USER MANUAL

MODEL 3002
RS-232 Tail Circuit Buffer

PATTON Electronics Co.

ISO 9001 CERTIFIED

An ISO-9001 Certified Company

Part #07M3002-A
Doc. #011021U,
Rev. B
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 3002 components to be free from defects, and will—at our option—repair or replace the products should they 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 these products fail or do 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 these products. 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 3002 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 3002 has been tested and found to comply with the limits for Class A computing devices 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 3002 does cause interference to radio or television receivers, which can be determined by disconnecting the RS-232 interfaces, the user is encouraged to try one or more of the following measures: move the computing equipment away from the receiver, re-orient the receiving antenna and/or plug 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 3002. 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

- Provides DCE to DCE connection
- Two internal 64-bit buffers
- Synchronous data rates up to 64kbps
- No AC power required
- External configuration switches
- Ultra-miniature size
- Made in the USA

2.2 DESCRIPTION

The Patton Model 3002 Tail Circuit Buffer is a cost-effective solution for the interconnection of two modem type devices that are required to be connected in a tail ciruit configuration. Data is buffered and re-clocked in both directions to insure data integrity when using two modems that must be clocked independent of each other. The Model 3002 allows the user to connect a tail circuit to a DCE type device. Modems, sharing devices or multiplexers that will not normally accommodate a DCE type device, can have a tail-ciruit attached to a sub-channel port through use of this device.

Clock phasing differences are compensated for by buffering the data coming from the tail circuit into a 64 bit centered buffer. This gives 32 bits of clock slippage in both the positive and negative direcitons.

The 3002 can monitor the DCD interface lead from each of the modem devices and optionally use the DCD signal (pin8) to recenter the buffers to prevent the buffers from filling up during periods of inactivity. Clocking rates up to 64kbps are possible while using the 3002. The unit is totally transparent to your data. For easy configuration, the Model 3002 features a convenient set of external configuration switches. These switches allow the user to control buffer centering by enabling or disabling the carrier detect option.

Housed in an ultra-miniature ABS plastic case, the Model 3002 comes equipped with two DB-25 female connectors.

Synchronous operation in both Half Duplex and Full Duplex operation is fully supported. Carrier Detect signaling can be used to re-center the ring buffers. All cabling crossover is done in the Model 3002, allowing utilization of standard “Straight Through” cables for all interconnections.

3.0 CONFIGURATION

The Model 3002 is simple to install and designed for excellent reliability. The following instructions will help you set up and install your buffer properly. If you have any questions, please call Patton Technical Support at (301) 975-1007.

The Model 3002 uses a set of eight external DIP switches (see Figure 1). Because all eight switches are in one externally accessible DIP switch package, there is no need to open the case for configuration. The following section describes the switch package location, positions and functions.

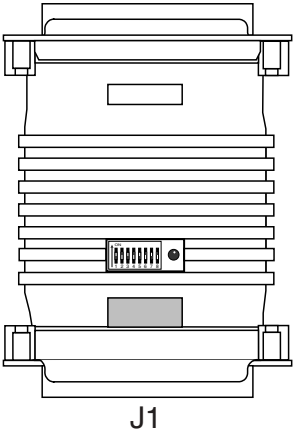


Figure 1. The location of the the Model 3002 configuration switch package

To configure your unit, use a small screwdriver and gently push each switch to its proper setting. The ON and OFF positions are shown in Figure 2.

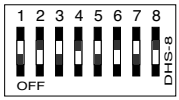


Figure 2. The miniature configuration switch package

The Model 3002 is shipped factory configured for Carrier Detect Option = Constant Carrier. If DCD (pin 8) centering is required (Carrier Detect Option = Switched Carrier), the DIP switches should be changed as described below.

When the carrier detect option is set for “constant carrier”, the DCD signal will have no effect on buffer operation. In the event of an overflow or underflow, the buffer will re-center at 32 bits.

