

Auto Transformer Rectifier Unit for Aviation



The high efficient & lightweight 45 kW ATRU was designed and developed by Wärtsilä for the Airforce of India for the latest aircraft generation of the EMBRAER 145 AEW & C for powering the onboard aircraft radar system developed by DRDO India.

The EMB145 aircraft is one of the most advanced and affordable Airborne Early Warning & Control aircraft which is currently available on the market.

The ATRU fulfils exceptional demands and it meets all environmental requirements of common military standards for airborne equipment.

For Military Aircraft

Standard Features

- Wide temperature range
- High efficiency > 95%
- Low weight and size
- Power density >1 kW/kg
- High reliability
- RTCA / DOD 160D
- MIL-STD 810E, 704E

Application

- Military Aircraft Radar

Support Service

- Complete Integrated Logistic Support (ILS)

Key Features of the ATRU:

- 18 pulse rectifier
- Input EMI suppression filter
- Output filter
- Build in monitoring electronic
- Front panel LED indicators & external monitoring interface connector
- Power / weight ratio: > 1.0 kW/kg
- Autotransformer with strip wound core
- MTBF: > 75.000 h
- Operating temperature range: -40°C up to + 70°C
- High reliability by using passive components
- MIL-STD 810E, 704E





Electrical Specifications

Input

Voltage 200 VAC, 3-ph
 Frequency 400 Hz, \pm 8%
 Voltage spikes
 and transients..... Acc. to MIL-STD 704 E
 Frequency transients..... Acc. to MIL-STD 704 E

Output

Voltage 270 VDC
 Current 165 A (-40° up to +50°C)
 Ripple < 6 Vrms at 45 kW load
 (without capacitance load)
 Overload..... 195 A for 5 min
 260 A for 1 min
 430 A for 1 s
 Efficiency > 95 %

Environmental Specification

Temperature range..... -40°C to +70°C (operation)
 -55°C to +100°C (storage)

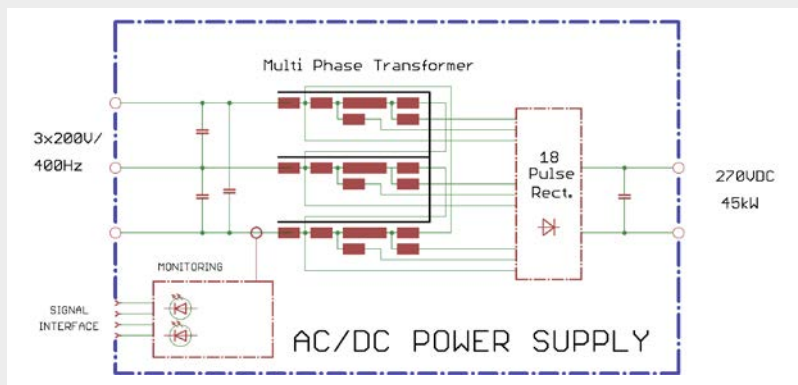
Humidity < 95%
 Shock..... 30 g/2.5 ms, 25 g/6 ms, 15 g/20 ms
 according to MIL-STD 810 E
 Vibration Random, 15 g RMS
 Altitude 4.4 kPa (20.000 m)
 EMC..... According to RTCA DO160-F
 Protection..... IP 20 according to DIN 40050

Physical Characteristics

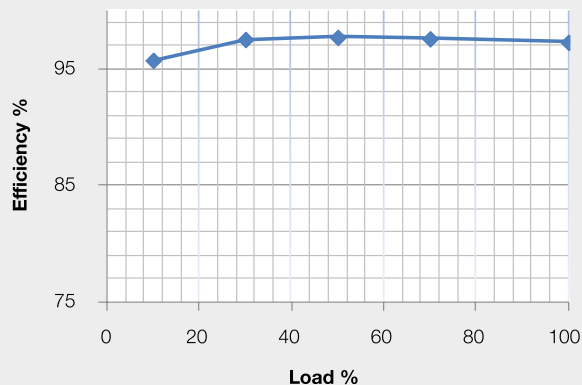
Dimensions..... Height 230 mm
 Width 200 mm
 Depth 339 mm
 Weight..... 30 kg

Design Characteristics

Power per weight/
 per volume 1,500 W/kg, 28.9 kW/ltr.
 Dielectric resistance..... > 100 MOhm
 MTBF > 75,000 h



ATRU 2052 Block diagram



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