

MANUAL

LiFePO₄ BATTERY

JARO-BTP SERIE



- > JARO-BTP20.12
- > JARO-BTP50.12
- > JARO-BTP75.12
- > JARO-BTP100.12
- > JARO-BTP125.12
- > JARO-BTP150.12
- > JARO-BTP230.12
- > JARO-BTP50.24+12
- > JARO-BTP75.24+12
- > JARO-BTP50.36+12

SPECIFICATIONS JARO-BTP PORTABLES

Parameter	BTP20.12	BTP50.12	BTP75.12*	BTP100.12*	BTP125.12
Battery chemistry	LiFePO ₄				
Capacity	20Ah	50Ah	75Ah	100Ah	125Ah
Voltage nominal			12,8V		
Output voltage range			11,0 - 14,6V		
Maximum motor thrust	30lbs	55lbs	65lbs	80lbs	80lbs
Voltage during charging			14,5V ±0,2V		
Maximum charge current	20A	50A	75A	75A	75A
Recommended charge current	<10A	<25A	<40A	<40A	<40A
Temperature during discharge			-20 - 50°C		
Temperature during charging			0 - 45°C		
Electrical power per case	360W	600W	900W	1200W	1200W
Maximum discharge peak current (3 sec.)	40A	80A	150A	250A	250A
Maximum discharge current	30A	50A	75A	100A	100A
Battery disconnect voltage at	8V	10V	10V	10V	10V
Length	300mm	300mm	417mm	417mm	417mm
Width	119mm	196mm	221mm	221mm	221mm
Height	249mm	249mm	334mm	334mm	334mm
Weight	4,5kg	8,6kg	11,8kg	14,3kg	16,8kg
Maximum current 12V car connector			20A		

* This case can be upgraded to a maximum of 125Ah



SPECIFICATIONS JARO-BTP PORTABLES

Parameter	BTP150.12**	BTP230.12	BTP50.24+12	BTP75.24+12**	BTP50.36+12**
Battery chemistry	LiFePO ₄				
Capacity	150Ah	230Ah	50Ah	75Ah	50Ah
Voltage nominal	12,8V		25,6V		38,4V
Output voltage range	11,0 - 14,6V		22,0 - 29,2V		33,0 - 43,8V
Maximum motor thrust	80lbs		80lbs 24V	130lbs 24V	135lbs
Voltage during charging	14,5V±0,2V		29,0 ± 0,2V		43,6V ±0,2V
Maximum charge current	75A	75A	50A	40A	30A
Recommended charge current	<40A	<40A	<25A	<41A	<31A
Temperature during discharge			-20 - 50°C		
Temperature during charging			0 - 45°C		
Electrical power per case	1280W	1280W	1200W	1500W	1900W
Maximum discharge peak current (3 sec.)	250A	250A	140A	225A	100A
Maximum discharge current	100A	100A	50A	60A	50A
Battery disconnect voltage at	10V	10V	20V	20V	30V
Length	417mm	417mm	417mm	417mm	417mm
Width	221mm	221mm	221mm	221mm	221mm
Height	334mm	334mm	334mm	334mm	334mm
Weight Full option	19,2kg	20,5kg	14,8kg	19,7kg	19,7kg
Weight Acon-only	19,0kg	-	-	19,1kg	19,1kg
Maximum current 12V car connector		20A		12V 20A	

** This case is also available with only an Anderson (motor-)connection (so without USB and 12V car connector)



SAFETY GUIDELINES

General safety

Attention should be paid to all safety instructions in this manual. Keep the manual located close to the battery for future reference. Maintenance or repair work should only be carried out by qualified personnel. A damaged or abnormal functioning battery should not be used. Keep the battery away from children. The battery should be used for general purpose, small drive trains and source for static electrical equipment. The batteries should not be used for critical equipment like medical equipment unless a thorough risk analysis has been conducted. Furthermore, the battery can be used for light drive systems as well as for power supply of static equipment.

