

PMI50 INVERTER



PMI50DZR RACING VERSION **AVAILABLE BY SPECIAL ORDER**

- Provides 400Arms 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 light aircraft and motorsports. Requires coolant temperature to be less than 60°C to take advantage of -R current increase.

FEATURES

- 6 (0-5V) Analog Inputs
- 2 RTD Inputs PT100/1000
- 8 Digital Inputs STB/STG
- 4 High Side Driver Outputs
- 2 Low Side Driver Outputs
- I Resolver Interface
- I Sin-Cos Encoder Interface (-SP Option)
- 2 CAN 2.0A/B Ports 0.25-IMB adjustable rate and
- RS232 Programming Port
- M32/M24 Cable Gland Connections
- Designed to ISO 16750 heavy vehicle climatic, mechanical, and environmental requirements
- ISO20653 high pressure wash rated IP6K9K / IP67
- Easy to use CAN-based control and feedback
- CAN Database (DBC) Available
- 11939 compatible CAN messages available
- Comprehensive fault logging and diagnostics
- PC-based setup and programming tools available for
- AN6 coolant ports—can be adapted to any hose fitting,
- Robust, fault-tolerant IGBT power stage
- No internal DC-link EMI Filter
- Command Safety Watchdog
- ISO6469 High Voltage Safety

The PMI50 is a great mid-sized inverter for I30-200 kW applications plus multi-motor setups.

