

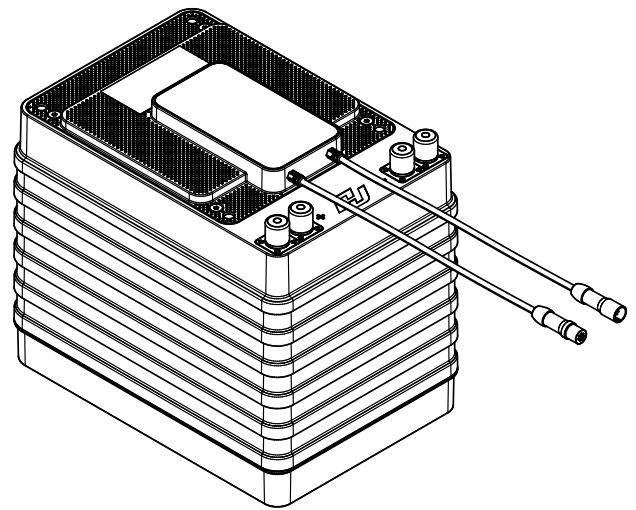
# Battery: Plus Peak

HYP-00-2972

Combining a high-performance lithium-ion NMC battery pack with a built in Battery Management System (BMS) Turntide's intelligent battery systems are designed for rapid deployment and volume manufacture, supplying you with class-leading energy density and performance. Our batteries are ideal for multiple applications, including construction, agriculture, and marine industries. With a standardised design, our modular product range provides a flexible and scalable battery energy storage solution.

## Features

- + Integrated charger controls
- + UN38.3 certified: approved for global shipping
- + Access to world-class battery cell technology
- + Proven automotive quality and global high volume supply
- + Versatile: scale up capacity without additional controllers
- + Environmental protection enclosure: fully plastic case (IP55)
- + Cell chemistry: lithium-ion nickel manganese cobalt (NMC)



## General

<b>Part Number</b>	HYP-00-2972
<b>Voltage Nominal</b>	51.8V
<b>Voltage Range Min/Max</b>	43.4V/58.1V
<b>Charge Current</b>	160A maximum De-rated by BMS message over CAN depending on cell voltage/temperature. Charger integration must follow this dynamic current limit. See user manual <sup>1</sup>
<b>Discharge Current</b>	300A maximum De-rated by BMS message over CAN depending on cell voltage/temperature. System/inverter should follow this dynamic current limit. See user manual <sup>1</sup>
<b>Maximum Capacity</b>	5.76kWh/111.4Ah
<b>Maximum Energy Density</b>	164Wh/kg
<b>Useable capacity</b>	Limited to 90% by BMS to improve cell life
<b>Dimensions</b>	W: 243 x L: 352 x H: 300.5mm
<b>Weight</b>	37kg
<b>Mounting Fixtures</b>	4x M8 mounting points for easy secure mounting

## Cells

<b>Cell Specification</b>	12S2P Envision AESC Gen 4
<b>Chemistry</b>	Manganese Laminated Li-ion (LNMC)

## Environmental

<b>Enclosure</b>	Sealed plastic case (IP55)	
<b>Operating Temp Range</b>	Charge: -25°C to +60°C	Discharge: -25°C to +60°C
<b>Storage Conditions</b>	Temperature: -40°C to +70°C	Humidity: Below 75%

## Battery Management System (BMS)

<b>Communication Protocol</b>	CAN bus at user selectable baud rate (proprietary message format). J1939 compatible option available. <sup>1</sup>
<b>Reported Information</b>	Cell Temperatures and Voltages, Pack Current, State of Charge and Faults
<b>Pack Protection Mechanism</b>	Interlock to control external protection device e.g. contactor <i>Note: The Hyperdrive modular battery pack cannot directly protect itself without an external protection circuit. This circuit must be approved by Hyperdrive before use.</i> <sup>2</sup>
<b>Balancing Method</b>	Actively controlled dissipative balancing
<b>Multi-Pack Behaviour</b>	BMS implements a single master and multi-slave system
<b>Compatible Chargers as standard</b>	Zivan, Victron, Delta-Q, TC-Charger, SPE. For compatible models see user manual <sup>1</sup>
<b>Charger Control</b>	Direct current control based on cell voltage/temperature over CAN bus data to allow other chargers to be implemented by user
<b>Auxiliary Connectors</b>	Binder 720-Series 8-way male & female
<b>Power connectors</b>	4x Amphenol SurLok Plus 8mm When using battery pack above 150A for considerable time, consider using both power connection points in parallel to allow for a suitable conductor cross section.

