

Turntide Gen6 Size 9 Inverter

The Turntide Gen6 Size 9 inverter is well-matched to satisfy requirements for On and Off-highway Electric and Hybrid Vehicles. It is specifically aimed at vehicle OEMs and system integrators to offer a compact, lightweight, robust and cost-effective product for traction, hybridisation, power generation and sub-system electrification.



The inverter is paired with many of Turntide's high power density Axial Flux Motors, ideal for applications with a limited space envelope. Our products are used by some of the world's leading automotive and industrial companies in several innovative and demanding applications. The same quality and reliability is designed into every Turntide product.

Features

- Supports AC Permanent Magnet synchronous and AC Induction motors
- Highly efficient advanced flux vector motor control
- Operates at a nominal 350VDC voltage
- Up to 540A_{rms} maximum current output
- Up to 200A_{rms} continuous current output
- 12V or 24V logic supply
- Compliant to ISO16750:2023
- Compliant to Reg10 (R6)
- Designed to comply with ISO26262:2018 ASILC and ISO13849:2023 Cat3 - PLd
- Torque mirroring enabling coordinated control of multi node systems by ensuring each Gen6 Size9 delivers a matched torque command

Applications

Suitable for medium-power electric traction, hydraulic pump, and generator control, as well as ancillary functions in mobile equipment. Typical applications include on-road automotive, construction equipment, bus and truck commercial vehicles and generator systems.



TURNTIDE TECHNOLOGIES

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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Details are correct at time of publishing

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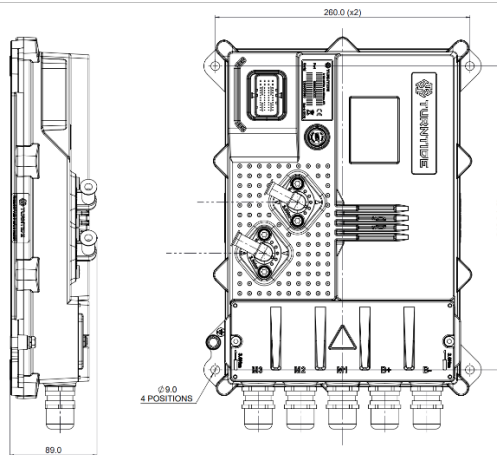
Specification

Key Features			
Working Voltage Range (V)		200 - 420	
Nominal Voltage (V)		350	
100% Derating voltage (V)		450	
10s^{††} Boost Current (A_{rms})		540	
1 min Peak Current (A_{rms})		400	
60 min Continuous Current (A_{rms})		200	
Control	Remote Torque Control with Speed Limit / Speed Control Quadrant aware DC current limit	Communications Protocols	<ul style="list-style-type: none"> • CAN 2.0B • UDS • J1939 - H-Protocol

Environmental			
IP rating	IP67 / IP6K9K	Ambient Temperature	<ul style="list-style-type: none"> • -40°C to +85°C • Automatic derating above 50°C
Flow Rate (l/min)	10	Coolant Temperature	<ul style="list-style-type: none"> • -40°C to +85°C (with 50:50 Water Glycol mix) • Automatic derating above 50°C

Mass, Dimensions and Drawings	
Mass (g)	7000 [†]
Length (mm)	400
Width (mm)	283
Height (mm)	89

[†]Dry weight; ^{††} see manual for coolant temp, DC voltage and PWM frequency influence on duration



IO			
IO	<ul style="list-style-type: none"> • All I/O protected to 40V operation with 12V or 24V • 4 analogue inputs 0-10V • 4 digital inputs • 3 power supplies 10V (2x100mA and 1x200mA) • 2 digital outputs PWM 2A (2 high side 2 low side) • 2 x PT1000 or 2 x PT100 inputs[†] 	Encoders	<ul style="list-style-type: none"> • Absolute UVW encoder input • Absolute Sin/Cos encoder input • Incremental AB encoder input • Resolver automatic gain

[†]Two variants of hardware. One that supports PT1000, one that supports PT100

Safety and Compliance			
Electrical and Functional Safety	<ul style="list-style-type: none"> • IEC60664:2020 • ISO 16750:2023 • EN 60204-1:2018 • ISO26262:2018 ASIL C • ISO13849:2023 Cat3 - PL_d 		<ul style="list-style-type: none"> • Reg 10 (R6) • Reg 100 (R3) • ISO 6469-3:2021 • HV interlock on the I/O connector • CE Marked

Configuration	
Turntide offers a Windows-based PC tool for configuration of the inverter. The tool provides a simple yet powerful means of accessing the inverter for diagnostics or parameter adjustment. Communication is through CAN, IXAAT and Vector adaptors are supported, with support for others on request. Key features include:	
<ul style="list-style-type: none"> • Library of validated motor configs • Customizable login levels 	<ul style="list-style-type: none"> • Powerful guided vehicle setup process • Intuitive diagnostic processes

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.

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