USER MANUAL

12V 200AH / 200A $LiFePO_4$ BLUEDGE BATTERY

AT-LFP-12-200-BTC-BV10

**We may modify these specifications without prior notice.*

Specifications

AT-LFP-12-200-BTC-BV10		
Physical	Size	370 L x 190 W x 245 H (mm)
	Weight	20.5kg
	Connection terminals	M8
	Connection terminals torque rating	6Nm
	Casing material	ABS
	IP Rating	IP67
	Chemistry	Lithium iron phosphate ($LiFePO_4$)
	Cell type	Prismatic
Electrical	Rated capacity	200Ah / 2560WH (at 0.2C)
	Battery packs in series	Supported (4)
	Battery packs in parallel	Supported
	Battery cycle life	5000 times (0.2C standard charge and discharge)
	Rated voltage / nominal voltage	12.8V
	Operating voltage range	10V - 14.6V
	Shipping voltage	11 - 14V
	Recommended charge voltage	14.4V
	Cut-off voltage	10V / When lowest cell reaches 2.5V
	Depth of discharge (DoD)	100%, Recommended DoD 80%
	Standard charge current (Recommended)	40A
	Charging time (At recommended charge current)	4-5 Hours

Specifications Cont.

Electrical Cont.	Maximum charge current	200A
	Max continuous discharge current	200A
	Peak discharge current (3 seconds)	400A
	Internal resistance	≤ 20mΩ
Environmental	Operating power consumption	≤25mA
	Operating temperature	Charge: 0°C~55°C (Ambient) Discharge: -20°C ~ 60°C (Ambient)
	Storage temperature range	Within 2 months: -20°C~ 40°C Within 6 months: -10°C~ 35°C
	Storage humidity range	10% - 90%
	Recommended storage duration	Charge to 13.3V OR 40 - 60% SOC every 6 months
Circuit Protection	Cell over charge protection	3.65V±0.05V
	Cell over-discharge protection	2.5V±0.1V
	Charging over current protection	210A (30s)
	Discharging over current protection	1st 210A (30s) 2nd 420A (2s)
	Short circuit protection	1000A (560us)
	Temperature protection	Discharge high: 65°C±3°C Discharge low: -20±3°C Charge high: 65°C±3°C Charge low: -5±3°C

Thank you

Dear valued customer,

Thank you for choosing Amptron Batteries. We greatly appreciate your support. Our team works behind the scenes to create advanced battery systems, while providing top-notch Australian based service to our customers.

Support and feedback from our customers, along with the dedication of our staff, allows us to deliver exceptional products, competitive prices, and an overall excellent experience.

Thanks again for giving us your vote of confidence. We hope that you'll enjoy using our products as much as we've enjoyed creating them.

Please feel free to reach out to us anytime.

Sincerely,
Amptron

Product Registration

We offer warranty coverage for all of our battery systems.

To register your product, visit https://amptron.au/product-registration and include your proof of purchase to simplify any future warranty claim.

Please fill out the below information for your own record keeping:

Battery Model: .....

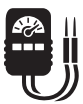
Serial Number: .....

Purchase Date: .....

Vendor: .....

The latest warranty statement and additional warranty information can be found on our website by visiting: https://amptron.au/warranties

Warnings & Tools Icon Chart

ICONS	NAME	DESCRIPTION
	High voltage	High voltage device. Installation should be performed by an electrician.
	High temperature	This device will produce heat. Mount device away from other items.
	Environmental hazard	Electronic Equipment. Do not put in landfill.
	Wire cutter	A wire cutter is needed for cutting and stripping wires prior to connection.
	Multimeter	A multimeter is needed for testing equipment and verifying polarity of cables.
	Anti-static glove	Anti-static gloves are recommended to prevent controller damage caused by static electricity.
	Electrical tape	Electrical tape is recommended to safely insulate spliced or bare wires.
	Screwdriver	A common size screwdriver is needed to attach wires to the controller.
	Torque wrench	A torque wrench is recommended to secure cables to M8 terminals.

Wire Sizing Recommendations

Please see our recommendations for cable sizing below.

WARNING! Incorrectly sizing your cables can result in damaged equipment and fire hazards. For more information, please see AS/NZS 3008.1:2017, or consult with an expert.

DC WIRE SIZING	40A	60A	80A	100A	120A	140A+
Wire cross section area (mm)	10	16	25	25	35	50
Wire AWG	8	6	4	4	2	1

The above recommendation is based on cable lengths of 0-1.8m. If cable is longer than this, go to next AWG size for every 1.8m of added length.

