

AC/DC Converter for Aviation



The 140 W converter was designed for the AIRBUS A320 program and supplies the air-chiller control electronics inside the galley, converting a single-phase voltage of 115 V/360-800 Hz into a voltage of 28 VDC. The technology is based on the pulse width modulation (PWM) technique and uses power MOSFETs for the power stage.

State-of-the-art control electronics are used by an integrated circuit providing factor correction of enhanced transition mode power.

Overload and short circuit situations are managed by accordant derating of the power stage.

Wärtsilä introduces state-of-the-art static power conversion equipment designed using the latest available technology and provides significant

environmental features, such as vibration resistance, a wide operating temperature range, and humidity. Furthermore, EMI measures are provided in order to operate the equipment together with sensitive equipment. The static power conversion equipment fulfils the requirements of the RTCA DO160 and the ABD 100.1.8, providing measures to reduce the differential mode and common mode interferences on input and output leads.

For Commercial Aircraft

Standard Features

- Input Power Factor Correction
- Short-circuit protected
- Low weight and dimension
- MTBF >100.000h
- Low noise

Application

- Civil Aircraft

Support Service

- Full Product Support
- AOG Service





Electrical Specifications

Input voltage

Voltage 97-134 Vac / 360-800 Hz acc. to RTCA DO 160G and ABD100.1.8

Current, nominal approx. 1.5 A max. @ 115 Vac

Output voltage

Power 140 W continuously

Voltage 28 Vdc

Ripple < 2 V peak-to-peak @ 140 W

Static tolerance < 5% at any static and balanced load

Short circuit Protection

Environmental Specifications

Efficiency $\geq 80\%$ at full load

Vibration acc. to RTCA DO160 G, Ch8.0, Cat S / B

RFI / EMI acc. to RTCA DO160

Acoustic noise ≤ 55 db(A)_{20uPa} in 1 m distance & temperature > 55 °C

Insulation resistance Power leads > 10 M Ω ,
signal leads > 100 M Ω

Operating temperature.. acc. to RTCA DO160 G, Ch4.0, Cat A1

Humidity acc. to RTCA DO160 G, Ch6.0, Cat A

Physical Characteristics

The 140 W converter is housed in an aluminium enclosure.

The air inlet is distributed on the front side of the converter.

The air exhaust is on the rear side of the converter.

Weight 500g

Housing dimensions 120 x 50 x 160 mm
(HxWxD without connector)

Cable inlet from front side by
MIL-STD 38999 connector

Design Characteristics

MTBF: > 100.000 h

Cooling by internal fan, activated when temperature is above 55 °C.

Power supply switched off when temperature is above 85 °C

Protection IP 21

Remote monitoring

by open collector optical coupler. Status DC available.

