

# HF LF Modem RM8 2G ALE

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Offering a wide range of standards-based waveforms and protocols, the RM8 software defined modem with 2nd Generation (2G) Automatic Link Establishment (ALE) provides interoperable data modem and link setup in a standalone unit for strategic and maritime data communications. The 2G ALE Controller is a software option for the RM8, and can be combined with LF and HF modem software packages, selected by an activation key.



### Features

- ✓ HF modem operation
- ✓ MIL-STD and STANAG compliance
- ✓ Automatic radio control and channel selection
- ✓ Built-in GPS with time updates
- ✓ Menu-driven configuration and control
- ✓ Individual, Group & Net Calls
- ✓ All, Any, Wildcard Call
- ✓ AMD, DTM, UUF
- ✓ LQA Sounding & Polling
- ✓ Emergency Operator break-in
- ✓ Automatic Hand-Off to Modem
- ✓ Security Level (AL-1, AL-2)
- ✓ Time Exchange
- ✓ Serial and Ethernet control and data input
- ✓ AC and DC power
- ✓ Operates with RC66

## Options

- 3G ALE
- 3G packet data
- VHF/UHF modem

### Better Connectivity, Security with 2G ALE Networking

The RM 8 2G ALE Controller provides better connectivity over a greater number of frequencies and allows linking to other HF stations in a network without operator intervention. To overcome variable HF propagation conditions, a number of frequencies are available.

#### [AT Communication ©](#)

Performing all the basic protocol functions for individual calling, one-to-many calling, sounding and scanning up to 5 channels per second, the 2G ALE Controller provides advanced features with greater reliability than using a single frequency.

The 2G ALE Controller continually scans the pre-selected set of channels, listening for calls, and improves linking quality analysis by continuously listening to sounds and calls from other stations, when not otherwise committed.

HF network operators can rely on the RM8 2G ALE Controller to provide additional security via MIL-STD-188-141B, App. Linking Protection protocol, utilizing a built-in GPS.

CHARACTERISTIC	DESCRIPTION
ALE Waveforms	8-FSK according to MIL-STD-188-141C App A. & FED-STD 1045 Doppler lock and track (capture range up to $\pm 100$ Hz, configurable) Adaptive multi-path tracking, Soft Golay decoding Adaptive triple word-phase synchronization, lock and track Linking probability performance 2-3 dB better than MIL-STD-188-141C specification No LP mode degradation
ALE Protocol	Calling (IND, GRP, NET, All, Any, Wildcard Call), UUF, AMD, DTM (with or without CRC), (excluding: DBM, AQC-ALE) Calling POLLING, INLINK, RELINK (ALM support commands) Link Quality Analysis (LQA), Scanning (2 or 5 channels per second), Auto Sounding Automatic Hand-Off to Internal Modem (integrated with 3G Traffic Manager) Concurrent operation within 3G Network environment (integrated Session Manager)
Linking Protection	According to MIL-STD-188-141C App B. & FED-STD 1049 LP key-tables (256) and key select function → Automatic key management (Time of day based key selection), LP up to AL-2 Can use PPS interface for Time reference. Time Exchange protocol support (AL-1) Key Storage: 2 x 32 LP Keys Key Selection: Manual or Automatic (Daily)
Occupancy Detection	MS 110A/B, S4539, S4285, S4415, S4529, S4481, 8-FSK, SSB Voice
REMOTE Control	Configuration Protocol RAP1/RIPC, REMOTE Control Protocol RAP1/RIPC
RADIO Control Protocol	Integrated with 3G Radio Control Manager (Radio Control Protocol) Integrated with Modem Controller (Radio baseband control, ATU & keyline delay settings, matched volume control etc.) RADIO Control Protocol RAP1/RIPC or Programmable Radio Selection
Configuration For Non-Volatile RAM	Network Table: Up to 100 Other IDs, 20 Self IDs LQA Table continuous (compressed) Non-volatile storage. Re-load at start-up. LQA Table pre-load (RAP1/RIPC) 20x 2G ALE Full Network Configuration Presets (MIB in Non-volatile storage)

<b>INTERFACES</b>	
DTE (Data) Port (DB25F)	RS-422 balanced, RS-423, RS-232 unbalanced., MIL-STD-188-114 (interoperable), EIA 530A compliant Half & Full Duplex operation, Synchronous, Standard and High-speed Async modes
Remote Control / GPS Port (DE9M)	Remote Control Pins: RS-485 Multi-drop, RS-422 balanced or RS-232 Protocol: Control Protocol (RAP1 + RIPC, ASCII S5066 Annex E)
	External GPS Control Pins: RS-232 (nominally input) Data Rate: 300 to 19200 bps, 1/2 stop bits, 7/8 bit data. PPS line: RS 232/422 (NMEA) or TTL
GPS Antenna (MCX)	Built-in GPS receiver: Time reference for 2G ALE Linking protection (AL-2).
Ethernet CTRL Port (RJ45)	Remote Control: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack Protocol: Control Protocol (RAP1 + RIPC)
Ethernet Data Port (RJ45)	IP Packet Data: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack Protocol: Raw IP packet data, requires 3G ALE
Local Control	Local control via 32x202 pixel graphical LCD display and 16-key keypad. 3 bi-colour LED indicators Alphanumeric and digit keypad for fast data entry, 4-way navigation button
Radio Control & Audio Ports (DB25M)	Radio Control Pins (2 channels): RS-232, up to 115200 bps, 1/2 stop bits, 7/8 bit data Supports for various radio control protocols are built-in
	Input Audio (2 channels): 600 Ohm balanced, -20 to +10 dBm without adjustment Output Audio (2 channels): Balanced, -40 to +10 dBm adjustable into 600 ohm load Keyline: Non-polarized contact closure (<45 V, 200 mA). PTT Sense Input: Pull to ground to indicate external PTT.
	Aux Audio Pins: Connection of microphone for ALE voice calling Input Audio: 600 ohm balanced, -20 to +10 dBm without adjustment or MIC input (selectable) Output Audio: Balanced, -40 to +10 dBm adjustable into 600 ohm load

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