XP4000 Series

Installer/User Guide

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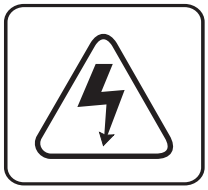
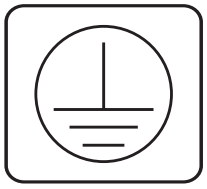
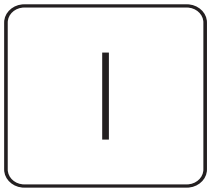
INSTRUCTIONS: The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



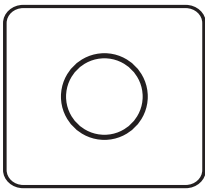
DANGEROUS VOLTAGE: The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



PROTECTIVE GROUNDING TERMINAL: A terminal which must be connected to earth ground prior to making any other connections to the equipment.



POWER ON: This symbol indicates the principle on/off switch is in the on position.



POWER OFF: This symbol indicates the principle on/off switch is in the off position.

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1 Product Overviews

XP4000 Series Overview

The XP4000 Series products allow multiple users to operate PC-compatible, Macintosh, Sun, RS/6000, Silicon Graphics and Hewlett-Packard computers at the same time. A basic XP4000 system consists of users and computers that are all connected to one or more XP units. Any user in the system can access any attached computer by simply 'switching' to that channel through the XP unit.

There are four chassis types available in the XP4000 Series: The XP4010, the XP4040, the XP4080 and the XP4400. All models can be used in any combination within one XP4000 system.

An XP system consists of four main components:

- One or more **XP4040/XP4010/XP4080/XP4400 units**
- A combination of **operation modules**
- **Associated cables** to connect users and computers to the system.
- Optional XP4000 Series **complement products**

The quantity and type of components you receive depends on the specific configuration you order.

XP4010/XP4040/ XP4080 Units

The XP4040 Unit

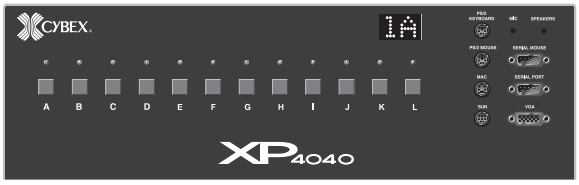
General overview of Front and Rear Access models

Front Access Desktop Model:XP4040D

The front panel of a front access XP4040 unit has 9 connectors as follows:

- PS/2 Keyboard
- PS/2 Mouse
- Serial Mouse
- Macintosh
- Sun
- VGA Video
- Serial Port
- Microphone
- Speakers

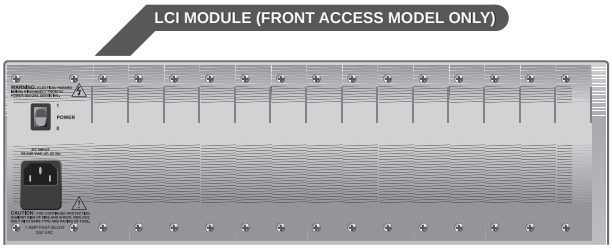
These connectors are used to attach a keyboard, monitor, mouse, microphone, speakers and serial device to the front panel of the XP4040. Peripherals attached to the front of the box make up your local console.



Each front access XP4040 unit supports up to 14 modules. The first slot on the far left side of the XP4040D (viewed from the rear) contains the local console

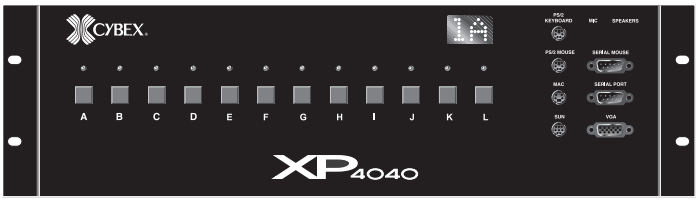
interface (LCI) module. The LCI comes pre-installed in the unit. The remaining 13 slots in the unit may be configured as user consoles, attached computers, power control or expansion modules.

There are 12 push-buttons on the front panel labeled A through L. These buttons select the active computer for the local console. The indicator lights (LEDs) over each push-button reflect the type of activity, if any, that is taking place on each attached computer. The alphanumeric display in the upper right hand corner of the front panel shows which computer channel is currently selected by the local console. Only the local console utilizes the push-buttons and alphanumeric display. Secondary consoles, which connect to the XP4040 through the rear of the unit, select their active computer via the keyboard. Secondary consoles, like the local console, have access to every computer in the XP4040 system.



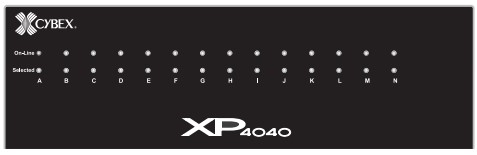
Front Access Rack Mount Model:XP4040R

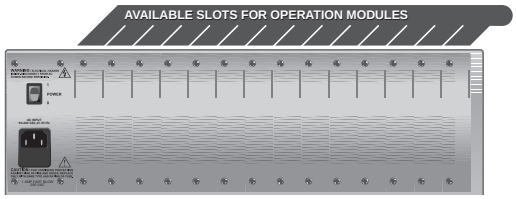
Cybex also offers a front access model designed for 19 inch rack use. It supports all the features of the XP4040D Front Access unit.



Rear Access Desktop Model:XP4040ED

The front panel of a rear access model XP4040E features LEDs only. These LEDs reflect the power and selection status of all of the modules in that unit. There are no connectors or alphanumeric display on the front of the unit. There is no LCI (local console interface) module inside the unit. All 14 slots are available for the installation and configuration of any module in the system. All users connect through the rear of the unit and change computer channels via keyboard switching.



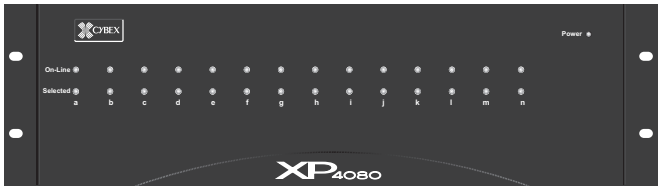


Rear Access Rack Mount Model:XP4040ER

Cybex also offers a rear access model designed for 19 inch rack use. It supports all the features of the XP4040E rear access unit.

Rear Access Rack Mount Model:XP4080ER

The XP4080ER rear access rack mount model supports all of the features of the XP4040ED and XP4040ER models. Additionally, with this model, users can access up to eight computers simultaneously and independently instead of the four supported by XP4040 models. Used primarily in larger configurations utilizing the XP4400 chassis, this model reduces the overall number of XP4040 units required in the system



The XP4010 Unit

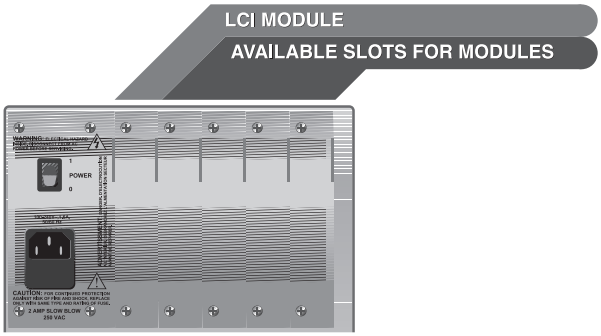
The XP4010 unit looks and functions like a front access XP4040D model with the following exceptions:

Differences between the XP4010 and XP4040 systems

1. An XP4010 system supports a maximum of five modules: the local user console, pre-installed in the XP4010, and four additional modules which can be configured as additional user consoles, attached computers, or expansion modules.

2. The XP4010 front panel does not support an alphanumeric display.

3. The XP4010 is available in a front access desktop model only. Kits are available for rack mounting. (RMK 19,20,21)



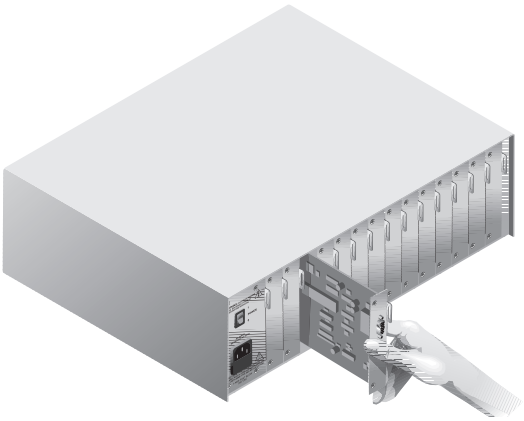
The XP4400 Unit

The XP4400 chassis is designed to accommodate larger XP system installations. By channeling expansion signals from XP4040 users to attached computers, the XP4400 enables large configurations with fewer XP4040 units, transmitter/receiver cards and cables in the system. The XP4400 consists of a 9U high chassis, containing two power supplies, two fan assemblies and a user specified number of XP4400 transmitter and receiver modules. There are no users or computers attached directly to this unit. There is an LCD display on the front panel for the internal menuing system and four buttons that control menu selections and operations.

Each module contains 16 sets of video and keyboard/mouse ports, enabling a module to attach to as many as 16 XP4040 expansion ports, using two category 5 cables each. The XP4400 holds up to nine transmitter or receiver modules per chassis. For more information on the XP4400, see Chapter 6.

Operation Modules

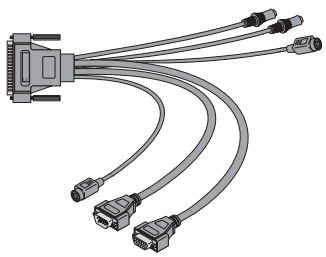
Depending on the chassis used, an XP4000 Series unit can support from 4 to up to 14 individual operation modules, including the local console module, if applicable. Modules may be ordered in any combination required, and are easily installed by sliding them gently through the rear of the unit. See the diagram below.



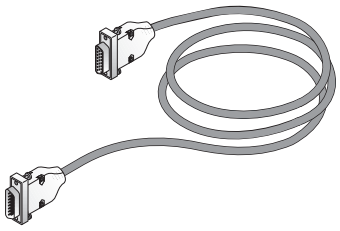
Basic modules are used to attach users and computers to the XP4000 system. Advanced modules are used for linking multiple XP4000 Series units together, power control and terminal emulation.

Cables

Each operation module, except the LCI, requires a cable to connect it to an attached computer, user console, or other XP4000 Series unit. Computer interface cables connect computers to the XP4000 Series unit. User interface cables connect users to the unit. Expansion cables may be as long as 250 feet and connect expansion units together. Typical cables are shown below.



User interface cables (CPIUF-10 shown)



CLX expansion cable (used in expansion systems only)

XP4000 Series Complements

XP4000 Series complements are optional products that work in conjunction with the XP4010/XP4040 and XP4080 to give your system added flexibility and control. For a detailed description of available complement products, see Chapter 11.

Features and Benefits

AutoBoot capability

The XP4000 Series AutoBoot feature boots all of your attached computers during initial power-up or after a power failure. All computers are booted transparently and simultaneously, eliminating the need for operator intervention. Computers may be powered up one at a time or all at once.

Built-in scanning capabilities

KeyScan, a built-in scanning feature, allows you to automatically monitor or scan all of your computer channels sequentially without intervention. When KeyScan detects keyboard or mouse activity, scanning is suspended until all activity stops. Scanning then resumes with the next computer in sequence. The length of time each computer channel remains on the screen, or dwell time, is configurable and can be changed at any time.

Multiplatform

The XP4000 Series adds multiplatform capabilities to your switching system by simultaneously supporting any combination of PC, Macintosh, Sun, RS/6000, Silicon Graphics or Hewlett-Packard computers in the same system. Along with the ability to access many different types of computers and workstations, you can now use any platform's peripherals to do it! You can use any type of keyboard and mouse to access any type of computer in the system. For example, a PC keyboard and mouse can operate a Sun server as easily as a Sun keyboard and mouse will operate an attached PC.

Multiuser

Another useful feature is the multiuser capability of the XP4000 Series. Instead of just one user having access to many different attached computers, these products allow multiple users simultaneous access to different computers in the system. This is called “matrix switching”. So, a system with four users accessing four different computers would be a 4 x 4 matrix.

If two or more users need access to the same computer, they can 'share' access to it through the XP units. Sharing means that multiple users can switch to the same computer at the same time. Everyone can see that computer's video, but only one can enter data at any given moment.

Expansion capability

If your total number of computers and users is greater than 14, use our expansion modules. Connecting an expansion transmitter in one XP Series unit to an expansion receiver in another XP Series unit lets you combine multiple units in one system. Control thousands of computers from one set of peripherals!

Transmitters and receivers are available with Cybex proprietary or industry standard category 5 UTP cable connections. Category 5 cables can be ordered in standard or extended distance versions. With Cybex or UTP standard distance cabling, each XP Series unit can be up to 250 feet apart; a user and the farthest accessible computers can be up to 500 feet apart.

Multimedia

Users in an XP Series system also have the option of multimedia support. Every user has access to a dedicated keyboard, mouse and video monitor as well as optional microphone and stereo speaker connections.

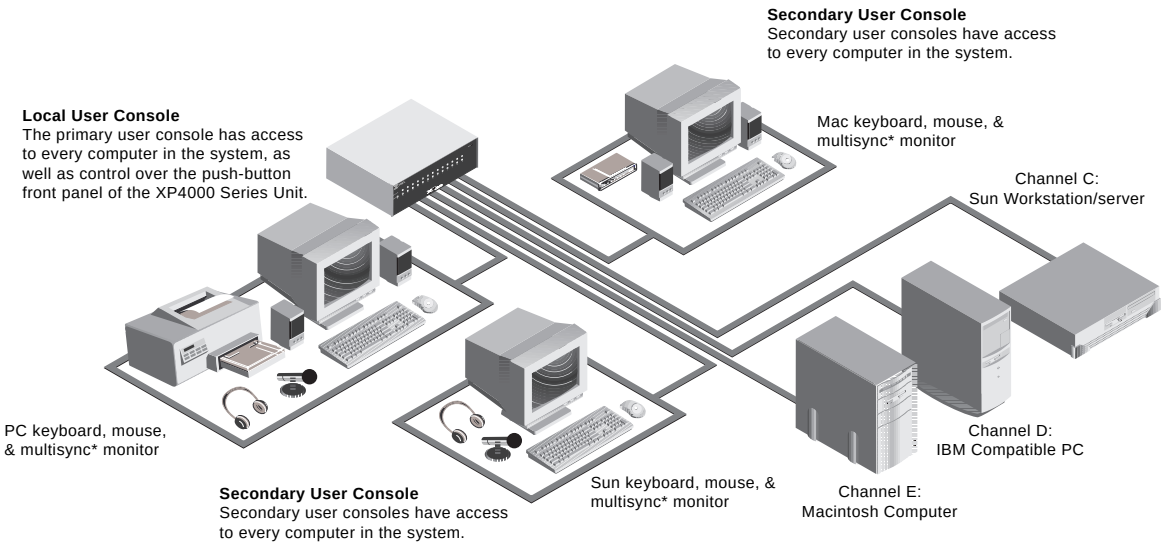


FIGURE 1-1

*Monitor must be capable of synchronizing with any attached computer's video output.

On-screen management

For on-screen management and multi-level security, try the XPDU deluxe user module. Name your servers, then select them from a pop-up menu. Quick edit capability lets you change channel name or address on the fly. Control features allow you to manage scanning and broadcast operations on-screen as well.

Multi-level security

On-screen management also supports multi-level security with password protection. Control how much access users have to each computer in your data center. An additional feature is the optional logout after a user defined period of inactivity. When the timeout is reached, the current channel is deselected and the screen goes blank. Users must login again to access system computers.

Serial port

A serial port is also available, allowing for the use of a printer or similar serial device at the console. This serial port can optionally be used as a serial access port to the XP Series Control Menu. From this menu, you can determine your

revision level, system configuration and even upgrade the firmware to keep your system current at all times.

FLASH upgrading FLASH technology allows the XP Series firmware to be updated without ever removing a module or even powering down the system. New firmware revisions can be uploaded into the XP4000 Series through the serial port. The latest firmware revisions are available to all users through Technical Support or via the internet.

Field-replacable plug-in modules Since the XP Series units are component based products, all modules are field-replaceable plug-in boards. They can be added or replaced without disassembling or even powering down the switch or attached computers. This capability makes installation, configuration and maintenance much simpler.

Keep Alive capability The "Keep Alive" capability of the XP Series allows attached computers to power the computer modules in the event of a power failure. Keeping the modules powered up in an emergency prevents the computers from locking up needlessly.

Individual power control The optional ReBoot xP allows you to control the power to computers in your XP Series system individually. No matter where a system computer is located, you can cycle the power, or “reboot”, an attached computer from your XP Series unit.

Limitations & Restrictions

Mouse support The following models of mice have been tested and are known to be compatible with the XP Series:

Microsoft Serial-PS/2 mouse
Microsoft OEM style serial mouse
Microsoft Intellimouse
Sun Microsystems Laser mouse
Apple ADB mouse
Kensington PS/2, ADB
Mouse Systems
Logitech Mouseman/Trackman
IBM PS/2-style

Other manufacturers' mice generally operate with the XP Series. If you experience problems using an untested mouse, contact Cybex Technical Support with the manufacturer and model number of the mouse.

Use capable multisync monitors only Monitors at all consoles must be capable of synchronizing with any attached computer’s video rate. If you are unsure whether your monitors are of the multisync type, consult the monitor documentation or contact your dealer.

Use Cybex supplied cables only Use only Cybex supplied cable with the XP Series. Poorly constructed or miswired cabling will diminish video quality and possibly damage equipment. Cybex warranties do not apply to damage resulting from user supplied cables.

Speaker support The XP4000 Series supports all externally powered speakers using 3.5 mm miniplugs. Use powered speakers with the XP Series for best performance.

Microphone support The XP4000 Series supports “mono” microphones with 3.5 mm miniplugs. Powered microphones are not recommended; if a computer channel is selected that supplies power to the microphones, the microphone volume may be muted on that channel.

Serial support The XP4000 Series supports RS-232 serial devices using hardware or inband flow control: hardware up to 9600 Baud, inband to 115200 Baud.

Safety Precautions

Check environment

To avoid potential video or keyboard problems when using Cybex products:

- If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.
- Use only Cybex-supplied cable. Cybex warranties do not apply to damage resulting from user-supplied cable.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

- Do not use a 2-wire extension cord in any Cybex product configuration.
- Test AC outlets at computer **and** monitor for proper polarity and grounding.

Ensure proper grounding

- Use only with grounded outlets at both the computer and monitor. When using a backup power supply (UPS), power the computer, the monitor and the XP4000 Series unit off the supply.
- With the exception of adding or removing original Cybex manufactured modules in accordance with written Cybex instructions, the XP4000 Series unit and all attached computers should be powered down before servicing the unit. Always disconnect the power cord from the unit.

Note: The AC inlet is the main disconnect.

Rack Mount Safety Considerations

- Elevated Ambient Temperature: If installed in a closed rack assembly, the operation temperature of the rack environment may be greater than room ambient. Use care not to exceed the rated maximum ambient temperature of the unit.
- Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings for maximum current.
- Reliable Earthing: Reliable earthing of rack mounted equipment should be maintained. Pay particular attention to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

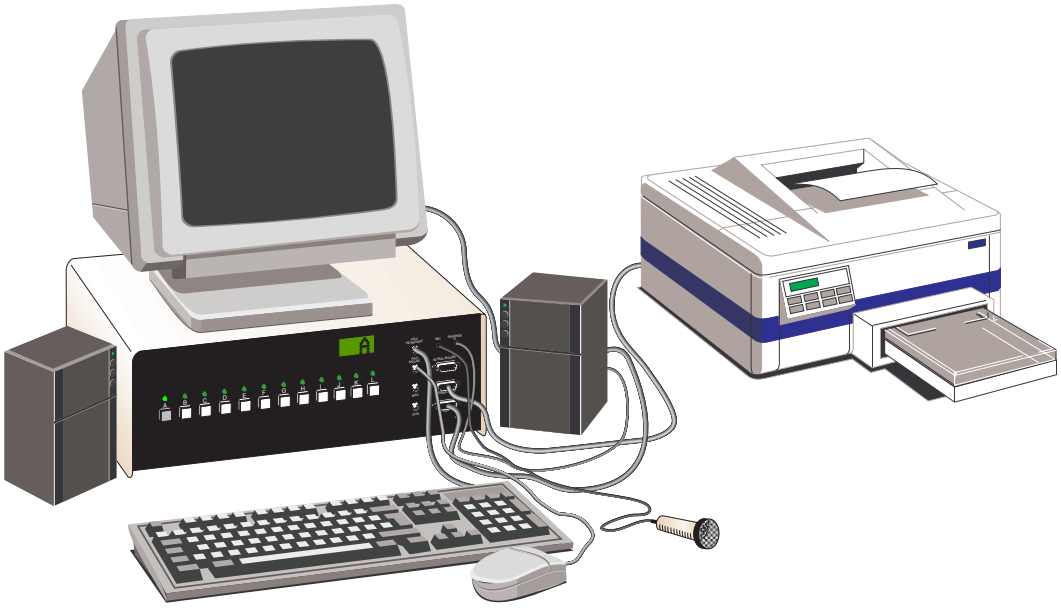
Nameplate Rating: This product is rated 100-240 V ac, 50/60 Hz. All components except the XP4400 are rated 1.6A (single component power supply) or 3.2A (dual component power supply). XP4400 is rated at 7 amps.

2 Installing User Interface Modules

Connecting the Local Console Peripherals (Front Access Model Only)

The keyboard, monitor, mouse, serial device, speakers and microphone at the local console connect directly into either the corresponding ports on the front panel of your XP4000 Series unit or the user interface cable for your XPLU or XPDU card. No additional cables are required.

Any platform's keyboard and mouse can be plugged into the local console in any combination. However, do not connect more than one keyboard, monitor or mouse into the front of the unit. For example, you may use a Macintosh mouse and a Sun keyboard at the workstation at the same time but you cannot connect two keyboards or two mice into the front of the unit simultaneously.



Secondary Console Modules

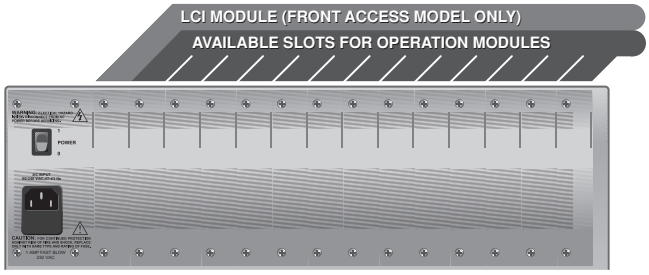
A secondary console module is one of the two types of user modules. While the primary console peripherals connect through the front panel of the unit (discussed in the previous section), secondary console modules have the peripherals connected through the rear of the module. Currently we offer versions with on-screen display capabilities (XPDU) and without (XPLU).

Installing the Secondary Console Modules (XPDU and XPLU)

The XPDU and XPLU modules are installed identically. There are no DIP switches or jumpers to configure on either module

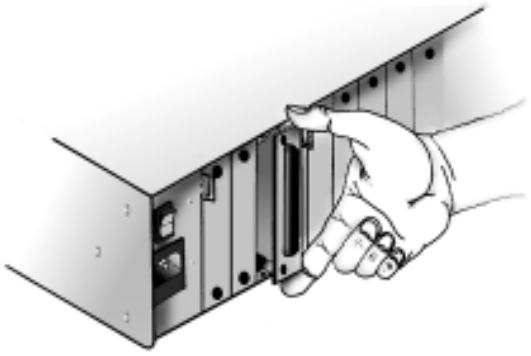
1. Position the XP4000 Series unit so that the rear panel is facing you. Choose an available slot. An available slot will have a solid panel covering the opening to the unit, with no connectors showing through it.

   NOTE: For front access models, the LCI module, located to the far left of the unit (viewed from rear), is covered by a solid panel but **IS NOT** an available slot. Only the LCI module can be installed in this slot.



2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Slide the new user interface (XPDU/XPLU) module gently into the open slot of the XP4000 Series unit until the 62-pin connector lines up flush with the back of the unit. See the diagram below.



4. Retighten the holding screws completely. DO NOT overtighten.

5. Fill out the XPDU/XPLU Configuration Chart in Appendix A for each module as you install it.

Follow the above procedure for every XPDU/XPLU module in your system.

Connecting the User Interface Cables (XPDU and XPLU)

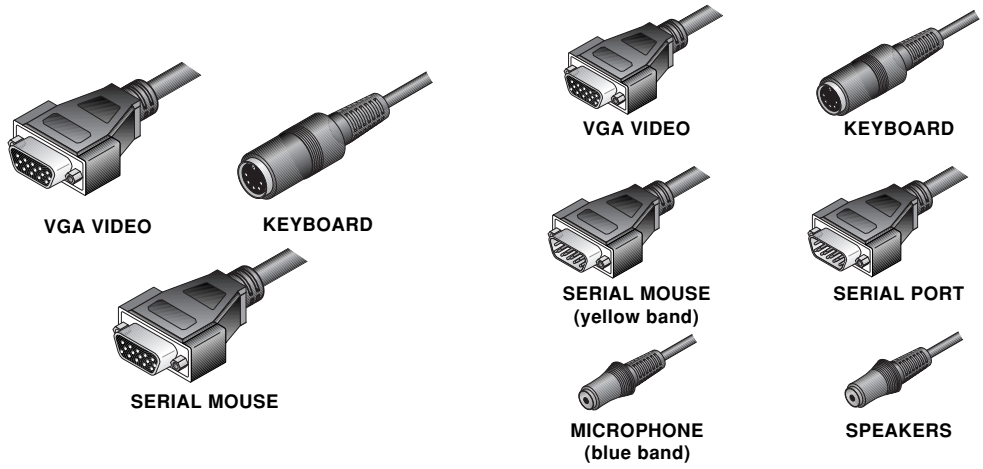
User interface cables connect your secondary consoles to the XP4000 Series unit. You will have a set for each secondary console in the system. These cables are a user specified length with a 62-pin D-shaped male connector on one end. The other end will have from two to six connectors, depending on the options you ordered (See the table below). Use the instructions on the following pages which apply to the type of peripherals you are attaching, and repeat the process for each secondary console in the system. User interface cables for the XPDU and XPLU user modules are identical

Peripherals	User interface cables	
	Standard	Multimedia
IBM AT-compatible keyboard with Serial mouse	CPMU-*x*	CPMUF-*x*
PS/2-compatible keyboard with PS/2 mouse	CPIU-*x*	CPIUF-*x*
Macintosh	CPAU-*x*	CPAUF-*x*
Sun	CWSU-*x*	CWSUF-*x*

Replace *x* with the distance cable you ordered.

For IBM AT-style keyboard, monitor and Serial mouse

1. Your user interface cables for these peripherals will be labeled either CPMU-*x* or CPMUF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CPMU-*x* CABLE **CPMUF-*x* CABLE**

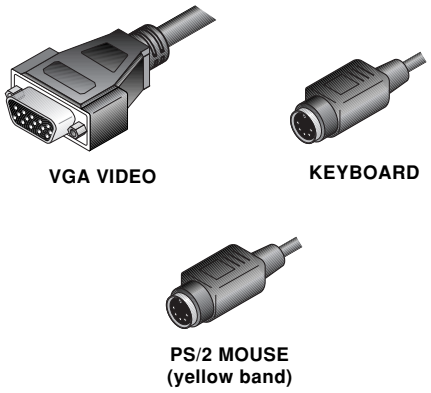
2. At your secondary console, plug your keyboard, serial mouse and monitor connectors into the three matching connectors on the user interface cable.

   If you have the CPMUF-*x* series cable, you will have three additional connectors: two small connectors for a microphone and speakers, and a 9-pin D-shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable; the serial mouse connector is denoted by a yellow band. Plug your peripheral connectors into the matching connectors on the user interface cable.

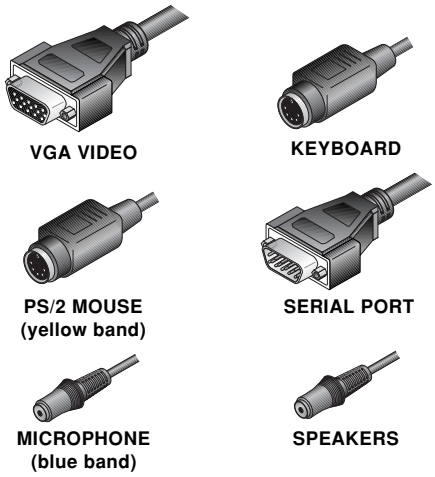
3. Attach the user interface cable to the unit by plugging the 62-pin connector into the rear of any available secondary console module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

For PS/2-style keyboard, monitor and PS/2 mouse

1. Your user interface cables for these peripherals will be labeled either CPIU-*x* or CPIUF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CPIU-*x* CABLE



CPIUF-*x* CABLE

2. At your secondary console, plug your PS/2-style keyboard, PS/2 mouse and monitor connectors into the matching connectors on the user interface cable. The mouse connector is denoted by a yellow band around its cable.

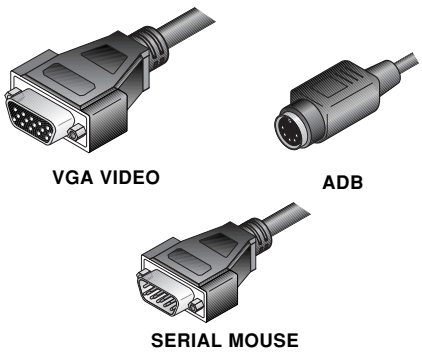
   If you have the CPIUF-*x* series cable, you will have three additional connectors: two small connectors for a microphone and speakers, and a 9-pin D shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable. Plug your peripheral connectors into the matching connectors on the user interface cable.

3. Attach the user interface cable to the unit by plugging the 62-pin connector into the rear of any available secondary console module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

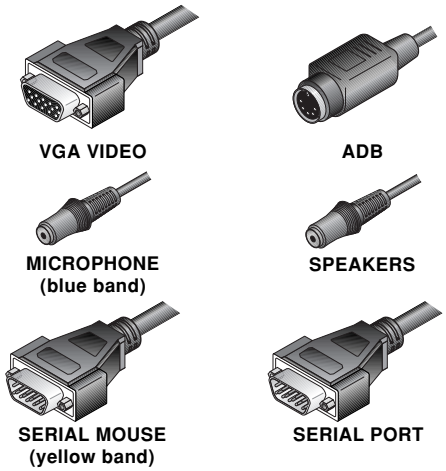
NOTE: You may use your SGI, RS/6000 or HP workstation monitor with an XP4000 Series unit if it will function with all of your attached computers/workstations. See “Using Non-multisync Monitors” later in this chapter.

For Macintosh keyboard and mouse

1. Your user interface cables for these peripherals will be labeled either CPAU-*x* or CPAUF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CPAU-*x* CABLE



CPAUF-*x* CABLE

2. At your secondary console, plug your Mac keyboard/mouse and VGA monitor connectors into the two matching connectors on the user interface cable.

   NOTE: For users requiring multi-button mice, a serial mouse connector is also provided.

