

RM2-ALE: HF Voice Controller [Prelim.]

ALE Voice Controller

The **RM2-ALE** is a mobile voice controller for use with HF radios. The unit automates and optimizes multi frequency voice communications over long distance HF links. Typical applications include emergency & disaster relief, governmental and non-government (NGO). The unit is suitable for use in mobile & marine environments.



Key Features & Benefits

- Fast and easy voice call setup
- Incoming call alert
- Audio mute / un-mute
- Automatic channel selection
- Individual calls
- All or Any (TBC) Calls
- Missed call indication
- PC network configuration utility
- Vehicle Surge Protected DC Power Input (MIL-STD-1275B)
- Compact mobile form factor
- External speaker (supplied)
- Mounting bracket

ALE Network

Using an ALE network over a number of frequencies offers HF voice users a much higher level of connectivity compared with using a single frequency. The ALE voice controller removes the need for complicated HF propagation prediction charts, time schedules and HF channel monitoring.

ALE Voice Calling

To make a call the user enters the required remote station address on the DTMF microphone. If the call setup is successful the **RM2-ALE** signals the remote user by sounding a ring tone on the internal buzzer or external speaker. The remote user answers the call and normal voice communications commences. When the system is not busy with a call, the internal and external speakers are muted.

Link Establishment

The ALE Controller performs all the basic protocol functions for individual calling, one-to-many calling, sounding, channel selection and scanning.

When not otherwise committed, the ALE Controller continually scans the pre-selected set of channels, listening for calls. When the self address is detected and a link is established voice communications can commence.

For link set-up, the **RM2-ALE** calls first on channels with the best Link Quality Analysis (LQA) score. If the LQA score is outdated, the system will poll other stations to update the score before selecting the call channel.

The **RM2-ALE** HF Voice Controller supports Occupancy Detection (OD) and Listen before Transmit (LBT) (2nd Generation ALE).

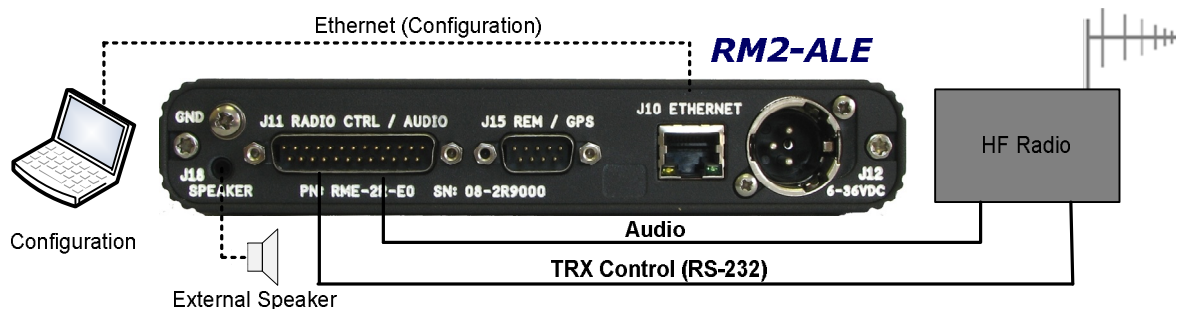
HF Radio Control Support

The **RM2-ALE** automatically controls an HF radio in order to establish communication links with other HF stations. No operator intervention is required. The **RM2-ALE** supports the following radios:

- ICOM Professional and Marine
- Kenwood TK-90, TS-50, TS-480, TS-2000 (TBC)
- Yaesu Vertex Standard VX-1700, System 600
- CODAN NGT
- Barrett 940



New radio models are added from time to time on customer request. Please contact *RapidM* for more information on specific radio support.

Figure 1:
Typical System Configuration using the **RM2-ALE** unit.



ALE Network Configuration

To assist with the configuration of ALE networks, RapidM provides a 2G ALE network configuration PC utility, which clones a basic configuration onto a number of **RM2-ALE** units, leaving only the self address parameters to be set individually. The utility also produces a print-out of a phone book (names, station id's) for easy reference. The ALE configuration can be saved in one of ten available custom preset memories in the **RM2-ALE** unit.

