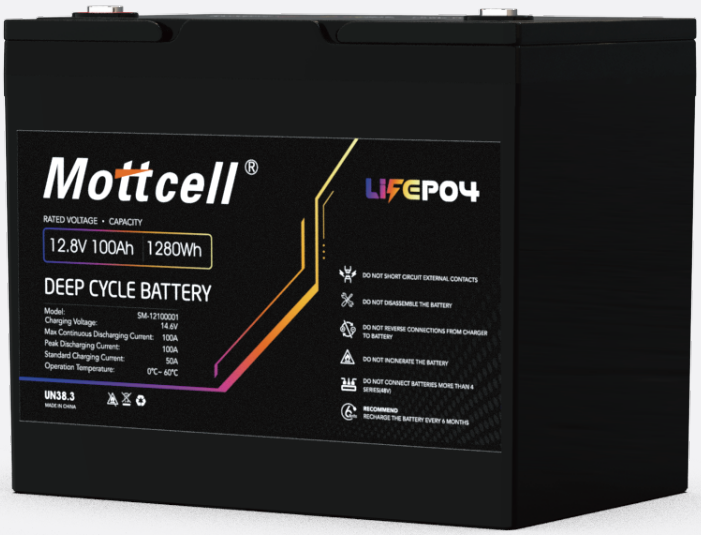
MOTTCELL®

# SMG12100mini

## MSHWM SERIES
## INSTALLATION MANUAL



⚠ Warning: Read this entire document before installing or using MSHWM Series. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage MSHWM , potentially rendering it inoperable.

## PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at MOTTCELL, we reserve the right to make product modifications at any time.
The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

## ERRORS OR OMISSIONS

To communicate any inaccuracies or omissions in this manual, please contact MOTTCELL.

## ELECTRONIC DEVICE: DO NOT THROW AWAY

Proper disposal of batteries is required. Refer to your local codes for disposal requirements

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## IMPORTANT SAFETY INSTRUCTIONS

This manual contains important instructions for the MSHWM that must be followed during installation and maintenance of the system. MSHWM installation and service require knowledge of high voltage electricity and should only be performed by MOTTCELL Certified Installers. MOTTCELL assumes no liability for injury or property damage due to repairs attempted by unqualified individuals or a failure to pro perly follow these instructions. These warning and cautions must be followed when using MSHWM .

## SYMBOLS USED

These symbols indicate important safety information in this guide or on the equipment:

**WARNING**
indicates a hazardous situation which, if not avoided, could result in injury or death.

**CAUTION**
indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.

**NOTE**
indicate an important step or tip that leads to best results, but is not safety or damage related.

**REFER TO OPERATING INSTRUCTIONS**
indicates that user should refer to operating or installation instructions before proceeding.

**RISK OF ELECTRIC SHOCK**
indicates components that present risk of electrical shock.

**CAUTION, RISK OF ELECTRIC SHOCK, ENERGY STORAGE TIMED DISCHARGE**
Discharge time is 5 minutes from de-energization.

**BIDIRECTIONAL TERMINIAL**
indicates location of combined input/output connector on the equipment.

**PROTECTIVE CONDUCTOR TERMINAL**
indicates location of grounding connection on the equipment.

# ENVIRONMENTAL CONDITIONS

⚠ WARNING: Reading this entire document before installing or using MSHWM. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death or can damage MSHWM, potentially rendering it inoperable.

⚠ WARNING: A battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions.

⚠ WARNING: MSHWM installation must be carried out only by MOTTCELL NEW ENERGY Certified Installers who have been trained properly.

⚠ WARNING: MSHWM is heavy. Use of Lift equipment is recommended.

⚠ WARNING: Use MSHWM only as directed.

⚠ WARNING: Do not use MSHWM if it is defective, appears cracked, broken, or otherwise damaged, or fails to operate.

⚠ WARNING: Before beginning the wiring portion of the installation, ensure that MSHWM is switched off, and open any associated circuit breakers and disconnect switches (if applicable for the installation).

⚠ WARNING: Do not attempt to open, disassemble, repair, tamper with, or modify MSHWM. MSHWM and its components are not user serviceable. Batteries in MSHWM are replaceable. Contact the MOTTCELL NEW ENERGY Certified Installer who installed the system for any repairs.

⚠ WARNING: To protect MSHWM and its components from damage when transporting, handle with care. Do not impact, Pull, drag, or step on MSHWM. Do not subject MSHWM to any strong force. To help Prevent damage, leave MSHWM in its shipping packaging until it is ready to be installed.

⚠ WARNING: Do not insert foreign objects into any part of MSHWM.

⚠ WARNING: Do not expose MSHWM or its components to direct flame.

⚠ WARNING: Do not install MSHWM near heating equipment.

⚠ WARNING: Do not immerse MSHWM or its components in water or other fluids.

⚠ CAUTION: Do not use solvents to clean MSHWM, or expose MSHWM to flammable or harsh chemicals or vapors.

⚠ CAUTION: Do not use fluids, parts or accessories other than those specified in this manual including use of non-genuine MOTTCELL ENERGY parts or accessories,or parts or accessories not purchased directly from MOTTCELL ENERGY or a MOTTCELL ENERGY-certified party.

⚠ CAUTION: Do not place MSHWM in a storage condition for more than one (1) month, or permit the electrical feed on the MSHWM to be served for more than one (1) month, without placing MSHWM into a storage condition in accordance with MOTTCELL ENERGY's storage specifications.

⚠ CAUTION: Do not paint any part of MSHWM, including any internal or external components such as the exterior shell or casing.

⚠ CAUTION: Do not connect MSHWM directly to photo voltaic (PV) solar wiring.

⚠ CAUTION: Do not paint any part of MSHWM, including any internal or external components such as the exterior shell or casing.

⚠ CAUTION: Do not paint any part of MSHWM, including any internal or external components such as the exterior shell or casing.

## ENVIRONMENTAL CONDITIONS

⚠ WARNING: Install MSHWM in a location that prevents damage from flooding.

⚠ WARNING: Operating or storing MSHWM in temperatures outside its specified range might cause damage to MSHWM.

⚠ WARNING: Do not expose MSHWM to ambient temperature above 60 ℃ or below -20 ℃.

⚠ CAUTION: Do not paint any part of MSHWM, including any internal or external components such as the exterior shell or casing.

⚠ CAUTION: Ensure that snow does not accumulate around MSHWM.

## REVISION HISTORY

| Date | Revision | Description | Owner |
|---|---|---|---|
| 2025-02-15 | V1.0 | Initial Release | |

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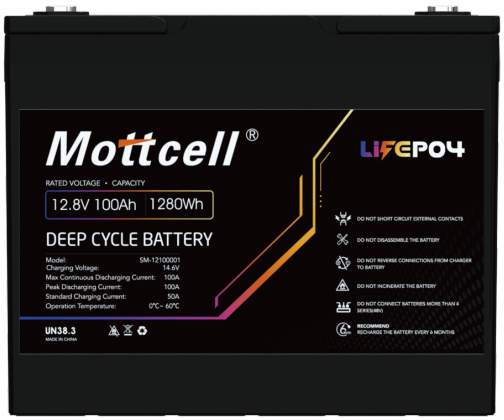
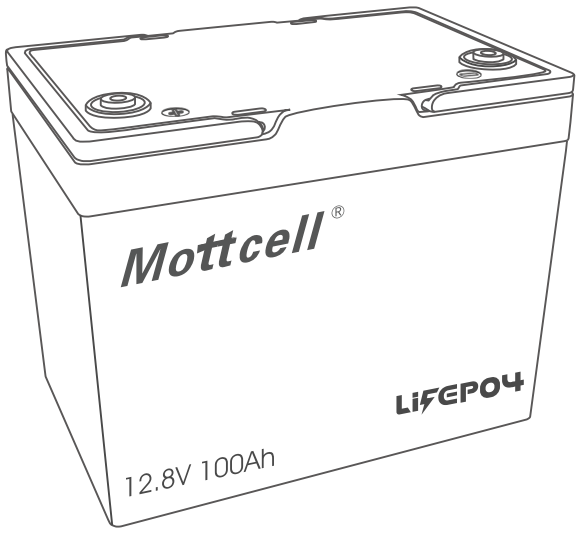
# SPECIFICATION

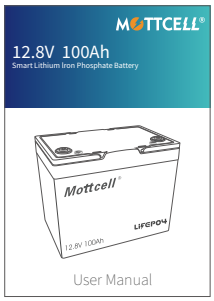


| Technical Parameters | SMG12100mini |
|---|---|
| Cell Type | LiFePO4 |
| Rated Capacity | 100 Ah |
| Rated Battery Energy | 1.28 kWh |
| Rated Voltage | 12.8 V |
| Working Voltage Range | 10~14.6 V |
| Usable Battery Capacity | 1.28 kWh |
| Parallel Quantity1 | 4S4P ( 20.48KWh Max ) |
| Nominal Current (Recommended) 2 | 0.5C, 50 A |
| Battery Depth of Discharge | 100% |
| Battery Max Charge/Discharge Power | 1.28kW |
| Available SOC Range | 0% ~ 100% |
| SOC Transportation Range | 40% |
| Operating Temperature | Charging Temperature： 0℃~55℃;<br>Discharge Temperature： -20℃~60℃ |
| Storage Temperature3 | -10°C ~ 50°C |
| Working Humidity | 5~95%RH |
| Standard Charging Current | 0.2C, 20A |
| Maximum Charging Continuous Current | 0.5C, 50A |
| Rated DC Power | 1.28kW |
| IP Grade | IP65 |
| Recommended Indoor/Outdoor Usage | Indoor/Outdoor |
| Weight | ≈10 Kg |
| Dimensions [W*D*H] | L260*W168*H212mm (L10.24 *W6.61 *H8.35 in ) |
| Communication | Optional: Bluetooth/WIFI/CAN/485 |
| Certificate (CELL) | UL1973/IEC62619/UN38.3/CE/ROHS |
| Certificate (PACK) | UN38.3/CE/ROHS/FCC |
| Calendar Life4 | 3Years |

