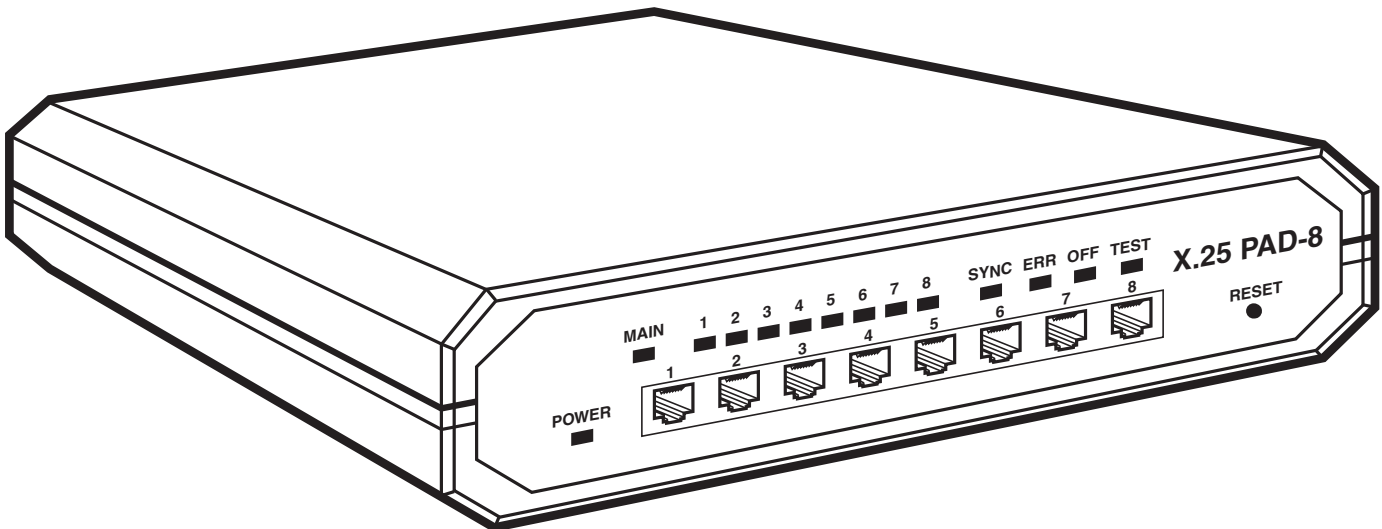




MARCH 1999

MX321A-232-R3	MX321AE-232-R3	MX321A-232-D48-R2
MX321A-35-R2	MX321AE-35-R2	MX321A-35-D48-R2
MX321A-36-R2	MX321AE-36-R2	
MX321A-530-R2	MX321AE-X21-R3	

## X.25 PAD-8



---

**CUSTOMER  
SUPPORT  
INFORMATION**

Order toll-free in the U.S. Call **877-877-BBOX** (outside U.S. call **724-746-5500**)  
FREE technical support, 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**  
Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018  
Web site: [www.blackbox.com](http://www.blackbox.com) • E-mail: [info@blackbox.com](mailto:info@blackbox.com)

**FEDERAL COMMUNICATIONS COMMISSION, INDUSTRY CANADA, AND EUROPEAN UNION  
RADIO-FREQUENCY INTERFERENCE AND ELECTRICAL-SAFETY STATEMENTS**

This equipment generates, uses, and can radiate 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 communication. It 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 against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

*This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in Industry Canada’s Radio Interference Regulation.*

*Le présent appareil numérique n’émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.*

The X.25 PAD-8 conforms to the following standards of the European Union:

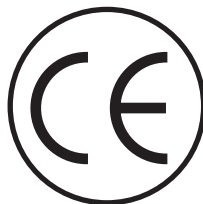
<b>EMC:</b>	EN 55022 (1994)	Limits and methods of measurement of radio disturbance characteristics of information technology equipment.
	EN 50082-1 (1992)	Electromagnetic compatibility—Generic immunity standards for residential, commercial, and light industry.
<b>Safety:</b>	EN 60950 (1992/93)	Safety of information technology equipment, including electrical business equipment.

