

S5066 WB-ARQ

S4691 MARLIN



### RC10 Product Overview

The *RC10* ARQ Server and IP Controller is a purpose-built platform for Automatic Repeat reQuest (ARQ) communications functions based on STANAG 5066 and STANAG 4538, as well as a Mobile Ad-Hoc Relay Line of Sight Networking (MARLIN) function based on STANAG 4691. The *RC10* is a companion product to the *RM10* Wideband HF Modem & ALE providing the emerging Wideband STANAG 5066 ARQ Protocol Stack (WB-ARQ) with all the latest enhancements together with the IP Client. The unit has a bit-exact synchronous DCE interface supporting all the MIL-STD-188-110C rates up to 120 kbps.

In conjunction with the *RM10* and an external link encryptor, the *RC10* provides point-to-point (ARQ) and point-to-multipoint (BROADCAST) data (chat, messaging, Email, IP) communications over long-range (BLOS) HF links, as well as line-of-sight (LOS) V/UHF links.

The *RC10* also provides a STANAG 4691 Network Controller, for fixed frequency ad-hoc V/UHF networks. In addition, the *RC10* hosts a STANAG 4538 Proxy for error-free data transfer using the STANAG 4538 xDL (and xDL-WB in future) modes provided in the SDM.

Various external RapidM or third-party clients can bind with the S5066 server or the S4538 Proxy via the RAW SIS protocol TCP/IP interface thus allowing multiple applications concurrent access to the 'radio line' - ARQ Server/Encryptor (COMSEC) / Modem/Transceiver.

A synchronous balanced DTE port is built into the *RC10* unit to interface with a bulk encryption unit. Support for a wide range of NATO & PfP cryptos is provided. The *RC66 ApplicationServer* is an example application that can be used with the *RC10* to provide Email, Chat, File Transfer, User-Defined IP Applications and Services (HTTP, IOD).

### STANAG 5066 Wideband ARQ

The *RC10* includes a STANAG 5066 ARQ server for error-free data transfer, with an embedded STANAG 5066 HF IP Client. The *RC10* can be used in Fixed Frequency or Multi Frequency networks. For the latter ALE 2G, 3G (Fast Link Setup) for narrowband operation and WALE (Fast or Deep Link Setup) for wideband channel access functions are utilized for link establishment and link maintenance.

### Key Features

- **Embedded** – STANAG 5066 ARQ Server, JITC certified, Ed. 3)
- **Embedded** – IP & COSS Clients
- **Email, Chat & Messaging** – via SIS Protocol
- **Deployment** – ship-borne & shore station/split-site
- **Operation** – Point-to-point and Broadcast
- **Data Modems** – SSB, ISB & WBHF. V/UHF
- **ALE** – 2G, 3G & WALE with ALM
- **Menu-Driven control & configuration**
- **DTE port** – Synchronous / Asynchronous
- **Ethernet LAN interfaces** – for Control and IP-based Data services
- **Asynchronous Serial Port** – for ACP-126/127
- **Factory Presets** – lower integration effort