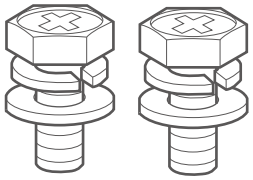
# Packing List




12.8V 100Ah
Smart Lithium Iron Phosphate Battery x1




User Manual x1

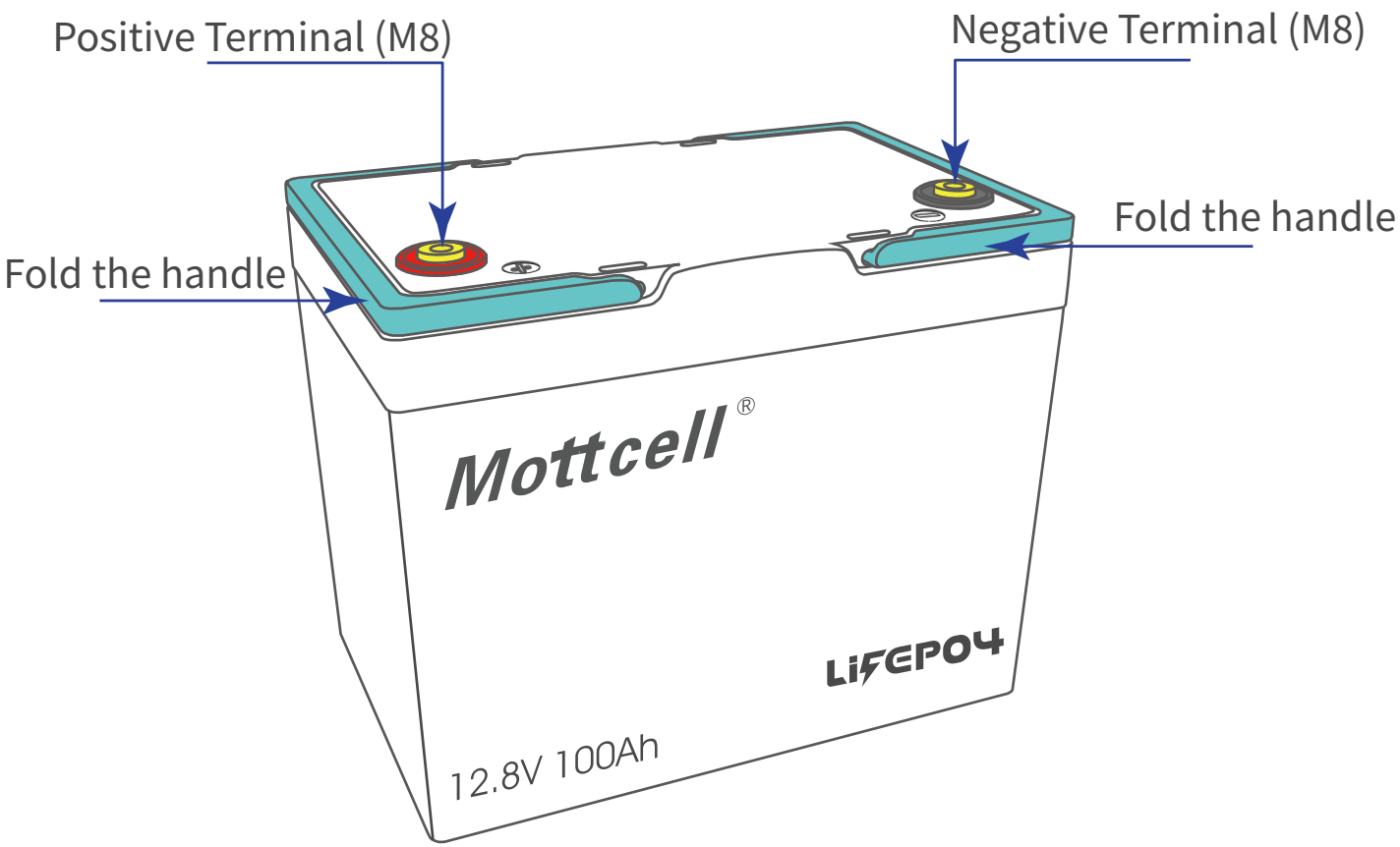


M8*1.25*12 mm
Terminal Bolts x4

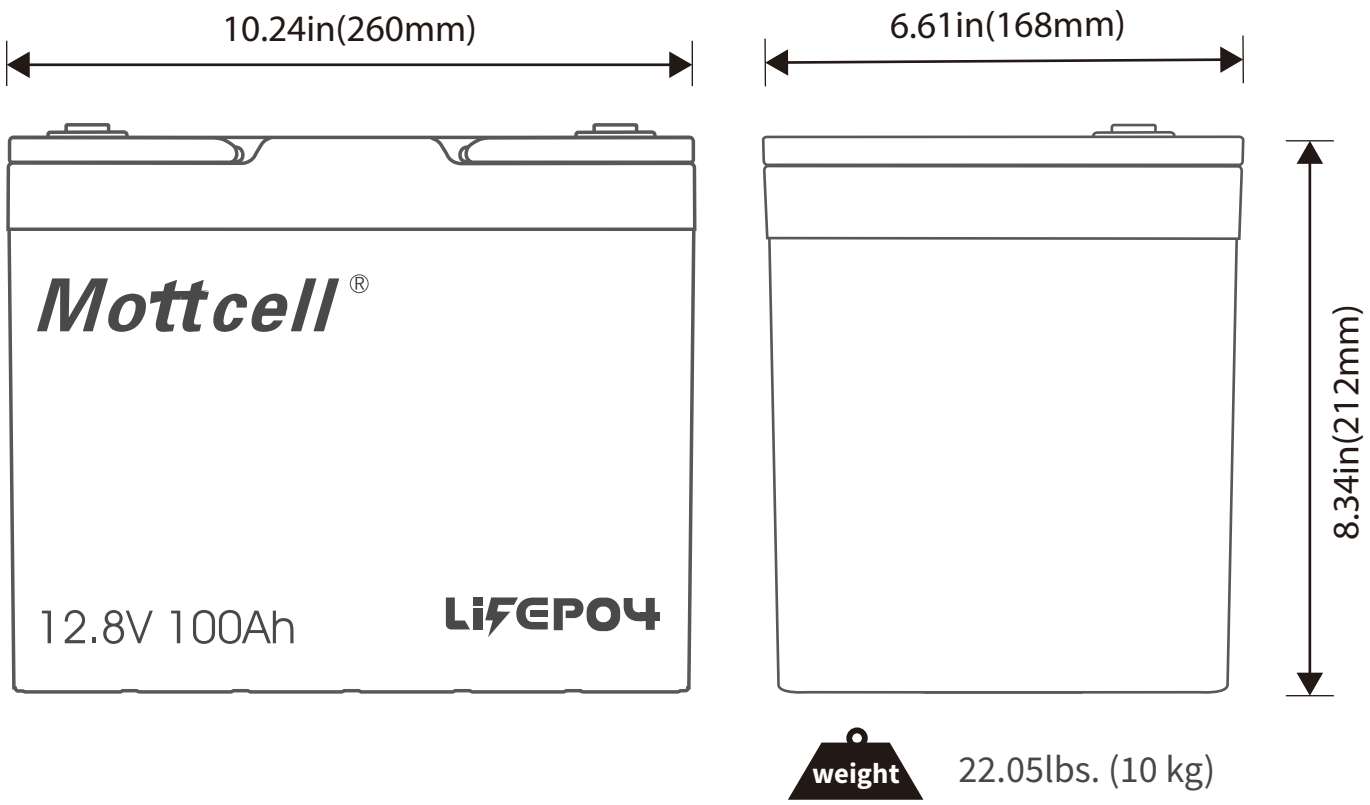
Make sure that all accessories are complete and free of any signs of damage.

# Mechanical Specification

## Top



# Dimensions




Dimension tolerance: ±0.2 in (0.5 mm)

# To Size Battery Adapter Cables

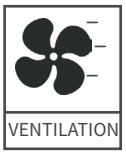
Use appropriately sized Battery Adapter Cables (sold separately) based on expected load. Refer to the table below for copper cable ampacities with different gauge sizes.

| Cable Gauge Size | Ampacity | Cable Gauge Size | Ampacity |
|---|---|---|---|
| 15 AWG (1.5 $mm^2$) | 16A | 3 AWG (33.5 $mm^2$) | 125A |
| 13 AWG (2.5 $mm^2$) | 25A | 2 AWG (50 $mm^2$) | 160A |
| 9 AWG (6 $mm^2$) | 35A | 1 AWG (70 $mm^2$) | 200A |
| 7 AWG (12 $mm^2$) | 50A | 1/0 AWG (95 $mm^2$) | 250A |
| 6 AWG (16 $mm^2$) | 80A | 2/0 AWG (150 $mm^2$) | 300A |
| 4 AWG (25 $mm^2$) | 100A | 4/0 AWG (185 $mm^2$) | 355A |

The above values are from the NEC Table 310.17 for copper cables rated at 194°F (90°C), operating at an ambient temperature of no more than 86°F (30°C). Cables longer than 13 feet (4000 mm) may require thicker gauge wires to prevent excessive voltage drop in undersized wiring.

