

RM6-A Product Overview

The *RM6-A* is designed for long distance (BLOS) strategic and maritime point-to-point and point-to-multipoint HF data links. The *RM6-A Data Modem & ALE Controller* is the form, fit & function replacement of the well-established *RapidM RM6* unit. The *RM6-A* product offers 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.



Figure 1: Rear Panel connections on RM6-A –Variant 1: AC PSU RapidM (RM-SC sync card also shown)

STANDARD	MODULATION	DATA RATES & CHARACTERISTICS	OPTIONS	
			M1	M2
MIL-STD-188-110B APPENDIX C	PSK/QAM	3200, 4800, 6400, 8000, 9600 bps (Coded)	•	•
STANAG 4539	PSK/QAM	75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600 bps (Coded) <i>Includes STANAG 4539 Annex D TDMA Protocol & WF1, WF2 & WF3</i>	•	•
MIL-STD-188-110B APPENDIX F	PSK/QAM	75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, bps (Coded)	•	•
MIL-STD-188-110A	PSK	75, 150, 300, 600, 1200, 2400 bps (Coded), 4800 bps	•	•
STANAG 4415	PSK	<i>NATO robust: 75 bps (Coded)</i>	•	•
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	<i>Single channel: 75 bps</i> <i>Multi-channel: 75 bps selectable carrier</i>	•	•
FSK VARIABLE	FSK	<i>Data Rates: 50, 75, 100, 150, 200, 300, 400, 600, 1200 bps</i> <i>Mark & Space Frequency: 325 to 3200 Hz</i>	•	•

GENERAL SPECIFICATIONS			
SIZE & WEIGHT	<ul style="list-style-type: none"> Width: 212.2 mm Depth: 225.6 mm 	<ul style="list-style-type: none"> Height: 41.1 mm (excl. front panel) Height: 44.1 mm (incl. front panel) 	<ul style="list-style-type: none"> Weight: 2.2 kg
ENVIRONMENTAL SPECIFICATIONS	Climatic	<ul style="list-style-type: none"> Storage/Operation: -30 °C to +70 °C (MIL-STD-810F) Humidity: 90% non-condensing at 30 °C (MIL-STD-810F) 	
	Altitude	<ul style="list-style-type: none"> Storage: 20 000 ft @ -25 °C (MIL-STD-810F) Operation: 15 000 ft @ -25 °C (MIL-STD-810F) 	
	Mechanical	<ul style="list-style-type: none"> Vibration: Surface Ship, Marine Vehicles, Aircraft, Min. Integrity (MIL-STD-810F) Shock: 40 G, 11 ms (MIL-STD-810F) 	
	EMC	<ul style="list-style-type: none"> MIL-STD-461E 	
	CE Marking	<ul style="list-style-type: none"> EMC: CISPR 22/IEC 61000 Safety: EC 60950-1/SANS 60950-1 	
	MTBF	<ul style="list-style-type: none"> > 40,000 hours 	
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 Half & Full Duplex operation, Synchronous, Standard and High-speed Asynchronous modes
REMOTE CONTROL/ GPS PORT (DE9M)	Remote Control Pins: RS-485 Multi-drop, RS-422 balanced or RS-232 Protocol: Control Protocol (RAP1 + RIPC, ASCII S5066 Annex E) External GPS Control Pins: RS-232 (nominally input) Data Rate: 300 to 19200 bps, 1/2 stop bits, 7/8 bit data. PPS line: RS 232/422 (NMEA) or TTL
ETHERNET CTRL PORT (RJ45)	Remote Control: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack Protocol: Control Protocol (RAP1 + RIPC)
ETHERNET DATA PORT (RJ45)	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-A.
LOCAL CONTROL	Local control via 32x202 pixel graphical LCD display and 16-key keypad. 3 bi-colour LED indicators 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 Supports for various radio control protocols are built-in. 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 Keyline: Non-polarized contact closure (<45 V, 200 mA). PTT Sense Input: Pull to ground to indicate external PTT. Aux Audio Pins: Connection of microphone for ALE voice calling Input Audio: 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	STOCK NUMBER	DESCRIPTION
RM6-A (M1) AC SUPPLY	RME-61-RA-M14.1	SDM: RM6-A M1 (110B, F ISB 2x9600) V4.1
RM6-A (M2) AC SUPPLY	RME-61-RA-M24.1	SDM: RM6-A M2 (S4285, S4539 9600) V4.1
RM6-A (M1) AC & DC SUPPLY	RME-61-RA-M14.1	SDM: RM6-A A/DC M1 (110B, F ISB) V4.1
RM6-A (M2) AC & DC SUPPLY	RME-61-RA-M24.1	SDM: RM6-A A/DC M2 (S4285, S4539) V4.1
2G ALE (MIL-STD-188-141B) SOFTWARE OPTION	RM6-SW-0-2G-1.8	SW MDL-2G ALE / MS 141B, App. A, B V1.8
ACCESSORIES	STOCK NUMBER	DESCRIPTION
TELESCOPIC MOUNTING TRAY	RMX-AC-TR6R-001	Tray: 19" Telescopic, RM8/RM6-A/RM6 V01
CONNECTOR KIT	RM8-SP-1001-SPC	Spare Pac: RM8/RM6-A Connector Kit V01

* Contact RapidM for Datasheets

Distributed by:

Rapid Mobile Pty (Ltd)
Tel: +27 (0) 12 349 0000
Fax: +27 (0) 12 349 0010
Email: info@rapidm.com
Web: www.rapidm.com

Apex Corporate Park
Quintin Brand Street
Parsequor Park
Pretoria, South Africa
0020


Copyright © 2015 Rapid Mobile (Pty) Ltd
RM6A_HFM_EN_01E