

## Gen1 320V HV Battery (36.1kWh)

High Performance Lithium-ion NMC Battery Pack with built-in intelligent Battery management.

Designed to support the ambitious decarbonization goals to bring all greenhouse gas emissions to net zero. With High energy and high-power capabilities replacing diesel power generation in multiple applications.



Fully type-approved for use on rail and non-rail applications.

The Battery Pack has two types A (master) and B (slave). Type A can control up to 3 type B units.

### Features

- SIL2 (equivalent to ASIL-C) approved Battery Management System.
- Contactor control with anti-valent feedback.
- Proprietary CAN communications.
- Series and Parallel configurations to meet power and voltage requirements.
- Patented active cooling solution.
- Data collection for maintenance management.

### Applications



# Specification

Key Features			
Type A and Type B battery units			
<b>Stored Energy (kWh)</b>	36.1	<b>Continuous Charge Current (A)*</b>	90
<b>Rated Capacity (Ah)</b>	112.5	<b>10s Peak Current (A)</b>	233
<b>Power (kW)</b>	51.4	<b>Power Density (W/kg)</b>	96.1
<b>Working Voltage (V)</b>	321.2	<b>Energy Density (MJ/kg)</b>	0.43
<b>Nominal Capacity (A)*</b>	160		
<i>*Dynamically Derated BMS Message over CAN depending on charge status and cell condition</i>			
Environmental			
<b>Operating Temperature</b>	<ul style="list-style-type: none"> <li>-25 °C to 45°C</li> </ul>	<b>IP Rating</b>	IP2X (IP66 including external housing)
<b>Storage Condition</b>	<b>Temperature</b>	<b>Humidity</b>	<b>Duration</b>
	<ul style="list-style-type: none"> <li>-30 °C to 55°C</li> <li>-30 °C to 30°C</li> </ul>	<ul style="list-style-type: none"> <li>&lt;85 RH%</li> <li>&lt;85 RH%</li> </ul>	<ul style="list-style-type: none"> <li>&lt;7 days</li> <li>&lt;6 months</li> </ul>
Safety and Compliance			
<b>Railway Compliance</b>	<ul style="list-style-type: none"> <li>BS EN IEC 62928</li> <li>BS EN 50155</li> <li>BS EN 50128</li> </ul>	<b>Safety Requirements for Industrial Applications</b>	<ul style="list-style-type: none"> <li>IEC 62619</li> <li>IEC 62133</li> </ul>
<b>Temperature</b>	<ul style="list-style-type: none"> <li>EN60068-2-1</li> <li>EN60068-2-2</li> <li>EN60068-2-14</li> <li>EN60068-2-30</li> </ul>	<b>EMC</b>	<ul style="list-style-type: none"> <li>EN50121-3-2 - emissions and immunity</li> <li>EN50155 - supply Interruption</li> </ul>
<b>Functional Safety</b>	<ul style="list-style-type: none"> <li>EN50128 - SIL2</li> </ul>		
Mass, Dimensions and Drawings			
Type A and Type B			
<b>Weight (kg)</b>	305	<b>Width (mm)</b>	498 ± 2
<b>Length (mm)*</b>	1016 ± 2	<b>Height (mm)</b>	696.5 ± 2
<i>*Including mounting points</i>			

  

The technical drawings include:

- Front View (Left):** Shows mounting points 4 and 5, dimensions for mounting holes (2x ∅10±0.25 THRU), and features like NAMEPL, WA, REMOVEABLE BASE PANEL, and MANUAL SERVICE DISCONNECT.
- Top View (Middle):** Shows mounting points 1 and 2, dimensions for mounting holes (2x ∅20.5 p6 (30.535) ±0.25 and 2x M12x1.75 - 6H ±0.30), and features like TYPE A CONNECTOR (MALE), COOLANT ROUTING CUT-OUTS, and M10 EARTH STUD.
- Right View (Right):** Shows the side profile with dimensions for width (901±2), height (386), and a 90°±0.5° chamfer at 2 places.
- Bottom View (Bottom Right):** Shows the base with dimensions for length (1016±2), width (498), and height (247.5).

**TURNTIDE TECHNOLOGIES**

Details are correct at time of publishing

Turntide Technologies designs and manufactures breakthrough electric motors, power electronics and energy storage solutions that optimize performance, reliability, and efficiency in all things that move.

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Battery Management System					
<b>Battery String BMS</b>		<ul style="list-style-type: none"> <li>Each Type A contains the Battery management system</li> </ul>	<b>Communication Protocol</b>		<ul style="list-style-type: none"> <li>Proprietary CAN</li> <li>Fibre Optic between Battery Units</li> </ul>
Performance Data					
Dependent on Energy throughput		Calculated using customer specific Duty Cycle			
Additional Information					
System Configuration Options					
	Types	Voltage (Nominal)	Battery Power	Current	Rated Energy
 1s 1p	1 * Type A	321.20V	51.39kW	160A	36.08 kWh
 2s1p	1 * Type A 1 * Type B	642.4V	102.78kW	160A	72.16 kWh
 3s1p	1 * Type A 2 * Type B	963.6V	154.17kW	160A	108.24 kWh
 4s1p	1 * Type A 3 * Type B	1284.8V	205.56kW	160A	144.32 kWh

For more information on this product or Turntide’s range of inverters, motors, batteries, pumps and fans, please visit our web-site or contact our team of experts at [electrificationsales@turntide.com](mailto:electrificationsales@turntide.com).