



FEATURES & BENEFITS:

- AES-256 Encryption: Voice, Data & Position
- Vocoder, 600 – 2400 bps Digital Voice Rates
- High Voice Clarity, Automatic Vocoder Rate Adjustment
- Best-in-class RapidM Voice Modem Performance
- STANAG 4538 Modem with Ethernet Interface
- V/UHF & HF Transceiver Compatible (SSB & FM)
- Cross-Vendor Radio Interoperability
- GPS & GLONASS Support Built-in
- Automatic Periodic Position Transfer
- Vehicle use 6 – 36 VDC, Surge Protection
- Built-in Loudspeaker
- 2 Year Warranty
- Over-the-Air compatible with **RA1, RA5 & RA7**
- Blue Force Tracking via **TRACKPOINT**

SECURE VOICE & POSITION FOR ANY RADIO

The **RapidM RA3** is designed for vehicle installation and is suitable for use by first responders, security agencies, governmental and paramilitary users. The **RA3** is a purpose-built secure voice and data modem that works with any HF or V/UHF radio via the audio channel. The unit delivers clear, secure digital voice and automated position transfers in the most adverse channel conditions.

TRACKING AND CONTROL VEHICLE APPLICATION

The **RA3**, with **TRACKPOINT** connected via Ethernet, provides an ideal vehicle solution for tracking and control of fielded **RA1** units.

INFORMATION SECURITY

All radio communications are vulnerable to eavesdropping. The **RA3**'s built-in AES encryption means that all communications are secured by a trusted algorithm.

POSITION REPORT

The **RA3** can be configured to send out secure periodic position reports. These positions can be received and displayed by **RapidM RA5** units and the **TRACKPOINT** PC software.

RA3 MODEM & SECURITY

The **RA3** has a built-in STANAG 4538 modem for Automatic Link Set-up, 3G ALE, and error-free packet data transfers. The S4538 modem can be accessed on the Ethernet port.

All over-the-air communications are encrypted. Simultaneously pressing two keys (marked in orange) performs a Zeroize function which erases all user information and cryptographic keys.

CALL FUNCTION

The **RA3** provide an single Call button that can be programmed to make a point-to-point private call to a single configurable user, typically the commander.

LOW RATE VOCODER & SUPERIOR MODEM PERFORMANCE

Long-range communication is prone to interference and noise. Both digital voice and data operation benefits from RapidM's superior technology and experience in HF modem design. The latest generation Vocoder-modem-combination dramatically improves voice quality in adverse channel conditions, extending the range of voice communications. Furthermore, the unit can be set-up to run in low-latency (V/UHF) or robust BLOS (HF) mode. The result is significantly extended range and increased data throughput.

KEY MANAGEMENT & SYSTEM CONFIGURATION

The **RA3** cryptographic keys are configured via the Key Generation Software (**KeyGen-256**) which includes is provided along with the necessary cable and USB Key Fill Device.

The **RA3** system and network is configured via the **System Configuration Software** (SCS) which includes Network Configuration, Call Button address and CALLSIGNs .

TRACKPOINT SUPPORT

RAPIDM'S TRACKPOINT application software for Windows™ uses the **RA3** modem to provide control room operators with a graphical view of the position of mobile RA1, RA3 and RA5 units, along with Chat and File Transfer services.

ACCESSORIES

Radio Cable (required): Contact *RapidM* for appropriate cables to support your radio models.

Accessories: Vehicle shock mount, Ethernet cables, etc. Please contact *RapidM* for Accessory Information and for the *RA Ordering Guideline*.

