



Lithium Iron  
Phosphate  
Battery  
(LIFEPO4)

Item# 12190DP

12V 190AH DUAL PURPOSE

# USER MANUAL

# Thank You!



FOR YOUR BUSINESS, YOUR TRUST,  
AND CONFIDENCE  
IN MILLERTECH®.

*IT IS OUR  
PLEASURE  
TO SERVE  
YOU!*



**MillerTech®**

# PRODUCT OVERVIEW

Negative Terminal

Positive Terminal



- 1 — 12V 190AH LIFEPO4 Millertech® Battery
- 1 — Nylon Strap Handle
- 4 — 8MM Stainless Terminal Bolts
- 1 — Red Terminal Cover
- 1 — Black Terminal Cover

**Millertech®**



# BATTERY PARAMETERS

## Specifications

CAPACITY	190AH
ENERGY STORAGE	1.28 KWH
NOMINAL VOLTAGE	12.8V
FLOAT VOLTAGE	13.4V
SELF DISCHARGE RATE	< 4% / MONTH
TORQUE SETTING	10 FT-LBS.
COLD CRANKING AMPS (CCA)	1500

## Charging

MAX CHARGE VOLTAGE	14.5V
MAX CHARGE CURRENT	150A
RECOMMENDED CURRENT	50A
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	10V (ANY CELL2.5)
RECOMMENDED LOW VOLTAGE DISCONNECT	12.0V

# CHARGING PARAMETERS



## ■ BULK/ABSORPTION

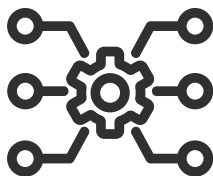
For your Bulk/Absorption stage, the ideal voltage is between 14.2V-14.6V. For charge and balance, the absorption mode should be set to last for at least 20 minutes per battery (for multiple batteries in parallel).

## ■ FLOAT

LIFEPO4 Batteries do not need a float stage for charging, but a float voltage between 13.5V and 13.8V 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 14.6V and 0 hrs.



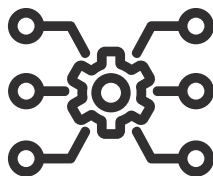
## ■ TEMPERATURE COMPENSATION

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/10V 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 LiFePo4 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:

### >14.8V 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.

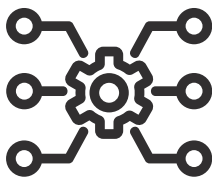
## ■ LOW VOLTAGE:

### <10V

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 100 (+/- 5%) amps, 300 (+/- 10%) amps for 3 seconds.

A passive balancing process is activated by the BMS at the top of each charge cycle, when the battery voltage exceeds around 14V. This ensures that all the cells remain at the same state of charge, which aids in pack longevity and performance.

# SAFETY INSTRUCTIONS



- When connecting your lithium battery for charging or discharging, always tighten connector bolts to the specified torque setting (pg. 5) 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).

# GETTING STARTED



- 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 or series), 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 the battery as this will damage both the battery and the device being connected!**

Positive  
Terminal



Negative  
Terminal



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.

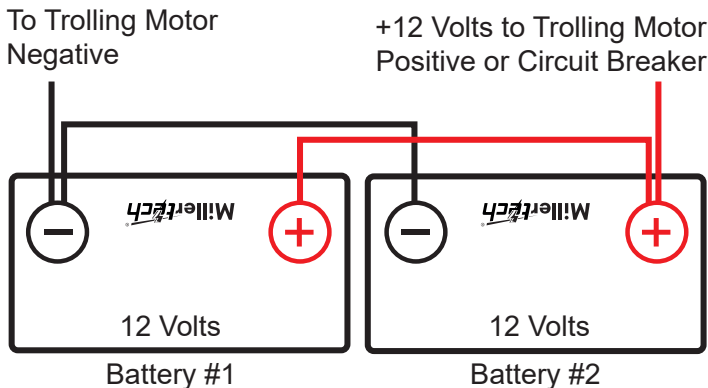
# INSTALLATION

## ***Parallel & Current Specifications***

(1) BATTERY	200A Maximum Charge - Discharge
(2) BATTERIES	300A Maximum Charge - Discharge
(3) BATTERIES	400A Maximum Charge - Discharge
(4) BATTERIES	500A Maximum Charge - Discharge

### ■ **PARALLEL**

Maximum of 4 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.



# INSTALLATION



## ■ SERIES

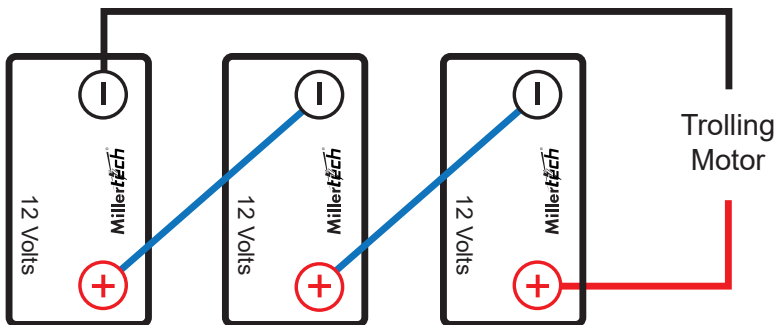
Maximum of 4 units may be connected in a series to increase the voltage of the system up to 48V.

