

DATASHEET



Turntide NMC Battery Pack (44V, 4.5 kWh)

Turntide’s new lithium-ion modular battery solutions combine high-performance battery packs with system controllers for temperature and voltage measurement and internal cell balancing. The Turntide NMC Battery Pack (44V, 4.5kWh) is ideal for many off-highway applications from construction and agriculture to marine and material handling.



Features

- Integrated charger controls
- UN38.3 certified: approved for global shipping
- Rated capacity of 4.5 kWh/100 Ah
- Scalable: increase capacity without additional controllers
- High voltage: connect modular packs in series for systems up to 500V
- Environmental protection enclosure: fully plastic case (IP66)
- Battery housing to allow ease of mounting on at least 2 axis
- Natural cooled with an option for liquid cooling

Specifications

Product Details			
Model Number	NMC BPK 44/4.5	Recommended Useable Energy	4.1 kWh
Voltage Nominal	44V	Dimensions (LxWxH)	441 x 333 x 137 mm
Voltage Range Min/Max	37.2V / 49.8V	Weight	26 kg
Charge Current	100 A Continuous* 300 A Peak (10 sec)	Enclosure & Mounting	Plastic, 4xM6 mounting points
Discharge Current	100 A Continuous* 300 A Peak (10 sec)	Gravimetric Density	173 Wh/kg
Stored Energy	4.5 kWh/100 Ah	Volumetric Density	223 Wh/l
* Dynamically de-rated by BMS message over CAN depending on cell condition			
Cells			
Chemistry	Nickel Manganese Cobalt (NMC)	Number of Modules	2 X (2P6S)
Cell Specification	50 Ah Pouch cell	Cell Configuration	2P12S

Details are correct at time of publishing

Environmental			
Enclosure		Sealed plastic case (IP66)	
Operating Temp Range		Charge: -20 °C to +55 °C	Discharge: -30 °C to +55 °C
Storage Conditions		Temperature: -40 °C to +70 °C	Humidity: Below 75%
Battery Management System (BMS)			
Communication Protocol		IsoSPI bus between BCU (Battery Controller Unit) and battery pack, (proprietary message format)	
Reported Information		Cell Temperatures and Voltages, Pack Current, Try-color status LED, Pack Faults and Reset	
Balancing Method		Actively controlled dissipative balancing	
Multi-Pack Behaviour		Managed by BCU controller	
Control Interface Connectors		2 x M12 5-way male & female	
Power connectors		2x Amphenol SurLok Plus 8mm	
Internal fuse protection		300A, 500V	
Internal EMC		Busbar ferrite filters	
Communication protocol		CAN J1939	
System Configuration			
Max no of packs in series	10	Max Number of Parallel Packs	18
External System Requirements	External Protection Device (e.g. Contactor) controlled by BMS/BCU One External Fuse per series string BCU Enable signal (12-24V)		
Standards			
EMC	Designed to meet: EN61000-6-2:2005 and EN61000-6-3:2007 + A1:2011		
Transport	UN38.3 rev 6	Other	RoHS directive and WEEE directive. Standard IEC 62619

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Warranty

3 years warranty:

Provided that the Goods are at all times operated and maintained within the following conditions through the Warranty Period:

- Installed and operated in accordance with the user manual.
- Only to be used in applications approved in writing by Turntide.

Warranty terms:

Battery continuous operate (Charge/discharge) temperature should be within the -10oC to 50oC range.
Maximum charging current should not exceed 100A (4.5kWh)/150A(6.7kWh) – Current depends on SOC and temperature, controlled by BMS.
Maximum discharging current should not exceed 100A (4.5kWh)/150A(6.7kWh) – Current depends on SOC and temperature, controlled by BMS.
Battery voltage should not exceed (overcharge) 50.6V or multiple of series connections (ex. 2 series connection, max voltage – 101.2V)
Battery voltage should not go below (over discharge) 36V or multiple of series connections (ex. 2 series connection, max voltage – 72V)
Battery should not keep fully charge state (100% SOC) for an extended period.
Maximum allowable duration – 48hr to 60hr at ambient temperature of -10oC to 50oC range.
For longer storage, Battery should be store at 40% – 60% SOC.

Regulatory

	UL583 YCFT2.AU3720		The CE mark applies only to the provisions of the low voltage directive. It is the responsibility of the installer to take any precautions necessary to ensure that the assembled equipment is EMC compliant
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For further information please contact our team of experts at electrificationsales@turntide.com

TURNTIDE TECHNOLOGIES

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