



## **RMX-2 Installation and Operation Guide**



**Raymar Information Technology, Inc.**

7325 Roseville Road  
Sacramento, CA 95842  
800-695-1951  
Fax: 916-783-1952

[www.raymar-telenetics.com](http://www.raymar-telenetics.com)

The products and programs described in this User's Guide are licensed products of Raymar-Telenetics. This User's Guide contains proprietary information protected by copyright, and this User's Guide and all accompanying hardware and documentation are copyrighted.

Raymar-Telenetics does not warrant that the hardware will work properly in all environments and applications, and makes no warranty and representation, either implied or expressed, with respect to the quality, performance, merchantability, or fitness for a particular purpose.

Information in this User's Guide is subject to change without notice and does not represent a commitment on the part of Raymar-Telenetics. Raymar-Telenetics assumes no responsibility for any inaccuracies that may be contained in this User's Guide.

Raymar-Telenetics makes no commitment to update or keep current the information in this User's Guide, and reserves the right to make changes to this User's Guide and/or product without notice.

No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or information storage and retrieval systems, for any purpose other than the purchaser's personal use, without the express written permission of Raymar-Telenetics.

© Copyright 2012 Raymar Information Technology, Inc.  
7325 Roseville Road  
Sacramento, California 95842  
Tel: 800-695-1951 Direct: +1-916-783-1951  
Fax: 916-783-1952  
Web site: [www.raymar-telenetics.com](http://www.raymar-telenetics.com)

## TABLE of CONTENTS

1. Chapter 1 - Introduction.....	Page 1
2. Chapter 2 - Installation .....	Page 4
3. Chapter 3 - Operation.....	Page 6
4. Chapter 4 - Maintenance .....	Page 7
5. Appendix A - Specifications.....	Page 8
6. Appendix B – Telephone/Power Line Cables .....	Page 10
7. Limited Warranty Information.....	Page 13
8. RMA Procedures .....	Page 14

# Chapter 1

## Introduction

**T**he Raymar-Telenetics RMX is a 2-slot 1U modem rack chassis. It measures 17 inches wide by 1.75 inches high and 8.5 inches deep, and mounts in a standard 19- or 23-inch rack.

The RMX comes in AC and DC configurations with optional redundant power. This guide covers both versions.

### Overview

The Raymar-Telenetics RMX has slots that accept two of the following:

- ❖ Modems
- ❖ Digital Data Service (DDS) units

All of these devices are plug-in printed circuit (PC) cards that slide into the front of the RMX. The cards can be mixed in any way within the RMX. Each card has been independently tested and meets Part 68, FCC rules and regulations.

Power, Data Terminal Equipment (DTE), and communication-line connections are made at the back panel of the RMX. This allows PC cards to be installed or replaced, without disturbing the cable connections at the back of the enclosure.



---

## Back Panel Interface Connectors

All DTE, Telco and power connections are made at the back panel of the RMX.

The DTE connectors are:

- ❖ Individual 25-pin connectors one for each PC card (standard)

The Telco connectors are:

- ❖ Individual 8-pin modular jacks one or two for each PC card (standard)

## Telephone Line Interfaces

The RMX is FCC certified for connection to the dial-up Public Switched Telephone Network (PSTN). The following sections describe the standard and optional ways for connecting to the communications line.

### ***Modular Jack Connectors***

The standard RMX back panel has an 8-pin modular jack for each modem. These jacks provide the interface for connecting individual modems to the telephone line. Each 8-pin jack has contacts that are used in various combinations depending on the type of service installed. Leased-line modems, by comparison, have four contacts: a transmit pair and a receive pair.

For a description of the modular jack functions, refer to appendix B.

## Contact Information

For more information about Raymar-Telenetics RMX, or other Raymar-Telenetics solutions, contact us using any of the following methods.



### Voice Calls

We welcome your calls at **(800) 747-1522**  
Monday through Friday, from 7:00 am to  
5:00 pm Pacific Time.



### Fax Number

You can also send your requests for information  
to our 24-hour fax number: **(916) 783-1952**.



### E-mail

If you prefer, you can send information  
requests to our 24-hour e-mail address:  
**support@Raymarinc.com**.



### Website

Our website contains valuable information about  
our products. We encourage you to visit us  
online at **www.Raymar-telenetics.com**.



# Chapter 2

## Installation

This chapter describes how to install the RMX.

### Unpacking and Inspecting the Equipment

Unpack the equipment and inspect it for any damage that may have occurred in shipment. If you see any damage or if items are missing, contact Raymar-Telenetics. Keep the shipping container and packing material for future shipment.