The safety status of each of the ports on the X.25 PAD-8 is hereby declared according to EN 41003:

<u>Safety Status</u>	<u>Ports</u>
SELV	530, V.24, V.35, V.36, X.21, LAN
TNV-1	ISDN, 4W, DDS

SELV = Safety Extra-Low Voltage

TNV-1 = Telecommunications Network Voltage within SELV limits and subject to overvoltages



**INSTRUCCIONES DE SEGURIDAD (Normas Oficiales Mexicanas Electrical Safety Statement)**

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
  - A: El cable de poder o el contacto ha sido dañado; u
  - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
  - C: El aparato ha sido expuesto a la lluvia; o
  - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
  - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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# 1. Specifications

## GENERAL

<b>Indicators—</b>	(14) Front-mounted LEDs: (1) Power, (1) Main-link activity, (8) Sub-channel activity, (1) Loss of synchronization, (1) Error, (1) Overflow, (1) Test
<b>Packet Size—</b>	Up to 4096 bytes for X.25; up to 8192 bytes for other protocols
<b>Throughput—</b>	500 packets per second
<b>Memory—</b>	512 KB RAM

## SYNCHRONOUS LINK

<b>Interface and Connector—</b>	(1) port for all models: “-232” models: EIA/TIA RS-232/ITU-T V.24, DCE or DTE (DB25 female); “-35” models: ITU-T V.35, DCE or DTE (M/34 female); “-36” models: EIA/TIA RS-530/ITU-T V.36, DTE (DB25 female); “-X21” models: ITU-T X.21, DTE (DB15 female)
<b>Data Rate—</b>	Up to 2 Mbps
<b>Clock Source—</b>	External clocking for receive and transmit paths; internal clock for DCE interfaces

## ASYNCHRONOUS CHANNELS

<b>Interface and Connectors—</b>	RS-232/V.24, DCE, proprietarily pinned on (8) RJ-45 female connectors
<b>Data Rate—</b>	75 bps to 115.2 kbps, programmable
<b>Flow Control—</b>	XON/XOFF or RTS/CTS flow control, user-selectable
<b>Channel Log-On Messages—</b>	Herald and bulletin, user-definable
<b>Command Modes—</b>	ITU-T Rec. X.28 and proprietary extensions, ITU-T Rec. X.29
<b>Terminal Handling—</b>	Enhanced, handling beyond ITU-T Rec. X.3 requirements

## POWER

<b>Supply Voltage—</b>	“A” models: 115 VAC, 50/60 Hz; “AE” models: 230 VAC, 50/60 Hz; “A-D48” models: +24, -24, +48, or -48 VDC
<b>Consumption—</b>	15 W
<b>Fuse—</b>	125 mA, 250 V

## ENVIRONMENT

<b>Temperature—</b>	32 to 122°F (0 to 50°C)
<b>Humidity—</b>	Up to 90%, noncondensing

## PHYSICAL

<b>Size—</b>	1.7"H x 8.5"W x 9.5"D (4.3 x 21.6 x 24.1 cm)
<b>Weight—</b>	3.9 lb. (1.8 kg)

## 2. Introduction

The X.25 PAD-8 provides easy, cost-effective access to a packet-switching network.

The X.25 PAD-8 has one synchronous port, which supports data rates up to 2 Mbps. The synchronous port can be configured to either X.25 or Frame Relay. The port's interface can be V.24, V.35, X.21, or RS-530. Interfaces V.24 and V.35 for the port can be either DCE or DTE layer 1 (depending on the model you order). Other interfaces are available; call Technical Support for more information.

The X.25 PAD-8 can connect up to eight asynchronous channels. The asynchronous channels can be configured as X.28 or SLIP and operate at data rates up to 115.2 kbps.

# 3. Installation

The X.25 PAD-8 is delivered completely assembled. It can be installed as a desktop unit or mounted in a 19-inch rack. After installing the unit, see the *Packet Switching Guide* for instructions about configuring, operating, testing, and troubleshooting it.

## 3.1 Site Requirements

### 3.1.1 POWER

If your X.25 PAD-8 is an AC-powered model, install it within 5 feet (1.5 m) of an easily accessible grounded AC outlet that supplies the appropriate voltage (115 or 230 VAC, depending on the model you ordered) for your PAD-8. If your X.25 PAD-8 is a DC-powered mode, see the **Appendix**.

### 3.1.2 DATA-CHANNEL CONNECTIONS

The X.25 PAD-8 has eight RJ-45 connectors—one for each asynchronous data channel. The *Packet Switching Guide* provides pin allocations for these connectors.

### 3.1.3 MAIN-LINK CONNECTION

What type of main-link connector the X.25 PAD-8 has depends on which interface you ordered for it:

- RS-232/V24: DB25 female
- X.21: DB15 female
- V.35: M/34 (34-pin M-block) female
- RS-530: DB25 female

The *Packet Switching Guide* provides the pin allocations for these connectors.

### 3.1.4 FRONT- AND REAR-PANEL CLEARANCE

If the X.25 PAD-8 is installed in a 19-inch rack, leave at least 36 inches (91.4 cm) of frontal clearance for operator access. Leave at least 4 inches (10.2 cm) clearance at the rear of the unit for interface-cable connections.

### 3.1.5 AMBIENT REQUIREMENTS

Operate the X.25 PAD-8 in an area where the temperature does not exceed the range from 32 to 122°F (0 to 50°C) and the relative humidity does not exceed 90% (noncondensing).