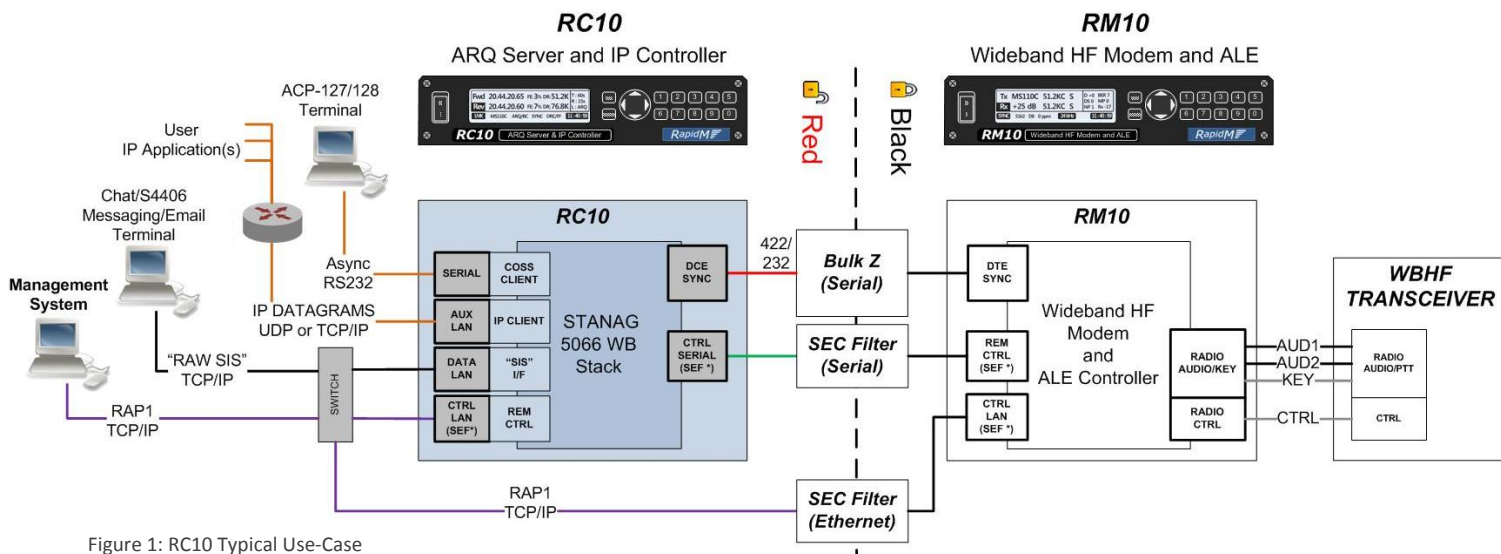


Figure 1: RC10 Typical Use-Case

| STANAG 5066 ARQ (NARROWBAND & WIDEBAND) |  |
|---|--|
| <b>MODES</b>                            | <ul style="list-style-type: none"> <li>ARQ, non-ARQ (Broadcast) &amp; EMCON (Emission Control) Modes</li> </ul>  |
| <b>CLIENTS</b>                          | <ul style="list-style-type: none"> <li>Embedded STANAG 5066 COSS (for ACP-127 Messaging) and IP Clients</li> <li>Compatible with STANAG 5066 CFTP, HMTP, HFPOP and COSS Clients</li> <li>Compatible with POP3 &amp; SMTP Servers (Email) – SMTP, RFC 2821, Outlook Email</li> </ul>  |
| <b>FEATURES</b>                         | <ul style="list-style-type: none"> <li>Non-ARQ Data Transfer: Data is sent out, without any form of acknowledgement. Used for broadcasting and for sending data to single stations in EMCON.</li> <li>ARQ Data Transfer: Used for sending data to a single radio that is not in EMCON mode.</li> <li>SIS Protocol: The RC10 STANAG 5066 server supports the RAW SIS protocol via TCP/IP.</li> <li>Multiplexing: The RC10 enables multiple applications to simultaneously send/receive data.</li> <li>Data Priority: Each unit data has a priority value. Higher precedence data is sent first.</li> <li>Collision avoidance and recovery: The RC10 provides a listen-before-transmit function.</li> <li>Data Rate Change (DRC): The RC10 adjusts the transmitter data rate automatically.</li> <li>Fixed Frequency network or Multi Frequency network support.</li> <li>Interoperability: Other STANAG 5066 Edition 3 products, e.g. RC66, BFEM66, 4KMA, OMAR HD, RFIAN &amp; BRASS ICC/BRE1TA.</li> </ul> |

| GENERAL SPECIFICATIONS              |  |  |  |   |
|-------------------------------------|--|--|--|---|
| <b>SIZE, WEIGHT &amp; COLOR</b>     | Width: 212.2 mm<br>Depth: 225.6 mm   | Height: 41.1 mm (excl. front panel)<br>Height: 44.1 mm (incl. front panel)   | Weight: 2.2 kg   | Color: Black Grey (RAL 7021), Saddlewood Powder (VX 7517) |
| <b>ENVIRONMENTAL SPECIFICATIONS</b> | Climatic   | <ul style="list-style-type: none"> <li>Storage/Operation: -30 °C to +70 °C (MIL-STD-810F)</li> <li>Humidity: 90% non-condensing at 30 °C (MIL-STD-810F)</li> </ul>             |  |   |
|                                     | Mechanical   | <ul style="list-style-type: none"> <li>Vibration: Surface Ship, Marine Vehicles, Aircraft, Min. Integrity (MIL-STD-810F)</li> <li>Shock: 40 G, 11 ms (MIL-STD-810F)</li> </ul> |  |   |
|                                     | EMC  | <ul style="list-style-type: none"> <li>MIL-STD-461E (RE101, RE102, CE102, CS101, CS114, RS101, RS103)</li> </ul>   |  |   |
|                                     | Safety/CE Marking  | <ul style="list-style-type: none"> <li>CE Marking - Directives 2006/95/EC as amended</li> <li>SANS 60950-1:2010 / IEC 60950-1:2012</li> </ul>                                  | <ul style="list-style-type: none"> <li>LVD - Low Voltage Directive 2014/35/UE</li> <li>EMC - Electromagnetic Compatibility Directive 2014/30/UE</li> <li>EDD – Eco-Design Directive 2009/125/EC</li> </ul> |   |
|                                     | MTBF   | <ul style="list-style-type: none"> <li>&gt; 40,000 hours</li> </ul>  |  |   |
| <b>INSTALLATION</b>                 | Compact design: The unit occupies a width less than ½ of an 1U 19" rack slot, <i>RapidM</i> 19" rack-mountable tray available. |  |  |   |
| <b>PRESETS</b>                      | Factory and Custom Presets   |  |  |   |

