USER MANUAL

MODEL 2022

Interface Powered RS-232 to V.36 (RS-449) Converter

PATTON Electronics Co.

ISO 9001

An ISO-9001 Certified Company

Part #07M2022-B
Doc #077091U,
Rev. C
Revised 1/22/08

SALES OFFICE
(301) 975-1000
TECHNICAL SUPPORT
(301) 975-1007
http://www.patton.com

1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2022 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 2022 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 2022 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 2022 does cause interference to radio or television reception, which can be determined by disconnecting the RS-232 interface, 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).

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 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 Support: **(301) 975-1007**; **http://www.patton.com**; or, **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 2022. Technical Support 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 or problems arise during installation or use of this product, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

2.1 FEATURES

- Bi-directionally converts synchronous RS-232 to V.36 (RS-449)
- Data rates to 200 Kbps, full or half duplex
- Transparent to protocol
- No AC power or batteries required
- DCE/DTE strap selectable
- DB-25 and DB-37 connectors with integral 6 foot cable
- Circuitry housed in ultra-miniature case
- Made in the USA

2.2 DESCRIPTION

The Model 2022 RS-232 to V.36 (RS-449) converter lets a synchronous RS-232 device communicate bi-directionally with a synchronous V.36 (RS-449) device. The Model 2022 requires no AC power or batteries to operate and supports data rates to 200 Kbps. Operating full or half duplex, the Model 2022 passes all necessary clocking and control signals and is transparent to protocol.

The Patton Model 2022 connects directly to the synchronous RS-232 interface using a male or female DB-25 connector. A male or female DB-37 connector at the end of an integral 6 foot cable plugs into the V.36 (RS-449) device. An internal DCE/DTE strap allows the user to configure the Model 2022 as "DCE to DTE" or "DTE to DCE". In most cases, this eliminates the need for special crossover cables. Housed in an ultra-miniature case measuring only 2.66" x 2.10" x 0.73", the Model 2022 fits easily into tight locations. The Model 2022 is manufactured by Patton Electronics in the USA.

3.0 CONFIGURATION

The Model 2022 is designed to be easy to use. In most cases you will not need to configure the Model 2022 in *any* way: just plug it in and go! The Model 2022 is transparent to protocol, including data rate and clocking method. The only configuration you may need to do is for DTE/DCE orientation. This procedure is described below.

3.1 SETTING DCE/DTE ORIENTATION

The Model 2022 installs between DTE devices such as terminals and host computers and DCE devices such as modems, multiplexers and CSU/DSUs. Most often, the DTE device will be RS-232 and the DCE device will be V.36 (RS-449). Therefore, **the default DCE/DTE setting for the Model 2022 is RS-232 DCE to V.36 (RS-449) DTE**, based on how the Model 2022 "sees" its *own* orientation. For example, if the Model 2022 sees its own RS-232 port as DCE, it will want to plug into an RS-232 DTE device such as a terminal.

If you need to reverse the DCE/DTE orientation of the Model 2022 so that the RS-232 port is DTE and the V.36 (RS-449) port is DCE, follow the step-by-step instructions below. (Note: it is not possible to configure the Model 2022 so that both ports are DTE or DCE).

3.1.1 OPENING THE CASE

The DCE/DTE strap on the Model 2022 is located on the PC board. To access the PC board you will need to open the plastic case that houses the DB-25 connector. The case is of the pop-open/snap-shut variety. To open, insert a small flathead screw driver or similar tool between the DB-25 connector and the lip of the case as shown in Figure 1. Then *gently* twist the screw driver to pop the case open as shown in Figure 2. Be careful not to damage the case or connector as you twist the screw driver.

