

## eTower

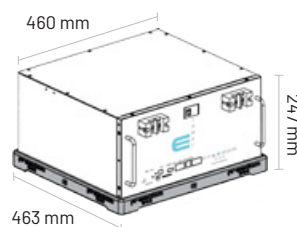
Modular LiFePO<sub>4</sub> energy storage from your trusted high performance battery partner.

The following specifications pertain to the Freedom Won eTower modular stackable battery, designed for smaller residential and light commercial applications with options of 1,2,3, or 4 modules in a tower per system.



## Modular LiFePO<sub>4</sub> Energy Storage Specification Sheet

	1 x e5000	2 x e5000	3 x e5000	4 x e5000
Total Energy Capacity [kWh]	5	10	15	20
Energy, 80% DoD [kWh] <sup>1</sup>	4	8	12	16
Energy, 90% DoD [kWh] <sup>1</sup>	4,5	9	13,5	18
Current Capacity [Ah]	100	200	300	400
Max/Cont. Charge Current [A] <sup>2</sup>	80/70	144/126	216/189	288/252
Max/Cont. Charge Power [kW] <sup>2</sup>	4,2/3,6	7,7/6,6	11,2/9,8	15,0/13,1
Max/Cont. Discharge Current [A] <sup>2</sup>	100/90	180/162	270/243	360/324
Max/Cont. Discharge Power [kW] <sup>2</sup>	5,2/4,7	9,4/8,4	14,0/12,6	18,7/16,8
Max Recommended Inverter Total Rated Power (cont.) [kVA]	5kVA	8kVA	12kVA	15kVA
Nominal Voltage [V]	52V, to suit 48V Inverters, min 47V, max 56V *do not connect modules in series - (for high voltage batteries, refer to Freedom Won LiTE HV ranges)			
Combined weight [kg]	45	90	135	180
Installation method	Stacked horizontally onto each other to form a tower with pedestals included, (one per module) or 19 inch rack mounted with brackets (cabinet excluded). Vertical mounting on floor or wall (shelf/bracket) with terminals facing upwards also acceptable. Generally up to 4 x e5000's per system (for larger capacity requirements, see Freedom Won LiTE ranges)			
Dimensions when e5000 placed horizontally: Height x Width x Depth (Front to rear) (mm)	Single unit with pedestal: 247x460x463	2 module tower with pedestals: 479x460x463	3 module tower with pedestals: 711x460x463	4 module tower with pedestals: 943x460x463
Dimensions exclude busbars on front	Single unit without pedestal: 222x440x443			
Module height equates to 5U (U = standard 19" rack unit)				



DC Leads to Inverter or DC Bus per positive & negative connection - minimum cable size [mm<sup>2</sup>]

\*cables included - see included accessories

1 x 35mm

1 x 35mm

2 x 35mm

2 x 35mm

## eTower (specs continued)

	1 x e5000	2 x e5000	3 x e5000	4 x e5000
Enclosure	Steel – painted white, rated for indoor use only, out of direct sun and away from other heat sources.			
DC Connection – Integrated Terminals on Front	2 x M6 bolts each for positive and for negative terminals for DC leads to inverter and busbars for connection of parallel e5000's in tower or rack configuration.			
Tower Interconnecting Busbars - minimum cross section area [mm <sup>2</sup> ] *busbars included – see included accessories	70 (17mm x 4mm busbar available in accessories) *note that the Freedom Won busbar accessories are designed for the pedestal tower dimensions not for 19" rack mounting, which has different spacing.			
Communication and Control Interfaces (See manual for further details)	<ul style="list-style-type: none"> <li>CAN Bus (RJ45 Socket x 1) – for interfacing with compatible inverters and system controllers (the eTower is fully compatible with all common CAN bus compatible brands).</li> <li>RS485 (RJ45 Socket x 1) – for interfacing with the Voltronics Axpert range of inverters equipped with a RS485 lithium battery interface and the applicable firmware.</li> <li>RS232 (RJ45 Socket x 1) – for interfacing with a PC for firmware and setting updates (only by Freedom Won technicians).</li> <li>RS485 (RJ45 x 2) – for the communication connection of parallel batteries up to four in tower.</li> <li>Digital Outputs x 2 – for controlling external relays based on pre-set functions.</li> </ul>			
Protection	Internal electronic protection including overcurrent, cell under and over voltage, temperature out of range, weak cell detection, minimum SOC control, active voltage based charge current limiting. *do not short circuit or connect in reverse polarity!			
Human Interface	<ul style="list-style-type: none"> <li>State of Charge Display (0 to 100% indicated by six green LED's)</li> <li>Alarm LED (red)</li> <li>Run LED (green)</li> <li>On LED (green)</li> <li>BMS Reset Button</li> <li>Main On/Off Switch</li> <li>Serial RS232 Plug for Programming via PC (by Freedom Won only)</li> <li>Dip Switch block for selecting module addresses.</li> </ul>			
Warranty <sup>3</sup>	10 years limited warranty			
Design Life <sup>4</sup>	>15 years			
Included Accessories	<ul style="list-style-type: none"> <li>Plastic pedestal for tower stacking (cleats for 19" rack not included but available from Freedom Won if required).</li> <li>DC cables standard 1,8m long in 35mm<sup>2</sup> single core with M6 terminal lugs on one end, red for positive and black for negative.</li> <li>Interconnecting tower busbars drilled and cut to length for single tier jumps using tower pedestals, with heat shrink covering, red for positive and black for negative.</li> <li>Interconnecting RS485 parallel battery communication cables for interconnecting the tower modules' communication RJ45 sockets (standard ethernet cables may also be used).</li> <li>Inverter interface CAN Bus cable at 1,8m length for connecting compatible CAN bus equipped Victron inverters</li> <li>Inverter interface CAN Bus cable at 1,8m length for connecting compatible CAN bus equipped Type 1 inverters e.g. Sunsynk, Growatt, Solis, Goodwe (see Freedom Won Interfacing Guide for full details).</li> <li>Inverter interface RS485 cable at 1,8m length for connecting Voltronic/Axpert Inverters</li> </ul>			
Packaging	One e5000 per cardboard box complete with above included accessories.			
Certificate of Compliance	UN 38.3 / IEC 62619			

### Notes to Specification Sheet

- DoD = Depth of Discharge, max recommended 90% DoD, recommended 80% DoD for average daily discharge, 70% DoD on average for optimal life.  
Max permissible DoD is 100%.
- Max discharge and charge (current and power) duration – 5 minutes per 30-minute cycle.
- Refer to e tower warranty document for further details.
- Assumed moderate cycling and ideal conditions of temperature, charge and discharge rates, and depth of discharge per cycle.