When batteries are hooked up in a series connection, voltages are doubled and capacity stays the same. For example, (2) 12V 135AH batteries connected in a series would create a system voltage of 24V (25.6V Nominal) and 190AH.

When connecting multiple batteries in a series, for optimal results always charge each battery individually with a multi bank charger, or at least once every 10 cycles.

### (3) Batteries Wired in Series for 36 Volt Motor

Capacity stays the same, voltage triples



Positive +

Negative -

Jumper Wires

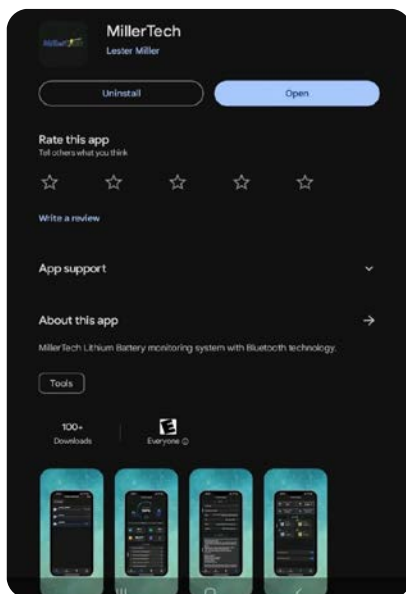
# ABOUT THE APP

■ 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.



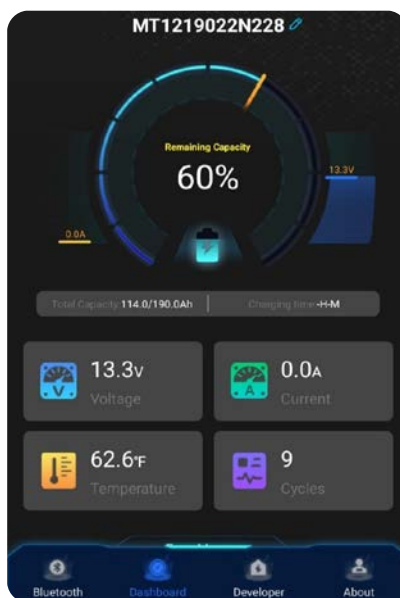
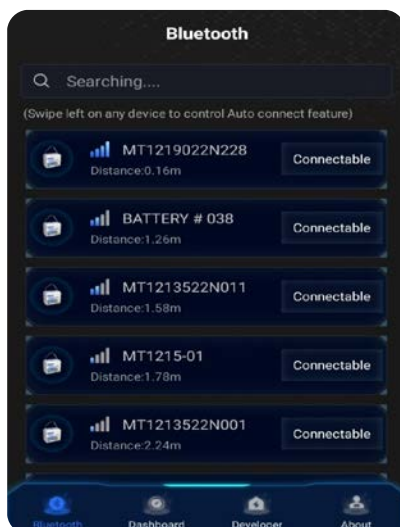


# ABOUT THE APP

■ 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.

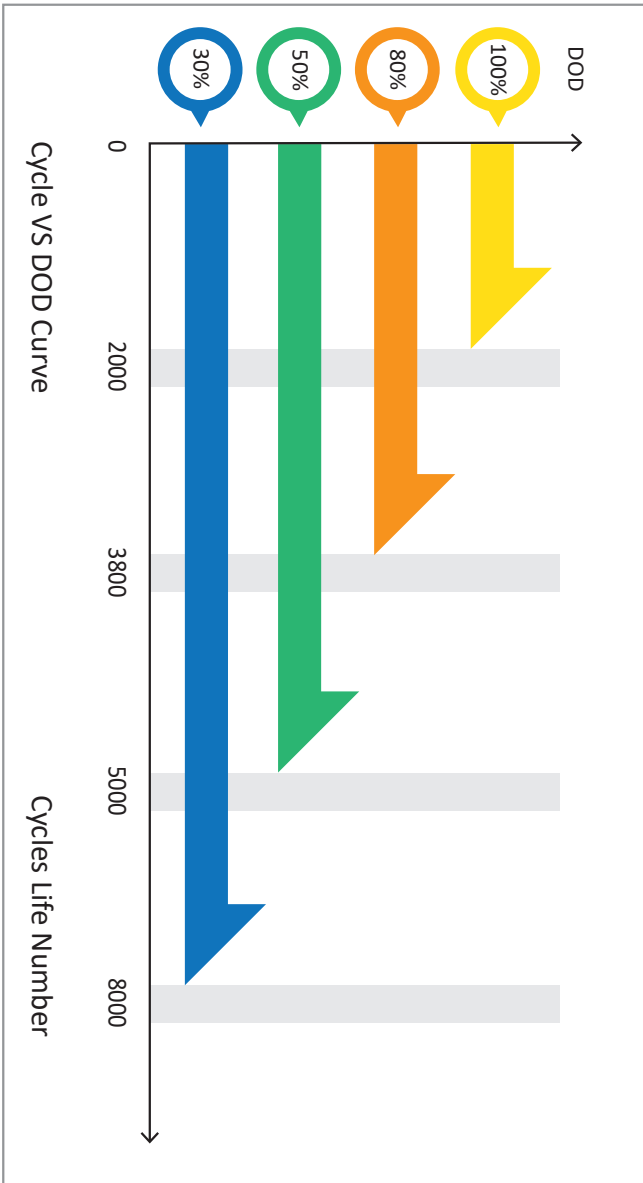
■ On the bottom of the screen tap dashboard or control panel and you can now see all the info on the battery.

