3512 DSU/CSU

Mini-Nest User's Guide

Raymar Information Technology, Inc.
7325 Roseville Road
Sacramento, CA 95842
800-695-1951
Fax: 916-783-1952

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.

Radio Frequency Interference Regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference when equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications.

Changes or modifications not expressly approved by Raymar-Telenetics could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to take adequate measures to correct the interference at his/her own expense.

This product was verified under test conditions that included use of shielded DTE cables. Use of different cables will invalidate verification and increase the risk of causing interference to radio and TV reception.

The proper cables are available from Raymar-Telenetics.

TABLE of CONTENTS

About This Guide

This guide, which is intended for installers, operators, and maintenance personnel, provides installation and operation instructions for the Raymar-Telenetics 3512 Mini-Nest.

Servicing, maintenance, and installation of this equipment must be performed by qualified personnel. There are no operator-serviceable components.

To install nest-card modules in a Mini-Nest, you need a special back panel. Nest card modules may have been shipped with a back panel to use with the Mini-Nest or may require product-specific back panel, available in a Mini-Nest Conversion Kit. Contact your Raymar-Telenetics sales representative.

Chapter One – Introduction

Introduction
This chapter describes the Raymar-Telenetics 3512 Mini-Nest and summarizes its features.

Physical Description
The Mini-Nest provides power and housing for up to sixteen plug-in card modules and a plug-in, AC power module (refer to Figure 1-1). The Mini-Nest is 7 in. (17.8 cm) high, 10 in. (25.4 cm) deep, and mounts in a standard 19-inch (48.3 cm) EIA/RETMA equipment rack.

Mini-Nest Cooling
If several nests are rack-mounted, or if a nest is mounted among other heat-producing equipment, cooling is necessary to minimize thermal-electrical stress.

Leave spaces between pieces of equipment or use special fan units to provide forced-air cooling. Refer to Chapter 3, Mini-Nest Cooling, for details.

Figure 1-1. Raymar-Telenetics 3512 Mini-Nest (Original Door)

Caution!

3512 devices should be used in environments designed for computers and electronic equipment. **In areas susceptible to lightning, take precautions to prevent damage to electronic equipment. Contact your telco, or an electronics accessories vendor, for information on lightning protection equipment. Customers experiencing problems due to surges from lightning have eliminated such problems by installing surge suppressors** on power and data lines connected to their devices.

Chapter Two – Installation

Introduction
This chapter explains how to unpack and install the Raymar-Telenetics 3512 Mini-Nest, and how to install device card modules in it.

Unpacking
The Mini-Nest is wrapped in reusable, shock-absorbing packing material. Keep this packing material and the shipping carton in case the Mini-Nest must be stored or shipped.

Check the contents of the package against the packaging list and inspect the unit for physical damage. If the power supply was ordered separately, check that it is correct.

If the equipment is damaged, contact the shipper. If you have further concerns about damaged or missing parts, contact your nearest Raymar-Telenetics sales representative. Refer to the Limited Warranty at the back of this manual.

Site Selection and Preparation
The Mini-Nest provides high product density in a standard 19-inch (48.3 cm) EIA/RETMA equipment rack or cabinet. The Mini-Nest requires 7 inch (17.8 cm) of vertical panel space.

When selecting a site for the Mini-Nest, keep in mind the following requirements:

- Ambient temperature and humidity ranges (specified in Chapter 4)
- At least 4 inches (10 cm) of clearance at the rear of the Mini-Nest for signal lines and interface cables, and for unobstructed flow of cooling exhaust air
- At least 36 inches (92 cm) of frontal clearance for operating and maintenance accessibility

Chapter 3, Mini-Nest Cooling, discusses strategies for cooling multi-nest installations.

Installing the Mini-Nest
This section describes how to mount the Mini-Nest in a rack and how to remove and install the Mini-Nest's AC Power Module.

Rack-Mounting the Mini-Nest
The Mini-Nest is designed to be installed in a standard 19-inch (48.3 cm) EIA/RETMA equipment rack or cabinet. To install the Mini-Nest, perform the following steps.

NOTE: Steps 1 and 2 are suggested to reduce the weight of the Mini-Nest and are not absolutely required for installation. If the Power Module was purchased separately, it is not in the Mini-Nest and you may skip Steps 1 and 2.

Caution !
When installing or removing the AC Power Module,
grasp the handle with one hand while supporting the
bottom of the module with the other hand.

