

ZeroAvia's inverter is a Silicon Carbide (SiC)-based, high-efficiency system, specifically designed for high altitude and unpressurized areas. Converting HVDC voltage to three phases (3Φ) AC power, the inverter has been designed from the ground-up for aerospace, offering a high level of segregation and fault tolerance. ZeroAvia's design achieves a high-power density and reduced weight with advanced thermal management technologies and integration. The product provides reliable high performance and volume efficiency for optimal engine compartment location.



FEATURES

- Continuous Power 200kW @ 75°C Coolant continuous
- Max Power 225kW under 820 Vdc @ 50°C coolant and for 5 min
- High Power Density 20kW/kg (18.7kW/L)
- Programmable switching frequency 10kHz
- Low Voltage Control Power +28 Vdc per MIL-STD-1275
- Analogue and digitally controlled torque, speed and DC power
- Dual redundant CAN interfaces
- Continuous Built-In-Test (CBIT)
- Reliability per MIL-HDBK-217F: 80,000H Pressurized area and 50,000H Unpressurized zone
- Compliant DO160G (CAT per request) and MIL-ST-704F
- Fault tolerant and fail-safe following MIL-PRF-GCS600A
- MIL-STD-1275E and DO160G for 28 Vdc network
- Compliant DO178C and DO254 – complex HW
- CAN bus communication for firmware upgrades, configuration programming and status reporting
- Efficiency: 98–99% vs load and speed
- Coolant: Turbine oil and Water-Glycol (performances upon request)

PHYSICAL

- Weight: 10 kg
- Dimension: 275mm x 305mm x 144mm
- Connectors HV: Amphenol Voltarius
- Connectors LVDC: MIL-DTL-38999
- Mounting: 3 points with HT2-100

ENVIRONMENTAL

- Operation temperature: -45°C to 55°C
- Coolant temperature: -45°C to 75°C
- Altitude: up to 10,000 feet (unpressurised area)
- Temperature and Altitude: DO160-G CAT B2
- Temperature variation: DO160-G CAT A
- Vibration: DO160-G – S curve U
- Water proofness: DO160-G – CAT S
- Fire flammability: DO160-G – CAT B
- Emission RF: DO160-G – CAT LMH
- Lightning: DO160-G – CAT A3K3L3
(Upon request for higher CAT~B4)
- ESD: DO160-G – CAT A

ELECTRICAL INTERFACES – I/O

Resolver, Encoder and Encoder SIN/COS		8 DI/DO/Analog inputs		2 Throttle inputs		8 PT1000
P/N	HVDC	LVDC	HVAC CURRENT	OUTPUT POWER	FUNDAMENTAL FREQUENCY	LV CONNECTOR
ZA 600-INV	400–820 Vdc	18–35 Vdc Transient 50 Vdc	300 Arms 330 Arms for 1 min	200 kW continuous	Up to 2 kHz	Ethernet Bus RS485 RS232 2 CAN buses



DATASHEET-ZA-0001-REV-02



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