RC8X4

QUAD ARQ SERVER & IP CONTROLLER

DATASHEET

Key Features

- **Designed for Redundancy –** 4 PSUs
- **Quad (4) functions -** 1U 19" rack slot.
- **Deployment –** ship-borne & shore station
- **Software Defined Functions –** S/W Options
- **Front Panel Set-up / Control –** Menu driven
- **Companion Products -** RM8 & RM8X4
- **Long-term product availability –** 20 Years
- **IP-to-sync converter functions**
- **Embedded –** STANAG 5066 ARQ Servers, JITC certified, Edition 3 compliant
- **Embedded –** IP & COSS Clients
- **Embedded –** STANAG 4538 Proxies *
- **Embedded –** RTAWC low-rate Vocoders*
- **Email, Chat & Messaging –** via SIS Protocol
- **Deployment –** ship-borne & shore station
- **Operation –** Point-to-point and Broadcast
- **Data Modems –** SSB, ISB & WBHF
- **ALE –** 2G & 3G with ALM
- **Menu-Driven control & configuration**
- **Management LAN –** 1 to 4 interfaces
- **Data Ports –** 4 synchronous DCE interfaces
- **Data LAN –** 4 data interfaces for IP traffic
- **Aux Audio I/F –** 4 interfaces for voice
- **Asynchronous Serial Ports –** for ACP-127
- **Support for External Encryption –** COMSEC
- **Factory Presets –** lower integration effort

*** Note: Future option**

Data and Voice Interfaces

The *RC8X4* features serial and Ethernet interfaces for data and external GPS and two audio interfaces per function. Various external *RapidM* or third party clients can bind with the 5066 servers or the 4538 Proxies using the RAW SIS protocol thus allowing multiple applications to concurrent access to the 'radio line' – ARQ Server/Encryptor (COMSEC)/ Modem/Transceiver.

RC8X4 Product Overview

The *RC8X4 Quad ARQ Server & IP Controller* is a purpose-built standalone hardware platform housing four independent Automatic Repeat reQuest (ARQ) and Vocoder functions used in maritime and strategic long-range (BLOS) communications systems.

The *RC8X4* unit has high commonality with the *RC8* and is intended for strategic and maritime data communications where space is at a size, weight, power and cost are at a premium. The *RMCX4* can be installed as both land and ship-borne 19-inch rack equipment occupying only a single 1U slot.

In conjunction with the *RM8* or *RM8X4* Software Defined Modems (SDMs) and external link encryptors, the *RC8X4* provides robust, secure voice, data and position communication capability over HF links even in severely degraded channels conditions. This fully integrated, qualified system ensures optimal performance and functionality and offers peace-of-mind stemming from *RapidM's* commitment to long-term product availability and support.

Services include voice, position transfer, Email, messaging, ACP 127 chat and IP data transfer.

Description

In its most basic configuration the *RC8X4* provides four 'IP-to-sync' data converter functions. The *RC8X4* is capable of hosting four *STANAG 5066* ARQ servers for error-free data transfer. The STANAG 5066 IP and COSS Clients are embedded in the *RC8X4*. Alternatively the *RC8X4* can host *STANAG 4538 Proxies* for secure data transfer using the STANAG 4538 xDL modes provided in the *RM8 or RM8X4* SDMs. Additionally the *RC8X4* can host *RapidM's RTAWC* a state-of-the-art low-rate Vocoder designed expressly for HF channel conditions.

The *RC8X4* can be used in Fixed Frequency or Multi Frequency networks. For the latter ALE 2G or 3G (Fast Link Setup) channel access functions are utilized for link establishment and link maintenance.