Warnings!

Review this manual thoroughly before attempting installation. Failure to follow these safety guidelines can result in property damage, personal injury, or worse.

- If damaged upon arrival, please contact vendor for product support.
- Beware of any nearby electrical equipment that may interfere with installing this device.
- If using solar panels to charge the battery, ensure they are isolated, or covered, before connecting to the battery.
- If connecting to a DC/DC charger to charge the battery, ensure that the charger is disconnected or isolated from the house / starter battery prior to connecting it.
- **Do not** expose to heat, high voltage and direct sunlight.
- **Do not** short circuit the positive and negative terminals.
- **Do not** store battery along with metal and other conductive materials.
- **Do not** disassemble the battery.
- **Do not** knock, throw or impact the battery.
- **Do not** throw the battery into water.
- **Do not** install in under bonnet applications.
- **Do not** install in an engine starting application.

Charging Specific Advice

- In order to maximise safety, it is recommended to not charge when the site is unattended.
- When charging, keep the battery in a well-ventilated, dry, free of inflammable and explosive materials, and out of reach of children.
- Always use a battery charger with a lithium profile that does not exceed the charging specifications of the battery (see page 3).
- If you are unsure about which charger to use, please contact Amptron and consider our charger range designed for the batteries.
- Charger must not have an equalisation setting enabled. If this can be disabled then it needs to be turned off.
- When the battery leaves the factory, there is only around 30% capacity in the battery due to freight regulations, please charge the battery before use.

Discharge Specific Advice

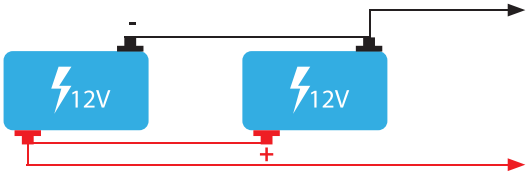
- If battery cuts out on low voltage, disconnect load and charge battery before reconnecting the load. Depending on charger brand and model, you may need to apply secondary source of 12V-14.6V to the terminals to reset the BMS.
- A low voltage cut off device is strongly recommended if your inverter / loads do not have a low voltage cut off. Set to the voltage as shown on page 2 of this manual.
- If the battery goes below the over-discharge protection voltage (as indicated on page 3) or the over-discharge protection is activated, charge battery within 15 days.

Storage Advice

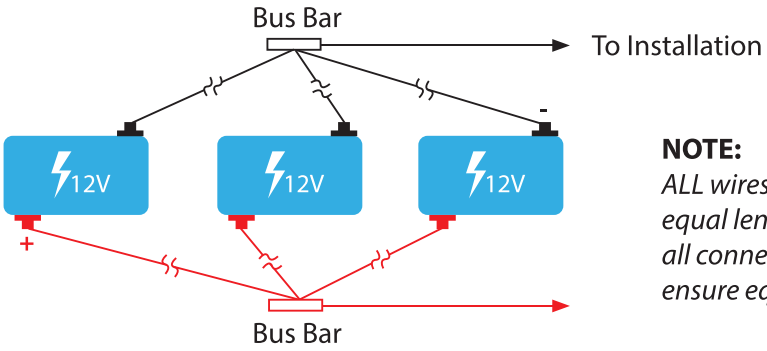
- Battery should be charged every 6 months.
- Ideally, prior to storage, charge the battery to 70% SOC.
- Ideal storage temperature is 20ºC - 35ºC.
- Do not leave battery in low state of charge for long periods of time.
- If battery shows signs of deformation, heat or emits smell, immediately discontinue use.

Parallel Battery Connection

2 Batteries



3 Or More Batteries



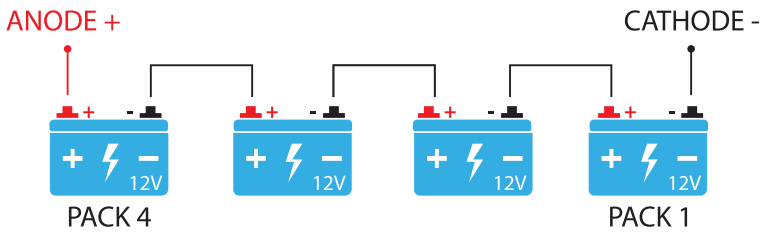
NOTE:
ALL wires **MUST** *be of equal length between all connections to ensure equal resistance.*

For detailed instructions on connecting multiple batteries in parallel, please see our white-paper on the topic via the support section of our website.

