USER MANUAL

MODEL 1205RC
**Synchronous V.35
Modem Eliminator:
Rack Mount Card**
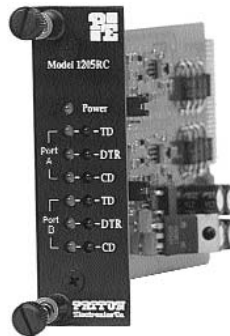
PATTON
Electronics Co.

SALES OFFICE
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TECHNICAL SUPPORT
(301) 975-1007
http://www.patton.com

1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 1205RC 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 1205RC 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 1205RC 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 1205RC does cause interference to radio or television reception, which can be determined by turning the power off or removing the card, 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 take the following steps: use only data cables with an external outer shield bonded to a metal or metalized connector; and, configure the rear card as shown in section 3.4 of this manual.

1.2 CE NOTICE

The CE symbol on your Patton Electronics equipment indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

1.3 SERVICE

All warranty and nonwarranty repairs must be returned freight pre-paid 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 Support: **(301) 975-1007**; **http://www.patton.com**; or, **support@patton.com**. *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 1205RC. 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 during installation or use of the 1205RC, contact Patton Electronics Technical Support: **(301) 975-1007**; **http://www.patton.com**; or, **support@patton.com**.

2.1 FEATURES

- V.35 (EIA-530) operation
- Synchronous data rates from 32 to 144 Kbps
- Host-to-host distances up to 300 feet
- Internal or external clocking
- All necessary data, clocking and control signals supported
- Constant or RTS controlled carrier selections
- RTS-CTS delay options of 0mS, 7mS or 53mS
- Front panel LEDs show TD, DTR and CD activity for each port
- Two UD-26 connectors on rear interface card
- Switchable 120V or 240V power supply
- Mounts in Patton's 16-slot rack chassis and 2/4/8-slot Cluster Boxes
- Made in the U.S.A.

2.2 DESCRIPTION

The Patton Model 1205RC synchronous modem eliminator rack card lets two synchronous hosts communicate with each other in the same room for a fraction of the cost of a pair of high speed modems. Supporting synchronous data rates of 32, 48, 56, 64, 72, 112, 128 and 144 Kbps, the Model 1205RC can be configured to emulate dial-up or leased line service. Maximum distance between the connected hosts is 300 feet. Timing can be set for internal or external clock, and all necessary data, clocking and control signals are supported.

The Model 1205RC is designed to mount in Patton's 2U high, 16-slot rack chassis, as well as Patton's 2/4/8-slot desktop Cluster Boxes. This rack chassis and cluster boxes feature a switchable 120/240 VAC power supply (optional 48 VDC) and hot swappable function/interface cards mounted in a mid-plane architecture. Front panel LEDs show TD, DTR and CD activity for both ports, as well as power. The rear interface card has two UD-26 connectors for patching to the host devices.

3.0 CONFIGURATION

This section describes the location and orientation of the Model 1205RC's configuration switches and jumpers, and provides detailed instructions for all possible settings.

The Model 1205RC uses a combination of DIP switches and jumpers that allow configuration to an extremely wide range of applications. Designed around a mid-plane architecture, the Model 1205RC incorporates both front and rear cards. Configuration of both may be necessary. The switches/jumpers are accessible when the cards are slid out of the rack chassis. Once configured, the Model 1205RC is designed to operate transparently, without need for frequent re-configuration: just set it and forget it!

3.1 FUNCTION CARD CONFIGURATION

All switches and jumpers are located on the Model 1205RC's PC board. To access the PC board, loosen the two thumb screws on the front panel and slide the card out of the chassis. As Figure 1 (below) illustrates, the DIP switches are located on the "daughterboard" and the jumpers are located on the main PC board.
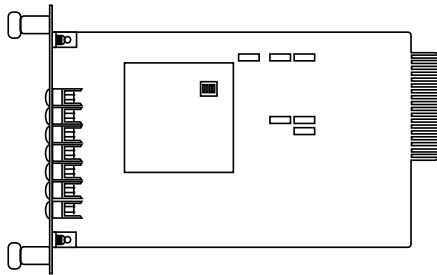

