



VOICE MODEM FEATURES:

- Secure Communications
- Mobile and Base Deployment
- Asset Tracking
- Email on Network with MessagePoint
- Intranet Email and SMS with GateWay

SPECIFICATIONS OVERVIEW:

- Interoperates with RA5
- 600 – 2400 bps Low rate Vocoder (TWELP* or MELPe**)
- Automatic Vocoder Rate Adjustment
- AES-256 Encryption (Voice, Position, Data)
- 256 Keys, updatable with System Configuration Software (SCS)
- Cryptography independent of GPS
- Best-in-class Voice Modem
- Private Line Voice, Link Setup (CALL Button)
- Extended Range, BLOS Links especially
- Noise Reduction Handset/Headset compatible
- Cross-Banding with REBRO Cable
- Built-In GPS, Antenna supplied
- 6 – 36 V DC Input, Vehicle Surge Protection
- Works in extreme temperature
- Compatible with any HF & V/UHF Transceiver
- Works via 3 kHz Audio Channel
- Built-In Data Modem, ARQ and Selective Calling
- 3 Year Warranty

ENCRYPTED VOICE & POSITION FOR ANY RADIO

The **RA2** is a high-performance digital secure voice modem. It is part of the **RA** family and is suitable for first responders, security agencies, governmental and paramilitary users. The **RA2** offers voice privacy or asset tracking and easily integrates with HF, VHF and UHF radio transceivers via the audio interface. The **RA2** is suitable for vehicle and desktop installations.

INFORMATION SECURITY

Beyond-Line-Of-Site (BLOS) communication is vulnerable to eavesdropping due to the vast areas covered. The **RA2's** built-in AES encryption means that all digital voice and data communications are secured by a trusted algorithm.

LOW-RATE VOCODER

The internal Vocoder digitizes the voice. The information is then encrypted and converted to an in-band signal by the data modem. The Vocoder dramatically improves voice quality in adverse channel conditions, extending the range of voice communications. The unit is also capable of detecting plain voice (analogue SSB or FM).

SUPERIOR MODEM PERFORMANCE

Long-range communication is especially prone to channel fading. Both digital voice and data operation benefits from RapidM's superior technology and experience in HF modem design. The modem features adaptive equalization and can deal with in-band distortion and interference resulting in extended range and increased throughput.

* TWELP voice coding by DSP Innovations Inc.(www.dspini.com)

** MELPe for USA customer only



INCLUDED WITH RA2

- Factory loaded unique encryption keys and address
- H-250/U style handset with passive noise reduction
- Magnetic mount GPS antenna
- Wire-ended radio integration cable
- Wire-ended DC power cable & grounding strap
- Mounting bracket & handset clip
- User Manual

SCS & KMS – SYSTEM SET-UP (OPTIONAL)

The **RA2** comes pre-configured and can be used out of the box for straightforward applications. **RapidM** also offers **SCS** (System Configuration Software) for re-configuration of the addresses and scan lists. The encryption keys on the **RA2** can also be updated using the **KMS** (Key Management Software). **KMS** and **SCS** files are loaded onto the **RA2** with the Config Load Software (CLS) via the Ethernet or Serial interfaces.

MESSAGEPOINT – EMAIL (OPTIONAL)

The **RA2** can connect to a Laptop running the **MESSAGEPOINT** Software. **MESSAGEPOINT** provides Email, Chat, SMS & Asset Tracking services. Compression increases the data throughput. The **RA2** can interoperate with the **RA5** on Email using **MESSAGEPOINT** (Ethernet Cable included).

GATEPOINT – SMS & EMAIL (OPTIONAL)

The **RA2** can become a gateway station by connecting with the **GATEPOINT** Software on a PC via the Ethernet port. The **GATEPOINT** software extends Email connectivity to fixed-net users and the internet (Ethernet Cable included). The GSM gateway enables SMSs to be sent to and from the Global GSM network. This uses a Third Party GSM modem located at the Gateway.

