

R&S® M3SR IN4000A

External Power Supply

For stationary and
shipborne applications

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R&S®M3SR IN4000A External Power Supply At a glance

The R&S®IN4000A is a compact, all-purpose AC/DC power supply designed for use with air traffic control, air defense and naval radiocommunications systems. For example, the R&S®IN4000A supplies power to a variety of R&S®M3SR radios and system components.

The R&S®IN4000A features a wide AC input range that provides robust protection against AC voltage fluctuations. A sophisticated voltage regulation concept ensures highly stable DC output voltage regardless of load fluctuations and ambient temperature variations. A well-engineered cooling concept keeps the power supply continuously cool, significantly increasing the life of the device. These features allow continuous operation. An integrated built-in test equipment (BITE) constantly checks the status of the power supply. The effective power compensation factor (PFC) makes the external power supply more efficient than other power supplies on the market. The unit also complies with MIL-STD-1399 and STANAG 1008 edition 9 for shipborne applications.

Integrated overvoltage, overload and short circuit protection make the R&S®IN4000A external power supply a robust and reliable system component.

Characteristics such as high immunity against vibrations and a wide operating temperature range fulfill standard user requirements. Electromagnetic emissions even comply with harsh military specifications.

The power supply housing is designed for installation in standard 19" rackmounts. The low height and weight of the power supply and the utilization of standard connectors ensure quick, permanently stable installation.

Front view



Rear view



Specifications

General data

AC input voltage supply	90 V to 264 V, 47 Hz to 63 Hz ¹⁾
DC input voltage for battery operation ²⁾	24 V to 27.5 V (for selected 28.4 V output voltage)
Output voltage	28.4 V (when delivered), 24 V via switch
Output current	max. 27.5 A
Output power	max. 780 W
Input power consumption	≤ 920 W
Power factor correction (PFC)	≥ 0.99
Residual ripple	≤ 50 mV (V_{pp}), ≤ 5 mV (RMS) for $f > 50$ kHz
Power protection	short circuit, burst and surge, reverse polarity
Cooling	built-in fans (overtemperature shutdown)
MTBF	100 000 h ground benign at +21 °C, in line with MIL-HDBK-217F
	40 000 h naval sheltered at +21 °C, in line with MIL-HDBK-217F

Environmental data

Temperature ranges	
Operating temperature range ³⁾	-25 °C to +55 °C, in line with MIL-STD-810F, method 501.4/502.4, proc. II, EN 60068-2-1/2
Storage temperature range	-40 °C to +70 °C, in line with MIL-STD-810F, method 501.4/502.4, proc. I, EN 60068-2-1/2
Humidity (+55 °C)	5 cycles at 48 hours, 95% relative humidity up to +55 °C, in line with MIL-STD-810F, method 507.4
Fungus	in line with MIL-STD-810F, method 508.5 (in line with MIL-HDBK-454)
Permissible altitude	≤ 10 000 m above sea level, in line with MIL-STD-810F, method 500.4, proc. I, storage/air transport ≤ 5000 m above sea level, in line with MIL-STD-810F, method 500.4, proc. II, operation
Vibration	
Sinusoidal	4 Hz to 50 Hz, 0.15 mm to 1.5 mm double amplitude, test period: 40 min/axis, in line with MIL-STD-167-1, type 1 5 Hz to 55 Hz, 0.4 mm double amplitude, test period: 20 min/axis, in line with EN 60068-2-6
Random	shipboard random vibration exposure, 4 Hz to 100 Hz with 0.03 g ² /Hz, test period: 20 min/axis, in line with MIL-STD-810F, method 514.5 20 Hz to 80 Hz, +3 dB/octave; 80 Hz to 350 Hz 0.04 g ² /Hz; 350 Hz to 2000 Hz, -3 dB/octave, test period: 10 min in each of 3 axes, in line with EN 60068-2-64
Shock resistance	45 Hz to 2000 Hz crossover frequency, 40 g, 6 ms to 9 ms, 2 × 3 shocks per main axis (pos./neg.), in line with MIL-STD-810F, method 516.5, proc. I
EMI/EMC	in line with MIL-STD-461E: CE101, CE102, CS101, CS114, CS115, RE101, RE102, RS101, RS103
Electrical power system requirements	STANAG 1008, edition 9; in line with MIL-STD-1399, section 300A
Electrical safety	in line with EN 60950-1
CE conformity mark	in line with ETSI EN 300373-1, ETSI EN 301489-1/-22, EN 55022
International protection code	front panel/rest of device: IP32/IP20 in line with IEC 60529
Mechanical data	
Color of front panel	RAL 7047
Dimensions (W × H × D)	19" × 1 HU × 420 mm (16.54 in)
Weight	approx. 7.1 kg (15.65 lb)

¹⁾ For reduced voltage (< 100 V), ambient temperature shall not exceed +50 °C or output power shall not exceed 700 W.

²⁾ If battery power is supplied and the main power fails, the control lines will not be operational. The output voltage will be slightly lower than the battery input voltage. Shall be used for R&S®Series2000 HF radio family and R&S®M3TR software defined radios only.

³⁾ Device complies with specs after 5 min warm-up time.

Ordering information

Designation	Type	Order No.
External power supply, AC/DC, ruggedized	R&S®IN4000A	6105.5951.02
Mating connector set for R&S®IN4000A	R&S®ZF4001	6105.7002.02
Power supply cable, length: 0.5 m	R&S®GK4103	6120.5807.05
Power supply cable, length: 1 m	R&S®GK4103	6120.5807.10
Power supply cable, length: 2.5 m	R&S®GK4103	6120.5807.25

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AQAP-2110

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