# RM6

## HF MODEM

DATASHEET

HF Modem | 2G ALE


### RM6 Product Overview

The *RM6* is a high data rate LF & HF data modem & ALE controller for standards-based strategic and maritime data communications. The *RM6* is typically used for long distance point-to-point and point-to-multipoint data links. The *RM6* is intended for installation into 19" rack systems.

### Key Features

- Operation over LF/HF radios
- MIL-STD and STANAG compliance
- JITC Certified
- High Data Rate Modem
  - Up to 9600 bps in 3 kHz (SSB)
  - Up to 19200 bps (ISB radio)
- HF Modem & ALE controller in one unit
- Menu-Driven configuration & control
- Radio control
- Synchronous/Asynchronous DTE port
- Serial and Ethernet LAN interface for configuration & control
- Serial GPS interface (NMEA & 1pps)
- 2G ALE option (Datasheet Avail.)
- Works with RC66 Communications Suite (Datasheet Avail.)

### LF and HF Data Modem

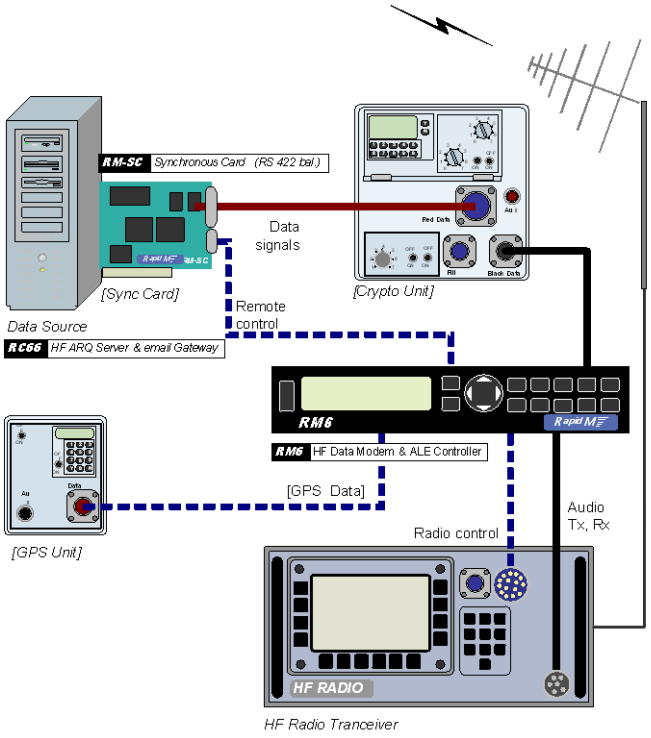
The *RM6* HF data modem offers a maximum data rate of 9600 bps over a standard 3 kHz (SSB) HF radio channel and 19200 bps over a 6 kHz (ISB) channel. For LF radio operation a maximum data rate of 300 bps using MSK modulation can be achieved.

### Demodulator Features

The waveform's AUTOBAUD feature supports fast data rate change ARQ algorithms. Adaptive Viterbi 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.

### Secure System

In a secure system, data is routed through a crypto unit and into the synchronous DTE port of the *RM6*. The modem Tx and Rx audio signals are fed to the HF radio. The radio is keyed by the *RM6*, while the unit monitors independent PTT activity on the radio.




### External Interfaces

The *RM6* unit provides a DTE port for synchronous and asynchronous data. The unit provides two independent audio ports to support the ISB mode. The *RM6* unit supports split-site operation. Two radio control ports are available to support this mode.


