

# CASCADIA MOTION

## PM250 Propulsion Inverter



6 (0-5V) Analog Inputs  
 2 selectable PT100 / PT1000  
 RTD Inputs  
 8 Digital Inputs STB/STG  
 4 High Side Driver Outputs  
 2 Low Side Driver Outputs  
 1 Resolver Interface  
 1 Sin-Cos Encoder Interface  
 2 CAN 2.0A/B Ports .25-1MB  
 adjustable rate and offset  
 RS232 Programming Port  
 M32 Cable Gland Connections  
 Designed to ISO16750 heavy  
 vehicle climatic, mechanical,  
 and environmental require-  
 ments  
 ISO20653 high pressure wash  
 rated IP6K9K / IP67  
 Easy to use CAN-based net-  
 work node  
 CAN Database (DBC) Available  
 Standard J1939 on request  
 Extensive feedback broadcast  
 messaging for datalogging  
 Calibration with production  
 tools  
 PC-based setup and program-  
 ming tools available for free  
 M12-ORB coolant ports—can  
 be adapted to any hose  
 fitting, any angle  
 Robust, fault-tolerant IGBT  
 power stage  
 No internal DC-link EMI Filter  
**FUNCTIONAL SAFETY**  
 Compatible with ISO26262  
 vehicle safety certification  
 (not standalone compliant)  
 Command Safety Watchdog  
 ISO6469 High Voltage Safety

Controller Model	PM250DX	PM250DZ	
DC Voltage – operating	50—400	100—800	V <sub>DC</sub>
DC Overvoltage Trip	420	840	V <sub>DC</sub>
Maximum DC Voltage – non-operating	500	900	V <sub>DC</sub>
Motor Current Continuous*	450	450	A
Motor Current Peak**	750	600	A <sub>rms</sub>
Output Power Peak (electrical)**	200	300	kW
DC Bus Capacitance	1500	645	μF
Size and Volume	523 x 391 x 75 / 15.4		mm/L
Weight	18.2		kg
Active Discharge via motor winding to <50V	< 1		sec
Vehicle System Power	9 .. 16		V <sub>DC</sub>
Inverter PWM Frequency	12 (6..16 adjustable pending)		kHz
Operating Temperature Range – coolant water	- 40 .. +80, (derate to zero 80..105)		°C
Coolant Flow Rate	24 .. 30 (3 GPM min)		LPM
Coolant Pressure Drop (60°C coolant /10 LPM)	1.3 (132kPa / 18psi)		bar
Maximum Coolant Pressure (absolute)	2.75 (275kPa / 40psia)		bar
Operating Shock (ISO 16750-3, Test 4.2.2.2)	500 (50g), pending		m/s <sup>2</sup>
Operating Vibration (ISO 16750-3, 4.1.2.4—IV)	27.8 (3g <sub>rms</sub> ), pending		m/s <sup>2</sup>
Cable Gland Size	M32		
Conductor Size min .. max recommended	#2/35 .. #000/95		AWG/mm <sup>2</sup>
Cable OD min .. max recommended***	11 .. 21		mm

\* Continuous current is limited by the size of the conductor.

\*\* Peak current is defined as a maximum of 30 seconds.

\*\*\* Depending on cable type, an additional sleeve may be needed to seal the Cable O.D. to the cable gland.

Ratings subject to change without notice—consult factory

These Propulsion Inverter products are designed and manufactured to comply with the following international standards: ISO6469, ISO6493-3, ISO16750, ISO20653, IEC60950, <IEC61000 pending>

### PM250DZR Racing Version available under special order:

- provides 700Arms peak current in the smallest package for 800V-class applications

This version trades useful operating life for increased peak power handling in transients. Suitable for:

- Motorsport
- Hybrid supercar



Cascadia Motion LLC

power electronics, motors and propulsion controls

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