DC Voltage – operating DC Overvoltage Trip A20 840 VDC Maximum DC Voltage – nonoperating Motor Current Continuous A00 225 Arms Motor Current Peak * 450 300 Arms Output Power Peak (elect) * 150 170 kW DC Bus Capacitance 880 600 µF Size and Volume Vehicle System Power Inverter PWM Frequency ** Coolant Flow Rate Coolant Flow Rate Coolant Pressure Coolant Pressure (absolute) Coolant Pressure Drop (60°C Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Commended Cable OD min max recommended **** Tout Page 120 840 VDC Advised Page 150 900 VDC Results A20 170 kW Active Discharge via motor winding to <50V Vehicle System Power 9 16 VDC 12 (616 variable with upgrade) At 2 (616 variable with upgrade)	PM150	DX	DZ	Units
Maximum DC Voltage – non-operatingMotor Current Continuous400225ArmsMotor Current Peak *450300ArmsOutput Power Peak (elect) *150170kWDC Bus Capacitance880600μFSize and Volume200 × 87 × 436mm / 7.6/ LWeight10kgActive Discharge via motor winding to <50V	DC Voltage – operating	50-400	100-820	VDC
Operating Motor Current Continuous 400 225 Arms Motor Current Peak * 450 300 Arms Output Power Peak (elect) * 150 170 kW DC Bus Capacitance 880 600 μF Size and Volume 77.6 / L Weight 10 kg Active Discharge via motor winding to <50V Vehicle System Power 9 16 VDC Inverter PWM Frequency ** with upgrade) Operating Temperature Range—coolant Water coolant Flow Rate Coolant Flow Rate (absolute) Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size M32-1.5 M32-1.5 Conductor Size min max recommended Cable OD min max	DC Overvoltage Trip	420	840	VDC
Motor Current Peak * Output Power Peak (elect) * DC Bus Capacitance Size and Volume Weight Active Discharge via motor winding to <50V Vehicle System Power Inverter PWM Frequency ** Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Conductor Size min max recommended Cable OD min max 11 21 9 16 5 mm		500	900	VDC
Output Power Peak (elect) * DC Bus Capacitance Size and Volume Veight Active Discharge via motor winding to <50V Vehicle System Power Inverter PWM Frequency ** Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, A.1.2.4—IV) Cable Gland Size Conductor Size min max recommended Cable OD min max 11 21 9 16 5 mm	Motor Current Continuous	400	225	Arms
Size and Volume Size and Volume Weight Active Discharge via motor winding to <50V Vehicle System Power Inverter PWM Frequency ** Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Coolent Coolent I Maximum Coolant Size min max recommended Cable OD min max Size and Volume 200 × 87 × 436 mm // L Rmm / L 200 × 87 × 436 mm / L 8 I0 VDC 12 (616 variable with upgrade) VHZ 8 I0 (2 GPM min) Cable Gland Size 4.5 (450kPa / 65psi) Dar 4.5 (450kPa / 65psi) Dar 4.5 (450kPa / 65psi) M32-1.5 M32-1.5 Cable Gland Size Conductor Size min max recommended Cable OD min max 11 21 9 16 5 mm	Motor Current Peak *	450	300	Arms
Size and Volume Weight Active Discharge via motor winding to <50V Vehicle System Power Inverter PWM Frequency ** Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Cable OD min max Coolant Pressure Vegeta (absolute) Coolant Size min max recommended Cable OD min max VDC I10 kg Sec VDC I2 (616 variable with upgrade) ALI (616 variable vith upgrade) ALI (616 variable	Output Power Peak (elect) *	150	170	kW
Weight 10 kg Active Discharge via motor winding to <50V Vehicle System Power Inverter PWM Frequency *** Operating Temperature Range—coolant water Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size M32-1.5 M32-1.5 Conductor Size min max recommended Cable OD min max Table Solve (ISO 16750-3, 12/2) Metal IO (Signature) VDC VDC VDC VDC VDC VDC VDC VD	DC Bus Capacitance	880	600	μF
Active Discharge via motor winding to <50V Vehicle System Power Inverter PWM Frequency ** Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Coolant Coolant Rate Coolant Size min max recommended Cable OD min max Locate Size min max recommended Cable OD min max Colant Pressure vita motor sector and sector sector and	Size and Volume			
winding to <50V Vehicle System Power Inverter PWM Frequency ** Operating Temperature Range—coolant water Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Conductor Size min max recommended Cable OD min max Coolant Flow Rate 12 (616 variable with upgrade) AHZ (2 GPM min) AHZ (42kPa / 6psi) Bar AHZ (450kPa / 65psi) Bar AHZ (450kPa / 65psi) Bar AHZ (3grms), pending M32-1.5 AWG/ mm² Cable OD min max	Weight	10		kg
Inverter PWM Frequency ** Inverter PWM Inver		<		sec
Operating Temperature Range— coolant water Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Conductor Size min max recommended Cable OD min max Vital upgrade) - 40 +80, (derate to zero 80100) 8 10 (2 GPM min) D.4 (42kPa / 6psi) bar 4.5 (450kPa / 65psi) bar 65psi) 700 (50g), pending m/s² 27.8 (3grms), pending M32-1.5 M32-1.5 AWG/ mm²	Vehicle System Power	916		VDC
Coolant Water Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Conductor Size min max recommended Cable OD min max To zero 80100) 8 10 (2 GPM min) D.4 (42kPa / 6psi) bar 4.5 (450kPa / 65psi) bar 65psi) 700 (50g), pending m/s² 71.8 (3grms), pending m/s² 72.8 (3grms), pending m/s² AWG/mm² Cable OD min max Recommended Cable OD min max	Inverter PWM Frequency **			kHz
Coolant Flow Rate Coolant Flow Rate Coolant Pressure Drop (60°C coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Conductor Size min max recommended Cable OD min max Coolant Flow Rate 8 10 (2 GPM min) D.4 (42kPa / 6psi) bar 4.5 (450kPa / 65psi) bar 500 (50g), pending m/s² 27.8 (3grms), pending M32-1.5 M32-1.5 AWG/ mm²				°C
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coolant / 10 LPM) Maximum Coolant Pressure (absolute) Operating Shock (ISO 16750-3, Test 4.2.2.2) Operating Vibration (ISO 16750-3, 4.1.2.4—IV) Cable Gland Size Conductor Size min max recommended Cable OD min max LL 21 9 16.5 mm		` .		LPM
(absolute) 65psi) bar Operating Shock (ISO 16750-3, Test 4.2.2.2) 500 (50g), pending m/s² Operating Vibration (ISO 16750-3, 4.1.2.4—IV) 27.8 (3grms), pending m/s² Cable Gland Size M32-1.5 M32-1.5 AWG/mm²² Conductor Size min max recommended 4.1.2.4—IV) 4.1.2.4—IV) AWG/mm²² Cable OD min max 4.1.2.4—IV) 4.1.2.4—IV) AWG/mm²²		0.4 (42kPa / 6psi)		bar
Test 4.2.2.2) SOU (SUg), pending m/s² Operating Vibration (ISO 16750-3, 4.1.2.4—IV) pending m/s² Cable Gland Size M32-1.5 M32-1.5 Conductor Size min max recommended Cable OD min max		`		bar
Cable Gland Size M32-1.5 M32-1.5 Conductor Size min max recommended Cable OD min max H2/35.#000/75 #4/30.#1/50 mm ²	. •	500 (50g), pending		m/s ²
Conductor Size min max recommended Cable OD min max LL 21 9 16 5 mm		` • /		m/s ²
recommended #2/35.#000/75 #4/30.#1/50 mm ² Cable OD min max	Cable Gland Size			
recommended mm ² Cable OD min max	Conductor Size min max	#2/35#000/75	#4/30#1/50	
11 /1 / 165 mm				mm ²
		11 21	9 16.5	mm

Ratings subject to change without notice—consult factory

- Peak current is defined as a maximum of 30 seconds.
- Gen5 control upgrade is available on some applications which adds a variable PWM rate function. This allows lowering of the PWM rate for up to 33% more peak current and raising of the PWM rate at very high motor speeds for such applications needing it.
- *** Depending on the cable type, an additional sleeve may be needed to seal the cable.



cascadiamotion.com +1-503-344-5085





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