

AUTO TRANSFORMER RECTIFIER UNIT FOR AVIATION

The Auto Transformer Rectifier Unit (ATRU) is designed to convert a 3-ph aircraft AC voltage of 200 VΔ-400 Hz into a voltage of 270 Vdc. The ATRU consists state-of-the-art power conversion components and was developed for a US defense program of a unmanned aeronautical vehicle. All components are housed in an aluminium cabinet designed according to the general requirements of military aircraft.



For Military Aircraft & UAV

Standard Features

- Wide temperature range
- High efficiency > 95%
- Low weight and size
- RTCA DO 160G
- MIL-STD 704E

Application

- Military fixed & rotary wing

Support Service

- Complete integrated logistic support (ILS)

Key Features of the ATRU

- 12 pulse rectifier
- Input EMI suppression filter
- Front panel LED indicators & external monitoring interface connector
- Power / weight ratio: > 1.38 kW / kg
- High MTBF
- Passive components



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..... 74 A
 Ripple < 6 Vrms at 20 kW load
 (without capacity load)
 Overload 110 A for 2 min
 160 A for 5 sec
 Efficiency..... > 95% at 100% load

Monitoring

Temperature of the transformer and rectifier by PT100

Environmental Specification

Temperature range..... - 40°C to +71°C (operation)
 - 55°C to +85°C (storage)

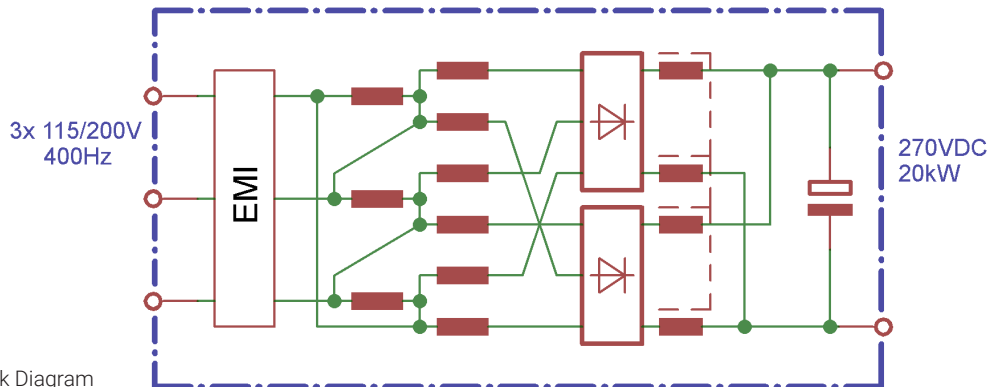
Humidity..... < 95%
 Shock..... 20 g/11 ms, crash 40 g/11ms
 Vibration Random, 15 g RMS
 Altitude..... - 500 up to +15.000 m
 EMC..... Acc. to MIL-STD 461B, CE102 (> 150 kHz),
 CE106 CS101,103-105,114,116,
 RE102,RE103, RE02
 Protection..... IP 20 acc. to DIN 40050

Physical Characteristics

Dimensions..... Height 204 mm
 Width 350 mm
 Depth 164 mm
 Weight..... 14.5 kg

Design Characteristics

Power per weight/
 per volume 1,380 W/kg
 Isolation resistance..... > 100 M Ω
 MTBF..... > 1,000,000 h



ATRU 2060 Block Diagram