USER MANUAL

MODEL IM1RC/D

X.21 Daughter Board on Rack Card

PATTON Electronics Co.

An ISO-9001 Certified Company

Part# 07MIM1RC/D-B
Doc# 038031UB
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(301) 975-1000
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(301) 975-1007
http://www.patton.com

1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model IM1RC/D components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

1.1 RADIO AND TV INTERFERENCE

The Model IM1RC/D generates and uses radio frequency energy, and if not installed and used properly—that is, in strict accordance with the manufacturer's instructions—may cause interference to radio and television reception. The Model IM1RC/D has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the Model IM1RC/D does cause interference to radio or television reception, which can be determined by disconnecting the unit, the user is encouraged to try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches). In the event the user detects intermittent or continuous product malfunction due to nearby high power transmitting radio frequency equipment, the user is strongly advised to use only data cables with an external outer shield bonded to a metal or metalized connector at both ends. Shielded cables must be used on the network connection to satisfy compliance with the Electromagnetic Compatibility (EMC) directive.

1.2 SERVICE

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Services at:

Telephone: **(301) 975-1007**
Web Address: **http://www.patton.com**
email: **support@patton.com**

NOTE: Packages received without an RMA number will not be accepted.

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Model IM1RC/D. Technical Service hours: **8AM to 5PM EST, Monday through Friday.**

2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If any questions arise during installation or use of this product, please contact Patton Electronics Technical Support at: (301) 975-1007.

2.1 FEATURES

- Designed for use with Patton Electronics Rack Cards: 1045RC, 1092RC, 1092ARC, 1095RC, 2500RC, 2703RC, and 2715RC
- Compatible with CCITT X.21
- Support up to 2.340 Mbps
- Supports Network or Internal Timing
- Fits in Patton's 2u (3.5") rack chassis and cluster boxes
- Made in the U.S.A.

2.2 DESCRIPTION

The Patton Model IM1RC/D is an option board which implements a low-power X.21 interface. The Model IM1RC/D is designed for use with Patton Electronics rack cards: 1045RC, 1092RC, 1092ARC, 1095RC, 2500RC, 2703RC and 2715RC. The Model IM1RC/D supports data rates up to 2.304 Mbps. The DCE and DTE interface is compatible with X.21 specifications

3.0 INSTALLATION

The Model IM1RC/D provides an X.21 electrical interface. This section describes how to properly install the X.21 daughter board to operate in DCE or DTE mode and defines the jumper settings and its function.

3.1 INSTALLING IM1RC/D (X.21 Daughter Board)

Figure 1 (below) shows the X.21 daughter board, DCE/DTE selector and jumper (JP1) location with respect to the rack card. Following figure 1 are guidelines for the installation of the X.21 daughter board, setting for DCE/DTE and a brief description on Jumper JP1.

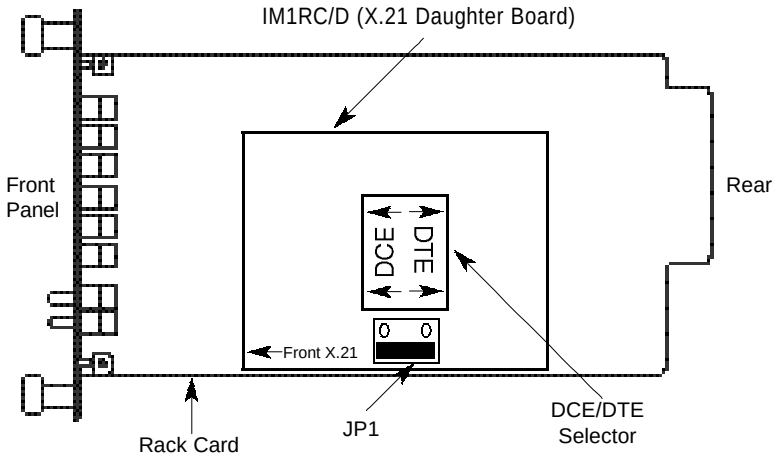


Figure 1. View of X.21 Daughter Board, DCE/DTE Selector and JP1

Follow the steps below for proper installation of the X.21 daughter board.

WARNING: The X.21 daughter board connector is not keyed and can be installed incorrectly.

1. On the top side of the X.21 daughter board, locate the designator shown:

   ← Front X.21

2. Install the X.21 daughter board onto the front card with the "***Front X.21***" ***arrow*** pointing to the front panel of the rack card, see figure 1.

