

RM4 2G ALE Software Option

2nd Generation ALE

The **2G ALE** Controller is embedded in the **RM4** unit and can be activated after installing the appropriate **RapidM** license key.



Automatic Link Establishment

- MIL-STD-188-141B App. A
- FED-STD 1045
- Individual Calls
- Group, Net Calls
- All, Any, Wildcard Call
- AMD, DTM, UUF
- Sounding
- Scanning (2 or 5 chan./sec)
- Automatic channel selection

Linking Protection

- MIL-STD-188-141B App. B
- FED-STD 1049
- Security Level (AL-1, AL-2)
- Time Exchange

Link Set-up

Embedded ALE allows linking with other HF stations without operator intervention. A number of frequencies can be used to overcome variable HF propagation conditions.

The ALE Controller performs all the basic protocol functions for individual calling, one-to-many calling, sounding and scanning up to 5 channels per second.

For link set-up the **2G ALE** Controller calls first on channels with the best LQA score. The LQA is obtained by continuously listening to sounds and calls from other stations.

MIL-STD-188-141B, App. A has mandatory requirements for Occupancy Detection and Listen before Transmit (2nd Generation ALE).

Linking Protection

MIL-STD-188-141B, App. B Linking Protection requires a Time Server in the network. The **RM4** unit has a dedicated interface to connect a standalone GPS unit. Upon connection, the date & time display will automatically update to UTC.

The **RM4** supports the standard Time Exchange protocol. This will raise the time quality of non-GPS capable Time Client stations.

Features

- Menu-Driven ALE Setup
- User-Friendly control and configuration
- Short messaging (AMD)
- Works with RC66 (STANAG 5066)
- Built-in Radio Control Protocols
- Link Quality Analysis (LQA)
- SINAD / BER Thresholds
- LQA Polling
- Automatic Hand-Off to Modem
- GPS Time updates
- ALE Remote Control Capability
- Emergency Operator break-in

Radios Supported

The control protocols for various radios are embedded (selectable from the configuration utility).

The following radios are currently supported:

- Rohde & Schwarz XK2000 family
- Yaesu System 600
- Vertex Standard 600
- Barrett 950, 2050
- ICOM Amateur and Marine
- Kenwood TS-50, TS-480, TS-2000
- SGC 2000 Power Talk 150
- JRC JSB-196GM (High-sea)

New radio types are added from time to time on customer request.

Control

The unit is fully controllable via RIPC/RAP1 remote control protocol (available from RapidM).

ALE Network

Using an ALE network over a number of frequencies offers a much higher level of connectivity compared with using a single frequency. This is where ALE can substantially upgrade the availability of service.

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, data or voice communications are automatically initiated by switching the chosen high speed data modem into the circuit.

The ALE Controller can initiate a sounding signal at programmable intervals. Received sounding broadcasts are used to evaluate the connectivity and availability of links for later use.

ALE Configuration

To assist with the configuration of ALE networks, RapidM provides **2G ALE configuration** PC software, which will clone a basic configuration onto a number of **RM4** units, leaving only the self address parameters to be set individually.

Finally, the ALE configuration can be remotely updated, and saved in one of twenty available

custom preset memories in the **RM4** unit. All the **2G ALE** configuration parameters are factored into checksums so that ALE settings can be verified between network nodes.

User Permissions

OPERATOR

The 'Operator' is restricted to the operational screens and ALE control menu.

ALE NETWORK ADMINISTRATOR

The 'ALE Network Administrator' determines the ALE Network parameters and configures all the ALE Controllers in the ALE Network.

The entire **2G ALE** configuration is protected by the ALE Network Administrator's password.

RM4 Mobile ALE

If a particular mobile HF radio is not ALE capable, the DC power supply allows the **RM4** unit to be used as an external ALE Controller for the radio.

STANDARD	CHARACTERISTICS
2G ALE MIL-STD-188-141B APPENDIX A, B & FED-STD 1045 FED-STD 1049	Automatic Link Establishment 2 nd Generation (2G ALE) <i>Occupancy detection waveforms:</i> MS 110A/B, S 4539, S 4285, S 4415, S 4529, S 4481, 8-FSK and SSB Voice <i>Protocol:</i> Calling, AMD, DTM, <i>Excluding:</i> DBM, AQC-ALE <ul style="list-style-type: none"> • Programmable Radio Selection • Link Quality Analysis (LQA) • Scanning (2 or 5 channels per second) • Automatic Sounding • Automatic Hand-Off to Internal Modem • User-Friendly, Menu-Driven • Linking Protection up to AL-2 (Appendix B). Can use GPS interface for Time reference

The **RM4** unit comes standard with HF modem waveforms (see the *RapidM RM4 HF Data Modem* datasheet).

Fig2:
Rear panel
of the
RM4 Unit



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