R&S® M3SR IN4000A
External Power Supply
For stationary and shipborne applications
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.
## 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
  - **Permissible altitude**: ≤ 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 I
  - **Random**: 5 Hz to 55 Hz, 0.4 mm double amplitude, test period: 20 min/axis, in line with EN 60068-2-6
  - **Shock resistance**: shipboard random vibration exposure, 4 Hz to 100 Hz with 0.03 g²/Hz, test period: 20 min/axis, in line with MIL-STD-810F, method 514.5
  - **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: IP 32/IP 20 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)

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\(^1\) 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.

\(^3\) Shall be used for R&S®Series2000 HF radio family and R&S®M3TR software defined radios only.

### Ordering information

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