3.1.1 DCE/DTE Selector

The X.21 daughter board can be set up as DCE (default) or DTE device. The DCE/DTE selector must be installed in the X.21 daughter board for any configurations. The following information describes the setting for DCE/DTE.

DCE Setting: (***Default***) To set a rack card as a DCE device install the DCE/DTE selector with the DCE arrows pointing toward the front panel.

DTE Setting: To set a rack card as a DTE device, install the DCE/DTE selector with the DTE arrows pointing toward the front panel.

3.1.2 Jumper (JP1) Setting

The X.21 daughter board operates at speeds up to 2.3Mbps. When using the daughter board at data rates of 2Mbps or higher, clocking issues may introduce bit errors. Bit errors can also occur when long cables are used to interconnect the modem to an X.21 terminal device (router, mux, etc.) To solve bit error problems due to speed and/or long cables, the X.21 daughtherboard is equipped with a jumper selector (JP1) that changes the sampling edge of the transmit clock. Please refer to figure 1 (for Jumper JP1 Location).

The following is a brief description of JP1 setting and functionality.

Normal Setting: Jumper shorts the two outer pins of JP1. Figure 1 shows default postion. This position is selected when operating at low data rate (less than 2Mbps), and using a short X.21 terminal cable.

Invert Setting: Jumper shorts the two inner pins of JP1. This setting is selected when operating at data rates of 2Mbps or higher or when using long X.21 terminal cables.

APPENDIX A

PATTON ELECTRONICS MODEL IM1RC/D (X.21 DAUGHTER BD) SPECIFICATIONS

Data Format: Synchronous

Interface: CCITT X.21 Module compatible with Patton Rack Cards: 1045RC, 1092RC, 1092ARC, 1095RC, 2500RC, and 2715RC

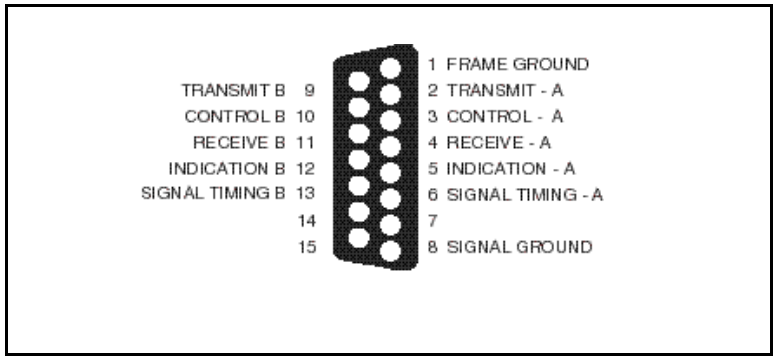
Buffer Size: 57 Bit

Data Rate: Supports up to 2.304 Mbps

Approvals: FCC Part 15, Class A, European EMC Directive 89/336/EEC UL 1950 and EN60950 (as part of the Rack System)

APPENDIX B

PATTON ELECTRONICS MODEL IM1RC/D (X.21 DAUGHTER BD)



DB-15 INTERFACE PIN ASSIGNMENTS

APPENDIX C

PATTON ELECTRONICS MODEL IM1RC/D (X.21 DAUGHTER BD)

The following list provides the part numbers for the Rack Cards, the rear cards and the type of connectors used. The X.21 daughter-board may be used with the specified rack card and rear card combinations listed.

MODEL	REAR CARDS	CONNECTOR (s)
1090RC	1001RCM11545	RJ45 and DB-15
	1001RCM11545G	RJ45 with gas tube and DB-15
	1001RCM115TB	Terminal Block and DB-15
	1001RCM115TBG	Terminal Block With Gas Tube and DB-15
1092RC	1001RCM11545	RJ45 and DB-15
	1001RCM11545G	RJ45 with gas tube and DB-15
	1001RCM115TB	Terminal Block and DB-15
	1001RCM115TBG	Terminal Block With Gas Tube and DB-15
1092ARC	1001RCM11545	RJ45 and DB-15
	1001RCM11545G	RJ45 with gas tube and DB-15
	1001RCM115TB	Terminal Block and DB-15
	1001RCM115TBG	Terminal Block With Gas Tube and DB-15
1095RC	1001RCM11545	RJ45 and DB-15
	1001RCM11545G	RJ45 with gas tube and DB-15
	1001RCM115TB	Terminal Block and DB-15
	1001RCM115TBG	Terminal Block With Gas Tube and DB-15
2703RC	1000RCM70375	2 Female BNC and DB-15
2715RC	1000RCM70375	2 Female BNC and DB-15