**RM6-A Product Overview**

Strategic and maritime platforms have a need for long distance communications. Relying on satellites is not always an option. The **RM6-A Data Modem & ALE Controller** provides beyond-lone-of-site (BLOS) data links via HF radio. The RM6-A is the form, fit & function replacement of the well-established RapidM RM6 unit. The RM6-A provides systems integrators with peace-of-mind stemming from RapidM’s commitment to long-term product availability and support. The RM6-A is intended for installation into 19” rack systems.

**Key Features**

- Standards compliance – MIL-STD and STANAG
- High Data Rate HF Modem:
  - Up to 9k6 bps in SSB
  - Up to 19k2 bps in ISB
- Compact solution – Modem & ALE 2G Controller
- 2G ALE – Many HF radio protocols embedded
- DTE port – EIA 530A Synchronous/Asynchronous
- Remote control interfaces – Serial and Ethernet
- Local configuration & control – Menu-driven
- Power supply variants – AC and AC + DC
- Serial GPS interface – NMEA & 1 pps
- 2G ALE option – datasheet available
- Works with RC66 ARQ – datasheet available

**LF and HF Data Modem**

The RM6-A offers a maximum data rate of 9600 bps over a standard 3 kHz (SSB) HF radio channel and 19200 bps over a 6 kHz (ISB) channel. The waveform’s AUTOBAUD feature supports fast data rate change ARQ algorithms. Adaptive equalization mitigates the effects of HF channel multi-path. Cancellation of narrowband co-channel interference is accomplished via adaptive tone excision capable of eliminating up to four signals. For LF operation a maximum data rate of 300 bps is offered using MSK modulation.

**Additional Features**

- HF Data Modem Waveform Standards
  - MIL-STD-188-110A
  - MIL-STD-188-110B & App. F
  - STANAG 4539 (QAM), incl. Annex D TDMA
  - STANAG 4285 (PSK)
  - STANAG 4529 (NB PSK)
  - STANAG 4415 (robust)
  - STANAG 4481 (shore-to-ship)
- LF Data Modem Waveform Standards
  - STANAG 5065 (MSK)
- Configuration and Control Protocols
  - RAP1/RIPC Protocol
  - STANAG 5066 (Annex E)
- Waveform Performance
  - Field hardened performance
  - Incl. tests with STANAG 4203 Filter

**External Interfaces**

The RM6-A unit provides a DTE port for synchronous and asynchronous data. The unit has two audio ports to support ISB. The RM6-A unit software can also support split-site operation - two radio control ports are available. The RM6-A will operate with most legacy LF and HF voice radios and has built-in control protocols to control many transceiver types.
<table>
<thead>
<tr>
<th>Standard</th>
<th>Modulation</th>
<th>Data Rates &amp; Characteristics</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIL-STD-188-110B APPENDIX C</td>
<td>PSK/QAM</td>
<td>3200, 4800, 6400, 8000, 9600 bps (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>STANAG 4539</td>
<td>PSK/QAM</td>
<td>75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600 bps (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>MIL-STD-188-110B</td>
<td>PSK/QAM</td>
<td>75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600 bps (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>MIL-STD-188-110B APPENDIX F</td>
<td>PSK/QAM</td>
<td>ISB: 9600, 12800, 16000, 19200 bps (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>MIL-STD-188-110A</td>
<td>PSK</td>
<td>75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 1200 bps (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>STANAG 4415</td>
<td>PSK</td>
<td>NATO robust: 75 bps (Coded)</td>
<td>•</td>
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<tr>
<td>STANAG 4285</td>
<td>PSK</td>
<td>75, 150, 300, 600, 1200, 2400, 3200, 4800, 6000, 1200 bps (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>STANAG 4529</td>
<td>PSK</td>
<td>75, 150, 300, 600, 1200 bps (Coded), 600, 1200, 1800 bps</td>
<td>•</td>
</tr>
<tr>
<td>STANAG 4481 PSK</td>
<td>PSK</td>
<td>300 bps (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>STANAG 5065 (LF)</td>
<td>FSK/MSK</td>
<td>75 bps (FSK) 300 bps (MSK) (Coded)</td>
<td>•</td>
</tr>
<tr>
<td>STANAG 4481 FSK</td>
<td>FSK</td>
<td>Single channel: 75 bps</td>
<td>•</td>
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<tr>
<td></td>
<td></td>
<td>Multi-channel: 75 bps selectable carrier</td>
<td>•</td>
</tr>
<tr>
<td>FSK VARIABLE</td>
<td></td>
<td>Data Rates: 50, 75, 100, 150, 200, 300, 400, 600, 1200 bps</td>
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</tbody>
</table>