## System Configuration

<b>Max no of packs in series</b>	10
<b>Max Number of Parallel Packs</b>	127
<b>External System Requirements</b>	<ul style="list-style-type: none"> <li>External Protection Device (e.g. Contactor) controlled by BMS Interlock <sup>2</sup></li> <li>One External Fuse per series string</li> <li>BMS Enable signal (12-24V)</li> </ul>

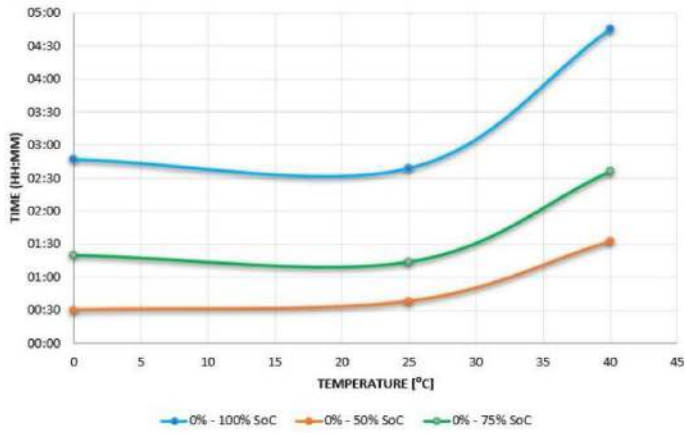
<sup>1</sup> HYP-131-MAN-Z-001 – User manual R11 or above.

<sup>2</sup> ENG-FO-018 – Customer Schematic Checklist R2 or above.

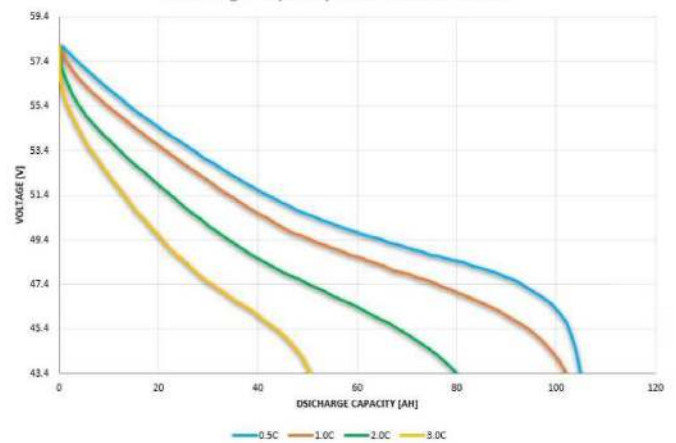
## Standards

<b>EMC</b>	Designed to meet: EN61000-6-2:2005 and EN61000-6-3:2007 + A1:2011
<b>Transport</b>	UN38.3 rev 6 including impact and vibration testing
<b>Other</b>	RoHS directive and WEEE directive