1) At the rear of the Mini-Nest, loosen the captive screw that holds the Power Module in place.

2) Slide out the Power Module.

3) Remove the Mini-Nest door by squeezing the door hinge pins toward each other until the pins are free.

4) Slide the Mini-Nest into place in the rack.

5) Secure the front brackets to the rack (Figure 2-1). Use four No. 10-32 x .50 screws and washers supplied with the hardware installation accessory kit.

6) Replace the Power Module. Secure by tightening the captive screw.

7) Replace the Mini-Nest door.

Figure 2-1. Mini-Nest Installation

Installing the AC Power Module

Before installing the AC Power Module, make sure that the voltage selector switch is set to the correct voltage and that the appropriate fuse is in the fuse holder (Figure 2-2). The fuse rating is printed on the front of the AC Power Module. The fuse installed in the AC Power Module fuse holder corresponds to the factory rating of the voltage selector switch.

Figure 2-2. AC Power Module

Caution !

When installing or removing the AC Power Module, grasp the handle with one hand while supporting the bottom of the module with the other hand.

Perform the following steps to install the AC Power Module:

1. Slide the AC Power Module into the extreme left-hand side of the Mini-Nest, Figure 2-3.

2. Secure it with the captive screws on the rear of the Mini-Nest.

3. Plug the power cord's female connector into the Power Module's IEC connector.

4. Plug the other end of the power cord into a grounded AC power source.

NOTE: The power cord has a North American-style NEMA plug that can be replaced, if necessary, to conform to local electrical standards.

Figure 2-3. AC Power Module Installation

Installing and Removing Mini-Nest Card Modules
You can add or remove card modules from the front of the Mini-Nest while it is powered-up and running. This section describes installation of a 3512 DSU/CSU card-module and installation of other card modules. NOTE: In some cases, you may have to remove the DTE cable before removing the card module from the Mini-Nest.

Installing a 3512 or 3512 SDC Card Module in a Mini-Nest
Perform the following steps to install a 3512 card module into the Mini-Nest:

1. If you are converting a stand-alone 3512 to a rack-mounted card module, you must remove the 3512 from the stand-alone enclosure before installing it in the Mini-Nest. To do so, follow the instructions in Chapter 2 of the *3512 DSU/CSU User's Manual.*

2. Flip the 3512's nest locking mechanism from the closed to the open position (Figure 2-4).
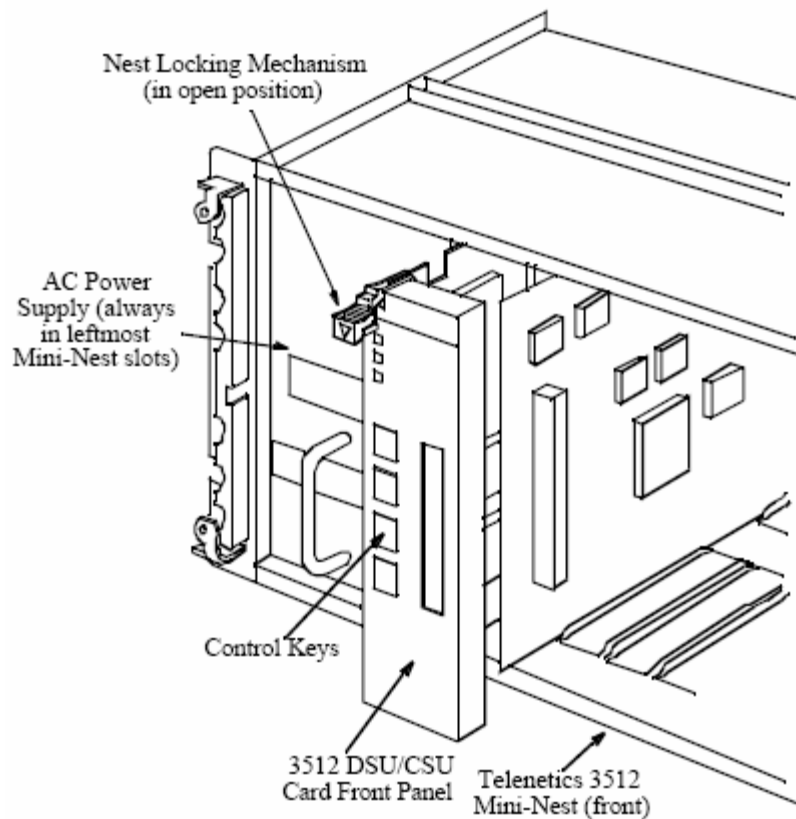
Figure 2-4. Installing DSU/CSU in Raymar-Telenetics' 3512 Mini-Nest (Front View)

3. Face the front of the Mini-Nest. Slide the 3512 into the Mini-Nest until the nest lock tab seats in the rack's square hole.
A 3512 uses two Mini-Nest slot; some other devices use only one.

