METRObility
optical systems

RADIANCE
DIN RAIL MOUNTED
CHASSIS

Installation & User Guide

Model: RD20-24

Radiance Series

Chassis:
RD20-24 _____ 2-slot DIN rail chassis with DC power
R5000-17HS ___ 17-slot 2U chassis with AC or DC power
R1000-xxx _____ 2-slot 1U chassis with AC and/or DC power
R400-2HS-1A __ 2-slot chassis with external AC power
R200-xx _____ 1-slot chassis with AC or DC power

The following is a listing of additional products in the Metrobility Radiance series. Refer to each product's specific installation and user guide for operational features.

Line Cards:

10 Mbps
    Copper to coax
    Copper to fiber
    Redundant
10/100 Mbps
    Copper to copper
    Copper to fiber
    Fiber to fiber
    Chassis stacking
    Access
SONET
    Fiber to fiber

100 Mbps
    Copper to fiber
    Fiber to fiber
    Redundant
    Access
Gigabit
    Fiber to fiber
    Copper to fiber
    Redundant
T1/E1
    Copper to fiber
T3/E3
    Copper to fiber

Management:
R502-M _____ Management card with dual Ethernet interfaces and
                  embedded WebBeacon management software
NetBeacon® ____ Element and service provisioning management software

Table of Contents

Radiance DIN Rail Mounted Chassis Installation & User Guide

Overview

The Radiance DIN Rail Mounted Chassis is a two-slot, dual DC powered chassis ideal for industrial and automation applications which may be migrating to Optical Ethernet. The chassis, which operates between -20º and 70ºC, is convection cooled and requires no fans. Its two redundant 24-volt DC power inputs ensure nonstop operation. If one power supply fails, the other automatically provides the entire power load for the unit.

Designed for maximum flexibility, the DIN rail chassis can be customized with any combination of Metrobiltiy's wide range of media conversion line cards that support interfaces at 10, 100, and 1000 Mbps; T1/E1, T3/E3, SONET OC-3/STM-1, and OC-12/STM-4; and redundant data paths at 10, 100, and 1000 Mbps. The chassis also supports a management card and a four-port 10/100 Mbps switch. Depending on the model, diagnostic features such as Remote Loopback, Link Loss Carry Forward, Link Loss Return, Auto-Recovery, and Far End Fault are available on the cards.

To increase reliability and reduce troubleshooting time, Metrobility offers several management options. The SNMP management card collects a variety of network data and link information including the chassis's voltage and temperature. For Web-based management of the DIN rail chassis using a standard Web browser, Metrobility provides the WebBeacon kernel embedded into the management card. NetBeacon® element management software provides proactive management support including automatic e-mail notification.

Metrobility's DIN rail chassis provides seamless connectivity with all major switch and router manufacturers and offers a robust and versatile solution for fiber connectivity in any industrial environment.

The Radiance DIN rail mounted chassis provides the following key features:

- Redundant 24-volt DC power inputs with screw-down terminal blocks.

- Passive convection cooling with no rotating mechanical parts such as fans.

- Modular design to fit any two Metrobility single-slot line cards, or one double-slot redundant interface line card.

- Optional management card for easy troubleshooting and SNMP management using NetBeacon software or any SNMP application.

- Fast and easy installation compliant with DIN 46 277 and DIN EN 50 022 mounting specifications.

- Rugged industrial enclosure with bright zinc chromate finish.

Related Documentation
Refer to the enclosed documentation CD-ROM or go to Metrobility's website (www.metrobility.com/support/manuals.htm) to view product manuals for the Radiance series.

Installation Guide

Follow the simple steps outlined in this section to install and start using the Radiance DIN Rail Mounted Chassis.

NOTE: Electrostatic discharge precautions should be taken when handling any line card. Proper grounding is recommended (i.e., wear a wrist strap).

1 Unpack the Chassis and Accessories

Check that the following components have been included:
- Radiance DIN rail mounted chassis
- CD-ROM

The following items are available separately:
- NetBeacon software
- Line cards
- Management card

Your order has been provided with the safest possible packaging, but shipping damage does occasionally occur. Inspect it carefully. If you discover any shipping damage, notify the carrier and follow their instructions for damage and claims. Save the original shipping carton if return or storage of the unit is necessary.