1. Ensure all batteries to be in the parallel configuration have been fully charged individually by the same charger.
2. Ensure OCV of each battery is within <0.2V of each other.
3. After charging, set aside and allow to rest for 2-3 hours.
4. Utilising wires of circumference large enough to carry required current, connect the batteries in the above configuration.
5. Ensure all connecting cables are of the same length.
6. Be careful not to reverse connect the positive and negative.
7. Ensure correct charge voltage and current is utilised for configuration.
8. It is prohibited to series a paralleled configuration.
9. Once in parallel configuration, ensure a full charge is completed a minimum of every 3 months.
10. Once in parallel, the 'system' must be charged and discharged as if it were a single battery.

Series Battery Connection

Maximum 4 Batteries



For detailed instructions on connecting multiple batteries in series, please see our white-paper on the topic via the support section of our website.

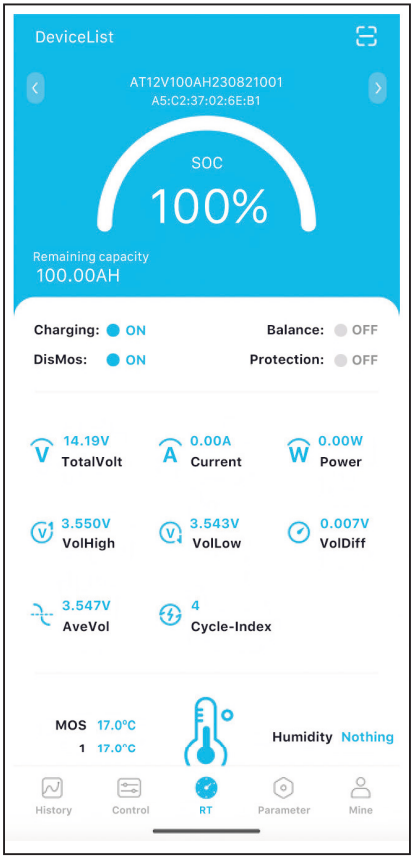
1. Up to four batteries can be connected in series for higher voltage applications. Alternatively select a higher voltage battery which Amptron has available.
2. Ensure all batteries in the series configuration have been fully charged individually by matched chargers.
3. Ensure OCV of each battery is less than <0.2V of each other.
4. After charging, set aside and allow to rest for 2-3 hours.
5. Utilising wires of circumference large enough to carry required current, connect the batteries in the above configuration. Ensure all connecting cables are of the same length.
6. Be careful not to reverse connect the positive and negative.
7. Ensure correct charge voltage and current is utilised for configuration:
   a) Two batteries in series: 28.4V to 29.2V, recommended 28.6V
   b) Three batteries in series: 42.6V to 43.8V, recommended 42.9V
   c) Four batteries in series: 56.8V to 58.4V, recommended 57.2V
8. Once in series configuration, ensure a full charge is completed a minimum of every 3 months.
9. Once in series configuration, the 'system' must be charged and discharged as if it were a single battery.
10. Consider additional balancers to maintain the individual voltage levels of the batteries. Please get in touch with us for recommended options.

Bluetooth Smartphone Application

Key Features

Available as an ad-free download via App Store & PlayStore, currently this is a third party App whilst Amptron develops its own cross-platform app.

The app offers convenient access to battery system data, including:



This app may look different based on your phone and/or app version.

- Cycle count
- Current (amperage)
- State of health (SoH)
- State of charge (SoC)
- Temperatures (for each temperature sensor)
- Voltage (minimum, maximum, and average)
- Capacity (design capacity & actual capacity)
- Alerts for safety features and protections

App Download Instructions

Instructions

1. Install the application using the above QR code links.

2. Open the app and ensure permissions are granted if asked.

3. Under the list of devices, click on the device with ID starting with AT.

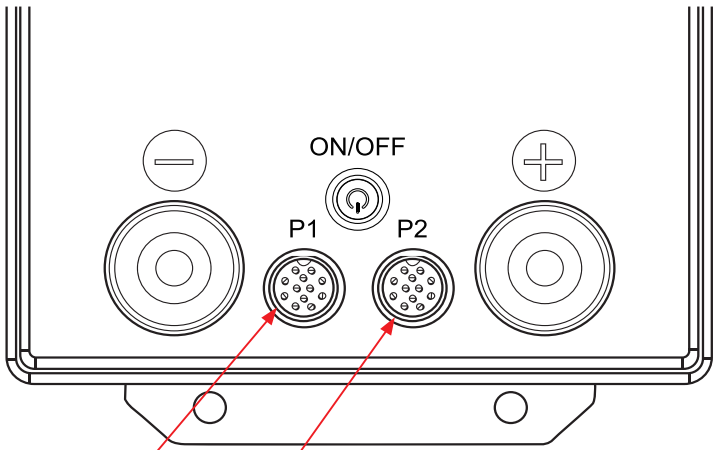
4. Your phone once successfully connected to the device, will show the information.

