

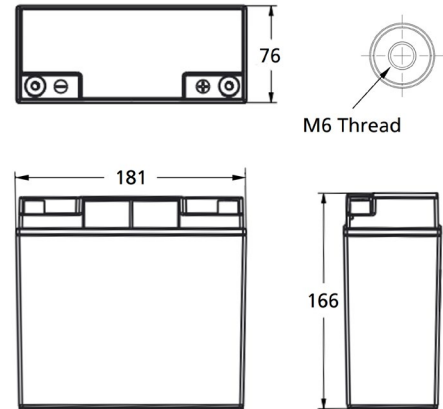
Issue Date: XX/10/2021

Technical Information

The ALLiON AL1220BT Lithium-iron battery is a high performing 12V Deep Cycle battery with Bluetooth technology and a capacity of 20Ah (Amp Hours). Suitable for sport & leisure applications, the ALLiON range of Lithium batteries are much lighter than comparable lead acid batteries and can last up to 4 times as long. ALLiON LiFePO₄ batteries are safe and dependable thanks to the integrated Battery Management System (BMS).

Features and Benefits

- Up to 4x longer life compared to lead acid batteries
- More usable capacity & greater efficiency
- Lightweight
- Faster recharging



Applications

RV, Sport & Leisure
Industrial Equipment
Solar

Item	Characteristic	Specification	
1.1	Nominal Capacity	20Ah	
1.2	Nominal Energy	256Wh	
1.3	Nominal Voltage	12.8V (LiFePO ₄ 4S)	
1.4	Internal Impedance	≤ 60mΩ @ 1kHz AC	
1.5	Nominal Charge Voltage	14.6V	
1.6	Float Charge Voltage (for stand-by use)	13.6V	
1.7	Maximum charge current	20A	
1.8	Recommended charge current	≤10A	
1.9	Maximum discharge current	20A	
1.10	Discharge cut-off voltage	9.5V - 10.5V	
1.11	Dimensions (L x W x H), ±2mm	181mm x 76mm x 166mm	
1.12	Nominal Weight	3kg	
1.13	Bluetooth Connectivity	Yes, via ALLiON App	
1.14	Operation Temperature	Charge	0°C to +45°C
		Discharge	-20°C to +60°C
1.15	Self-discharge	Residual Capacity	≤ 3% /month, ≤ 15% /year
		Recover Capacity	≤ 1.5% /month, ≤ 8% /year
1.16	Storage Environment	≤ 1 month	-20°C to +60°C, 5% to 75% RH
		≤ 3 months	-10°C to +45°C, 5% to 75% RH
		Recommended	+15°C to +35°C, 5% to 75% RH
1.17	Parallel connection of up to 4 batteries is supported by the BMS. For series connection, up to 4 batteries can also be connected but CAUTION must be taken. Individual battery voltages must all be kept within a 0.2V range, and the minimum voltage must be limited to 11.5V. Combinations of parallel and series connection are not supported. Failure to comply may void warranty.		

Issue Date: XX/10/2021

Item	Characteristic		Specification
2.1	High Voltage (V_{max})	High voltage protection	3.75V \pm 0.03V
		Reset voltage	3.60V \pm 0.04V
		Reset trigger	Below reset voltage
2.2	Low Voltage (V_{min})	Low voltage protection	2.50V \pm 0.05V
		Reset voltage	2.80V \pm 0.05V
		Reset trigger	Begin charging
2.3	Overcurrent (I_{max})	Maximum charge current protection	22A \pm 2A
		Charge current protection reset	Auto reset after 60s
		Maximum discharge current protection	28A \pm 2A for 15s
		Discharge current protection reset	Charge or auto reset after 60s
		Short circuit protection	Do not short circuit the battery.
2.4	Temperature	Over temperature protection	Protect 65 \pm 5 $^{\circ}$ C, Reset 50 \pm 5 $^{\circ}$ C
		Under temperature protection	Protect -10 \pm 5 $^{\circ}$ C, Reset 0 \pm 5 $^{\circ}$ C
		MOSFET over temperature protection	Protect 103 \pm 10 $^{\circ}$ C, Reset 75 \pm 10 $^{\circ}$ C

Product Safety

1. Storage & Transport

The battery must be charged using the Standard Charge Process every 6 months if not in use.
Do not drop the battery.
Maximum stacking quantity (height) is 6 batteries.
The battery must be kept upright at all times.