# Choose a Mounting Site

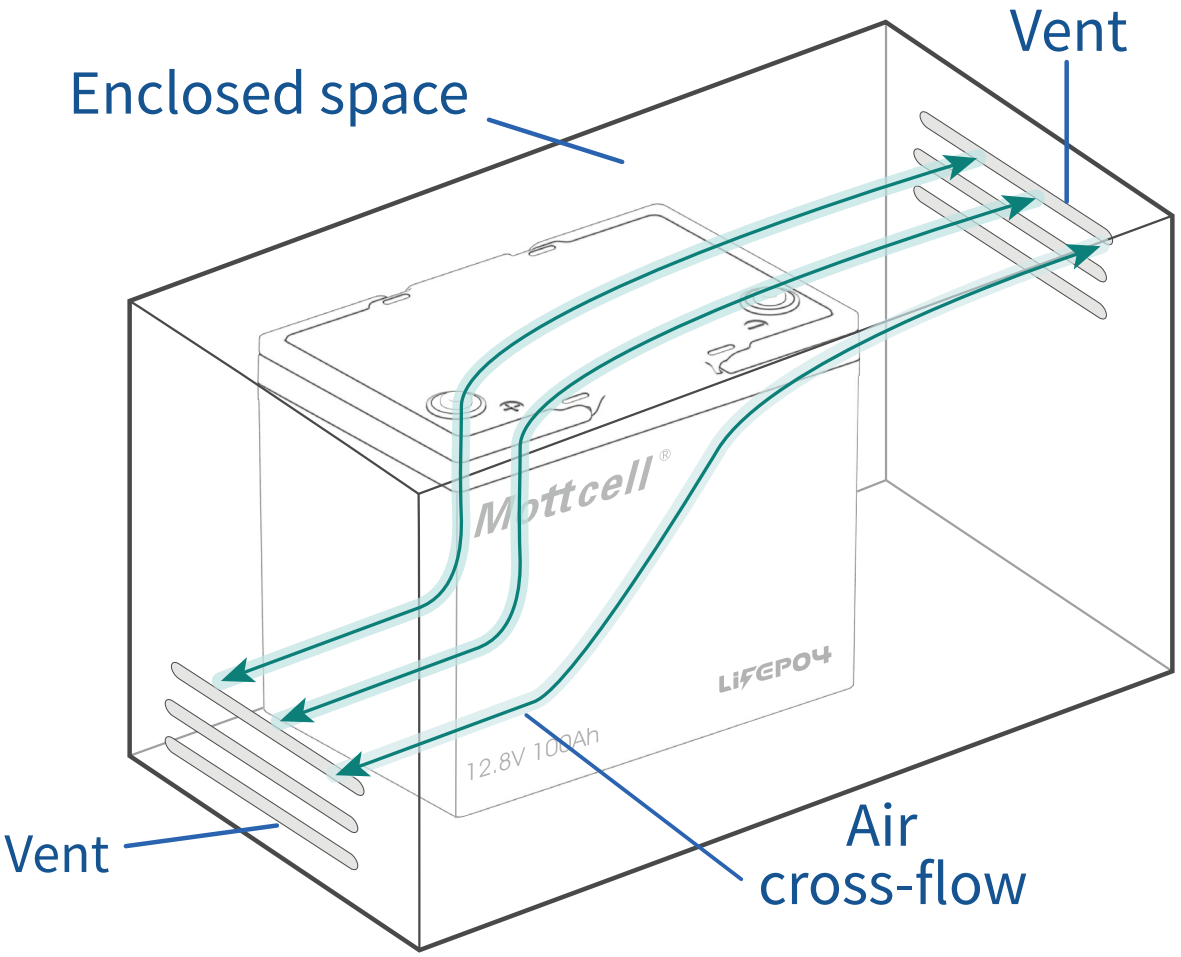
For optimal battery performance, it is recommended to install the battery in a clean, cool, and dry location, free from any accumulation of water, oil, or dirt. Accumulation of such materials on the battery can lead to current leakage, self-discharge, and even short-circuiting.



Min-20℃

Max+60℃

RH.+5%~+95%



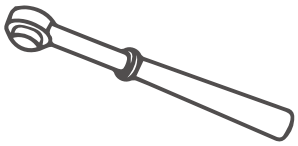

⚠ Sufficient airflow must be provided to prevent excessive heat build-up and to minimize temperature variation between the connected batteries.

ⓘ This user manual takes a battery as an example to illustrate how to install the battery.

## Tools required for installation

Prior to installing and configuring the battery, prepare the recommended tools, components, and accessories.

1 Torque wrench

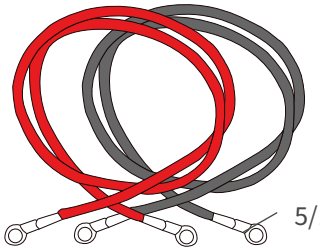


2 Wrench

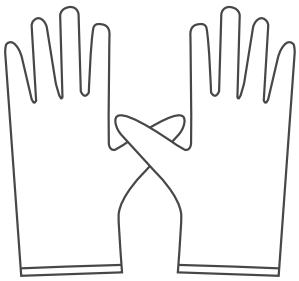
3 Scissors

4 tie

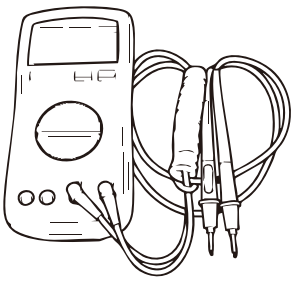
5 Battery Adapter Cables × 2




6 Insulating Gloves



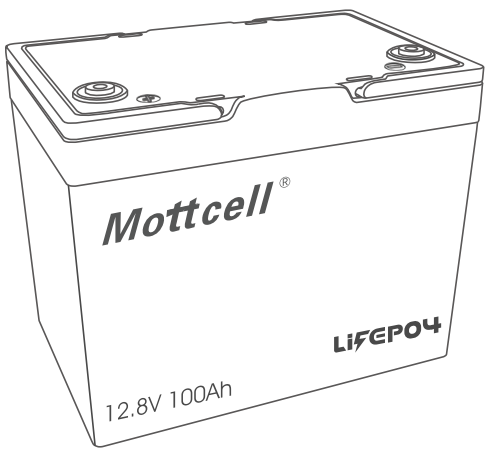
7 Multimeter

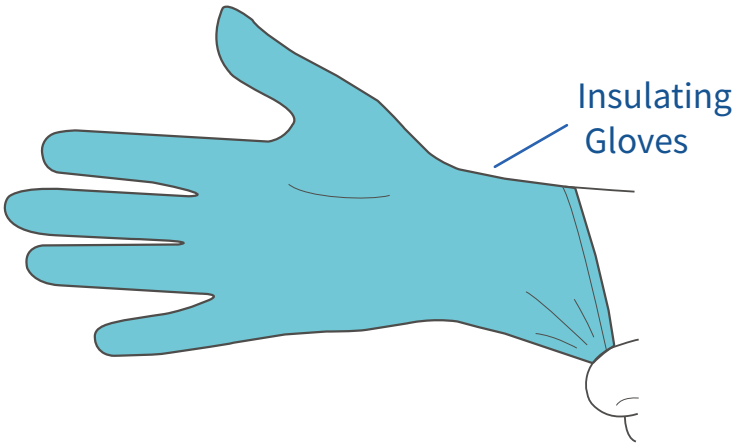


When assembling, ensure that parallel and series connection wires are of equal length.

## Wear Insulating Gloves

Inspect the battery for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, free of dirt and corrosion, and dry.




Do not touch the exposed electrolyte or powder if the battery is damaged.

If uncovered electrolyte or powder contacts your skin or eyes, flush it out immediately with plenty of clean water and seek medical attention.

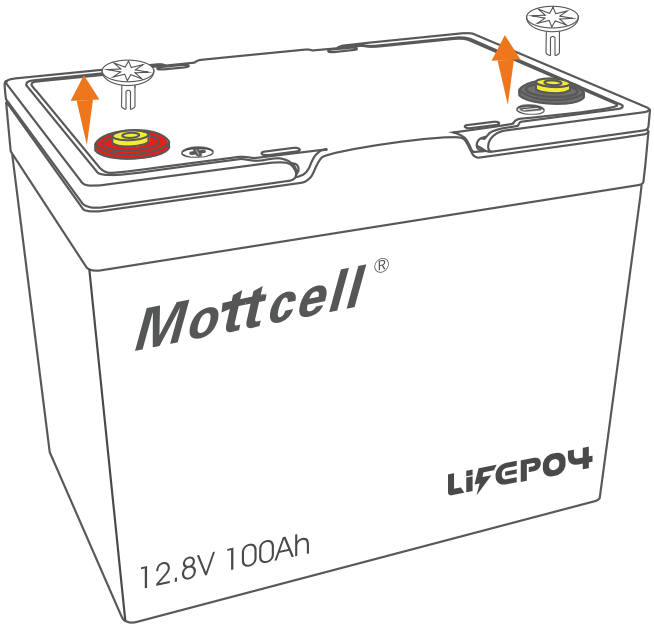
# NOTICE BEFORE USING

## If it is used as a single unit (1S1P)

### Step 1

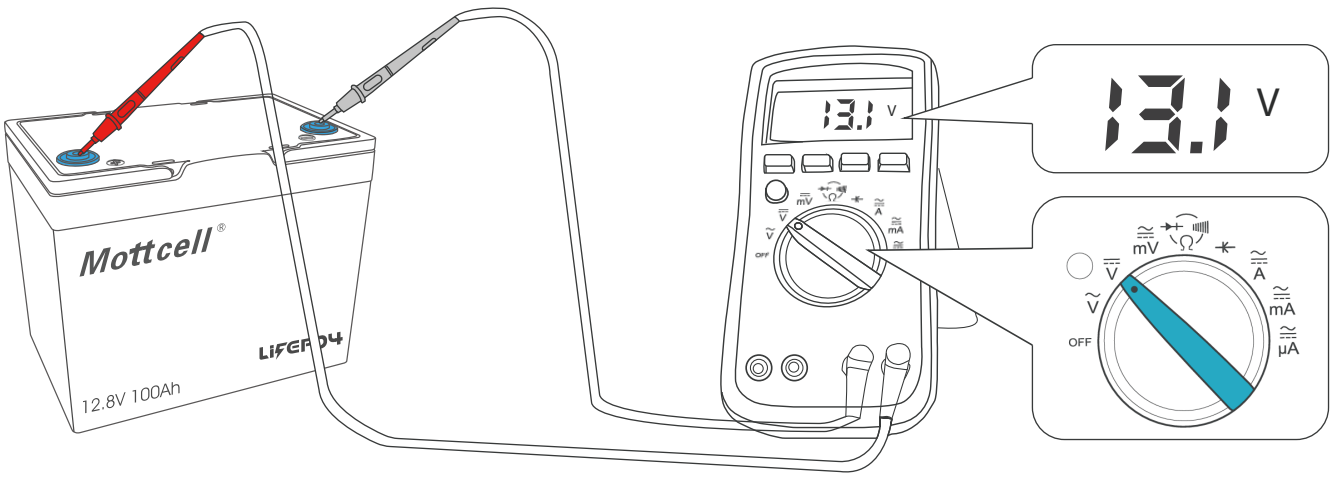
**Check The Battery And Remove The Insulation Cover**

Inspect the battery for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, free of dirt and corrosion, and dry.

