

PROTEAN TWINVERTER®

Protean Electric is an automotive technology innovator, and the world-leading developer of ProteanDrive in-wheel motors.

Protean's Twinverter combines two separate high-power Silicon Carbide inverters into a single enclosure to provide the control for a pair of in-wheel motors. It offers a combination of packaging advantages, new vehicle design freedoms and performance benefits to deliver product differentiation, margin and market share opportunities.

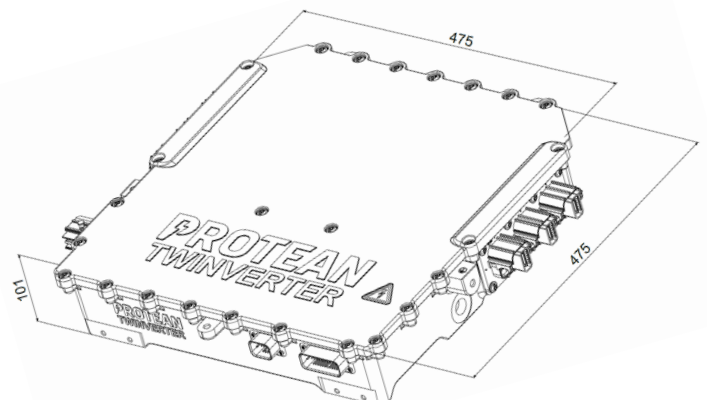
The Twinverter may be combined with a range of different motor sizes and delivers a high volume, low cost and scalable solution for vehicle powertrains.

Key benefits:

- Combines two high-power, high-efficiency Silicon Carbide inverters into a single package.
- AUTOSAR compliant software platform, aligning to standardised automotive software framework.
- Improved safety architecture, developed in accordance with the ISO26262 functional safety standards.

Key Features:

- Drives a pair of Protean's high torque, direct drive in-wheel motors delivering over 5000Nm directly to the wheels
- High power and current density delivering over 500kW of Power to the wheels
- Peak efficiency >99%



PRELIMINARY DATA SHEET

Parameters

Characteristic		Value	Units
DC continuous current	50°C	596	A
AC three-phase peak current/side ²	coolant.	650	Arms
HV DC Supply Voltage Range (for full performance)		450 to 800	Vdc
HV DC Supply Voltage Range (restricted performance)		368 to 900	Vdc
Twinverter Mass (excluding coolant and cables)		20	kg
Twinverter Volume		15.5	litres
Twinverter Dimensions		420 x 430 x 86	mm
Coolant Inlet Temperature Range (for full performance)		-20 to +50	°C
Cooling Fluid		50/50 Water/Glycol	
Coolant Connection		Customisable coolant manifold	
Ambient Temperature Range		-40 to +90	°C
Nominal Coolant Flow Rate		14	l/min
Coolant Pressure Loss @ 14l/min		0.019	bar
Maximum Coolant Pressure		2.5	bar
DC Bus Capacitance		450	µF
Control Interface (torque demand) ¹		CAN 2.0b / CAN-FD	
Software Platform		Elektrobit - AUTOSAR 4	
High Voltage DC Connection		Integrated Automotive Connector	
High Voltage AC Connection		Integrated Automotive Connector	
Low Voltage Connections		Integrated Automotive Connector	
Ingress Protection Rating		IP6K9K	
Mounting Arrangement		Rigid mounting on sprung mass	

1 Optional redundant CAN
2 At 12kHz switching frequency