

MANUAL LITHIUM ION BATTERY JARO-BT SERIE



- > JARO-BT9.12
- > JARO-BT12.12
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- > JARO-BT50.12
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- > JARO-BT50.24
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SPECIFICATIONS JARO-BT BATTERIES

Parameter	BT9.12	BT12.12	BT10.12	BT20.12	BT50.12	BT75.12
Voltage nominal	12,8V					
Capacity	9Ah	12Ah	10Ah	20Ah	50Ah	75Ah
Internal resistance	<50mΩ		<20mΩ			
Temperature during charging	0 - 45°C		0 - 50°C	0 - 45°C		
Voltage during charging	14,5V±0,2V					
Max. charge current	9A	12A	10A	20A	50A	75A
Recommended charge current	≤6A	≤6A	≤6A	≤10A	≤25A	≤40A
Temperature during discharge	-20 - 50°C		-20 - 60°C		-20 - 50°C	
Output voltage	11,0 - 14,6V					
Max. discharge current	15A	30A	100A	30A	50A	75A
Max. power per battery	180W	360W	1280W	360W	600W	900W
Puls discharge current max.	n.v.t.		200A / 3 sec	55A / 3 sec	150A / 3 sec	200A / 3 sec
Battery disconnects at	9,0V	8,0V	9,0V	8,0V	10,0V	10,0V
Length	151mm	151mm	181mm	181mm	196mm	318mm
Width	65mm	98,5mm	76mm	76mm	165mm	165mm
Height	95mm	95mm	165mm	165mm	174mm	215mm
Weight	1,15kg	1,6kg	1,6kg	3kg	6,8kg	10,1kg
Recommended storage temp.	5 - 30°C	-10 - 30°C	5 - 30°C	-10 - 30°C		
Self discharge rate	< 15% per year		< 30% per year		< 15% per year	
When not in use	Charge every 6 months when not in use					



BT9.12



BT12.12



BT10.12



BT20.12



BT50.12



BT75.12
BT100.12

SPECIFICATIONS JARO-BT BATTERIES

Parameter	BT100.12	BT125.12	BT50.24	BT25.36	BT100.24	BT100.36
Voltage nominal	12,8V		25,6V	38,4V	25,6V	38,4V
Capacity	100Ah	125Ah	50Ah	25Ah	100Ah	100Ah
Internal resistance	<20mΩ		<40mΩ		<30mΩ	<40mΩ
Temperature during charging	0 – 45°C					
Voltage during charging	14,5V±0,2V		29,0V±0,2V	43,5V±0,2V	29,0V±0,2V	43,5V±0,2V
Max. charge current	100A		50A	25A	80A	100A
Recommended charge current	<50A		<25A	<15A	<50A	<50A
Temperature during discharge	-20 – 50°C					
Output voltage	11,0 – 14,6V		22,0 – 28,6V	33,0 – 43,8V	20,0 – 29,0V	36,0 – 43,5V
Max. discharge current	100A		50A	25A	150A	100A
Max. power per battery	1200W		1200W	900W	3840W	3840W
Puls discharge current max.	250A / 3 sec		140A / 3 sec	50A / 3 sec	300A / 3 sec	200A / 3 sec
Battery disconnects at	10,0V		20,0V	30,0V	ca. 20,0V	33,6 – 36,0V
Length	318mm		318mm	318mm	485mm ±3mm	520mm ±3mm
Width	165mm		165mm	165mm	170mm ±3mm	269mm ±3mm
Height	215mm		215mm	215mm	245mm ±3mm	220mm ±3mm
Weight	12,8kg	15,2kg	12,6kg	9,9kg	24,2kg	37,7kg
Recommended storage temp.	-10 – 30°C				-15 – 35°C	
Self discharge rate	< 15% per year				< 3% per month	
When not in use	Charge every 6 months when not in use					



BT125.12
BT50.24
BT25.36



BT100.24



BT100.36

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.

Explosion and fire

- > The battery terminals have a different polarity. For this reason, you should not place any conductive materials on the battery. When working close to the battery it is advised not to wear any jewelry or watches to prevent short circuits.
- > The battery should not come in contact with fire or be placed close to a heat source.
- > Use and store the battery on a non-flammable, heat resistance and non-conductive surface.
- > Contact with very humid air and water should be avoided as much as possible. Store the battery on a dry and safe place.
- > Use a type D, foam or CO2 type fire extinguisher in case of fire.

Safety and protection

- > Never try to open the battery or dismantle the battery. The battery contains electrolyte. Under normal operational conditions contact with the electrolyte is impossible. If the battery casing 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, a damaged battery 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 casing.
- > Prevent contact with the connections of the battery.
- > Use only special LiFePO4 chargers or standard chargers programmed to be used within the specifications of the batteries.

Guidance for connecting battery packs

- > Use connection wires of sufficient diameter. Take maximum current and length of the cable into account when selecting the connection cables.
- > Putting batteries in series is only allowed for 12V batteries and up to a maximum of three of the same type (36V). Make sure that the batteries are fully charged separately before they are connected.
- > Up to 8 batteries can be placed in parallel to increase the capacity. For safety reasons however it's recommended to limit the current to two times the maximum current of one battery or to fuse every battery separately by a fuse of two times the maximum continuous current of one battery.

Charging and discharging

- > Check the mains on the right voltage at the moment you connect your battery charger.
- > The battery should 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.
- > The battery should not be charged with damaged cables. Check before charging the batteries.