Figure 1. Model 1205RC board, showing location of switches/jumper

3.1.1 FUNCTION CARD DIP SWITCH

The Model 1205RC has one four-position DIP switch mounted on the daughterboard. Figure 2 (following page) shows the numbering of the individual switches and their "ON/OFF" positions relative to the daughterboard.
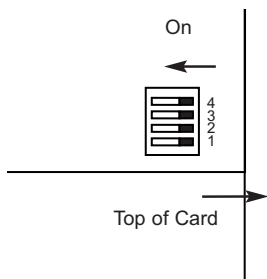
4

On

4
3
2
1

Top of Card

S1 through S3: Data Rate Setting

Switches S1 through S3 are set in combination to determine the synchronous data rate for the Model 1205RC. Switch S4 is not active.

S1	S2	S3	S4	Setting
Off	Off	Off	N/A	32 kbps
On	Off	Off	N/A	48 kbps
Off	On	Off	N/A	56 kbps
On	On	Off	N/A	64 kbps
Off	Off	On	N/A	72 kbps
On	Off	On	N/A	112 kbps
Off	On	On	N/A	128 kbps
On	On	On	N/A	144 kbps

3.3 FUNCTION CARD JUMPERS

The Model 1205RC has two ports (Port A and Port B), and each must be configured independently. Therefore, every function (such as clocking) has two jumpers associated with it. As Figure 3 (below) shows, each jumper has three possible positions: strap covering posts 1 & 2, strap covering posts 2 & 3, or strap removed altogether. The detailed description for each jumper presents all valid strap positions.
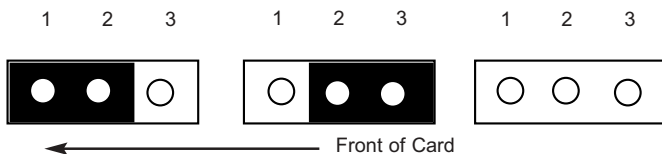
| 1 | 2 | 3 | | 1 | 2 | 3 | | 1 | 2 | 3 |

Front of Card

Figure 3. Possible function card strap positions

5

The Model 1205RC has six jumpers (JP1,thru JP6) mounted on the PC board (see Figure 4, below). These jumpers set clocking, carrier, and RTS/CTS delay independently for ports A and B.
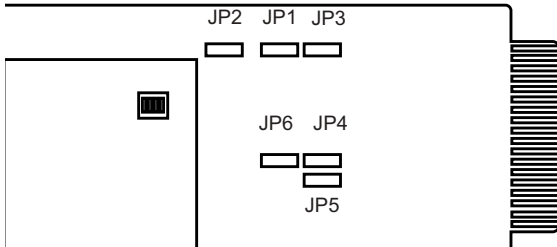

Figure 4. Jumper locations on Model 1205RC front card

JP1: RTS/CTS Delay (Port A)

The setting for jumper JP1 determines–with respect to Port A– the amount of delay between the time the Model 1205RC "sees" RTS and when it sends CTS. In order to emulate either dial-up or leased line modems, you can set this strap at either 0 msec, 7 msec or 53 msec.

JP1	Setting
Position 1&2	7 msec Delay (factory default)
Position 2&3	53 msec Delay
Strap Removed	0 msec Delay

JP6: RTS/CTS Delay (Port B)

The setting for jumper JP6 determines–with respect to Port B– the amount of delay between the time the Model 1205RC "sees" RTS and when it sends CTS. In order to emulate either dial-up or leased line modems, you can set this strap at either 0 msec, 7 msec or 53 msec.

JP6	Setting
Position 1&2	7 msec Delay (factory default)
Position 2&3	53 msec Delay
Strap Removed	0 msec Delay

JP2: Carrier Control (Port A)

The setting for jumper JP2 determines–with respect to Port A–whether the Model 1205RC's carrier is "constantly on" or "controlled by RTS".

JP2	Setting
Position 1&2	Carrier "Constantly ON" (factory default)
Position 2&3	Carrier "Controlled by RTS"
Strap Removed	Not a valid setting

JP3: Carrier Control (Port B)

The setting for jumper JP3 determines–with respect to Port B–whether the Model 1205RC's carrier is "constantly on" or "controlled by RTS".