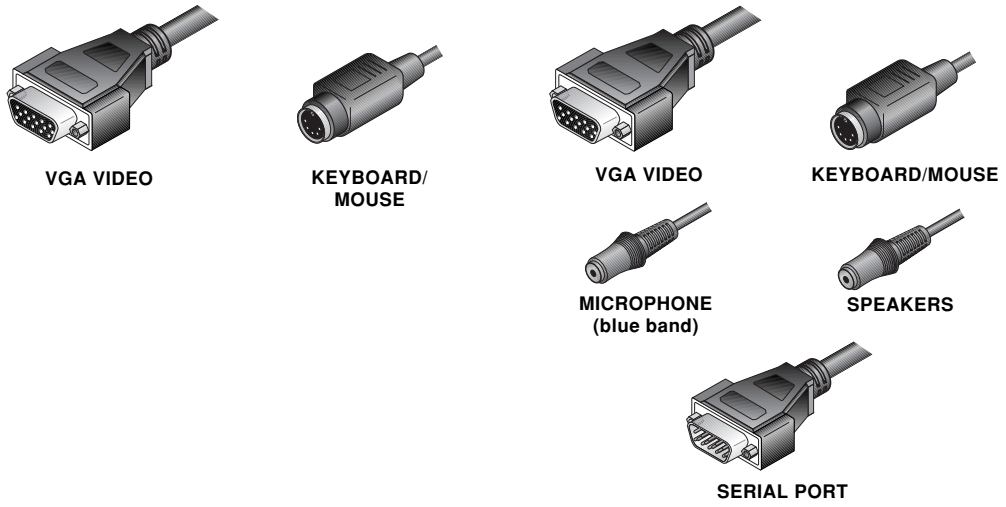
   If you have the CPAUF-*x* series cable, you will have three additional connectors: two small connectors for a microphone and speakers, and a 9-pin D-shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable; the serial mouse connector is denoted by a yellow band. Plug your peripheral connectors into the matching connectors on the user interface cable.

3. Attach the user interface cable to the unit by plugging the 62-pin connector into the rear of any available secondary console module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

NOTE: You may use your Macintosh monitor with an XP4000 Series unit if it will function with all of your attached computers. See “Using Non-multisync Monitors” later in this chapter.

For Sun keyboard and mouse

1. Your user interface cables for these peripherals will be labeled either CWSU-*x* or CWSUF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CWSU-*x* CABLE **CWSUF-*x* CABLE**

2. At your secondary console, plug your Sun keyboard/mouse and VGA monitor connectors into the two matching connectors on the user interface cable.

   If you have the CWSUF-*x* series cable, you will have three additional connectors: two small connectors for a microphone and speakers, and a 9-pin D-shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable. Plug your peripheral connectors into the matching connectors on the user interface cable.

3. Attach the user interface cable to the unit by plugging the 62-pin connector into the rear of any available secondary console module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

NOTE: You may use your Sun monitor with an XP4000 Series unit if it will function with all of your attached computers/workstations. See ‘Using Non-multisync Monitors’ later in this chapter.

Using Non-multisync Monitors

Using your SGI, RS/6000 or HP Workstation Monitor

1. You may use your SGI, RS/6000 or HP workstation monitor with an XP4000 Series unit if it will function with all of your attached computers/ workstations. In order to connect your monitor, you will need a video adaptor from Cybex. These devices adapt the VGA video output to your workstation monitor's input. If you do not have one of the adaptors listed below, contact our Sales Department.

Monitor Connector Type	Adaptor Type
BNC	VAD-19
13W3 (SGI)	VAD-14
3C3	VAD-20
13W3 (RS 6000)	VAD-22

Using your Macintosh Monitor with an XP4000 Series unit

1. You may use your Macintosh monitor with an XP4000 Series unit if it will function with all of your attached computers. In order to connect this type of monitor, you will need a VAD-16 video adaptor from Cybex. This device adapts the VGA video output to your Mac monitor's input. If you do not have this adaptor, contact our Sales Department.

2. Follow the instructions above for the installation of a Macintosh keyboard and mouse, making sure to attach the VAD-16 adaptor between your user interface cable and your Mac monitor cable.

Using your Sun Monitor with an XP4000 Series unit

1. You may use your Sun monitor with an XP4000 Series unit if it will function with all of your attached computers/workstations. In order to connect this type of monitor, you will need a VAD-13 video adaptor from Cybex. This device adapts the VGA video output to your Sun monitor's input. If you do not have this adaptor, contact our Sales Department.

2. Follow the instructions above for the installation of a Sun keyboard and mouse, making sure to attach the VAD-13 adaptor between your user interface cable and your Sun monitor cable.

Changing XPDU settings for Non-PC Monitors

In some cases you may not see video the first time you power up a Sun or Mac Monitor attached to an XPDU. If this happens:

1. Hold down the <CTRL><ALT><Shift> and <M> keys at one time.
2. The monitor will begin to cycle through settings. When you see video on your screen, press the <ENTER> key.

Your monitor should begin to work normally.

3 Attaching Computers to an XP4000 Series Unit

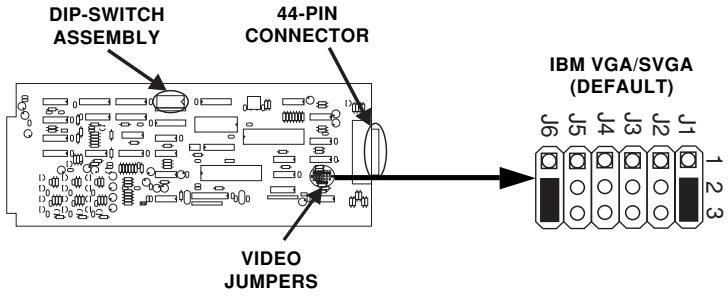
Attaching a PC Computer

Before you connect your PC to the XP4000 Series unit, you will need to configure and install your computer interface module. The XPAC, XPAB and XPAL computer interface modules have one set of DIP switches to configure. The XPAC and XPAB also have jumpers to configure. Follow the steps below to configure each XPAC, XPAB or XPAL module that will be connected to a PC computer.

Configuring your computer interface (XPAC/XPAB) modules

Configuring the Jumpers

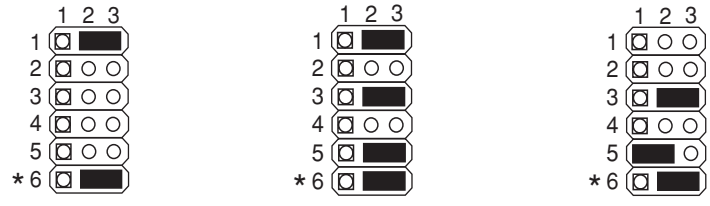
The jumpers on the XPAC/XPAB module are used to control the video selection settings. The default is IBM VGA/SVGA video. If the computer you are attaching supports this video mode, no adjustment is required and you may proceed to the DIP switch settings.



XPAC module shown

Orient your XPAC/XPAB module so that the 44-pin connector is to your right as shown above. Locate the jumpers on the lower right hand corner of the board. The XPAC will contain JP1 - JP6; the XPAB module will only have jumpers JP1 - JP5. Configure your XPAB module as you would an XPAC, ignoring all references to JP6.

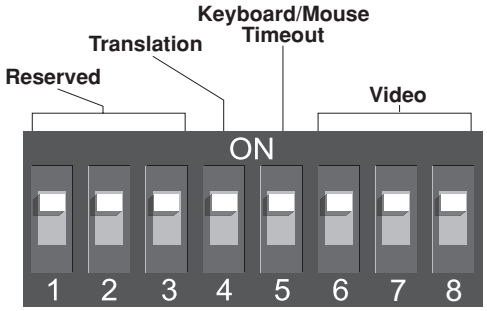
Use the diagrams below to configure the video settings for the PC computer that you will attach to this computer interface module. You may wish to consult your computer or video card reference manual for the video rates supported by your computer.



* XPAC Modules only

Configuring the DIP Switch (XPAC, XPAB and XPAL)

The DIP switch is used to configure three different features: video options and sync, keyboard/mouse time-out and keyboard translation options (Mac only). The diagram below shows the DIP switch, the positions used to configure each of these features, and the default settings.



Video Options

Your XP4000 Series unit is factory set for PC video. No changes are needed to switches 1 through 3 for normal PC video.

By default, a computer's video will be displayed for any console user that switches to that channel. If you do not want a computer's video to be displayed, you can disable the video for that channel. Additionally, if you are only running your keyboard and mouse through the XP4000 Series unit, and your video is independent of the system, you should select the option to disable the video. See the table below.

Switch 1	Switch 2	Switch 3	Function
Off	Off	Off	Normal video (default)
On	On	On	Video disabled

Video Sync - XPAB only

Your XPAB card will attempt to automatically detect the sync for your monitor. In some unique instances it will obtain the opposite of the settings. Switching S7 to the on position will correct this. See the table below.

Switch 7	Sync Mode
Off	Autodetect (default)
On	Reverse Autodetected Sync

Keyboard/Mouse Time-out

While multiple consoles can view a computer's video at the same time, only one station can have keyboard and mouse control at a time. The amount of time that a console's keyboard and mouse must be inactive before another console can take control is called the time-out. See the table below for the available time-outs that can be configured.

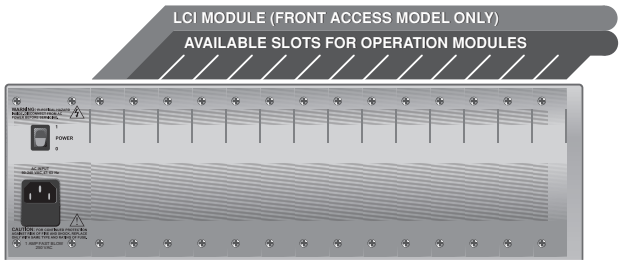
Switch 4	Time
Off	1 second (default)
On	10 seconds

Note: Once your XPAC/XPAB module has been installed, you can change the DIP switch setting at any time through a simple hot-key sequence. See Chapter 9, Advanced Operations for more information.

Installing the computer interface modules (XPAB and XPAC)

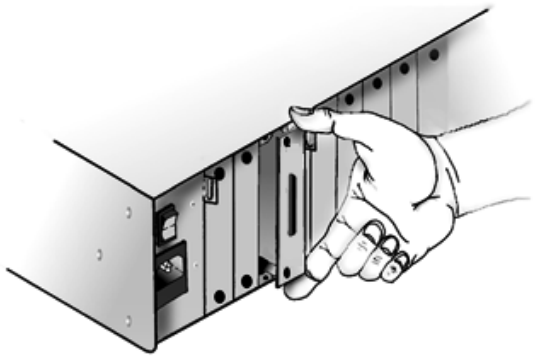
1. Position the XP4000 Series unit so that the rear panel is facing you. Choose an available slot. An available slot will have a solid panel covering the opening, with no connectors showing through it.

   NOTE: For front access models, the LCI module, at the far left of the unit (viewed from rear), is covered by a solid panel but **IS NOT** an available slot. Only the LCI module is installed in this slot.



2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Slide the new computer interface module gently into the open slot of the unit until the 44-pin connector lines up flush with the back of the unit. See the diagram below.



4. Retighten the holding screws completely. DO NOT overtighten.

5. Fill out the Configuration Chart in Appendix A for each module as you install it.

Follow this procedure for every computer interface module in your system.

Installing the computer interface modules (XPAL) with a PC

Follow steps 1-5 of the XPAB and XPAC installation instructions on the previous page and then proceed with the following steps:

6. Place the LongView Transmitter near the remote computer that you wish to connect to your XPAL. Connect the Cybex custom cable (marked CUFC) to the 25-pin INPUT connector on the rear of the Transmitter.

7. Unplug the peripherals (keyboard, mouse, monitor, speakers, microphone and serial device if applicable) from your computer.

8. Connect the CUFC cable's 15-pin video connector to the video output connector on your PC.

9. Plug the 6-pin connector into the PS/2 Keyboard jack on your PC.

10. If you use the serial mouse connector on the Transmitter's CUFC cable, do not connect anything to the Transmitter's port. If you use the PS/2 mouse connector you may extend the serial Com port from the PC to the user for other devices.

11. Using standard 3.5mm stereo patch cords, connect the connector on the rear of the Transmitter to the speaker or line output jack of your computer and the connector to the microphone input jack of your PC.

12. Plug the circular power plug from the provided wall-mount power supply into the jack on the rear of the Transmitter, then plug the power supply into a convenient electrical outlet. Verify that the POWER light on the front of the Transmitter is lit.

13. Plug a standard Category 5 Unshielded Twisted Pair cable (up to 500 feet) into the remote I/O jack on the rear of the Transmitter. Cybex C5T, Cybex P5T, Belden 1583A or Belden 1585A cable is strongly recommended to achieve best performance and maximum distance. If you use a different Category 5 cable, make sure it is terminated to the EIA (TIA) 568 B standard, commonly used for 10BaseT Ethernet. Do NOT use a crossover cable. Incorrect termination can damage the LongView Transmitter.

14. Route the Category 5 cable back to your XPAL and connect it to the Category 5 jack.

15. Select the XPAL from your XP4000 Series unit. If you are using a serial mouse enter <CM>SW15=1<Enter>, otherwise enter <CM>SW15=0<Enter>.

16. Reselect the XPAL and type <CM>SW16=0<Enter>

Follow this procedure for every XPAL in your system.

Installing the computer interface modules (XPAL) with a Sun

Follow steps 1-5 of the XPAB and XPAC installation instructions on page 19 and then proceed with the following steps:

6. Place the LongView Transmitter near the remote computer that you wish to connect to your XPAL. Connect the Cybex custom cable (marked CUFC) to the 25-pin INPUT connector on the rear of the Transmitter.

7. Unplug the peripherals (keyboard, mouse, monitor, speakers, microphone and serial device if applicable) from your computer.

8. If needed, plug the 13W3 male video adapter into the video port on back of the Sun workstation.

9. Install the 8-pin mini-DIN male adapter into the keyboard/mouse port on the back of the Sun workstation.

10. Plug the CUFC cable into the appropriate connectors of the VAK-1 adapters.

11. Plug the 15HDD male adapter into the video port on the back of your LongView receiver.

12. Plug the 6-pin mini-DIN male adapter into the keyboard and mouse ports on your LongView receiver.

13. Plug the monitor and Sun keyboard/mouse cables into the VAK-1 adapters.

14. Power your XP4000 Series unit, LongView Receiver and Sun computer on. Keyboard and mouse should work normally.

15. Once this is done, select the XPAL from your XP4000 Series unit. Type the following command, <CM>SW15=0<Enter>.

16. Reselect the XPAL and type <CM>SW16=1<Enter>

Follow this procedure for every XPAL in your system.

Connecting the Computer Interface Cables

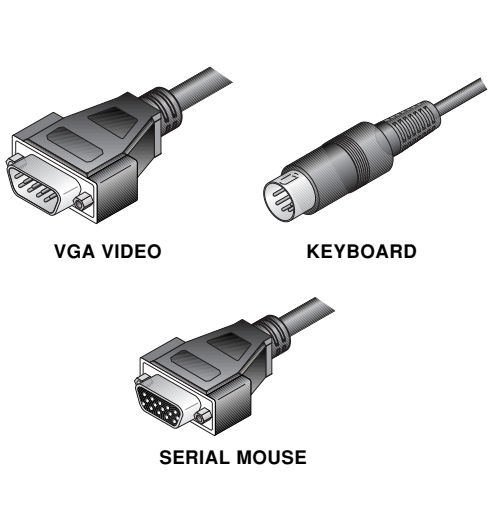
Computer interface cables connect your computers to the XP4000 Series unit. You will have a set for each computer in your XP4000 system. These cables are a user specified length with a 44-pin D-shaped female connector on one end. The other end will have from 2 to 8 connectors, depending on the cable you ordered and the kind of computer you are attaching. The table below shows the cables that are compatible with your PC computer. Use the instructions on the following pages that apply to the cable and computer type you are attaching, and repeat the process for each additional PC computer in your XP4000 Series system.

Computer	Computer interface cables	
	Standard	Multimedia
IBM AT-compatible with Serial mouse	CPUC-*x*	CPUF-*x*
IBM PS/2-compatible with PS/2 mouse	CPUC-*x*	CPUF-*x*

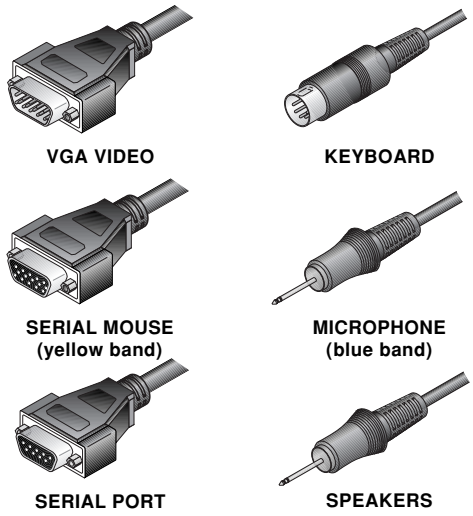
Replace *x* with the distance cable you ordered.

For IBM AT compatible computers with serial mouse capability

1. Your computer interface cables for this computer will be labeled either CPUC-*x* or CPUF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CPUC-*x* CABLE



CPUF-*x* CABLE

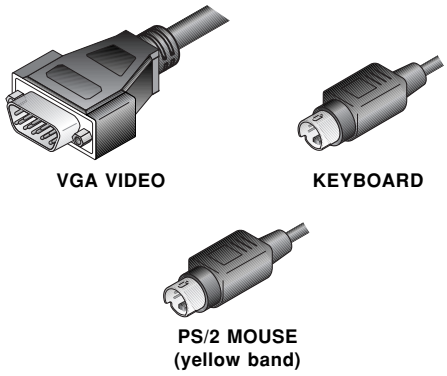
2. **Power down your computer,** then plug the cable's keyboard, serial mouse and VGA monitor connectors into the matching ports on the PC.

   If you have the CPUF-*x* series cable, you will have three additional connectors: two 3.5mm connectors for a microphone and speakers, and a 9-pin D-shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable; the serial mouse connector is denoted by a yellow band. Plug these connectors into the appropriate ports on your PC or peripheral device.

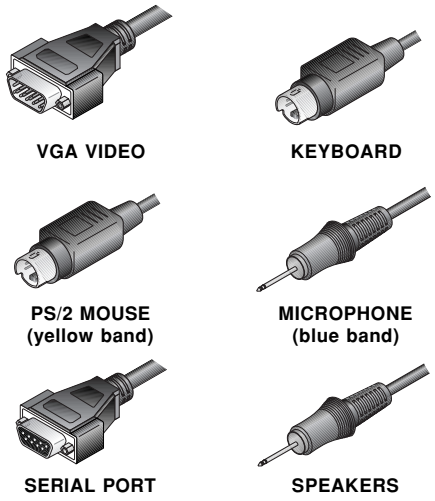
3. Attach the computer interface cable to the unit by plugging the 44-pin connector into the rear of the appropriate computer interface module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

For IBM PS/2 style computers with PS/2 mouse capability

1. Your computer interface cables for this computer will be labeled either CPIC-*x* or CPIF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CPIC-*x* CABLE



CPIF-*x* CABLE

2. **Power down your computer,** then plug the cable's keyboard, PS/2 mouse and VGA monitor connectors into the matching ports on the PC. The mouse connector is denoted by a yellow band around its cable.

   If you have the CPIF-*x* series cable, you will have three additional connectors: two 3.5mm connectors for a microphone and speakers, and a 9-pin D-shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable. Plug these connectors into the appropriate ports on your PC or peripheral device.

3. Attach the computer interface cable to the XP4000 Series unit by plugging the 44-pin connector into the rear of the appropriate computer interface module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

For XPAB modules using the optional ReBoot xP

To attach your ReBoot xP to your XPAB computer interface module, see the section “The ReBoot xP” in Chapter 11.

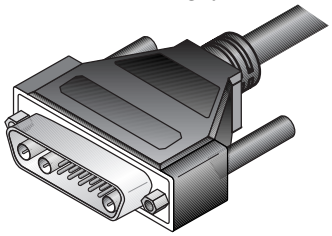
Attaching an IBM RS/6000 Workstation

For RS/6000 Systems using standard VGA video

1. If your RS/6000 system utilizes standard VGA video, refer to the previous section, "Attaching a PC Computer" and follow the instructions for configuring and installing your XPAC/XPAB modules, and connecting computer interface cables for IBM PS/2 style computers.

For RS/6000 Systems using 13W3 video

1. If your RS/6000 system has a 13W3 video connector, refer to the previous section, "Attaching a PC Computer" and follow the instructions for configuring and installing your XPAC/XPAB modules.



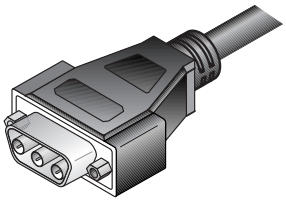
13W3 VIDEO CONNECTOR

2. In order to connect the computer interface cables, you will need a VAD-21 adaptor from Cybex. If you do not have this adaptor, contact our Sales Department to order one.

3. Follow the instructions for connecting computer interface cables for IBM PS/2 style computers making sure to attach the VAD-15 between the VGA video connector on your computer interface cables and your RS/6000 workstation.

For RS/6000 Systems using 3C3 video

1. If your RS/6000 system has a 3C3 video connector, refer to the previous section, 'Attaching a PC Computer' and follow the instructions for configuring and installing your XPAC/XPAB modules.



3C3 VIDEO CONNECTOR

2. Set the DIP switch on your XPAC/XPAB module as shown below:

Switch 1	Switch 2	Switch 3	Function
Off	Off	Off	Normal video. Use with monitors that support sync on green.
Off	Off	On	Use sync on green to generate horizontal and vertical sync

3. In order to connect the computer interface cables, you will need a VAD-18 adaptor from Cybex. If you do not have this adaptor, contact our Sales Department to order one.

4. Follow the instructions for connecting computer interface cables for IBM PS/2 style computers making sure to attach the VAD-18 between the VGA video connector on your computer interface cables and your RS/6000 workstation.

Attaching a Silicon Graphics Workstation

For Indy or Indigo Systems

1. Refer to the section, "Attaching a PC Computer" and follow the instructions for configuring and installing your XPAC/XPAB modules.

2. Set the DIP switch on your XPAC/XPAB module as shown below:

Switch 1 Setting	Switch 2 Setting	Switch 3 Setting	Function
Off	Off	Off	Normal video. Use with monitors that support sync on green.
Off	Off	On	Use sync on green to generate horizontal and vertical sync

3. In order to connect the computer interface cables, you will need a VAD-15 adaptor from Cybex. If you do not have this adaptor, contact our Sales Department to order one.

4. Follow the instructions for connecting computer interface cables for IBM PS/2 style computers, making sure to attach the VAD-15 between the VGA video connector on your computer interface cables and your Silicon Graphics workstation.

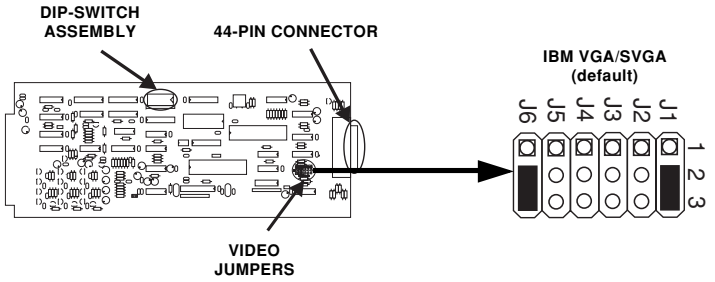
Attaching a Macintosh Computer

Before you connect your Mac to an XP4000 Series system, you'll need to configure and install your computer interface module. Both the XPAC and XPAB modules have one set of jumpers and one DIP switch to configure. Follow the steps below to configure each XPAC or XPAB module that will be connected to a Macintosh computer.

Configuring your computer interface (XPAC/XPAB) modules

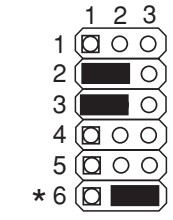
Configuring the Jumpers

The jumpers on the XPAC/XPAB module are used to control the video selection settings. The default is IBM VGA/SVGA video.

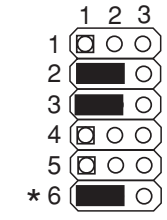


XPAC module shown

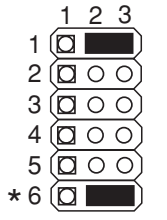
Orient your XPAC/XPAB module so that the 44-pin connector is to your right. Locate the jumpers on the lower right corner of the board. The XPAC will contain JP1 - JP6; the XPAB will only have jumpers JP1 - JP5. Configure your XPAB module as you would an XPAC, ignoring all references to JP6. Use the diagrams below to configure the video settings for the Macintosh computer that you will attach to this computer interface module. You may wish to consult your computer or video card reference manual for the video rates supported by your computer.



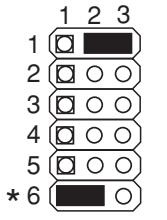
APPLE STANDARD VGA (HS,VS)



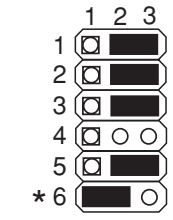
APPLE STANDARD VGA (CS)



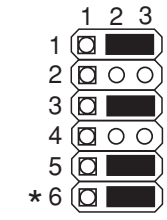
APPLE HIRES (HS, VS)



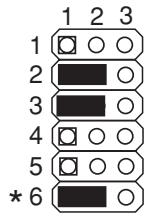
APPLE HIRES (CS)



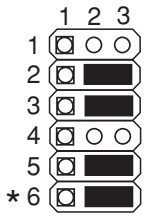
APPLE 21"



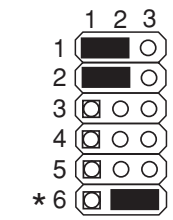
APPLE COLOR RGB (HS, VS)



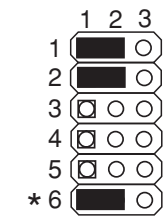
APPLE COLOR RGB (CS)



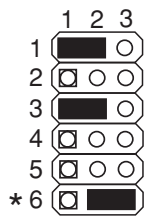
APPLE PORTRAIT



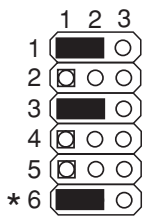
APPLE 19" COLOR (HS, VS)



APPLE 19" COLOR (CS)



APPLE 16" COLOR (HS,VS)

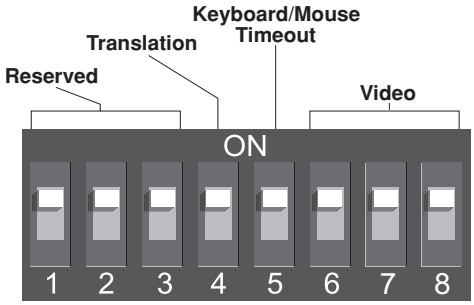


APPLE 16" COLOR (CS)

* XPAC Modules only HS = horizontal sync, VS = vertical sync, CS = composite sync

Configuring the DIP Switch

The DIP switch is used to configure three different features: video options and sync, keyboard/mouse time-out and keyboard translation options. The diagram below shows the DIP switch, the positions used to configure each of these features, and the default settings.



Video Options

If your monitor supports the type of sync generated by your Macintosh, no configuration is required. If your monitor supports only horizontal and vertical sync, locate the type of sync generated by your Mac in the table below and configure your system accordingly.

By default, a computer's video will be displayed for any console user that switches to that channel. If you do not want a computer's video to be displayed, you can disable the video for that channel. Additionally, if you are only running your keyboard and mouse through the XP4000 Series unit, and your video is independent of the system, select the option to disable the video. See the table below.

Switch 1	Switch 2	Switch 3	Function
Off	Off	Off	Normal video (default)
On	Off	Off	Strip sync on green
Off	On	Off	Use composite sync to generate horizontal and vertical sync
On	On	Off	Use composite sync and strip sync on green to generate horizontal and vertical sync
Off	Off	On	Use sync on green to generate horizontal and vertical sync
On	On	On	Disable video

Video Sync - XPAB only

Your XPAB card will attempt to automatically detect the sync for your monitor. In some unique instances it will obtain the opposite of the settings. Switching S7 to the on position will correct, this. See the table below.

Switch 7	Sync Mode
Off	Autodetect (default)
On	Reverse Autodetected Sync

Keyboard/Mouse Time-out

While multiple consoles can view a computer's video at once, only one station has keyboard and mouse control at a time. The amount of time that a console's keyboard and mouse must be inactive before another console can take control is called the time-out. See the table below for the configurable time-outs.

Switch 4	Time
Off	1 second (default)
On	10 seconds

Keyboard Translation Options

When using a PC keyboard to operate a Mac computer, the F11 key maps to the Macintosh POWER key when Scroll Lock is on. By default, the F12 key maps to the COMMAND key and the ALT key maps to the OPTION key. To use the F12 key as the OPTION key and the ALT key as the COMMAND key, set switch 5 as shown below. With Scroll Lock off, F11, F12 and ALT function normally.

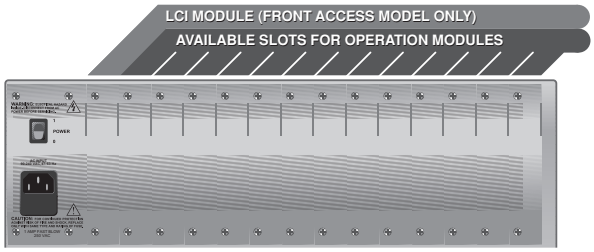
Switch 5 Setting	Translation Option
Off	F12 maps to COMMAND, ALT maps to OPTION (default)
On	F12 maps to OPTION, ALT maps to COMMAND

Note: Once your XPAC/XPAB module has been installed, you can change the DIP switch setting at any time through a simple hot-key sequence. See Chapter 9, Advanced Operations, for more information.

Installing the XPAC/XPAB modules

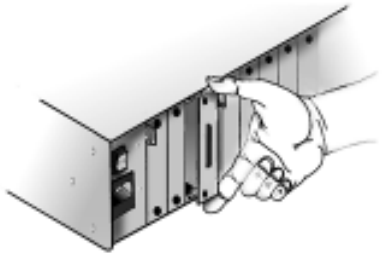
1. Position the XP4000 Series unit so that the rear panel is facing you. Choose an available slot. An available slot will have a solid panel covering the opening, with no connectors showing through it.

   NOTE: For Front Access models, the LCI module, at the far left of the unit (viewed from rear), is covered by a solid panel but **IS NOT** an available slot.



2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Slide the new computer interface module gently into the open slot until the 44-pin connector lines up flush with the back of the unit.



4. Retighten the holding screws completely. DO NOT overtighten.

5. Fill out the XPAC/XPAB Configuration Chart in Appendix A for each module as you install it.

Follow this procedure for every computer interface module in your system.

Connecting the Computer Interface Cables

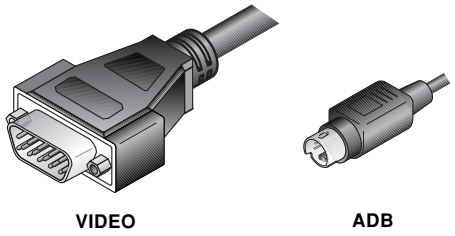
Computer interface cables connect your computers to the XP4000 Series unit. You will have a set for each computer in your XP4000 system. These cables are a user specified length with a 44-pin D-shaped female connector on one end. The other end will have from 2 to 8 connectors, depending on the cable you ordered and the kind of computer you are attaching. The table below shows the cables that are compatible with your Macintosh computer. Use the instructions below that apply to the cable type you are using, and repeat the process for each additional Macintosh computer in your system.