## 3.2 Hardware Configuration

### CAUTION!

To avoid the danger of an electrical shock, always turn the power switch off and disconnect the power cable from the power source before opening the X.25 PAD-8.

As shown in Figure 3-1 below, the X.25 PAD-8 has one main circuit board which contains:

- (2) jumpers for hardware configuration of the X.25 PAD-8.
- A 68302 CPU that runs the X.25 PAD-8 software.
- FLASH memory that receives downloaded software from a connected terminal.

This section describes the functions of the internal jumpers, and provides step-by-step jumper-setting instructions. The default settings for each jumper are also listed. (After installation, you'll configure the X.25 PAD-8 with its command facility only. For more information, see the *Packet Switching Guide*.)

### NOTE

The default settings of the X.25 PAD-8 jumpers are suitable for most applications. If your requirements are different, set the jumpers in accordance with your requirements before you install the X.25 PAD-8.

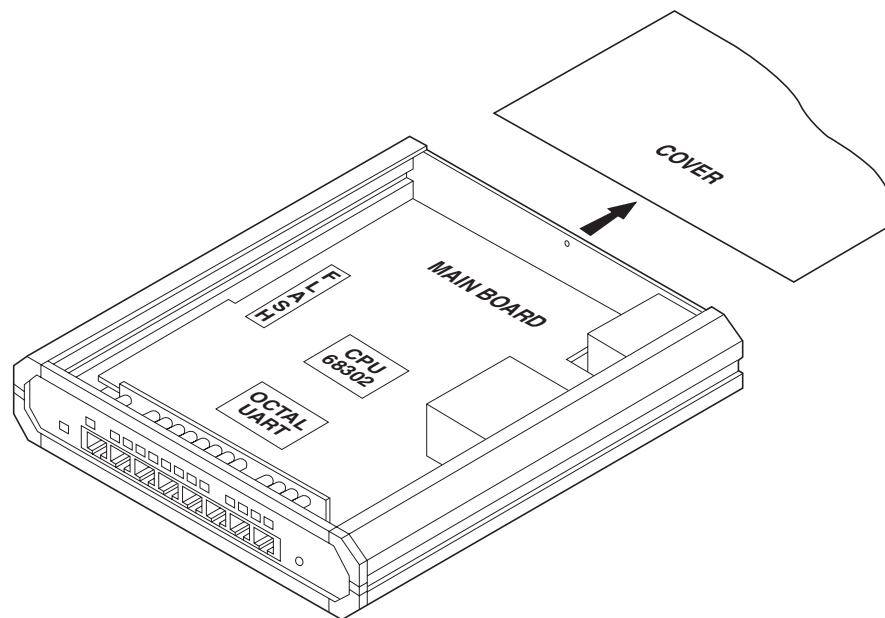
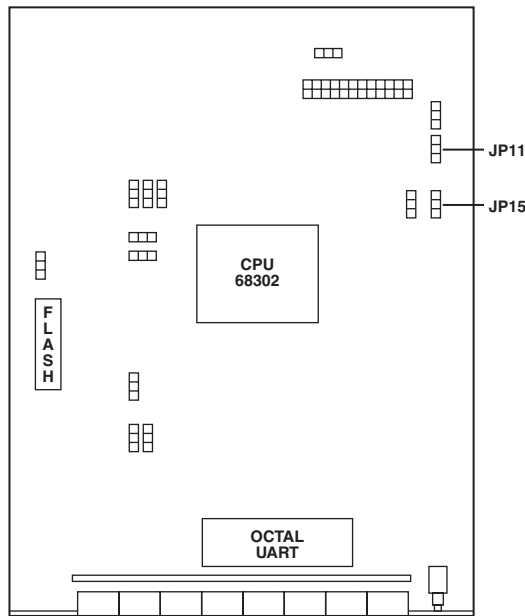


Figure 3-1. X.25 PAD-8 components.



Figure 3-2, below, shows the locations of the jumpers on the X.25 PAD-8 main board.



**Figure 3-2. X.25 PAD-8 jumper locations.**

### **JP11: INIT-NOR Jumper**

This jumper determines the X.25 PAD-8's active configuration at startup.

- NOR:** Normal operation. The X.25 PAD-8 uses the parameters selected by the user during the last configuration session. This is the factory-default setting.
- INIT:** Initialized. When the X.25 PAD-8 is switched on, it loads the default configuration.

### **JP15: Grounding Jumper**

Determines whether the Frame Ground lead on the main-link connector is tied to the X.25 PAD-8's chassis ground or is isolated from it.

- DIS:** Disconnected. Frame Ground and chassis ground are isolated from each other. This is the factory-default setting and should be used for most applications.
- CONN:** Connected. Frame Ground and chassis ground are tied together. We don't recommend this setting, but it is available if your application calls for it.