RA3 HARDWARE		RA3 ENVIRONMENTAL	
SIZE & WEIGHT	163 x 96 x 41 mm (w x d x h) 800 g	TEMPERATURE	Operating: -40°C to +60°C Storage: -55°C to +85°C
COLOUR	Jet Black (RAL9005)	IMMERSION	MIL-STD-810F Method 512.4 Proc 1, 30 min at 1m
POWER	6 – 36 V DC Input, 1.5W Nominal MIL-STD-1275 Vehicle power & polarity protection	ENVIRONMENTAL	MIL-STD-810F Humidity, Shock, Vibration, Dust
		EMC / EMI	MIL-STD-461
		SAFETY	IEC/EN 60950

RA3 SOFTWARE & MODEM								
MESSAGING	Position Transfer, AFFIRMATIVE and NEGATIVE Quick Codes via RA3 stand-alone. Chat, Text, File Transfer, Template-based Forms and Email via TRACKPOINT software suite (Connected to RA3 via Ethernet interface).							
SECURITY	Advanced Encryption Standard (AES), 256-bit key length. Key selection via keypad. Zeroize function.							
MODEM	STANAG 4538 based Packet Mode and ARQ.							
ALE	STANAG 4538 (3G) Fast Link Set-up (FLSU), Linking Protection, Occupancy Detection							
DIGITAL VOICE	Purpose-built Robust Digital Voice Waveform. Automatic Rate Adjustment DRC. Late Entry resynchronization.							
VOCODER	TWELP: Tri-Wave Excited Linear Prediction high performance vocoder. 600, 1200 & 2400bps Low-rate Vocoder.							
DIGITAL VOICE PERFORMANCE	VOCODER RATE [bps]	END-TO-END LATENCY [s]	PESQ	CHANNEL USE	SPEECH QUALITY		UNDERSTAND-ABILITY LIMIT SNR [dB]	
					INTELLIGIBILITY	SPEAKER RECOGNITION	CCIR POOR	AWGN
	2 400	1.6	3.1	Ground Wave	Very Good	Good	6.5	0.5
	1 200	2.2	3.0	Sky Wave	Good	Acceptable	4.0	-0.5
	600	2.2	2.4	Sky Wave	Acceptable	Fair	0.5	-3.0

RT3 INTERFACES	DESCRIPTION
J1: RADIO INTERFACE (P17N 10-PIN)	RADIO Audio: 600Ω balanced TX [D] & RX [B], Audio Common [H], PTT [C], GND [A], Power input 6 – 36 VDC [G] RADIO Control: RS-232 levels. RxD [F], TxD [E]
J4: HANDSET (P17W 10-PIN) FILL	MIC (150 Ohm Coil or Electrostatic) [E], PHONES (300 - 1,000 Ohm) [F], PTT_IN [K], GND [J] INTERCOM Audio: 600Ω balanced, INTCOM_RX+ [B], INTCOM_TX+ [C], INTCOM_COM [H], INTCOM_PTTOUT [D] USB Port: Fill interface. 5 VDC (100 mA) [K], HOST+ [A], HOST- [G]
J5: ETHERNET (AMPH S2 4-PIN)	ETHERNET: 10/100 Base-T (IEEE 802.3U compatible), embedded TCP/IP Stack, Auto cross-over detection. TX+ [1], TX- [2], RX+ [3], RX- [4]
J3: GPS ANTENNA (TNC)	External active GPS Antenna . 3.0 VDC, 35 mA supply provided.
J2: POWER (AMPH S2 4-PIN)	6 – 36 VDC, MIL-STD-1275 Vehicle power & polarity protection. PWR_IN+ [1], GND [2]
KEYPAD	Simple layout with backlighting. Power ON/OFF. Call button for Private Commander link. Volume control, Speaker mute, Clear/Secure control, dedicated YES and NO buttons. Dedicated backlight control. Zeroize key sequence.
LEDs	PWR: Power Connection, RAD: Radio TX, RX, Control, SEC: Clear vs Secure, LNK: Linking, Linked, GPS: Acquiring, Acquired
LOUDSPEAKER	2x 4 Watt 8 Ohm internal

ORDERING INFORMATION	STOCK NUMBER	DESCRIPTION
RA3 SECURE VOICE & DATA MODEM	RA3-TU-0000CVE4	RA3: Term Black SDV 256b GPS UM EN V4

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