USER MANUAL

MODEL 2021
Interface Powered
RS-232 to X.21 Converter

PATTON
Electronics Co.

1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2021 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 2021 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 2021 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 2021 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 2021. 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 301-975-1000.

2.1 FEATURES

- Bi-directionally converts synchronous RS-232 to X.21
- Data rates to 384 Kbps, full or half duplex
- Transparent to protocol
- No AC power or batteries required
- DB-25 and DB-15 connectors with integral 6 foot cable
- Circuitry housed in ultra-miniature case
- Made in the USA

2.2 DESCRIPTION

The Model 2021 RS-232 to X.21 converter lets a synchronous RS-232 device communicate bi-directionally with a synchronous X.21 device. The Model 2021 requires no AC power or batteries to operate and supports data rates to 384 Kbps. Operating full or half duplex, the Model 2021 passes all necessary clocking and control signals, and is transparent to protocol.

The Patton Model 2021 connects directly to the synchronous RS-232 interface using a male or female DB-25 connector. A male or female DB-15 connector at the end of an integral 6 foot cable plugs into the X.21 interface. In most cases, this eliminates the need for special crossover cables. Housed in an ultra-minature case measuring only 3.56"L x 2.10"W x 0.80" H, the Model 2021 fits easily into tight locations. The Model 2021 is manufactured by Patton Electronics in the USA.

3.0 INSTALLATION

The Model 2021 is designed to be easy to use. Since there is nothing to configure, all you need to do is plug the Model 2021 into the proper device ports.

Figure 1 below illustrates proper connection of an RS-232 DTE to an X.21 DCE using the Model 2021xC-xT.
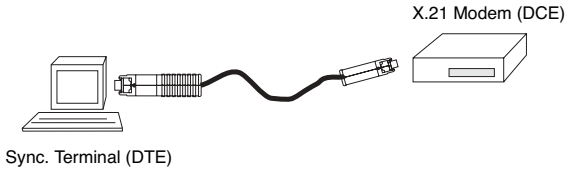

Figure 1. Sync Terminal connected to X.21 Modem using Model 2021XC-XT

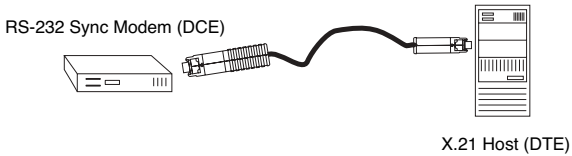To connect an RS-232 DCE to an X.21 DTE, use the Model 2021xT-xC, as shown in Figure 2.

Figure 2. RS-232 Sync Modem connected to X.21 Host using Model 2021XT-XC
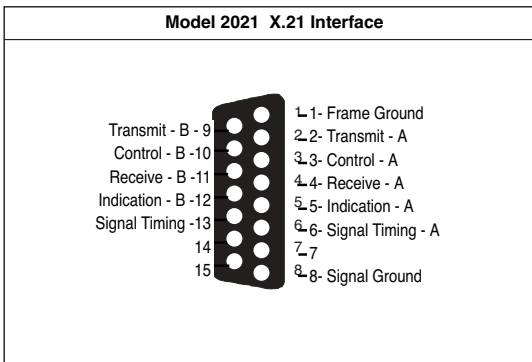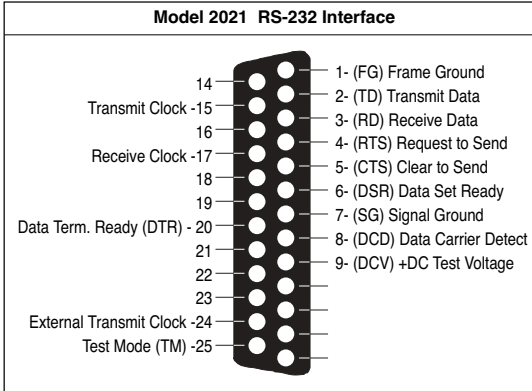
APPENDIX A