2 Remove Protective Film

A clear protective film covers the sides of the chassis. Lift up an edge and peel off the plastic film from both sides.
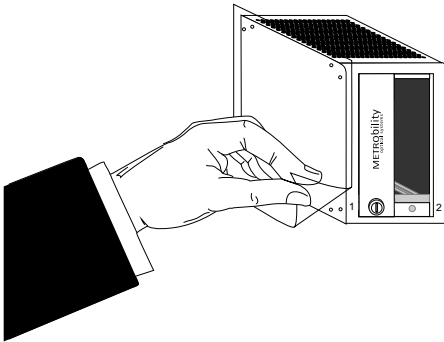
3 ## *Mount the Chassis*

A clip is provided on the back of the chassis for mounting onto a DIN rail.

DIN Rail Clip

Rear View
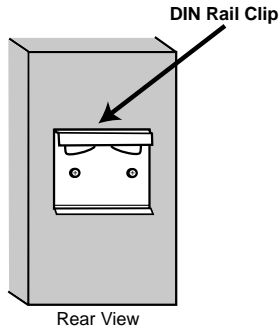
To mount the chassis, hook it onto the DIN rail with the top of the clip, as shown below. The chassis will hang down.

**Push to
Snap in Place**
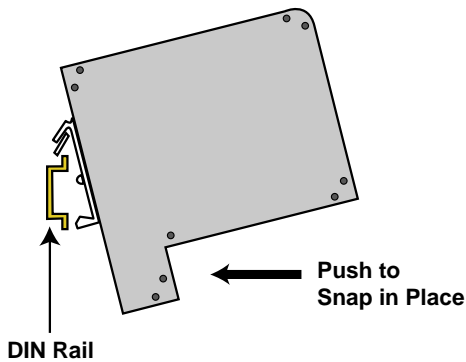
DIN Rail

Gently push the chassis toward the rail to snap it in place. A "click" sound verifies that the attachment is secure.
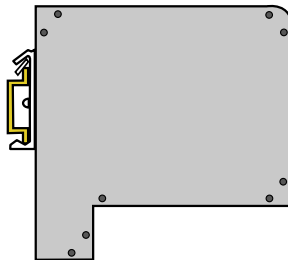
4 Install the Line Cards

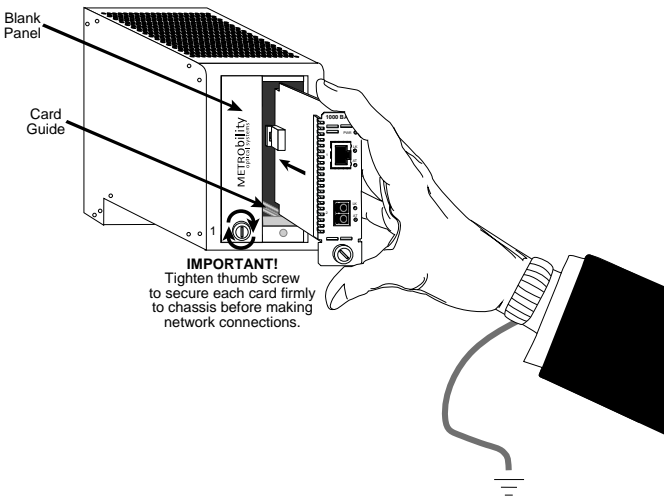The Radiance DIN rail mounted chassis supports any two single-slot interface line card or one double-slot redundant interface line card. Radiance line cards offer the ease of plug-and-play installation and are hot-swappable.

Before installing any card, note the following:
- Set all switches and/or jumpers on the line card. Refer to the card's user guide for detailed configuration instructions.

- A blank panel is installed in the chassis. Do NOT remove the panel unless you are installing two line cards. To remove the blank panel, turn the thumbscrew counterclockwise until loosened.

Follow the simple steps outlined below to install a line card:
- Grasp the card by the front panel as shown.

- Line the edges of the board with the top and bottom card guides, and slide the card in until the edges are flush and even with the front of the unit. Do not force the card into the slot. It should slide in easily and evenly.

- Secure to the chassis by turning the thumb screw clockwise until snug. The line card is now ready for connection to the network.

Blank Panel

Card Guide

IMPORTANT!
Tighten thumb screw to secure each card firmly to chassis before making network connections.

