

**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			
<b>Model Number</b>	NMC BPK 44/4.5	<b>Recommended Useable Energy</b>	4.3 kWh
<b>Voltage Nominal</b>	44V	<b>Dimensions (LxWxH)</b>	441 x 333 x 137 mm
<b>Voltage Range Min/Max</b>	37.2V / 49.8V	<b>Weight</b>	26 kg
<b>Charge Current</b>	100 A Continuous* 300 A Peak (10 sec)	<b>Enclosure &amp; Mounting</b>	Plastic, 4xM6 mounting points
<b>Discharge Current</b>	100 A Continuous* 300 A Peak (10 sec)	<b>Gravimetric Density</b>	173 Wh/kg
<b>Stored Energy</b>	4.5 kWh/100 Ah	<b>Volumetric Density</b>	223 Wh/l
* Dynamically de-rated by BMS message over CAN depending on cell condition			
Cells			
<b>Chemistry</b>	Nickel Manganese Cobalt (NMC)	<b>Number of Modules</b>	2 X (2P6S)
<b>Cell Specification</b>	50 Ah Pouch cell	<b>Cell Configuration</b>	2P12S

Details are correct at time of publishing

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

## 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 -10°C to 50°C 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 -10°C to 50°C range.

For longer storage, Battery should be store at 40% – 60% SOC.

## Regulatory



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

For further information please contact our team of experts at [electrificationsales@turntide.com](mailto:electrificationsales@turntide.com)

### TURNTIDE TECHNOLOGIES

Our breakthrough technologies accelerate electrification and sustainable operations for energy-intensive industries

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