Computer	Computer interface cables	
	Standard	Multimedia
Macintosh	CPAC-*x*	CPAF-*x*

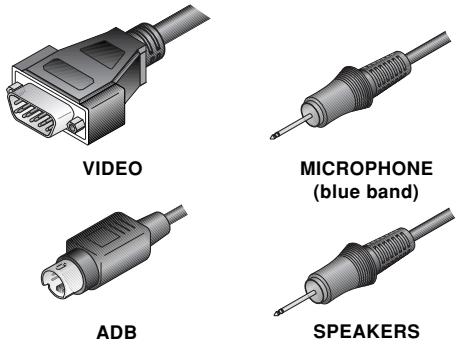
Replace *x* with the distance cable you ordered.

For Macintosh computers

1. Your computer interface cables for this computer will be labeled either CPAC-*x* or CPAF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CPAC-*x* CABLE



CPAF-*x* CABLE

2. **Power down your computer,** then plug the cable's keyboard/mouse (ADB) and monitor connectors into the matching ports on the Mac.

   If you have the CPAF-*x* series cable, you will have two additional connectors: two 3.5mm connectors for a microphone and speakers. The microphone connector is denoted by a blue band around its cable. Plug these connectors into the appropriate ports on your Macintosh or peripheral device.

3. Attach the computer interface cable to the XP4000 Series unit by plugging the 44-pin connector into the rear of the appropriate computer interface module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

For XPAB modules using the optional ReBoot xP

To attach your ReBoot xP to your XPAB computer interface module, see the section “The ReBoot xP” in Chapter 11.

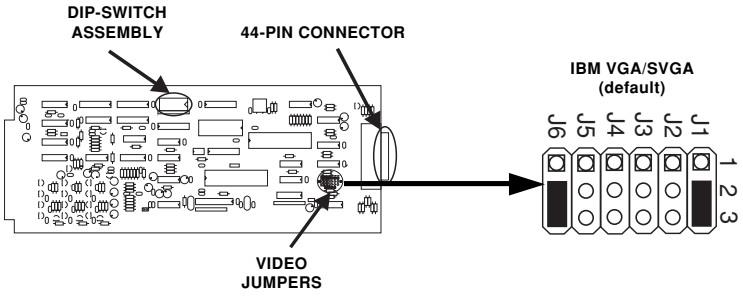
Attaching a Sun Workstation

Before you connect your Sun to the XP4000 Series unit, you will need to configure and install your computer interface module. Both the XPAC and XPAB modules have one set of jumpers and one DIP switch to configure. Follow the steps below to configure each XPAC or XPAB module that will be connected to a Sun workstation.

Configuring your computer interface (XPAC/XPAB) modules

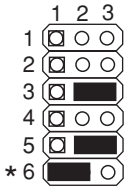
Configuring the Jumpers

The jumpers on the XPAC/XPAB module are used to control the video selection settings. The default is IBM VGA/SVGA video.

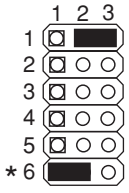


XPAC module shown

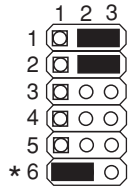
Orient your XPAC/XPAB module so that the 44-pin connector is to your right. Locate the jumpers on the lower right corner of the board. The XPAC will contain JP1 - JP6; the XPAB will only have jumpers JP1 - JP5. Configure your XPAB module as you would an XPAC, ignoring all references to JP6. Use the diagrams below to configure the video settings for the Sun workstation that you will attach to this computer interface module. You may wish to consult your computer or video card reference manual for the video rates supported by your computer.



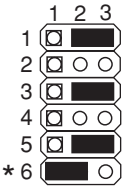
SUN
1152 x 900 @66 Hz



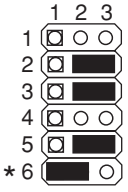
SUN
1152 x 900 @76 Hz



SUN
1152 x 900 @76 Hz



SUN
1280 x 1024 @76 Hz

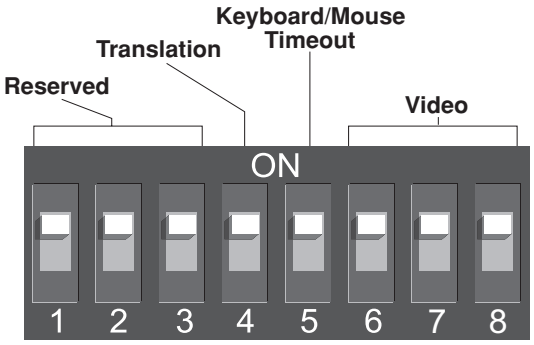


SUN
1600 x 1280 @76 Hz

* XPAC Modules only

Configuring the DIP Switch

The DIP switch is used to configure three different features: video options and sync, keyboard/mouse time-out, and keyboard translation options. The diagram below shows the DIP switch, the positions used to configure each of these features, and the default settings.



Video Options

If your Sun uses composite sync and your monitor will support this, no additional configuration is required. If your monitor requires horizontal and vertical sync, configure your system according to the table below.

By default, a computer's video will be displayed for any console user that switches to that channel. If you do not want a computer's video to be displayed, you can disable the video for that channel. Additionally, if you are only running your keyboard and mouse through the XP4000 Series unit, and your video is independent of the system, you should select the option to disable the video. See the table below.

Switch 1 Setting	Switch 2 Setting	Switch 3 Setting	Function
Off	Off	Off	Normal video (default)
Off	On	Off	Use composite sync to generate horizontal and vertical sync
On	On	On	Disable video

Video Sync - XPAB only

Your XPAB card will attempt to automatically detect the sync for your monitor. In some unique instances it will obtain the opposite of the settings. Switching S7 to the on position will correct, this. See the table below.

Switch 7	Sync Mode
Off	Autodetect (default)
On	Reverse Autodetected Sync

Keyboard/Mouse Time-out

While multiple consoles can view a computer's video at the same time, only one station can have keyboard and mouse control at a time. The amount of time that a console's keyboard and mouse must be inactive before another console can take control is called the time-out. See the table below for the available time-outs that can be configured.

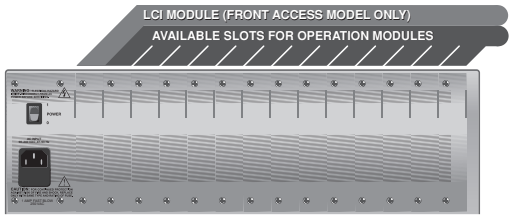
Switch 4 Setting	Time
Off	1 second (default)
On	10 seconds

Note: Once your XPAC/XPAB module has been installed, you can change the DIP switch setting at any time through a simple hot-key sequence. See Chapter 9, Advanced Operations for more information.

Installing the XPAC/XPAB modules

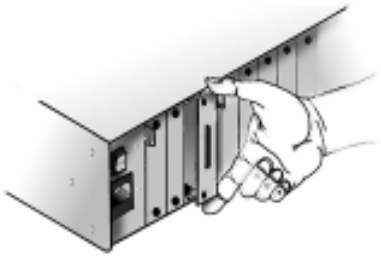
1. Position the XP4000 Series unit so that the rear panel is facing you. Choose an available slot. An available slot will have a solid panel covering the opening, with no connectors showing through it.

   NOTE: For front access models, the LCI module, at the far left of the unit (viewed from rear), is covered by a solid panel but **IS NOT** an available slot. Only the LCI module is installed in this slot.



2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Slide the new computer interface module gently into the open slot until the 44-pin connector lines up flush with the back of the unit.



4. Retighten the holding screws completely. DO NOT overtighten.

5. Fill out the XPAC/XPAB Configuration Chart in Appendix A for each module as you install it.

Follow this procedure for every computer interface module in your system.

Connecting the Computer Interface Cables

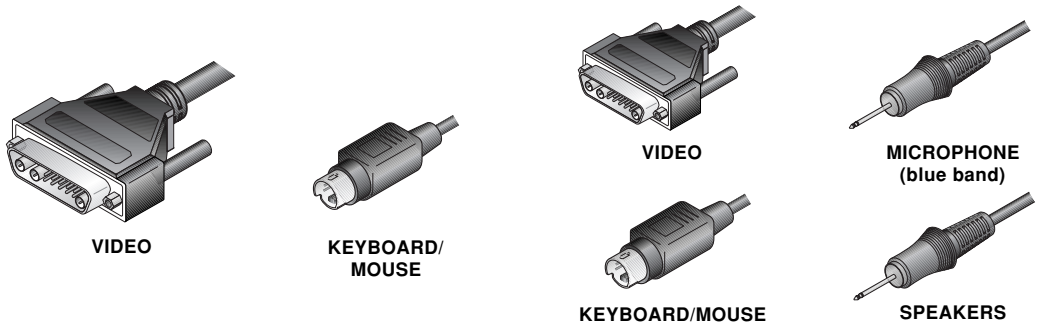
Computer interface cables connect your computers to the XP4000 Series unit. You will have a set for each computer in your XP4000 system. These cables are a user specified length with a 44-pin D-shaped female connector on one end. The other end will have from 2 to 8 connectors, depending on the cable you ordered and the kind of computer you are attaching. The table below shows the cables that are compatible with your Sun workstation. Use the instructions below that apply to the cable type you are using, and repeat the process for each additional Sun in your XP4000 system.

Computer	Computer interface cables	
	Standard	Multimedia
Sun Workstation/Server	CWSC-*x*	CWSF-*x*

Replace *x* with the distance cable you ordered.

For Sun workstation/servers

1. Your computer interface cables for this computer will be labeled either CWSC-*x* or CWSF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



2. **Power down your computer** by performing a shutdown from the keyboard. Then plug the computer interface cable's keyboard/mouse and monitor connectors into the matching ports on the Sun.

   If you have the CWSF-*x* series cable, you will have two additional connectors: two 3.5mm connectors for a microphone and speakers. The microphone connector is denoted by a blue band around its cable. Plug these connectors into the appropriate ports on your Sun or peripheral device.

3. Attach the computer interface cable to the XP4000 Series unit by plugging the 44-pin connector into the rear of the appropriate computer interface module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

For XPAB modules using the optional ReBoot xP

To attach your ReBoot xP to your XPAB computer interface module, see the section “The ReBoot xP” in Chapter 11.

Attaching a Hewlett-Packard Workstation

Some older Hewlett-Packard workstations use an HIL interface for the keyboard and mouse. If your system uses HIL and you do not have an HIL to PS/2 adaptor, you may purchase one by contacting:

Modular Industrial Computers
6025 Lee Highway Suite 140
Chattanooga, TN 37421
Part # HIL-100

Phone (423) 499-0700 Fax (423) 892-0000

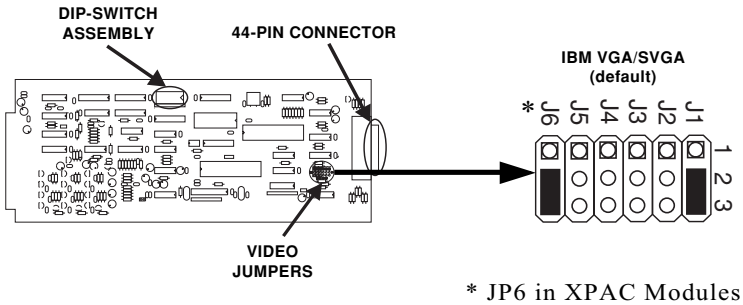
Before you connect your HP Workstation to the XP4000 Series unit, you will need to configure and install your computer interface module. Both the XPAC and XPAB modules have one set of jumpers and one DIP switch to configure. Follow the steps below to configure each XPAC or XPAB module that will be connected to an HP Workstation.

Configuring your computer interface (XPAC/XPAB) modules

Configuring the Jumpers

The jumpers on the XPAC/XPAB module are used to control the video selection settings. The default is IBM VGA/SVGA video. If your XPAC/XPAB module is not already set for the default, orient the board so that the 44-pin connector is to your right. Locate the jumpers on the lower right hand corner of the board. The XPAC will contain JP1 - JP6; the XPAB will only have jumpers JP1 - JP5. Configure your XPAB module as you would an XPAC, ignoring all references to JP6. Set your jumpers to the default as shown below, and proceed to the DIP switch settings.

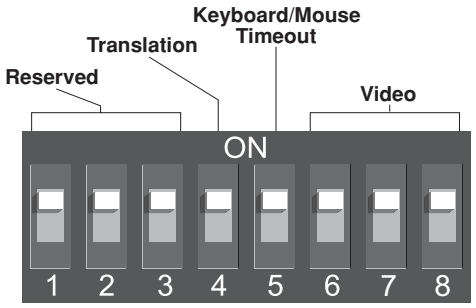
XPAC module shown



* JP6 in XPAC Modules only

Configuring the DIP Switch

The DIP switch is used to configure three different features: video options and sync, keyboard/mouse time-out, and keyboard translation options. The diagram below shows the DIP switch, the positions used to configure each of these features, and the default settings.



Video Options

Your XP4000 Series system is factory set for VGA video. No changes are needed to switches 1 through 3 for normal VGA video. Similarly, if your HP uses BNC video and your monitor supports sync on green, no changes are required. However, if your HP uses BNC video and your monitor supports horizontal and vertical sync only, configure your system according to the table below.

By default, a computer's video will be displayed for any console user that switches to that channel. If you do not want a computer's video to be displayed, you can disable the video for that channel. Additionally, if you are only running your keyboard and mouse through the XP4000 Series unit, and your video is independent of the system, you should select the option to disable the video. See the table below.

Switch 1 Setting	Switch 2 Setting	Switch 3 Setting	Function
Off	Off	Off	Normal video (default)
On	On	On	Video disabled
Off	Off	On	Use sync on green to generate horizontal and vertical sync

Keyboard/Mouse Time-out

While multiple consoles can view a computer's video at the same time, only one station can have keyboard and mouse control at a time. The amount of time that a console's keyboard and mouse must be inactive before another console can take control is called the time-out. See the table below for the available time-outs that can be configured.

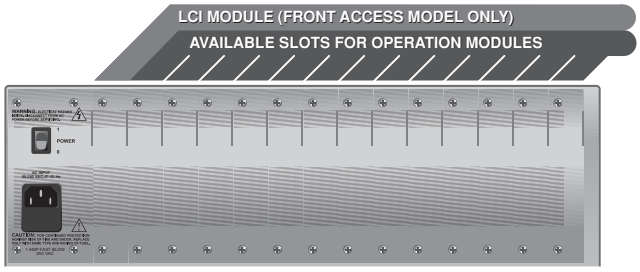
Switch 4 Setting	Time
Off	1 second (default)
On	10 seconds

Note: Once your XPAC/XPAB module has been installed, you can change the DIP switch setting at any time through a simple hot-key sequence. See Chapter 9, Advanced Operations for more information.

Installing the XPAC/XPAB modules

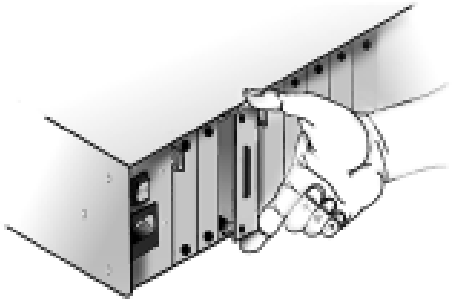
1. Position the XP4000 Series unit so that the rear panel is facing you. Choose an available slot. An available slot will have a solid panel covering the opening, with no connectors showing through it.

   NOTE: For front access models, the LCI module, at the far left of the unit (viewed from rear), is covered by a solid panel but **IS NOT** an available slot. Only the LCI module can be installed in this slot.



2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Slide the new computer interface module gently into the open slot of the XP4000 Series unit until the 44-pin connector lines up flush with the back of the unit. See the diagram below.



4. Retighten the holding screws completely. DO NOT overtighten.

5. Fill out the XPAC/XPAB Configuration Chart in Appendix A for each module as you install it.

Follow this procedure for every computer interface module in your system.

Connecting the Computer Interface Cables

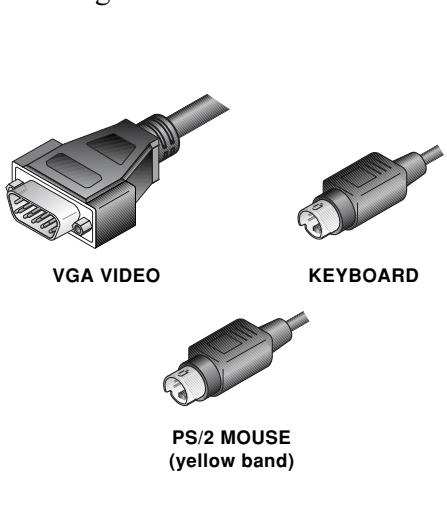
Computer interface cables connect your computers to the XP4000 Series unit. You will have a set for each computer in your XP4000 system. These cables are a user specified length with a 44-pin D-shaped female connector on one end. The other end will have from 2 to 8 connectors, depending on the cable you ordered and the kind of video connector on your workstation. The table below shows the cables that are compatible with your HP workstation. Use the instructions on the following pages that apply to the cable you are attaching, and repeat the process for each additional HP workstation in your XP4000 Series system.

Computer	Computer interface cables	
	Standard	Multimedia
HP Workstation with a VGA video connector	CPIC-*x*	CPIF-*x*
HP Workstation with BNC video connectors	CWI3C-*x*	CWI3F-*x*

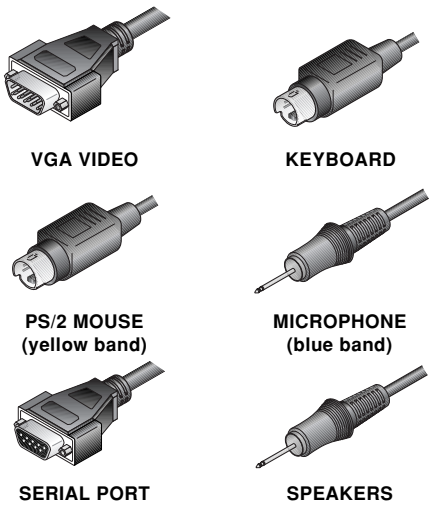
Replace *x* with the distance cable you ordered.

For HP Workstations with a VGA Video Connector

1. Your computer interface cables for this computer will be labeled either CPIC-*x* or CPIF-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CPIC-*x* CABLE



CPIF-*x* CABLE

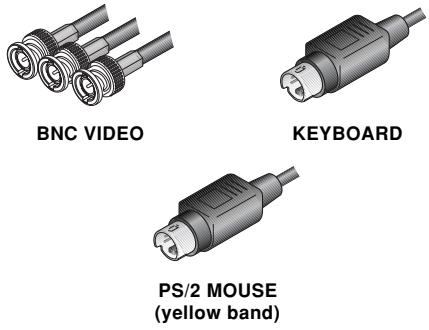
2. **Power down your computer**, then plug the cable's keyboard, PS/2 mouse and VGA monitor connectors into the matching ports on the workstation. The mouse connector is denoted by a yellow band around its cable.

   If you have the CPIF-*x* series cable, you will have three additional connectors: two 3.5mm connectors for a microphone and speakers, and a 9-pin D-shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable. Plug these connectors into the appropriate ports on your workstation or peripheral device.

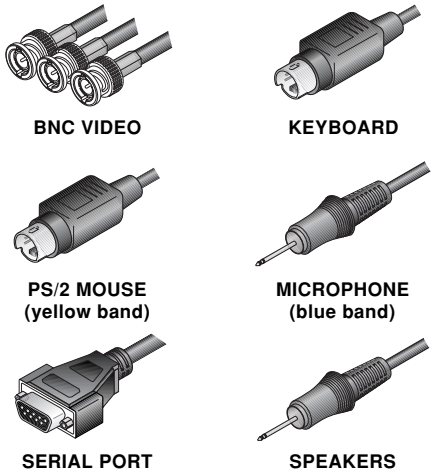
3. Attach the computer interface cable to the XP4000 Series unit by plugging the 44-pin connector into the rear of the appropriate computer interface module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

For HP Workstations with BNC Video Connectors

1. Your computer interface cables for this computer will be labeled either CWI3C-*x* or CWI3F-*x*, depending on the options you ordered. Use the cable diagrams below to locate the correct cable.



CWI3C-*x* CABLE



CWI3F-*x* CABLE

2. **Power down your computer**, then plug the cable's keyboard, PS/2 mouse and BNC video connectors into the matching ports on the workstation. The mouse connector is denoted by a yellow band around its cable.

   If you have the CWI3F-*x* series cable, you will have three additional connectors: two 3.5mm connectors for a microphone and speakers, and a 9-pin D-shaped serial connector for a serial port. The microphone connector is denoted by a blue band around its cable. Plug these connectors into the appropriate ports on your workstation or peripheral device.

3. Attach the computer interface cable to the XP4000 Series unit by plugging the 44-pin connector into the rear of the appropriate computer interface module. Ensure that the connector is firmly seated, then tighten the thumbscrews.

For XPAB modules using the optional ReBoot xP

To attach your ReBoot xP to your XPAB computer interface module, see the section “The ReBoot xP” in Chapter 11.

4 Attaching Terminals

Overview

Overview of the XPIQ and XPSI modules

The XPIQ and XPSI modules work together to enable you to connect terminal-based file servers, network hubs, routers and other serial based server room equipment to your XP4000 Series unit and control them using one keyboard, monitor and mouse. This "terminal switching" requires at least one XPIQ and one XPSI module in the system. The XPIQ module provides the menuing and advanced control features; XPSI modules provide four ports each for attaching equipment to your XP4000 system. From your XPIQ module, you may select any terminal in the system, regardless of which of the 4-port XPSI modules it is attached to.

On-screen menus for naming, selecting and configuring terminals

The XPIQ module functions similarly to an XPAC/XPAB computer interface module in that you switch directly to it from your keyboard, on-screen menus or front panel push-buttons, if applicable. Once you have switched to the XPIQ, on-screen menus allow you to name and select the attached terminals in your XP4000 system. You can also configure baud rate, data bits, stop bits, parity and flow control for each terminal through the menus.

On-board microprocessor allows Security Monitoring and System Management Tools

The XPIQ module contains an on-board microprocessor that enables the Security Monitoring System and the System Management Tools. The Security Monitoring System allows administrators to track all switching activity through a simple on-screen menu. Immediate feedback on logging and switching history is available for every system user. The System Management Tools allow network managers to display their XP4000 system configurations for easy troubleshooting. This menu-driven system shows the type of module installed in each port and the current firmware and hardware revision of each. Information on the type of computer attached to each computer interface module is also available.

FLASH upgradeable plug-in modules

The XPIQ and XPSI modules are field installable and FLASH upgradeable. Modules can be added or replaced without disassembling or powering down the system. This makes installation, configuration and maintenance much easier.

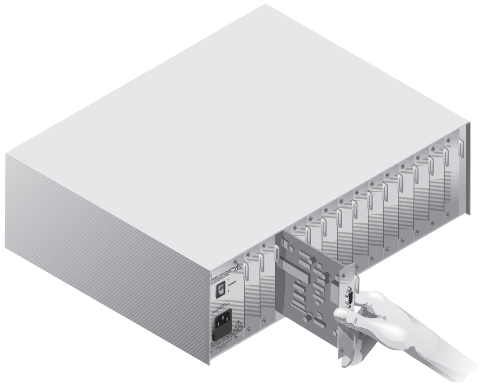
Installing the XPIQ and XPSI Modules

1. Position the XP4000 Series unit so that the rear panel is facing you. Choose an available slot. An available slot will have a solid panel covering the opening to the unit, with no connectors showing through it.

   NOTE: For Front Access models, the LCI module, located to the far left of the unit (viewed from rear), is covered by a solid panel but **IS NOT** an available slot. Only the LCI module can be installed in this slot.

2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Slide the new module gently into the open slot of the XP4000 Series unit until the connector(s) line up flush with the back of the unit. See the diagram below.



4. Retighten the holding screws completely. DO NOT overtighten.

Follow the above procedure for every XPIQ and XPSI module in your system.

Attaching Terminals to the XPSI Module

The XPSI module has four ports available for attaching terminals, hubs, routers and other serial-based equipment. To attach this equipment to the XP4000 system, follow the steps outlined below.

1. You will need a Category 5 UTP cable to connect your XPSI to your equipment. Cybex provides these cables, with an RJ45 connector on each end, in lengths from 10 to 150 feet. (C5T-10, C5T-25, C5T-50, C5T-100, C5T-150). We recommend using Cybex cables in your XP4000 configuration.

2. Plug one end of your Cat 5 cable into the first available port on the rear of your XPSI module.

3. Depending on the type of equipment you are attaching to the XPSI, you will need an adaptor to attach to the remaining end of the Cat 5 cable. A list of common adaptors and their Cybex part number is shown on the following page. Select the adaptor that meets your requirements.

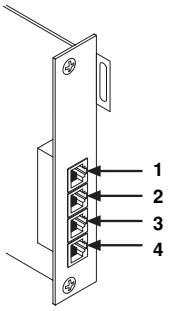
4. After attaching the appropriate adaptor, connect the remaining end of the Cat 5 cable to the equipment you wish to attach to the XP4000 system.

Part Number	Description	Functionality with C5T cable
SAD-5	RJ45 to DB9 male	DCE
SAD-6	RJ45 to DB9 male	DTE
SAD-7	RJ45 to DB9 female	DCE
SAD-8	RJ45 to DB9 female	DTE
SAD-9	RJ45 to DB25 male	DCE
SAD-10	RJ45 to DB25 male	DTE
SAD-11	RJ45 to DB25 female	DCE
SAD-12	RJ45 to DB25 female	DTE
SAD-13	6-pin mini-DIN male to DB9 female (for use with HP9000 machines)	

C5T cable wiring is straight through. (i.e. Pin 1 goes to Pin 1, Pin 8 to Pin 8)

Addressing Terminals on the XPSI Module

Since each XPSI module has four ports, channel addressing requires more than just a chassis number and slot letter. You must also designate which port on the XPSI the terminal is attached to. Ports are numbered from top to bottom as shown below.



For example, the terminal attached to the second port on the XPSI in slot D of chassis 15 would be addressed 15D2.

Getting Started

When you first power up your XPIQ module, the following Options Screen appears on your monitor:

```
User Options
---------------------------------------

ALT-M    to view the Terminal List
ALT-O    to open a Terminal Session
ALT-N    to view the Security Monitor
ALT-T    to view the System Management Tools
ALT-C    to close a view
ALT-I    to view Information
ALT-B    to emulate VT100 BREAK key
ALT-Tab  to change to another view
```

ALT-M
Use this command to enter the menuing system. The first menu to appear will be the Channel or Terminal List.

ALT-O
When you select a device attached to an XPSI module, it is called opening a session. You may use the Alt-O command to open a session from anywhere in the menuing program. Sessions may also be opened through the Open Session Menu, discussed later in this chapter.

ALT-N
Alt-N brings up the Security Monitor. This is used to track the logging and switching history of system users. The Security Monitor can also be accessed through the Administrator Control Menu, discussed later in this chapter.

ALT-T
Alt-T brings up the System Management Tools. These tools are used for system maintenance and troubleshooting. The System Management Tools can also be accessed through the Administrator Control Menu, discussed later in this chapter.

ALT-C
Alt-C is used to close the active, or current, channel. Once you close a session, the Options Screen will appear until you select another channel as active. This is the only method available for closing a session. For more information on opening and closing a session, see the Open Session Menu discussed later in this chapter.

ALT-I
This command displays the current channel address, EPROM date and the hardware, firmware and FLASH revision dates of your XPIQ module. Press any key to exit this information window.

ALT-B
This command is used to emulate the BREAK key found on many ASCII terminals. Its function is user dependent.

ALT-Tab
After you press ALT-M to initiate your menuing system, Alt-Tab is used to cycle through the three available system menus. Alt-Tab is also used to cycle through your open sessions. The Open Session Menu is discussed later in this chapter.

On-Screen Menu Overview

The XPIQ module's on-screen display is made up of three main menus:

Channel List Menu
Administrator Control Menu
Open Session Menu

To access the Channel List Menu, press **Alt-M**. Press **Alt-tab** to cycle through the remaining menus.

The Channel List Menu

This menu displays the name and address of each server. The gray bar at the bottom lists all options available from this menu. Use the F11 key to scroll through these options. See the table below.

Key Sequence	Action
F1	Press the F1 key for context sensitive help.
F3	Press F3 for the port settings to configure your channel. Baud rates: 19200, 9600, 4800, 2400, 1200 Data bits: 7 or 8 Stop bits: 1 or 2 Parity: None, Even or Odd Flow control: None, Xon/Xoff, or RTS/CTS Press enter when configuration has been completed.
Enter	Press enter to switch to the highlighted channel.
F11	Press F11 to see more available options.
F4	Press F4 for a quick edit of the selected channel name or address.
Alt-Tab	Press Alt-Tab to cycle through the available menus.
Delete	Press delete to remove the selected channel.
Insert	Press the Insert key to add a new channel to your menu.
F2	Press F2 to bring up the channel set-up menu. From here you can configure the selected channel's name and address.
(-)	Press the keypad (-) key to sort the Channel List by address. Brackets <> around the Address heading will confirm that the sort method is active.
(+)	Press the keypad (+) key to sort the Channel List by name. Brackets <> around the Name heading will confirm that the sort method is active.

Searching the Channel List

Channel searching will be based on the sort order. If you are currently sorting by Name, a search will be performed on the Name field. If Address is the current sort field, a search will be performed on the system addresses.

To search, bring up the Channel List Menu and enable the sort method of your choice. Next enter the first letter or number you wish to sort on. The next key you press will add the second letter or number to your search string, and so on.

For example, if sorting by name, entering “M” will move your cursor to all entries that begin with the letter M. Enter “A” and your cursor moves to entries beginning with MA. Continue until you reach your desired entry.

The Administrator Control Menu

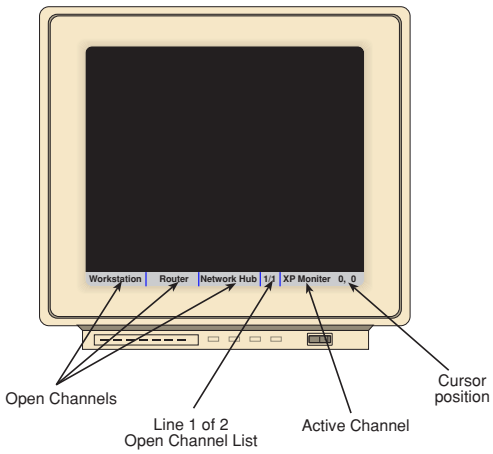
This menu contains two options for maintenance and troubeshooting: System Management Tools and System Security Monitor. The System Management Tools option contains six items. You can display information on the type and revision of each module and the Flash ROM status of any applicable system module. You can Flash upgrade your XPIQ modules as well as set the module's date and time, reboot computers and search your system for connected units. For more details, see "Using System Management Tools" in this chapter.

