



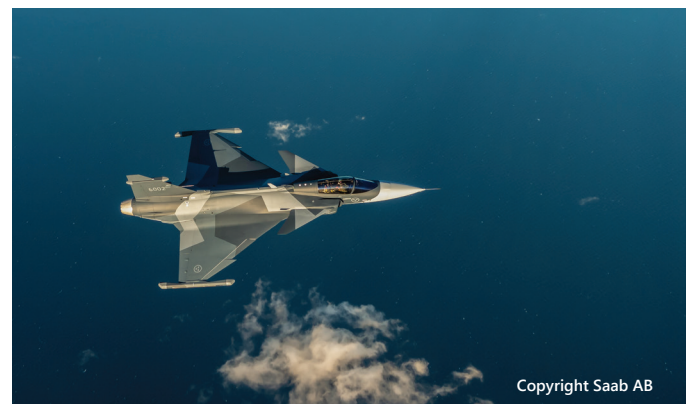
Rectifier Unit for Aviation

The EUROATLAS Model 2063 Rectifier Unit (RU28) converts aircraft primary AC power to 28 Vdc power from a three-phase, 115 Volt, 400 Hz generator.

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

The basic electrical topology of the RU28 is the 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 semiconductors. As synchronous rectifier switches, state-of-the-art discrete MOSFETs with low on-state resistance are used.

For Military Aircraft

Key Features

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

- 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	390...400 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	I _{out} > 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

Power system.....	Input and output galvanically separated
Temperature range	-40°C to +75°C (operation), -55°C to +85°C (storage)
Humidity.....	95%, 30°C...0°C
Shock.....	30 g/2.5 ms, 25 g/6 ms, 7.5 g/40 ms acc. to MIL-STD 810 D
Vibration.....	20...30 Hz: 4 m ² /s ³ 35...180 Hz: 2 m ² /s ³ 250...1000 Hz: 7.5 m ² /s ³
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

Service life.....	40 years, >8,000 flying hours (>10,000 operational hours)
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