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SPECIFICATION SHEET- Freedom Lite Commercial 52V⁽¹⁾ 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	400/280	500/350	600/420	700/490
Total Energy Capacity	100kWh	120kWh	140kWh	160kWh	200kWh	300kWh	400kWh	500kWh	600kWh	700kWh
Max. Cont. Charge and Discharge Power ⁽²⁾	100kW	100kW	120kW	120kW	120kW	140kW	140kW	140kW	140kW	140kW
Nominal Voltage ⁽¹⁾	52V									
Daily DoD Suggested (average)	70%DoD									
70% DoD Energy	70kWh	84kWh	98kWh	112kWh	140kWh	210kWh	280kWh	350kWh	420kWh	490kWh
Max DoD allowed	90%DoD									
Design Life – Cycles ⁽³⁾	5500-7000 cycles									
Design Life – Years ⁽⁴⁾	16-20 years									
End of Life [% of new cap.] ⁽⁵⁾	70%									
Round Trip Efficiency	96-97%									
Total Weight	1 040kg	1 250kg	1 460kg	1 680kg	2 100kg	2 900kg	4 200kg	4 850kg	5 800kg	6 800kg
Height (upright against wall)	2 100mm									
Depth (away from wall)	350mm						700mm			
Length (width along wall)	1 400mm	1 850mm	2 300mm	2 750mm	3 200mm	4 600mm	3 300mm	2 500mm	3 000mm	3 000mm
Enclosure	3mm thick Aluminium, powder coated, tamper proof, indoor use									
External Interface ⁽⁶⁾	CAN Bus									

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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] ⁽⁷⁾	-20°C to +60°C
Remote Monitoring	Real time data logging and transmission via WiFi to online portal of key battery information (optional)

Notes to Specification Sheet:

- Higher voltage batteries are available on request ranging up to 750V DC (nominal).
- Recommended charge current is 50% of Maximum Continuous values given here. For systems requiring more than 140kW, two or more batteries must be installed in parallel.
- Warranty is 10 years or 3500 cycles at 70% DoD, 70% energy capacity guaranteed by end of warranty.
- Based on one cycle per day. If two cycles per day divide years by two. For low duty cycling applications life is 20+ years.
- Continued use of the battery after the capacity has dropped to 70% is possible down to about 50%, which extends the service life until the actual usable capacity is too low for the requirements of the system.
- Potential free contacts and analogue outputs also available on request for several control features (details on request).
- Charging below 0°C not permitted. Extended time above 45°C not recommended for optimal battery life.
- Models 100/70 to 140/98 shipped complete unless site assembly is requested (at additional cost). Larger models assembled on site by Freedom Won technicians.



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