Take these steps to set these jumpers (being careful to follow the instructions in the Caution notice on page 7):

1. To access the main board of the X.25 PAD-8, remove the screw fastening the top cover to the case, then remove the top cover itself.
2. Find the jumpers and change their settings as necessary.
3. Reattach the X.25 PAD-8's cover and refasten it with the screw you removed in step 1. Do not use excessive force when tightening this screw.

### 3.3 Installation in 19" Racks (Optional)

The X.25 PAD-8 can be installed in 19" racks. The X.25 PAD-8 height corresponds to 1U (1.75"). The width of the X.25 PAD-8 is slightly less than the available mounting width.

A rackmount kit (part number RM516) is available for the X.25 PAD-8. It includes two short brackets, a long bracket, two small U-brackets, and a set of eight screws and washers. This means that you can use it to install either a single device or two devices side by side; all the necessary hardware is included in the kit either way.

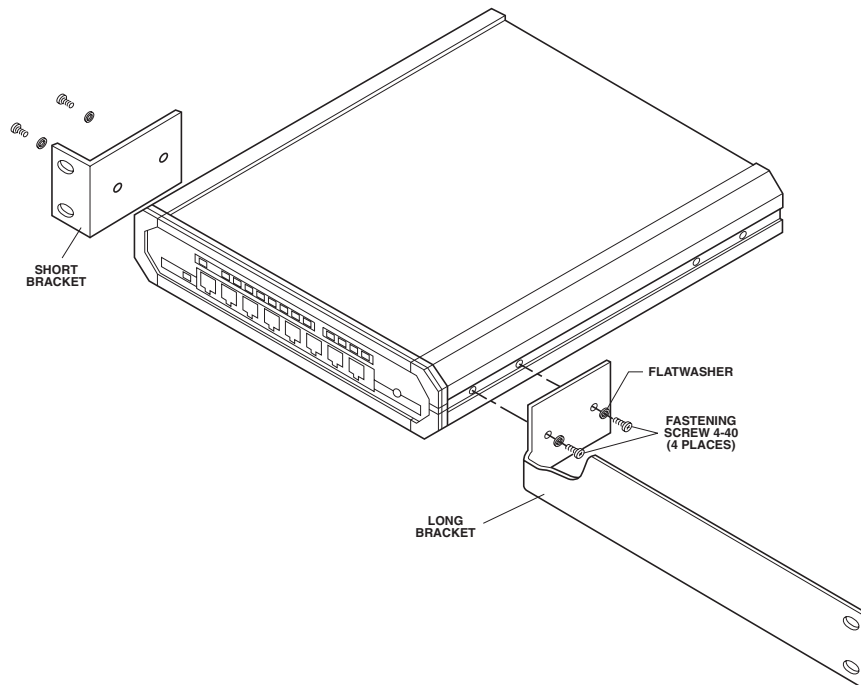
## CAUTION!

**Disconnect the units from AC power before performing the following procedures.**

#### 3.3.1 RACKMOUNTING A SINGLE X.25 PAD-8

To mount a single X.25 PAD-8 in a rack, use one of the short brackets and the long bracket from the RM516 rackmount kit, as shown in Figure 3-3 below:

1. Attach the two brackets by inserting two of the rackmount kit's screws in the front holes on each of the side walls of the PAD-8 (nuts are already in place, on the inner side of the walls).
2. Tighten the screws.
3. After attaching the brackets, fasten the brackets to the side rails of the rack by inserting and tightening four of your own screws (not included in the kit), two on each side.



**Figure 3-3. Installing a single X.25 PAD-8 in a 19" rack.**

## X.25 PAD-8

### 3.3.2 RACKMOUNTING TWO X.25 PAD-8s SIDE BY SIDE

To mount two X.25 PAD-8s in a rack side by side, use both of the short brackets and the U-brackets from the RM516 rackmount kit, as shown in Figure 3-4 below:

1. Remove the cover (1) from the PAD-8 that will sit on the right side of the rack.
2. Position one of the two U-brackets (2) over the slots inside of the inner left wall of the PAD-8. Align the U-bracket's holes with the holes in the device wall.
3. Place flat washers (3A) over two long screws (3B). Insert the screws through the U-bracket into the holes in the PAD-8's side wall.
4. Repeat steps 2 and 3 for the other U-bracket.
5. Hold the second PAD-8 close to the left wall of the first PAD-8. Tighten the four screws (one turn at a time for each) so that their ends emerge from the left wall and engage the holes in the right wall of the second PAD-8. Continue tightening the screws until their heads rest against the U-brackets and the two PAD-8s are in contact.
6. Reassemble the cover on the first PAD-8.
7. Using four short screws (7B) and flat washers (7C), fasten one adapter bracket (7A) to the outer wall of each PAD-8.
8. Using four of your own screws, two on each side (not included in the kit), fasten the two PAD-8s to the side rails of the 19" rack.

