freedom WON

PLUG INTO THE **CURRENT FUTURE**

Li^{TE} Commercial HV Range

Li^{TE} Commercial 400/320 HV

Total Energy Capacity [kWh]	400
Energy, 80% DoD [kWh] [1]	320
Energy, 90% DoD [kWh]	360
Current Capacity [Ah]	800
Max & Cont. Charge and Discharge Current [A] [1]	800
Max & Cont. Charge and Discharge Power [kW] [1]	400
Nominal Voltage [V]	512
Max/Min Operating Voltage [V]	568/456
Max. Inverter Cap. [kVA]	400
Total Weight [kg]	3 520
Height [mm]	1 460
Depth [mm]	725
Length [mm] [5]	2 940
DC Cables, [no. per electrode] [mm^2] [2]	1×185
Round Trip Efficiency	96-97%
Enclosure	3mm thick Aluminium, powder coated, tamper proof, indoor use
External Interface	CAN Bus
On-board Management	Full battery management system and internal trip protection
Human Interfaces	On and Off Buttons, State of Charge Display (0 to 100%), Error light, Error Reset Button, USB 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 in aluminium casing with laser welded electrode connections
Battery Cooling	Natural Convection (heat generation is negligible inside the battery)
Suitable Ambient Temp [°C]	0°C to +35°C
Extreme Operating Temp [°C] [3]	-20°C to +60°C
Warranty [4]	10 years or 4 000 cycles for average 80% DoD, and max 90% DoD
Service life - Cycles	>16 years (>5 500 cycles) expected life at 70% DoD per cycle, >20 years (>7 500 cycles) at 50% DoD

Notes to Specification Sheet

The Li^{TE} Commercial high voltage range is available in two variants, namely the HV and HV+. The HV models are suitable for the ATESS **HPS** range of hybrid battery inverters and the HV+ is suitable for the **PCS** range of battery inverters and associated PBD DC charge controllers. The 230/184HV+ model is suitable for both the **HPS** and **PCS** ranges. Note that integration with other inverter brands is feasible – please contact Freedom Won for assistance.

1 The maximum (peak) and continuous current and power ratings are the same for the Li^{TE} Commercial HV and HV+ battery range. The maximum values given apply to both charge and discharge. For systems requiring more than 400kW from the Commercial HV range and 630kW for the HV+ range, two or more batteries must be installed in parallel.
2 Fly Leads 4.0m 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 the fly leads exit the battery on the right-hand side near the floor on all the Li^{TE} Commercial HV and HV+ models. This is to suit the bottom entry of the floor standing ATESS inverters. A cable trench is recommended for routing this cable along with all the other cables going to and from the inverter (a cable tray is an alternative).
3 Charging below 0°C not permitted. Extended time above 35°C not recommended for optimal battery life.
4 See Freedom Won Warranty document for further detail
5 Excluding protrusions