

LiFePO4 Instruction Manual

QE30-12V, QE50-12V, QE100-12V,
QE150-12V, QE200-12V, QE100-24V,
QE150-24V, QE200-24V

Lithium (LiFePO4) batteries of the highest quality class
6,000 + cycles!



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The instructions are the same for 12V and 24V batteries. When it comes to the voltage data, the data for the 12V battery is listed first, the second data that follows is the data for the 24V battery.

1. FEATURES

The LiFePO4 technology has better thermal and chemical stability, which improves battery safety and packed with power in a small and lightweight footprint. Easily uses the same space as your existing 12V battery and replaces lead acid, AGM or Gel battery applications in RVs, boats, commercial vehicles, off grid back up power and much more. The LiFePO4 batteries maintain a constant output voltage, more efficient power. Not intended to replace starting batteries.

The battery thus meets the demanding conditions:

- the longest possible lifetime of 6,000 + cycles,
- 5-year warranty,
- no maintenance,
- automatic control of charging and discharging,
- Very low discharge during idle time,
- Stable battery voltage up to 95% discharge,
- Despite the longest lifespan, the housing allows battery servicing, so after 10, 20... years, depending on the way of use, you will be able to repair the battery with us and extend its lifespan,
- bluetooth connection, control of battery operation, via mobile phone or other interfaces,
- IP65 standard,
- Options for connecting solar cells

2. BMS FUNCTION

Circuit Protection: The battery includes a BMS (Battery Management System) to protect the battery from overcharging, overdischarging, over drain, and short circuit, resulting in overall longer battery life. The BMS also protects the battery from exploding and catching fire. Includes thermal safety fusing, cell balancing, CID and fault recovery.

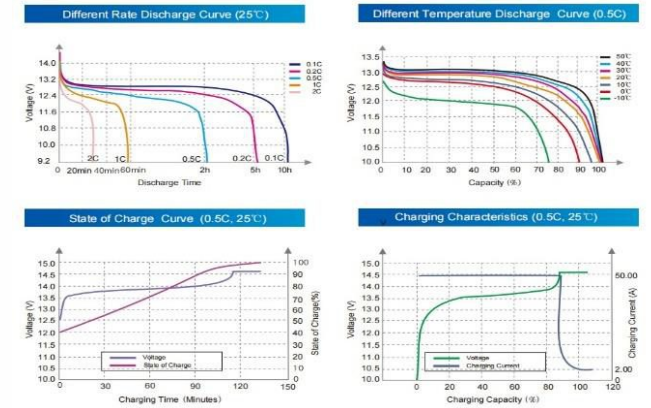
3. INFORMAL COMPARISON BETWEEN DIFFERENT TYPES OF BATTERIES

Comparing a 100Ah Battery	GEL	AGM	Lead	Average LiFePo4	LiFePo4 QuantEnergie
Nominal Voltage	12V	12V	12V	12,8V	12,8V
Charging Voltage	14.1 - 14.4V	14.6V	13.8V	14.4-14.6V	14.4-14.6V
Life Cycles @ 50% DOD	500-1500 cycles	300-700 cycles	200-1000 cycles	>4000 cycles-80% DOD	>6000 cycles-90% DOD recommended
Constant Output Voltage	No	No	No	Yes	Yes
Discharging temperature	-20°C - 50°C	-20°C - 70°C	-40°C - 70°C	-20°C - 65°C	-20°C - 65°C
Charging temperature	-20°C - 50°C	-20°C - 70°C	-40°C - 70°C	0°C - 65°C	0°C - 65°C
BMS	No	No	No	Yes	Yes+bluetooth
Capacity	100Ah	100Ah	100Ah	100Ah	103Ah
Watt Hours	600 @ 50% DOD	600 @ 50% DOD	600 @ 50% DOD	1280 @ 100%DOD	1318 @ 100%DOD
Weight	28.3kg	24.6kg	32kg	10.4kg	10.4kg
Recommended DOD	50%	50%	50%	<80%	90%

QuanEnergie batteries are sustainable. Development and production is based on the use of components of the highest quality class. Battery life depends on:

1. Cell quality
2. BMS – battery management system that takes care of the battery during use
3. Casing – which allows heat to dissipate
4. Use – which we as a manufacturer cannot influence.

