

Li^{TE} Industrial Range

The following specifications pertain to the Freedom Li^{TE} Industrial range of high voltage lithium iron phosphate batteries manufactured and commissioned by Freedom Won.

	800/640 HV+	1000/800 HV+	1200/960 HV+	1400/1120 HV+
Total Energy Capacity [kWh] ¹	800	1000	1200	1400
80% DoD Energy [kWh]	640	800	960	1120
90% DoD Energy [kWh]	720	900	1080	1260
Current Capacity [Ah]	1200	1600	2000	2000
Max. & Cont. Charge and Discharge Current [A]	800	1600	1600	1600
Max. & Cont. Charge and Discharge Power [kW]	538 ²	1000	1000	1000
Nominal Voltage [V]	672	640	608	704
Max/Min Operating Voltage [V]	746/599	710/570	675/542	780/627
Max. Inverter Capacity [kVA]	500	1000	1000	1000
Total Weight [tonne]	7	9	11	12.5
Height (upright against wall) [mm]	1550	1550	1830	1830
Depth (from wall)	908mm	908mm	908mm	908mm
Length (width along wall) [mm]	4300	5200	5200	5500
DC Cables (no. per electrode) [mm ²] ³	1x185	2x185		
Round Trip Efficiency	97-97%			
Enclosure Details	Heavy duty custom aluminium enclosure. Container options – 6m up to 2 x 1400/1120 mode, 12m up to 4 x 1400/1120 models (shipping weight restrictions might require partial site assembly of battery for weight above 22T).			
External Interface	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, 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 (LiFePO ₄)			
Cell Form Factor	Large Format heavy duty prismatic cells of 200Ah each and 3.2V nominal voltage, fully sealed 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] ⁴	-20°C to +60°C			
Remote Monitoring	Real time data logging and transmission via WiFi to online portal of key battery information (optional)			
Warranty ⁵	10 years or 4000 cycles for average 80% DoD, and max 90% DoD			
Service Life - Cycles	>16 years (>5 500 cycles) expected life at 80% DoD per cycle, >20 years (7 500 cycles) at 50% DoD			

Notes to Specification Sheet

- For capacity larger than 2,5MWh these models must be configured with two or more in parallel on the same DC bus or with separate DC bus with inverters linked on the AC bus.
- Higher power output available on request.
- Fly Leads 6m long as standard, power cable Red = Positive, Black = Negative, conductors in table refer to one electrode i.e. per positive and negative connections. Up to 8m long available at extra cost (must be specified in order). Note that these fixed DC cables exit the battery enclosure on the right-hand end near the floor. This is to suit the bottom entry design of the floor standing ATESS inverters. A cable trench is recommended (where possible) for routing this cable along with all the other cables going to and from the inverter(s).
- Charging below 0°C not permitted. Extended time above 45°C not recommended for optimal battery life.
- See Freedom Won warranty document for further detail.