ACCESSORIES	PICTURE	DESCRIPTION
DTMF HAND MICROPHONE (INCLUDED)		<ul style="list-style-type: none"> • Omni-directional dynamic palm microphone • DTMF input for number based ALE calling • Microphone hook (bracket included) • 1 meter rubberized curly cable and connector
EXTERNAL SPEAKER (INCLUDED)		<ul style="list-style-type: none"> • 5 W_{RMS} External Speaker • 8 Ohm impedance • Mounting bracket included • 2 meter audio cable with 3.5 mm mini jack connector

STANDARD	CHARACTERISTICS
2G ALE MIL-STD-188-141B APPENDIX A & FED-STD 1045	Automatic Link Establishment 2nd Generation (2G ALE) Occupancy detection waveforms: MS 110A/B, S 4539, S 4285, S 4415, S 4529, S 4481, 8-FSK and SSB Voice Protocol: Calling, AMD, DTM, Excluding: DBM, AQC-ALE <ul style="list-style-type: none"> • Programmable Radio Selection • Link Quality Analysis (LQA) • Scanning (2 or 5 channels per second) • Automatic Polling (TBD)(To be described)

INTERFACES	
REMOTE CONTROL (DE9M)	Remote Control (5 pins): Used for Network Configuration RS-232, Data Rate: 1200 to 115200 bps, 1 or 2 stop bits, 8 bit character lengths. Protocol: RapidM Proprietary Control Protocol (RAP1 + RIPC)
ETHERNET CTRL (RJ45)	Remote Control: Used for Network Configuration 10 Base T (IEEE 802.3U compatible), half duplex Protocol: RapidM Control Protocol (RAP1 + RIPC) over TCP/IP
FRONT PANEL	8 bi-color status LED indicators (dimnable): <ul style="list-style-type: none"> • ETHERNET: Activity, Link • REM CTRL / DTMF: Activity • RADIO CTRL: Activity • SNT / INT: Signal Quality, Interference • AUDIO IN: Signal Level Indication • TX / RX: Transmit, Receive • ALE: Activity, Linked • Power: Power on, Fault Indication
RADIO CONTROL & AUDIO PORTS (DB25M)	Radio Control Pins: RS-232, 4800 to 115200 bps, 1 or 2 stop bits, 7/8 bit data (no Hardware flow control) Radio Audio Pins: Input Audio: 600 Ohm balanced, -20 to +10 dBm without adjustment Output Audio: Balanced, -40 to +5 dBm adjustable into 600 ohm load Keyline: Non-polarized contact closure (<45 V, 200 mA) LED dim line: Connectable to headlight switch of vehicle for automatic dimming of LEDs
SPEAKER	External speaker: 3.5 mm mini jack Internal buzzer for activity feedback (can be muted). Volume control via DTMF microphone
MICROPHONE (RJ45)	Front panel microphone interface, 8-pin modular plug, 12 Digit DTMF input for number based ALE calling

INSTALLATION		ENVIRONMENTAL	
WEIGHT	1.25 kg (TBC)	TEMPERATURE	-30°C to +70°C (operating)
COLOUR	Black, powder coat	HUMIDITY	0 to 90%, non-condensing
SIZE	32.0 x 162.0 x 180.0 x mm (h x w x d)	SHOCK	MIL-STD-810E Method 516.4, Procedure 1, Funct. (40G, 11 ms)
MOUNTING	Vehicle & marine installation using the supplied mounting bracket	VIBRATION	MIL-STD-810E Meth. 514.4, Cat. 9, Shipboard
POWER	6-36 V DC (designed for MIL-STD-1275B), XLR3 plug (supplied) GND Screw: Lug + copper braid (supplied)	SAFETY	IEC/EN 60950
		EMC	MIL-STD-461E

RELATED PRODUCTS	FEATURES*
RM6	Rack Mount, Ethernet, DTE (Synchronous & Asynchronous), 2G ALE s/w Option, 9600 bps in 3kHz, 19200 bps in 2-15B, Security Processor, Front Panel (Control & Configuration), Email (using RC66 Combat Communications Suite).
RM4	Rack Mount, Ethernet, DTE (Synchronous & Asynchronous), 2G ALE s/w Option, 9600 bps in 3kHz, Email (using RC50 Government Communications Suite)
RM2-HVM	Rack Mount / Mobile, Ethernet, Email (using RC50 Government Communications Suite).

* Please see the RapidM product guide (RM_Product_Guide.pdf) for more information.

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