- > Use the charger in a dry environment. The charger should be kept away from moisture unless the charger is a waterproof one.
- > 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.
- > The battery can't be over-charged and is protected against over-discharging. The safety-electronics will disconnect the load in case of over-charge or over-discharge.
- > Prevent charge and discharge currents outside the specifications. Make sure you install enough battery capacity to guarantee that currents stay within specification when maximum load is applied. The battery will disconnect in case of over current but allows higher (peak) currents for a few seconds. Working outside the normal current range regularly will shorten the life of the battery.
- > The battery has a self-discharge rate of 3% per month when no equipment or monitoring instruments are connected. Check the battery regularly on state of charge and charge in case the battery is below 50% SOC (State Of Charge) or below 12,8V. Charging the batteries once a month will make sure that the State of Charge readings stay accurate since the measurement is recalibrated automatically every time the battery is fully charged.
- > In case the battery is not used for a longer period it is advised to disconnect all the equipment from the battery to prevent discharge by e.g. monitoring instruments.
- > 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.

Warning when used in parallel or series

- > Before batteries are connected in parallel they should be charged to the same State of Charge level (+/- 10%). This to prevent high currents and sparks when they are connected in parallel. The voltage on the connections should not exceed 0,1V difference at the moment the connections are made.
- > When connected in series the batteries should be fully charged separately before connecting them (only 12V batteries and not more than 3 in series).
- > When placed in series the battery pack can be charged by using a 12V charger (dedicated LiFePO4 charger or charger programmed to the charging specifications) for each battery.
- > Charging batteries connected in series with a 12V charger on each battery is allowed when the minus of the chargers are not connected with each other directly or through ground. Consult an electrician or your supplier in case of doubt.

Warnings for transportation

- > Transportation of the batteries should be done packed in the original packaging or a packaging suitable to protect the battery against shock of falling on the ground.
- > Make sure the batteries are fixed properly during transport to prevent shifting of the load.

THE JAROCELLS APP

General

All the information available inside the battery, like State of Charge, current going in or out, voltage, temperature are transmitted real time through the Bluetooth transmitter. The parameters can be made visible with the use of the JAROCELLS App. Even the smallest JAROCELLS battery is equipped with this modern wireless monitoring system.

Download and Installing the App

- > The App is available for Apple and Android smartphones.
- > Download the JAROCELLS App from the Google Playstore or App store. Android version 4.3 or higher is required.

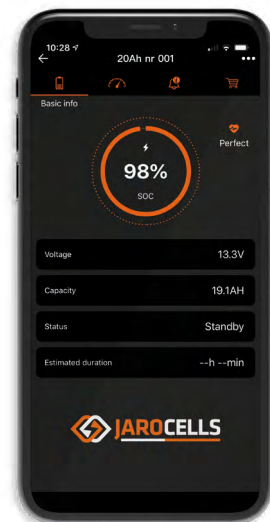


Making a connection with your JAROCELLS BT

- > Make sure you are close to the battery (max. 6m) and your Bluetooth is switched on on your smartphone.
- > When the App is activated it will search for JAROCELLS batteries automatically. Found batteries will be listed on the screen.
- > Double click on the battery you want to connect with. The App will make contact now and the main screen will appear.

Available information in your App

- > When the connection is established the main screen appears showing State of Charge, voltage and general status of the battery.
- > By swapping the main screen to the left, the next screen appears. This screen shows information about in- or outgoing current, number of cycles, voltage and temperature.
- > By swapping the screen to the left another time the information screen is shown. On this screen messages will be shown like end time of charging.



Changing the name of your battery pack

- > Give every battery a unique name.
- > Make a connection with your battery and go to the main screen. On this screen you see three white dots in the right top corner.
- > Double click on the dots and a password screen will appear. Fill in the **password 5678** and confirm.
- > The App will ask for a new name. Enter the new name (**maximum 18 characters**) and confirm the new name.
- > The App will disconnect the connection and the battery will be found now under the new name.



Lost connection...

> **What to do when the connection is lost.**

'Kill' the JAROCELLS App by double clicking the home button and swap the App of the screen (Apple). It can be that the connection was lost due to structures or disturbing signals. Make sure you are close to the battery and start the App again.

> **I can't see batteries on my Android smartphone when I start the App.**

NOTE During installing the App on your Android smartphone, the App asks to switch on your location information. When you don't allow location information the batteries will not be found by the App. In this case you have to remove the App and re-install the App again but with location information ON.

> **I try to connect with a second smartphone but can't establish a connection.**

The battery can only connect with one smartphone at the time. 'Kill' the App on the first smartphone and connect with the other smartphone. It will work now.

WARRANTY

> Warranty is given for a period of two years after purchase of the product.

Warranty information

- > Warranty is valid when the product is used according the recommendations and within the specifications of the product.
- > The original invoice has to be available to apply for the warranty provisions.
- > Warranty comprises repair and/or exchange of the battery. Indirect damage or loss are not covered by the warranty provisions.
- > In case the warranty provisions are not clear, JAROCELLS B.V. will try to solve according the principles of reasonableness.

Liability

- > Besides the warranty provisions on the delivered goods, JAROCELLS B.V. will not accept any liability. JAROCELLS 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 JAROCELLS B.V. will be held responsible for damage or losses caused by the product, the compensation paid by JAROCELLS 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 Warranty is void in case of:
 - Damage due to lightning strike
 - The use of wrong type of chargers
 - Wrong installation or use, not according the manual or outside the specifications
 - Repairs conducted by other than JAROCELLS B.V. or changed made to the product
 - In case the products were used when water has entered the equipment
 - The use of products that visually defect or products that show a change of their original shape. The products should also not be used when signs of a defect, like smell or smoke, are noticed.

We've got the power



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

NEXT GENERATION BATTERY PACKS