

ZeroAvia inverter is a Silicon Carbide (SiC) based high efficiency integrated bidirectional operation, specifically designed for high altitude and unpressurized area. The inverter bidirectionally converts HVDC voltage to three phases (3 Φ) AC power. The inverter offer a high level of segregation and fault tolerance. The inverter is designed and produced following aerospace standards, allowing a high-power density and reduced weight with advanced thermal management technologies and integration to enable reliable high performance for high altitude and engine compartment location.

FEATURES

- Specification per MIL-PRF-GCS600A adjusted to 800Vdc
- Continuous Power 200kW @ 75°C Coolant continuous
- Max Power 225kW under 800Vdc @ 50°C coolant and for 5 min
- High Power Density 20kW/kg (18.7kW/L)
- Programmable switching frequency 10–20kHz
- Low Voltage Control Power +28Vdc 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 28Vdc network
- Compliant DO178C and DO254 – complex HW
- AEC-Q101 SiC device qualification
- CAN bus communication for firmware upgrades, configuration programming and status reporting
- Efficiency: 98–99% vs load and speed
- Back up operation capability
- Coolant: Turbine oil and Water-Glycol (performances upon request)

ELECTRICAL INTERFACES – I/O

Resolver, Encoder and Encoder SIN/COS	8 DI/DO/Analog inputs	2 Throttle inputs	8 PT1000
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ZA 600-INV	400–830 Vdc 1000Vdc Unloaded	18–35 Vdc Transient 50 Vdc	300 Arms 330 Arms for 1 min	200kW continuous	Up to 2 kHz	Ethernet Bus RS485 RS232 2 CAN buses
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PHYSICAL

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

ENVIRONMENTAL

- Operation temperature: -45°C to 100°C
- Coolant temperature: -45°C to 75°C
- Altitude: up to 35,000 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
(Upon request for higher CAT ~B4)
- ESD: DO160-G – CAT A



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