*Figure 2: Two RM6 Units side-by-side in a 19-inch rack*

| Standard | Modulation | Data Rates & Characteristics | Options | |
|---|---|---|---|---|
| | | | M1 | M2 |
| ***MIL-STD-188-110B Appendix C*** | PSK/QAM | [3200, 4800, 6400, 8000, 9600 bps] (Coded), 12800 bps | ● | ● |
| ***STANAG 4539*** | PSK/QAM | [75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600 bps] (Coded), 12800 bps | ● | ● |
| ***MIL-STD-188-110B*** | PSK/QAM | [75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, bps] (Coded) | ● | ● |
| ***MIL-STD-188-110B Appendix F*** | PSK/QAM | ISB: [9600, 12800, 16000, 19200 bps] (Coded) | ● | - |
| ***MIL-STD-188-110A*** | PSK | [75, 150, 300, 600, 1200, 2400 bps] (Coded), 4800 bps | ● | ● |
| ***STANAG 4415*** | PSK | *NATO robust:* 75 bps (Coded) | ● | ● |
| ***STANAG 4285*** | PSK | [75, 150, 300, 600, 1200, 2400 bps] (Coded), 1200, 2400, 3600 bps | ● | ● |
| ***STANAG 4529*** | PSK | [75, 150, 300, 600, 1200 bps] (Coded), 600, 1200, 1800 bps | ● | ● |
| ***STANAG 4481 PSK*** | PSK | 300 bps (Coded) | ● | ● |
| ***STANAG 5065 (LF)*** | FSK/MSK | 75 bps (FSK) 300 bps (MSK) (Coded) | ● | - |
| ***STANAG 4481 FSK*** | FSK | *Single channel*: 75 bps<br>*Multi-channel*: 75 bps selectable carrier | ● | ● |
| ***FSK Variable*** | FSK | *Data Rates*: *50, 75, 100, 150, 200, 300, 400, 600, 1200 bps*<br>*Mark & Space Frequency*: 350 to 3000 Hz | ● | ● |

| General | | |
|---|---|---|
| ***Environmental Specifications*** | Climatic:<br>Storage: -30 ˚C to +70 ˚C<br>Operation: -30 ˚C to +70 ˚C<br>Safety: CE: Low Voltage Directive (Directive 73/23/EEC)<br>Safety: CE: Electromagnetic Compatibility (EMC) Directive (Directive 89/336/EEC) | |
| ***Size*** | Width: 212.2 mm<br>Depth: 225.6 mm | Height: 41.1 mm (excl. front panel)<br>Height: 44.1 mm (incl. front panel) |
| ***Installation*** | Compact design: The unit occupies a width less than ½ of a 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<br>Half & Full Duplex operation, Synchronous, Standard and High-speed Async modes |
| ***Remote Control (DE9M)*** | Remote Control Pins: RS-485 Multi-drop, RS-422 balanced or RS-232<br>Protocol: Control Protocol (RAP1 + DLP1, ASCII S5066 Annex E) |
| ***GPS Port (DE9M)*** | External GPS Control Pins: RS-232 (nominally input)<br>Data Rate: 300 to 19200 bps, 1/2 stop bits, 7/8 bit data.<br>PPS line: RS 232/422 (NMEA) or TTL |
| ***Ethernet Port (RJ45)*** | Remote Control: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack<br>Protocol: Control Protocol (RAP1 + RIPC) |
| ***Local Control*** | Local control via 32x202 pixel graphical LCD display and 16-key keypad.<br>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<br>Supports for various radio control protocols are built-in. |
| | Input Audio (2 channels): 600 Ohm balanced, –20 to +10 dBm without adjustment<br>Output Audio (2 channels): Balanced, –40 to +10 dBm adjustable into 600 ohm load<br>Keyline: Non-polarized contact closure (<45 V, 200 mA).<br>PTT Sense Input: Pull to ground to indicate external PTT. |

| Ordering Information | Stock Number | Description | |
|---|---|---|---|
| ***RM6 M1 Modem*** | RME-6R-P1-M1-5.1 | SDM: RM6 M1 (HF 110B, F ISB 2x9600) | V5.1 |
| ***RM6 M2 Modem*** | RME-6R-P1-M2-5.1 | SDM: RM6 M2 (HF S4285, S4539 9600) | V5.1 |
| ***Link Setup ALE 2G*** | RM6-SW-O-2G-1.8 | S/W MDL-2G ALE / MS 141B, App. A, B | V1.8 |

* Contact RapidM for datasheets.

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