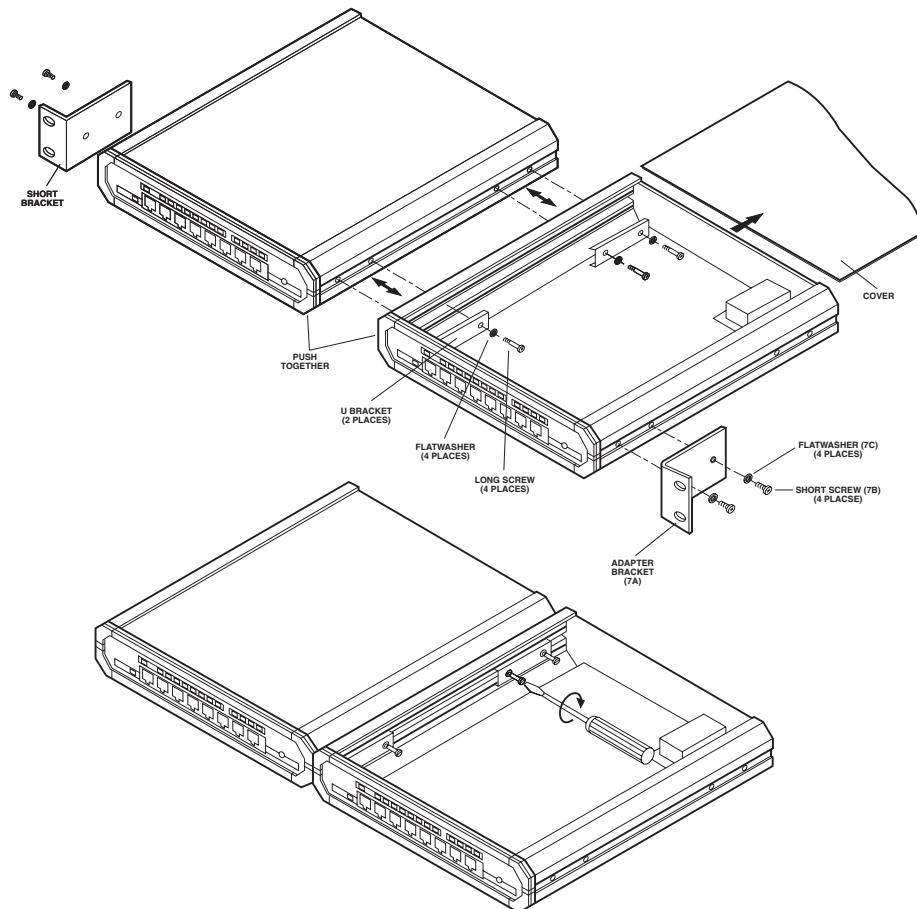


Figure 3-4. Installing two X.25 PAD-8s in a 19" rack.

## 3.4 Cable Connections

The X.25 PAD-8 has one connector on the rear panel that serves the synchronous link, and eight RJ-45 connectors on the front panel for the asynchronous data channels.

### 3.4.1 ASYNCHRONOUS DATA-CHANNEL CONNECTIONS

X.25 PAD-8 channel interfaces are configured as DCE interfaces, thereby allowing direct connection, through RS-232 cables, to DTE. If modems are used to extend the range (creating tail-end circuits), crossover cables are required. Channel interfaces are asynchronous, so clock signals are not supported or required.

The *Packet Switching Guide* lists the pin allocation for the X.25 PAD-8's data-channel connectors, and also provides typical wiring diagrams for straight-through and crossover cables.

### 3.4.2 SYNCHRONOUS LINK CONNECTION

Depending on which model of the X.25 PAD-8 you ordered, the synchronous link will be carried on one of these interfaces/connectors (always pinned out as DTE):

- RS-232/V24, DB25 female
- X.21, DB15 female
- V.35, M/34 female
- RS-530, DB25 female

The *Packet Switching Guide* lists the pin allocations for these link connectors.

## NOTE

**The user data cables and the synchronous link cables should be shielded, in order to comply with FCC rules. The X.25 PAD-8 and its data interfaces will work well even if the cables are not shielded, but some radio interference may occur.**

### 3.4.3 POWER CONNECTION

AC power is supplied to the AC-powered versions of the X.25 PAD-8 through a 5-foot (1.5-m) power cord terminated by a standard 3-prong plug. Run this cord from the IEC 320 male power inlet on the PAD-8 to a standard grounded AC power outlet. (For details about connecting power to the DC-powered versions of the PAD-8, see the **Appendix**.)