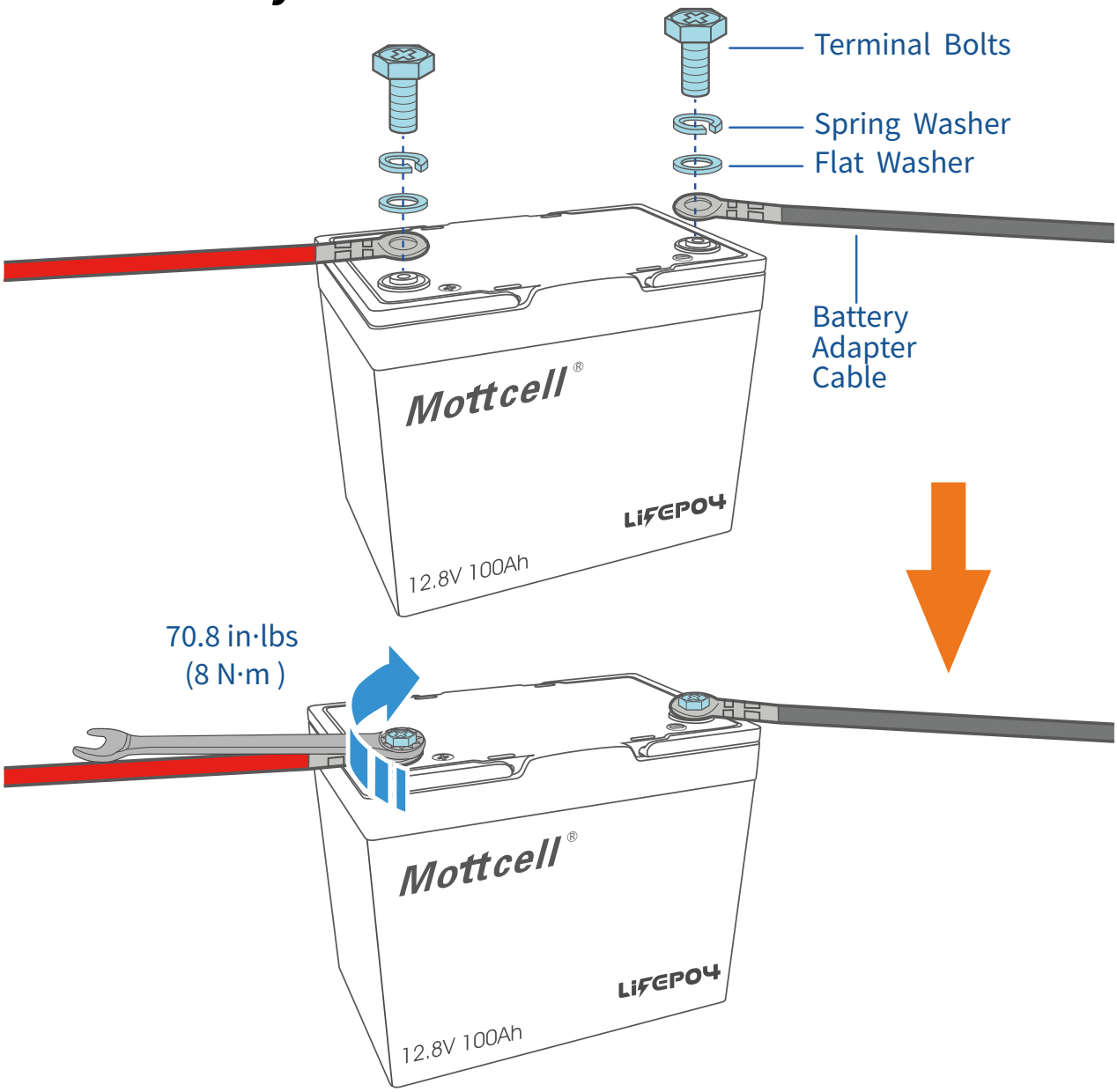



### Step 2

**Test The Battery Voltage with Multimeter**



# Step 3
## Install Battery Terminals




⚠ Ensure the cable lug and the top surface of the terminal are in contact, and place the washers on top of the lug. Do not place the washers between the battery terminal and the cable lug to avoid high resistance and excessive heating.

⚠ Avoid short-circuiting the battery terminals to prevent irreversible damage to the system and battery caused by current bursts.

⚠ Verify polarity before wiring to avoid irreversible battery damage due to polarity reversal.

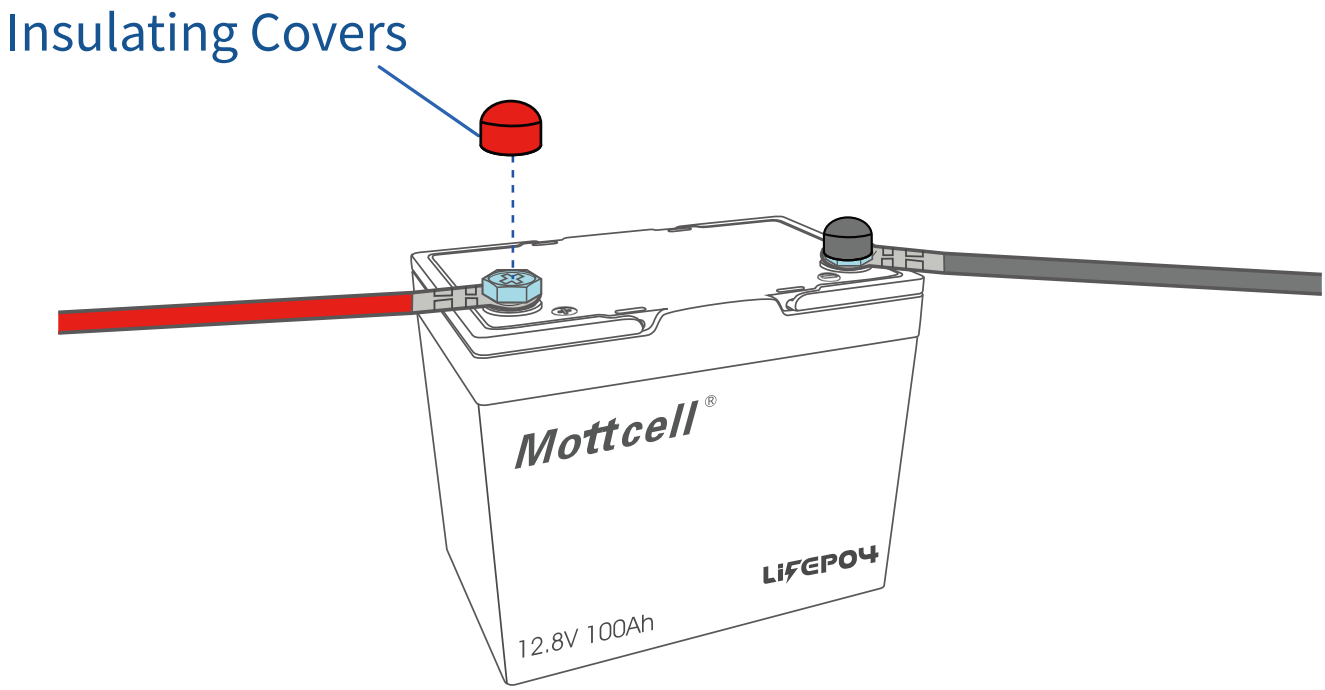
⚠ Do not touch the positive and negative terminals of the battery with your hands.

ⓘ To ensure safe and reliable operation of the system, please follow the torque specifications recommended by the manufacturer when securing cable connections.Over-tightening can result in terminal breakage, while loose connections can lead to terminal meltdown or fire. When securing multiple cable lugs on a single battery terminal, use the included Long Terminal Bolts.( Employ torque wrench-model number 1 )

## Step 4

### PUT ON Insulating Covers

Please put on the insulating covers to avoid metal or conductive objects touching the positive and negative terminals of the battery at the same time, otherwise it is likely to cause a short circuit.




## Step 5

### Fully Charge The Battery Separately

( Refer to Page 22-24 for battery charging methods )

## Step 6

### Connect the Battery to Other Devices

Please use circuit breakers, fuses, or disconnects appropriately sized by a certified electrician, licensed installers, or regional code authorities to protect all electrical equipment.

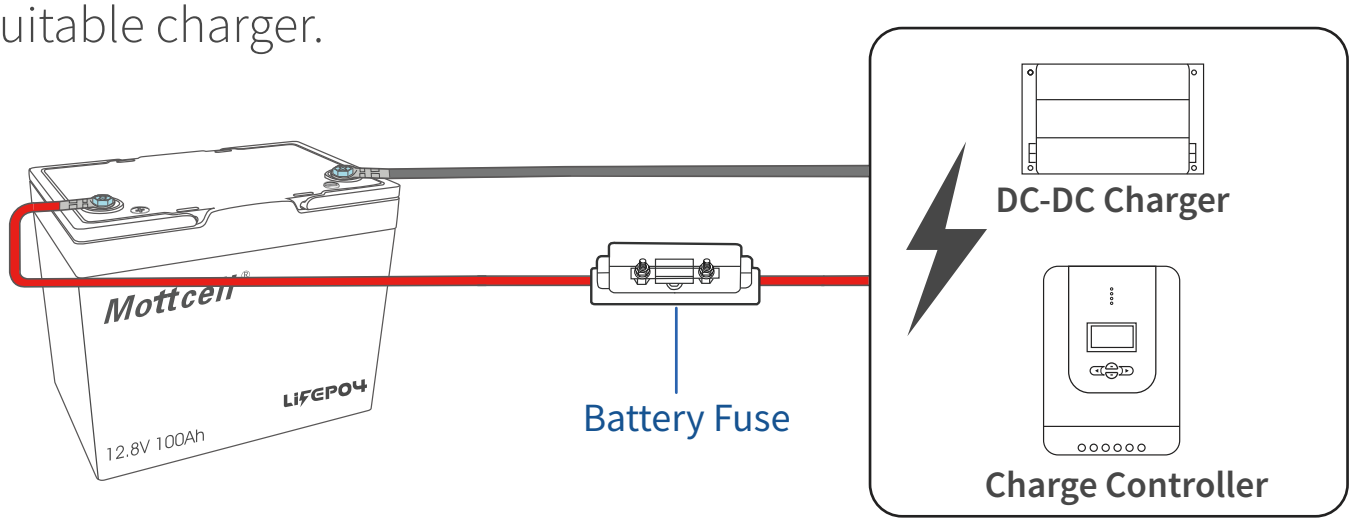
# If you use 2 or more units in parallel

## Balance Batteries Prior to Connection

Before connecting batteries in parallel, it is important to balance them to reduce voltage differences and optimize their performance. Follow these three steps: (You can choose suitable busbars in parallel connections. Busbars help handle high currents and are typically arranged in a parallel or stacked configuration to distribute electrical power efficiently.)

