

Plug into the current future with



Unit 20, Ruimsig Boulevard Shopping Centre, Amorosa, Roodepoort, 1724, South Africa / PO Box 1449, Ruimsig 1732

Reg. No: 2012/102270/07 / VAT No: 4430267486 / T: 082 256 7430 / lizette@freedomwon.co.za

SPECIFICATION SHEET- Freedom Lite Industrial INDUSTRIAL and UTILITY SCALE LiFePO4 ENERGY STORAGE

The following specifications pertain to the **Freedom Lite Industrial** range of high voltage lithium iron phosphate batteries manufactured and commissioned by Freedom Won⁽¹⁾.

Freedom Lite Commercial	800/560	1000/700	1200/840	1400/980	1600/1120	2000/1400	2500/1750
Total Energy Capacity	800kWh	1MWh	1,2MWh	1,4MWh	1,60MWh	2MWh	2,5MWh
Max. Cont. Charge and Discharge Power (typical) ⁽²⁾	400kW	400kW	600kW	600kW	800kW	1000kW	1000kW
Nominal Voltage ⁽¹⁾	400-800V available						
Daily DoD Suggested (average)	70%DoD						
70% DoD Energy	560kWh	700kWh	840kWh	980kWh	1120kWh	1400kWh	1750kWh
Max DoD allowed	90%DoD						
Design Life – Cycles ⁽³⁾	5500-7000 cycles						
Design Life – Years ⁽⁴⁾	16-20 years						
End of Life Definition [% of as new capacity] ⁽⁵⁾	70%						
Round Trip Efficiency	96-97%						
Total Weight	8T	10T	12T	14T	16T	20T	25T
Height (upright against wall)	2 100mm					2300	
Depth (away from wall)	700mm						
Length (width along wall)	6m+6m	7m+7m	8m+8m	10m+10m	11m+11m	10m+10m	11,5+11,5
Enclosure	Heavy Duty 19 Inch Rack Cabinets with Lockable Doors installed into insulated and ventilated shipping container – 6m up to 1200/840 model, 12m up to 2500/1750 model						
External Interface ⁽⁶⁾	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] ⁽⁷⁾	-20°C to +60°C						
Remote Monitoring	Real time data logging and transmission via WiFi to online portal of key battery information (optional)						

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See Notes on next page.

Notes to Specification Sheet:

1. For capacity larger than 2,5MWh these models must be configured with two or more in parallel with separate inverters linked on the AC bus.
2. Output power will vary depending on nominal battery voltage, which is variable based on inverter requirements. Higher power output available on request.
3. Warranty is 10 years or 3500 cycles at average 70% DoD, 70% capacity guaranteed by end of warranty.
4. Based on one cycle per day. 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. Capacity degradation continues at a linear rate.
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.