| INTERFACES   |  |
|--|--|
| <b>DCE (DATA) PORT (DB25M)</b>                       | RS-422 balanced, RS-423, RS-232 unbal., MIL-STD-188-114 (interoperable), EIA 530A compliant. Half & Full Duplex operation, Sync, Std. and High-speed Async modes. Connects to COMSEC.      |
| <b>ETHERNET DATA PORT (RJ45)</b>                     | IP Packet Data: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack<br>Protocol: RAW SIS IP packet data. Connects to application PCs / servers / laptops.                        |
| <b>ETHERNET AUX LAN (RJ45)</b>                       | IP Packet Data: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack<br>Protocol: TCP/IP, connects to application Router (Enclave or Federating Router)                           |
| <b>REMOTE CONTROL/ GPS PORT (DE9M)</b>               | Remote Control Pins: RS-485 Multi-drop, RS-422 balanced or RS-232<br>Protocol: Control Protocol (RAP1 + RIPC, ASCII S5066 Annex E). Connects to <i>RM8 SDM</i>                             |
|  | External GPS Control Pins: RS-232 (nominally input). Data Rate: 300 to 19200 bps. PPS line: RS 232/422 (NMEA) or TTL. Time reference, [position function]. Connects to external GPS.       |
| <b>GPS ANTENNA (MCX)</b>                             | Optional Built-in GPS receiver: Time reference for time-based functions, [position function].  |
| <b>SERIAL DATA (2) &amp; AUDIO PORTS (2) (DB25M)</b> | Asynchronous Data (2 ports): RS-232, up to 115200 bps, 1/2 stop bits, 5/6/7/8 bit data<br>Support for: ITA-2, ITA-5 for ACP-127 support. Connects to ACP 127 terminal.                     |
|  | Input Audio: 600 ohm balanced, -20 to +10 dBm without adjustment or MIC input Output Audio: Balanced, -40 to +10 dBm adjustable into 600 ohm load. Connects to intercom or hand / headset. |
| <b>ETHERNET CTRL PORT (RJ45)</b>                     | Remote Control: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack<br>Protocol: Control Protocol (RAP1 + RIPC). Connects to external management / control system.               |
| <b>USER INTERFACE FOR UNIT CONTROL</b>               | Local control via 32x202 pixel graphical LCD display and 16-key keypad. 3 bi-colour LED indicators<br>Alphanumeric and digit keypad for fast data entry, 4-way navigation button.          |
| <b>POWER SUPPLY</b>                                  | Wide-range supply input: 90-264 VAC, 40-440 Hz, 2A & 100-370 VAC.<br>Makes the unit suitable for use on military base stations, vessels and aircraft.                                      |

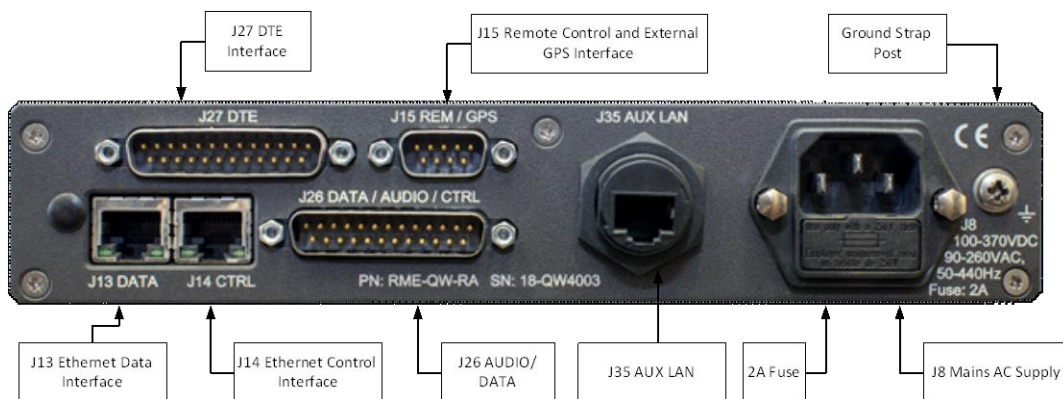


Figure 2: RC10 Rear Panel Layout

| RC10 ARQ SERVER ORDERING INFORMATION       | STOCK NUMBER    | DESCRIPTION                              |
|--|-----------------|--|
| RC10 HF S5066 Wideband ARQ & IP Controller | RME-C0-RA-CWV06 | SDC: RC10 CW (5066WB ARQ, IP Client) V06 |

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