Explosion and fire

- The connector terminals have a different polarity. For this reason, you should prevent that positive and negative wires come into contact with each other with the risk on sparks.
- The battery case should not come in contact with fire or be placed close to a heat source.
- Use and store the battery on a non-combustible, heat-resistant surface.
- The case is resistant to moisture and splash water. Make sure that the case remains closed when it rains and that connections to the USB charger and car connector are protected from penetrating water if they are used during rain. After using in the rain, it is wise to let the case dry in a dry environment with the lid slightly open.
- Use a type D, foam or CO₂ type fire extinguisher in case of fire.

Safety and protection

- Never try to open or dismantle the battery. The battery contains electrolyte. Under normal operational conditions contact with the electrolyte is impossible. If the battery case is damaged do not touch the electrolyte or other materials released from the battery. In case of contact with the electrolyte: rinse thoroughly with water and consult a doctor.
- Prevent damaging of the battery case. A damaged battery case should not be used anymore.
- A damaged battery has to be disposed according local guidelines as small chemical waste.
- Prevent mechanical shock and extreme vibrations as the batteries can get damaged. Never cut or drill in the case.
- Prevent contact with the terminals inside the connectors.
- Use only special LiFePO₄ chargers or standard chargers programmed to be used within the specifications of the batteries.

Instructions for connecting portable cases

- Use cables of sufficient thickness. Pay attention to the required current load and length of the cables.
- Putting batteries in series is not allowed for battery cases. If a higher voltage is desired, choose the 24V or 36V version.
- Up to eight batteries can be placed in parallel to increase the capacity.

Charging and discharging

- Check the mains on the right voltage before connecting your battery charger to the mains.
- The battery may only be charged with the cables supplied with the battery charger. Extending the charger cables can cause slow or not completely charging of your battery because it can no longer properly detect the voltage of the battery.
- The battery may only be charged in a dry environment, in a non-flammable environment.
- Only a charger suitable for LiFePO₄ may be used to charge the battery.
- The battery must not be charged with damaged cables. Check this before charging the batteries.
- Use the charger in a dry environment. The charger should not come into contact with moisture unless it is a waterproof charger.
- Rapid temperature changes can lead to condensation. If this happens, wait until the charger is dry and has assumed the correct temperature of its environment (does not apply to waterproof chargers).

- > A JARO-BTP Portable cannot be overcharged, is protected against over-discharging and will not be damaged when completely discharged.
- > When discharging, ensure that the maximum current remains within specifications. It is important that sufficient battery capacity is installed to prevent operating outside specifications at maximum consumption. Although the battery switches off at high current, this only happens after a certain time to be able to absorb peak currents. Working outside the normal current range regularly will shorten the life of the battery.
- > The battery has a self-discharge of 3 to 5% per month. This is of course faster with connected equipment. Check the battery regularly for voltage. Charge it if the battery is less than 12.8V (25.6V with a 24V portable or 38.4V with a 36V portable). Keep the battery connected to the charger until the charger shuts off.

NOTE: The SOC (State of Charge) meter in the App is based on the Coulomb principle. This means that the reading is accurate but needs to be calibrated before use after a period of more than 14 days not using the battery. This is because the reading will slowly lose its precision. For the battery pack this is not important because it's only a calculation. So, after a longer stand still, charge the battery before use. The App will calibrate on 100% on this point and will be accurate again for the next 14 days.

- > In case the battery is not used for a longer period of time it is recommended to disconnect all the equipment from the battery.
- > The battery should not be charged when the temperature of the battery is below 0°C. Discharging the battery up to -20°C is allowed. Since the battery temperature will increase during discharge, charging can be done directly after discharge when the temperature is over 0°C.
- > A fully discharged battery should be recharged within 24 hours. The loads will be disconnected automatically when the battery is fully discharged but the remaining energy is minimal. Self-discharge can lead to damage of the battery when the battery is left in fully discharged state for a longer period.
- > Even if the battery is not completely discharged, it is recommended to fully charge the battery at least once a month to recalibrate the internal measurements to ensure that the reading remains reliable.
- > On every case that has a push button, this switch serves to switch off the USB charger and the Voltmeter. This is necessary if the case is not used for a longer period of time. If not switched off, the case is discharged in a few weeks. Cases without a push button (ACON-Only) have a Voltmeter on top that works with a fingertip control.

