



### FEATURES & BENEFITS:

- Modem & ALE hardware
- Software options determine function
- HF & V/UHF Compatible
- Up to 9600 bps in 3 kHz HF
- Up to 128000 bps in 24 kHz VHF
- 2G ALE Option
- HF Email via RC50 Email Software
- Vehicle Surge Protected DC Power Input
- Mobile form factor

### HF WAVEFORMS:

- MIL-STD-188-110A/B
- MIL-STD-188-110B Appendix C
- STANAG 4539
- STANAG 4415

### V/UHF WAVEFORMS

The **RM2** V/UHF Waveforms are suitable for high-speed mobile data communication applications. High performance Doppler tracking allows operation at up to 250 km/h relative speed (at 80 MHz). Modem bandwidth is configurable to best suite radio capabilities (24, 12, 9, 6 or 3 kHz). The low data rates (PSK modulation) are suitable for radios with a non-linear power amplifier (PA). The very high rates use QAM and require a linear PA or can work with wideband FM or AM radios.

### INTERFACES

The **RM2** is controlled via a serial or Ethernet interface using the RapidM RIPC/RAP1 protocol. Data can be transferred via the remote control interfaces or via a dedicated serial interface. This Raw Data interface is suitable for Asynchronous DTE devices (TX, RX, RTS/CTS and DCD signals are available). The data interface offers FEC but no ARQ. Radio interfacing is accomplished using industry standard 600 Ohm audio transmit and receive lines as well as a PTT line. The radio can be controlled by the optional ALE embedded in the **RM2** via the radio control port.

### HIGH PERFORMANCE DATA MODEM

The **RM2** is a compact HF and V/UHF data modem. The **RM2** is suitable for governmental and NGO users requiring long distance data communication links. The **RM2** is designed for desktop, vehicular and marine installations.

### SUPERIOR MODEM PERFORMANCE

Long-range communication is especially prone to interference. The **RM2** benefits from *RapidM's* superior technology and experience in HF modem design. The modem features adaptive equalization and is able to deal with in-band distortion. The result is extended range and increased data throughput.

### 2G ALE

The optional 2G ALE function is built-in and can be activated with the appropriate *RapidM* license key.



WAVEFORMS	MODULATION	DATA RATES & CHARACTERISTICS	SOFTWARE OPTION
MIL-STD-188-110B APP C	PSK/QAM	[3200, 4800, 6400, 8000, 9600 bps] (Coded)	M4 ✓
STANAG 4539	PSK/QAM	[75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600 bps] (Coded)	✓
MIL-STD-188-110B	PSK/QAM	[75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, bps] (Coded)	✓
MIL-STD-188-110A § 5.3	PSK	[75, 150, 300, 600, 1200, 2400 bps] (Coded), 4800 bps	✓
STANAG 4415	PSK	NATO robust: 75 bps (Coded)	✓

BANDWIDTH	DATA RATE [bps] (CODED)										INTERLEAVER [MS]			SOFTWARE OPTION			
	MODULATION										ULTRA SHORT	MEDIUM	LONG	L1	L2	L3	L4
24 kHz	128000	96000	76800	64000	32000	25600	19200	9600	4800	2400	20	960	4800	✓			
18 kHz	96000	76800	57600	48000	25600	19200	9600	4800	2400	1200	40	960	4800	✓			
12 kHz	64000	51200	38400	32000	16000	12800	9600	4800	2400	1200	40	960	4800	✓	✓		
9 kHz	48000	38400	28800	24000	12800	9600	4800	2400	1200	600	80	960	4800	✓	✓		
6 kHz	32000	25600	19200	16000	8000	6400	4800	2400	1200	600	80	960	4800	✓	✓	✓	
3 kHz	16000	12800	9600	8000	4800	3200	2400	1200	600	300	160	960	4800	✓	✓	✓	✓

CL-3	CL-4	CL-5	CL-6	CL-7	CL-8	CL-9	LOS CHANNEL	MOBILE CHANNEL
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AUTOMATIC LINK ESTABLISHMENT (OPTION)		SOFTWARE OPTION
2G ALE	MIL-STD-188-141B Appendix A, B & FED-STD 1045, FED-STD 1049 Automatic Link Establishment 2nd Generation (2G ALE) Occupancy Detection: MS 110A/B, S 4539, S 4285, S 4415, S 4529, S 4481, FSK, 8-FSK, SSB Voice Protocol: Calling, AMD, DTM, Excluding: DBM, AQC-ALE	2G ✓