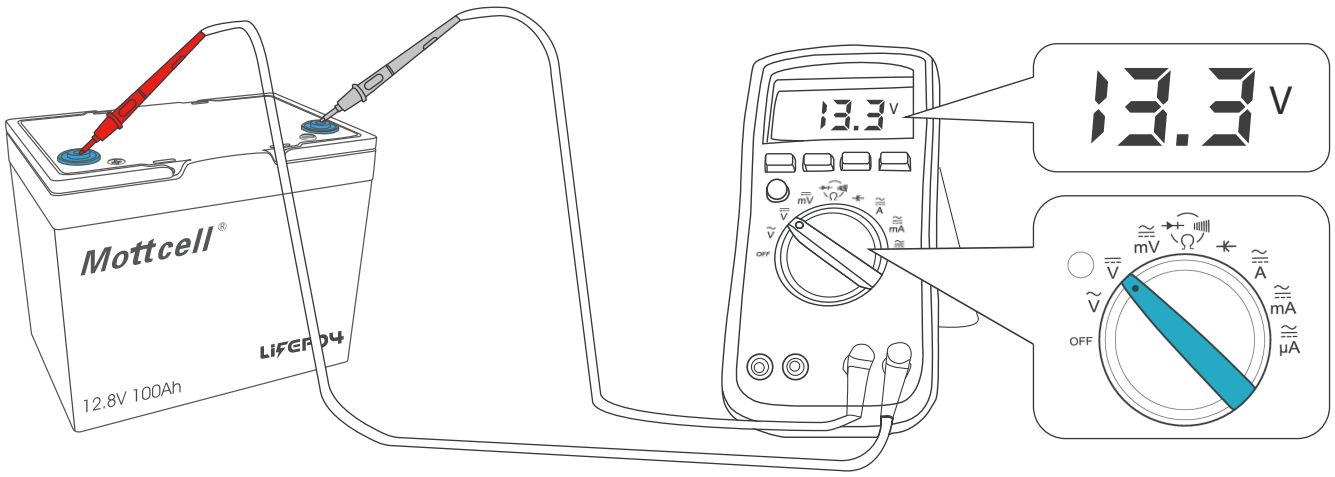
## Step 1

Charge each battery individually to its full capacity using a suitable charger.



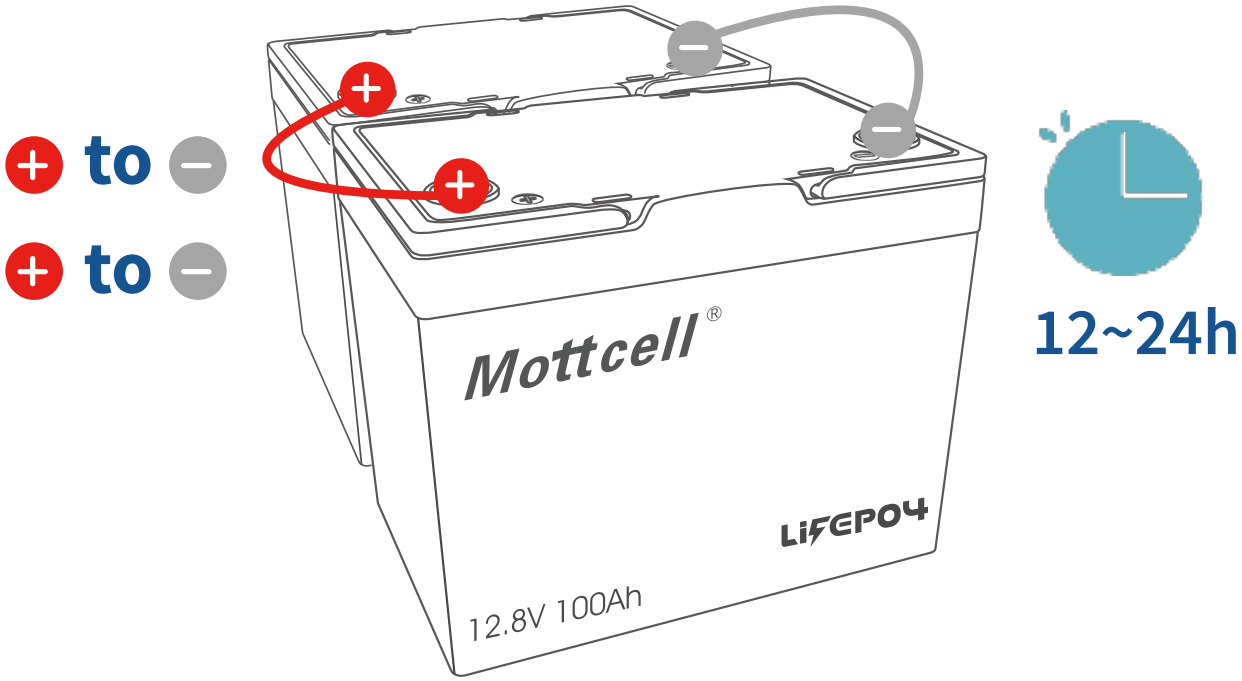

## Step 2

Use a voltmeter to measure the voltage of each battery. It is best to keep the voltage difference of each battery less than 0.1V.



## Step 3

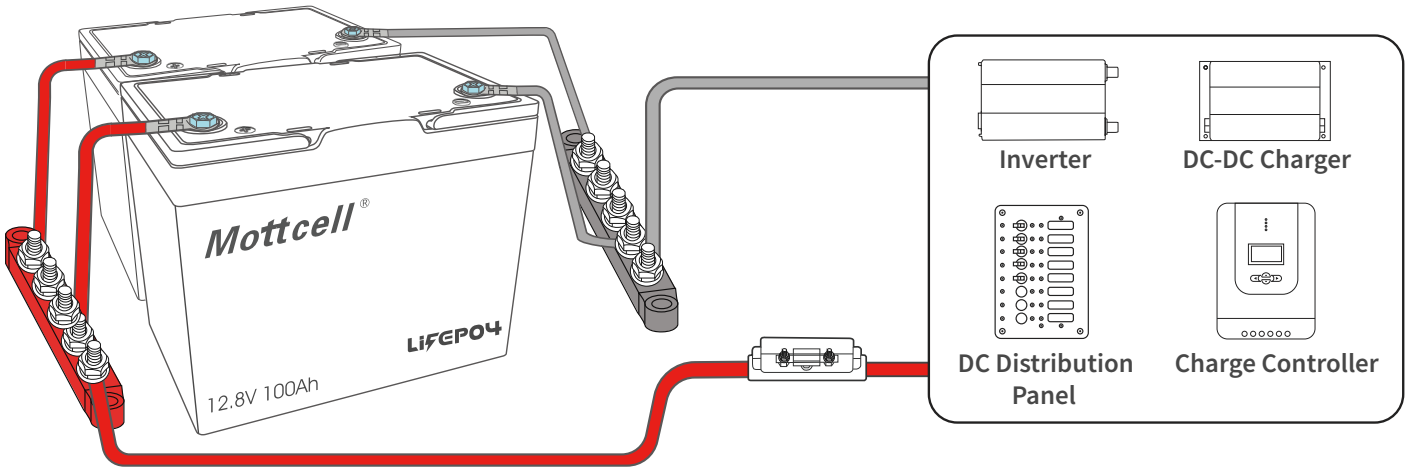
Connect all the batteries in parallel and allow them to rest together for 12 to 24 hours.




Refer to page 12 for screw installation parameterst.

## Step 4

Connect the 1# and 2# positive and negative poles to the busbars that match the current power. Then connect the busbar + and busbar - to the power supply end and the load end respectively.



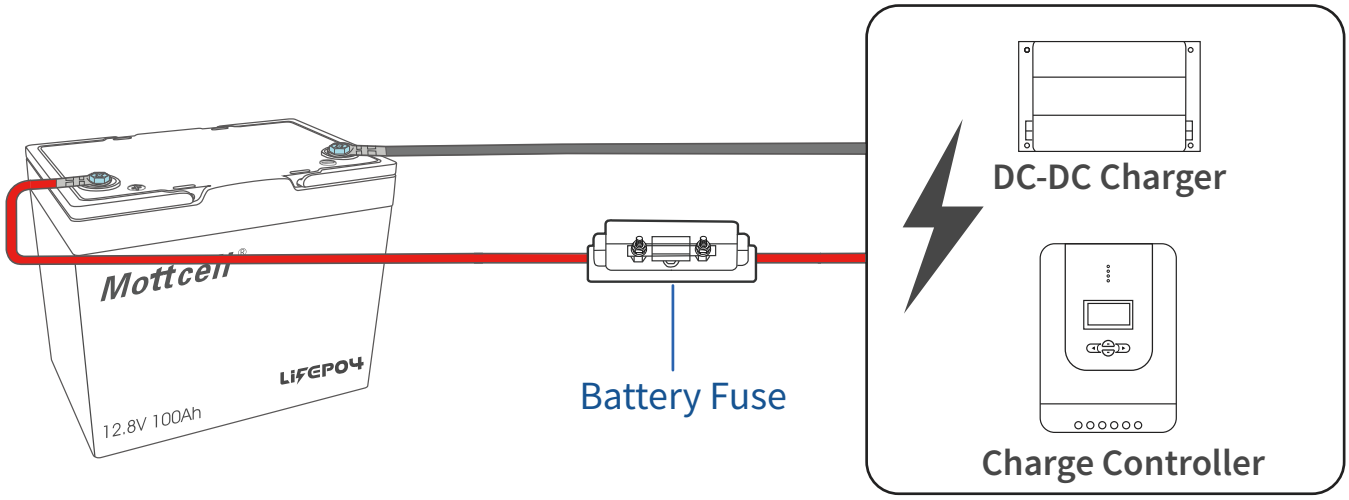
# NOTICE BEFORE USING

## If you use 2 or more units in series or parallel:

You can choose suitable busbars in parallel connections. Busbars help handle high currents and are typically arranged in a parallel or stacked configuration to distribute electrical power efficiently

### Step 1

Charge each battery individually to its full capacity using a suitable charger.