4. DISCHARGE CURVE



As a manufacturer, we guarantee the use of cells of the first quality class, a high-quality BMS that allows the customer adequate insight into the operation via Bluetooth or other protocols according to the customer's requirements, and a housing that is manufactured and tested to ensure heat dissipation, while at the same time enabling the service of the battery after the end of its life. period and thus enable permanent operation of the battery by carrying out the battery service.

5. GENERAL RULES



Warnings:

- DO Not throw the battery into water. keep it under dry
- DO Not short circuit the batteries
- DO Not reverse polarity
- DO Not use or keep the battery under the high temperature
- DO Not mishandle, drop, or apply excessive force to the batteries
- Do not pierce the battery with nails, strike the battery with a hammer, step on the battery or otherwise subject it to strong impacts or shocks
- DO Not operate with loose terminal connections
- DO Not ship or store the battery together with metal
- DO Not physical damage battery case
- Do not connect the positive terminal and negative terminal of the battery to each other with any metal object (such as wire)
- Do not use LiFePO4 battery with any other types of batteries
- Do not connect to an alternator or non-smart charging system
- DO not place the battery in or near fire, on stoves or other high temperature locations.
- Do not place the battery in direct sunlight, or use/store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.
- Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite.
- Immediately discontinue use of the battery if, while using, charging or storing the battery, the battery emits an unusual smell, feels hot, changes color or shape, or appears abnormal in any way. Contact Quantum Energy if any of these situations occur.
- Do not place the battery in a microwave oven, high-pressure container or on induction cookware. Inspect battery for any damage, cracks, corrosion on terminals. DO NOT USE if you find any damage to the battery.
- Use good quality and proper size cables for your application.

6. STORAGE AND MAINTENANCE

Storage could not be easier simply charge the batteries to at least 50% state-of-charge and disconnect from any charge or discharge. 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 and not connected to Equalizer Balancer, it is recommended that you fully charge the batteries individually once a year or connect them parallel for period of 5 hours. This will balance out the entire battery bank to ensure the batteries will reach its expected life span. If your batteries are in parallel this is not necessary. The BMS has a built-in passive balancing system.

Only use approved LiFePO4 battery chargers



Batteries marked with the recycling symbol must be processed via a recognized recycling agency. Batteries must not be mixed with domestic or industrial waste.

7. CHARGING PARAMETERS

Bulk/Absorption

For your Bulk/Absorption stage, the ideal voltage: 14.2-14.6V (12.8V), 28.5-29.2V (24V). For fully 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 13.8V±0.2 (12V) and 27.6V±0.2 (24V) 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 (12V) and 29.2V (24V).

Temperature Compensation

Temperature compensation is not needed with our batteries and may trigger the built in BMS to go into protect mode. The temperature protection is in our BMS.

8. BMS BASIC FEATURES

All LiFePO4 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: >14.6V (>29.2V)

If an individual cell voltage exceeds a 3.65V during charging, the BMS will prevent a charge current from continuing. Discharge is always allowed under this condition.

Low voltage: < 10.0V (< 20.0V)

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.

High temperature: > 65°C The BMS will not allow a charging or discharging.

Low temperature: < 0°C The BMS will not allow a charging current.

High Current: The BMS allows constant current 100 (+/-5%) Amps, 200(+/-10%) Amps for 5s, 300(+/-10%) Amps for 3s. For power model, constant current 150(+/-5%) Amps, 300(+/-5%) Amps for 5s (200A for 24V battery).

A passive balancing process is activated by the BMS at the top of each charge cycle. This ensures that all the cells remain at the same state of charge, which helps for pack longevity and performance.

9. INSTALLATION

The batteries may be mounted in any orientation. But care must be taken in connecting to the battery terminals. The positive and negative terminals are labeled and color coded (red for +, black/blue for -).

DO NOT REVERSE POLARITY THE BATTERY AS THIS WILL DAMAGE BOTH THE BATTERY AND THE DEVICE BEING CONNECTED!!!

The standard configuration of the battery is that both the positive and negative terminals have M8 screw holes, and we deliver both M8*10/12/16MM combination screws.