PATTON MODEL 2021 SPECIFICATIONS

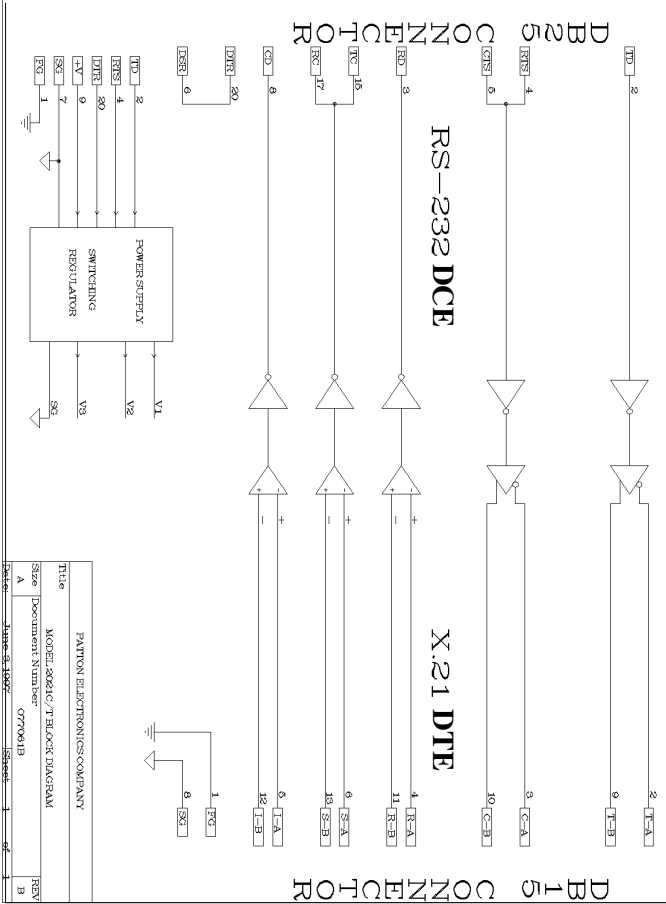|	
Interfaces:	EIA RS-232/ITU/CCITT V.24, ITU/CCITT X.21
Data Rates:	0 - 384 Kbps
Transmission Mode:	Full or half duplex
Protocol:	Transparent to protocol
Clocking:	Set by connected DCE devices
Connectors:	DB-25 male or female on RS-232 side, DB-15 male or female on X.21 side
Power Supply:	None required; uses power from RS-232 data and control signals
Temperature Range:	0-60°C (32-140°F)
Altitude:	0-15,000 feet (0-5,000 meters)
Humidity:	5 to 95% non-condensing
Dimensions:	**2021XC-XT:** 2.66"L x 2.10"W x 0.73"H **2021XT-XC:** 3.56"L x 2.10"W x 0.80"H
Weight:	14 oz, including cable and connectors

APPENDIX B

PATTON MODEL 2021 INTERFACE STANDARDS

Model 2021   RS-232 Interface

14
Transmit Clock -15
16
Receive Clock -17
18
19
Data Term. Ready (DTR) - 20
21
22
23
External Transmit Clock -24
Test Mode (TM) -25

1- (FG) Frame Ground
2- (TD) Transmit Data
3- (RD) Receive Data
4- (RTS) Request to Send
5- (CTS) Clear to Send
6- (DSR) Data Set Ready
7- (SG) Signal Ground
8- (DCD) Data Carrier Detect
9- (DCV) +DC Test Voltage

Model 2021   X.21 Interface

Transmit - B - 9
Control - B -10
Receive - B -11
Indication - B -12
Signal Timing -13
14
15

1- Frame Ground
2- Transmit - A
3- Control - A
4- Receive - A
5- Indication - A
6- Signal Timing - A
7
8- Signal Ground

APPENDIX C

PATTON MODEL 2021XC-XT BLOCK DIAGRAM

APPENDIX C

PATTON MODEL 2021XT-XC BLOCK DIAGRAM

Notes

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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.

Web:	http://www.patton.com
Sales E-mail:	sales@patton.com
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

P.S. Please tell us where you purchased this product:
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