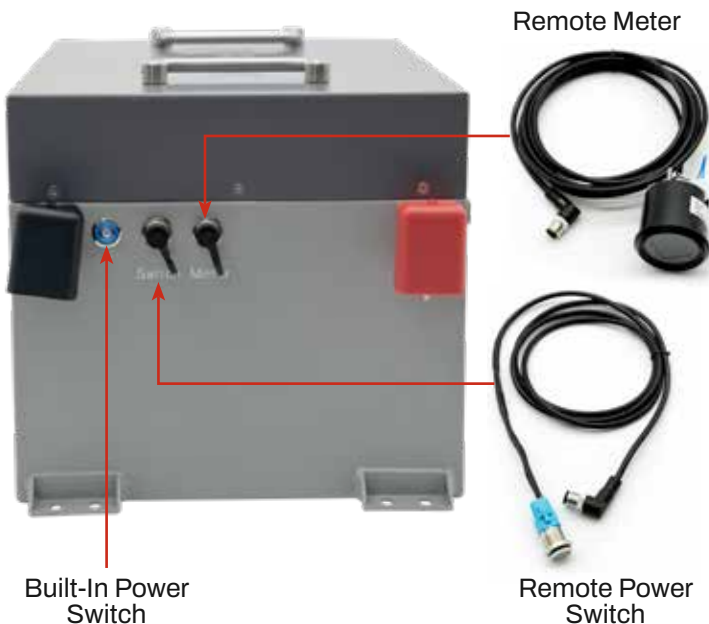
**Do not reverse polarity of the battery as this will damage both the battery and the device being connected!**



All batteries ship with 18-8 stainless steel M8 bolts/washers. If multiple lugs are used the washers may be removed, or longer bolts may be required in order for the bolt to fully seat into the copper pillar.

# Installation

The 48V 105Ah battery from Millertech® features a power switch. The switch will need to be pressed to turn the battery on and if the battery is not used, it will shut down automatically after 8 days. When the user is ready to use the battery again, the switch will need to be pressed to turn it on again. See power switch called out below.



This battery includes a remote switch and meter. For your convenience, a wired remote switch can be mounted in the dash of the golf cart to power the battery "ON" from the dash. This eliminates the need to flip up the seat to access the battery switch. The illustration above shows where the switch and the meter are to be plugged in.

## Parallel & Current Specifications

(1) BATTERY	100A Maximum Charge - Discharge
(2) BATTERIES	175A Maximum Charge - Discharge
(3) BATTERIES	275A Maximum Charge - Discharge
(4) BATTERIES	375A Maximum Charge - Discharge

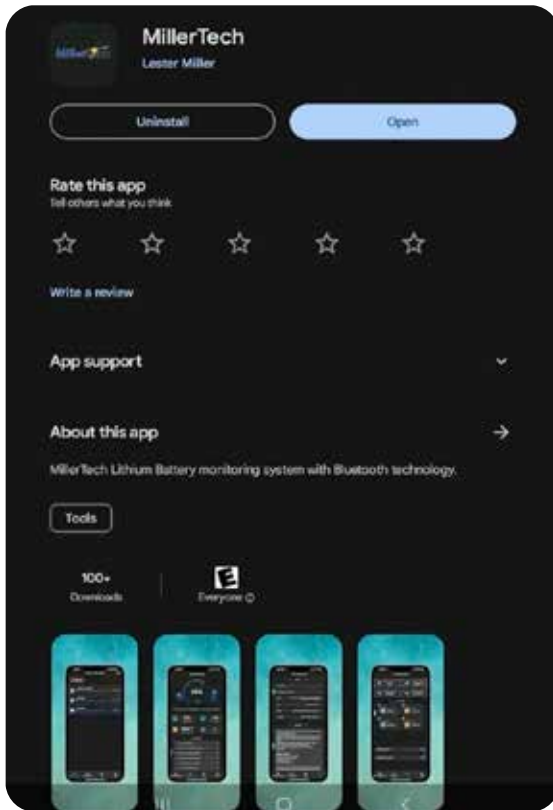
### PARALLEL

Maximum of four units are supported for parallel connection. Please be sure all cables and connections, (fuses and/or breakers), are able to accommodate the maximum amperage the batteries are capable of providing. Appropriate fuses and breakers are highly recommended to protect components from current and voltage spikes. Voltages of all batteries being connected should be close before connecting.