Warning when used in parallel or series

- > When used in parallel, the batteries must be charged to the same State of Charge (SOC) level. So charge the batteries separately completely and then connect them in parallel.
- > If batteries connected in parallel are partially or completely discharged, one of the batteries must not be replaced by a full battery. This is harmful to the batteries. In this case, charge all batteries individually to full and then switch them off parallel again.
- > It's not allowed to connect the batteries in series.

Warnings for transportation

- > Transportation of the battery cases should be done packed in the original packaging or a packaging suitable to protect the battery case against shock of falling on the ground.
- > Make sure the batteries are fixed properly during transport to prevent shifting of the load.
- > Avoid mechanical shocks such as knocks and falls.

THE JAROC CELLS APP

General

All information that is available within the battery about the degree of charge, power consumption, voltage, temperature, etcetera is made available via a wireless Bluetooth connection to be read via our JAROC CELLS App on an Android or Apple device. The main advantage of the App is that the status and performance of the battery can be monitored in real time without the need to install additional instruments.

To download and install

- The App is available for Android (from version 4.3) and Apple (from iOS version 7.2) devices.
- Download and install the JAROC CELLS App from the Google Play Store or the App Store.



Connect to the JAROC CELLS battery

- Open the JAROC CELLS App on your device.
- NOTE:** The battery must be within a range of <6 meters from your device.
- When the App is activated, it will search for JAROC CELLS batteries in the area. The names of the found batteries will be listed on the screen.
- Click on the battery you want to connect to. You will see the message 'Connecting'.
- The App connects to the chosen battery and will display the data from this battery.



Available information

- When you have established a connection with your battery, the basic information appears on the screen. In the center you see the degree of charge of the battery (the percentage, also known as the 'State of Charge') and below the voltage, the capacity of the battery and the status. At 'Estimated duration' you can see the time it takes for the loading to complete, if the battery is being charged or the time remaining until the battery is empty when it becomes empty and the load does not change.
- If you swipe left (swiping motion) the following screen appears with actual information: the voltage, the current (when charging / discharging), the temperature of the battery and the number of charging cycles. The latter is the number of times the battery is completely discharged and recharged (for the full capacity).
- After swiping left again, the System info screen will appear. This screen shows notifications of possible particularities.



Change the name of the battery

- Give each battery a unique name.
- Connect your device to the battery and click on the three dots next to each other in the upper right corner. Then tap the field with the current name.
- Enter the password **5678** and confirm with 'Confirm'.
- Rename the battery (**max. 18 characters**) and confirm.
- The connection will now be disconnected and the battery will now run with the new name.

NOTE: For Apple devices the above instruction must be performed twice.

Troubleshooting if the connection is lost

> What to do if the connection to the battery is lost?

'Kill' the JAROC CELLS App and restart the App. NOTE: By 'Kill the App' we mean that the App must be completely turned off and not just closed. You do this as follows:

Apple: Double-click on the home button or (from iPhone 11) slowly swipe up from the bottom of the screen and stop halfway down the screen. The App Chooser is activated; then swipe up the App previews to close it completely.

Android: Click the Overview button so that all running Apps are visible and swipe the JAROC CELLS App up from its screen.

Make sure you are within a radius of <6 meters from the battery. The battery's Bluetooth transmitter has a range of up to about 6 meters.

> With my Android device I do not see any batteries in the App?

When installing the JAROC CELLS App on an Android device, you will be asked to access your location. This function must be allowed, otherwise the App will not function properly. Location (GPS) must also be on with an Android device if you use the App.

> I try to connect to another device but cannot establish a connection?

The battery can only be connected to one device at a time. First disconnect and / or 'kill' the App before connecting to another device.

WARRANTY

- > The warranty period is five years for the battery with attachments.