## WARNING!

**The X.25 PAD-8 unit should always be grounded through the protective earth lead of the power cord. To connect AC power to this unit, the mains plug should only be inserted into a socket outlet provided with protective earth contact. The protective action must not be negated by use of an extension cord without a grounding conductor.**

**Whenever it is likely that the unit's fuse (located in a bayonet-type fuse holder on the unit's rear panel) has been blown or damaged, make the unit inoperative and secure it against unintended operation until the fuse can be replaced. Make sure that only fuses of the required rating, as marked on the rear panel, are used for replacement. Do not use repaired fuses or short-circuit the fuse holder. Always disconnect the mains cable before removing or replacing the fuse.**

**Interrupting the grounding conductor, inside or outside the unit, or disconnecting the protective earth contact, can make this unit dangerous!**

# 4. Operation

The X.25 PAD-8 supports a wide range of applications. For example, it can function as any of these things:

- An access unit to X.25 private or public networks.
- An access server to X.25 ports of mainframes.
- A FRAD to run asynchronous data in X.25 packets over Frame Relay.
- A FRAD to run asynchronous data (using a protocol like SLIP) directly over Frame Relay.

## 4.1 Controls, Indicators, and Connectors

Table 4-1 on the next page lists the functions of the X.25 PAD-8's front-panel reset button, indicators, and connectors. The numbers listed under "Item" refer to the identification numbers in Figure 4-1 below. Likewise, Table 4-2 on the next page lists the functions of the PAD-8's rear-panel power switch and connectors, and the "item" numbers refer to the identification numbers in Figures 4-2 and 4-3 below.

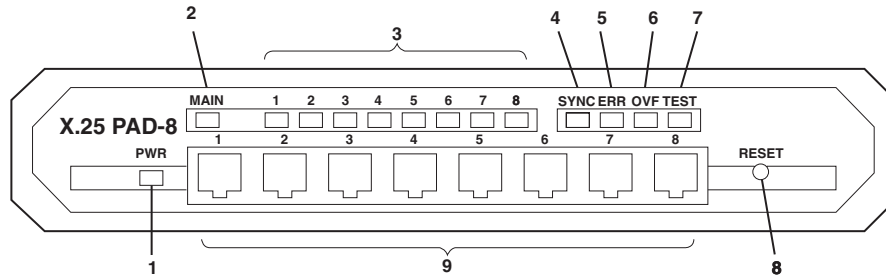


Figure 4-1. The X.25 PAD-8's front-panel reset button, indicators, and connectors.

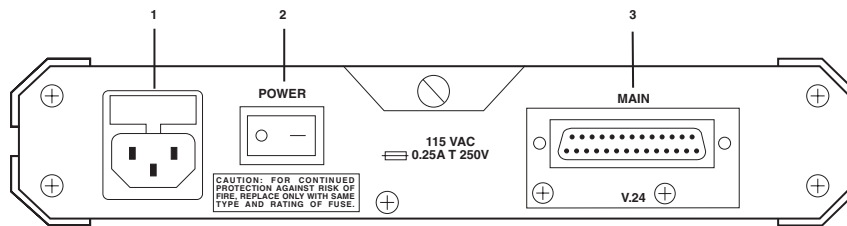


Figure 4-2. An AC-powered X.25 PAD-8's rear-panel power switch and connectors (RS-232 model shown).

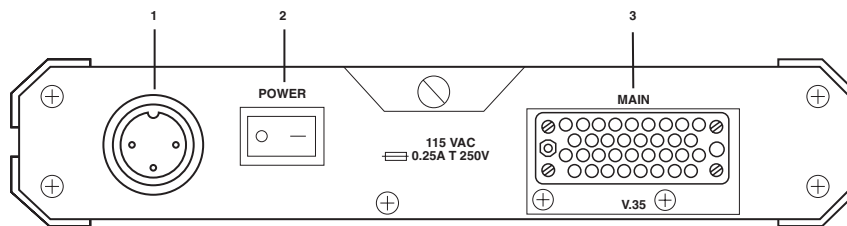


Figure 4-3. A DC-powered X.25 PAD-8's rear-panel power switch and connectors (V.35 model shown).

