

# Gen4 Size 10

An AC motor controller designed to meet the high performance requirements of on-road and off-road Electric (EV) and Hybrid Electric Vehicles (HEV)

A compact, rugged and cost effective design, the Gen4 Size 10 is well suited for EV OEMs, EV conversions and EV drive train system integrators. Its high voltage range, up to 800VDC, is well matched to the needs of the automotive and commercial transport markets. The same hardware platform handles both AC Induction and Permanent Magnet AC motor technologies.



## Features

- + AC Permanent Magnet synchronous motor
- + AC Induction motor
- + Up to 800VDC peak supply voltage
- + Up to 300kW peak power output
- + Up to 150kW continuous power output
- + Advanced flux vector motor control
- + Integrated logic circuit
- + Includes an additional dedicated safety I/O circuit
- + 12V or 24V supply
- + Safety interlock pulsed enable signal



## Key Parameters

- + Operating voltage range at full current 50V to 800V
- + Output motor phase current: o 400A rms (2 min) o 200A rms (Continuous)
- + Water/Glycol coolant. Oil cooling available, contact Turntide

### Safety:

- + Electrical safety to ISO 6494, IEC 60664 and UL840 o Functional safety to ISO26262 o Pulsed safety enable input o Pulsed status output

### Environmental:

- + -40°C to +85°C operation o IP6k9k and IP67 protection o ISO 16750
- + 12V or 24V nominal supply
- + Weight: 10.9kg

## Multiple Motor Sensor Feedback Options

Gen4 Size 10 provides a number of motor feedback possibilities from a range of hardware inputs and software control, allowing a great deal of flexibility.

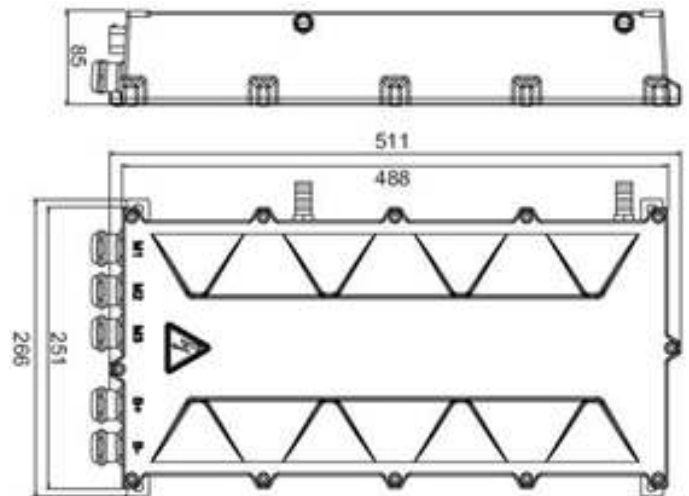
- + Absolute UVW encoder input
- + Absolute Sin/Cos encoder input
- + Incremental AB encoder input
- + Resolver input
- + Programmable 5V to 10V encoder power supply

## Intelligent I/O

Gen4 Size 10 includes a fully-integrated set of inputs and outputs (I/O) designed to handle a wide range of vehicle requirements. This eliminated the need for additional external I/O modules or vehicle controllers and connectors.

- + All I/O protected to 40V
- + 4 analogue inputs 0-10V
- + 4 digital inputs
- + 3 power supplies 0-10V 100mA
- + 3 digital outputs PWM max 2A

## Dimensions



## Other Features

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

The Gen4 Size 10 controller can dynamically change the allowed battery current by exchanging CAN messages with a compatible Battery Management System

Configurable as vehicle control master or motor slave

## Configuration Tools

Turntide offers a range of configuration tools for the Gen4 Size 10 controller, with options for Windows based PC or calibrator handset unit. These tools provide a simple yet powerful means of accessing the CANopen bus for diagnostics or parameter adjustment. The handset unit features password protected access levels and a customized logo start-up screen.