When the carrier detect option is set for “switched carrier”, buffer centering is controlled by the DCD interface control signal (pin 8). In the switched carrier mode, the buffer will re-center at 32 bits when DCD transitions from OFF to ON.

3.1 CARRIER FROM J1

S1, 2, 3, and 4 control buffering of the data from port J1 to port J2. For constant carrier operation, set S1 and S3 to ON and S2 and S4 to OFF. For DCD buffer control, set S1 and S3 to OFF and S2 and S4 to ON.

Switch	1	2	3	4	
Switched Carrier	OFF	ON	OFF	ON	
Constant Carrier	ON	OFF	ON	OFF	(factory default)

3.2 CARRIER FROM J2

S5, 6, 7, and 8 control buffering of the data from port J2 to port J1. For constant carrier operation, set S5 and S7 to ON and S6 and S8 to OFF. For DCD buffer control, set S5 and S7 to OFF and S6 and S8 to ON.

Switch	5	6	7	8	
Switched Carrier	OFF	ON	OFF	ON	
Constant Carrier	ON	OFF	ON	OFF	(factory default)

4.0 INSTALLATION AND OPERATION

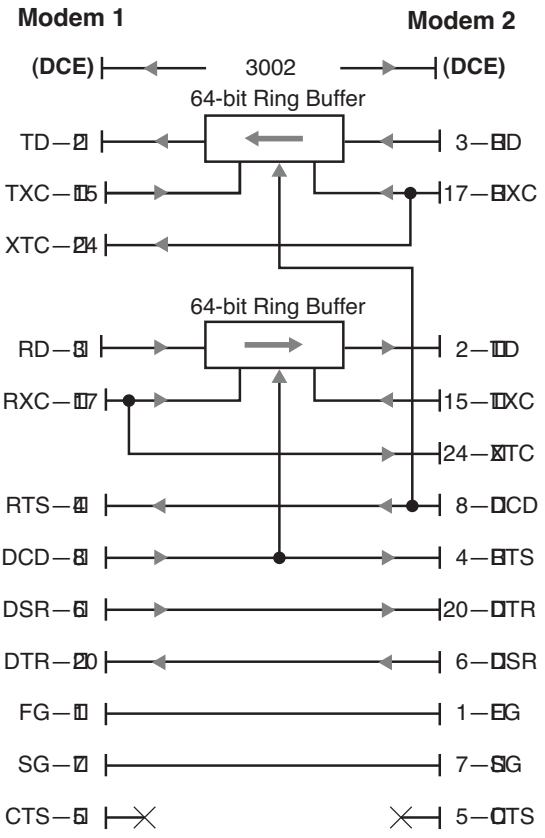
The Patton Model 3002 is very simple to install. After setting the DIP switches, simply connect the unit between the two DCE devices. All crossover wiring is done within the 3002, allowing the use of standard “straight through” cables. Operating power is derived from the RS-232 data and control signals. No external power supply is required.

APPENDIX A

PATTON MODEL 3002 SPECIFICATIONS

Application:	Interconnect two RS-232 Modem type devices, in Half or Full Duplex Operation
Data Format:	Synchronous, transparent to protocol
Modem-to-Modem Buffering:	Dual 64-bit ring buffers
Carrier Detect Options:	Switched Carrier Mode: Buffer set to 32 bits when DCD (pin 8) transitions from OFF to ON Constant Carrier Mode: Buffer set to 32 bits in case of overflow or underflow
Data Rates:	Up to 64kbps
Timing:	Provided by the connected DCE devices
Connectors:	Two DB-25 female connectors
Power Supply:	No external AC power required. Uses low power derived from RS-232 data and control signals
Environmental:	Oper Temp: 32 to 122° F (0 to 50° C) Rel Humidity: 5 to 90 % non-condensing Altitude: 0 to 10,000 feet
Dimensions:	3.15”L x 1.76”W x .76”H

APPENDIX B
PATTON MODEL 3002 BLOCK DIAGRAM



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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Support E-mail:	support@patton.com
Phone - Sales	(301) 975-1000
Phone - Support	(301) 975-1007
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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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