**Table 4-1. Controls, Indicators, and Connectors**

<b>Item</b>	<b>Control, Indicator, or Connector</b>	<b>Function</b>
1	PWR Indicator	On when the X.25 PAD-8 is powered.
2	Main Link Activity Indicators	On when the link is active (receives or transmits frames).
3	Channel Activity Indicators (one for each channel)	On when the corresponding channel is active (receives or transmits data).
4	SYNC Indicators	Indicates X.25 PAD-8 synchronization status: Off when the X.25 PAD-8 not powered. On when the X.25 PAD-8 is powered and synchronized with the corresponding peer. Blinks continuously when the X.25 PAD-8 is powered, but not synchronized with its peer.
5	ERR Indicator	On when a hardware malfunction was detected during the self-test.
6	OVF Indicator	On when the X.25 PAD-8 buffers are full. This condition usually indicates that one of the DTE units connected to the X.25 PAD-8 does not respond to the X.25 PAD-8's flow-control commands, a condition that may be caused by incorrect configuration of the X.25 PAD-8.
7	TEST Indicator	On when the X.25 PAD-8 is in the diagnostics mode (a test loop is active). Traffic is not interrupted.
8	RESET Button	Resets the X.25 PAD-8's internal circuits (including the data buffers) and initiates the power-up self-test.
9	Channel Connectors	Connection to X.25 PAD-8 channels (one connector per channel).

**Table 4-2. X.25 PAD-8 Rear-Panel Controls and Indicators**

<b>Item</b>	<b>Control or Connector</b>	<b>Function</b>
1	Power Connector	AC power connector with integral fuse.
2	Power Switch	Turns the X.25 PAD-8 on.
3	Links Connectors	Connection to link.

### 4.2 Operating Procedure

The X.25 PAD-8 normally operates unattended. Operator intervention is only required when setting up the X.25 PAD-8 for the first time or when adapting it to new operational requirements.

#### NOTE

**The X.25 PAD-8's configuration is stored in nonvolatile memory and is not affected when power is turned off.**

#### 4.2.1 POWER-ON

1. Connect the power cable to the X.25 PAD-8's rear power connector.
2. Set the power switch to ON. The PWR indicator should light.

If the link to its synchronous DTE/DCE peer is not operational yet, the SYNC indicator of the X.25 PAD-8 blinks. Wait until the link becomes operational, and check that the SYNC indicator stops blinking and lights continuously.

3. Check that the ERR, OVF, and TEST indicators turn off after the X.25 PAD-8's initial self-test.

#### 4.2.2 NORMAL OPERATION

During normal operation, the PWR, SYNC, and MAIN indicators light continuously and the TEST, OVF, and ERR indicators must remain off.

Channel-activity indicators blink according to the traffic load, and turn off if the channel is idle.

#### 4.2.3 POWER-OFF

To turn the X.25 PAD-8 off, set the power switch to OFF.

### 4.3 Upgrading the PAD-8's Software

Because the X.25 PAD-8 has flash memory, you can upgrade its software without replacing its EPROMS. To do so, take these steps:

1. Connect a PC running terminal emulation to channel port 1 on the PAD-8. (Alternatively, if your PAD-8 has an RS-232 main-link port, you can attach the PC to that port.) Configure the terminal emulator to transmit and receive at 9600 bps using no parity, 8 data bits, and 1 stop bit ("9600,N,8,1").
2. Press a key on the terminal keyboard. You will be prompted to enter a password; just hit [Enter] (the Switch's default password state is no password at all). The Main menu will appear:

```

MAIN MENU
-----
1) CONFIGURE
2) SYSTEM CONTROL
3) DIAGNOSTICS
4) STATUS AND STATISTICS
5) LOGOUT

```

SELECT:

3. From the Main menu, select option 2. The System Control menu appears.

```

SYSTEM CONTROL MENU
-----
1) Link down
2) Link up
3) Clear Channel
4) Clear LCN
5) Update date
6) Update time
7) Reset statistics
8) Rearrange NOVRAM
9) Reset
10) Set default configuration
11) Disconnect dial link
12) Enable software upgrade
CR) EXIT

```

SELECT:





8. If you want to abort the upgrade process, select option 6. Otherwise, select your desired firmware-transfer data rate. (Regardless which option you choose, the number whose key you press will not appear on screen.) If you were to choose option 3, this message would appear:

```
*****
* Software Upgrade System *
* * * * *
*           Please change terminal setting *
*                               To: *
*                               38400,N,8,1 *
* * * * *
*           and start to download new software. *
*****
```

9. Reconfigure the emulator to communicate at your desired data rate (38,400 bps in this example), then have it send the new firmware file to the PAD-8 as “ASCII” or (preferably) “raw ASCII” data. When the firmware is downloaded successfully, the following message will appear:

```
Successful download
```

10. Reset the PAD-8 again; you will again be returned to the System Control Menu. Press [Enter] to exit the menu; the PAD-8 returns to normal operation.

# 5. Troubleshooting

## 5.1 Possible Solutions

If a problem occurs, you can perform the following preliminary steps to return the X.25 PAD-8 to normal operation.

To perform preliminary troubleshooting:

1. Check if the X.25 PAD-8 is turned on (PWR indicator is on).
2. Check if the cables are properly connected.
3. Check if the equipment connected to the X.25 PAD-8 is turned on and operates normally.
4. Check X.25 PAD-8's LEDs.
5. Check if the configurations of the X.25 PAD-8 PAD and the remote PAD or switch correspond to the requirements of the attached equipment.
6. If steps 1 through 5 do not correct the problem, press RESET or turn the X.25 PAD-8 off and then on again.