# About The App



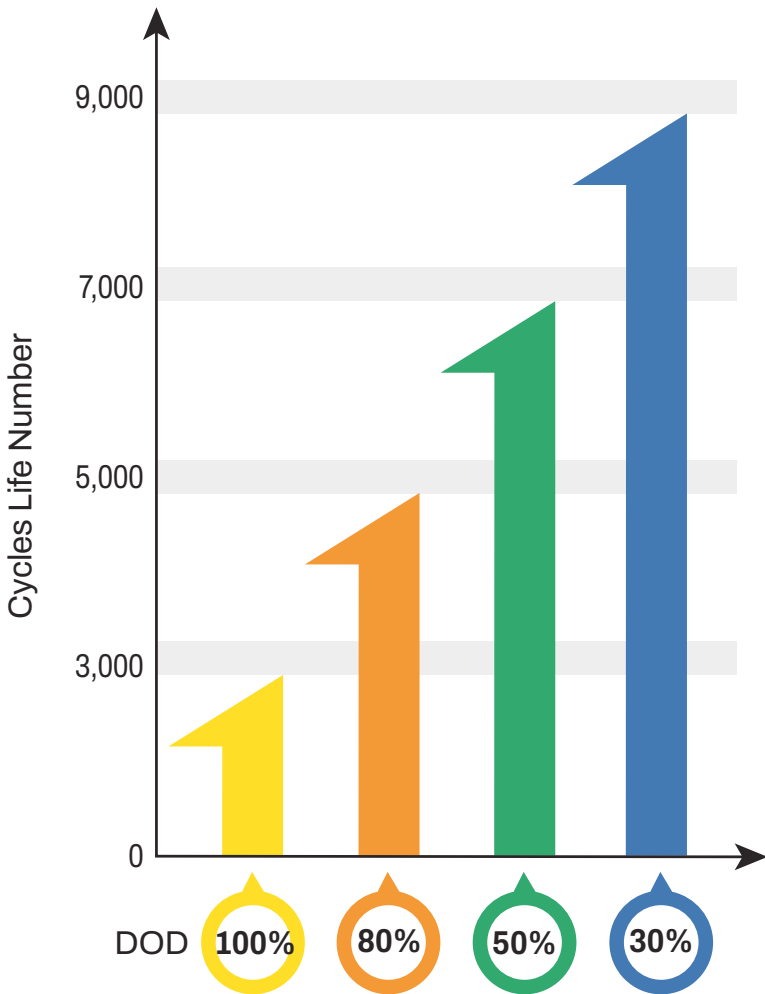
- Download the Millertech® app on your device from wherever you normally download your apps.
- Get as close as possible to the batteries you wish to connect with and open the app.
- Allow permissions so your device can connect with your batteries via Bluetooth.
- Compare the available device names to the labels on top of the batteries.

# About the App

- Tap the device name with which you wish to connect. After connection has been made, swipe left on the device to access auto-connect feature.
- On the bottom of the screen, tap dashboard or control panel, and you can now see all the info on the battery.
- To connect to multiple batteries, simply return to Bluetooth screen and tap devices you wish to add.

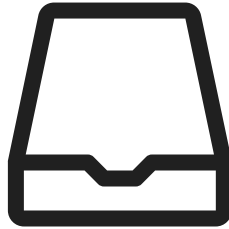


## 80% REMAINING CAPACITY AFTER THESE CYCLES



Cycle VS DOD Curve

# Storage & Maintenance



## **| STORAGE**

Storage could not be easier. Simply charge the batteries to at least 50% / 53V state of charge and disconnect from any charge or discharge and repeat this every quarter/3 months.

## **| MAINTENANCE**

The  $\text{LiFePO}_4$  batteries require very little maintenance, if any at all. If your batteries are in series and not being charged by a multi-bank charger, it is recommended that you fully charge the batteries individually every 10 cycles. This will balance out the entire battery bank to ensure the batteries will reach their expected life span. If your batteries are in parallel, this is not necessary. The BMS has a built-in passive balancing system that will take care of this.



## **| WILL NOT CHARGE:**

- Ensure charger works by connecting with another battery.
- Make sure battery is warm enough.  
Place in heated building at least 24 hours and retry charging.
- Check temp on dashboard/control panel.
- Check app for fault codes.

## **| WILL NOT DISCHARGE:**

- Ensure battery has enough charge left.
- Check loads to see if load is excessive.
- Check for short circuit.
- Check app for fault codes.



## **■ FOUR THINGS TO DO BEFORE YOU CALL TECH SUPPORT**

- Have battery size/model.
- Calculate approximate purchase date.
- Be able to connect to the battery with phone app while on live call (Bluetooth models).
- Brand and model of charger being used.





## The Millertech Sports Series Lithium Battery 10-Year Guaranteed Warranty **is Simple!**



### **TERMS:**

From the date of your charger purchase through year number 10 of ownership, your battery is covered. If it stops working during this time, we will repair or replace it with a charger of equal or greater value for **FREE!**



### **SHIPPING:**

We cover all shipping costs associated with shuttling your battery back and forth for repair or replacement. It is our warranty; it is our cost — not yours.



### **EXCLUSIONS:**

**THERE ARE NONE!** You trusted Millertech, and if it's within the warranty period, your Millertech battery is completely covered for everything!



### **PROOF OF PURCHASE:**

You don't need one. If it's Millertech, it's covered!

# SPORT SERIES



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