JP3	Setting
Position 1&2	Carrier "Controlled by RTS"
Position 2&3	Carrier "Constantly ON" (factory default)
Strap Removed	Not a valid setting

JP5: Clock Source (Port A)

The setting for jumper JP5 determines–with respect to Port A–whether clocking is internal or external. Note: Only Port A may be set for external clock.

JP5 (Port A)	Setting
Position 1&2	External Clock
Position 2&3	Internal Clock (factory default)
Strap Removed	Not a valid setting

JP4: Clock Source (Port B)

The setting for jumper JP4 determines–with respect to Port B–whether clocking is internal or receive loopback. Note[1]: If Port B is set for receive loopback clock, Port A must be set for external clock. Note[2]: Port B may not be set for external clock.

JP4 (Port B)	Setting
Position 1&2	Receive Loopback Clock
Position 2&3	Internal Clock (factory default)
Strap Removed	Not a valid setting

3.4 REAR CARD CONFIGURATION

The rear interface card for the Model 1205RC is equipped with two female UD-26 connectors: one for each DTE host port. This card has one configuration jumper (JB4). Figure 5 (below) shows the location of this jumper on the PC board.
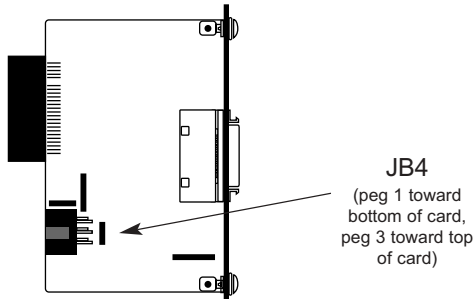

Figure 5. Rear card jumper location

SGND & FRGND (JB4)

In the connected position, this jumper links UD-26 pin 7 (Signal Ground) and frame ground. In the open position, pin 1 is "lifted" from frame ground.

<u>JB4</u>
Position 1&2 = SGND (UD-26 pin 7)
and FRGND Connected

Position 2&3 = SGND (UD-26 pin 7)
and FRGND Not Connected

4.0 INSTALLATION

This section describes the functions of the Model 1000R16 rack chassis, tells how to install front and rear Model 1205RC cards into the chassis, and provides diagrams for wiring the interface connections correctly.

4.1 THE MODEL 1000R16 RACK CHASSIS

The Model 1000R16 Rack Chassis (Figure 6) has sixteen card slots, plus its own power supply. Measuring only 3.5" high, the Model 1000R16 is designed to occupy only 2U in a 19" rack. Sturdy front handles allow the Model 1000R16 to be extracted and transported conveniently.
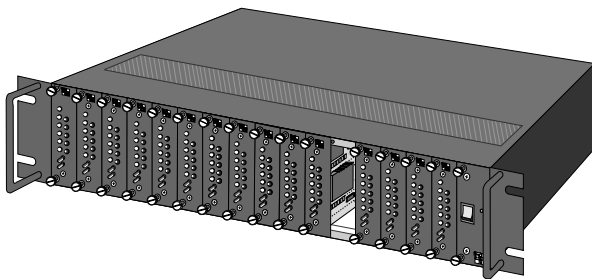

Figure 6. Model 1000R16 Rack Chassis with power supply

4.1.1 THE RACK POWER SUPPLY

The power supply included in the Model 1000R16 rack uses the same mid-plane architecture as the modem cards. The front card of the power supply slides in from the front, and the rear card slides in from the rear. They plug into one another in the middle of the rack. The front card is then secured by thumb screws and the rear card by conventional metal screws.

WARNING! **There are no user-serviceable parts in the power supply section of the Model 1205RC. Voltage setting changes and fuse replacement should only be performed by qualified service personnel. Contact Patton Electronics Technical support at (301)975-1007, http://www.patton.com, or support@patton.com for more information.**

Switching the Power Supply On and Off

The power supply on/off switch is located on the front panel. When plugged in and switched on, a red front panel LED will glow. Since the Model 1000R16 is a "hot swappable" rack, *it is not necessary for any cards to be installed before switching on the power supply*. The power supply may be switched off at any time without harming the installed cards.

