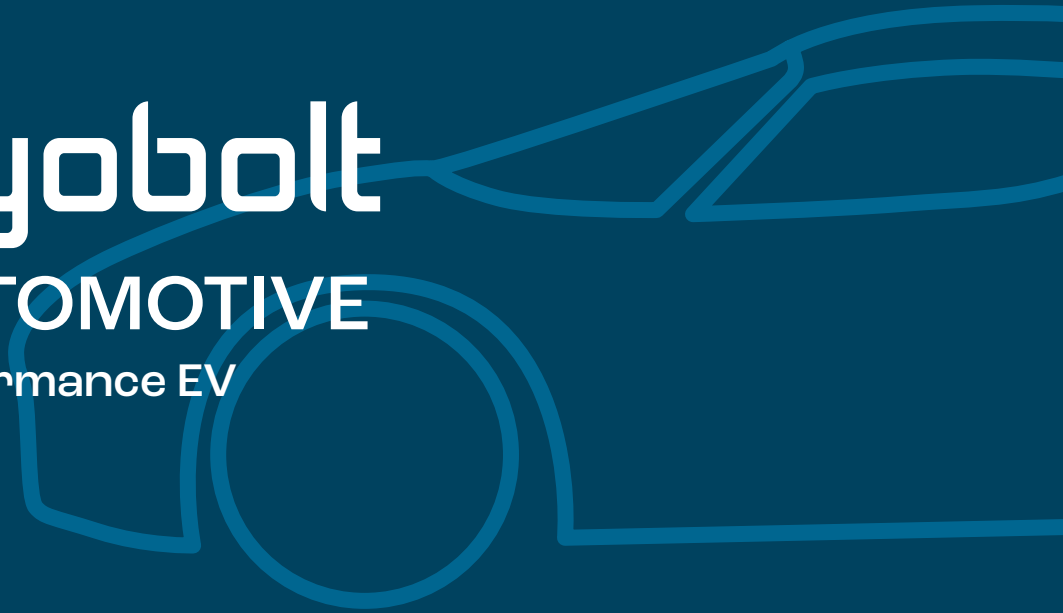
PRODUCT SHEET 2.1 | v2024-07-2

nyobolt

AUTOMOTIVE

Performance EV



Nyobolt ULTRA modules deliver unprecedented power density with symmetrical charge and discharge capability, raising the bar on operational performance and lifestyle convenience. The module has a continuous fast charge capability of up to 12C with 4,000 full charge cycles to 80% state of health (SOH).

Key Features

- Excellent temperature performance by maintaining very low temperature increase via low internal resistance over full SOC range.
- The module has integrated cell voltage and temperature monitoring with passive balancing and isolated SPI communication allowing it to be daisy chained.
- Up to 64 modules can be connected together in series and parallel to form a high power battery up to 1000V.
- The module is liquid cooled via a coldplate that can be supplied as an integrated assembly.

Use in 400V/800V EV applications:

Capable of a **10-90% sub-10-minute charge** using a 350kW DC fast charger

Symmetrical discharge capability ensuring high power delivery to the wheels

High power to weight ratio for performance applications

Specification

HPMOD-ULTRA-365-7S2P	
Cell Type	28Ah Pouch
Cell Dimensions	302mm x 87mm x 9.4mm
Cell Weight	460g
Module Configuration	7S2P
Rated Capacity / Energy	56 Ah / 1.5 kWh
Nominal Voltage	25.9 V
Max Voltage	29.4 V
Min Voltage	18.9 V
Peak 2 second charge / discharge power	14kW / 14kW
Peak 10 second charge / discharge power	12kW / 12kW
Continuous charge / discharge power	9kW / 9kW
Cycle Life	> 4000 fast charge cycles to 80% SOH
Weight (excluding coldplate)	8.7 kg
Dimensions	L365 x W154 x H90 mm (12.6L)
Cooling	Coldplate water-glycol (optionally integrated)
Operating Temperature	-10 to +40 °C
Protection	IP40
Certification	Certified and tested to ECE R100.2 and UN38.3

Example Applications

The ULTRA module is scalable in series and parallel to support a range of batteries from 48V to 1000V. This supports application areas such as factory robots and forklift trucks through to electric vehicles for commercial, off-highway and marine.