5 *Connect to the Network*

Connecting the Line Cards

To connect the individual line cards to the network, refer to their corresponding installation and user guides.

Connecting the Management Line Card

If a management line card is installed in your chassis, follow the procedure below to connect to the network. The management line card supports 10Base-T Ethernet.

- Using a standard Category 3 or 5 UTP cable, connect Port 1 on the management card to your network. Although the two Ethernet ports can be configured for either full or half duplex, half duplex is recommended. Refer to the *Command Line Interface Reference Guide* for a detailed description of configuration commands.

- Using the supplied null-modem console cable, connect the male DB-9 port on the management card to the serial port on your PC.

- For instructions on stacking, refer to the *Command Line Interface Reference Guide*.

6 Apply Power to the Chassis

> ## *IMPORTANT*
> • *Turn off the DC voltage source before beginning.*
> • *Connect the wire leads to the chassis before applying power.*

The DIN rail chassis provides two input power supply connections, PWR A and PWR B. The two power supplies support redundant power, however, there is no load distribution. With redundant power, if the source to PWR A or B fails, the other source automatically provides the entire power load for the chassis. An input power supply may be removed or replaced without interrupting chassis operations as long as the other input is providing power.

Power connectors are located below the front panel of the main housing unit. The inputs have screw-down terminal blocks that support 24 V DC at 0.75 A. Connect the chassis only to a UL listed Class "2" or LPS power source.
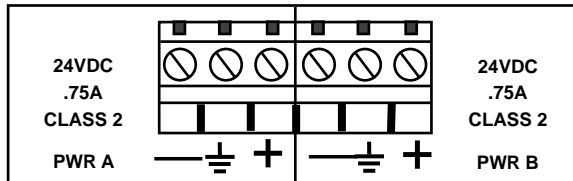
- Connect the wire leads from the voltage source to the appropriate terminals and tighten the screws. For redundant power, connect each power supply to a separate power source.

- Verify proper connection and operation using the PWR LED on the installed card(s).

Caution: The center terminal connector provides grounding for the chassis and must be maintained.

User Guide

This section contains more information regarding the Radiance DIN Rail Mounted Chassis.

Management Line Card

The management card is the SNMP agent for the Radiance chassis. Connected via the backplane to the other line card in the chassis, the management card reports individual board status to Metrobility's NetBeacon software (version 3.6 or higher) or any SNMP application. Thus, the network administrator receives immediate information on network operations via a PC. Metrobility also provides the WebBeacon kernel, embedded into the management card, for Web-based management via the Internet using browsers such as Netscape® Navigator® or Microsoft® Internet Explorer. Refer to the ***Command Line Interface Reference Guide***, ***NetBeacon Element Management Software Installation & User's Guide*** or ***WebBeacon Management Software Installation & User's Guide*** for detailed software instructions.

Line Cards

Metrobility's line cards deliver carrier-class media, speed, and distance solutions to address the needs of today's industrial networks. An extensive line of plug-and-play, hot-swappable cards support IP/Ethernet interfaces at 10, 100, 1000 Mbps, T1/E1, T3/E3, SONET OC-3/STM-1, and OC-12/STM-4. For mission-critical applications, Metrobility's redundant interface line cards feature network-on-demand accessibility, reliability, and enhanced security.

Maximum segment lengths are supported on either side of the chassis, and all signal activity is reliably propagated from one cable to the other assuring accurate data flow across the network.
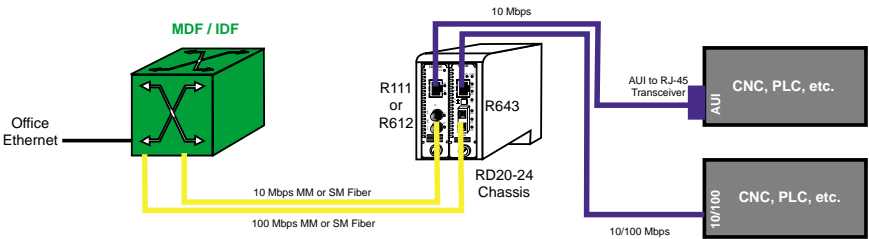
Refer to the each line card's specific installation and user guide for additional product information.