### Site Preparation

When selecting a location to install the RMX, choose a site that:

- ❖ Is clean, well lit, and free from extremes of temperature, humidity, appreciable shock, and vibration.
- ❖ Is within seven feet of a power source that can furnish 90-265VAC/DC or 24-53VDC at 3.5 amps.
- ❖ Is within 50 feet of the associated data terminal.
- ❖ Provides at least 36 inches of clearance at the front for operating and maintenance accessibility.
- ❖ Provides at least 4 inches at the back of the enclosure for interface cable clearance and unobstructed airflow.
- ❖ Side and top clearances for rack-mounted equipment are dictated by the rack-cabinet provisions, but should allow a free flow of cooling air.

## Installation Procedures

Service personnel should be familiar with the complete installation procedure before installing the RMX.

### *Required Tools and Equipment*

Special tools or test equipment are not required for installation.

---

**CAUTION:** To prevent damage to enclosure components from overheating, ensure clearances of 1  $\frac{3}{4}$ -inch top and bottom between mounted enclosures. Make adequate provision for cool air circulation and exhaust of warm air, and an adequate CFM exhaust fan in the top panel of the Data Rack.

### *Mechanical Assembly*

The RMX mounts into a standard 19-inch cabinet and requires 2 inches of vertical panel space.

# Chapter 3

## Operation

The RMX accepts leased line, PSTN, and DDS-type modems. Leased-line modems operate on conditioned or unconditioned leased lines. PSTN-type modems operate on the dial-up network and have features that allow establishment of dial-up circuits and data transfer. Some modems can operate on either leased lines or PSTN.

Modems designed for use in the RMX have a standardized interface (EIA-232C) that provides for orderly calling, answering, and data modes. Many of the modems also have automatic dialing and answering capabilities.

### Test Modes

Each plug-in modem card has a switch or switches that provide for modem testing. Test features are described in the manual for the modem.

### Front Panel Indicators

Two LEDS's on the front of the chassis represent the power supply status.

Most modems have LED's mounted on the front edge of the card to indicate the status of various EIA-232 interface functions. The LED's are described in the manual for the modem.

Some PC cards have a Liquid Crystal Display (LCD) for observing modem status or selecting options using pushbuttons on the modem front panel. The LCD functions are explained in the manual for the modem.

# Chapter 4

## Maintenance

This appendix provides maintenance information for PC cards and power modules.

### PC Cards

If a PC card becomes inoperative, replace it. Field repair is not recommended. Contact Raymar-Telenetics for instructions on repairs and replacement (see “Contact Information” on page 12).

When swapping out PC cards, you do not have to turn off system power. This allows PC cards to be changed while allowing all other PC cards to continue operation.

### Power Module

The power modules have no serviceable components. Field repair is not recommended. Contact Raymar-Telenetics for instructions on replacement.

# Appendix A

## Specifications

<b>EIA Standard:</b>	Compliant with EIA Standard EIA-310-C
<b>Width:</b>	19 inches (48.3 cm)
<b>Depth:</b>	8.5 inches (21.6 cm)
<b>Height:</b>	1.75 inches (4.4 cm)
<b>Weight:</b>	6 lbs (2.72 Kg) shipped
<b>AC Power (RMX-2 AC):</b>	Input voltage 90-265 VAC 50/60 Hz
<b>Wattage</b>	150 watts per rack
<b>DC Power (RMX-2 DC):</b>	Input Voltage 24-53 VDC / 90-265 VDC**
<b>Heat Load</b>	510 BTU/Hr (fully loaded rack).
<b>Environmental Conditions</b>	Temperature (+40°F to 185°F) (-40°C to +85°C)

\*\* Redundant Power Option Available

## **NOTES**

# Appendix B

## Telephone/Power Line Cables

Figure D-1 lists the functions of the modular jacks on the back panel of the RMX.

Figure D-2 lists the function of the modular jacks on the back panel of RMX-R redundant power supply model.

**NOTE:** This figure is for illustrative purposes only. Actual units will have either the DSP9612/MOT202T Rear Panel OR the V.3600 Rear Panel. Power connectors vary depending on the model. See Figure D-2.