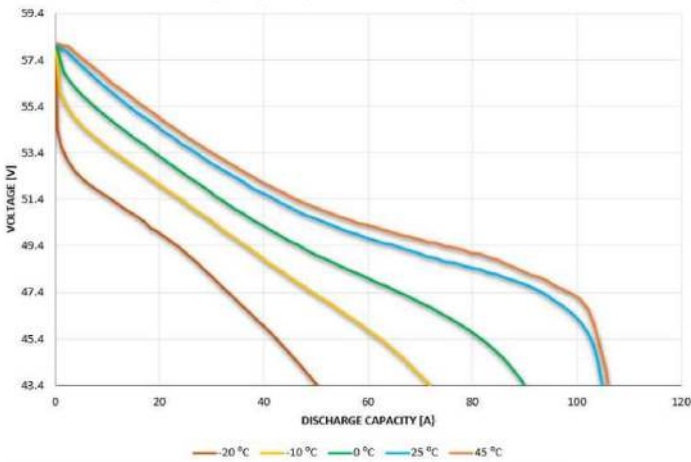
**Charge Time at Different Temperatures**



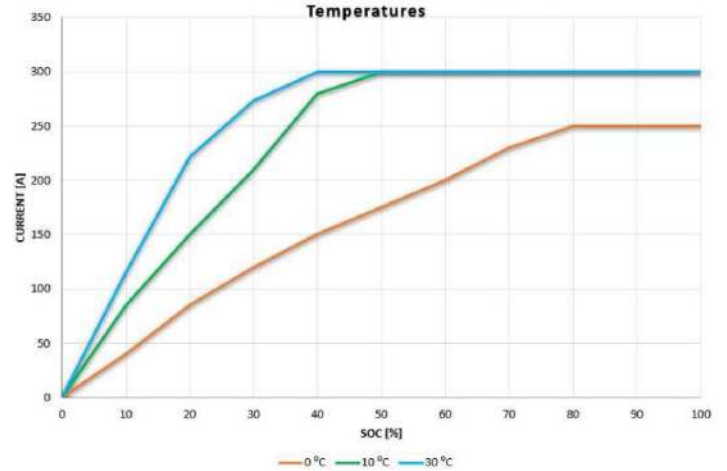
**Discharge Capacity at Different C rates**



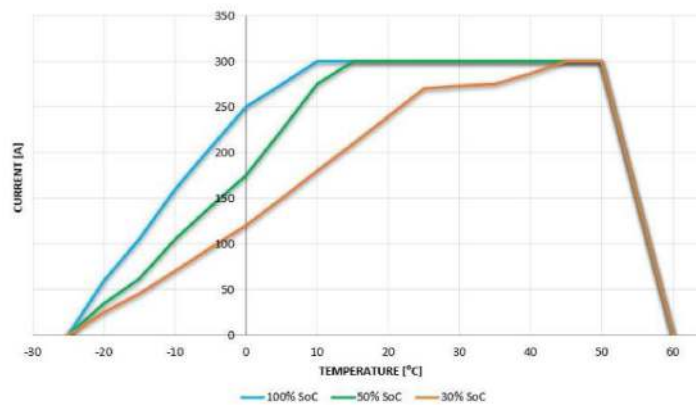
**Discharge Capacity at Different Temperatures**



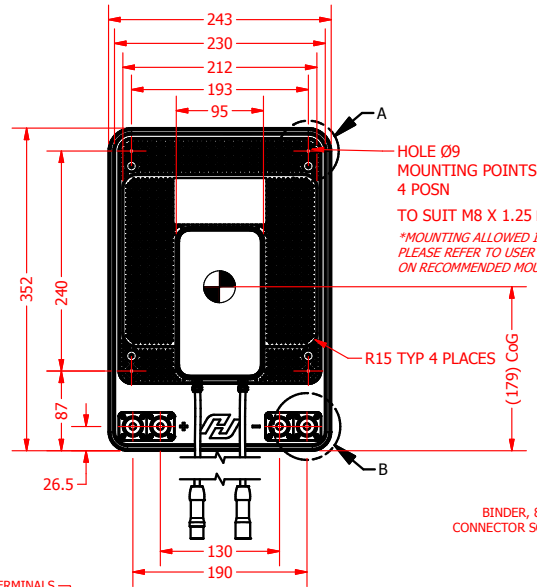
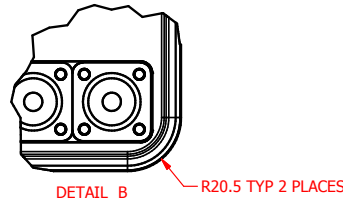
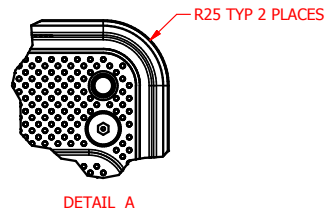
**Maximum Permissible Discharge Current at Different Temperatures**



