

4.0KW 400VDC-24VDC

LIQUID COOLED SEALED CONVERTER FOR VEHICLE APPLICATIONS



The 4000W LiquetaCore® power module is a high voltage liquid cooled DC-DC converter which steps down 400V and provides 24V output, common in hybrid and electric vehicle applications. The output voltage is electrically isolated from the input voltage and suits the conventional 24V accessories and HVAC system requirements of industrial and eco-friendly vehicles.

Features:

- Liquid Cooled DC-DC Converter
- IP67 and IP6k9k Environmental Protection
- 290-430VDC Input Voltage Range
- 22 – 30VDC Output Voltage Range
- Galvanic Isolation Input – Output
- High Efficiency – up to 94%
- CAN Bus Interface, Field Configurable
- Bulkhead mounting
- Host of Safety/Protection Functions

| Specifications | |
|------------------------------------|---|
| Input | |
| Voltage | 290 – 430VDC. Power delivered in the operational range will depend on Operating Envelope |
| Transient Voltage | Up to 450VDC, down to 280V |
| Inrush Current | 25A Maximum under cold start conditions |
| Efficiency | Up to 94% |
| Over-current Protection | User-supplied external 20A fuse |
| Output | |
| Voltage | 28.3VDC Nominal / 22–30VDC Adjustment Range via CAN command with 50mV resolution |
| Current | 150A DC Maximum |
| Power | 4000W Maximum |
| Ripple and Noise | <400mVp-p (20MHz Bandwidth) |
| Load Regulation | 2.5% Droop from No Load to Full Load (Designed to support droop current share when paralleled with other similar units) Lower droop options available |
| Parallel Use | For increased system output, like units may be paralleled |
| Temp. Coefficient | <± 0.02% per °C |
| Dimensions | H409 x W165.1 x D69.9 mm (see outline drawing) |
| Weight | 5.6kg (12.3lb) |
| PROTECTION | |
| Input Under-Voltage | <280V |
| Input Over-Voltage | Shutdown >450V |
| Output Under-Voltage | Shuts down <15V |
| Output Over-Voltage | Shutdown >31V |
| Output Over-Current | The converter becomes a current source during OC, down to short circuit |
| Over-Temperature | Shutdown with auto recovery |
| Reverse Polarity Protection | Keyed input connector, dynamic reverse polarity protection on output |



DEMANDING APPLICATIONS DEMAND TDIPOWER

www.tdipower.com | +1 908-850-5088

© Copyright 2014, Transistor Devices, Inc.

This document is believed to be correct at time of publication and Transistor Devices, Inc. accepts no responsibility for consequences from printing errors or inaccuracies. Specifications are subject to change without notice

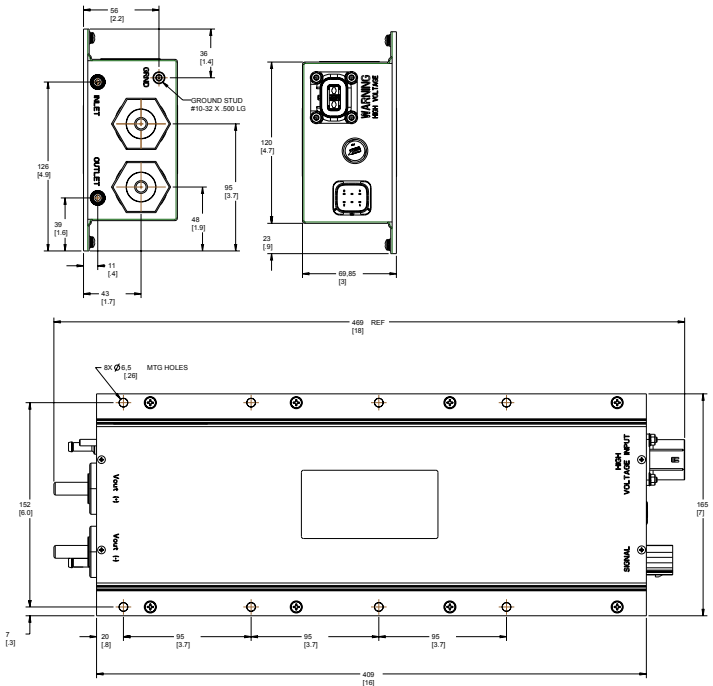


4.0KW 400VDC-24VDC

LIQUID COOLED SEALED CONVERTER FOR VEHICLE APPLICATIONS

| Specifications | |
|-------------------------------------|---|
| Communication | |
| Communication Protocol | J1939 CAN Bus |
| CAN Bus Status Message | Output Current, Output Voltage, Input Power (calculated), Heat Sink Temperature and fault signals |
| Electronic Control Inputs | |
| Remote Enable: | Application of >7.8V input signal will enable the units Output. Less than 7.8V, or open circuit on this pin disables output |
| Connectors: | |
| Input | IP67/IP6k9k connector rated to 600VDC |
| Output | Heavy Duty Studs 3/8-16 |
| Control | IP67/IP6k9k connector (Molex MX150L series) |
| ENVIRONMENTAL SPECIFICATIONS | |
| Coolant Medium / Mixture: | 60/40 Propylene or 50/50 Ethylene Glycol/Water |
| Coolant Flow | 3.0 L/min, min 2.5L/min |
| Inlet / Outlet Coolant Connections | SAE-J1231 Type 1 beaded head fittings |
| Maximum Coolant Pressure | 310 KPa (44.96psi) |
| LiquaCore Flow Curve | |
| Storage / Transportation | -40°C to +85°C |
| Humidity Operating and Storage | 0% to 100% RH (condensing) |

| Specifications | |
|--|---|
| ENVIRONMENTAL SPECIFICATIONS | |
| Inlet Coolant Temp. | -30 to +60°C |
| Working Ambient Temp | -40 to +85°C |
| Low Temp Turn On | -40°C minimum |
| Warm up Time | 1 minute |
| Vibration | The converter is designed to meet vibration profiles used in automotive applications IEC 60068-2-64 Spectrum A.3 (Equipment in wheeled vehicles, Category 1 and 2 and MIL-STD-810G, Method 514.6 (Ground Mobile) |
| Salt Fog | MIL-STD-810G Method 509.5 |
| SAFETY AND REGULATORY AGENCY COMPLIANCE | |
| Input to Ground Isolation | 10M-Ohm at 500VDC |
| Output to Ground Isolation | 10M-Ohm at 50VDC |
| Hazardous Substances | Complies with RoHS lead exemption directive. |
| EMI: | The EMI performance of Liquacore® DC/DC solutions has been successfully evaluated against a wide range of conducted, radiated and susceptibility EMI requirements applicable to vehicular environments. Consult TDI power for more details of the product's EMI performance |
| PART ORDERING CODE | |
| LSM4k0-400-24 | |



DEMANDING APPLICATIONS DEMAND TDIPOWER

www.tdi-power.com | +1 908-850-5088

© Copyright 2014, Transistor Devices, Inc.

This document is believed to be correct at time of publication and Transistor Devices, Inc. accepts no responsibility for consequences from printing errors or inaccuracies. Specifications are subject to change without notice