4. Ensure that the front panels of all devices in the Mini-Nest are flush with the front panel of the power supply module.

5. Face the back of the Mini-Nest. Place the 3512's outer rear panel against the 3512 rear panel, with the flanges curving **outward**, the label **OUTER FACE** visible, and the label TOP up (Figure 25).
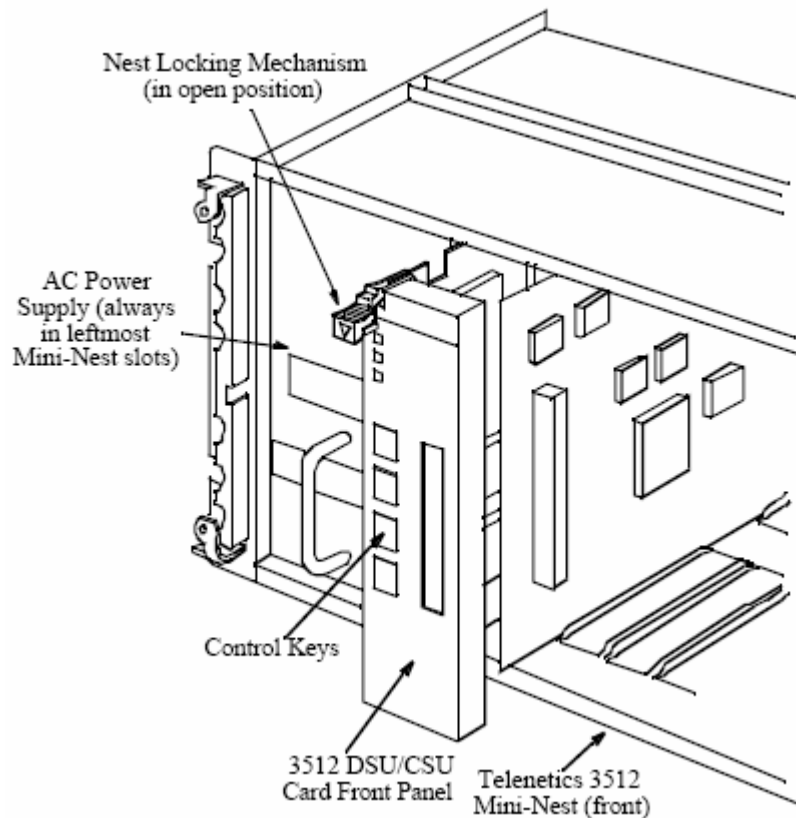
Figure 2-5. Installing 3512 in Motorola Codex Mini-Nest (Back View)

6. Fasten the outer rear panel to the 3512 and the Mini-Nest with the six screws supplied (Figure 2-5).

The 3512 is now secure in the Mini-Nest.

Installing Other Card Modules in the Mini-Nest
Perform the following steps to install a card module in the Mini-Nest:

1. At the rear of the Mini-Nest, remove the number of filler panels that corresponds to the number of slots that will be used by your nest card.

2. Install the back panel or backplane using the supplied screws.

3. Open the Mini-Nest front door by inserting a screwdriver into the slot in the door and slide it to the left. Pull the door open.