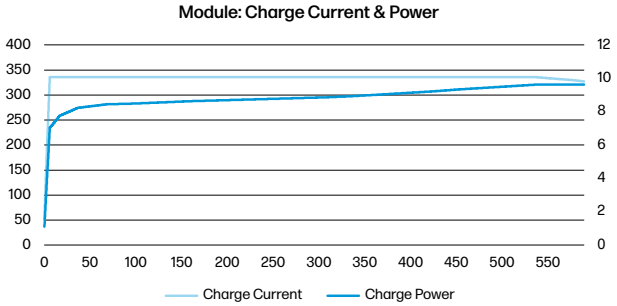
It can be used with the Nyobolt battery management system with its integrated cell monitor interface and power distribution unit. The battery management system has advanced monitoring and software algorithms for tracking the status and health of the battery through its life. The safety architecture comprises a main micro and safety micro to conform with requirements such as ISO 26262 to ASIL-C.

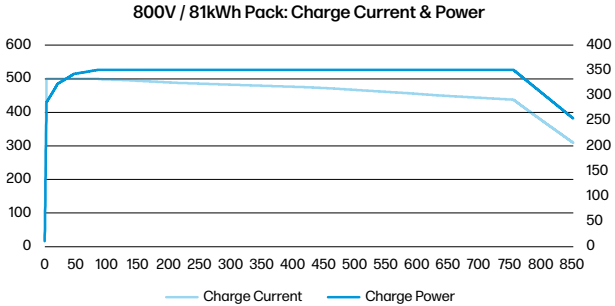
A maximum of 64 modules can be connected to each cell monitor interface which communicates with the battery management system over CAN. The battery management system can support connection of up to 2 cell monitor interfaces to give capability for monitoring up to a total of 768 series cells.

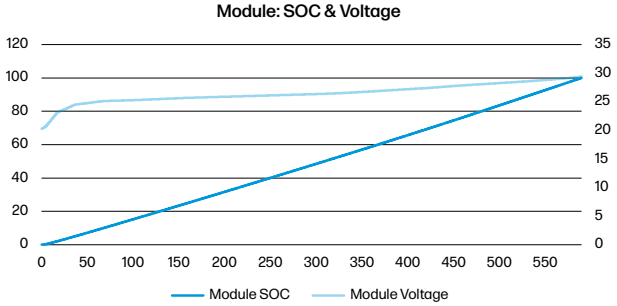
Example specifications for a 400V and 800V battery pack:

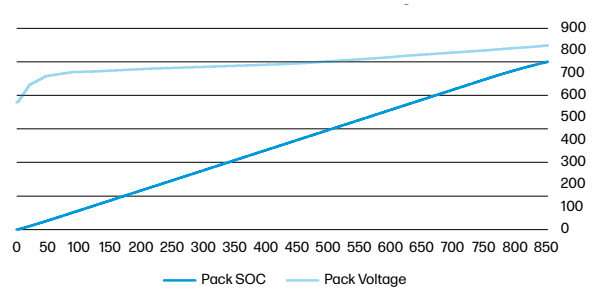
	400V xEV	800V xEV
Number of Series Modules	15	28
Number of Parallel Modules	3	2
Rated Capacity / Energy	168 Ah / 65 kWh	112 Ah / 81 kWh
Usable Energy	59 kWh	73 kWh
Nominal Voltage	388 V	725 V
Max Voltage	441 V	823 V
Min Voltage	283 V	529 V
Peak 2 second charge / discharge power	580kW / 580kW	700kW / 700kW
Peak 10 second charge / discharge power	500kW / 500kW	620kW / 620kW
Continuous charge / discharge power	390kW / 390kW	480kW / 480kW
10%-90% Charge time with 500A/350kW Charger	< 10-minutes	< 10-minutes

Module and Pack Charge profiles, limited to 350kW/500A charger:









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