**Maximum Permissible Discharge Current at SoC Levels**



# Dimensions

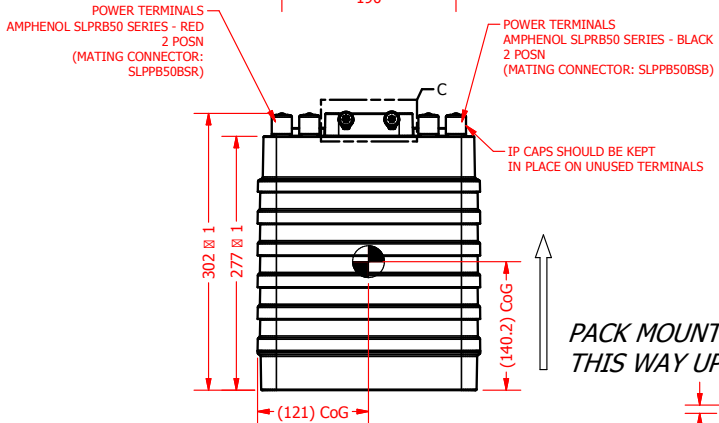


CONTROL CONNECTOR FEMALE - PINOUT

BINDER 8 WAY (FEMALE)	DESCRIPTION
7	CAN H
2	CAN L
3	GND
1	ENABLE
6	CONTACTOR INTERLOCK (IN)

CONTROL CONNECTOR MALE - PINOUT

BINDER 8 WAY (MALE)	DESCRIPTION
7	CAN H
2	CAN L
3	GND
1	ENABLE
6	CONTACTOR INTERLOCK (OUT)

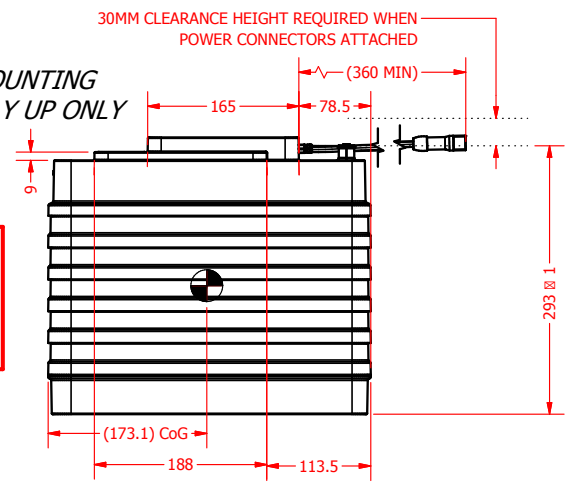


CONTROL CONNECTOR IN  
 BINDER, 8 POLE CABLE MOUNT MINI  
 CONNECTOR SOCKET, FEMALE CONTACTS  
 BINDER: 99-9126-00-08  
 CONTROL CONNECTOR OUT  
 BINDER, 8 POLE CABLE MOUNT MINI  
 CONNECTOR PLUG, MALE CONTACTS  
 BINDER: 99-9125-00-08



DETAIL C  
 \*MINIMUM BEND RADIUS FOR CAN CABLE = 42mm\*

PACK MOUNTING  
 THIS WAY UP ONLY



**\*\*\* DANGER! \*\*\***  
 BATTERY MUST NOT BE USED OUTSIDE OF APPROVED SYSTEM  
 INCORPORATING PROTECTIVE DEVICES.  
 REFER TO SUPPORTING DOCUMENTATION AS DETAILED ON SHEET 4 OF THIS DRAWING

## TURNTIDE TECHNOLOGIES

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