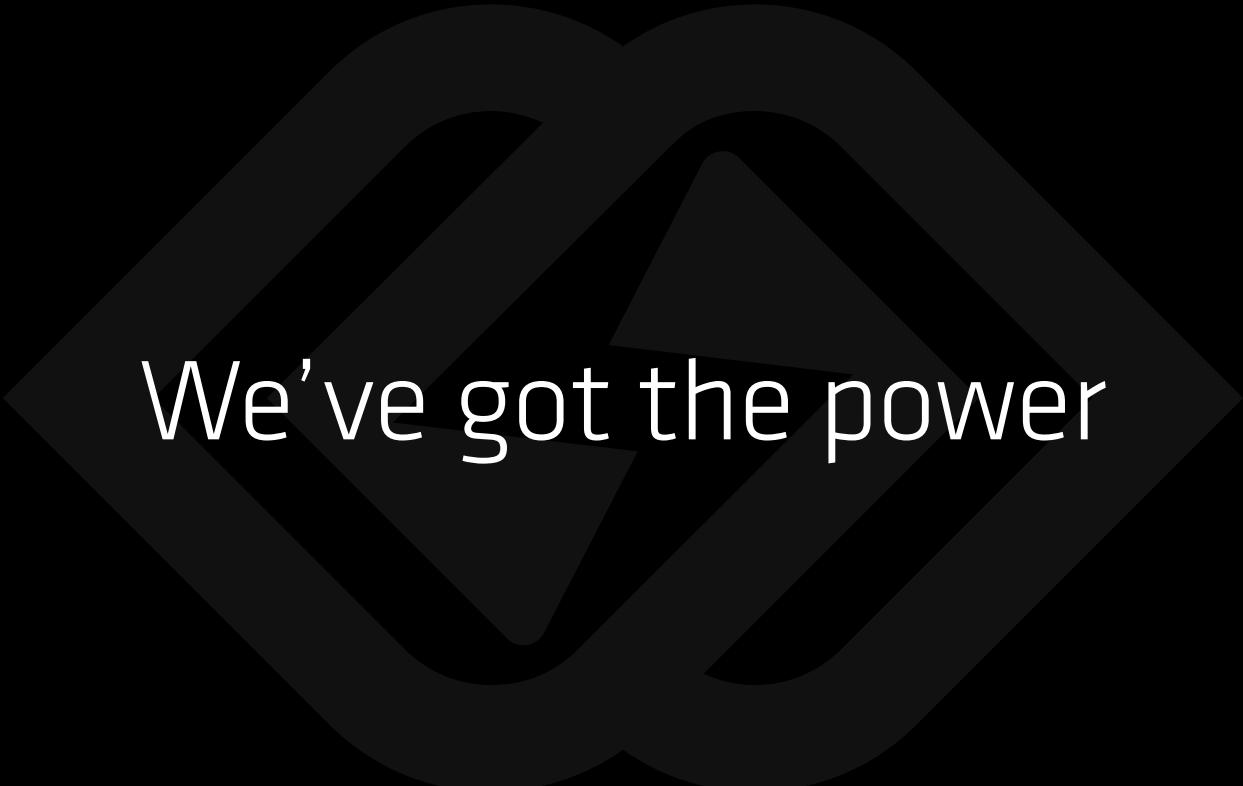


Warranty provision

- > The warranty applies to normal use according to recommendations and within specifications of the product.
- > Warranty is only given if the purchase invoice can be submitted.
- > The warranty does not go beyond repair or replacement of the delivered goods. Consequential damage is expressly stated excluded.
- > In all cases where the warranty conditions are not clear, an attempt will be made to resolve the complaints within reason unload. This within the provisions of liability.

Liability

- > Besides the warranty provisions on the delivered goods, JAROC CELLS B.V. will not accept any liability. JAROC CELLS B.V. shall not be liable for any direct, incidental or consequential damages of any nature, or losses or consequential damages or losses or expenses resulting from the use of this product.
- > The user of the product should take all precautions, required to prevent damage.
- > In case JAROC CELLS B.V. will be held responsible for damage or losses caused by the product, the compensation paid by JAROC CELLS B.V. will not exceed the payments of the assurance company. When the damage is not covered by the insurance, the maximum payment will be equal to the total of the invoice.
- > Liability and right to warranty is in any case excluded with:
 - Damage due to external disasters such as lightning strike
 - The use of an unsuitable charger
 - Incorrect installation or use
 - Repairs have been carried out by third parties or changes have been made to the product
 - Using the battery if water or possible water has entered the housing of the equipment
 - Using the battery when defects are visible or signaled (such as heat distortion, smelling scorching air, loosening of parts, etc.)



We've got the power



JAROC CELLS B.V., Waldorpstraat 345, 2521 CJ Den Haag, The Netherlands. info@jarocells.nl / www.jarocells.nl

NEXT GENERATION BATTERY PACKS