

Plug into the current future with



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## SPECIFICATION SHEET- Freedom Lite Commercial 52V<sup>(1)</sup> COMMERCIAL SCALE LiFePO4 ENERGY STORAGE

The following specifications pertain to the **Freedom Lite Commercial** range of 52V lithium iron phosphate batteries manufactured by Freedom Won with capacities fitting in above the **Freedom Lite Business** and below the **Freedom Lite Industrial** ranges.

Freedom Lite Commercial	100/70	120/84	140/98	160/112	200/140	300/210
Total Energy Capacity	100kWh	120kWh	140kWh	160kWh	200kWh	300kWh
Cont. Charge and Discharge Power <sup>(2)</sup>	30kW	30kW	50kW	50kW	70kW	100kW
Nominal Voltage <sup>(1)</sup>	52V					
Daily DoD Suggested (average)	70%DoD					
70% DoD Energy	70kWh	84kWh	98kWh	112kWh	140kWh	210kWh
Max DoD allowed	90%DoD					
Design Life – Cycles <sup>(3)</sup>	5500-7000 cycles					
Design Life – Years <sup>(4)</sup>	16-20 years					
End of Life Definition [% of as new capacity] <sup>(5)</sup>	70%					
Round Trip Efficiency	96-97%					
Total Weight	1 040kg	1 250kg	1 460kg	1 680kg	2 100kg	2 900kg
Height (upright against wall)	1 900mm					
Depth (away from wall)	306mm					
Length (width along wall)	1 400mm	1 850mm	2 300mm	2 750mm	3 200mm	4 600mm
Enclosure	3mm thick Aluminium, powder coated, tamper proof, indoor use					
External Interface <sup>(6)</sup>	CAN Bus					
On-board Management	Full battery management system and internal trip protection					
Human Interfaces	State of Charge Display (0 to 100%), Error light, Error Reset Button, Serial RS232 Plug for Programming and data access with PC, main breaker					
Protection	Shunt Trip Circuit Breaker sized to suit max current, can be tripped by BMS if critical fault, manual reset. Protection for overcurrent, cell under and over voltage, temperature, weak cell detection and other critical events					
Battery Chemistry	Lithium Iron Phosphate (LiFePO4)					
Form Factor	Large Format ultra heavy duty prismatic cells of 200Ah each and 3,2V nominal voltage, fully sealed in plastic casing with bolt on electrode connections					
Battery Cooling	Natural Convection (heat generation is negligible inside the battery)					
Suitable Ambient Temp [°C]	0°C to +40°C					
Extreme Operating Temp [°C] <sup>(7)</sup>	-20°C to +60°C					
Remote Monitoring	Real time data logging and transmission via WiFi to online portal of key battery information					

See Notes on next page.

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Notes to Specification Sheet:

1. Higher voltage batteries are available on request ranging up to 850V DC (nominal).
2. Higher output power capacity available on request
3. Warranty is 10 years or 3500 cycles, 70% capacity guaranteed by end of warranty.
4. Based on one cycle per day. If two cycles per day divide years by two. For low duty cycling applications life is 20+ years.
5. Continued use of the battery after the capacity has dropped to 70% or below is possible, which extends the service life until the actual usable capacity is too low for the requirements of the system.
6. Potential free contacts and analogue outputs also available on request for several control features (details on request).
7. Charging below 0°C not permitted. Extended time above 45°C not recommended for optimal battery life.