

USER MANUAL

MODEL 2016
**Interface Powered
X.21 to V.35 Converter**



PE PATTON
IE Electronics Co.



*An ISO-9001
Certified Company*

Part #07M2016-B
Doc. #077141UB
Revised 8/19/98

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

1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2016 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 2016 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 2016 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 2016 does cause interference to radio or television reception, which can be determined by disconnecting the X.21 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 2016. 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 X.21 to V.35
- Supports data rates to 2.048 Mbps
- Half or Full Duplex Operation
- Transparent to protocol
- No AC power or batteries required
- DB-15 and M/34 connectors with integral 6 foot cable
- Circuitry housed in ultra-miniature case
- Made in the USA

2.2 DESCRIPTION

The Model 2016 X.21 to V.35 Converter lets synchronous X.21 devices communicate bi-directionally with synchronous V.35 devices -- at data rates up to 2.048 Mbps. Operating full or half duplex, the Model 2016 passes all necessary clocking and control signals, and is transparent to synchronous protocol. DTE and DCE configurations are available.

The Model 2016 connects directly to the synchronous X.21 interface using a male or female DB-15 connector. A male or female M/34 connector plugs into the V.35 interface.

Housed in an ultra-miniature ABS plastic case, the Model 2016 fits easily into tight locations. The Model 2016 is manufactured by Patton Electronics in the USA.

3.0 INSTALLATION

The Model 2016 is designed to be easy to use. Since there is nothing to configure, all you need to do is plug the Model 2016 into the proper device ports.

The Model 2016XT-XC is factory configured to connect an X.21 DCE device to a V.35 DTE device. Figure 1, below, illustrates proper connection of the Model 2016 in a wide area networking application.

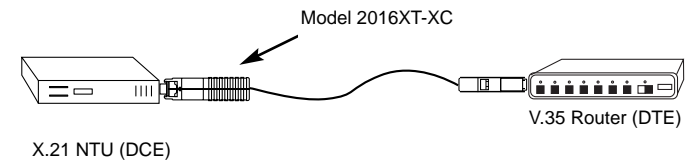


Figure 1. X.21 DCE connected to a V.35 DTE using Model 2016XT-XC

The Model 2016XC-XT is factory configured to connect an X.21 DCE device to a V.35 DTE device. Figure 2, below, illustrates proper connection of the Model 2016 in a wide area networking application.

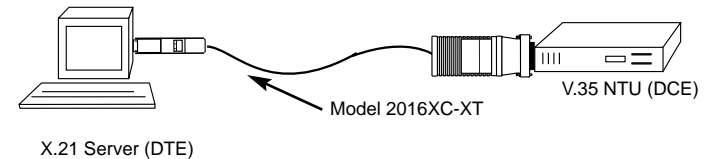


Figure 2. X.21 DTE connected to an V.35 DCE using Model 2016XC-XT

4.3 CONNECTING POWER (MODEL 2016XC-XT ONLY)*

Under normal conditions, the Model 2016XC-XT requires no additional power to operate. It simply derives its operating power from the data and control signals. However, in certain low-power conditions, additional power may be necessary. The Model 2016XC-XT offers three alternatives to supplying external power: 1) Using the DC Adapter; 2) Supplying DC directly to the PC board; and, 3) Supplying Power through the V.35 Interface.

NOTE: Model 2016XT-XC does not require additional power to operate.

4.3.1 Using the DC Power Supply

The Model 2016XC-XT uses a 7.5VDC, 1.2A universal input, power supply that is equipped with a male IEC-320 power entry connector and supports a voltage range of 100-250VAC. This power supply connects to the Model 2016XC-XT by means of a barrel jack on the rear panel. There are a variety of domestic and international power cords available for the power entry (See Appendix B). The Model 2016XC-XT powers-up as soon as it receives adequate DC power—there is no power switch.

4.3.2 Supplying DC Power Directly to the PC Board

You may bypass the DC wall adapter and supply DC power directly to the Model 2016XC-XT power supply jack. DC power supplied must be 7.5 - 12VDC \pm 5%, 100mA minimum, center positive, and can be supplied via a barrel type plug with 2.1/5.5/10mm I.D./O.D./Shaft Length dimensions.

4.3.3 Supplying Power via pin KK

You may also supply DC power directly to pin KK of the V.35 interface. DC Power supplied to pin KK must be 7.5 - 12VDC, 100mA minimum.

NOTE: DC power source must be SELV (Circuit, Safety Extra Low Voltage) specified. (See CENELEC EN60950, Section 1.2.8.5)

4.4 LED STATUS INDICATORS (MODEL 2016XC-XT ONLY)

The Model 2016XC-XT features two LEDs that are located on the back panel. Figure 3 below shows the positions of the LEDs. Following Figure 3 is a description of each LED.

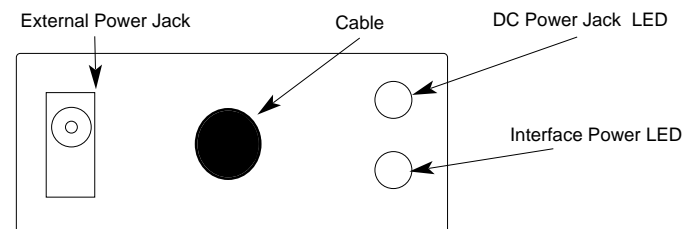


Figure 3. Model 2016XC-XT Rear Panel

Supplemental Power LEDs

DC Power Jack	Glows red to indicate that the 2016XC-XT is receiving operating power by means of the external power-jack (See Sections 4.3.1 and 4.3.2).
Interface Power	Glows green to indicate that the 2016XC-XT is receiving operating power via pin KK on the V.35 interface (See Section 4.3.3).