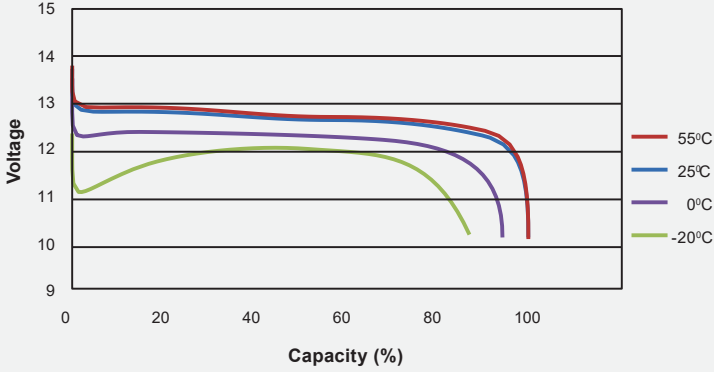
2. Product Warnings

Please read and follow the handling instructions before use. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. The manufacturer is not responsible for any accidents caused by misuse or poor maintenance.

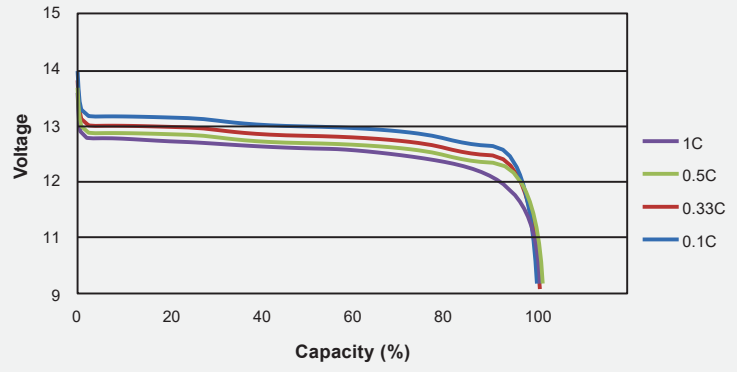
- Do not store or use battery near heat source.
- Do not install in vehicle engine bay.
- Do not expose battery to direct sunlight for extended periods.
- Do not connect battery to high voltage.
- Do not place battery in water or fire.
- Always check polarity before connecting the battery.
- Do not short circuit battery.
- Do not expose the battery to impact or crushing force.
- Do not disassemble the battery.
- Do not install or connect this battery with different battery types.
- Protect battery from high temperatures. High temperatures may result in fire or loss of battery function and service life.
- Do not allow the battery to remain discharged. Re-charge battery when discharged.
- Use the correct battery charger for this battery.
- If battery emits an unusual odor, becomes hot or the case has distorted, stop using the battery immediately
- If eyes or skin are exposed to liquid leaking from the battery, rinse it with clean water and seek medical advice immediately.

Issue Date: XX/10/2021

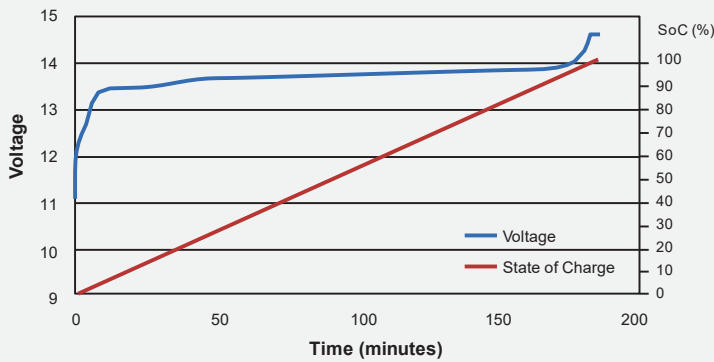
Discharge voltage at various temperatures @ 0.5C



Discharge voltage at different rates



Voltage & State of Charge (SoC) @ 0.33C charge rate



Cycle Life vs Depth of Discharge (DoD) @ 0.2C discharge

