



VOICE MODEM FEATURES:

- Secure Communications
- Mobile and Base Deployment
- Asset Tracking
- Email on Network with MessagePoint
- Intranet Email and SMS with GatePoint
- Voice-prompt user interface

SPECIFICATIONS OVERVIEW:

- Interoperates with RA devices: RA1, RA3, RA5, RA7
- 600 – 2400 bps Low rate Vocoder (TWELP*)
- Automatic Vocoder Rate Adjustment
- AES-256 Encryption (Voice, Position, Data)
- Best-in-class Voice Modem
- Extended Range, BLOS Links especially
- Private Line Voice, Link Setup (CALL Button)
- Built-in Loudspeaker (10W)
- Noise Reduction Handset/Headset compatible
- Built-In GPS, Antenna supplied
- 9 – 36 V DC Input, Vehicle Surge Protection
- Compatible with any HF & V/UHF Transceiver
- Built-In Data Modem, ARQ and Selective Calling
- 2 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 and 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)



INCLUDED WITH RA2

- H-250/U style handset with passive noise reduction
- Magnetic mount GPS antenna
- DC power cable
- Mounting bracket
- User Manual

SCS & KMS - SYSTEM SET-UP

RapidM **SCS** (System Configuration Software) is used for 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. Key selection happens from the **RA2** front panel.

MESSAGEPOINT - EMAIL (OPTIONAL)

The **RA2** can connect to a Laptop running the **MESSAGEPOINT** Software. **MESSAGEPOINT** provides Email, Chat and File Transfer services. Compression increases the data throughput. The **RA2** can interoperate with other **RA** devices 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	99 Encryption keys selectable from the front panel. New keys loaded via KMS .							
ALGORITHM	Advanced Encryption Standard (AES), 256-bit key length.							
DIGITAL VOICE								
VOCODER	TWELP : Tri-Wave Excited Linear Prediction high performance vocoder. 600, 1200 & 2400bps Low-rate Vocoder.							
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 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	9 - 36 V DC, Vehicle surge protected. Dedicated 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.		
SPEAKER	Internal speaker 10W							
FRONT PANEL INTERFACES								
POWER / VOLUME	Turn to switch unit ON/OFF and control the internal speaker volume.							
HANDSET PORT	8Ω up to 1kΩ, 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.							
MODE BUTTON	Toggle between SECURE, CLEAR and ANALOG voice modes.							
+ - BUTTONS	Control handset volume. Also for key selection and configuration entry.							
ZEROIZE	Press orange-marked key button combination to erase all crypto keys in an emergency.							
REAR PANEL INTERFACES								
GPS ANTENNA	SMA Connector; Magnetic mount GPS antenna included.							
ETHERNET	RJ45 Socket; 10/100 Base T (IEEE 802.3U compatible)							
REM CTRL (J1, DE9F)								
REMOTE CONTROL	RS-232, 115200 bps, 1 stop bit, 8 bit character lengths							
RADIO / DATA (J20, 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-RDA6-V04	SDM: RA2 AES-256, 600bps Vocoder V4
SCS SYSTEM CONFIGURATION BUNDLE	RAP-BU-CFA2-VE4	Bundle: SCS 256b USB Cbl RA2 EN V4
MESSAGEPOINT EMAIL SOFTWARE	RAP-PC-MPSW-VE4	PC S/W: MessagePoint Email, UM EN V4
GATEWAY SOFTWARE	RAP-PC-GPSW-VE4	PC S/W: GatePoint Email, GSM, UM EN V4