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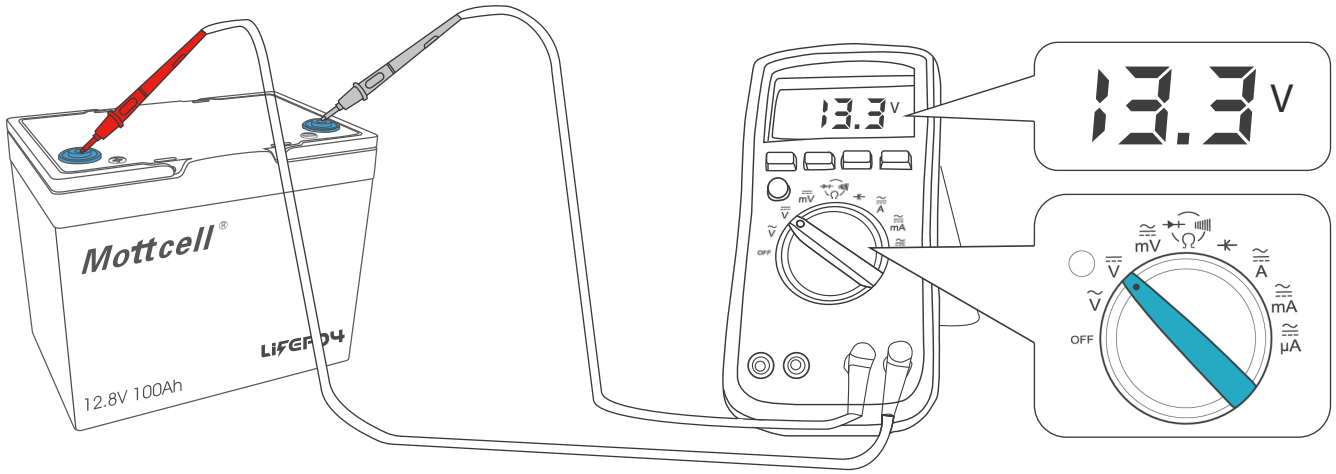
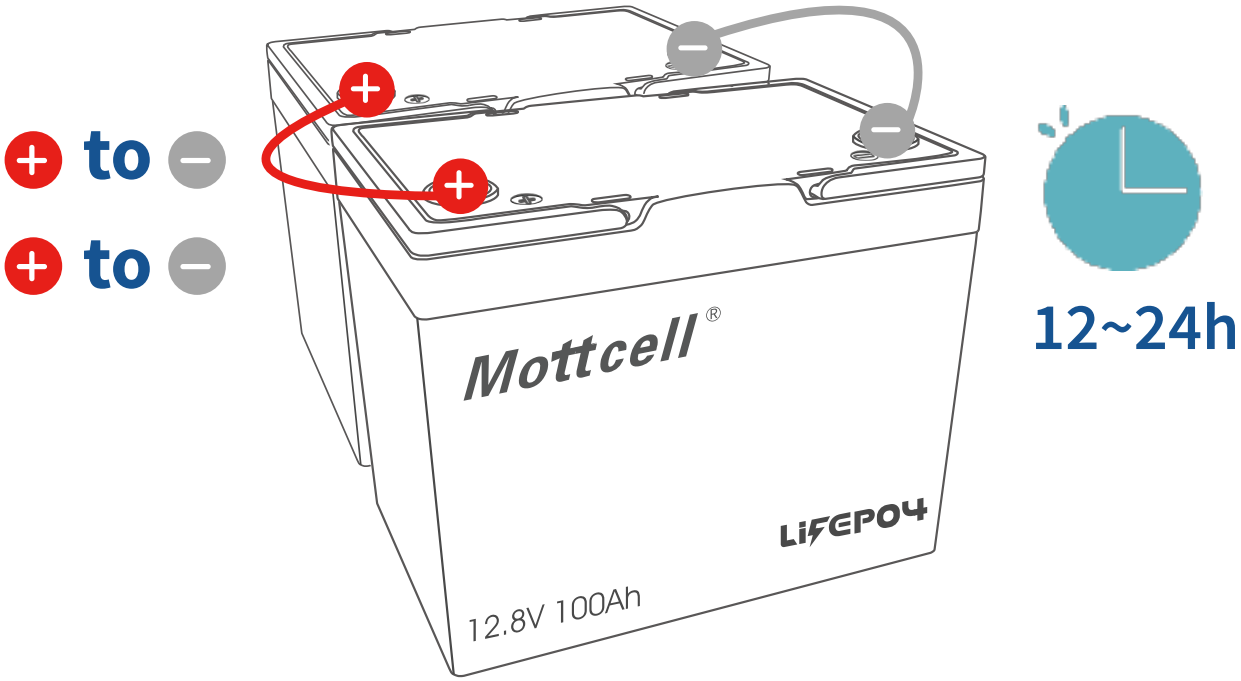
Use a voltmeter to measure the voltage of each battery. It is best to keep the voltage difference of each battery less than 0.1V.



## Step 3

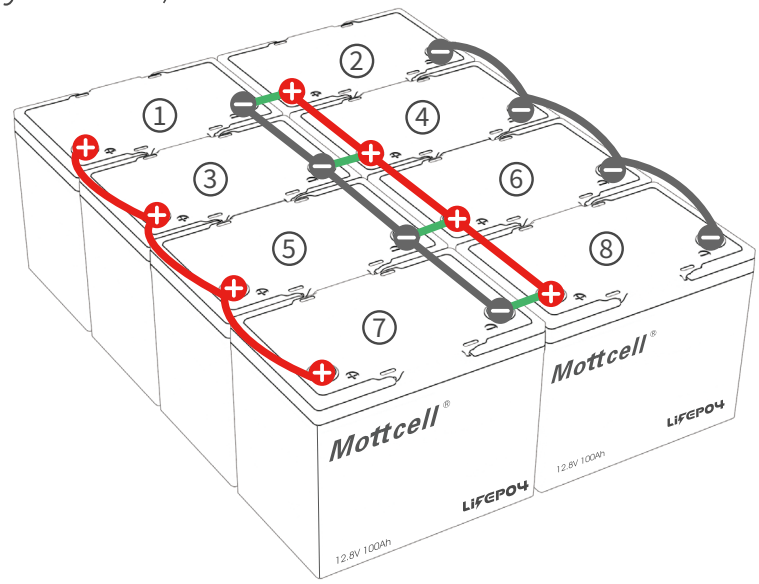
Connect all the batteries in parallel and allow them to rest together for 12 to 24 hours.




Refer to page 12 for screw installation parameterst.

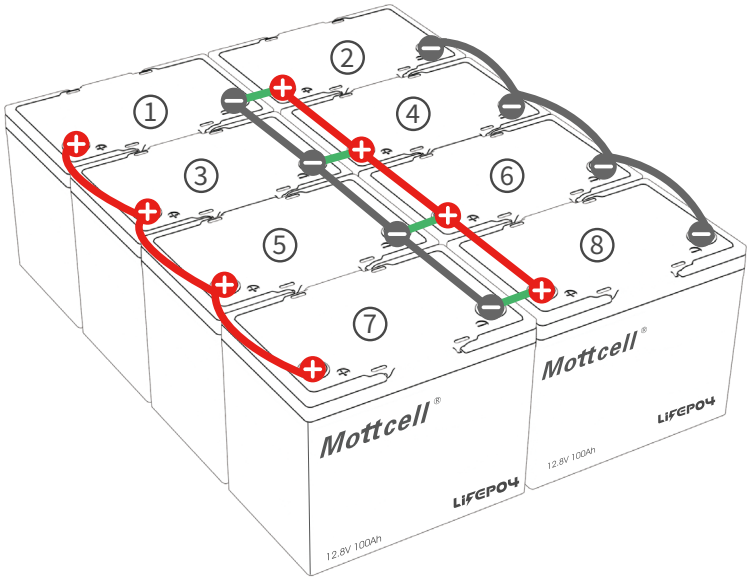
## Step 4

After the voltage is balanced, remove the screws of the battery and connect the batteries in parallel first. (Take 2S4P as an example, first connect the 8 batteries 1#, 3#, 5#, 7# and 2#, 4#, 6#, 8# in parallel to form 2 battery systems.)



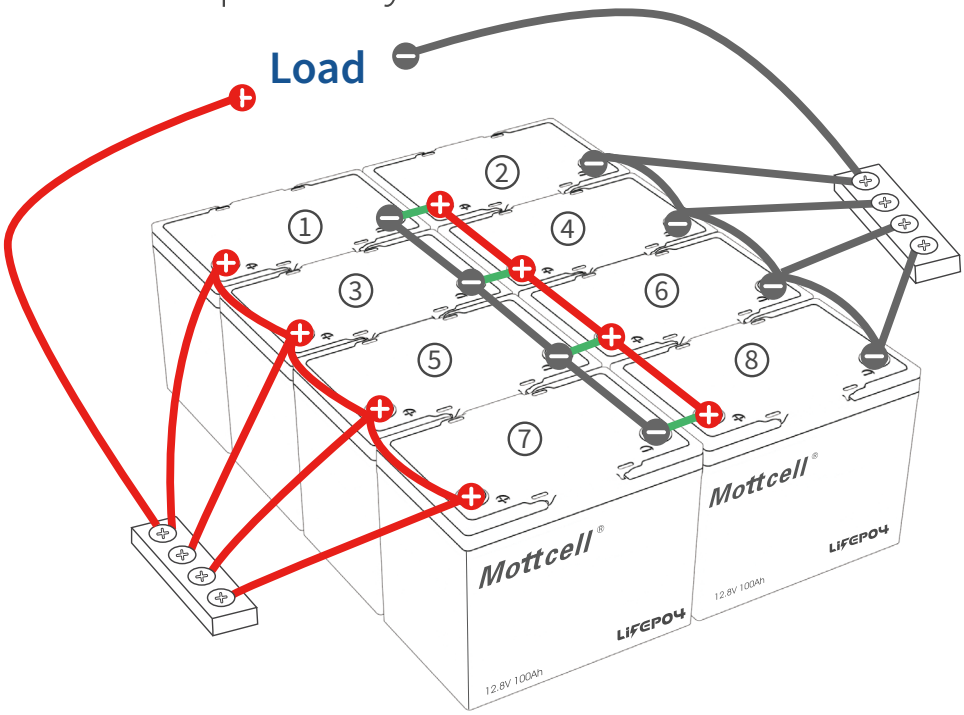
## Step 5

Connect the two battery systems in series. Connect the negative pole of 1# and the positive pole of 2# in series, 3# and 4#, 5# and 6#, 7# and 8# and so on.




## Step 6

Connect the positive poles of 1#, 3#, 5#, 7# and the negative poles of 2#, 4#, 6#, 8# to the busbars that match the current power. Then connect the busbar + and busbar - to the power supply end and the load end respectively.




