RT1- In-Line Voice & Position Encryptor

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SECURE VOICE & POSITION FOR ANY RADIO

The RT1 provides communication clarity to frontline warfighters whilst providing commanders with vital blue-force position information. The RT1 is a high performance in-line secure digital voice modem with built-in GPS. The RT1 easily integrates with all VHF, UHF and HF radio transceivers via the audio or accessory interface. The unit is suitable for use with hand-held and man-pack radio equipment.

INFORMATION SECURITY

All radio communications are vulnerable to eavesdropping. The RT1's built-in AES encryption means that all communications are secured by a trusted algorithm. Switching between Secure Digital Voice (SDV) and analog voice (analogue SSB or FM) transmission is done by pressing the PLAIN / SECURE button (lock symbol).

POSITION TRACKING

The RT1 can be configured to send out periodic position reports or to send position with voice transmissions. These can be received and displayed by RT5 units and the RT COMMANDPOINT PC software.

LOW RATE VOCODER & SUPERIOR MODEM PERFORMANCE

Long-range communication is prone to interference and noise. Both digital voice and data operation benefits from 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.

FEATURES & BENEFITS:

☑ AES-256 Encryption: Voice & Position Transmissions

- ☑ 600 – 2400 bps Digital Voice Rates
- ☑ TWELP* Vocoder
- ☑ High Voice Clarity
- ☑ Automatic Vocoder Rate Adjustment
- ☑ Automatic Clear Voice Reception (FM/SSB)
- ☑ Best-in-class Voice Modem Performance
- ☑ V/UHF & HF Transceiver Compatible (SSB & FM)
- ☑ Cross-Vendor Radio Interoperability
- ☑ Extended Range, including BLoS Links
- ☑ GPS & GLONASS Support Built-in
- ☑ Automatic Periodic Position Transfer
- ☑ Over-the-Air compatible with RT5

- ☑ RT1 Handset / Headset / Speaker-Mic Variants
- ☑ 4.5 – 18 V DC Input with Surge Protection
- ☑ 2 Year Warranty
- ☑ Zeroize Function
- ☑ Blue Force Tracking via RT COMMANDPOINT

ENCRYPTION & DIGITAL VOICE

Key Fill	256 different user selectable cryptographic keys. Optional automatic key rotation on selectable intervals (to last up to 21.3 years). New key sets can be generated via KMS-256 and loaded via CLS software which runs on a MS Windows tablet. Key Fill and configuration happens via a Bluetooth interface
Security	Advanced Encryption Standard (AES), 256-bit key length. Key selection via keypad.
Modem	High performance serial toneHF and V/UHF modem (Beyond Line of Sight [BLoS] compatible) featuring adaptive equalization. FM squelch detect for power saving
Vocoder	**TWELP**: Tri-Wave Excited Linear Prediction high performance vocoder. 600, 1200 & 2400bps Low-rate Vocoder

TWELP 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

HARDWARE		ENVIRONMENTAL	
Weight	200 g with mounting strap (excludes handset & cables)	Safety	IEC/EN 60950
Size	117 x 52 x 20 mm	EMC/EMI	MIL-STD-461
Colour	Olive Drab / Military Green	Shock	MIL-STD-810F: 40G, 15 - 23 ms
Mounting	1" webbing strap. MOLLE / PADS compatible	Vibration	Composite wheeled vehicle 10Hz – 2000Hz, @2.5g
Power Input	4.5 - 18 V DC	Temperature	-40°C to +65°C (operating), -40°C to +85°C (storage)
Bluetooth	Key Fill & Configuration interface (via CLS)	Humidity	MIL-STD-810F: 0 to 90%, non-condensing
GPS / GLONASS	12 channel, -165 dBHz, active patch antenna	Ingress	IP67, 1m for 30 min

AA: Any Any Radio, Any H/Set	SC: Headset (NR)	SH: H-250/U Handset (NR)	SM: Speaker-Mic (NR)

** Note: If required, AT Comms can quote for the fitment of customer-specified connectors

Interfaces	Product Variant		Description
Handset / Headset	AA	Mic / Phones pre-fitted	**Phones**: Unbalanced output, 1000 Ω / 8 Ω handset and headset compatible (configurable). **MIC**: Unbalanced Input, mic bias (configurable), PTT input
Bluetooth	AA	SC, SH, SM	**Bluetooth Interface**: For Configuration and FILL connection to *Config Load Software (CLS)*
Secure Audio	AA	SC, SH, SM	**Baseband Audio In**: Un-bal. 600 Ω, –35 to +20 dBm no adjustment. **Baseband Audio Out**: Un-bal., 40 Ω, –20mV to +2V RMS (configurable). **Keyline**: Open Collector (<36 V, 200 mA).
Radio Power	AA	SC, SH, SM	4.5 – 18 VDC, 2000 mW max
Keypad / UI	AA	SC, SH, SM	Individual keys: SECURE/PLAIN, Volume +, Volume -, MEDIVAC, ATTACK ALERT Via key combinations: Zeroize, Key selection, Bluetooth enable. Clear voice warning, Audio alerts and indication side-tones

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