



RECTIFIER UNIT FOR AVIATION

The Rectifier Unit (RU28) Model 2063 converts an aircraft's primary three-phase 115VAC/ 400Hz generator power to 28 VDC with outstanding power density.

This lightweight 175A Rectifier Unit has been especially designed for the latest Fighter Aircraft SAAB Gripen E.

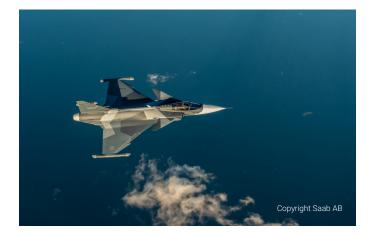
The basic electrical topology of the RU28 is a 12-pulse rectifier circuit. The transformer has two independent secondary windings, providing interleaved secondary three phase AC voltage systems with a phase shift of 30 degrees. This arrangement ensures low harmonic content in the input current of the RU28. An interphase transformer decouples the two six-pulse bridge rectifiers that are connected to the two secondary windings.

In a traditional transformer rectifier unit (not used here), simple diodes would be used as rectifying semiconductors. With diodes, the conduction losses are dominated by the load-independent forward voltage drop of the diode. To meet the efficiency requirements a novel rectifier unit was developed which utilizes the principle of synchronous rectification to reduce the conduction losses of the

For Military Aircraft

Key Features

- High efficiency
- Low weight and size
- Integrated data memory & recording function
- Integrated BIT
- Databus MIL-STD-1553B



semiconductors. As synchronous rectifier switches, stateof-the-art discrete MOSFETs with low on-state resistance are used.

- Conduction + additional air cooling
- Tandem operation

Application

• Military fighter aircraft

Support Service

• Complete integrated logistic support (ILS)

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Electrical Specifications

Input

Voltage	.115/200 Vac. 3-ph
Frequency	.390400 Hz, acc. to MIL-STD 704D
Voltage spikes and transients	. Acc. to MIL-STD 704D
Current harmonics	. THD < 8% @ dc 175 A (depending on input voltage unbalance)

Output

Voltage	. 28 Vdc
Current	. 175 A nominal
Ripple	.lout > dc 110 A: approx. 1.6 V (peak to peak)
Overload	. 110%, after 500 ms the RU28 will switch off
Short circuit protection. Immediately switch off when output current >300 A	
Efficiency	. 94% @ 175 A, 95% @ 110 A

General Specifications

•	Input and output galvanically separated
Temperature range	40°C to +75°C (operation),
	-55°C to +85°C (storage)
Humidity	.95%, 30°C0°C
Shock	.30 g/2.5 ms, 25 g/6 ms, 7.5 g/40 ms acc. to MIL-STD 810 D
Vibration	. 2030 Hz: 4 m²/s³
	35180 Hz: 2 m²/s³
	2501000 Hz: 7.5 m²/s³
Altitude	. 16.6 km (continuous), 20.6 km (2 min)
EMI	. MIL-STD-461F, CE102, CS101, CS114, RE102, RS103
Protection	. IP 20 acc. to DIN 40050

Physical Characteristics

Dimensions...... H 142 mm, W 142 mm, D 255 mm Weight...... 6.8 kg

Design Characteristics



EUROATLAS GmbH Zum Panrepel 2 | 28307 Bremen | Germany | Tel. +49 421 486930 | sales@euroatlas.com | www.euroatlas.com