Topology Solutions

Metrobility's DIN rail chassis and media conversion line cards support a variety of industrial and automation applications including:

- Interconnection of Ethernet PLCs, operator interface, and motion control
- Ethernet I/O
- Machine monitoring
- Environmental control
- Test and measurement
- Process control
- Remote data acquisition
- Communications gateway

Basic Copper to Fiber Connectivity

Line Protection and Restoration

Four Port Switch

MDF / IDF

R133   R104

100 Mbps

MM or SM Fiber

RD20-24 Chassis

10/100 Mbps

10/100 CNC, PLC, etc.

10/100 CNC, PLC, etc.

10/100 CNC, PLC, etc.

Managed Remote Links

MDF / IDF

R231   R104

100 Mbps MM or SM Fiber

RD20-24 Chassis

AUI to RJ-45 Transceiver

AUI CNC, PLC, etc.

10/100 Mbps

10/100 CNC, PLC, etc.

10/100 Mbps

10/100 CNC, PLC, etc.
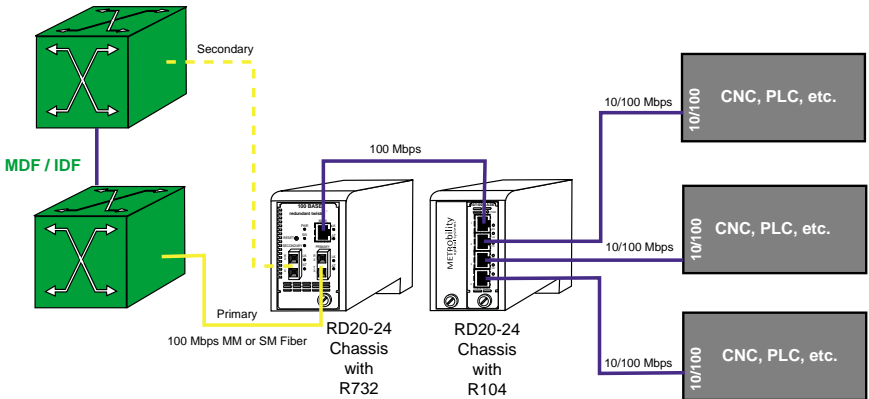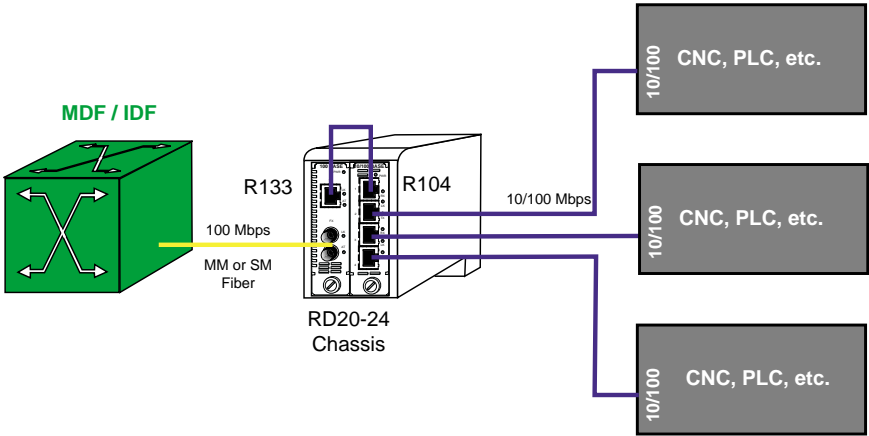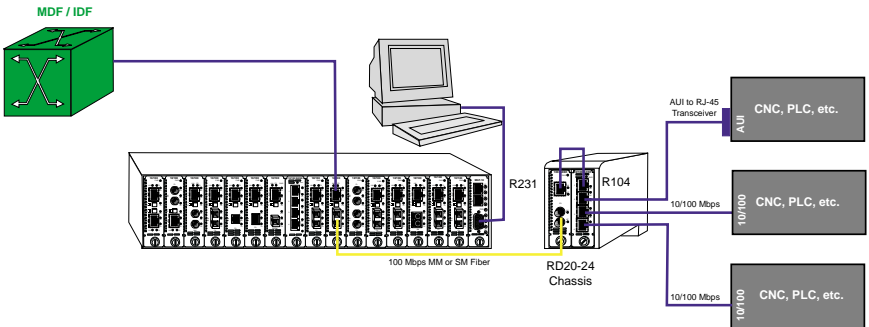
Technical Specifications
Power
Input: _____ 24 V DC (SELV) ±20%, 0.75 A