Selecting the System Security Monitor option brings up a three part window on your monitor. From here, you can track the logging and switching history for every system user. Active system users are listed as well as their current selected channel. If any unauthorized activity occurs, an alert screen lists the date, time, user and specific action. For more details, see "Using the Security Monitor" in this chapter.

The Open Session Menu

What is Opening a Session?

When you select a device attached to an XPSI module, it is called opening a session. The selected channel's video appears on your monitor and the channel name is displayed in the lower right hand corner. If you open a second channel, this new channel becomes current. The new channel name replaces the first channel in the righthand corner, and the older channel name is displayed in one of the three remaining blocks at the bottom of the menu. See below.



Every time you open a new channel, or session, the most current channel will appear in the right corner and the remaining open sessions will be listed in the scrollable text blocks in the left corner. You may have up to eight sessions open at a time. To cycle through your open sessions, press **Alt-tab**.

Opening a Session

There are two ways to open a session. The first way is to bring up your Channel List by pressing Alt-M, selecting the channel from the menu, and pressing enter. The second way is by using the Open Session Menu.

To use the menu, channel switch to the port that contains your XPIQ module. Press Alt-O to bring up the Open Session Menu. Type in the address of the channel you wish to open a session for and press enter. To leave the menu without opening a session, press escape.

Closing a Session

To close a session, make the channel that you want to close the active, or current, channel. You may do this by pressing **Alt-tab** until the session you want to close is displayed on your monitor. Then, press Alt-C. The session will close and the Options Screen will be displayed until you select another channel as active.

Using System Management Tools

Once you have cycled to the Administrator Control Menu with Alt-Tab, choose the System Management Tools option. You may also use the keyboard shortcut Alt-T from anywhere within the XPIQ module. The menu below will appear on your monitor. An explanation of each option follows.

```
                System Management Tools
                       Main Menu

          1) Display chassis configuration
          2) Display Flash ROM status
          3) Download Serial Port to Flash ROM
          4) Reboot computer
          5) Search for connected chassis
          6) Set Date and Time
          7) Transfer security log


          Enter your selection:
```

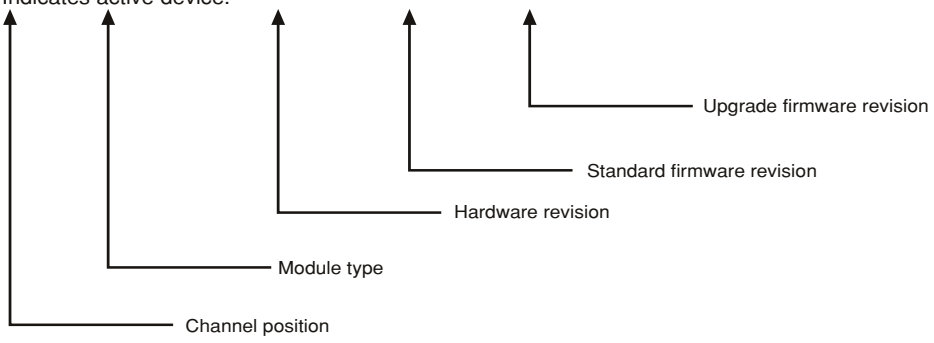
Displaying Local/Remote Chassis Configurations

Choosing **Option 1** from the main menu will bring up the table shown below, displaying your XP4000 system's current configuration information. You will be prompted for a chassis number, or address, before the table is displayed. Enter a remote chassis address or press enter at the prompt for the local unit.

Note that the slot without a push-button or LED is designated by “M” and the primary peripheral workstation, or the LCI, channel is designated by “N”.

Chan	Card Type	HW Rev	EPROM FW Rev	FLASH FW Rev	Serial #	Other Information
3-A	Empty					
3-B	XPAC	B03	* D-00	-NA-	0123456789	PC + PS/2 mouse
3-C	XPAC	C00	* D-00	-NA-	0123456789	No cable attached
3-D	Empty					
3-E	Empty					
3-F	Empty					
3-G	Empty					
3-H	Empty					
3-I	XPXT	A00	* C-04	-NA-	0123456789	P1[N/C] P2 [4-F]
3-J	XPXT	A00	* C-04	-NA-	0123456789	P1[N/C] P2 [5-F]
3-K	Empty					
3-L	Empty					
3-M	XPRB	A00	* C-06	CMON	0123456789	
3-N	Empty					

* - Indicates active device.



Displaying Local/Remote Flash ROM Status

When you choose **Option 2** from the main menu, you will be prompted to enter a channel address. Enter a remote address or leave the field blank for the local channel. The module's firmware and current revision level will be displayed.

Downloading Serial Port to Flash ROM

Option 3 allows you to transfer firmware upgrades from your computer, through the serial port, to your local XPIQ module's Flash storage.

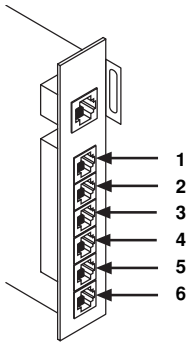
```
Download Serial Port to Flash ROM


Start XMODEM download now
```

Rebooting a Computer

If you have a ReBoot xP in your system, **Option 5** allows you to reset attached computers through the menuing system.

```
Reboot computer

Channel address: 3C
Power Port number: 1
```

Enter the address of the channel you wish to reset. If the channel is an XPRB module, you will also need to give the position number of the Power Port on the XPRB. See below. If the channel is an XPAB module, accept the default value of "1".



Searching for Connected Chassis

Choose **Option 5** to search your XP4000 system for all connected chassis.

```
Search for connected chassis

First chassis number [1]:
Last chassis number [25]:
```

You will be prompted for the range of chassis numbers you want to search. Enter the first and last chassis numbers for your search or press enter to accept the default values of 1 and 25. After you have entered values, the connected chassis in the selected range will be listed on the screen.

Setting the Date and Time

Choose **Option 6** to set the date and time for your XPIQ module. This is used to time stamp the events in the security log.

Transferring the Security Log

Choose **Option 7** to transmit the contents of the security log via the XPIQ's serial interface port. Using a personal computer and a suitable terminal emulation program, the security log can be captured to a file for printing and storing. Procomm and HyperTerminal are examples of terminal emulation programs that can capture the log from the XPIQ.

Connecting the XPIQ to a Computer

You will need to connect the XPIQ module's serial interface to a laptop computer to transfer the security log. The following Cybex cable components are required for this operation:

1 SAD-7 serial adaptor
1 SAD-8 serial adaptor
1 C5T-10, C5T-25 ... (Category 5 cable)

Install a serial adaptor on each end of the category 5 cable. Connect one serial adaptor to the laptop computer and the other to the XPIQ module. It does not matter which adaptor goes to the XPIQ and which goes to the computer.

Transferring the Data

The data will be formatted the same as the XPIQ Security Monitor's log window. Each line of ASCII text ends with carriage return and line feed codes.

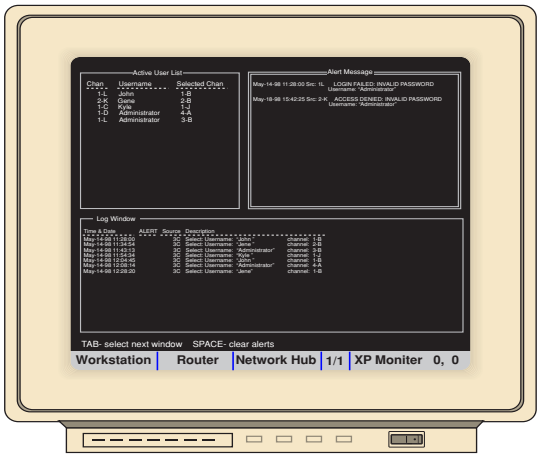
The COMM port used by the PC's terminal emulation program must be configured to match the settings you select with this option. Either accept the default port settings or enter different values. Enter or accept the date and time of the first log record you want to transfer. See below.

```
Transfer security log

Configure serial port
  Press SPACE to change, ENTER to accept.

Baud rate: 9600
Data bits: 8
Stop bits: 1
Parity   : None
Flow Control: Xon/Xoff

Date of first log record [ Jun-05-1998 ]:
Time of first log record [ 15:59:41 ]:

Transferring Security Event Log Records
  that have occurred since: Jun-05-1998 15:59:41
```

After the transfer is complete, press any key to return to the System Management Tools Main Menu.

Using the Security Monitor

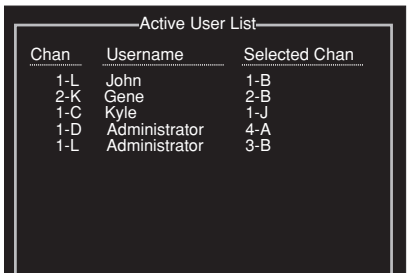
Once you have cycled to the Administrator Control Menu with Alt-Tab, choose the System Security Monitor option. You may also use the keyboard shortcut Alt-N from anywhere within the XPIQ module. The screen shown below will appear on your monitor.



The Security Monitoring screen is a three part window, featuring the Active User List, the Alert Messages Window and the Log Window. Press the Tab key to select the active window. Available options for the active window will appear at the bottom of the screen. Each window is described below.

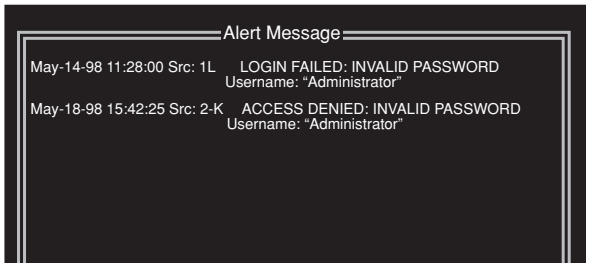
The Active User List

The Active User List shows which users are currently logged on and what channel they are switched to. The user's address and name are listed as well as their selected computer channel. You have the option of paging up to the previous page of users, paging down to the next page, returning to the top of the list or to the end.



The Alert Message Window

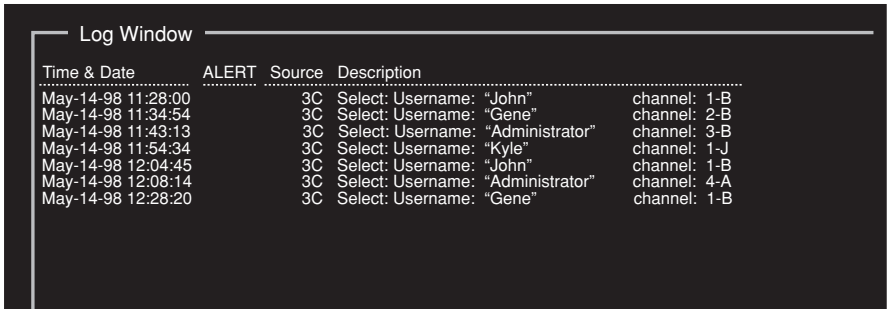
The Alert Message Window lists any failed or unauthorized command and turns the window red to alert administrators to the message. Pressing the space bar clears the alert by removing the red background. The message itself remains on-screen until the window is full, then is replaced by newer messages. The date, time, user name and channel and the unauthorized activity are listed for each message.



The Log Window

The Log Window tracks all logging and switching activity for every system user. The date, time, user name and channel and activity are listed. You have the option of paging up to the previous page of history, paging down to the next page, returning to the top of the log or to the end. An asterisk (*) in the ALERT field indicates that the command generated an entry in the Alert Message Window. See above.

Information from the Log Window can be downloaded through your computer's serial port for printing and storing. See the section "Using System Management Tools" in this chapter for more details.



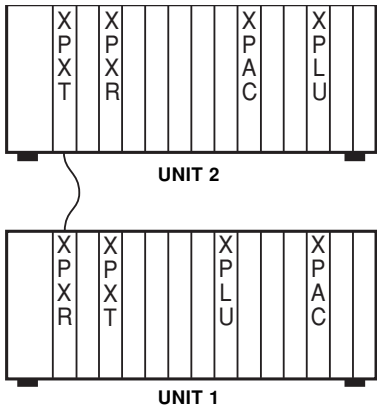
5 Installing Expansion Units

Overview

To expand your XP4000 system beyond the confines of a single unit, you will need to integrate **transmitter** and **receiver** boards into your system. Connecting a transmitter in one unit to a receiver in another unit lets you combine multiple XP4000 Series units into one system. Transmitters allow the computers attached to one unit to transmit their signal to user consoles attached to another unit. Receivers allow user consoles to receive the signal from computers attached to another unit. Accessing computers or user consoles within the same box does not require a transmitter or receiver. See below.

Expansion Capabilities

Transmitters are attached to receivers via an expansion cable. This cable may be between 3' and 250' long. Two ports are available on each transmitter and receiver to connect expansion cables between them.



THE USER AT UNIT 1 CAN ACCESS THE COMPUTERS ATTACHED TO UNIT 1 AND UNIT 2, DOUBLING THE NUMBER OF AVAILABLE COMPUTERS.

Installation

In order to successfully configure and install your expansion system, you will need to address each of the following considerations:

1) XP4000 Series unit Placement
2) Computer/User Console Distribution
3) Transmitter/Receiver Board Configuration
4) Transmitter/Receiver Board and Expansion Cable Installation

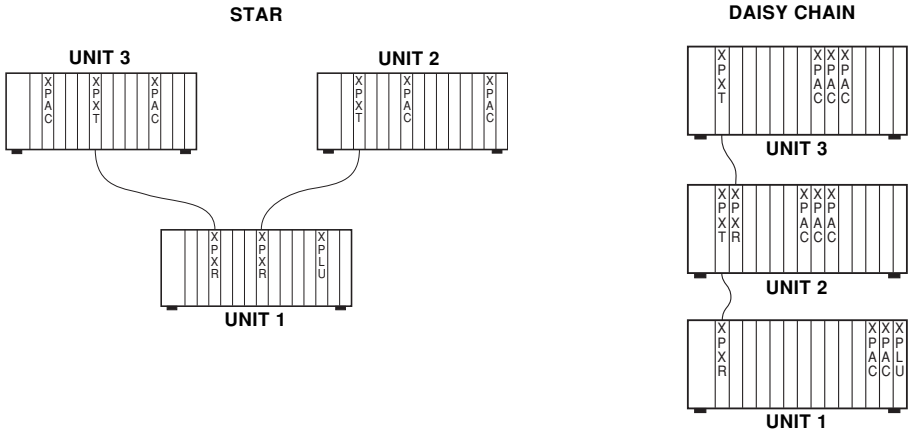
There are two basic types of expansion configurations: star and daisy chain.

XP4000 Unit Placement

In the star configuration, each XP4000 Series unit added to the system branches off from the original unit.

In the daisy chain configuration, each XP4000 Series unit is attached linearly, starting with the first unit in the system and ending with the last attached unit.

The star configuration is most common and is the recommended setup for most applications. For systems operating at distances over 250 feet away or containing over 60 attached computers, a combination of star and daisy chain is recommended. See Chapter 10, Applications for details.



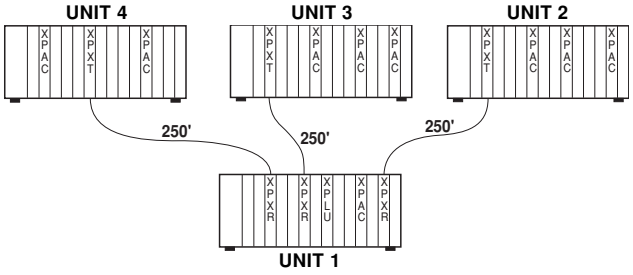
As you configure your own system, keep these considerations in mind:

1) **The maximum distance between a user and any accessible computer in the system is 500 feet.** If the maximum distance is exceeded, video quality will be severely degraded.

2) **The maximum number of units between a user and accessible computer is four, inclusive of the units attached to the user console and computer.** If a user attempts to switch to a computer channel over four units away, the system will remain on the current channel until a switch within four units is initiated.

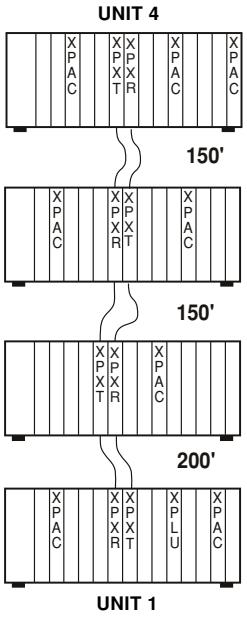
Sample configurations

STAR
(Recommended for 60 or fewer attached computers)



CONFIGURATION 1

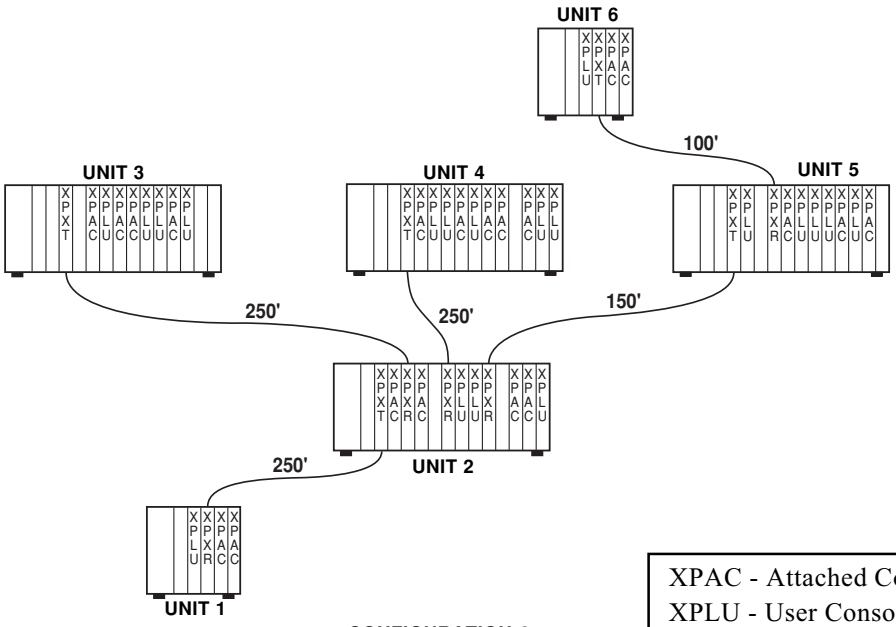
DAISY CHAIN



CONFIGURATION 2

In configurations 1 and 2, the user in Unit 1 can access any attached computer in units 1-4.

COMBINATION
(Recommended for systems operating at distances over 250 feet away or containing over 60 attached computers)



CONFIGURATION 3

XPAC - Attached Computer
XPLU - User Console
XPXR - Expansion Receiver
XPXT - Expansion Transmitter

Configuration 3 shows that by combining the star and daisy chain configurations into one system, you can support additional attached computers in a more flexible environment.

Computer/ User Console Distribution

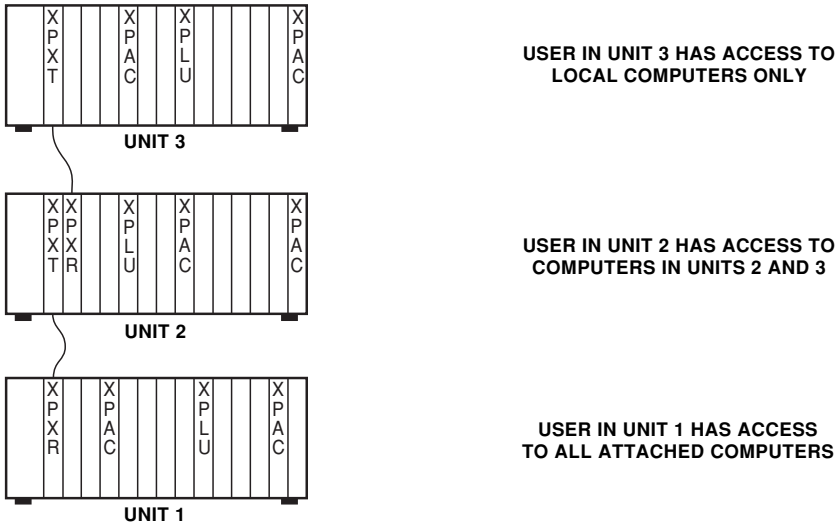
Once you have mapped out your optimal unit configuration, you'll need to determine the placement of computers and user consoles within your system.

As you plan, consider the following:

1) In order for an attached computer to transmit its signal to users outside its own XP4000 Series unit, there must be a transmitter present in the unit. (See below)

2) In order for a user to receive signals from attached computers outside its own XP4000 Series unit, there must be a receiver present in the unit. (See below)

3) Each expansion cable connection between a transmitter and receiver pair utilizes one of the four available paths in each unit. You may have up to four separate active channels per unit at any one time. See Figure 5-1.

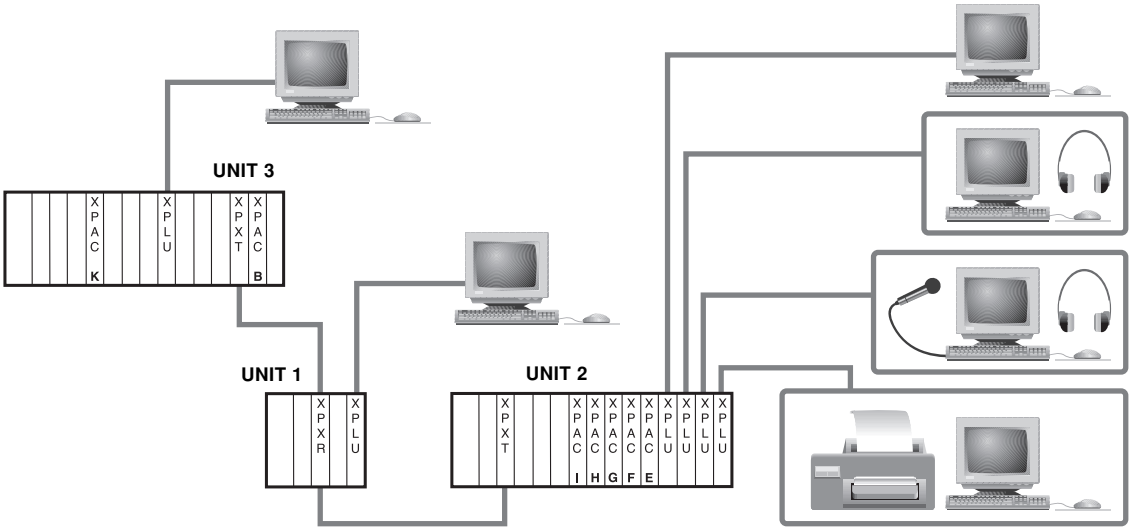


In the above example, the user in Unit 1 has access to its own local computers, plus the computers in Units 2 and 3 because a transmitter is present in Units 2 and 3 and a receiver is present in Unit 1.

The user in Unit 2 cannot reach the computers in Unit 1 because no transmitter is present in Unit 1.

The user in Unit 3 has access to the local computers only, because there is no receiver present in the unit.

Figure 5-1 below shows the path availability across units.



In the above example, the user at Unit 1 would like to access computer 2H. There is a valid path out of Unit 1 to accommodate that. However, all four paths in Unit 2 are currently taken by the four local users. The only way the user in Unit 1 can access a computer in Unit 2 is through **sharing**. He may view the video on any channel but will not have keyboard or mouse control unless the Unit 2 user relinquishes control.

However, the Unit 1 user can access computer 3K independently, because there are three open paths available in Unit 3. There is only one user in Unit 3, using computer 3B, taking one of the four available paths.

Transmitter/ Receiver Board Configuration

Before installing your transmitter and receiver boards in your XP4000 system, you will need to configure them for your system requirements. There are two steps to configuring your expansion boards:

1) Configuring the 8-position DIP switch on the transmitter boards with a unit address.

2) Configuring the jumpers on the transmitter and receiver boards for your specific expansion cable length.

Please note that the same settings apply to both the standard and Category 5 expansion transmitter and receiver cards.

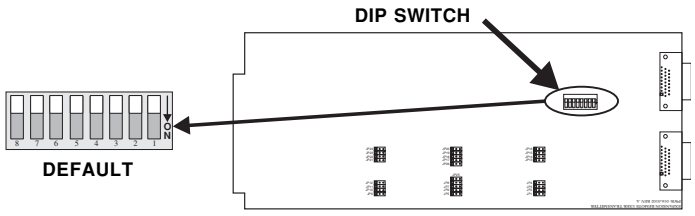
Configuring the Transmitter DIP Switch

All units that contain transmitters must be given a unique unit address that you determine. Unit addresses are numeric, and may be any value between 1 and 254. Please note that unit addresses of "0" and "255" are reserved. Every transmitter in a given unit must be configured for the same unit address for proper operation.

To set the DIP switch on your transmitters, follow the steps below:

1) Locate all of the transmitters that will be installed in a single XP4000 Series unit.

2) Orient your first transmitter board as shown below, and locate the colored DIP switch assembly.



3) Choose a unique unit address and configure your transmitter board according to the table below. For unit addresses higher than 12, see Appendix H.

Unit Address	(8 ------ 1) Setting	Unit Address	(8 ------- 1) Setting
1	00000001	7	00000111
2	00000010	8	00001000
3	00000011	9	00001001
4	00000100	10	00001010
5	00000101	11	00001011
6	00000110	12	00001100

4) Configure every remaining transmitter board for this specific XP4000 Series unit with the same address.

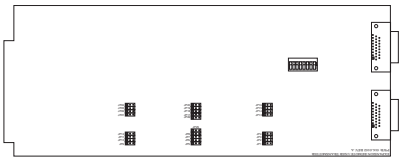
5) Set these transmitters by the applicable XP4000 Series unit. Locate all transmitters that will be installed in your next XP4000 Series unit, and repeat steps 2 - 5 until you have reached the last XP4000 Series unit in your system.

Configuring the Transmitter /Receiver Board Jumpers

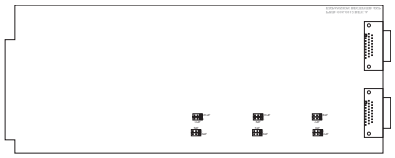
Every transmitter and receiver pair must be configured for the length of the expansion cable that connects them together.

Follow the steps below for each transmitter/receiver pair in your system:

1) Orient your first transmitter/receiver pair as shown below. Note that most components have been removed to simplify the drawings.



TRANSMITTER (XPXT OR XPST)

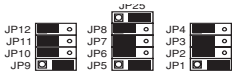
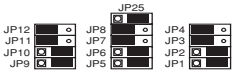
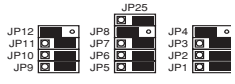
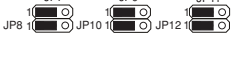


RECEIVER (XPXR OR XPSR)

2) Choose which port on the transmitter/receiver you will be connecting your expansion cable to: the upper Port 2, or the lower Port 1. Either port may be used, but the same port must be chosen on transmitter and receiver.

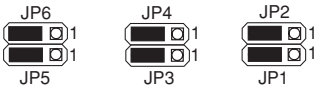
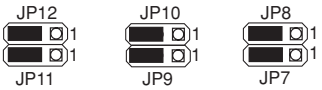
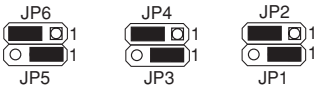
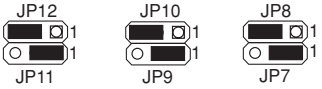
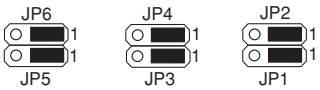
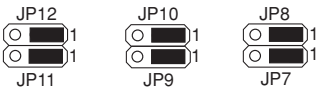
3) Using the table below, configure the appropriate jumpers on each board according to the port chosen and the length of the expansion cable that will connect them. Fill out the Expansion Configuration Sheets in Appendix B for each board as you configure it.

Default setting

Dist.	Expansion Port 1		Expansion Port 2	
	XPXT/XPST	XPXR	XPXT/XPST	XPXR
3' to 25'				
26' to 75'				
76' to 125'				
126 to 175'				
176' to 225'				
226' to 250'				

4) After all of the boards have been configured, you may proceed to the next section, "Transmitter/Receiver Board and Expansion Cable Installation".

Default setting

Distance	XPSR Bank 2	XPSR Bank 1
3' to 125'		
126' - 225'		
226' - 250'		

Transmitter/ Receiver Board and Expansion Cable Installation

To install your transmitter/receiver boards in your XP4000 Series units, follow the steps below:

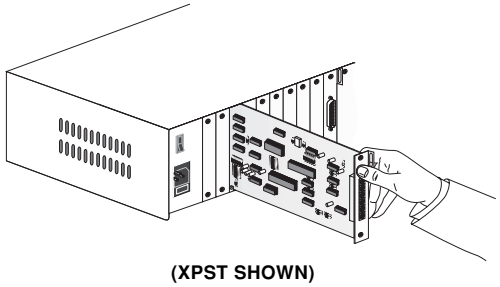
Installing the transmitter/receiver boards

1. Position the unit so that the rear panel is facing you, and choose an available slot.

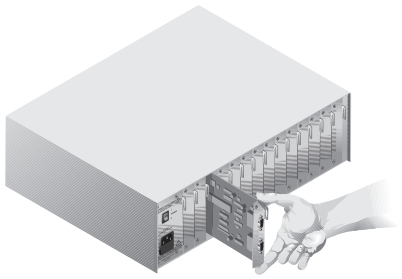
2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Locate the two Phillips-head screws on the transmitter or receiver board, located above and below the two connectors. Back these screws out until they are flush with the transmitter/receiver board cover plate.

4. Slide the transmitter or receiver board gently into the open slot of the XP4000 Series unit until the connectors line up flush with the back of the unit. See the diagram below.



(XPST SHOWN)



(XPXT SHOWN)

5. Retighten the holding screws completely. DO NOT overtighten.

Follow the above procedure for every transmitter/receiver pair in your system.

Connecting the expansion cables

To connect your expansion cables, follow the steps below:

1) Locate the expansion cable with the length that matches the jumper settings of your first transmitter/receiver pair.

If you are using the XPXT and XPXR Transmitter and Receiver Boards

2) Connect the female 26-pin connector on the expansion cable into the male 26-pin connector on the transmitter. (Remember to select the correct port for your configuration.)

3) Connect the male 26-pin connector on the expansion cable into the female 26-pin connector on the receiver. (Be sure and connect to the same port on transmitter and receiver.)

4) Tighten the thumb screws on each end of the extension cable, and repeat steps 1-4 for every expansion cable in the system.

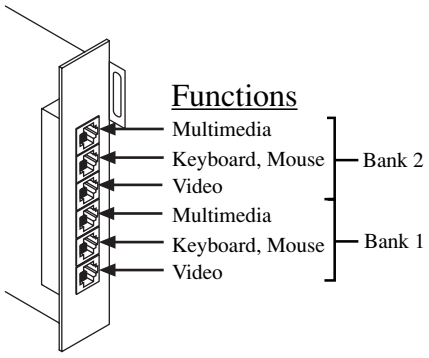
If you are using the XPST and XPSR Transmitter and Receiver Boards

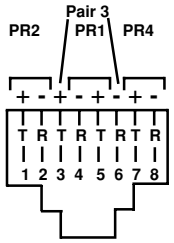
2. The connectors for the XPST consist of two banks of three modular connectors each.(See diagram below) Connect one end of the Category 5 UTP cable to the video port on either bank of connectors on the transmitter. Connect the other end of the cable to the video port on the receiver.