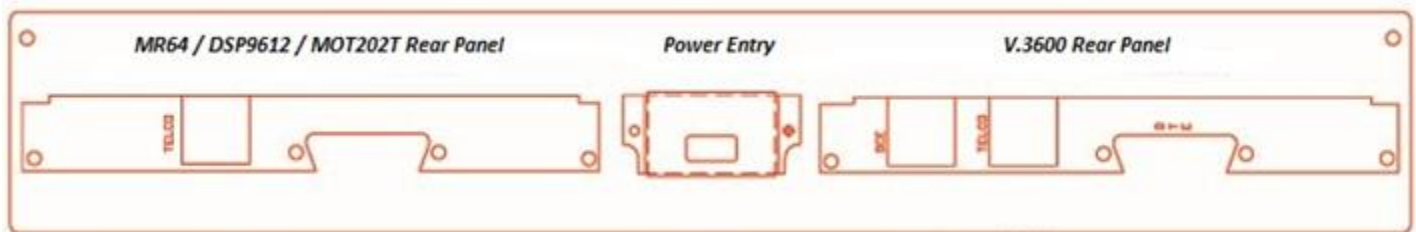


Figure D-1.

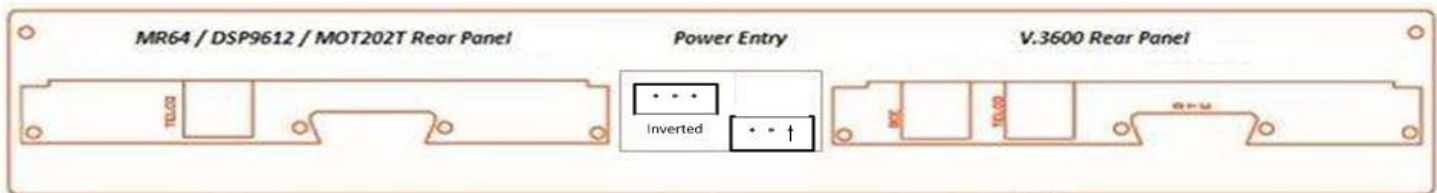


Figure D-2.

DSP/MOT			6410 / MR64		DC Power		V.3600 Dial			V.3600 Leased	
RJ45			RJ45				TELCO RJ45			TELSET RJ45	
Pin		Signal	Pin	Signal			Pin	Signal	Pin	Signal	
3	RX 4W	T	1	T1	LVDC	24 - 53 VDC	3		1	T1	
4	TX/RX 4W/2W	T1	2	R1	Single →	⊕ - ⊕	4	TX/RX 2W	R	2	R1
5	TX/RX 4W/2W	R1	7	T	+ - ⊕	⊕ - ⊕	5	TX/RX 2W	T	7	T
6	RX 4W	R	8	R	HVDC	90-265 VDC	6		8	R	
					Single ->	⊕ ⊕ -					
					⊕ ⊕ -	- ⊕ ⊕					

### RS-232 (DTE) Interface

DB25 Pin	Signal Name	Modem Input / Output	Description
1	GND	—	Earth Ground
2	TD	Input	Transmit Data
3	RD	Output	Receive Data
4	RTS	Input	Request to Send
5	CTS	Output	Clear to Send
6	DSR	Output	Data Set Ready (Modem Ready)
7	SG	—	Signal Ground
8	DCD	Output	Data Carrier Detected
15	TXCLK	Output	Transmit Clock (DCE)
17	RXCLK	Output	Receive clock
20	DTR	Input	Data Terminal Ready



## FCC Requirements

This equipment complies with FCC Rules, Part 68. Located on the equipment are the FCC Registration Number and Ringer Equivalence Number (REN). You must provide this information to the telephone company if requested.

The Registration number and REN will be inscribed on the printed circuit board on insert cards or on a label attached to either the chassis bottom or metal end plate on standalone or rack models. In any case, the FCC requires these numbers to be prominently displayed on an outside surface of the equipment.

The REN is used to determine the number of devices you may legally connect to your telephone line. In most areas, the sum of the REN of all devices connected to one line must not exceed five (5.0). You should contact your telephone company to determine the maximum REN for your calling area.

The telephone company may change technical operations or procedures affecting your equipment. You will be notified of changes in advance to give you ample time to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact:

Raymar-Telenetics  
7325 Roseville Road  
Sacramento, California 95842  
Tel: (916) 783-1951  
Fax: (916) 783-1952

[support@raymarinc.com](mailto:support@raymarinc.com)

The telephone company may ask that you disconnect this equipment from the network until the problem has been resolved. If your equipment continues to disrupt the network, the telephone company may temporarily disconnect service. If this occurs, you will be informed of your right to file a complaint with the FCC.

This equipment may not be used on coin services provided by the telephone company. Connection to party lines is subject to state tariffs.

**WARNING:** This equipment uses, generates, and can radiate radio-frequency energy, interfering with radio communications, if not installed and used according to the instruction manual. It has been tested and complies with the limits for a Class A computer device, according to FCC Rules, Part 15. Operation of this equipment in a residential area may cause interference. If it does, you must correct the cause of the interference.