■ To connect to multiple batteries simply return to bluetooth screen and tap devices you wish to add.



# CURVE & CYCLE LIFE

80% Remaining Capacity after these Cycles





## ■ STORAGE

Storage could not be easier. Simply charge the batteries to at least 50% / 13.3V state of charge and disconnect from any charge or discharge and repeat this every quarter/3 months.

## ■ MAINTENANCE

The LiFePo4 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.



## 4 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.



# WARRANTY

## **SPORT SERIES (10) YEAR WARRANTY POLICY**

MillerTech Energy Solutions LLC (The Manufacturer) warrants each MillerTech® Sport Series branded battery bought from MillerTech or one of its authorized resellers to be free of defects

in materials and workmanship for a period of 10 years from the date of the original purchase. The date of purchase will be determined by the original sales receipt. If this receipt is not available the warranty will be issued using the manufacturing date printed directly on the battery. Within the first 6 years of the warranty period, subject to the exclusions listed below, the manufacturer (MillerTech®) will repair (if serviceable) or replace (with a new or refurbished product with equal to, or higher value) if the components in question are determined to be defective in material or workmanship. After 6 years up to 10 years if the battery is deemed repairable, the manufacturer will repair and return the battery at no cost to the customer. If the battery is deemed to be unrepairable, the manufacturer will offer a similar battery to the customer at a discount of 50% off of the Retail Price at the time of the offer. The offer will be valid for a period of 30 days after the date of notification.

INDUSTRY LEADING



## **SHIPPING CHARGES**

Within the first 6 years of the warranty period if it is determined by our warranty department that your battery needs further testing, MillerTech® will pay all shipping charges to and from our testing facility. Within the last 4 years of this warranty period, all incoming shipping charges are the full responsibility of the customer. All outgoing shipping fees will be paid by MillerTech®.

## **WARRANTY REGISTRATION**

Who has time to register a warranty? With MillerTech this is not required. We want to make things simple and easy. Just save your point of purchase receipt, should you have issues and need to warranty your battery. If you happen to lose the receipt, don't worry, each battery has a serial number that we can use!

# WARRANTY

## **LIABILITY**

The liability of MillerTech Energy Solutions LLC and this warranty policy shall be limited, at the sole discretion of the manufacturer to either repair or replace defective items. Any repaired or replaced items shall be of equal or greater value than the warranted product in terms of cycle life trajectory for the corresponding age of the product. If a defective product is replaced, the original unit shall become the property of MillerTech Energy Solutions LLC.

## **NOT COVERED BY THIS WARRANTY:**

The manufacturer is not obligated to warrant the battery in question if defects are related to damages caused by abuse, neglect, or from the following:

- Damage from shipping, loose terminal bolts, or corroded hardware.
- Manufacturer codes tampering or removal
- Failure to properly install the battery, in addition to keeping the battery properly charged and maintained.
- Breakage from collision, fire, or freezing which includes damage from extreme heat or cold, improper storage, water damage, or tampering.
- A defective (SOC) meter will not affect the performance of the lithium battery, therefore the (SOC) meter is not covered by the MillerTech warranty.
- The warranty does not cover a battery reaching its normal end of life which may occur prior to the warranty. As stated above. Depending on the application a battery can reach its normal life before the end of the applicable warranty period. A battery can deliver only a fixed number of usable amp hours over its lifetime and is considered to have reached its normal end of life if the application used up all of those amp hours, regardless of the time the battery has been in service. Therefore manufacturer reserves the right to deny a warranty claim if it determines the battery to be at its normal end of life, even if the claim is lodged within the applicable warranty period.

### **Contact Us Direct:**

855-MAX-LITH (629-5484)

Warranty@millertechenergy.com



# SPORT SERIES



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