> **NOTE:** Please refer to the Model 1000RP Series User Manual *AC and DC Rack Mount Power Supplie*s for fuse and power card replacement information.

4.2 INSTALLING THE MODEL 1205RC INTO THE CHASSIS

The Model 1205RC is comprised of a front card and a rear card. The two cards meet inside the rack chassis and plug into each other by way of mating 50 pin card edge connectors. Use the following steps as a guideline for installing each Model 1205RC into the rack chassis:

1. Slide the rear card into the back of the chassis along the metal rails provided.

2. Secure the rear card using the metal screws provided.

3. Slide the card into the front of the chassis. It should meet the rear card when it's almost all the way into the chassis.

4. Push the front card *gently* into the card-edge receptacle of the rear card. It should "click" into place.

5. Secure the front card using the thumb screws.

> **NOTE:** Since the Model 1000R16 chassis allows "hot swapping" of cards, it is *not necessary to power down* the rack when you install or remove a Model 1205RC.

4.3 HOST (DTE) CONNECTION

The Model 1205RC rear card has two UD-26 connectors, labeled "A1" and "B1" (see figure 7, below). These correspond to host (DTE) connection Port A and Port B, as discussed in Section 3.0.
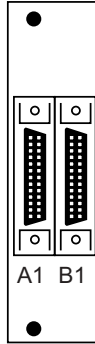

Figure 7. Model 1205RC rear interface card, showing connectors

To connect V.35 host (DTE) devices A and B to the Model 1205RC, follow these instructions:

1. Configure the Model 1205RC for your specific application according to the instructions in **Section 3.0** of this manual.

2. Connect host devices A and B to the Model 1205RC using multi-pair adapter cables (see **Appendix B** for a list of custom adapter cables available from Patton Electronics). Observe the following conditions when making connections :

   a) Each multipair cable <u>must not exceed 150 feet in length</u> (see Figure 8, below).

   b) If external clock is used, the host (DTE) device supplying the clock <u>must</u> be connected to Port A. The Model 1205RC <u>cannot</u> receive an external clock on Port B (see Section 3.0 for configuration details).

   c) If receive clock is used on Port B, Port A <u>must</u> supply an external clock (see Section 3.0 for configuration details).

> **Notice!** **Any terminal cable connected to the Model 1205RC must be shielded cable, and the outer shield must be 360 degree bonded–at both ends–to a metal or metalized backshell.**

5.0 OPERATION

Once you have configured the Model 1205RC and connected the cables to host A and host B, you are ready to operate the unit. This section describes the LED status monitors and power-up procedure.

5.1 LED STATUS MONITORS

The Model 1205RC features 13 front panel status LEDs that indicate the condition of the Model 1205RC and the two ports, A & B (see Figure 9, above):
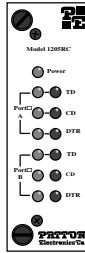

Figure 9. Model 1205RC front panel, showing LED indicators.

- The green "PWR" LED glows green when power is applied to the Model 1205RC through its mid-plane chassis connection.

- Two "TD" LEDs monitor the status of each port's data transmission. The red LED glows when the signal is in an idle (negative) state. The green LED glows when the signal is in a transmitting (positive) state. Both LEDs will normally blink when data transmission is occurring.

- Two "CD" LEDs monitor the status of each port's carrier detect signal. The red LED glows when the receive channel is not active (negative condition). The green LED glows when the receive channel is active (positive condition).

- Two "DTR" LEDs monitor the status of DTR for each port. The red LED glows to indicate that the host device connected to that port is not ready to communicate (negative condition). The green LED glows to indicate that the host device connected to that port is ready to communicate (positive condition).