3. Repeat the above process with the keyboard/mouse and multimedia cables until all banks are connected. Be sure that the cables on the transmitter connect to the same functions on the receiver.

You do not have to connect the multimedia cables if you aren't using the multimedia capabilities.

You will know when your expansion cables are installed properly by observing the LEDs on the front panel of the unit. If you are using a Rear Access model of the XP4040 or the XP4080, your cables are installed correctly in Bank 2 when the upper (amber) LED for the corresponding transmitter board is lit. If your cables are installed correctly in Bank 1, the lower (green) LED will be lit. If you have installed transmitters with conflicting unit addresses in the same unit, the amber and green LEDs will flash alternately.





Standard 4-Pair Wiring Color Codes		
Pair 1	**T**	**White/Blue**
	R	**Blue/White**
Pair 2	**T**	**White/Orange**
	R	**Orange/White**
Pair 3	**T**	**White/Green**
	R	**Green/White**
Pair 4	**T**	**White/Brown**
	R	**Brown/White**

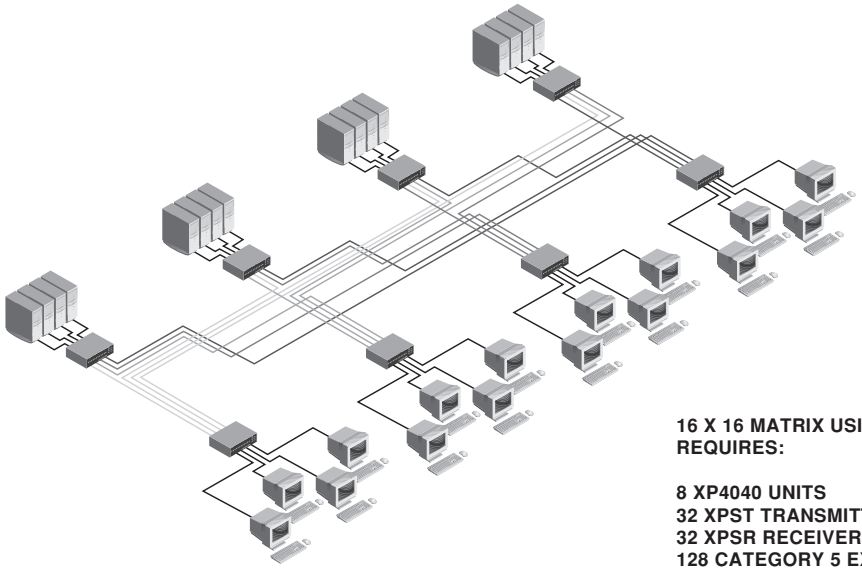
CABLE PINOUT
(BELDEN 1583A OR EQUIVALENT)

If you are using the front access model of the XP4040, the green LED will light when the cable in either port is installed correctly. Similarly, if you have transmitters in the same unit with conflicting unit addresses, the green LED will flash.

6 XP4400

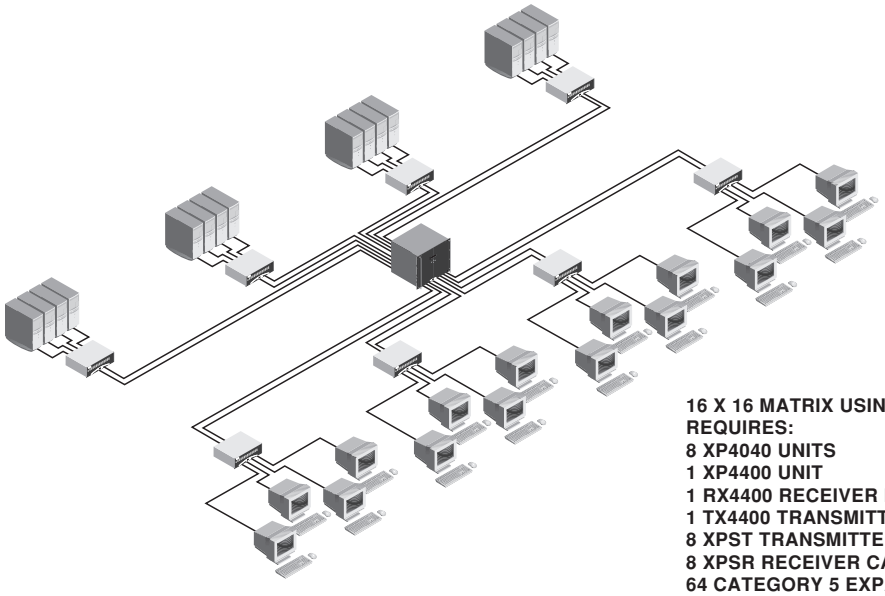
XP4400 Overview

The XP4400 component of the XP4000 Series is designed to allow the configuration of larger, more complex installations in the most efficient, economical way possible. By channeling expansion signals from users to attached computers, the XP4400 enables the most streamlined configuration possible and can greatly reduce the number of units, transmitter/receiver cards and cables in the system. The example below shows a simple 16 x 16 matrix configured with and without the XP4400. All users in this system can access any computer at any time.



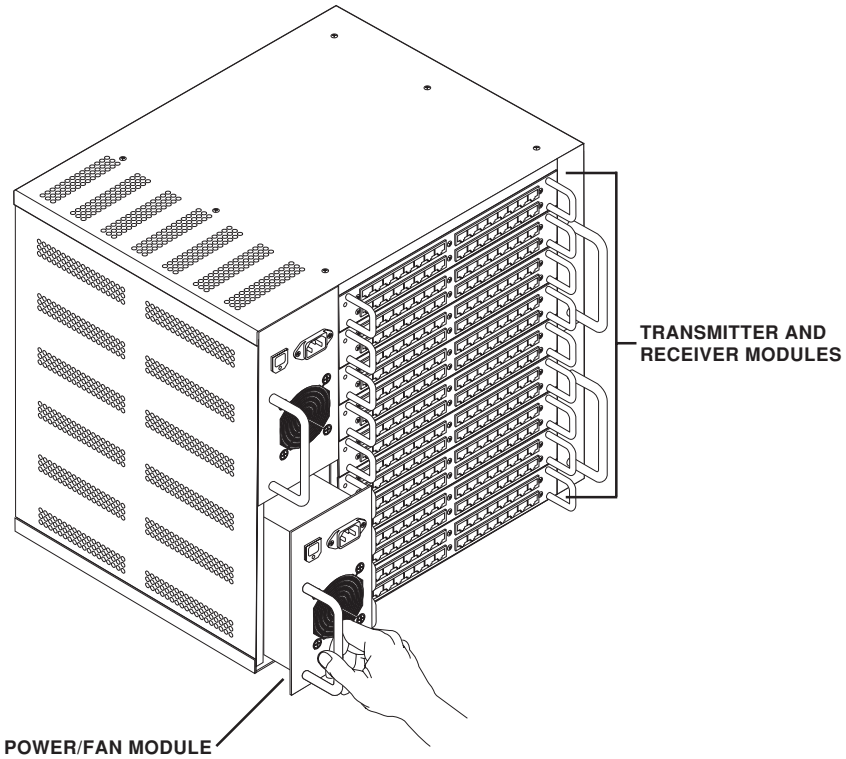
16 X 16 MATRIX USING XP4040 UNITS REQUIRES:

8 XP4040 UNITS
32 XPST TRANSMITTER CARDS
32 XPSR RECEIVER CARDS
128 CATEGORY 5 EXPANSION CABLES



16 X 16 MATRIX USING XP4400 UNITS REQUIRES:
8 XP4040 UNITS
1 XP4400 UNIT
1 RX4400 RECEIVER MODULE
1 TX4400 TRANSMITTER MODULE
8 XPST TRANSMITTER CARDS
8 XPSR RECEIVER CARDS
64 CATEGORY 5 EXPANSION CABLES

The XP4400 consists of a 9U high chassis, containing two power supplies, two fan assemblies and a user specified number of transmitter and receiver modules. The power supplies are fully redundant and hot swappable, allowing you to replace one at any time without powering down the system. Fan assemblies are also hot swappable, but both are needed to cool a fully loaded XP4400 chassis. Each transmitter and receiver module contains 16 sets of video and keyboard/ mouse ports, enabling a module to attach to as many as 16 expansion ports, using two Category 5 cables each. The XP4400 holds up to nine transmitter or receiver modules per chassis.



Features and Benefits

LCD menu system

The XP4400 features a front panel LCD display for easy system configuration and identification. Display system connection information, check the hardware and firmware revision of your modules or troubleshoot system errors all from an easy-to-use menu.

Front panel LEDs

LEDs on the XP4400's front panel let you monitor system power and error status at a glance. The red LED blinks when a problem is detected, then goes to solid when the problem is acknowledged. The LED will remain lit until the problem is resolved, or begin blinking again if a new problem is discovered.

FLASH upgrade capability

As with all XP4000 Series products, the XP4400 is FLASH upgradeable. FLASH technology allows you to upgrade the XP4400's firmware without removing modules or powering down the system. New firmware revisions are uploaded into the XP4400 via the serial port on the front panel or through standard XP4000 Series serial connections. All advanced serial port operations available through the host unit are also possible through the XP4400 serial port.

Hot swappable components

The power supplies, fan assemblies and the transmitter/receiver modules in the XP4400 are all hot swappable. The ability to remove and replace components without powering down the system or attached servers, means that maintenance can be performed during business hours without interrupting system users.

Installation

The power supplies for your XP4400 are shipped uninstalled to prevent damage. As a result, the first step in installing your expansion unit will be to assemble the chassis.

Assembling the XP4400 Chassis

1) Locate the power supplies and remove them from their packaging.

2) Make sure that the power supplies are disconnected from the wall and their power switches are in the 'OFF' position.

3) Gently slide the power supplies into their mounting brackets on the left side of the XP4400 unit.

4) Connect a power cord to each of the power supplies and then to an outlet. Switch on both of the power supplies and verify that the fan modules work.

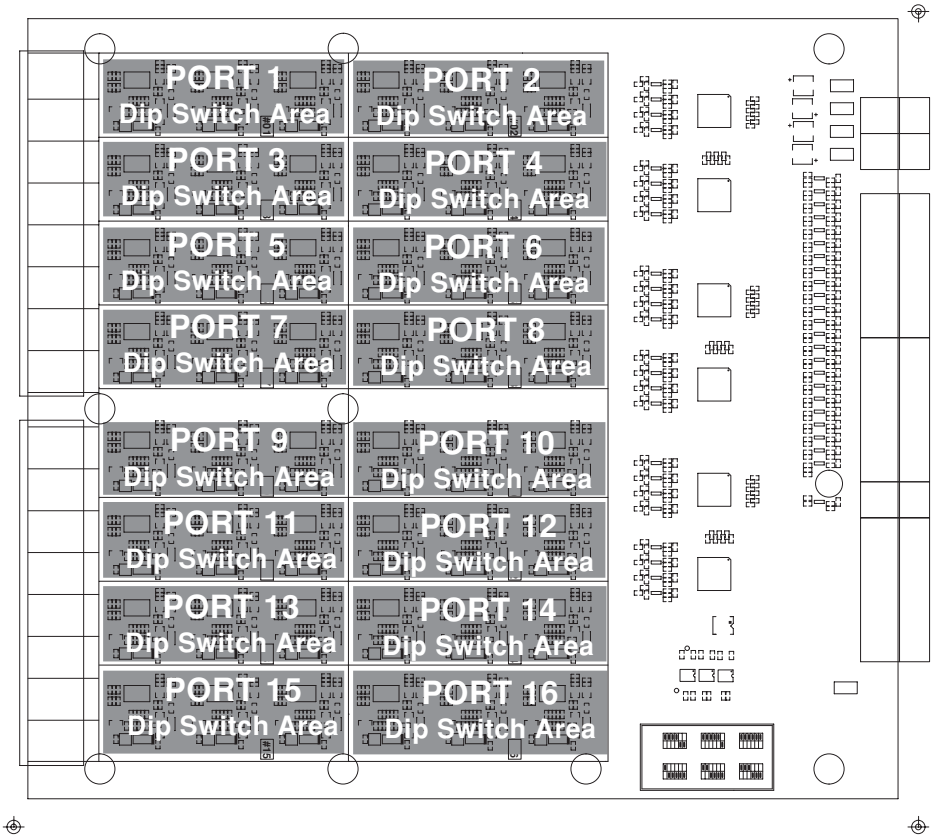
Configuring the Transmitter and Receiver Modules

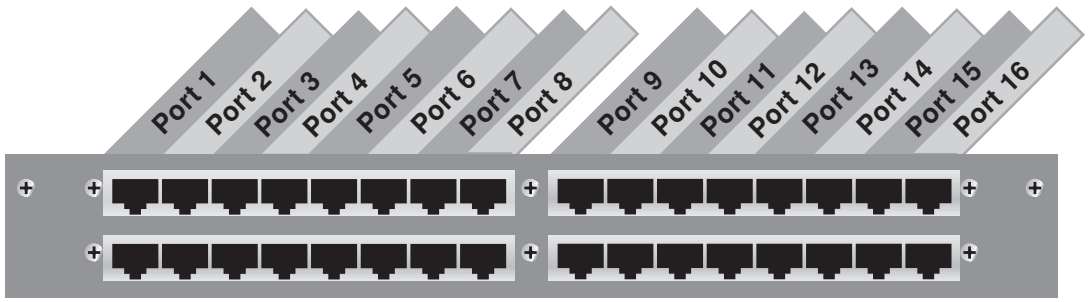
5) Next you will need to configure the DIP switches on your Transmitter Module. The XP4400 supports connections for 16 pairs of Category 5 cables. These ports are numbered 1 - 16 from left to right on the TX44 Transmitter Module. Each of these ports has three dip switches that configure the port for the length of the Category 5 cable that is attached to it.

To configure the port, you will need to first select a pair of Category 5 cables that are connected to a receiver card in the system. Connect these cables to the first available port with the Video cable connecting to the upper jack and the Keyboard/Mouse cable connecting to the lower jack. Locate the DIP switches that correspond to that port and configure them as needed. (See diagram and settings below and on the next page.)

Repeat this process for every port of every Transmitter Module in your system.

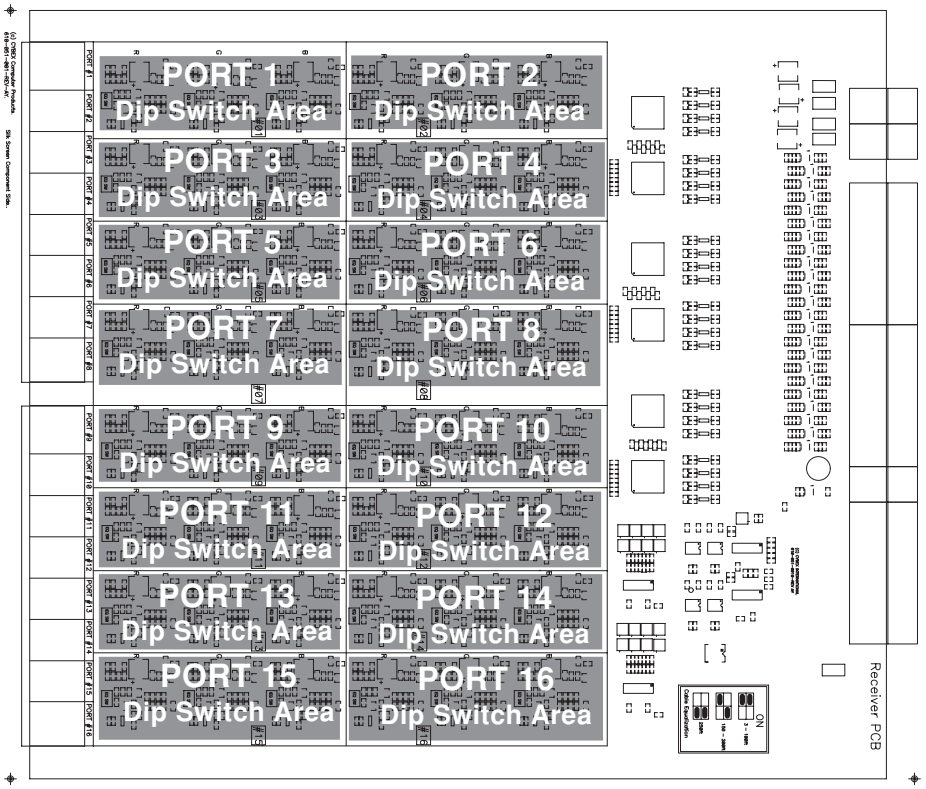
XP4400 Transmitter





Video

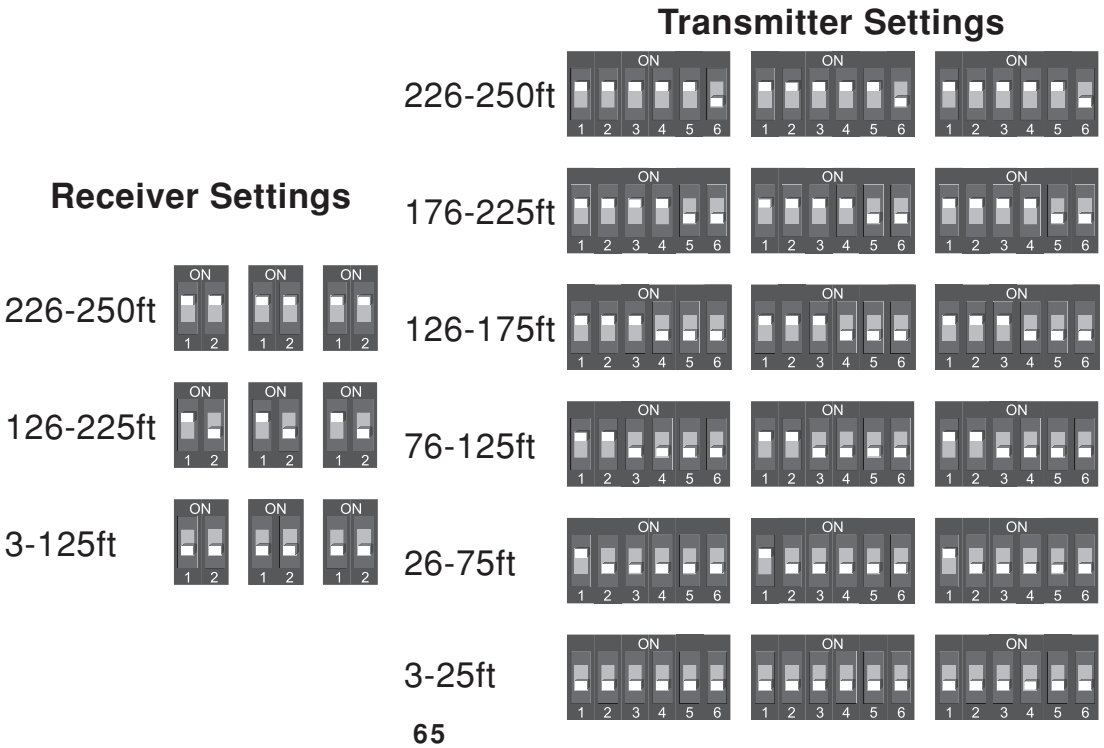
Keyboard/ Mouse



XP4400 Receiver

6) Once the Transmitter Modules are configured, gently slide them into the XP4400 chassis and tighten the retaining screws.

7) Repeat step 5 with the Receiver Modules using the settings below. Note that the Category 5 cables connecting to the RX44 Receiver Module will



be connected to a transmitter card in the system.

Setting the Chassis ID Number

8) Connect power to both power supplies and switch them on.

9) Finally, you will need to set the chassis number for your XP4400. This is done through the LCD menu on the front of the unit.

   As soon as you power on your XP4400 unit, the Idle Display menu will appear. From this menu, press the **Down** button to reach the Chassis ID menu. To set or change your chassis ID, press the **Right** button. The following menu will appear:

```
      Chassis ID
   ->new ID ###
     old ID ###
****EDIT  MODE****
```

   The old ID is shown. Press the **Up** and **Down** buttons to set a new chassis ID for your XP4400 unit. Each XP4400 in your system will need to have a unique ID number. Press the **Right** button to save the changes and return to the Chassis ID Menu. Press the **Left** button to return to the Chassis ID Menu without saving. If neither button is pressed within 5 seconds of your last change, you will automatically return to the Chassis ID Menu without saving the changes.

LED Operation

The front panel of the XP4400 support two LEDs - green and red. The green LED is lit when system power is on. If an error is detected with one of the fan modules or power supplies, the red LED will begin to blink. This LED will remain blinking until you check the LCD display System Status menu to view the detected problem. (See the section 'LCD Display Operation' for details.) At this point, the red LED will remain lit steadily until the problem is resolved. If an additional problem is detected, the red LED will begin blinking again.

LCD Display Operation

The XP4400 front panel supports a 4x20 character LCD display which is used to configure and display status for your XP4400 unit. As soon as you power on your XP4400 unit, the Idle Display Menu appears as shown below:

```
----XP 4400----
  Chassis 000

 www.cybex.com
```

The Contrast Menu

If your display is either too bright or cannot easily be seen, press the **Right** button to reach the Contrast Menu.

```
DISPLAY CONTRAST
  0       100%
    ########
****EDIT  MODE****
```

Use your **Up** and **Down** buttons to increase or decrease the contrast of your display. Press the **Right** button to save the changes and return to the Idle Display Menu. Press the **Left** button to return to the Idle Menu without saving. If neither button is pressed within 5 seconds of your last change, you will automatically return to the Idle Display Menu without saving the changes.

The Chassis ID Menu

From the Idle Display Menu, press the **Down** button to reach the Chassis ID Menu.

```
Chassis ID
     0
```

The first time you power on your XP4400 unit, the Chassis ID will read as "0".

NOTE: You must change this to a valid system chassis ID before integrating the XP4400 into your configuration.

To set or change your chassis ID, press the **Right** button. The following menu appears:

```
  Chassis ID
->new ID ###
  old ID ###
****EDIT  MODE****
```

The old ID is shown. Press the **Up** and **Down** buttons to set a new chassis ID for your XP4400 unit. Press the **Right** button to save the changes and return to the Chassis ID Menu. Press the **Left** button to return to the Chassis ID Menu without saving.

The System Identification Menu

From the Chassis ID Menu, press the **Down** button to reach the System Identification Menu.

```
***Slot in Use***
A B C D E F G H I
  R     T   T
Scan On
```

This menu displays the type of module installed in each of the XP4400's nine available slots, labeled A through I. An "R" indicates a receiver module is installed, a "T" indicates a transmitter module.

For more detailed information about your installed modules, press the **Right** button. The following menu appears:

```
Slot A: type
Hardware: ###
Firmware: ###
Ser.No #: ###
```

Hardware, firmware and serial numbers are displayed for the module located in slot A of your XP4400 unit. Press the **Up** and **Down** buttons to cycle through the information for all nine slots. When you are finished viewing this information press the **Left** button to return to the System Identification Menu.

The System Status Menu

From the System Identification Menu, press the **Down** button to reach the System Status Menu.

```
*** SYSTEM STATUS ***
    FAN modules OK!
    PSU1 : OK
    PSU2 : OK
```

If the red LED on your XP4400's front panel is blinking, this menu will show you where the problem lies. Once you leave this menu, via the **Left** button, the blinking light will change from blinking to solid until the problem is resolved. The LED will go off when the problem is resolved. If a second problem occurs, the light will begin blinking again.

For more detailed information about the fan assemblies or the power supply output voltages, press the **Right** button. The following menu appears:

```
+5V:ok    +12V:ok
-5V:ok    -12V:ok
D5V:ok AC:ok DC:ok
lower power supply
```

Press the **Up** and **Down** buttons to cycle through the information for the upper and lower power supplies and fan assemblies. When you are finished viewing this information, press the **Left** button to return to the System Status Menu.

The Serial Port Configuration Menu

From the System Status Menu, press the **Down** button to reach the Serial Port Configuration Menu.

```
***Serial Port***
Baud Rate:57600
Data Bits:8
Parity:No Stop:1
```

This menu displays the settings that the serial port requires your PC to be configured for. Only the baud rate is user configurable. To change the baud rate, press the **Right** button. The following menu appears:

```
***Edit Mode***
Baud Rate:57600
Data Bits:8
Parity:No Stop:1
```

Press the **Up** and **Down** buttons to cycle through the available rates. When you have made your selection, press the **Right** button to save the changes and return to the Serial Port Configuration Menu. Press the **Left** button to return without saving.

The Link Status Menu

From the Serial Port Configuration Menu, press the **Down** button to reach the Link Status Menu.

```
***Link  Status***
Slot: A Port: 05

Link: 65-B-12
```

This menu displays connection information for every port of every slot in the XP4400. In the sample menu above, port 5 of slot A on the XP4400 is connected to another XP4400 unit with a chassis address of 65 in slot B, port 12.

To view the connections of another slot and port, press the **Right** button. The following menu appears:

```
  Select Slot
-> Slot: A
Port: 05
Link: 65-B-12
```

Press the **Up** and **Down** buttons to select the appropriate slot on the XP4400 chassis. When you have made your selection, press the **Right** button again. The following menu appears:

```
  Select Port
Slot: A
-> Port: 05
Link: 65-B-12
```

Press the **Up** and **Down** buttons to select the port you wish to display information for. Each transmitter or receiver module has 16 ports available for connection. When you have made your selection, press the **Left** button to return to the Link Status Menu. The link information for the requested slot and port will be displayed.

The Language Menu

From the Link Status Menu, press the **Down** button to reach the Language Menu.

```
***  Language  ***

- ENGLISH -
```

This menu displays the language that your menu system is currently being viewed in. To change to a different language, press the **Right** button. The following menu appears:

```
Select Language

- English -
**** EDIT  MODE****
```

The old language is shown. Press the **Up** and **Down** buttons to select a new language from the available choices. Press the **Right** button to save the changes and return to the Language Menu. Press the **Left** button to return without saving.

FLASH Upgrading

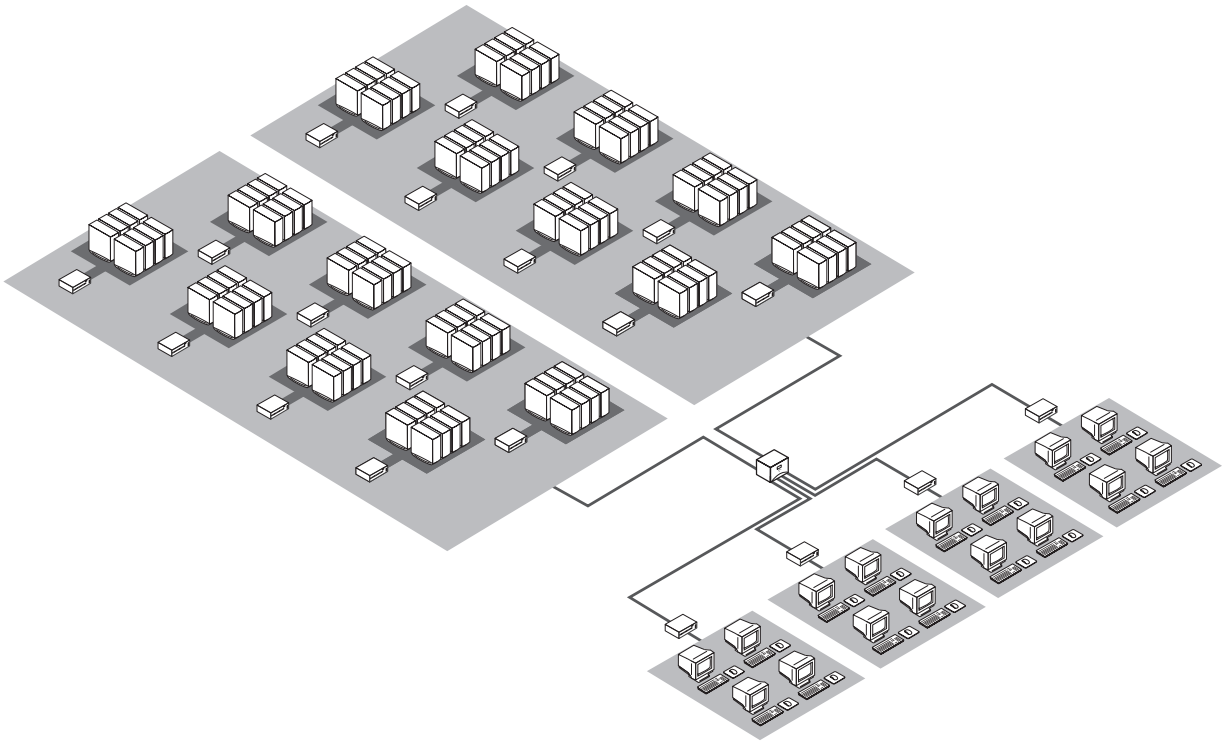
Like all XP4000 Series units, the XP4400 is FLASH upgradeable. FLASH technology allows you to upgrade the XP4400's firmware without removing modules or powering down the system. New firmware revisions are uploaded into the XP4400 via the serial port on the front panel or through standard serial connections. All advanced serial port operations are possible through the XP4400 serial port. For more information on FLASH upgrading XP4000 Series components, see Chapter 9, Advanced Operations.

Sample Configurations

There are many configurations possible with the XP4400 in your XP4000 system. Below are several common examples. For a configuration sample specific to your system, contact the Cybex Sales Department.