4. Make sure the card's locking handle is properly positioned (Figure 2-6).

5. Place the card into the guide strips of an available card slot. Carefully slide the card in so that it mates firmly with the connector and the locking handle snaps into its slot at the top of the Mini-Nest.
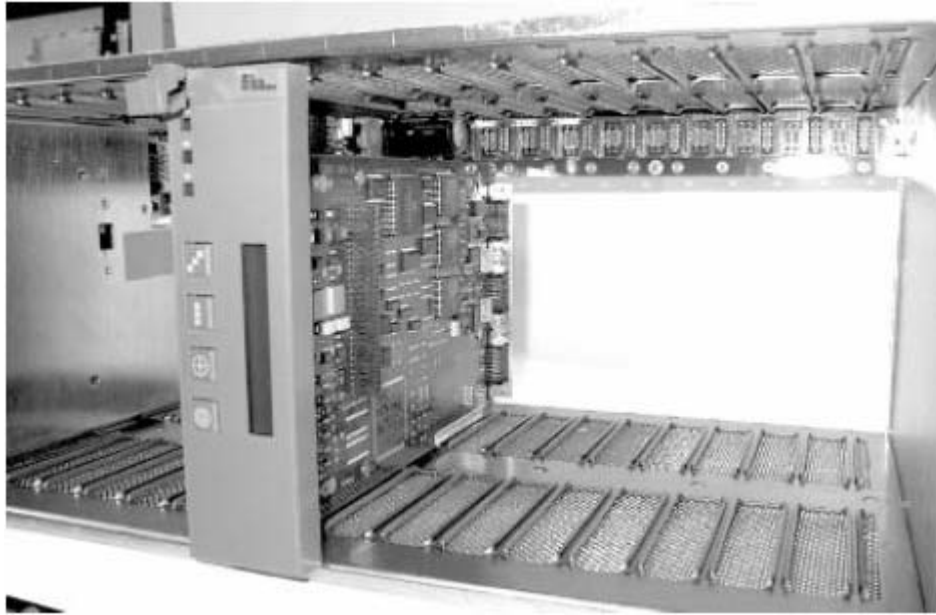
6. Close the front door and latch it.

Figure 2-6. Installing Plug-In Card Modules

Removing Nest Card Modules

1. Open the front door of the Mini-Nest.

2. Squeeze the card locking handles together to disengage the card module from the Mini-Nest, and pull the card out of the Mini-Nest.

3. Close Mini-Nest front door.

Chapter Three – Mini-Nest Cooling

Introduction
This chapter describes methods for cooling the Mini-Nest and specifies the requirements for controlling heat buildup in the unit. Fan chassis installation instructions are also included in this chapter.

Rack/Cabinet Mounting the Mini-Nest
This section describes cooling requirements for rack or cabinet mounted nests.

Caution !
Failure to comply with these requirements may
result in thermal/electrical stress than can affect
reliability or cause serious damage to components.

One or Two Nests
When one Mini-Nest is rack-mounted, or when two are rack-mounted one above the other, natural convection provides sufficient airflow through the enclosure.

When one or two Mini-Nests are rack-mounted above other equipment that produces rising heat, a 3.5-inch (8.9 cm) space is necessary to exhaust hot air from below. A deflector should be fitted in this space to avoid mixing of the airflow.

Three or More Nests
When three or more Mini-Nests are rack-mounted, force-air cooling is required. User must provide adequate cooling using fan-forced equipment.

Chapter Four – Specifications

Introduction

This chapter summarizes the physical specifications of the Mini-Nest and provides part numbers for ordering.

Physical Description

Mini-Nest

Number of Slots: 16

Rack Type: Standard 19 in. (48.2 cm), EIA/RETMA

Height: 7 in. (17.77 cm)

Width: 19 in. (48.26 cm)

Depth: 10.5 in. (26.7 cm) without cables

Weight: Unloaded (no cards) with AC Power Module: 22 lb. (10 kg)
        AC Power Module only: 10 lb. (4.5 kg)

Environmental Limits

Operating Conditions

Temperature: 32º to 122ºF (0º to 50ºC)

Relative Humidity: 5 to 95% (non-condensing)

Radiated/Conducted Emissions: Complies with FCC Part 15 for a Class A computing device
                               when loaded with Raymar-Telenetics 3512 DSU/CSU products.

Altitude: 10,000 feet (3,000 meters)

Non-Operating Conditions

Temperature: 40º to 190ºF (40º to 70ºC)

Humidity: 0 to 95% (non-condensing)

Primary Power Requirements (240 VAC Max)

With Switchable 120/220 VAC Power Module
120 VAC nominal (108 to 132 VAC) input of 220 VAC nominal (198 to 242 VAC) input

With Switchable 100/240 VAC Power Module
100 VAC nominal (90 to 110 VAC) input of 240 VAC nominal (216 to 264 VAC) input

International Power Requirements
Table 4-1 lists the appropriate AC Power Module for various countries.

Table 4-1.
Power Requirements

Country	Voltage & Frequency
United States, Canada	120 5% VAC, 60 Hz 1% Hz
Japan	100 10% VAC, 50/60 Hz 1% Hz
United Kingdom	240 5% VAC, 50 Hz 1% Hz
Israel	230 6% VAC, 50 Hz 1% Hz
European countries	220 10% VAC, 50 Hz 1% Hz

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://support.telenetics.com or e-mail to 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.