Li-Ion Battery Pack

APPLICATIONS FOR LITHIUM BATTERIES :-

– Mobility scooters
– Electric wheelchair
– Electric vehicles

If you are looking for Lithium batteries and expert technical support or to learn more about the advantages of this technology in specific applications, please contact the Leander International team at Scooterland Mobility.

To meet your power requirements and guarantee reliability, Leander International is proud to offer our Lithium Iron (Li-Ion) and Lithium Iron Phosphate (LiFEPO4) battery range.

Both Lithium Ion and Lithium Iron Phosphate (LiFe PO4) batteries are constructed utilising individual cells in series and parallel. These Lithium cells are controlled by a Battery Management System (BMS).

The BMS allows the battery to perform safely without the fear of thermal runaway and possible explosion. Another crucial feature of the BMS is to equalise all individual Lithium cells in the battery during charging and discharging, ensuring the battery has a long life.

Typically, Lithium batteries will perform well for 7 years compared to as little as 2 years for the lead acid GEL and AGM equivalents. They are up to two thirds lighter in weight than standard lead acid batteries. Safe battery operation is achieved as the built-in BMS prevents short circuit, over-voltage and over-discharge, as well as thermal runaway. The batteries are Maintenance Free.

The Lithium batteries are charged by an intelligent charger, 29.4 volt for Li Ion and 29.2 volts for LiFePO4. These chargers switch off when the battery reaches full capacity, as unlike their lead acid equivalents, they have a very low internal discharge and do not like to be left on trickle charge. The nominal voltage of our Li Ion batteries is 25.9 volts and the LiFePO4 is 25.6 volts.

However, they are ideal replacements for many applications using 12-volt batteries in series in a 24-volt system. Batteries in the Leander International range incorporate Bluetooth monitoring, so it is possible to monitor the state of charge of the battery using an App on a mobile phone.

Specification - Battery Pack	
Battery	Lithium Ion - 13Ah @ 24V
Voltage	24 Volt DC nominal
Capacity	13 Amp/hr
Chemistry	Lithium Ion
Dimensions (cm)	150 (L) x 100 (W) x 100 (H)
Weight	1.78 kg
Passive Protection - BMS	Over charge protection, over discharge protection, temperature protection, balanced function
Container/Cover	ABS
Terminal	Male Spade
Internal Resistance	≤40mΩ
Cycle Life	2000 cycles at 80% DOD
Charge Voltage	29.4V ± 0.2V
Standard Charge	Constant Charge Current: 2A
	Constant Charge Voltage: 29.2V±0.2V
Standard Discharge	Constant Current: 13A
	Peak Discharge: 20A <60S
	End Voltage: 20V
Operation Temperature	Charge: 0°C to +55°C
	Discharge: -20°C to +60°C
Storage Temperature	-20°C to 45°C @ 60±20% Relative Humidity

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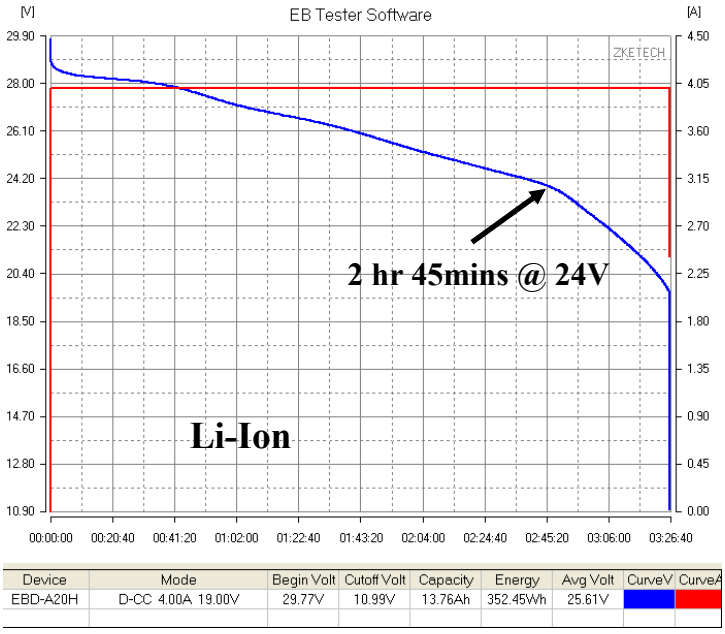
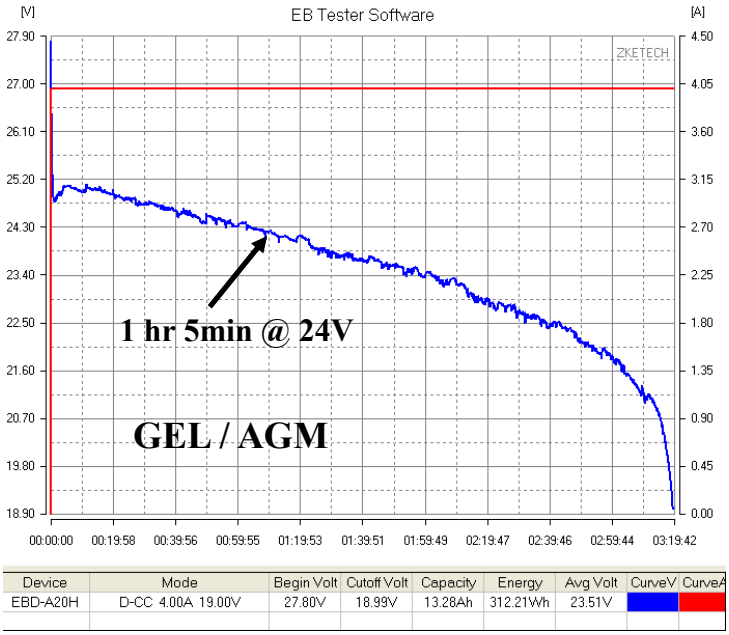


