

Turrtide Gen4 Low Voltage Inverters

This range of Low Voltage motor controllers are highly reliable and are intended for on and off-highway electric vehicles. They have control functions to utilise the in-built I/O, or can operate as a CAN slave. Thanks to compact dimensions and high efficiency it is possible to integrate these controllers in difficult spaces without sacrificing performance. The optimised design delivers superior reliability in the most demanding applications.

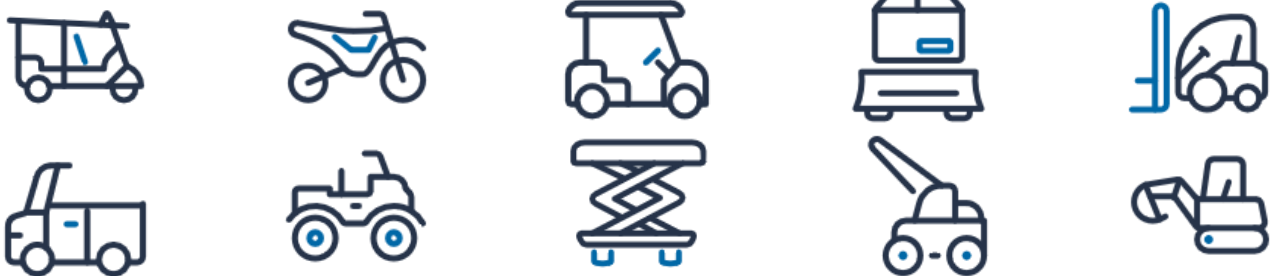


Scalability - Consistent functionality across the range of voltage and power options allows you to redeploy the application across a range of machines or vehicles. Our products are used by some of the world's leading automotive and industrial companies in several innovative and demanding applications. The same quality and reliability is designed into each and every Turntide product.

Features

- Supports AC Permanent Magnet synchronous motor and AC Induction motors
- Highly efficient advanced flux vector motor control
- Range of voltage options from 48Vdc to 80Vdc nominal battery voltage
- Scalable power levels to satisfy many On and Off-highway applications

Applications



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

TTD-MAN-009
V4.0 – 09/06/2025

Specification

Key Features					
Model	Gen4-Size 6		Gen4-Size 4		Gen4-Size 2
	80V, 550A	48V, 650A	80V, 350A	48V, 450A	48V, 275A
Nominal Voltage (Vdc)	80	48	80	48	48
100% Derating voltage (Vdc)	116	69.6	116	69.6	69.6
Min Battery Voltage (V)	39.1	19.3	39.1	19.3	19.3
10s Boost Current (A_{rms}) †	660	780	420	540	330
2 min Peak Current (A_{rms}) †	550	650	350	450	275
60 min Continuous Current (A_{rms}) †	220	260	140	180	110
Coolant	Air	Air	Air	Air	Air
Controller Functionality	Yes	Yes	Yes	Yes	Yes
† Tested at 25°C ambient temperature. Assuming a PF of 0.95. Mount Motor Controller with thermal paste to a 330x200 mm, 0.3 °C/W finned heatsink					
Control	• Master controller or slave		Communications Protocols	• CAN 2.0B • CANOpen	
Environmental					
Inverter Cutback (Low)(°C) ††	• -40 to -30		Inverter Cutback (High)(°C) ††	• 80 to 90	
Ambient Operation (°C)	• -30 to 80		IP rating	• IP66 (when mated with logic connector)	
†† Depending on ambient, heatsinking and duty					
Mass, Dimensions and Drawings					
Model	Gen4-Size 6		Gen4-Size 4		Gen4-Size 2
	80V, 550A	48V, 650A	80V, 350A	48V, 450A	48V, 275A
Mass (kg)	4.9		2.73		1.96
Length (mm)	170		170		187
Width (mm)	305		228		165
Height (mm)	86		77		71
Gen4-Size 6		Gen4-Size 4		Gen4-Size 2	
IO					
IO	<ul style="list-style-type: none"> • 8 digital inputs • 2 analogue inputs (can be configured as digital) • 3 contactor/solenoid outputs • 1 encoder supply output - programmable 5V or 10V 		Encoders	<ul style="list-style-type: none"> • Absolute UVW encoder input • Absolute Sin/Cos encoder input • Incremental AB encoder input 	
Safety and Compliance					
Electrical Safety	• IEC60664	• UL840	• EN1175		
Additional Information					
<ul style="list-style-type: none"> • A CANopen bus allows easy interconnection of controllers and devices such as displays and driver controls • The CANbus allows the user to wire the vehicle to best suit vehicle layout since inputs and outputs can be connected to any of the controllers on the vehicle and the desired status is passed over the CAN network to the relevant motor controller • Our inverters can dynamically change the allowed battery current by exchanging CAN messages with a compatible Battery Management 					
Configuration					
Turntide offers a Windows-based PC tool for configuration of the inverter. The tool provides a simple yet powerful means of accessing the CANOpen bus for diagnostics or parameter adjustment. Communication is through CAN, an IXXAT CAN-to-USB dongle is required.					

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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