INTERFACES		
FRONT PANEL (8 BI COLOR LEDs)	RAW DATA ETH/ REM RADIO CTRL GPS	TX RX ALE AUDIO IN
GPS ANTENNA (MCX)	Int. GPS (optional):	High performance internal GPS module with Trimble GPS Antenna.
ETHERNET (RJ45)	Remote Control:	10/100 Base T (IEEE 802.3U compatible), full duplex, embedded TCP/IP Stack Protocol: RapidM Control Protocol (RAP1 + RIPC) over TCP/IP
REM / GPS (DE9M)	Remote Control:	RS-232, 115200 bps, 1 stop bit, 8 bit character lengths Protocol: Control Protocol (RAP1 + RIPC)
	GPS:	External GPS Control Pins: RS-232 (nominally input) Data Rate: 300 to 115200 bps (nominally 4800 bps), 1/2 stop bits, 7/8 bit data. PPS line: RS 232 (NMEA) or TTL
RADIO / DATA (DE25M)	Radio Control:	Selectable RS-232, TTL and 1-wire modes (1-wire allows direct connection to Icom CT-17/CI-V) 75 to 230400 bps, 1 or 2 stop bits, 7/8 bit data (no Hardware flow control)
	Radio Audio:	Input Audio: 600 Ohm balanced, -35 to +3 dBm without adjustment Output Audio: Balanced, -40 to +3 dBm adjustable into 600 ohm load Keyline: Open Collector (<36 V, 200 mA) PTT Sense Input: Pull to ground to indicate external PTT
	Raw Data:	75 to 230400 bps, RS-232 unbalanced, Rx, TX, RTS, CTS, DCD Full Duplex, 5/6/7/8 bit data, 1/2 stop bits, Hardware (RTS/CTS)/Software (XON/XOFF) Flow ctrl Half & Full Duplex operation, Standard Async and High-speed Async mode supported

HARDWARE		ENVIRONMENTAL	
WEIGHT	0.7 kg	SAFETY	IEC/EN 60950
SIZE	35 x 111 x 180 x mm (h x w x d)	FCC	Title 47 CFR, Part 15 Subpart B Class A Digital Device.
COLOUR	Black, powder coat	SHOCK	40G, 6-9 ms, 3 shocks in x, y & z direction
MOUNTING	Desktop/vehicle (mounting bracket included)	VIBRATION	Composite wheeled vehicle 10Hz – 2000Hz, @2.5g. x, y, z axis
POWER INPUT	6-36 V DC, XLR3 plug and fused cable supplied or via radio interface. Vehicle surge protected.	TEMPERATURE	-30°C to +70°C (operating) -40°C to +85°C (storage)
GND SCREW	M6 screw used for system grounding. Strap provided.	HUMIDITY	0 to 90%, non-condensing.

ORDERING INFORMATION	STOCK NUMBER	DESCRIPTION
RM2 HF MODEM (M4)	RME-2R-RD-M46.5	SDM: RM2 M4 (HF MdM S4539 9600 bps) V6.5
V/UHF MODEM L1 (24 kHz) SOFTWARE OPTION	RXH-SW-O-L1-6.5	SW MDL-L1 (VHF B≤24kHz ≤128kbps) V6.5
V/UHF MODEM L2 (12 kHz) SOFTWARE OPTION	RXH-SW-O-L2-6.5	SW MDL-L2 (VHF B≤12kHz ≤64kbps) V6.5
V/UHF MODEM L3 (6 kHz) SOFTWARE OPTION	RXH-SW-O-L3-6.5	SW MDL-L3 (VHF B≤6kHz ≤32kbps) V6.5
V/UHF MODEM L4 (3 kHz) SOFTWARE OPTION	RXH-SW-O-L4-6.5	SW MDL-L4 (VHF B≤3kHz ≤16kbps) V6.5
2G ALE (MIL-STD-188-141B) SOFTWARE OPTION	RXH-SW-O-2G-6.5	SW MDL-2G ALE / MS 141B, App. A, B V6.5
RC50 EMAIL COMMUNICATIONS SUITE PC SOFTWARE	RMS-PC-RC50-2.3	S/W: RC50 G/Sec Email Suite Win V2.3
INTERNAL GPS MODULE	RMX-AC-GPS1-003	GPS: Module Internal, RM2, RA2, CC2 V01

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