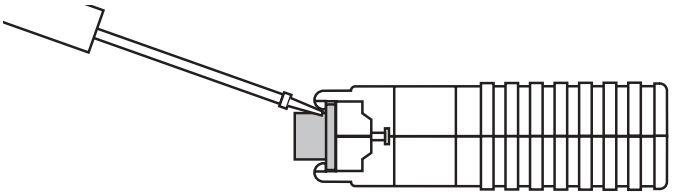


Figure 1. Inserting the screw driver

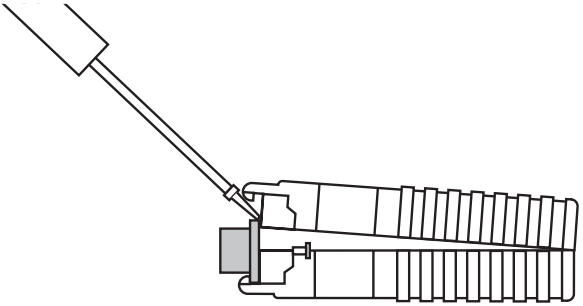


Figure 2. Popping open the case

3.1.2 CHANGING THE STRAP

Once you have opened the case of the Model 2022, you will see the green DCE/DTE strap located on the PC board in the position shown in Figure 3 (below). The arrows on top of the strap indicate the orientation of the Model 2022's ports. For example, if the "DCE" arrow is pointing toward the DB-25 connector, then the Model 2022's strap is set so that it sees its DB-25 port as DCE. It wants to plug into the DB-25 port of a terminal or other DTE. The arrow pointing toward the cable at the rear of the PC board shows the orientation of the Model 2022's DB-37 port.

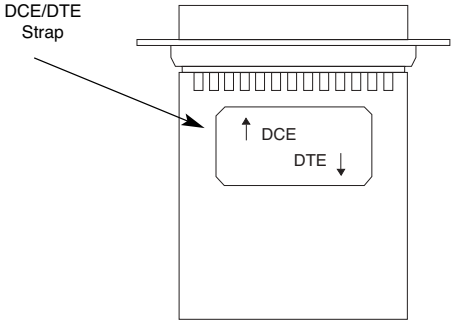


Figure 3. DCE/DTE strap orientation on PC board

To reverse the DCE/DTE orientation, pull the entire green strap out of its socket and rotate it 180 degrees. Then plug it back into the socket. You will see that the arrows on top now point in the opposite directions, showing the new DCE/DTE orientation of the Model 2022. When you're done, realign the case halves (don't forget the captive screws and saddle washers) and snap them back together.

4.0 INSTALLATION

Once you have properly configured the DCE/DTE orientation of the Model 2022, all you need to do is plug it into the proper device ports. Figures 4 and 5 show the two possible installations of the Model 2022 according to DCE/DTE orientation.

4.1 CONNECTING AN RS-232 DTE TO A V.36 (RS-449) DCE

This is the most common application for the Model 2022 and requires no special configuration or crossover cabling. Figure 4 (below) illustrates proper connection of an RS-232 DTE to a V.36 (RS-449) DCE using the Model 2022.

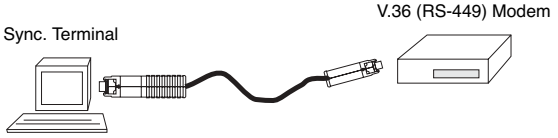


Figure 4. A common RS-232 DTE to V.36 (RS-449) DCE installation

4.2 CONNECTING A V.36 (RS-449) DTE TO AN RS-232 DCE

This is a less common application for the Model 2022, and requires re-orientation of the DCE/DTE strap inside the Model 2022 (refer to Section 3.0 Configuration). With proper DCE/DTE orientation, no crossover cabling is required. Figure 5 (below) illustrates proper connection of a V.36 (RS-449) DTE to an RS-232 DCE using the Model 2022.