Changes or modifications to this unit are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## Raymar Information Technology, Inc. Limited Warranty

### One Year Limited Hardware Warranty

Raymar Information Technology, Inc., dba Raymar-Telenetics, warrants their products against defects in hardware, material and workmanship under normal use for one (1) year from the date of purchase. Raymar will, at no charge, either repair the product (with new or reconditioned parts), or replace it (with a new or reconditioned product). Repaired replacement products are warranted for either 90 days or the remainder of the original warranty period, whichever is longer. This warranty extends to the original end-user only.

### What This Warranty Does Not Cover

This warranty does not cover: (a) software; (b) installation or service of the product; (c) conditions resulting from consumer damage such as improper maintenance or misuse, abuse, accident or alteration; (d) all plastic surfaces (including display screens) and all other exposed parts that are scratched or damaged due to normal use; (e) operation of our products with equipment not supplied by Raymar (f) products which have had the serial number removed or made illegible; or (g) products rented to others. This warranty applies only to hardware products manufactured by or for Raymar Information Technology, Inc. and identified by the Raymar-Telenetics trademark, trade name or product identification logo affixed to them. Refer to the Service and Support section of the User's Guide for service after the warranty expires. No warranty is made as to coverage availability or grade of service provided by the carrier.

### General Provisions

This warranty sets forth Raymar's entire hardware responsibilities regarding this product. Repair, replacement or refund of the purchase price is at Raymar's discretion. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES, IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. IN NO EVENT SHALL RAYMAR BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS, OR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS RAYMAR PRODUCT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW. WITHOUT LIMITING THE FOREGOING, RAYMAR SHALL HAVE NO LIABILITY FOR ANY DATA STORED IN OR USED WITH THE PRODUCT, INCLUDING THE RECOVERY COSTS OF SUCH DATA OR PROGRAMS.

### State Law Rights

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS. THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

### Provincial Law Rights

SOME PROVINCIAL LAWS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF IMPLIED WARRANTIES, THE EXCLUSION OR LIMITATION OF WARRANTY COVERAGE IN CERTAIN SITUATIONS. SOME OF THE ABOVE LIMITATIONS OR EXCLUSIONS CONTAINED IN THIS LIMITED WARRANTY MAY NOT APPLY TO YOU. This warranty gives you specific rights, and you may have other rights which vary from province to province.

### How To Use Raymar's Limited Warranty Service

To take advantage of this warranty, you must do the following:

- If you are having trouble with your product, contact Raymar service using the appropriate number from the Service and Support section of the User's Guide. If it is determined that your product requires service, you will be issued a Return Materials Authorization (RMA) form.
- Pack the defective product securely for shipping. Include only the units pre-approved by service on your RMA form.
- This warranty is void if the product is damaged in transit, you must insure your shipment.
- Ship the defective product, proof of date of purchase, and the RMA form to the address specified.
- Display your RMA number prominently on the outside of the shipping box. Customer is responsible for freight in, door to door. Raymar is responsible for return shipping costs.
- To ensure prompt service, please write on the RMA form a brief description of the problem you are experiencing with the product.

Raymar Information Technology, Inc.

7325 Roseville Road

Sacramento, CA 95842

Service Hotline (800) 747-1522

<http://www.raymar.telenetics.com> or e-mail to [techsupport@raymarinc.com](mailto:techsupport@raymarinc.com)

## **Raymar Information Technology, Inc. Return Merchandise Authorization (RMA) Procedure**

Before returning any Raymar-Telenetics product, an RMA number must be obtained.

The most convenient way to obtain an RMA number for a product purchased from Raymar-Telenetics is to call **1-800-747-1522 (+1-916-783-1951)**. When doing so, please have the following information ready:

- Company name
- Full billing address, as well as the address for the location where the product should be returned once repaired or replaced
- Telephone & Fax numbers
- Email address
- Product model number and serial number

For each item being returned, please include the product model number, the serial number, a description of the problem being encountered, and the cause of the problem (if known).

Please note that prior to authorizing a return, a product support specialist may call to verify that the product is properly installed or may ask you to perform tests to insure that the product has actually failed.

The product must be properly packed and returned to:

**Raymar-Telenetics  
7325 Roseville Road  
Sacramento, CA 95842**

The RMA number must be legibly displayed on the shipping carton. Raymar-Telenetics will not be responsible for any product returned without an RMA number.

If the product is out of warranty, estimates for repair rates and any applicable shipping costs will be communicated by a customer service representative. Currently, Raymar-Telenetics accepts purchase orders or credit cards as payment methods.

Repairs currently require 5 – 10 business days and are returned via UPS Ground.