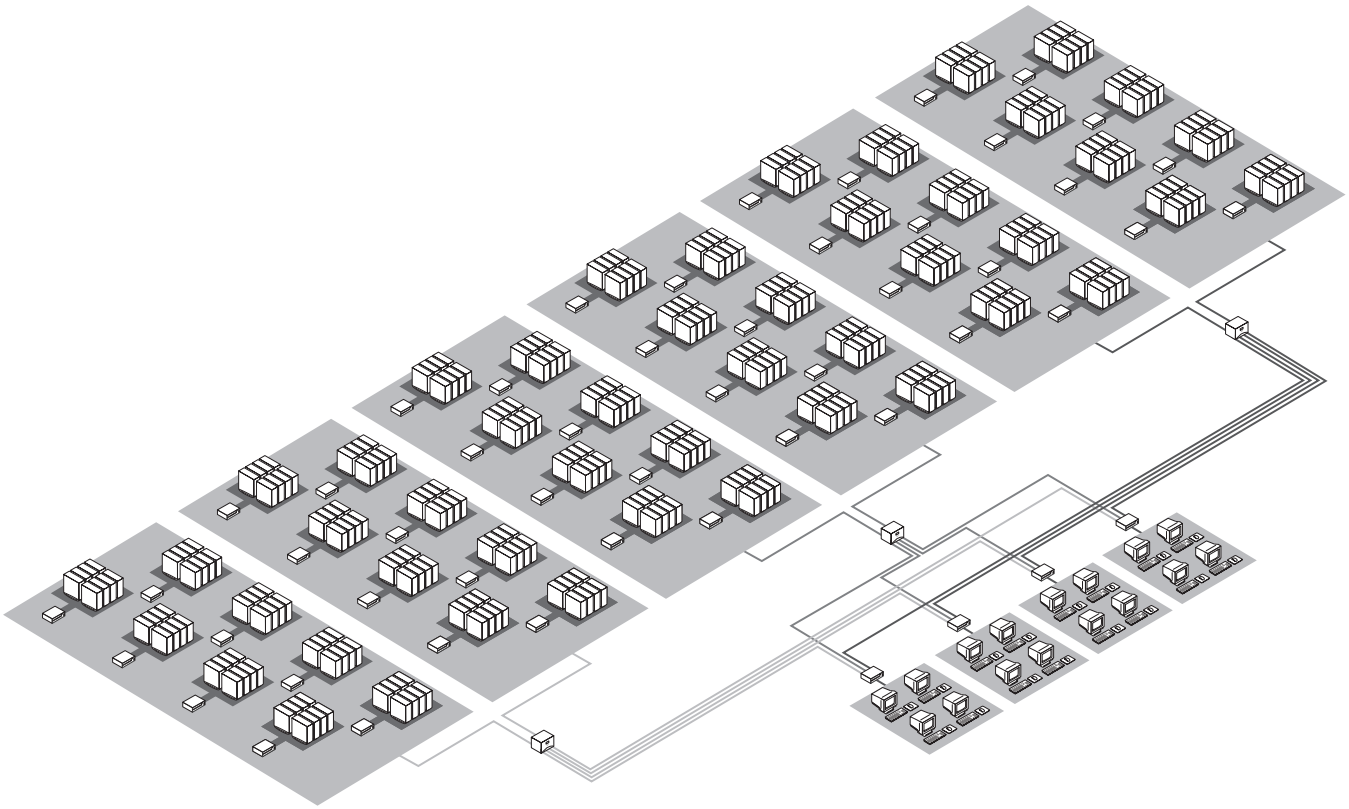
16 x 128 matrix

This configuration illustrates a matrix of 16 users with the simultaneous capability to access 128 attached computers. Any user can connect to any computer in the system without limitation or interference from another system user. Should two people need access to the same computer at the same time, they can share access. Both users can view the computer's video, while one user at a time will have keyboard/mouse control. This configuration utilizes 1 XP4400 unit, 6 XP4080 chassis to connect computers to the system, and 4 XP4040 chassis to connect the users.



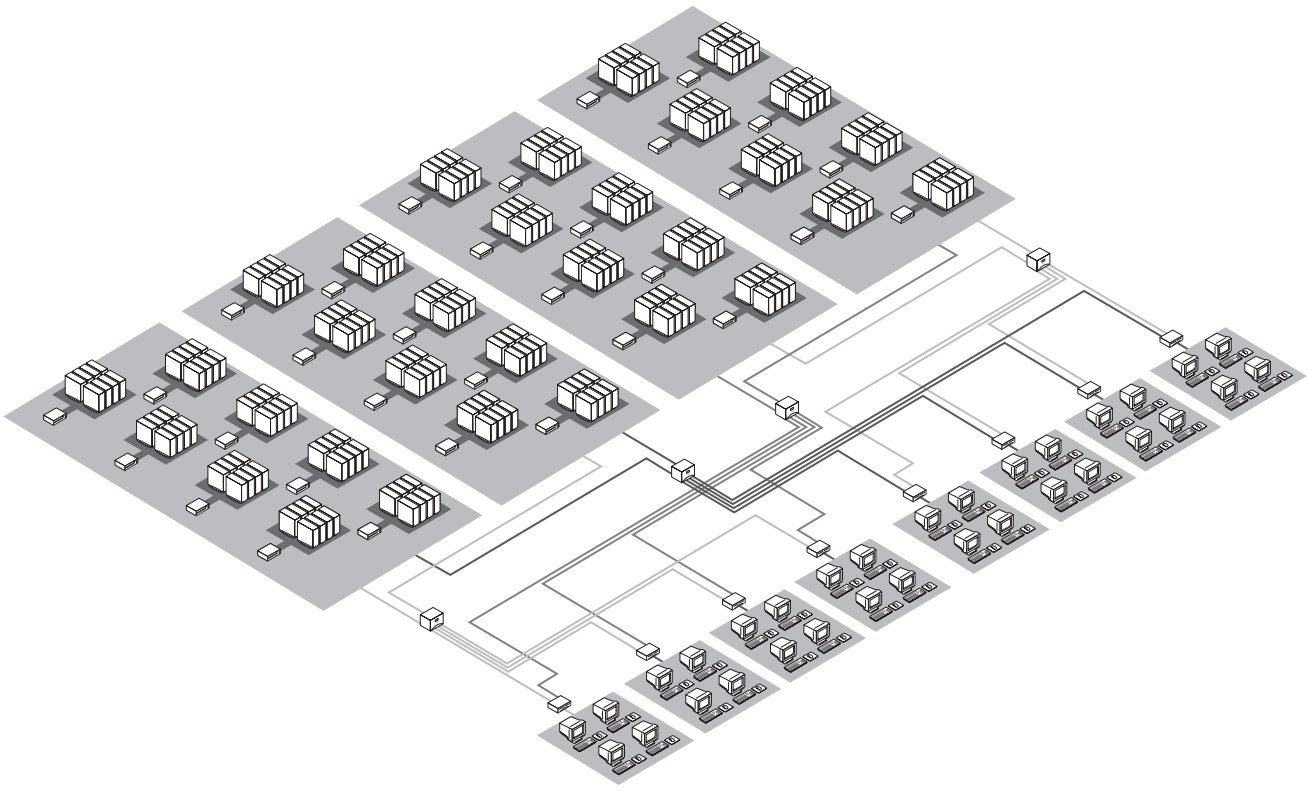
16 x 384 matrix

This configuration illustrates a matrix of 16 users with the simultaneous capability to access 384 attached computers. Any user can connect to any computer in the system without limitation or interference from another system user. Should two people need access to the same computer at the same time, they can share access. The addition of 256 additional computers added 2 XP4400 units to the prior system. Therefore, this configuration utilizes 3 XP4400 units, 48 XP4080 chassis to connect computers to the system, and 4 XP4040 chassis to connect the users.



32 x 256 matrix

This configuration illustrates a matrix of 32 users with the simultaneous capability to access 256 attached computers. Any user can connect to any computer in the system without limitation or interference from another system user. Should two people need access to the same computer at the same time, they can share access. This configuration is especially useful when a large number of users need simultaneous access to several hundred system computers. This configuration utilizes 4 XP4400 units, 32 XP4080 chassis to connect computers to the system, and 8 XP4040 chassis to connect the users.



7 Basic Operations

LEDs and Front Access Display

Computers may be powered up one at a time or all at once. Operator intervention is not necessary during booting. With the front access model, a computer may be selected at the local console by pressing the push-button for that computer channel. The channel letter will then be shown on the alphanumeric display. All other user consoles select computer channels through a keyboard sequence described on the next page. The indicator lights (LEDs) over the push-buttons will change to reflect the status of each attached computer or secondary console. See the tables below.

Front Access Model

Computer state			Channel LED state
Connected	**Powered**	**Selected**	
No	No	No	Off
Yes	No	No	Off
Yes	Yes	No	On, Low intensity
Yes	No	Yes	Blinking: On/Off (1HZ)
Yes	Yes	Yes	Blinking: On/Low intensity (1HZ)
Secondary console state			
Not installed			Off
Installed			On, Full intensity
Installed - in Command Mode			Blinking: On/Off (2HZ)

Rear Access Model

Computer state			Channel LED state	
Connected	**Powered**	**Selected**	**Amber**	**Green**
No	No	No	Off	Off
Yes	No	No	Off	Off
Yes	Yes	No	Off	On
Yes	No	Yes	On	Off
Yes	Yes	Yes	On	On
Secondary console state				
Not installed			Off	
Installed			On	
Installed - in Command Mode			Blinking	

When you are switching channels with the keyboard or using the KeyScan feature, you must first place your system in Command Mode. As long as you are operating in Command Mode, whatever you type will be intercepted by your XP4000 Series unit until the Enter or the Escape key is pressed to end Command Mode. None of the keystrokes entered will be forwarded to the attached computer. While you are in Command Mode, the Num Lock, Caps Lock and Scroll Lock lights on your keyboard will blink or "Command Line" will appear on your monitor until you press enter or escape. For more information on placing your system in Command Mode, see the "Keyboard Control" section next in this chapter.

Reading the LED status indicators

If you are using a rear access model of an XP4000 Series unit, you will notice 2 LEDs above each channel letter on the front of your unit: one amber and one green. These lights, when representing the status of transmitter or receiver boards, are normally both on. This indicates that the boards and expansion cables have been properly installed. Error conditions which would cause these indicators to either blink or go out are shown in the table below. Note that if you are using a front access model, you will only have the green status LED. This LED will be lit if either Port 1 or Port 2 is installed correctly.

	Amber LED		Green LED	
Board	**Standard**	**Error**	**Standard**	**Error**
Transmitter	ON	OFF; Expansion cable, Port 2 is not properly installed. OR BLINKING; The transmitter was configured with a different address than another transmitter in the same unit.	ON	OFF; Expansion cable, Port 1 is not properly installed. OR BLINKING; The transmitter was configured with a different address than another transmitter in the same unit.
Receiver	ON	OFF; Expansion cable, Port 2 is not properly installed.	ON	OFF; Expansion cable, Port 1 is not properly installed.

Reading the front access model front panel display

If you are using a front access model, you will have an alphanumeric display on the front panel of the unit. This display reflects the active channel for the local user console. For units with an address between 1 and 9, the display will show the unit address and the channel. For units with addresses higher than 9, the display will show an asterisk (*) in place of a unit address. For example, if channel G in Unit 7 is the current active channel at the local console, the display would show 7G. If channel K in Unit 12 is active, it would show *K.

Multiplatform Keyboard Translation

XP4000 Series units allow you to use any type of keyboard to operate any type of attached computer. However, when crossing platforms, certain keys will need to be 'remapped' in order to provide all of the functions available on the keyboard native to that platform. For example, if you access a Sun workstation with a Macintosh keyboard, you will notice that the Macintosh does not have the STOP and AGAIN keys that are on a true Sun keyboard. But, by turning Scroll Lock on, the F1 and F2 keys on the Macintosh keyboard function as the Sun STOP and AGAIN keys. With Scroll Lock off, F1 and F2 function normally.

Below are the translation tables for PC, Macintosh and Sun keyboards. Where "undefined" is designated, no characters will be transmitted to the computer. Where "untranslated" is listed, the key will perform its standard function regardless of the state of the Scroll Lock. All other mapped functions will only be valid when the Scroll Lock is on.

PC Keyboard			
Key	**Sun**	**Mac (Translation Disabled[1])**	**Mac (Translation Enabled[1])**
F1	STOP	untranslated	untranslated
F2	AGAIN	untranslated	untranslated
F3	PROPS	untranslated	untranslated
F4	UNDO	untranslated	untranslated
F5	FRONT	untranslated	untranslated
F6	COPY	untranslated	untranslated
F7	OPEN	untranslated	untranslated
F8	PASTE	untranslated	untranslated
F9	FIND	untranslated	untranslated
F10	CUT	untranslated	untranslated
F11	POWER	POWER	POWER
F12	COMMAND	COMMAND	OPTION
keypad *	COMPOSE	untranslated	untranslated
NUMLOCK	HELP	untranslated	untranslated
keypad /	MUTE	untranslated	untranslated
keypad -	VOL -	untranslated	untranslated
keypad +	VOL +	untranslated	untranslated
ALT	untranslated	OPTION	COMMAND
WINDOWS[2]	COMMAND	COMMAND	COMMAND

[1] See the section, "Attaching a Macintosh Computer" in Chapter 3 for information on keyboard translation options.

[2] Windows 95 104-key keyboard.

For Users connected to an Apple Macintosh with a "Windows 95" keyboard, you may reverse the functions of the ALT and WINDOWS keys. Enter Command Mode, type W95K and press Enter. This will map the ALT keys to the Command/Apple key and the Windows key to the Alt/Option key.

Mac Keyboard		
Key	**Sun**	**PC**
F1	STOP	untranslated
F2	AGAIN	untranslated
F3	PROPS	untranslated
F4	UNDO	untranslated
F5	FRONT	untranslated
F6	COPY	untranslated
F7	OPEN	untranslated
F8	PASTE	untranslated
F9	FIND	untranslated
F10	CUT	untranslated
F11	untranslated	untranslated
F12	untranslated	untranslated
keypad *	COMPOSE	untranslated
NUMLOCK	HELP	untranslated
keypad /	MUTE	untranslated
keypad -	VOL -	untranslated
keypad +	VOL +	untranslated
POWER	POWER	undefined
COMMAND	COMMAND	undefined

Sun Keyboard		
Key	**Mac**	**PC**
STOP	undefined	undefined
AGAIN	undefined	undefined
PROPS	undefined	undefined
UNDO	undefined	undefined
FRONT	undefined	undefined
COPY	undefined	undefined
OPEN	undefined	undefined
PASTE	undefined	undefined
FIND	undefined	undefined
CUT	undefined	undefined
POWER	POWER	undefined
COMMAND	COMMAND	undefined
COMPOSE	undefined	undefined
HELP	undefined	undefined
MUTE	undefined	undefined
VOL -	undefined	undefined
VOL +	undefined	undefined

Keyboard Control

The following notational conventions appear throughout this manual to illustrate commands for operating your XP4000 Series unit. Whenever you see one of the symbols listed on the left side of the table, substitute the corresponding steps or values listed on the right side of the table.

Convention	Key Sequence or Value
<CM>	Enter Command Mode: 1. Press and hold down the 'Num Lock' key. 2. Press and release the minus (-) key on the numeric keypad. 3. Release the 'Num Lock' key. (Note: for alternate command mode sequences, see the section, "Keyboard Switching with Different Cybex Products" in Chapter 9)
<Enter>	Press the 'Enter' or 'Return' key. The **<Enter>** command is used to execute an instruction and exit from Command Mode.
Addr	Enter the letter that corresponds to the channel you wish to select.
[channel list]	A channel list can be a **single channel** address (See above) **or** an **address range**, consisting of the low address followed by the high address separated by a backslash, entered as *[Low Addr\High Addr]*.
<ESC>	Press the 'Escape' key. The **<ESC>** command is used to exit Command Mode without executing an instruction.

Keyboard Switching

Basic keyboard switching

All users may utilize a short keyboard sequence to switch between channels. A "Hotkey" sequence places your system in Command Mode. While in Command Mode, whatever you type will be interpreted as system commands until the Enter or the Escape key is pressed to end Command Mode, and will not be forwarded to the attached computer.

Next, enter the address *(Addr)* for the channel you wish to select. A Channel address is represented by a letter located on the front panel of the unit under that channel's LED(s).

Press enter to accept the new channel. The following command line illustrates the proper format used to switch your active channel with the keyboard.

Key Sequence	Action
<CM>*Addr***<Enter>**	Selects an active computer channel with the keyboard.

Below is an example of keyboard switching, with an accompanying explanation.

Sample keyboard switching commands

Key Sequence	Action
1.**<CM>**D**<Enter>**	Selects Channel D as the active channel.
2.**<CM>**A**<Enter>**	Selects Channel A as the current active channel.
3.**<CM>**G**<ESC>**	Exit Command Mode. The instruction is **not** executed. Channel A is still the active channel.

For keyboard switching across multiple units, precede the channel of the computer you want to switch to with the chassis number of the unit that it is attached to.

Below is an example of channel switching across multiple units, with an accompanying explanation.

Key Sequence	Action
1.**<CM>**8D**<Enter>**	Selects Channel D in Unit 8 as the active channel.
2.**<CM>**76A**<Enter>**	Selects Channel A in Unit 76 as the current active channel.
3.**<CM>**112G**<ESC>**	Exit Command Mode. The instruction is **not** executed. Channel A in Unit 76 is still the active channel.

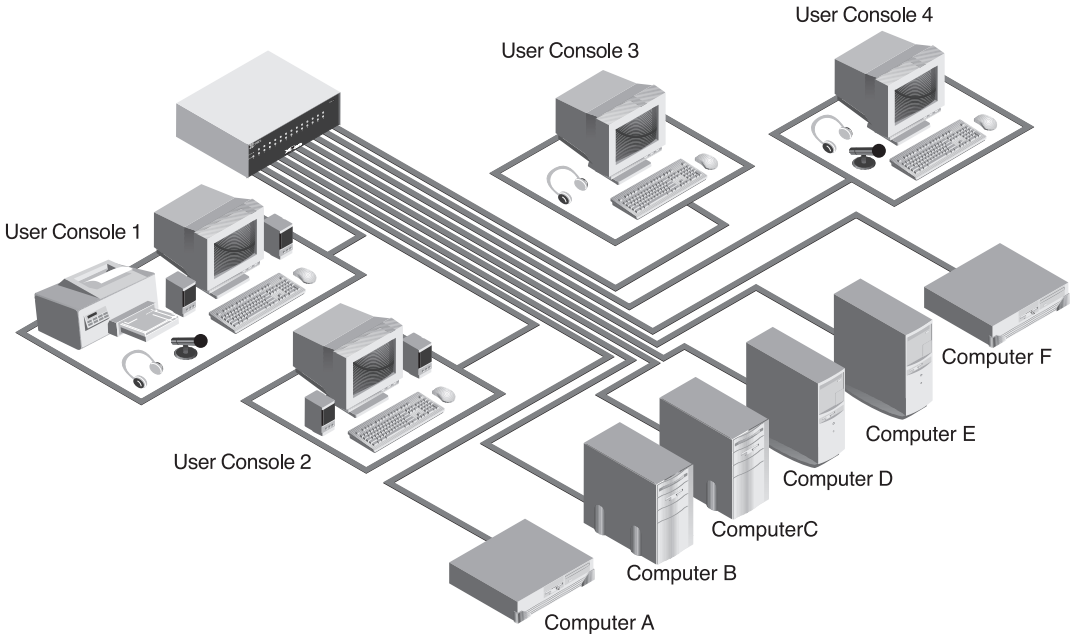
Note: If no unit address is specified, the local unit is assumed.

Multiuser Operation

There are three ways to utilize the multiuser capabilities of the XP4000 Series. You may access computers independently, share access of computers with other consoles, or use a combination of independent and shared access. Each option is described below.

Independent Access

Up to four users per unit may operate four different attached computers **independently** at the same time. Any combination of local and secondary consoles may be used. In the diagram below, User Console 1 can access any computer from A to F regardless of the type of keyboard and mouse at Console 1 or the type of computer being accessed.

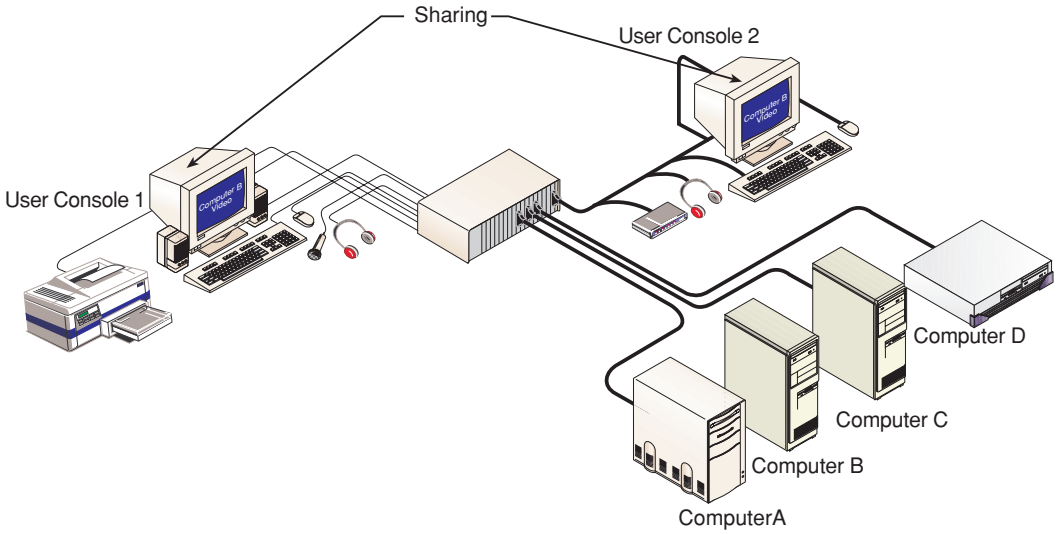


Example: User Console 1 selects computer A. If Consoles 2, 3 and 4 want independent access to an attached computer, they must choose from computers B through F. In the above example, Console 2 has chosen computer B, Console 3 has chosen computer C, and Console 4 has chosen computer E to work on.

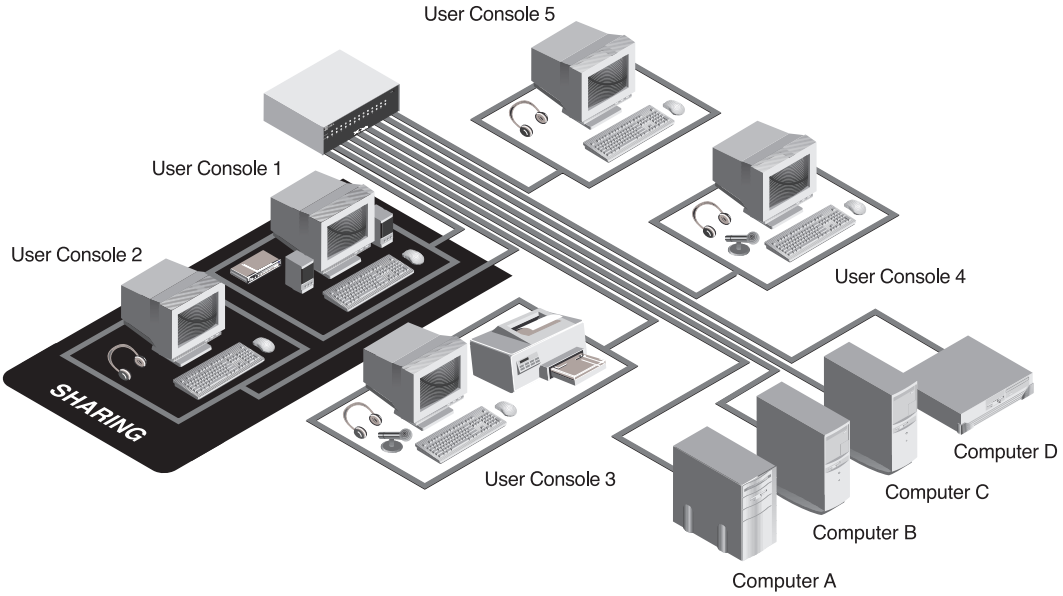
Shared Access

If two or more consoles need to access the same computer, they can 'share' access to it through the XP4000 Series unit. Sharing means that multiple consoles can view a computer channel at the same time, but only one can enter data through the keyboard or mouse at any given moment. As soon as the active console stops all keyboard and mouse activity, another console can take control of the computer. The amount of time that a console must be inactive before another console can take control is user-configurable and may be 1 second or 10 seconds. See Chapter 3, for more details.

Any console, local or secondary, can share access to any computer with any other console in the system. There is no system limitation on the number of consoles that can share access at the same time. All consoles in your system can share access to all computers simultaneously as long as only four users per unit are actively working.



Example: User Console 1 is currently using computer B. If a user at Console 2 switches to computer B, he will be able to observe Console 1 at work. When all keyboard and mouse activity at Console 1 stops, Console 2 may take control of computer B by simply moving the mouse or typing on the keyboard. Console 1 is now the observer.

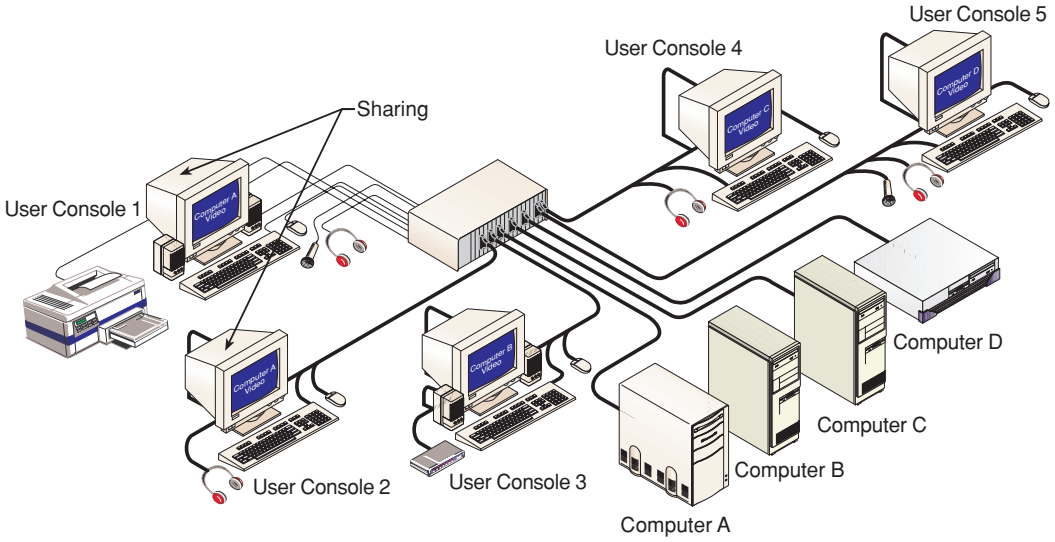


Example: User Console 1 is currently using computer A. Consoles 2 and 3 are sharing access of computer A with Console 1. When all keyboard and mouse activity stops at Console 1, **either** Console 2 **or** Console 3 can take control of computer A. Only one console can work on computer A at a time.

User Console 4 is currently working on computer B. Console 5 is sharing access of computer B with Console 4 and can take control of computer B when all keyboard and mouse activity stops at Console 4. Only one console can work on computer B at a time.

Combined Access

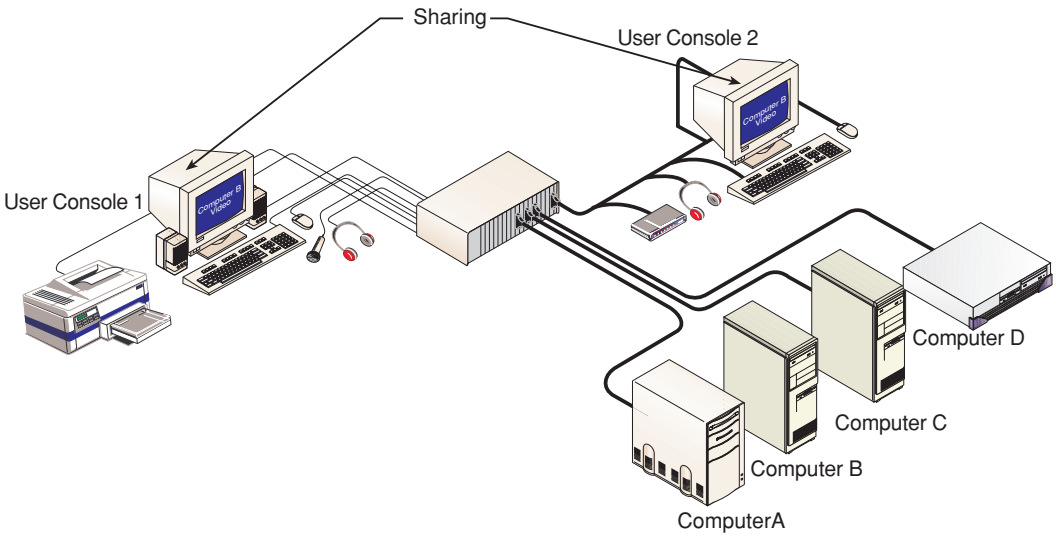
You can combine independent and shared access within one XP4000 Series system. Up to four consoles per unit have independent access to four different computers. If a fifth console enters the system, that user can share computer access with any of the other four consoles.



Example: User Consoles 3, 4, and 5 are using computers B through D respectively. They are working simultaneously and independently of each other. Consoles 1 and 2 are sharing computer A. Both Consoles display video from computer A, but only Console 1 **or** 2 can be working on the computer at any given moment.

Multimedia Operation

The XP4000 Series unit supports speakers and a microphone at every user console in the system. If you have purchased user interface and computer interface cables with multimedia capabilities, then you will have access to these features. The speakers and/or microphone that you have connected to your console will work exactly as if they are connected directly to your computer.



Example: User Console 1 is currently using computer B. The speakers and microphone at Console 1 are active. When all keyboard and mouse activity at Console 1 stops, Console 2 may take control of computer B by simply moving the mouse or typing on the keyboard. Once Console 2 takes control, the headphones at that station are active.

NOTE: Some speakers and microphones have different sized jacks than will connect to the cables. If you encounter this situation, you will need to purchase an adaptor to make the connection. These adaptors are commonly available; contact your electronics supply store for more information.

Serial Peripherals

The XP4000 Series units support any RS-232 serial peripheral that uses inband (XON/XOFF) or hardware (RTS/CTS) flow control: hardware up to 9600 Baud, inband to 115200 Baud. Examples include most modems, serial printers and touch screens.

If you have user and computer interface cables with multimedia capabilities, you will have access to these features. Simply connect your serial device to the matching connector on your user interface cable, as if you were connecting it directly to your computer. When your console has keyboard and mouse control for a computer channel, you will also have serial device throughput.

KeyScan

KeyScan lets you automatically scan your computer channels sequentially without intervention. When KeyScan detects keyboard or mouse activity, scanning is suspended until all activity stops. Scanning then resumes with the next channel in sequence. The length of time each computer channel remains on screen, or dwell time, is configurable and changeable at any time. If you have multiple units in your system, you can control which units are included in the scan process. Scanning is halted if the KeyScan Halt command is entered or if another channel is selected.

KeyScan commands

The following key sequences configure and control KeyScan. The first sequence is used to configure the dwell time. The next two commands control which units should be included in scanning. The Go command enables automatic scanning with the current computer channel. The Halt command stops scanning. Scanning is suspended while in Command Mode.

Key Sequence	Action
<CM>KD*nn***<Enter>**	Configures the dwell time. Substitute *nn* with a value from 1 to 65 seconds. The default value is 5 seconds.
<CM>KM*nnn***<Enter>**	Sets the highest unit address that the system will scan through during a session. Substitute *nnn* with a value from 1 to 254. Required for expansion systems only.
<CM>KM0**<Enter>**	Resets scanning to include channels in the local unit only.
<CM>KG**<Enter>**	Enables the KeyScan Go command.
<CM>KH**<Enter>**	Enables the KeyScan Halt command.

Below is a sample KeyScan session, with an accompanying explanation.

Sample KeyScan session

Key Sequence	Action
1.**<CM>**KD10**<Enter>**	Configures the dwell time. Each computer channel will remain on the screen for 10 seconds before the next channel is displayed.
2.**<CM>**KM55**<Enter>**	Configures the system to scan up through unit address 55 before beginning at Unit 1 again.
3.**<CM>**KG**<Enter>**	Go command. Scanning begins with the current channel.
4.**<CM>**KD3**<Enter>**	Reconfigures the dwell time. Each channel will now remain on the screen for 3 seconds before the next channel is displayed.
5.**<CM>**KH**<Enter>**	Halt Command. Scanning is halted until the Go command is issued again.
6. **<CM>**KM0**<Enter>**	Resets scanning to include channels in the local unit only.
7.**<CM>**KG**<Enter>**	Go command. Scanning begins with the current channel. All channels in the local unit **only** will be scanned sequentially, then the pattern repeated.