ENCRYPTION								
KEY FILL	256 factory loaded keys in encrypted storage. Key selection automatic (lasts > 20 years). New keys loaded via KMS .							
ALGORITHM	Advanced Encryption Standard (AES), 256-bit key length.							
RANDOM #	True random number generator based on physical events.							
DIGITAL VOICE								
VOCODER	TWELP: Tri-Wave Excited Linear Prediction. (TWELP voice coding by DSP Innovations Inc. www.dspini.com) MELPe: Mixed Excitation Linear Prediction enhanced (US & NATO end-users, subject to approval)							
MODEM	High performance serial tone BLOS modem (V/UHF compatible) featuring adaptive equalization and selective calling. The modem is able to deal with in-band interference and multipath/fading (up to 10 ms, 30 Hz). MIL-STD 110B also available (MARS)							
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
HARDWARE				ENVIRONMENTAL				
WEIGHT	0.8 kg			SAFETY	IEC/EN 60950			
SIZE	35 x 126 x 180 x mm			FCC	Title 47 CFR, Part 15 Subpart B Class A Digital Device.			
COLOUR	Charcoal (RAL 9005)			SHOCK	40G, 6-9 ms			
MOUNTING	Desktop/vehicle (mounting bracket included)			VIBRATION	Composite wheeled vehicle 10Hz – 2000Hz, @2.5g.			
POWER INPUT	6-36 V DC, Vehicle surge protected. XLR3 plug (fused cable supplied) or via radio interface.			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.			
FRONT PANEL INTERFACES								
POWER / VOLUME	Turn to switch unit ON/OFF and control phones/speaker volume.							
HANDSET PORT	300 Ω, 6 pin U-229 Male (U-283/U, U-183/U compatible). MIC input; PTT input; Phones output; REBRO (PTT) output (pin E, pulled down upon Carrier Detect)							
CALL BUTTON	Make and terminate private line calls to a preconfigured address (all-call per default). The CALL address can be programmed using SCS . The CALL button flashes when receiving an incoming call.							
ZEROIZE BUTTON	Press to erase all crypto keys in an emergency.							
REAR PANEL INTERFACES								
GPS ANTENNA	MCX Connector; Magnetic mount GPS antenna included.							
ETHERNET	RJ45 Socket; 10/100 Base T (IEEE 802.3U compatible); Protocol: RapidM Control Protocol (RAP1 + RIPC) over TCP/IP.							
REMOTE CONTROL / GPS (DE9F)								
REMOTE CONTROL	RS-232, 115200 bps, 1 stop bit, 8 bit character lengths, Protocol: Control Protocol (RAP1 + RIPC)							
EXTERNAL GPS	300 to 115200 bps (4800 bps), 1/2 stop bits, 7/8 bit data. PPS line: RS 232 (NMEA) or TTL. For external GPS receiver.							
RADIO CONTROL, AUDIO PORT (DB25F)								
RADIO CONTROL	Selectable RS-232, TTL and 1-wire modes (1-wire allows direct connection to Icom CI-V interface) The Port is automatically configured for the selected Radio. Contact RapidM for a selection of predesigned radio cables.							
RADIO AUDIO	Input Audio: 600 Ω bal., -35 to +3 dBm without adjustment. Output Audio: Bal., -40 to +3 dBm adjustable into 600 Ω load. PTT Sense Input: Pull to ground. Keyline Output: Open Collector (<36 V, 200 mA). Re-broadcast compatible.							
FRONT PANEL DIM	Pull To ground to dim front panel LED's for vehicle use at night.							

ORDERING INFORMATION	STOCK NUMBER	DESCRIPTION
RA2 SECURE VOICE MODEM	RME-2A-RDA6CV04	SDM: RA2 AES-256, 600bps Vocoder V4
SCS SYSTEM CONFIGURATION BUNDLE	RAP-BU-CFA2CVE4	Bundle: SCS 256b, USB Cbl EN V4
MESSAGEPOINT EMAIL SOFTWARE	RAP-PC-MASW-VE4	PC S/W: MessagePoint Email EN V4
GATEWAY SOFTWARE	RAP-PC-GASW-VE4	PC S/W: GatePoint Email, GSM, UM EN V4

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