Parallel

Max. 4 units are supportive for parallel connections, but do please make sure the load power doesn't reach the limited power, like one 12V 100Ah is for 1200W, it's better lower than 2400W for 2 in parallel, to avoid the peak current of one battery pack is over 200, due to the out-sync caused by length difference of cables. However, all cables and connections MUST be able to accommodate the high currents that can be delivered by the battery. Appropriate fuses and circuit breakers are also highly recommended to protect downstream components from current spikes and short circuits.



Note: The voltage of each battery for parallel should be same before operation.

Series

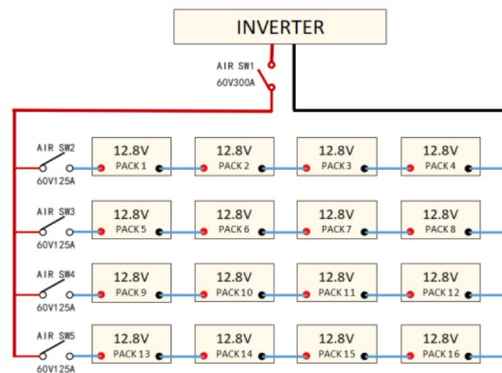
Up to four LiFePO4 batteries may be connected in series to increase the voltage of the system. When batteries are mounted in series, current capacities remain the same, but the system voltage is additive. Example: Two 12V100Ah batteries mounted in series to form a nominally 25.6V system should be charged using a bulk and absorption voltage of 29.2V. Four 12V100Ah batteries - a nominally 51.2V system should be charged using a bulk and absorption voltage of 58.4V. Recommended to use Equalizer Balancer.

Batteries to be connected in series should be at the same state-of-charge before they are connected. For best results, fully charge each 12v battery using a 12V charger prior to connecting them in series, to ensure that they are at the same state-of-charge.



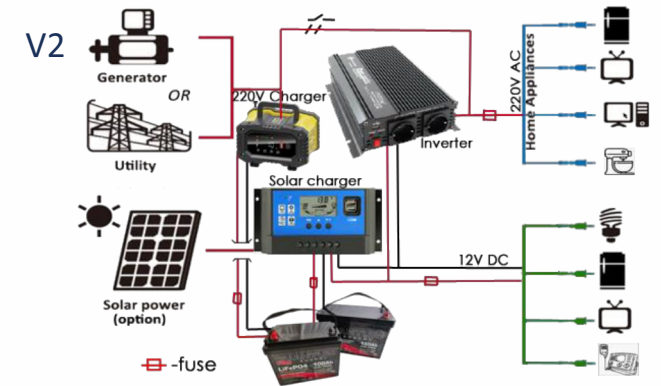
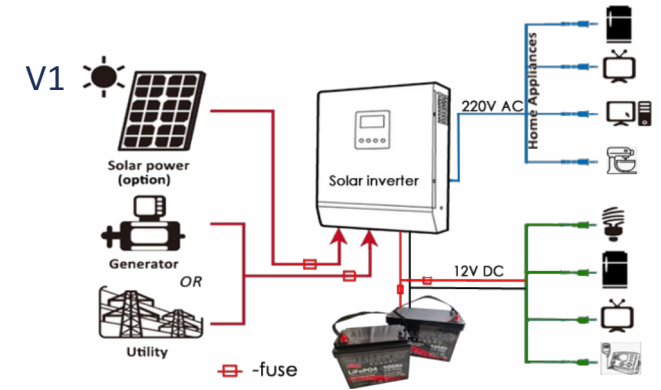
Series and Parallel

Example: 12V100Ah could be connected max.4 in series and parallel in theory, to reach 48V 400ah. But we don't suggest to work like this, it's very hard to keep all the cables and connections in ideal condition. Therefore, max. 4S4P is suggested, batteries to be connected in series should be at the same state-of-charge. Before connection, make sure the voltage difference between two batteries less than 50mv. For best results, before connection fully charge each 12v battery using a 12V charger. Recommended to use Equalizer Balancer.



4S4P

10. RECREATIONAL VEHICLE INSTALLATION DIAGRAM



11. BLUETOOTH

Scan QR code on battery sticker and install JBD BMS program or go to Play Store or Apple store and find JBD BMS application and install. After installation you can search for battery in application or ad battery scanning second QR code. After adding battery to program you can monitor your battery in app.

Android Setup version download



Apple APP Customer Edition Download



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