GOOGLE PLAY

APPLE STORE

Communication Port Instructions

1. Along with Bluetooth, your battery is fitted with communication ports which can be used for communication with a compatible inverter or smart device.
2. If your installation needs to be compliant with AS/NZS 3001.2.2022, then contact Amptron for advice on meeting the monitoring requirements. An optional monitor can be connected using the P1 interface port on the battery.
3. To connect the AT-BMSMON-2.4-COL-RS485-AV01 battery display, choose the "RS485 MODBUS RTU – JBD Amptron custom - SUP - Parallel" (for single or parallel connected batteries) or "RS485 MODBUS RTU – JBD Amptron custom - SUP - Series" option (for series connected batteries) on the "Protocol Selection" page.



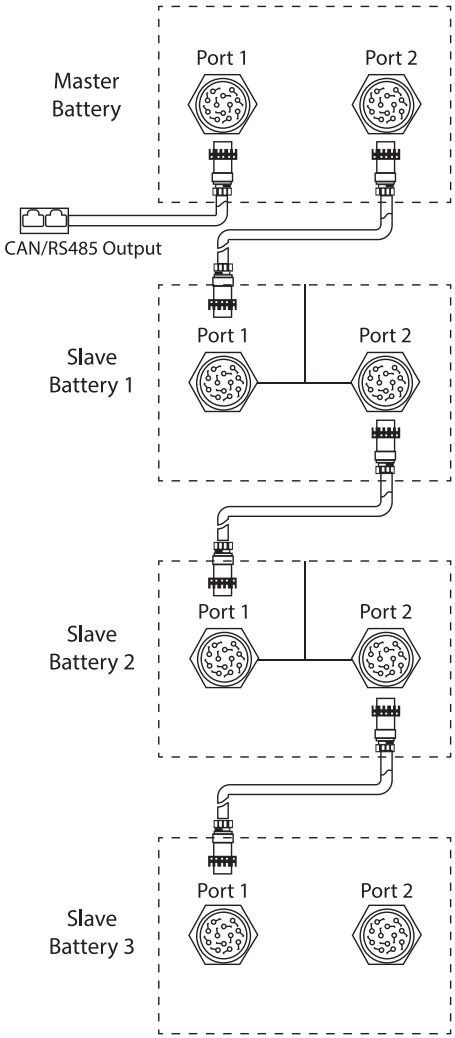
Data Port Connection For Parallel Operation
See next page

Data Port Connection For RS485 (PC or optional monitor) / CANBUS.

Please contact Amptron support for pin out diagram, communication protocols and cable options.

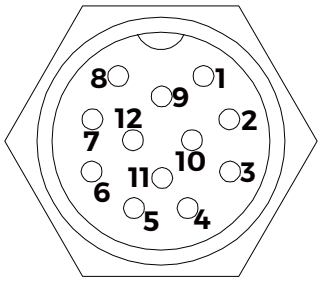
Parallel Communication Instructions

1. Batteries connected in parallel are also able to communicate with an inverter or smart device, via the connection to the master device.
2. The digram below shows how multiple batteries should be connected in a master, slave arrangement, with port 1 on the master battery being the link between the battery bank and the connected equipment.

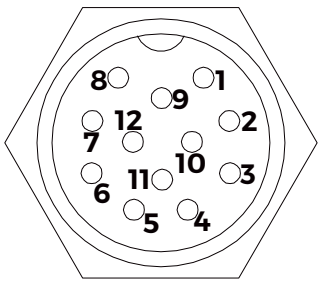


PIN DEFINITION

P1 Port -GX19 Male Socket

PIN	Definition	Port Description	Top View
1	RS485-B1	CAN/RS485/Power	
2	RS485-A1		
3	CANH1		
4	CANL1		
5	GND		
6	VCC-12V		
7	/	Parallel communication port: IN	
8	/		
9	RS485-B1		
10	RS485-A1		
11	/		
12	/		

P2 Port -GX19 Male Socket

PIN	Definition	Port Description	Top View
1	/		
2	/		
3	/		
4	/		
5	/		
6	/		
7	/	Parallel communication port: OUT	
8	/		
9	RS485-B1		
10	RS485-A1		
11	/		
12	/		

Notes

Notes