If the problem persists, see Chapter 5 in the *Packet Switching Guide* for other possible solutions.

## 5.2 Calling Black Box

If you determine that your X.25 PAD-8 is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular application that, when used, appears to create the problem or make it worse.
- the results of any testing you've already done.

## 5.3 Shipping and Packaging

If you need to transport or ship your X.25 PAD-8:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the X.25 PAD-8 for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number.

# Appendix: The DC-Powered Version

## NOTE

Ignore this appendix if your unit operates on AC power.

The DC-powered X.25 PAD-8 has a standard 3-pin male power-inlet connector on its rear panel (see Figure A-1 below). The PAD-8 also comes with a matching female connector for attaching to your power-supply cord.

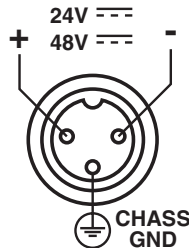


Figure A-1. The DC power inlet.

Make sure that the voltage polarity of the power-supply cord's wires is correct:

- If your power-supply cord already has a compatible connector, just verify that the voltage polarity is as required.
- If not, connect the wires of your power-supply cord to the supplied cable connector, according to the voltage polarity shown in Figure A-2 below. Note that the solder side of the connector is shown. Refer to Figure A-3 on the next page for a detailed illustration of how to assemble this connector.

## WARNING!

Reversing the wires' voltage polarity can cause serious damage to the unit.

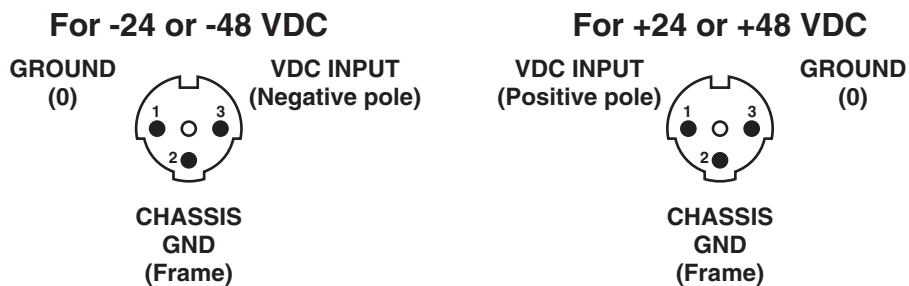
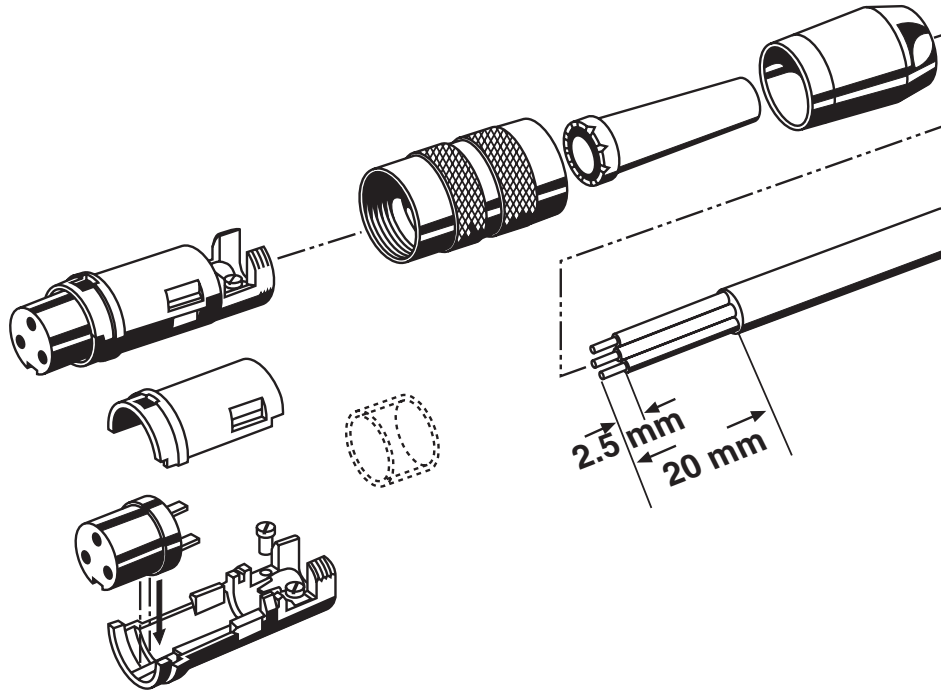


Figure A-2. Voltage polarity (solder side) of the power cord's female connector.



A-3. Cord-connector assembly.



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