4P2S 24V(25.6V)400Ah Battery System

**Note:** It is recommended to periodically re-balance the battery voltages every six months when connecting multiple batteries as a battery system. Slight voltage differences can occur among batteries over time due to factors like battery chemistry, capacity, temperature, and usage patterns.
Please refer to Table 1 for the voltage, capacity parameters and maximum number of series and parallel connections.
Note that the cable connection methods provided below are for reference purposes only, as the optimal approach may vary depending on the specific situation. It is essential to consider various factors, such as the cable size, equipment used, and environmental conditions.

| | | |
|---|---|---|
| Battery System Energy | 12V (12.8V) 200Ah 2560Wh | 1S2P |
| Battery System Energy | 12V (12.8V) 300Ah 3840Wh | 1S3P |
| Battery System Energy | 12V (12.8V) 400Ah 5120Wh | 1S4P |
| Battery System Energy | 24V (25.6V) 100Ah 2560Wh | 2S1P |
| Battery System Energy | 24V (25.6V) 200Ah 5120Wh | 2S2P |
| Battery System Energy | 24V (25.6V) 300Ah 7680Wh | 2S3P |
| Battery System Energy | 24V (25.6V) 400Ah 10240Wh | 2S4P |
| Battery System Energy | 36V (38.4V) 100Ah 3840Wh | 3S1P |
| Battery System Energy | 36V (38.4V) 200Ah 7680Wh | 3S2P |
| Battery System Energy | 36V (38.4V) 300Ah 11520Wh | 3S3P |
| Battery System Energy | 36V (38.4V) 400Ah 15360Wh | 3S4P |
| Battery System Energy | 48V (51.2V) 100Ah 5120Wh | 4S1P |
| Battery System Energy | 48V (51.2V) 200Ah 10240Wh | 4S2P |
| Battery System Energy | 48V (51.2V) 300Ah 15360Wh | 4S3P |
| Battery System Energy | 48V (51.2V) 400Ah 20480Wh | 4S4P |

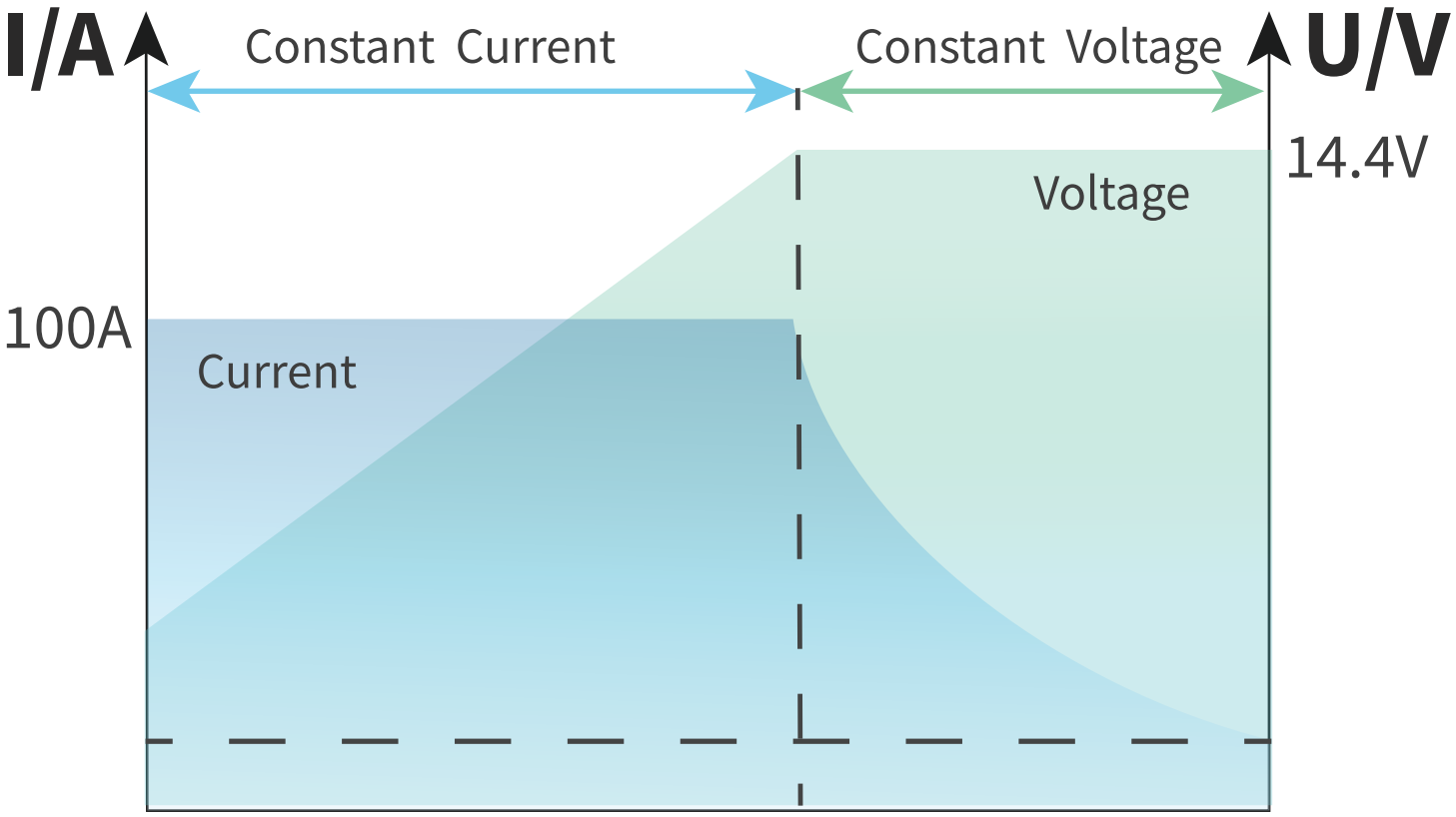
**Table 1**

# Battery Charging and Discharging Logic

The battery may be received at a partial state of charge (SOC) depending on the time between manufacturing and shipping. It is crucial to fully charge the battery before its initial use. In case the battery shuts off due to low SOC, promptly disconnect it from loads and charge it to prevent irreversible damage. Follow the instructions in this user manual for proper charging and usage to ensure optimal battery performance and longevity

## Charging Logic

The standard charging process for the battery involves charging at a constant current of 100A until the battery voltage reaches 14.4V, followed by charging at a constant voltage of 14.4V while tapering the charge current. The charging process is considered complete when the charge current is less than 5A (also known as tail current).
The standard charging process typically takes 2.5 hours and requires battery temperatures to be between 32°F and 131°F (0°C and 55°C) for safe charging. Leaving the battery on float will continue to balance the battery cells without damaging the battery.



- Lithium batteries are compatible with various charging methods, including MPPT charge controller, AC charger, and DC-DC charger. The crucial parameter setting for these chargers is to set the charge voltage, boost voltage, or bulk voltage at 14.4V (±0.2V).
- Do not overcharge or over-discharge the battery.
- Do not discharge the battery at high temperatures above 140°F (60°C).
- Only charge the battery with a battery charger or charge controller that is compatible with lithium iron phosphate batteries.
- Do not exceed the maximum continuous charge current (100A) of the battery. (When using a single unit). If multiple batteries are used, the current should not exceed 0.5C. For example, a 12.8V 400A battery is only allowed to be charged with a maximum current of 200A.

## Discharging Logic

During standard discharging, the battery is discharged at a constant current of 100A until the voltage drops to 10V. To ensure safe discharging, the battery temperature should be between -4°F (-20°C) and 131°F (60°C).

- To ensure safe and optimal battery usage, it is recommended to pair the battery with discharge equipment that features a low voltage disconnect (LVD) function.
- Do not connect large loads to the battery when it is running low.
- Do not exceed the maximum continuous discharge current (100A) of the battery. (When using a single unit). If multiple batteries are used, the discharge current should not exceed 0.5C. For example, a 12.8V 400Ah battery is only allowed to be discharged with a maximum current of 200A.

# SOLAR PANEL(S)& CONTROLLER

## Solar Panel

- Recommend Power: >=300W （When using a single unit）
- The battery can be fully charged in one day (with effective sunshine 4.5 hrs/day) by 300W solar panels.
- It may take more than one day to fully charge the battery by > 300W solar panels since the duration and intensity of light would be a great factor for their charging efficiency.

## Controller

- Recommend Charging Current:

| | |
|---|---|
| 20A (0.2C) | The battery will be fully charged in around 5hrs to 100% capacity. |
| 50A (0.5C) | The battery will be fully charged in around 2hrs to around 97% capacity. |

- Recommend Power: **12V(14.6V) LI (LiFePO4)**

## Controller Settings

- Recommend Power: >=300W（When using a single unit）

Refer to the below parameters if you need to manually set up your controller. As different types of batteries have different charging modes (refer to Page 05-06), it is recommended to set only the following parameters for LiFePO4 batteries. The settings for other types of batteries do not apply to LiFePO4 batteries except for the following settings

| | | |
|---|---|---|
| CHARGING | Charge /Bulk /Boost Voltage | 14.4V/14.6V |
| | Absorption Voltage | 14.4V/14.6V |
| | Over Voltage Disconnect | 15V |
| | Over Voltage Reconnect | 14.2V |
| | Tail Current | 2A(0.02C) |
| DIS-CHARGING | Under Voltage Warning | 11.6V |
| | Under Voltage Recover | 12V |
| | Low Voltage Disconnect | 10.8V |
| | Low Voltage Reconnect | 12.4V |

# BATTERY CHARGER

Use 14.6V lithium iron phosphate (LiFePO4) battery charger to maximize the capacity.

- **Recommend Charging Voltage:** Between 14.2V to 14.6V
- **Recommend Charging Voltage:** Between 14.2V to 14.6V

| | |
|---|---|
| **20A (0.2C)** | The battery will be fully charged in around 5hrs to 100% capacity. |
| **50A (0.5C)** | The battery will be fully charged in around 2hrs to around 97% capacity. |

## Tips

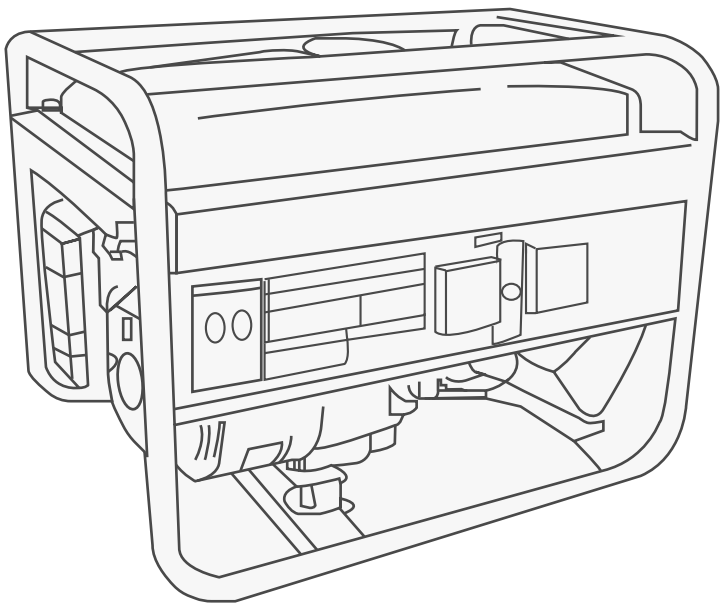
- Connect the charger to the battery before connecting it to the grid power in case of sparks.
- It's recommended to disconnect the charger from the battery after fully-charged.