STANAG 5066 ARQ (Up to 4 in Total)	
Modes	○ ARQ, non-ARQ (Broadcast) & EMCON (Emission Control) Modes
Clients	○ Embedded STANAG 5066 COSS (for ACP-127 Messaging) and IP Clients ○ Compatible with STANAG 5066 CFTP, HMTP, HFPOP and COSS Clients ○ Compatible with POP3 & SMTP Servers (Email) – SMTP, RFC 2821, Outlook Email
Features	○ 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. ○ ARQ Data Transfer: Used for sending data to a single radio that is not in EMCON mode. ○ SIS Protocol: The *RC8X4* STANAG 5066 servers support the RAW SIS protocol via TCP/IP. ○ Multiplexing: The *RC8X4* enables multiple applications to simultaneously send/receive data. ○ Data Priority: Each unit data has a priority value. Higher precedence data is sent first. ○ Collision avoidance and recovery: The *RC8X4* provides a listen-before-transmit function. ○ Data Rate Change (DRC): The *RC8X4* ARQ servers independently adjust the transmit modems data rates automatically. ○ Fixed Frequency network or Multi Frequency network support. ○ Interoperability: Other STANAG 5066 products, e.g. RC66, BFEM66, 4KMA, RFIAN.
*STANAG 4538 Proxy (Up to 4 in Total) **	
Modes	○ ARQ, non-ARQ (Broadcast) & EMCON (Emission Control) Modes
Clients	○ Embedded STANAG 5066 COSS (for ACP-127 Messaging) and IP Clients ○ Compatible with STANAG 5066 CFTP, HMTP, HFPOP and COSS Clients ○ Compatible with POP3 & SMTP Servers (Email) – SMTP, RFC 2821, Outlook Email
Features	○ Non-ARQ Data & ARQ Transfer ○ SIS Protocol: The *RC8X4* STANAG 4538 servers support the RAW SIS protocol via TCP/IP
*RapidM RTAWC Low-Rate Vocoder (Up to 4 in Total) **	
Modes	○ Secure digital audio or PLAIN (SSB) analog voice (for interoperability)
Features	○ Automatic DRC based on voice quality. ○ Late Entry

* Note: Future option

General Specifications			
Size & Weight	○ Width: 212.2 mm ○ Depth: 225.6 mm	○ Height: 41.1 mm (excl. front panel) ○ Height: 44.1 mm (incl. front panel)	○ Weight: 4.8 kg
Environmental Specifications	Climatic	○ Storage/Operation: -30 ˚C to +70 ˚C (MIL-STD-810F) ○ Humidity: 90% non-condensing at 30 ˚C (MIL-STD-810F)	
	Mechanical	○ Vibration: Surface Ship, Marine Vehicles, Aircraft, Min. Integrity (MIL-STD-810F) ○ Shock: 40 G, 11 ms (MIL-STD-810F	
	EMC	MIL-STD-461E, CE Marking -Directives 73/23/EEC and 89/336/EEC	
	MTBF	> 22,000 hours	
Installation	Compact design: The unit occupies the full width of a 1U 19” rack slot		
Power Consumption	Operational < 30 Watt (Apparent power)		
Presets	Factory and Custom Presets		

Interfaces (Per Function)		Nr
DCE (Data) Port (DB25M)	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.	4
Ethernet Data Port (RJ45)	IP Packet Data: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack Protocol: RAW SIS IP packet data. Connects to application PCs / servers / laptops.	4
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). Connects to *RM8 SDM*	4
	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 ** Note: Only a single GPS is required to be connected to the RC8X4 unit.*	1*
Serial Data (2) & Audio Ports (2) (DB25M)	Asynchronous Data (2 ports): RS-232, up to 115200 bps, 1/2 stop bits, 5/6/7/8 bit data Support for: ITA-2, ITA-5 for ACP-127 support. Connects to ACP 127 terminal.	4
	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.	4
Ethernet CTRL Port (RJ45)	Remote Control: 10/100 Base T (IEEE 802.3U compatible), embedded TCP/IP Stack Protocol: Control Protocol (RAP1 + RIPC). Connects to external management / control system.	4
User Interface for Unit Control	One local control via 2-button key and 4-way navigation button. Four 32x202 pixel graphical LCD displays. Four bi-colour LED indicators per function: SEL, TX, RX & ALE	1/4
Power Supply	Wide-range supply input: AC Only Supply: 90-264 VAC, 40–440 Hz, 2A & 100-370 VAC. Makes the unit suitable for use on military base stations, vessels and aircraft. *** Note: Internally four independent PSU units are used, one per function.*	1**

Ordering Information	Stock Number	Description
RC8X4 Quad ARQ Server & IP Controller	RME-8C4P1-C11.0	SDC: RC8X4 S5066 ARQ & IPC V1.0

* Contact RapidM for datasheets.

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