5.2 POWER-UP

There is no power switch on the Model 1205RC: Power is automatically applied to the 1205RC when its card-edge connector makes contact with the chassis' mid-plane socket, or when the chassis' power supply is turned on. *Note: The 1205RC is a "hot swappable" card—it will not be damaged by plugging it in or removing it while the rack is powered up.*

When the Model 1205RC is powered up, and both ports are passing data *normally*, the following LED conditions will exist:

- PWR = green
- TD = blinking red and green
- CD = green
- DTR = green

APPENDIX A

MODEL 1205RC SPECIFICATIONS

Transmission Format: Synchronous, CCITT V.35

Internal Interface: Connection to Model 1000R16 rack chassis via male card edge

External Interface: UD-26 female, ports A1 and B1

Data Rates: 32, 48, 56, 64, 72, 112, 128 and 144 Kbps

Clocking: Internal, external or receive loopback

Distance: 300 feet (DTE to DTE)

RTS/CTS Delay: Strap selectable, 0, 7, 53 mS (+/- 15%)

Indicators: Independent Bi-color LED indicators for each port: TD, CD and DTR; common "Power" indicator

Temperature: 0-50°C / 32-122°F

Humidity: 5 to 95%, noncondensing

Dimensions: 0.95"w x 3.1"h x 5.4"l

APPENDIX B

MODEL 1205RC FACTORY REPLACEMENT PARTS

The Patton Model 1205RC rack system features interchangeable rear cards, power cords/fuses for international various operating environments and other user-replaceable parts. Model numbers, descriptions and prices for these parts are listed below:

Patton Model #	Description
1000RPEM	120/240V Rear Power Entry Module
1000RPSM-2	120/240V Front Power Supply Module
1000RPEM-DC	DC Rear Power Entry Module
1000RPSM-48A	48V Front Power Supply Module
1000RPEM-V	120/240V CE Compliant Rear Power Entry Module
1000RPSM-V	120/240V CE Compliant Front Power Supply Module
0805US	American Power Cord
0805EUR	European Power Cord CEE 7
0805UK	United Kingdom Power Cord
0805AUS	Australia/New Zealand Power Cord
0805DEN	Denmark Power Cord
0805FR	France/Belgium Power Cord
0805IN	India Power Cord
0805IS	Israel Power Cord
0805JAP	Japan Power Cord
0805SW	Switzerland Power Cord
0516FPB1	Single Width Blank Front Panel
0516FPB4	4-Wide Blank Front Panel
0516RPB1	Single Width Blank Rear Panel
0516RPB4	4-Wide Blank Rear Panel
056S1	Set of 16 #4 pan head screws/washers
1205-26M/35M	cable, 6ft, UD-26 male to M/34 male
1205-26M/35F	cable, 6ft, UD-26 male to M/34 female
1205-26M/25M	cable, 6ft, UD-26 male to DB-25 male
1205-26M/25F	cable, 6ft, UD-26 male to DB-25 female

APPENDIX C

MODEL 1205RC INTERFACE STANDARDS

MODEL 1205RC V.35 INTERFACE (DCE WIRING)

Not Used -26	13- Not Used
Not Used -25	12- (TC/) Transmit Clock
Network Clock (XTC) -24	11- (XTC/) Network Clock
Not Used -23	10- Not Used
Not Used -22	9- (RC/) Receive Clock
Not Used -21	8- (CD) Carrier Detect
Data Term Ready (DTR) -20	7- (SG) Signal Ground
Not Used -19	6- (DSR) Data Set Ready
Not Used -18	5- (CTS) Clear to Send
Receive Clock (RC) -17	4- (RTS) Request to Send
Receive Data (RD/) -16	3- (RD) Receive Data
Transmit Clock (TC) -15	2- (TD) Transmit Data
Transmit Data (TD/) -14	1- (FG) Frame Ground

Dear Valued Customer,

Thank you for purchasing Patton Electronics products!   We do appreciate your business. I trust that you find this user manual helpful.

We manufacture one of the widest selections of data communications products in the world including CSU/DSU's, network termination units, powered and self-powered short range modems, fiber optic modems, interface converters, baluns, electronic data switches, data-line surge protectors, multiplexers, transceivers, hubs, print servers and much more. We produce these products at our Gaithersburg, MD, USA, facility, and can custom manufacture products for your unique needs.

We would like to hear from you. Please contact us in any of the following ways to tell us how you like this product and how we can meet your product needs today and in the future.

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Thank you.

Burton A.Patton
Executive Vice President

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