# ALTERNATOR/GENERATOR

Ampere Time battery can be charged by an alternator or generator, and it needs to connect a DC to DC charger between the battery and the alternator or generator.

- **Recommend Charging Voltage:** Between 14.2V to 14.6V

| | |
|---|---|
| **20A (0.2C)** | The battery will be fully charged in around 5hrs to 100% capacity. |
| **50A (0.5C)** | The battery will be fully charged in around 2hrs to around 97% capacity. |



# INVERTER SETTINGS

## METHOD ONE(RECOMMEND)

Select“**12V(14.6V) LI (LiFePO4) Mode**”

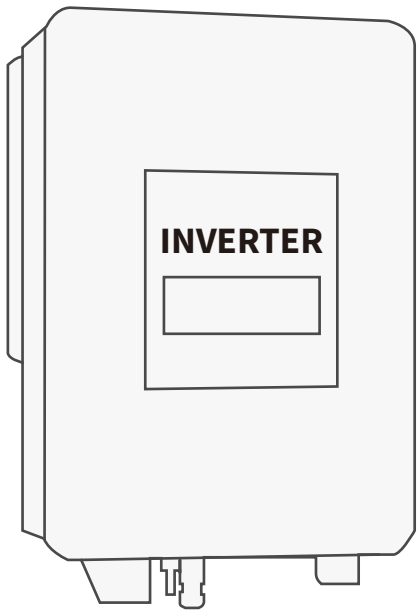
## METHOD TWO

if method one is not available， select “User Mode” to enter values，according to below parameters.

| | | |
|---|---|---|
| CHARGING | Charge Voltage | 14.6V |
| | Over Voltage Disconnect | 15V |
| | Over Voltage Reconnect | 14.2V |
| DIS-CHARGING | Under Voltage Warning | 11.6V |
| | Under Voltage Recover | 12V |
| | Low Voltage Disconnect | 10.8V |
| | Low Voltage Reconnect | 12.4V |

The above setting parameters apply to common inverters on the market (such as Victron, Growatt , Xantrex, Go Power, Lux Power, etc.) Different brands have slightly different descriptions or naming methods for each parameter, Please directly set the parameters with the same meaning.

If the inverter parameters to be set are special or cannot correspond to one of the above items, please contact info@mottcell.com for confirmation.



## To Estimate the Battery SOC

The SOC values listed below are estimated based on the open circuit voltage when the battery is at rest for 30 minutes, not in charging or discharging state.

| SOC | Open Circuit Voltage | SOC | Open Circuit Voltage |
|---|---|---|---|
| 100% | 13.5V | 40% | 13.15V |
| 99% | 13.4V | 30% | 13.05V |
| 90% | 13.35V | 20% | 13.0V |
| 80% | 13.3V | 14% | 12.8V |
| 70% | 13.25V | 9% | 12.75V |
| 60% | 13.23V | 5% | 12.5V |
| 50% | 13.2V | 0% | 11.6V |

The table above is for reference only because slight variations in battery voltage may occur among different batteries.

## Troubleshooting

| Problem | Possible Causes | Solution |
|---|---|---|
| The battery is unable to be activated with a charge/discharge current greater than 1A The battery is activated at open circuit voltage below 10V | Severe battery over-discharge due to self-discharge or parasitic loads | Revive the battery with a battery charger or charge controller featuring lithium battery activation or force charging |
| The battery shuts off due to under-voltage protection. | The battery voltage drops below the preset threshold. | Disconnect the battery from loads, and charge the battery with a current greater than 1A as soon as possible. |
| The battery cuts off the charging current due to over-voltage protection. | The battery cuts off the charging current due to over-voltage protection. | 1. Disconnect the battery from the charging source. 2. Reduce charge voltage by 0.2V to 0.4V for 6 hours 3. Attempt to fully charge the battery again with the correct voltage setting. If the problem persists with a lithium iron phosphate |

| | | |
|---|---|---|
| | | compatible charging source and correct voltage setting, repeat the above steps. |
| The battery temperature gets too high/low during operation and triggers high/ low temperature protection.. | The battery temperature exceeds the preset threshold. | 1. Disconnect the battery from the charging source or loads.<br>2. Cool down/Warm up the battery.<br>3. The battery recovers from high/low temperature protection automatically and continues operating. |
| Short circuit protection is triggered | Short circuit occurs in the battery. | 1. Remove the short circuit as soon as possible<br>2. Charge the battery with a current greater than 1A. |
| Charge/Discharge over-current protection is triggered due to too high current passing through the battery. | Excessive current flows through the battery during charging or discharging. | Disconnect the battery from the charging source or loads as soon as possible. |

For further assistance, contact MOTTCELL technical support service at

https:www.mottcell.com

# SOLAR PANEL(S) & CONTROLLER

## Inspection

Please perform regular inspections following the steps below:

- Examine the external appearance of the battery. The housing and terminals of the battery shall be clean, dry, and free of corrosion.
- Check battery cables and connections. Replace any damaged cables and tighten any loose connections.

In certain application scenarios, corrosion may occur around the terminals. Corrosion can cause increased resistance and poor contact. It is recommended to regularly apply insulation grease to each terminal. Insulation grease can form a moisture-resistan seal and protect the terminals from corrosion.

## Cleaning

Please clean the battery at regular intervals following the steps below:

- Disconnect the battery from the system.
- Clear the leaves and debris from the battery.
- Clean the battery with a soft, lint-free cloth. The cloth can be dampened with water or mild soap and water if the battery is extremely dirty.
- Dry the battery with a soft, lint-free cloth.
- Keep the area around the battery clean.
- Reconnect the battery to the system.

In certain application scenarios, corrosion may occur around the terminals. Corrosion can cause increased resistance and poor contact. It is recommended to regularly apply insulation grease to each terminal. Insulation grease can form a moisture-resistan seal and protect the terminals from corrosion.

## Checking Voltage

Please check the battery voltage periodically to assess battery health. If the battery is unable to be activated with a charge/discharge current greater than 1A or the battery is activated with a open circuit voltage below 10V, the battery may have been severely over-discharged due to self- discharge or parasitic loads. Please stop using the battery until the fault can be corrected and the battery can be charged.

## Storage

Please follow the tips below to ensure that the battery emerges from storage in a good condition:

- Charge the battery to 30% to 50% SOC.
- Disconnect the battery from the system.
- Store the battery in a well-ventilated, dry, clean area with temperatures between -13°F (-25°C) and 149°F (65°C).
- Do not expose the battery to direct sunlight, moisture, or precipitation.
- Handle the battery carefully to avoid sharp impacts or extreme pressure on the battery housing.
- Charge the battery at least once every 3~6 months to prevent it from over-discharge.
- Fully charge the battery when it is taken out of storage.

## Important Safety Instructions

Mottcell accepts no liability for any damage caused by:

- Force majeure including fire, typhoon, flood, earthquake, war, and terrorism.
- Intentional or accidental misuse, abuse, neglect or improper maintenance, and use under abnormal conditions.
- Improper installation, improper operation, and malfunction of a peripheral device.
- Contamination with hazardous substances or radiation. Alterations to the product without express written consent from the manufacturer.

# FCC Statement

## Inspection

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

(1) Reorient or relocate the receiving antenna.
(2) Increase the separation between the equipment and receiver.
(3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
(4) Consult the dealer or an experienced radio/TV technician for help.

## FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

## IC Warning

**This device complies with Industry Canada's licence-exempt RSS standard(s). Operation is subject to the following two conditions:**

(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.

**Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:**

(1) l'appareil nedoit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

IC RF Statement: When using the product, maintain a distance of 20cm from the body to ensure compliance with RF exposure requirements.

# Connect the APP via Bluetooth to check the battery status (if your battery has this function)

## Step 1:

Download the SMB Link app. Login to the app with your account.

SMB Link

GTE IT ON
Google Play

Download on the
App Store

## Step 2:

Pair the battery with the SMB link app. Monitor the parameters of the battery via the app.

# If your battery has this function

## About the working logic of the self-heating function:

1. The external voltage of the battery is ≥14-14.6V.
2. The stable charging current of each battery in the parallel battery pack is greater than 10A. (The recommended charger current is greater than 15A)
3. When the battery temperature drops below 41°F (5°C), the self-heating function will automatically start to operate.
4. When the battery temperature rises above 32 ℉ (0 ℃), the battery can be charged until it is fully charged.
5. When the battery temperature rises above 50 ℉ (10 ℃), the heating function is turned off until it meets the conditions for turning on.

For details, please refer to Table 2

| Celsius temperature | -40 ℃ | -30 ℃ | -20 ℃ | -10 ℃ | -0 ℃ | +5 ℃ | +10 ℃ | +70 ℃ |
|---|---|---|---|---|---|---|---|---|
| Fahrenheit temperature | -40 ℉ | -22 ℉ | -4 ℉ | 14 ℉ | 32 ℉ | +41 ℉ | +50 ℉ | +158 ℉ |
| Heating time to charge | 180min | 150min | 120min | 60min | 30min | | | |
| Charging heating function | ON | ON | ON | ON | ON | ON | OFF | OFF |
| Charging function | OFF | OFF | OFF | OFF | ON | ON | ON | OFF |
| Discharging function | OFF | OFF | OFF | ON | ON | ON | ON | OFF |

**Table 2**

MOTTCELL®

SHENZHEN MOTTCELL NEW ENERGY TECHNOLOGY CO., LTD.

Add: Mottcell Industrial Park,No 22 nd Wushi Road,Kengzi Town,
Pingshan District,Shenzhen,China
E-mail: info@mottcell.com
http://www.mottcell.com