Broadcast Mode

Broadcast Mode allows each user to send commands to multiple computers within your system at the same time. By creating your own customized "broadcast groups", you can designate which computers you want to broadcast to. Once you enter Broadcast Mode, whatever you type is sent to all of the computers in your group regardless of which channel is active. Broadcast groups may include any type of module in the system, but only affect XPAC/XPAB computer interface modules. Each XPAC/XPAB module can belong to only one broadcast group at a time.

Go/Halt commands

The following key sequences are used to configure and run Broadcast Mode. When the Broadcast Go command is entered, all channels configured for Broadcast Mode will begin broadcasting all keystrokes entered. Similarly, when the Broadcast Halt command is entered, all channels will stop broadcasting.

Key Sequence	Action
<CM>TG**<Enter>**	Enables the Broadcast Go command
<CM>TH**<Enter>**	Enables the Broadcast Halt command

Add/Remove channels

Enter the Broadcast Add Channel (+) command to add channels to your broadcast group. Use the Broadcast Remove Channel (-) command to delete channels from the group. If you are currently in Broadcast Mode, these commands will not take effect immediately. The channels will be added or removed the next time the Broadcast Go command is entered.

Key Sequence	Action
<CM>T+*[channel list]***<Enter>**	Enables the Broadcast Add Channel (+) command
<CM>T-*[channel list]***<Enter>**	Enables the Broadcast Remove Channel (-) command

Sample broadcast session

Below is a typical broadcast session, with an explanation after each step.

Key Sequence	Action
1.**<CM>**T-A-D**<Enter>**	Removes channels A through D of the local unit from the broadcast group.
2.**<CM>**T+A-B**<Enter>**	Configures channels A and B for broadcasting.
3.**<CM>**TG**<Enter>**	The computers attached to channels A and B will receive all keys typed, even if neither channel is selected.
4.**<CM>**T-A**<Enter>**	Channel A will continue broadcasting, but will not broadcast the next time the 'Go' command is entered.
5.**<CM>**T+C**<Enter>**	Channel C will not broadcast now, but will begin broadcasting the next time the 'Go' command is entered.
6.**<CM>**TH**<Enter>**	All channels in the broadcast group (A and B) will stop broadcasting.
7.**<CM>**TG**<Enter>**	All channels in the new broadcast group (B and C) will receive all keys typed, even if neither channel is selected.
8.**<CM>**T+1A-55N**<Enter>**	Configures all XPAB/XPAC modules within the range of channels 1A through 55N for broadcasting.

Follow Mode

Follow Mode allowsa user to follow another user's channel switching. For example, John and Melissa are both users in an XP4000 Series system. John wants to automatically change channels along with Melissa. John places his console in Follow Mode, designating Melissa's user console as the leader. Now, whenever Melissa changes to any channel, John automatically switches to the same.

The following key sequences configure and control Follow Mode. The first sequence designates the leader console. The remaining commands are used to enable/disable Follow Mode and save the changes.

Key Sequence	Action
<CM>FOLLOW*Addr***<Enter>**	Sets the address of the leader console to be followed
<CM>FOLLOW+**<Enter>**	Enables Follow Mode
<CM>FOLLOW-**<Enter>**	Disables Follow Mode
<CM>SAVE**<Enter>**	Saves configuration to permanent memory

Swap Mode

Swap Mode allows two users to exchange channels with one channel switch. For example, John and Melissa are both users in an XP4000 Series system. When Melissa is working on John's computer, John wants to be automatically switched to Melissa's computer and vice versa. John and Melissa both place their consoles in Swap Mode. Now, John and Melissa will swap channels when either one switches to the other's computer.

The following key sequences configure and control Swap Mode. The first sequence designates the user console to be swapped with. The remaining commands are used to enable/disable Swap Mode and save the changes.

Key Sequence	Action
<CM>SWAP*Addr***<Enter>**	Sets the address of the console to be swapped with
<CM>SWAP+**<Enter>**	Enables Swap Mode
<CM>SWAP-**<Enter>**	Disables Swap Mode
<CM>SAVE**<Enter>**	Saves configuration to permanent memory

Privacy Mode

When you select your computer channel with the Privacy Mode sequence shown below, no other user station in the system can switch to your channel. If another user initiates a channel change to your private channel, they will simply remain on their present channel instead. Take your channel out of Privacy Mode by switching to another channel or using the off command.

Key Sequence	Action
<CM>X*Addr***<Enter>**	Places a computer channel in Privacy Mode

Command Forwarding

Commands from one user can be sent to a remote user via command forwarding. For example, Melissa is training John and needs for him to be in Follow Mode. With Command Forwarding, Melissa can put John's system into Follow mode from a remote location without any intervention on his part.

The following key sequences configure and control Command Forwarding. The first sequence designates the leader console. The remaining commands are used to enable/disable Command Forwarding and save the changes.

Key Sequence	Action
<CM>FWD+**<Enter>**	Enables Command Forwarding
<CM>FWD-**<Enter>**	Disables Command Forwarding
<CM>FWD<Address>=<Command>**<Enter>**	Sends the remote sequence <Command> to the user card at <Address>

8 XPDU Module and On-Screen Display

Overview

The XPDU module is a user console module of the XP4000 Series. It is similar to the XPLU module in that it allows a user to connect a keyboard, monitor and mouse to an XP4000 Series unit. However, the XPDU also supports many advanced features for the XP4000 Series user.

On-screen display and control capability

Identify and select your attached servers quickly and easily with the XPDU's on-screen display capability. Name your servers for easy recognition, then select them from a pop-up menu. You can keep your current server name on screen at all times or for just a few seconds after switching channels. Control features allow you to manage your scanning and broadcast operations on-screen as well.

Multi-level system security for complete control over system access

Each XPDU module supports up to 32 defined users. Use the advanced multi-level security feature to configure and control server access for every type of user in the system. The module administrator has full access privileges; individual users can have viewing, viewing/editing, or full viewing/editing/ power control capability for each attached server.

Optional logout feature for additional security

For additional security, the XPDU features optional logout after a user defined period of inactivity. Time-out values can be set from 1 to 60 minutes. When the time-out is reached, the current channel is deselected and the screen goes blank. Users must login again to access system computers.

For installation instructions, see Chapter 2. Refer to the section, “Installing the Secondary Console Modules (XPDU).”

On-Screen Menu Overview

The XPDU module's on-screen display is made up of four main menus:

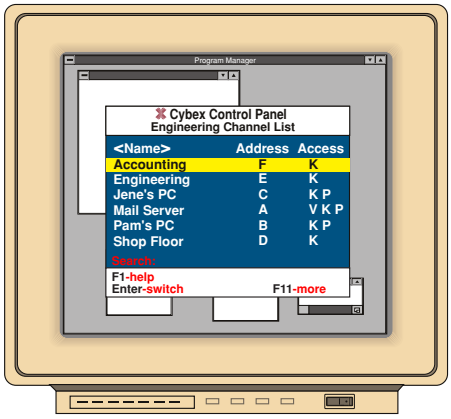
Channel List Menu
User List Menu (Administrator only)
Administrator/User Control Menu
Command Line Entry Menu

To access the Channel List Menu, press the **Control** key twice within one second. Press **Alt-tab** to cycle through the remaining menus. While in the on-screen display system, you may press the F1 key at any time for context sensitive help.

Certain menus and commands within the XPDU's on-screen display (OSD), are only available if you are logged on as the system administrator. Any commands that are applicable to system administrators **only** will be covered later in this chapter, in the section "Administrator Functions". The following menus and options are those that can be accessed by all system users.

The Channel List Menu (User Level Access)

Once you have logged into the on-screen display (OSD) system, the Channel List Menu is the first menu displayed. After login, you may activate the OSD Channel List Menu by pressing either of the keyboard **Control** keys twice within one second. This menu lists all named computer channels in your system with their channel addresses and access status. The administrator will always have full access to every server. Individual user profiles will have varying degrees of access, determined by the system administrator. Only the channels that are included in a user's profile will be listed. (See the "Administrator Functions" section for more details.)



THE CHANNEL LIST MENU

Use your up/down arrow keys and the page up/page down keys to select a channel. Move immediately to the top or bottom of the list with the home and end keys. Press **Enter** to switch to your selected channel. To exit OSD without changing channels, press **Esc**.

The white bar at the bottom of the menu lists all options available from this menu. Use the F11 key to scroll through these options.

Logging into the System

1. At the User Login screen, enter the User Name and Password assigned to you by your system administrator.

2. Highlight and select a channel.

Logging out of the System

1. Activate OSD by pressing the **Control** key twice.

2. Press the **F10** function key. The User Login screen will appear. You or any other user will have to log back in to continue working on the system.

Switch in Privacy Mode

1. Highlight the channel you wish to switch to.

2. Use the **Alt-Enter** keyboard combination to select your channel.

Sorting the Channel List

To sort the Channel List by name, press the keypad (+) key while the Channel List Menu is on-screen. To sort by address, press the keypad (-) key.

There will be brackets <> around the Name or Address headings of the Channel List Menu to indicate which sort method is currently active.

Searching the Channel List

Channel searching will be based on the sort order. If you are currently sorting by Name, a search will be performed on the Name field. If Address is the current sort field, a search will be performed on the system addresses.

To search, bring up the Channel List Menu and enter the first letter or number to sort on. It will appear on the "Search" line at the bottom of the menu. The next key you press adds the second letter or number to your search string.

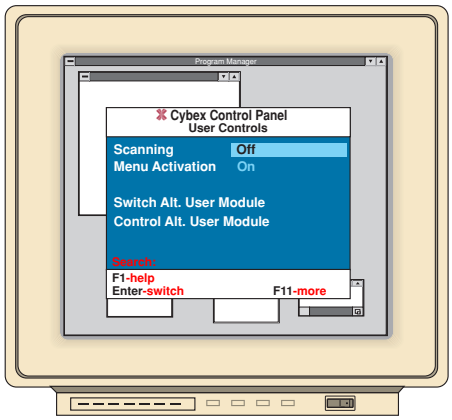
For example, if sorting by name, entering "M" will move your cursor to all entries that begin with the letter M. Enter "A" and your cursor moves to entries starting with MA. Continue adding characters until you reach your desired entry.

The User List Menu

The User List Menu is accessed by pressing the **Control** key twice, then pressing **Alt-tab**. This menu displays each system user's name, the time-out in minutes and password status. The time-out value determines how many minutes a station can remain inactive before the user is logged out of the system.
The User List Menu only appears if you are signed on as the system administrator. No other user profile has access. For details on this menu, see the section, "Administrator Functions".

User Controls Menu (User Level Access)

The User Controls Menu is accessed by pressing the **Control** key twice, then pressing **Alt-tab**. (System administrators will have to press **Alt-tab** twice to pass by the User List Menu.) At the user profile level, this menu will have four options: Scanning, Menu Activation, Switch Alt. User Module and Control Alt. User Module. More options are available if you are logged on as the system administrator. See the section, “Administrator Functions” for details.



THE USER CONTROLS MENU

Scanning

You can activate scanning through the User Control Menu as well as through keyboard commands.

1. Highlight the Scanning option in the User Control Menu.
2. Use the space bar to toggle through your available options: Off, By address or By name.
3. Press **Enter** to accept your selection.

Menu Activation

If you do not wish to have any of the programmed sequences (Ctrl-Ctrl, Alt-Alt or Shift-Shift) activate your OSD menu, disable the menu activation.

1. Highlight the Menu Activation option in the User Control Menu.
2. Use the space bar to toggle between Off and On.
3. Press **Enter** to accept your selection.

Note: Once Menu Activation is turned off, the only way to bring up the OSD menu is by keyboard hotkey sequence. Once the Command Line Entry Menu is displayed, you may Alt-tab through your menus normally.

Switch Alt. User Module

With this option, you can remotely switch another user module to a specific channel. The other user module can be an XPLU or XPDU module.

1. Highlight the Switch Alt. User Module option in the User Control Menu and press **Enter**.

2. Enter the chassis address of the remote user module.

3. If the remote user module is an XPDU, enter the administrator password for this module. If the remote module is an XPLU or LCI, leave this field blank.

4. Enter the chassis address for the computer you want the remote user module to switch to.

5. If the remote module is an XPDU, use the space bar to toggle through the access options. Select the access you want the remote user module to have when the computer is selected. If your remote module is an XPLU or LCI, this field is not applicable.

6. Press **Enter** to accept your selections. The remote user module will now initiate a channel switch to the designated computer channel.

Control Alt. User Module

With this option, you can remotely enter a command for another user module. The other user module can be an XPLU or XPDU module.

1. Highlight the Control Alt. User Module option in the User Control Menu and press **Enter**.

2. Enter the chassis address of the remote user module.

3. If the remote user module is an XPDU, enter the administrator password for this module. If the remote module is an XPLU or LCI, leave this field blank.

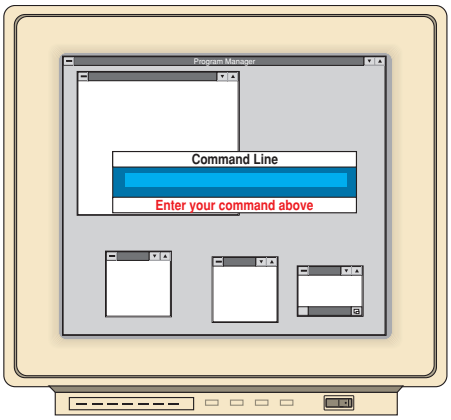
4. Enter the command you want the remote user module to execute.

5. Press **Enter** to accept your selections. The remote user module will now process the command just as if it had been entered locally.

The Command Line Entry Menu

The User Controls Menu is accessed by pressing the **Control** key twice, then pressing **Alt-tab** twice. (System administrators will have to press **Alt-tab** three times to pass by the User List Menu.) Entering the num-lock key combination will bring up this menu as well.

This menu provides an entry field for all of your system commands. Just type in your command and press enter. Refer to Chapter 7, “Basic Operations” chapter for all available commands.



THE COMMAND LINE MENU

Administrator Functions

There is an administrator for each XPDU module in your system. All administrator/user configurations apply to the current XPDU module only. Settings can then be downloaded to other XPDU cards in the system if desired.

To perform any of the following tasks, you must be logged on as the administrator. If you are using a newly installed XPDU module, or one without an administrator password defined, you will automatically be logged on as the administrator.

Administrator Setup

1. Press the **Control** key twice within one second.
2. Press **Alt-tab** to reach the User List Menu.
3. Press the **F5** function key for admin setup.
4. Enter your desired administrator password and time-out in minutes. The time-out determines how many minutes of inactivity can elapse before a user is automatically logged out. A value of 0 keeps you logged on continuously; 60 is the maximum time-out setting.
5. Press **Enter** to accept your selections.

Adding and Configuring Computer Channels

1. Press the **Control** key twice within one second.
2. Press the **Insert** key to add a channel.
3. Enter the name and channel address for the computer you are adding.
4. Enter the desired scan dwell time for this channel. Dwell time is the length of time a channel's video remains on-screen before scanning continues.

5. Enter the ID window display information. The ID window appears on your screen after a channel switch and displays the current channel name. You may enter the window's position, text size, field length, text color and window color from this menu or visually adjust these values instead. See next instructions, 'Adjusting the ID Window Visually.'

6. Enter a value, in seconds, for the ID window dwell time. A value of 0 indicates that the window will not display at all. A value of 255 will keep the ID window visible the entire time that channel is active.

7. Use the space bar to enable or disable the Dual Video feature. Please note that if dual video is enabled, you must also designate your secondary monitor's user module in the System Configuration option of the Administrator Control Menu. For more information on the dual video feature, see the section "Dual Monitor Support" later in this chapter.

8. Press **Enter** to accept your selections.

Adjusting the ID Window Visually

1. Press the **Control** key twice within one second.

2. Highlight the desired channel and press the **F3** function key.

3. Adjust your ID window, using the following keys:
   +/- keys set window length.
   Space changes ID text size.
   Page Up sets background color.
   Page Down sets text color.
   Arrow keys set window position.
   Shift-Arrow moves window in smaller increments.

   Press **Enter** to accept the changes or **Esc** to leave the settings unchanged.

Editing Computer Channel Configurations

1. Press the **Control** key twice within one second.

2. Highlight the channel you wish to edit and press the **F2** function key.

3. Edit any of the channel configuration options you wish and press **Enter** to accept the changes.

Note: For a quick edit of the channel name and address only, use **F4**.

Deleting a Computer Channel

1. Press the **Control** key twice within one second.
2. Highlight the channel you wish to delete and press the **DEL** key.
3. Press **Enter** to confirm the deletion or **Esc** to escape without deleting.

Adding Users

1. Press the **Control** key twice within one second.
2. Press **Alt-tab** to reach the User List Menu.
3. Press the **Insert** key to add a new user.
4. Enter the new user's name, time-out in minutes and password, if any. The time-out determines how many minutes of inactivity can elapse before a user is automatically logged out. A value of 0 keeps a user logged on continuously; 60 is the maximum time-out setting.
5. Press **enter** to accept your selections.

Editing User Configurations

1. Press the **Control** key twice within one second.
2. Press **Alt-tab** to reach the User List Menu.
3. Highlight the user you wish to edit and press the **F2** function key.
4. Edit any of the user configuration options you wish and press **Enter** to accept the changes.

Note: For a quick edit of the user name and time-out only, use **F4**.

Deleting a User

1. Press the **Control** key twice within one second.
2. Press **Alt-tab** to reach the User List Menu.
3. Highlight the user you wish to delete and press the **DEL** key.
4. Press **Enter** to confirm the deletion or **Esc** to escape without deleting.

Configuring User Access Privileges

1. Press the **Control** key twice within one second.

2. Press **Alt-tab** to reach the User List Menu.

3. Highlight the user you want to configure access for and press **F3**.

4. Highlight the first listed computer channel.

5. Use the **Space Bar** to toggle through the available choices:
   No access
   Video access only (V)
   Video, keyboard and mouse only (V K)
   Video, keyboard/mouse, power control (V K P)

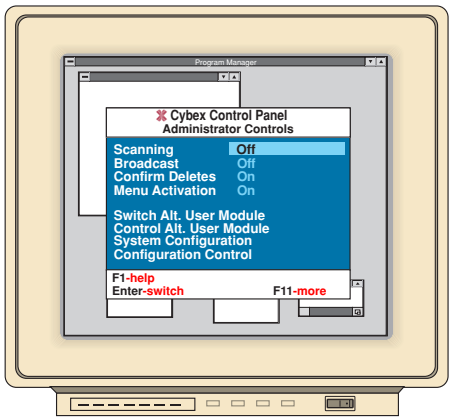
Note: Changes to user access take effect instantly, regardless of whether you press enter or escape.

6. Repeat steps 4-5 for each attached computer.

7. Press **Enter** to return to the User List Menu.

Administrator Controls

The Administrator Controls Menu is accessed by pressing the **Control** key twice, then pressing **Alt-tab** twice. At the user profile level, this menu will have four options: Scanning, Menu Activation, Switch Alt. User Module and Control Alt. User Module. When logged on as the Administrator, four more options are available. These options are explained below. For more details on user level options, see the section, "User Controls Menu (User Level Access)".



THE ADMINISTRATOR CONTROLS MENU

Broadcast

Use the space bar to toggle your Broadcast Mode off or on. For more information on Broadcast Mode, see Chapter 7, 'Basic Operations.'

Confirm Deletes

The confirm deletes option is used to specify whether users must confirm the deletion of a channel or user before the command is processed. Use the space bar to toggle this option off or on.

System Configuration

This option allows the administrator to configure a variety of system functions described below.

Chassis Number

If you do not have an intelligent power supply or a transmitter module in your unit, use this option to configure your unit's chassis address. Chassis addresses are numeric, and may be any value between 1 and 254. Unit addresses of "0" and "255" are reserved. Enter a unique chassis address for this unit.

If you already have a chassis number assigned to this unit, leave the value in this field at "0". This does not indicate a chassis address of "0." It means only that the XPDU module will not attempt to give the unit a chassis number.

Command Key Sequence

Use the space bar to toggle though the available key sequences for bringing up the Command Line Menu. Choose from Numlock -, Numlock *, Numlock +, Numlock / or Ctrl ~.

Menu Activation Key Sequence

Use the space bar to toggle through the available key sequences for activating the on-screen menu system. Choose from Ctrl-Ctrl, Alt-Alt or Shift-Shift.

Remote Commands

This option either enables or disables your XPDUs ability to accept remote commands. Use the space bar to select your choice. For more information on remote commands, see the section, "User Controls Menu (User Level Access)".

Remap WIN95 Keys

This option is used to determine whether the XPDU module will remap Windows 95 keys when a Macintosh computer is selected. When enabled, the Windows keys function as the Mac's Alt/Option keys. The Alt keys function as the Command/Apple keys. Use the space bar to enable or disable this option.

Stand alone RSP

If you are using a Cybex RSP Commander and have a Macintosh or Sun keyboard, use the space bar to enable this option.

Follow/Swap Feature Status

Use the space bar to enable Follow mode and Swap mode or to disable either process. If you are enabling an option, also enter the user address you are following or swapping with. For more information on Follow or Swap mode, see Chapter 7, 'Basic Operations.'

Note: You must be logged on as the administrator for this feature to be operational.

Dual Monitor Support Card Address

If your system is configured for dual monitor support, use this option to specify the address of the XPLU user module that serves as the second monitor in the dual monitor system. If the field is left blank, dual monitor support is disabled. See the section "Dual Monitor Support" in this chapter.

Configuration Control

Use this option to transfer your user and channel configuration settings to another XPDU module in the system.

To send your settings to another XPDU module:

1. Press the **Control** key twice within one second.

2. Press **Alt-tab** twice to reach the Administrator Controls Menu.

3. Highlight the Configuration Control option and press **Enter**.

4. Use the **Space Bar** to toggle through the available configuration port choices. Select “Internal”.

5. Enter the port address of the remote XPDU module you are transferring to. Be sure to include the chassis number and port letter (i.e. 3H).

6. In the Direction of Transfer field, use the **Space Bar** to select “Send”.

7. Enter the admin password for the remote XPDU module.

8. Highlight the Begin Configuration field and press **Enter**.

The receiving XPDU module will display a message indicating that a transfer is in progress.

To receive your settings from another XPDU module:

1. Press the **Control** key twice within one second.

2. Press **Alt-tab** twice to reach the Administrator Controls Menu.

3. Highlight the Configuration Control option and press **Enter**.

4. Use the **Space Bar** to toggle through the available configuration port choices. Select “Internal”.

5. Enter the port address of the remote XPDU module you are transferring from. Be sure to include the chassis number and port letter (i.e. 3H).

6. In the Direction of Transfer field, use the **Space Bar** to select “Recv”.

7. Enter the admin password for the remote XPDU module.

8. Highlight the Begin Configuration field and press **Enter**.

The sending XPDU module will display a message indicating that a transfer is in progress. When the transfer is complete, the receiving XPDU will restart. Note that the screen will go blank for several seconds.

Dual Monitor Support

If your computer supports dual video monitors, the XPDU allows you to run the second monitor through an XP4000 Series system. You must be logged on as the administrator to configure this option. System requirements are as follows:

1) You must have two XPAC modules dedicated to the same computer channel. These modules must be side by side in the chassis, with the secondary XPAC having the higher address. For example, if your computer is attached to an XPAC module in chassis address 1B, your secondary XPAC must be located in 1C.

2) You must have two user modules - one to support each monitor. Your primary user module must be the XPDU. The secondary user module must be an XPLU. The XPLU must be dedicated solely to the second video monitor in the system. These two modules do not have to be next to each other, but it is recommended that they reside in the same chassis.

3) You will need an extra computer interface cable to connect the secondary XPAC to a video port on your computer. Contact the sales department and request the cable that is appropriate for your computer.

Note: If you are using the PC universal CPUC cable, you will need a SAD-3 adaptor as well. Contact the Sales Department to order.

4) You will need an extra user interface cable to connect the secondary XPLU to your second monitor. Contact the Sales Department and request the cable that is appropriate for your peripherals.

Connecting your Dual Monitor System

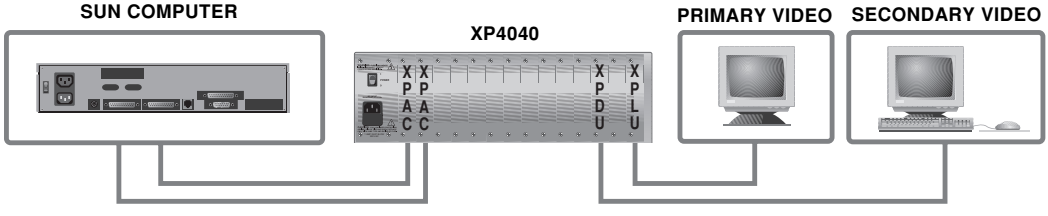
1) Connect your computer to your primary XPAC module as usual.

2) Connect a second computer interface cable between your secondary XPAC and your computer's second video port. Leave the remaining connector(s) on the cable unattached.

   If you are connecting a CPUC universal computer interface cable, you will also need a SAD-3 adaptor from Cybex. Attach this adaptor to the mouse connector of the secondary CPUC cable. For more information, contact Technical Support.

3. Connect the XPDU module to your keyboard, monitor and mouse as usual.

4. Connect a second user interface cable between your XPLU and secondary monitor. Leave the remaining connector(s) on the cable unattached.



Configuring your Dual Monitor System

1) If you have not added the computer attached to your primary XPAC to the on-screen menuing system, do so now. See the instructions, 'Adding and Configuring Computer Channels' in the "Administrator Functions" section. Use the space bar to enable the Dual Video feature.

   If you have already configured this computer channel, you will need to edit the configuration. See the instructions, 'Editing Computer Channel Configurations' in the "Administrator Functions" section. Use the space bar to enable the Dual Video feature.

2) Enter the Administrator Controls Menu and select the System Configuration option. Page down and highlight the Dual Monitor Support Card Access field. (For more detailed instructions on these menus and options, see the "Administrator Controls" section.)

   Enter the address of the XPLU user module that serves as the second monitor in the dual monitor system. If this field is left blank, dual monitor support is disabled.

9 Advanced Operations

System Control & Maintenance

The following commands are used for system control and maintenance. Enter the command sequences to perform the actions described in the table below.

Key Sequence	Action
<CM>RESET**<Enter>**	Resets the active user module.
<CM>RESET*Addr***<Enter>**	Resets any module in the system, computer or user. Replace *Addr* with the address of the module to reset.
<CM>OFF**<Enter>**	Logs a secondary user off of the XP4000 system. User screen goes blank. Video channel is freed up for other users in the system. Selecting a channel re-enables the user.
<CM>M+**<Enter>**	Re-enables the mouse on the current active channel. Use after switching the type of mouse connected to a user station, or after the RESET command has been used on the active computer interface module.
<CM>SAVE**<Enter>**	Saves user console configuration (i.e. Swap Mode, Follow Mode) settings to permanent memory. Any configuration changes that are not saved will not be retained after a power reset.
<CM>SW=*nn***<Enter>**	Overrides DIP switch settings on XPAC/XPAB computer interface modules. Sets the bank of switches (1-8) to a user specified ON/OFF combination. To determine the correct DIP switch code for your system (*n*), refer to Appendix G. Further instructions can be found on page 113.
<CM>SW*n*=1**<Enter>**	Overrides DIP switch (*n*) and sets it to the ON position.
<CM>SWn=0**<Enter>**	Overrides DIP switch (*n*) and sets it to the OFF position.
<CM>SW+**<Enter>**	Enables override of DIP switch settings.
<CM>SW-**<Enter>**	Disables override of DIP switch settings.
<CM>CHASSIS=*n***<Enter>**	Changes the unit address of the local unit to *n* (0-254).
<CM>SUN=*n***<Enter>**	**Non-US Sun Workstations Only** Sets all XPAC/XPAB computer interface modules attached to Suns to emulate country-specific key codes. To determine the correct code for your system (*n*), refer to your Sun workstation documentation and Appendix H.
<CM>SUNI=*n***<Enter>**	**Non-US Sun Workstations Only** Sets the current XPAC/XPAB computer interface module (Sun only) to emulate country-specific key codes. To determine the correct code for your system (*n*), refer to your Sun workstation documentation and Appendix H.

Serial Port Advanced Operations (for XPLU, XPDU and LCI modules)

Your XP4000 Series unit has a serial port on the front panel that is available for the connection of a printer or similar device at the local workstation. This port can also be used to obtain a configuration report of your XP4000 system or to download system enhancements and new product features that you have received from Cybex. This section covers these advanced applications of the serial port and how you may utilize them through the XPLU or LCI modules of your XP4000 system. If you have XPRB modules in your system, see the next section, "Serial Port Advanced Operations (for XPRB Modules)."

The following procedures can be accomplished in one of two ways. If one of your attached computers has a serial port and terminal emulation software, you may run the configuration/upgrade procedures from this machine. If none of the attached computers in your XP4000 system meet these requirements, then you must have use of a computer not currently attached to your XP4000 system with terminal emulation software and a serial port. A null modem (cross over) cable will also be needed with this setup.

If you are working with a computer in the XP4000 system, make this the active channel now. Otherwise, connect the null modem cable between the serial port of your unattached computer and the serial port on the front panel of the XP4000 Series unit. Run your terminal emulation software as usual. Adjust your setup to the following:

1200 - 19200 (except 14400) Baud,N,8,1 No flow control

Enter the hotkey sequence below that applies to your configuration.

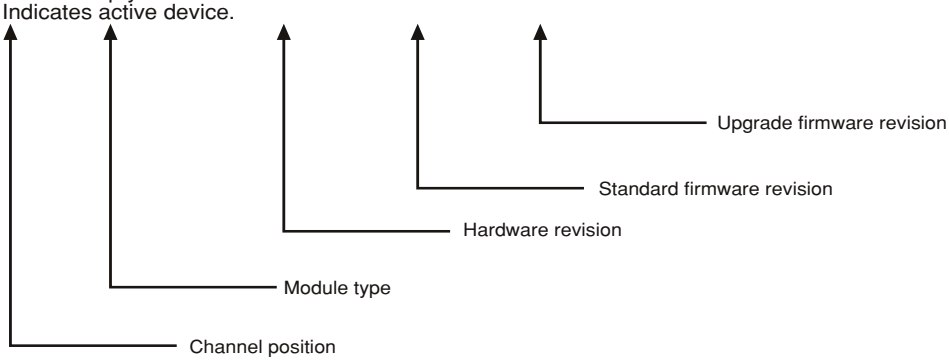
Key Sequence	Condition
<CM>ZF**<Enter>**	If you are connected through an unattached computer to the Front panel serial port or a high speed serial port from an XPDU.
<CM>ZB**<Enter>**	If you are connected through an attached computer
<CM>ZS**<Enter>**	If you are connected with an unattached computer through the serial mouse port of an XPLU/XPDU module.
<CM>ZQ**<Enter>**	Quits the Configuration Menu

The interface on the XP4000 Series unit will sync up to the rate that you want to run at. Press the ENTER key when you are prompted to do so. The Configuration/Upgrade main menu shown below should now be on your screen.

```
                Main Menu
1) Display chassis configuration
2) Download local to remote Flash ROM
3) Download Serial Port to Flash ROM
Q) Quit

Your choice:
```

Chan	Card Type	HW Rev	EPROM FW Rev	FLASH FW Rev	Serial #	Other Information
3-A	Empty					
3-B	XPAC	B03	* D-00	-NA-	0123456789	PC + PS/2 mouse
3-C	XPAC	C00	* D-00	-NA-	0123456789	No cable attached
3-D	Empty					
3-E	Empty					
3-F	Empty					
3-G	Empty					
3-H	Empty					
3-I	XPXT	A00	* C-04	-NA-	0123456789	P1[N/C] P2 [4-F]
3-J	XPXT	A00	* C-04	-NA-	0123456789	P1[N/C] P2 [5-F]
3-K	Empty					
3-L	Empty					
3-M	XPRB	A00	* C-06	CMON	0123456789	
3-N	Empty					

* - Indicates active device.