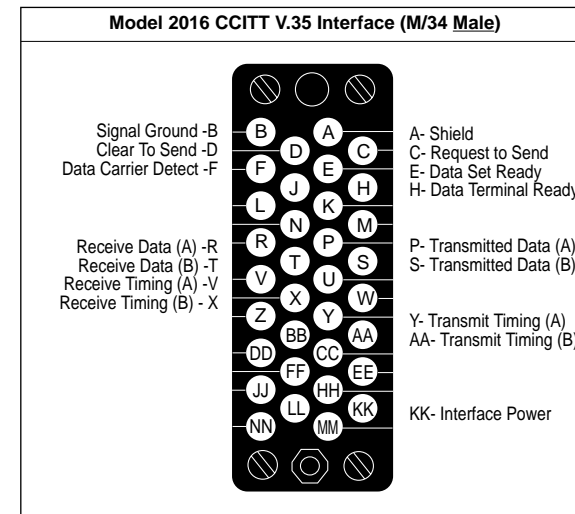
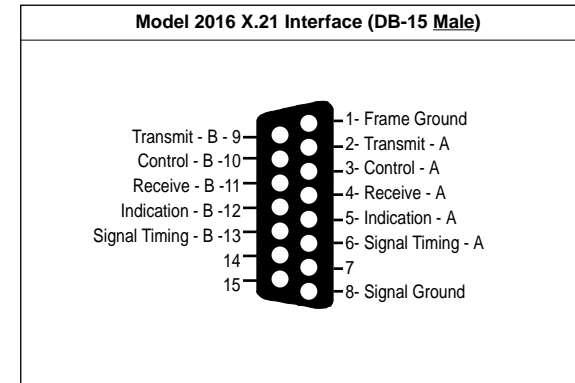
APPENDIX A

PATTON MODEL 2016 SPECIFICATIONS

Interfaces:	ITU/CCITT X.21 to ITU/CCITT V.35
Data Rates:	Up to 2.048 Mbps
Transmission Mode:	Full or half duplex
Protocol:	Transparent to protocol
Clocking:	Set by connected DCE device
Connectors:	DB-15 male or female on X.21 side, M/34 male or female on V.35 side
Compliance:	CE Marked per EMC Directive 89/336/EEC, FCC part 15, Class A
Temperature Range:	32-122°F (0-50°F)
Altitude:	0-15,000 feet (0-5,000 meters)
Humidity:	Up to 95% non-condensing
Power Supply:	<p>Model 2016XT-TC: None required; uses power from data and control signals</p> <p>Model 2016XC-XT: 1) External wall-mount transformer: 100 - 250 VAC Input to 7.5 100mA output; 2) Interface Power via Pin KK on V.35 interface: 7.5 - 12VDC,100mA</p>
Dimensions:	<p>Model 2016XT-XC: 2.7"L x 1.5"W x 0.7"H (6.8 x 3.8 x 1.8 cm)</p> <p>Model 2016XC-XT: 3.85"L x 2.0"W x 0.9"H (9.8 x 5.1 x 2.3 cm)</p>
Weight:	<p>Model 2016XT-XC: 7 oz, including cable and connectors</p> <p>Model 2016XC-XT: 9.4 oz, including cable & connectors</p>

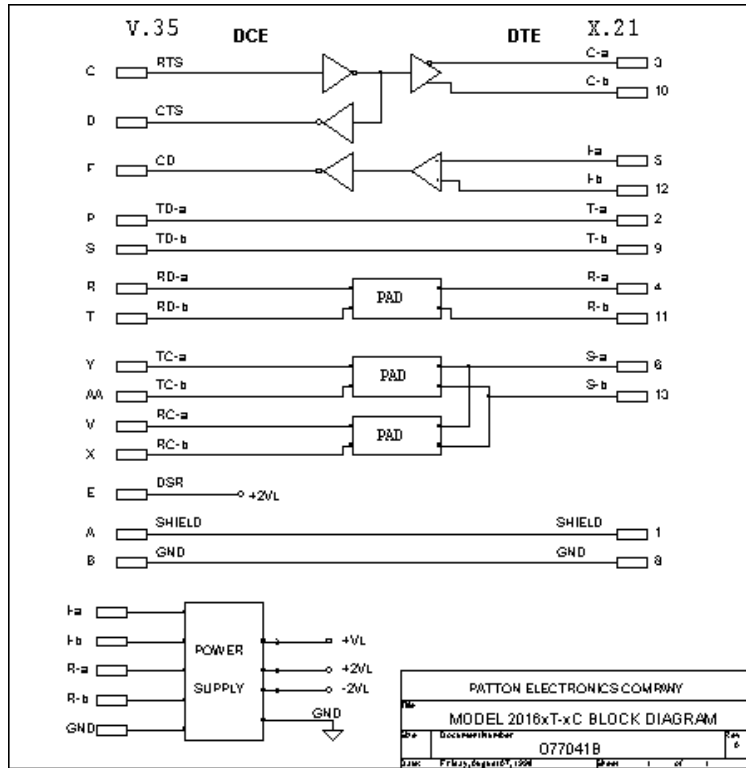
APPENDIX B

PATTON MODEL 2016 INTERFACE STANDARDS



APPENDIX C

PATTON MODEL 2016XT-XC BLOCK DIAGRAM



APPENDIX C

PATTON MODEL 2016XC-XT BLOCK DIAGRAM