Device	Mode	Begin Volt	Cutoff Volt	Capacity	Energy	Avg Volt	CurveV	CurveA
EBD-A20H	D-CC 4.00A 19.00V	29.77V	10.99V	13.76Ah	352.45Wh	25.61V		



Device	Mode	Begin Volt	Cutoff Volt	Capacity	Energy	Avg Volt	CurveV	CurveA
EBD-A20H	D-CC 4.00A 19.00V	27.80V	18.99V	13.28Ah	312.21Wh	23.51V		

What are the benefits of using Lithium batteries?

A high-quality Lithium battery with a sophisticated BMS will automatically disconnect loads if the voltage goes too low, and disconnect chargers if the voltage goes too high. Lithium batteries have a greater cycle life (up to two thirds longer) than Valve Regulated Lead Acid (VRLA) batteries and greater useable power.

Lithium technology can efficiently provide power in high energy demanding applications and will maintain their voltage throughout almost the entire discharge curve, along with this, both Lithium Ion & Lithium Phosphate batteries have a higher energy density, meaning you can get a larger capacity battery into the same dimensions of a VRLA battery. Additionally, Lithium batteries are on average three times lighter in weight than VRLA batteries.

Special Note

- Do not charge, discharge and leave the battery at temperatures over +60°C. Keep away from all heat sources and corrosive materials.
- Do not reverse the positive and negative terminals. Do not short the positive and negative terminals of the battery.
- Do not install the battery in series.
- Do not overload the battery.
- Do not directly weld the battery or pierce the battery under any circumstances.
- Please charge the battery within 12 hours after use.
- In case of accidental fire, dry powder fire extinguisher or sand should be used.
- If the battery gives off a strange odour, generates heat, becomes dis-coloured or deformed during use, storage or charging, stop charging and use immediately. Remove the battery and contact the Leander Team.
- Avoid shorting the battery when connecting and disconnecting cables to the battery terminals.

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What is a Battery Management System (BMS)?

A critical component of any high-quality Lithium battery is the Battery Management System (BMS).

The BMS is a sophisticated instrument which sits inside the battery and ensures each battery cell is charged and discharged equally.

When a single Lithium cell is fully charged, the voltage rises suddenly and can reach dangerous levels very quickly. If this happens in only one cell, that cell can reach dangerous voltages before the total pack voltage is high enough to register as fully charged.

To prevent this from occurring, the BMS balances the cells to ensure they all charge and discharge equally as well as preventing them from over-discharging.

Specification - Panasonic 21700 Cell	
Model	Panasonic NCR21700A
Nominal voltage	3.60V
End-of-charge voltage	4.20V
End-of-discharge Voltage	2.50V
Typical Capacity	5000mAh (0.2C discharge)
Weight	Max: 70g
Life cycles	Charging capacity significantly
Standard Charge	1500mA, CC CV 100mA cut-off
Charging Time	3.66 hours (standard charge)

Battery Service Environment

Battery discharge ambient temperature should be between -20°C to +60°C, when ambient temperature is >45°C, pay attention to ventilation and heat dissipation.

Battery charging ambient temperature should be between 0°C to +45°C, when ambient humidity is >85%, pay attention to waterproofing and check the battery surface as condensation should be avoided.

Disclaimer

While Leander International have taken every effort to represent the Lithium Iron (Li-Ion) and Lithium Iron Phosphate (LiFe PO4) batteries accurately within this specification, Leander International advise the user to ascertain their own measurements and test the parameters and specifications to which the battery must conform. Lithium battery technology is rapidly being developed and research is continually carried out to ensure that our Lithium battery will meet the needs of a growing market.

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