Environmental
Operating Temperature _____ -20º to 70º C
Storage Temperature _____ -30º to 70º C
Relative Humidity _____ 5% to 95% non-condensing
Physical Case _____ 20 Ga CRS (cold rolled steel) exterior construction
_____ 18 Ga 5052-H32 aluminum interior construction
Dimensions _____5.125" D x 3.0" W x 5.125" H
_____ 13 cm x 7.6 cm x 13 cm
Weight _____ 1.56 lb, 0.71 kg

Abbreviations and Acronyms

A	Amps
AUI	Attached Unit Interface
CNC	Computerized Numerical Control
IDF	Intermediate Distribution Frame
I/O	Input/Output
Mbps	Megabits per second
MDF	Main Distribution Frame
MM	Multimode
PLC	Programmable Logic Controller
PWR	Power
SELV	Safety Extra Low Voltage
SM	Singlemode
SNMP	Simple Network Management Protocol
UTP	Unshielded Twisted Pair
V DC	Volts, Direct Current

Product Safety, EMC and Compliance Statements

This equipment complies with the following requirements:

Product Safety	DIN Compliance
• UL	• DIN 43 880
• cUL	• DIN 46 277
• CE	• DIN EN 50 022

Emissions
- FCC Part 15 Class A
- DOC ICES-03 Class A
- EN55022 Class A
- EN55024: 1998
- CE

This product shall be handled, stored and disposed of in accordance with all governing and applicable safety and environmental regulatory agency requirements.

The following *FCC* and *Industry Canada* compliance information is applicable to North American customers only.

USA FCC Radio Frequency Interference Statement

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 harmful interference when the 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 harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

Canadian Radio Frequency Interference Statement

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

Warranty and Servicing
Three-Year Warranty for the Radiance DIN Rail Mounted Chassis
Metrobility Optical Systems, Inc. warrants that every Radiance DIN Rail Mounted Chassis will be free from defects in material and workmanship for a period of THREE YEARS from the date of Metrobility shipment. This warranty covers the original user only and is not transferable. Should the unit fail at any time during this warranty period, Metrobility will, at its sole discretion, replace, repair, or refund the purchase price of the product. This warranty is limited to defects in workmanship and materials and does not cover damage from accident, acts of God, neglect, contamination, misuse or abnormal conditions of operation or handling, including overvoltage failures caused by use outside of the product's specified rating, or normal wear and tear of mechanical components.

To establish original ownership and provide date of purchase, complete and return the registration card or register the product online at www.metrobility.com. If product was not purchased directly from Metrobility, please provide source, invoice number and date of purchase.

To return a defective product for warranty coverage, contact Metrobility Customer Service for a return materials authorization (RMA) number. Send the defective product postage and insurance prepaid to the address provided to you by the Metrobility Technical Support Representative. Failure to properly protect the product during shipping may void this warranty. The Metrobility RMA number must be clearly on the outside of the carton to ensure its acceptance.

Metrobility will pay return transportation for product repaired or replaced in-warranty. Before making any repair not covered by the warranty, Metrobility will estimate cost and obtain authorization, then invoice for repair and return transportation. Metrobility reserves the right to charge for all testing and shipping costs incurred, if test results determine that the unit is without defect.

This warranty constitutes the buyer's sole remedy. No other warranties, such as fitness for a particular purpose, are expressed or implied. Under no circum-stances will Metrobility be liable for any damages incurred by the use of this product including, but not limited to, lost profits, lost savings, and incidental or consequential damages arising from the use of, or inability to use, this product. Authorized resellers are not authorized to extend any other warranty on Metrobility's behalf.
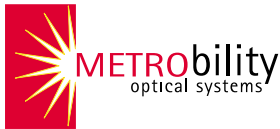
Product Manuals

The most recent version of this manual is available online at
http://www.metrobility.com/support/manuals.htm

To obtain additional copies of this manual, contact your reseller, or call
1.877.526.2278 or 1.603.880.1833

Product Registration

To register your product, go to
http://www.metrobility.com/support/registration.asp

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