**General**

- **Size**: Width: 212.2 mm, Depth: 225.6 mm
- **Height**: 41.1 mm (excl. front panel)
- **Weight**: 2.2 kg

**Specifications**

**Environmental**

- **Temperature**: Storage: -33 °C to +77 °C, Operation: -33 °C to +65 °C (MIL-STD-810G, Methods 501.4 & 502.4)
- **Humidity**: 95% non-condensing at 30 °C & 60 °C (MIL-STD-810G, Method 507.5)
- **Altitude**: Storage: 20 000 ft @ -25 °C (MIL-STD-810F)
- **Operation**: 15 000 ft @ -25 °C (MIL-STD-810F)
- **Shock**: 60 G, 6 – 9 ms (MIL-STD-810F, Method 516.5 Procedure VI)
- **Vibration**: Surface Ship, Marine Vehicles, Aircraft, Min. Integrity (MIL-STD-810F, Method 514.5)

**Installation**

- Compact design: The unit occupies a width less than ½ of an 1U 19” rack slot

**Presets**

- Factory and Custom Presets

**Interfaces**

- **DTE (Data) Port (DB25F)**: RS-422 balanced, RS-423, RS-232 unbalanced, MIL-STD-188-114 (interoperable), EIA 530A compliant
- **Ethernet CTRL Port (RI45)**: Remote Control: 10/100 Base T [IEEE 802.3U compatible], embedded TCP/IP Stack Protocol: Control Protocol (RAP1 + RIPC)
- **Ethernet Data Port (RI45)**: IP Packet Data: 10/100 Base T [IEEE 802.3U compatible], embedded TCP/IP Stack Protocol: Raw IP packet data. Not used on the RM6-6-A.
- **Local Control** Local control via 32x202 pixel graphical LCD display and 16-key keypad. Alphanumeric and digit keypad for fast data entry, 4-way navigation button

**Radio Control & Audio Ports (DB25M)**

- **Radio Control Pins (2 channels):** RS-232, up to 115200 bps, 1/2 stop bits, 7/8 bit data
- **Input Audio (2 channels):** 600 Ohm balanced, ~20 to ~10 dBm without adjustment
- **Output Audio (2 channels):** Balanced, ~40 to ~10 dBm adjustable into 600 ohm load
- **RTT Sense Input**: Pull to ground to indicate external RTT.
- **Aux Audio Pins**: Connection of microphone for ALE voice calling
- **Input Data**: 600 Ohm balanced, ~20 to ~10 dBm without adjustment or MIC input (selectable)
- **Output Audio**: Balanced, ~40 to ~10 dBm adjustable into 600 ohm load

**Power Supply**

- **Variant 1, AC Supply:** 90-264 VAC, 40-440 Hz, 2A, 100-370 VDC
- **Variant 2, AC + DC:** 90-264 VAC, 40-440 Hz, 2A, 100-370 VDC & 6-36 VDC MIL-STD-1275B protection

**Ordering Information**

<table>
<thead>
<tr>
<th>Stock Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM6 M1 MODEM – AC ONLY</td>
<td>RME-61-RA-M15.3</td>
</tr>
<tr>
<td>RM6 M1 MODEM – AC &amp; DC</td>
<td>RME-61-RY-M15.3</td>
</tr>
<tr>
<td>RM6 M2 MODEM – AC ONLY</td>
<td>RME-61-RA-M25.3</td>
</tr>
<tr>
<td>LINK SETUP ALE 2G</td>
<td>R6A-SW-0-2G-5.3</td>
</tr>
</tbody>
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* Contact RapidM for datasheets.

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