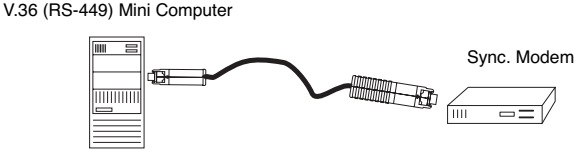


Figure 5. A common V.36 (RS-449) DTE to RS-232 DCE installation

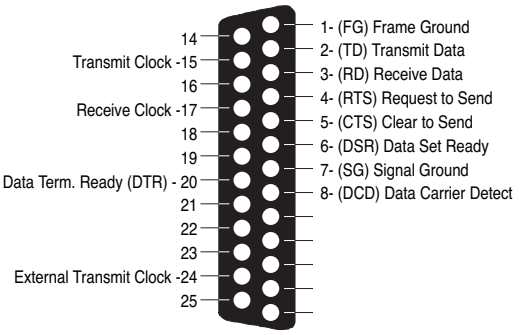
APPENDIX A

SPECIFICATIONS

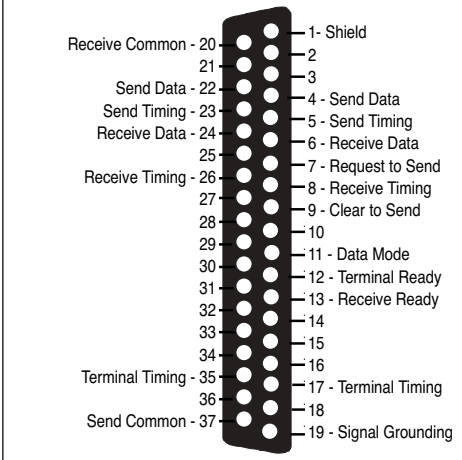
Interfaces:	EIA RS-232/CCITT V.24 to RS-449/CCITT V.36
Data Rates:	0 - 200 Kbps
Transmission Mode:	Full or half duplex
Protocol:	Transparent to protocol
Clocking:	Set by connected devices
Connectors:	DB-25 male or female on RS-232 side, DB-37 male or female on V.36/RS-449 side
Power Supply:	None required; uses power from NIC data and control signals
Temperature Range:	0-60°C (32-140°F)
Altitude:	0-15,000 feet
Humidity:	5 to 95% noncondensing
Dimensions:	2.66"L x 2.10"H x 0.73"W
Weight:	14 oz, including cable and connectors

APPENDIX B
INTERFACE STANDARDS

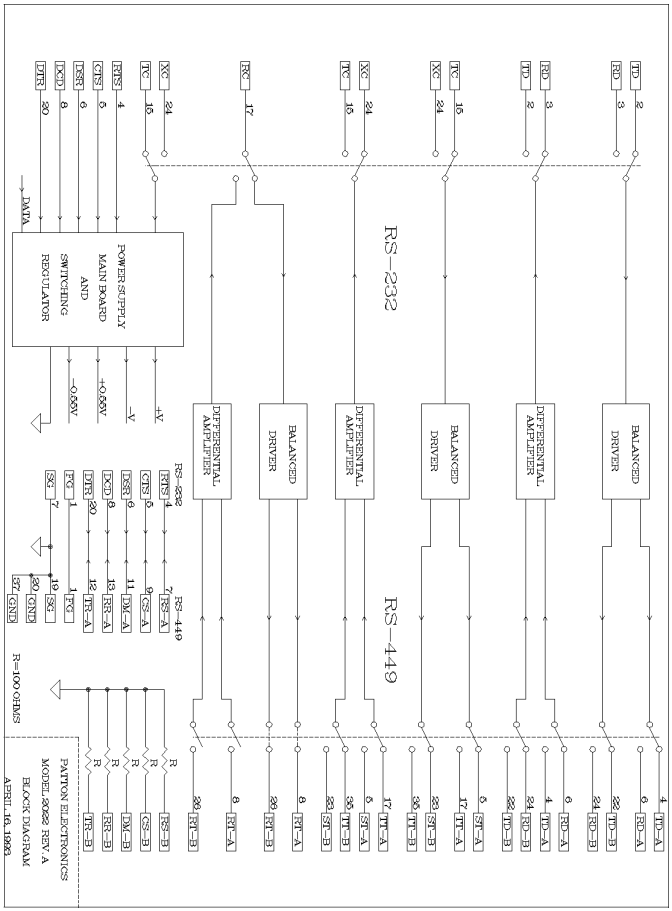
Model 2022 RS-232 Interface



Model 2022 EIA-449 Interface Reference



APPENDIX C
BLOCK DIAGRAM



Notes

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

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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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Support E-mail:	support@patton.com
Phone - Sales	(301) 975-1000
Phone - Support	(301) 975-1007
Fax:	(301) 869-9293
Mail:	Patton Electronics Company 7622 Rickenbacker Drive Gaithersburg, MD 20879 USA

We are committed to a quality product at a quality price. Patton Electronics is ISO 9001 certified. We meet and exceed the highest standards in the industry (CE, UL, etc.).

It is our business to serve you. If you are not satisfied with any aspect of this product or the service provided from Patton Electronics or its distributors, please let us know.

Thank you.

Burton A.Patton
Vice President

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