Displaying Chassis Configuration Information

Choosing **Option 1** from the main menu will bring up the table shown above, displaying your XP4000 system's current configuration information. You will be prompted for a chassis number, or address, before the table is displayed. Enter a remote chassis address or press enter at the prompt for the local unit. Note that the slot with no push-button or LED is designated by “M” and the primary peripheral workstation, or the LCI, channel is designated by “N”.

Downloading to Flash ROM

To upgrade your LCI, XPLU, XPXT, XPXR, XPST, XPSR, XPAB, XPSI, XPDU or XPRB modules, you will need the latest Flash firmware revision from Cybex. If you do not have this revision, it is available on the Internet or from Cybex Technical Support.

Option 2 is used to transfer the contents of the current module's Flash to another module within the system. This makes it easy to upgrade similar modules, or store the Flash away in an XPRB storage location.

To transfer the new Flash firmware file into any module within your XP4000 system, choose Option 3**. Option 3** prompts you for the address of the module to download to. If no address is provided, the XP4000 Series unit assumes the current module.

You will receive a message from the unit to begin XMODEM transfer. Perform an XMODEM transfer of the revision file. During the duration of the upgrade a front panel LED will blink.

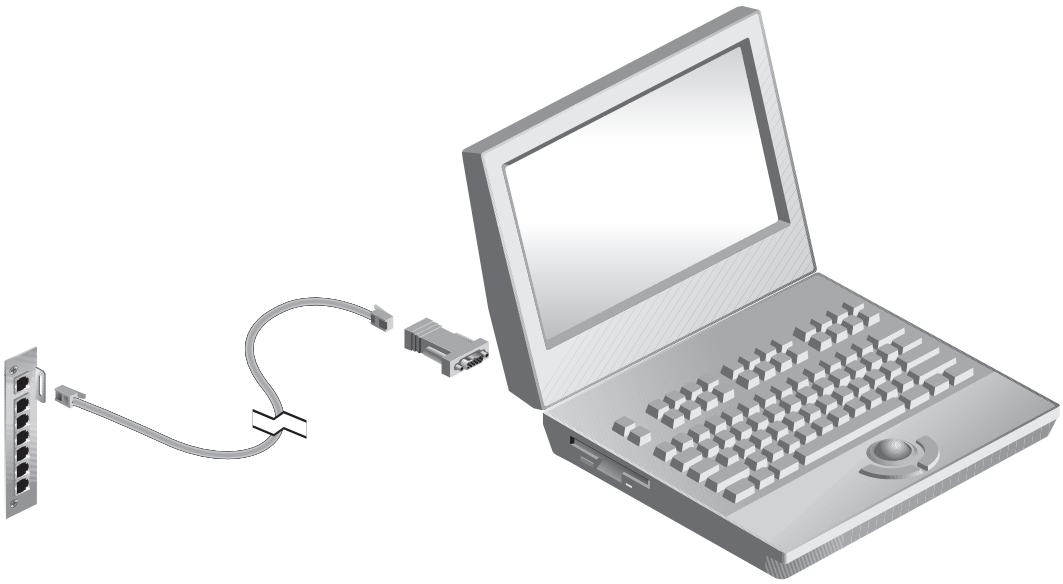
When you have successfully uploaded the file to the unit, you will be returned to the Configuration/Upgrade main menu. The module that you have upgraded will automatically reset, then will run off the new upgraded firmware.

Note: If an error has occurred in transmission, the module will not attempt to execute the new code. The old firmware will be used until the transmission is successfully completed.

Serial Port Advanced Operations (for XPRB Modules)

Your XPRB unit has a serial port on the rear panel that can also be used to obtain a configuration report of your XP4000 system or to download system enhancements and new product features that you have received from Cybex. This section covers these advanced applications of the serial port and how you may utilize them through the XPRB module of your XP4000 system. If you do not have an XPRB module, see the previous section, "Serial Port Advanced Operations (for XPLU/XPDU and LCI Modules)."

To accomplish the following procedures, you must have use of a computer not currently attached to your XP4000 system with terminal emulation software and a serial port. Connect the included flat RJ-45 cable between the serial port of your unattached computer and the XPRB module as shown below.



Run your terminal emulation software as usual. Adjust your setup to the following:

(9600 or 19200) Baud,N,8,1 flow control = none

The interface on the unit will sync up to the rate that you want to run at. Press the ENTER key until you are prompted to set the baud rate. The Configuration/ Upgrade main menu shown below should now be on your screen.

```
                    Main Menu

        1) Display chassis configuration
        2) Display Flash ROM status
        3) Download local to remote Flash ROM
        4) Download Serial Port to Flash ROM
        5) Reboot computer
        6) Automatic Flash Upgrades
        7) Search for Connected Chassis


                Enter your selection:
```

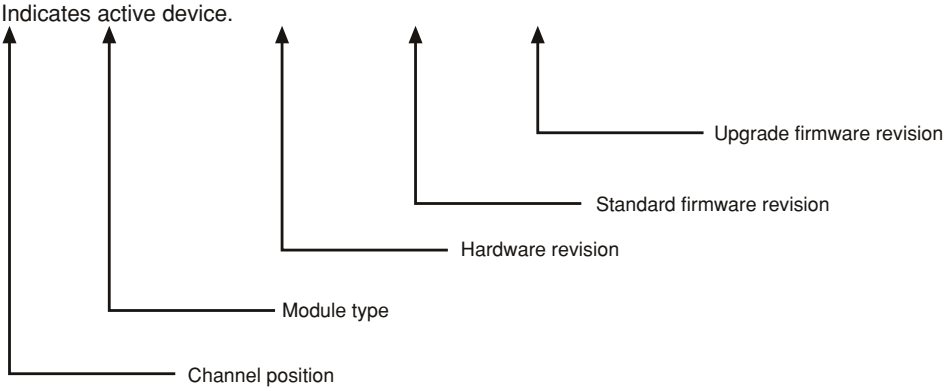
Displaying Local/Remote Chassis Configurations

Choosing **Option 1** from the main menu will bring up the table shown below, displaying your XP4000 system's current configuration information. You will be prompted for a chassis number, or address, before the table is displayed. Enter a remote chassis address or press enter at the prompt for the local unit.

Note that the slot with no push-button or LED is designated by “M” and the primary peripheral workstation, or the LCI, channel is designated by “N”.

Chan	Card Type	HW Rev	EPROM FW Rev	FLASH FW Rev	Serial #	Other Information
0-A	XPAB	A01	* D-00			PC + PS/2 mouse
0-B	Empty			-NA-	.....	
0-C	XPLU	C00	C-02	-NA-	.....	
0-D	Empty					
0-E	Empty					
0-F	XPRB	B02	* C-06			
0-G	Empty					
0-H	Empty					
0-I	Empty			* XF82	0123456789	
0-J	XPXR	C01	* C-04	* XF82	0123456789	P1 [N/C], P2 [7-C]
0-K	Empty					
0-L	Empty					
0-M	Empty					
0-N	LCI	C00	* C-00	-NA-	0123456789	

* - Indicates active device.



Displaying Local/Remote Flash ROM Status

XPRB modules contain seven storage, or Flash, positions that will hold information for any Flash upgradable module in the system. You can download the firmware for the XPLU, XPAB, XPRB, LCI, XPXT and XPXR modules into these flash positions, and upgrade these modules through the XPRB menuing system.

Choosing **Option 2** from the main menu will bring up the table shown below. You will be prompted for a channel address before the table is displayed. Enter a remote channel address or press enter at the prompt for the local channel. This table displays for you which module's firmware is in each location, and the current revision level.

Pos	Flash Type	Flash FW Rev	
1	XPRB	CMON	1 of 1
2	XPLU	C-02	1 of 1
3	XPXR	C-04	1 of 1
4	XPXT	C-04	1 of 1
5	Available		
6	Available		
7	Available		

Downloading Local to Remote Flash ROM

Option 3 allows you to upgrade the firmware of any attached Flash upgradable module from the revision stored in the local XPRB Flash, or storage, locations.

```
                Flash
Pos  Flash Type  FW Rev
--- -----------  -----
 1      XPRB     CMON
 2      XPLU     C-02
 3      XPXR     C-04
 4      XPXT     C-04
 5   Available
 6   Available
 7   Available

Download local to remote Flash ROM

Local Flash ROM (1..7): 2
Remote channel address: C
Remote Flash ROM (1..7): 1
```

You are first prompted to enter the number of the local Flash ROM source. Enter the storage location number of the firmware you wish to upgrade. Reference the table that prints out just above the prompt for available location numbers. You must be transferring from the **local** XPRB module, which is the one you are currently connected to.

Next, enter the address of the channel you wish to upgrade. This address can be in your local unit or any remote unit.

If you are upgrading another XPRB module, enter the Flash ROM storage destination when prompted. If you are upgrading any other type of module, accept the default value of "1".

Downloading Serial Port to Flash ROM

Option 4 allows you to transfer firmware upgrades from your computer, through the serial port, to your local XPRB module's Flash storage positions or to any Flash upgradable module in the system. The local XPRB is always the one you are currently connected to.

```
Download Serial Port to Flash ROM

Channel address: C
Flash ROM number (1..7): 2


Start XMODEM transfer now
```

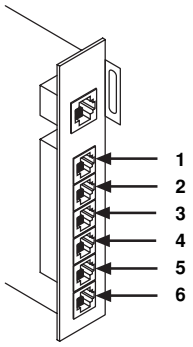
You will be prompted for a channel address. Enter a remote channel address or press enter at the prompt for the local channel. Enter the storage location number that you wish to transfer the information to. If you are uncertain which locations are available, run **Option 2** to obtain this information.

Rebooting a Computer

If you have a ReBoot xP in your system, **Option 5** allows you to reboot attached computers through the menuing system.

```
Reboot computer

Channel address: 3C
Power Port number: 1
```

Enter the addess of the channel you wish to reset. If the channel is an XPRB module, you will also need to give the position number of the Power Port on the XPRB. See below. If the channel is an XPAB module, accept the default value of "1".



Auto-Upgrade

Option 6 allows you to auto-upgrade the Flash module.

When you select Option 6 you will be prompted for the chassis number that you would like to upgrade. Once a chassis number is entered, the unit will connect and upgrade the applicable modules remotely. An LED on the front panel will blink for the duration on the upgrade.

Searching for a Connected Chassis

Option 7 allows you to search for a connected chassis.

Select a range of chassis numbers to search. It is possible to search up to 255 connected chassis.

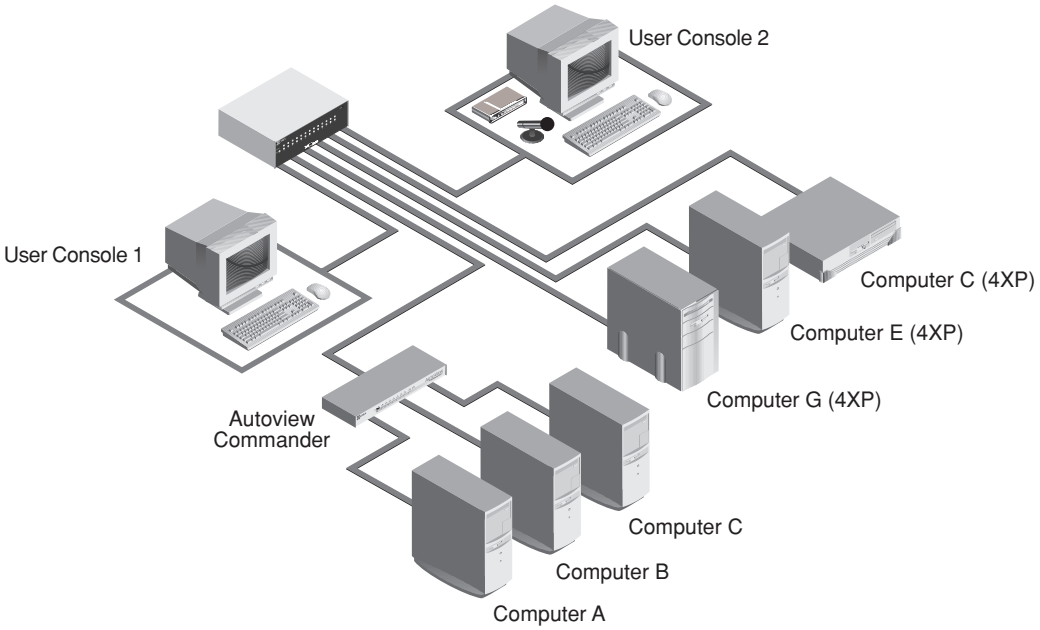
Multi-Part FLASH Upgrades

For FLASH upgrades which come in multi-part packages, as in the case of the XPDU, the XPRB automatically upgrades all sections together in a string rather than section by section. The XPRB also detects if any of the needed sections are missing and, if necessary, declines to upgrade due to missing sections.

Keyboard Switching with Different Cybex Products

If you have an AutoView Commander product in your system, you will need to make use of the alternate command mode hotkey sequences available with your unit. This will allow the system to correctly determine which unit to change the channel on.

For example, suppose that your configuration includes four computer channels: C, E, G and J. On computer channel J, you have attached an AutoView Commander which is controlling three computer channels - A through C. You want to switch to channel B on the AutoView Commander.



First, you must change the command mode hotkey sequence for the XP4000 Series unit to one of the alternates to differentiate it from the AutoView Commander's default sequence. Use the alternate sequence to change to computer channel G. Now, use the default sequence to switch to channel B on the AutoView Commander.

Once you have changed the hotkey sequence to an alternate, it will remain the active sequence until you change it again. There are four alternate sequences to choose from. Command mode hot-key sequences can be changed at any time. The command lines on the following page illustrate the proper format to change your hotkey sequence. For systems with On Screen Display, see Chapter 8.

Key Sequence	Action
<CM>@0**<Enter>**	Changes the hot-key sequence to the default: 1. Press and hold down the 'Num Lock' key. 2. Press and release the minus (-) key on the numeric keypad. 3. Release the 'Num Lock' key.
<CM>@1**<Enter>**	Changes the hot-key sequence to the default: 1. Press and hold down the 'Num Lock' key. 2. Press and release the asterisk (*) key on the numeric keypad. 3. Release the 'Num Lock' key.
<CM>@2**<Enter>**	Changes the hot-key sequence to the default: 1. Press and hold down the 'Num Lock' key. 2. Press and release the plus (+) key on the numeric keypad. 3. Release the 'Num Lock' key.
<CM>@3**<Enter>**	Changes the hot-key sequence to the default: 1. Press and hold down the 'Num Lock' key. 2. Press and release the slash (/) key on the numeric keypad. 3. Release the 'Num Lock' key.
<CM>@4**<Enter>**	Changes the hot-key sequence to the default: 1. Press and hold down the 'Num Lock' key. 2. Press and release the tilde (~) key on the numeric keypad. 3. Release the 'Num Lock' key.

Physical and Virtual Switches of Computer Interface Modules

Both the XPAC and XPAB modules support what are known as “Virtual Switches.” This feature is very useful if your XP4000 Series unit is hard to access. Virtual switches emulate the DIP switch on your XPAC/XPAB module. A simple keyboard command allows you to change the DIP switch settings without opening the unit.

Virtual changes to the DIP switch will remain in effect until further software or physical switch changes are made. When the physical DIP switch is changed, all virtual switch settings reset to match the physical switches. For a listing of the DIP switches and their functions, see Appendix D.

To Override All of the Switch Settings

1. Referring to Appendix D, determine how you want your switches set.

2. Write down on a piece of paper how you want SW8 set. Write a 1 for a switch that is ON and 0 for a switch that is OFF.

3. Repeat step 2 for each remaining switch, SW7 through SW1. When you are finished, you should have an eight digit code of 0s and 1s, beginning with SW8 and ending with SW1.

4. Refer to Appendix H. Find the eight digit code in the table that matches yours and write it down.

5. Use the command, <CM> SW+<Enter> to enable virtual switching.

6. Using the command, <CM> SW=*nn*<Enter>, replace *nn* with the code you obtained from Appendix I.

To Override Switch Settings One at a Time

1. Referring to Appendix D, determine how you want your switches set.

2. Write down on a piece of paper how you want the switch set. Write a 1 for a switch that is ON and 0 for a switch that is OFF.

3. Use the command, <CM> SW+<Enter> to enable virtual switching.

4. To turn a switch ON, use the command <CM> SW*n*=1<Enter> and replace *n* with the switch number 1-8.

   To turn a switch OFF, use the command <CM> SW*n*=0<Enter> and replace *n* with the switch number 1-8.

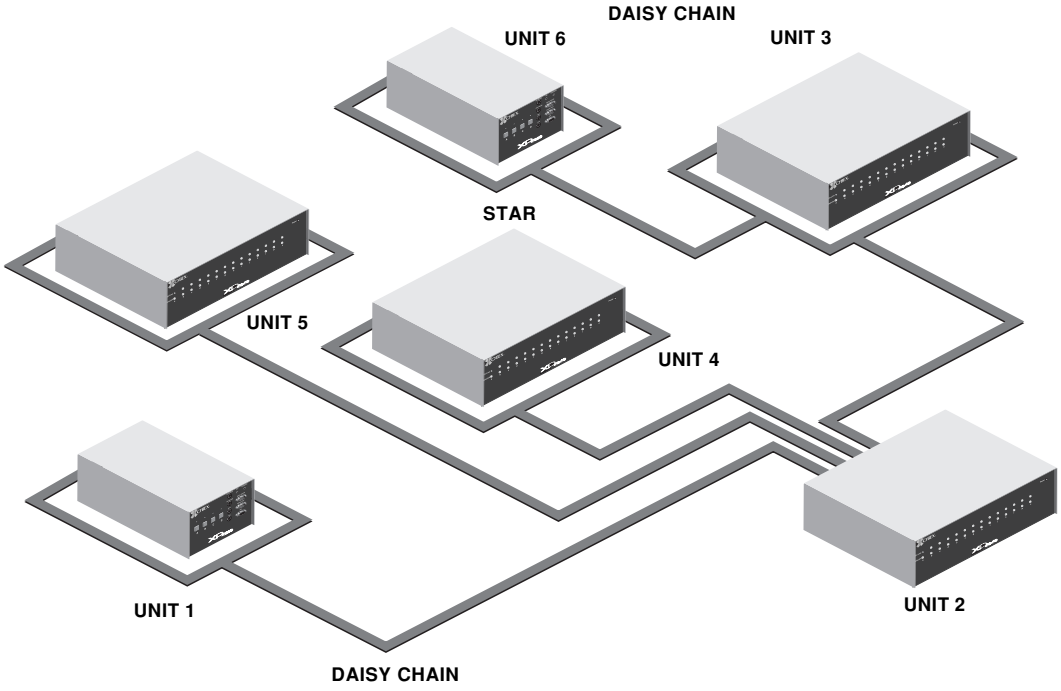
Below is a command summary for virtual switching.

<CM>SW=*nn***<Enter>**	Overrides DIP switch settings on XPAC/XPAB computer interface modules. Sets the bank of switches (1-8) to a user specified ON/OFF combination. To determine the correct DIP switch code for your system (*nn*), refer to Appendix H.
<CM>SW*n*=1**<Enter>**	Overrides DIP switch (*n*) and sets it to the ON position.
<CM>SWn=0**<Enter>**	Overrides DIP switch (*n*) and sets it to the OFF position.
<CM>SW+**<Enter>**	Enables override of DIP switch settings.
<CM>SW-**<Enter>**	Disables override of DIP switch settings.

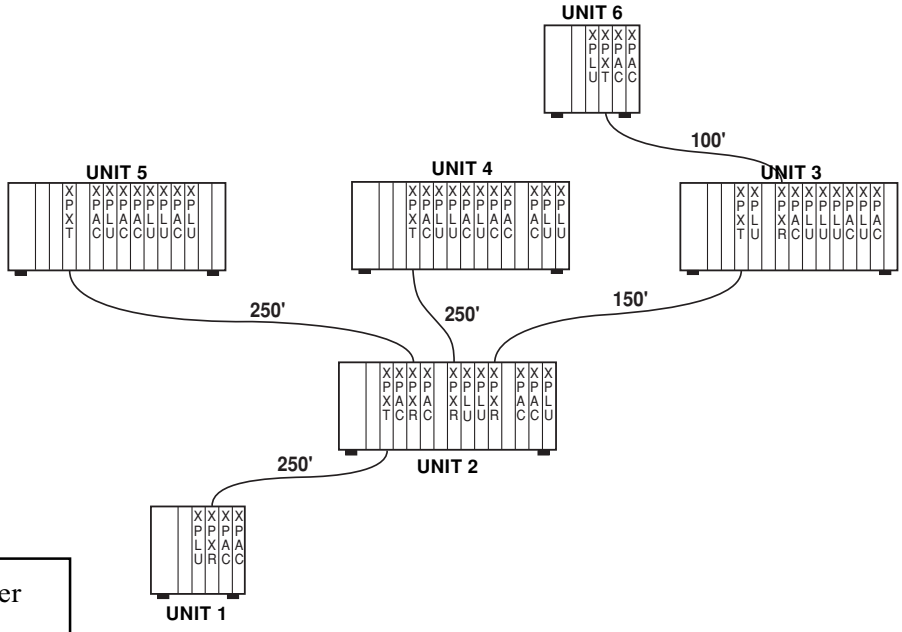
10 Applications

Star/Daisy Chain Combination Configuration

The two basic configurations, star and daisy chain, can be combined into one configuration for greater flexibility within your system.



APPLICATIONS VIEW



SCHEMATIC VIEW

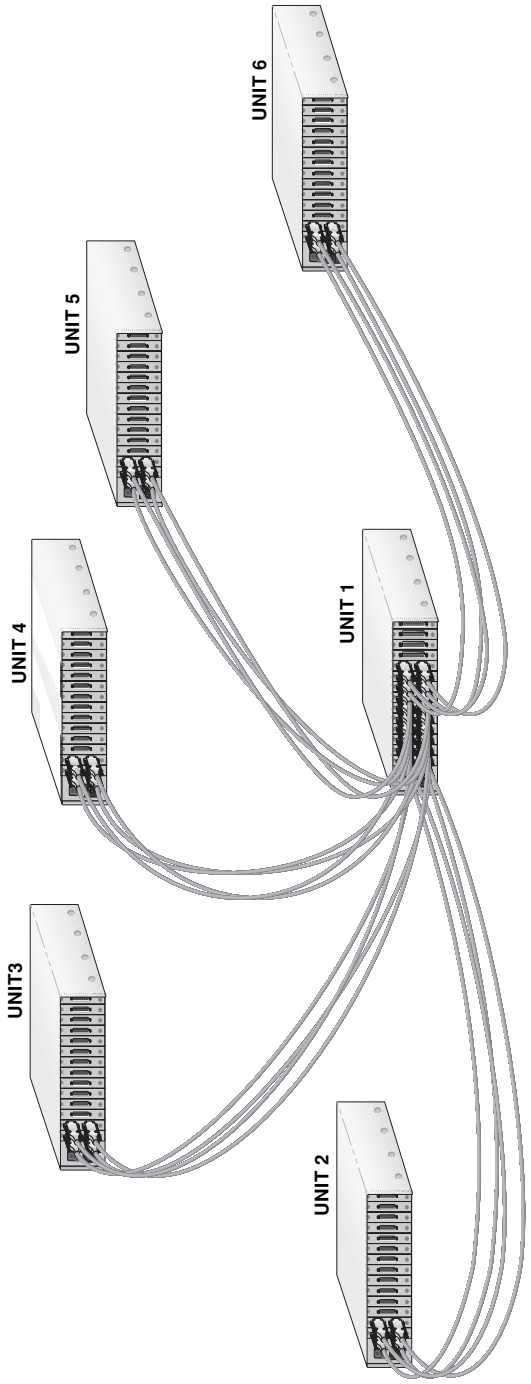
XPAC - Attached Computer
XPLU - User Console
XPXR - Expansion Receiver
XPXT - Expansion Transmitter

Recommended Configurations

The following recommended configurations are based on a system of four users active continually and simultaneously without required sharing. If your system requires less than four nonsharing users, then the number of supported computers per configuration greatly increases.

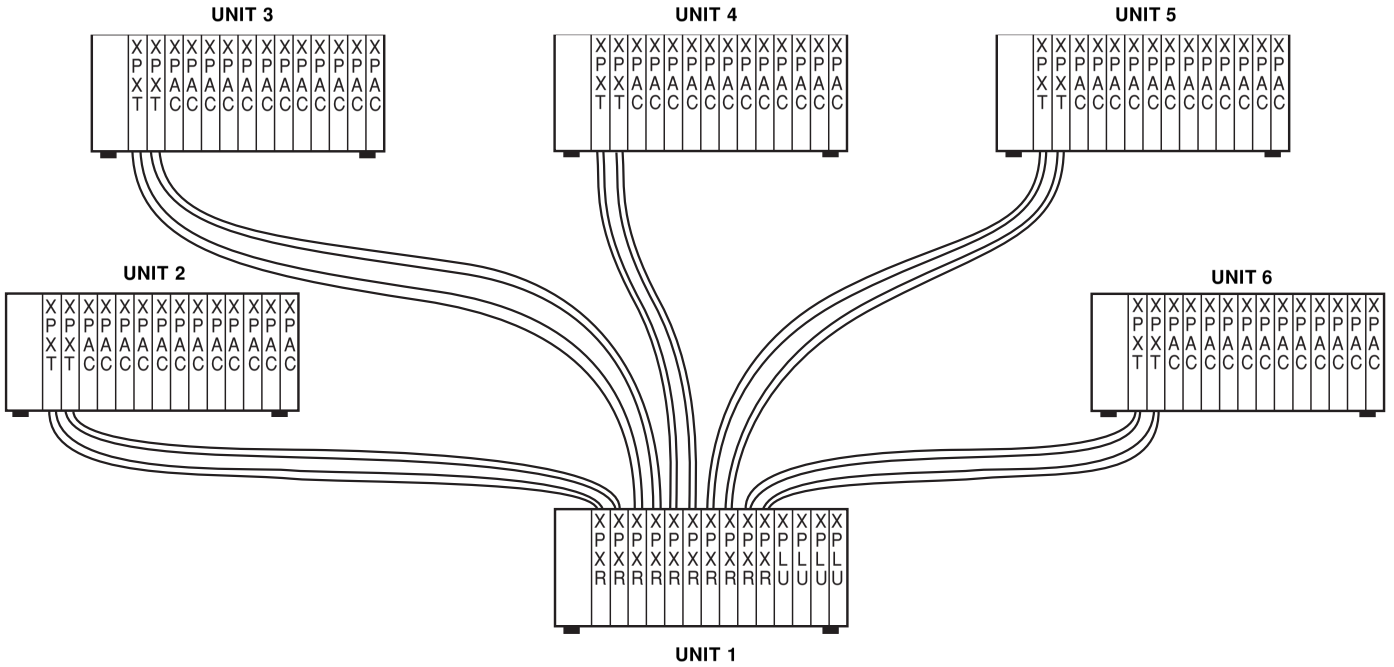
Each of the XP4000 Series units connected to Unit 1 attach to 12 computers. User consoles may be substituted for attached computers, transmitters or receivers anywhere in the configurations, if greater access to fewer computers is needed. Keep in mind that adding user consoles to units with no receivers will enable access to the computers attached to that unit only.

11 to 60 Attached Computers



APPLICATIONS VIEW

Example: 11 to 60 Computer Configuration

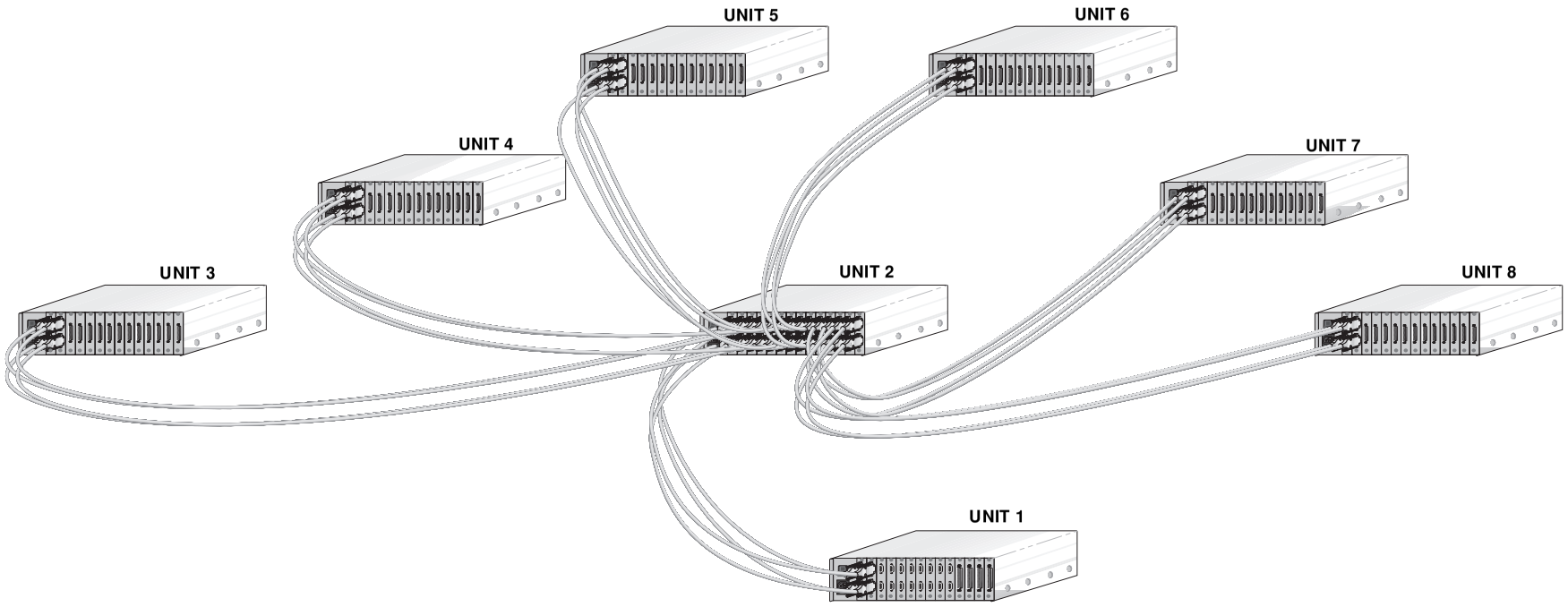


SCHEMATIC VIEW

XPAC - Attached Computer
XPLU - User Console
XPXR - Expansion Receiver
XPXT - Expansion Transmitter

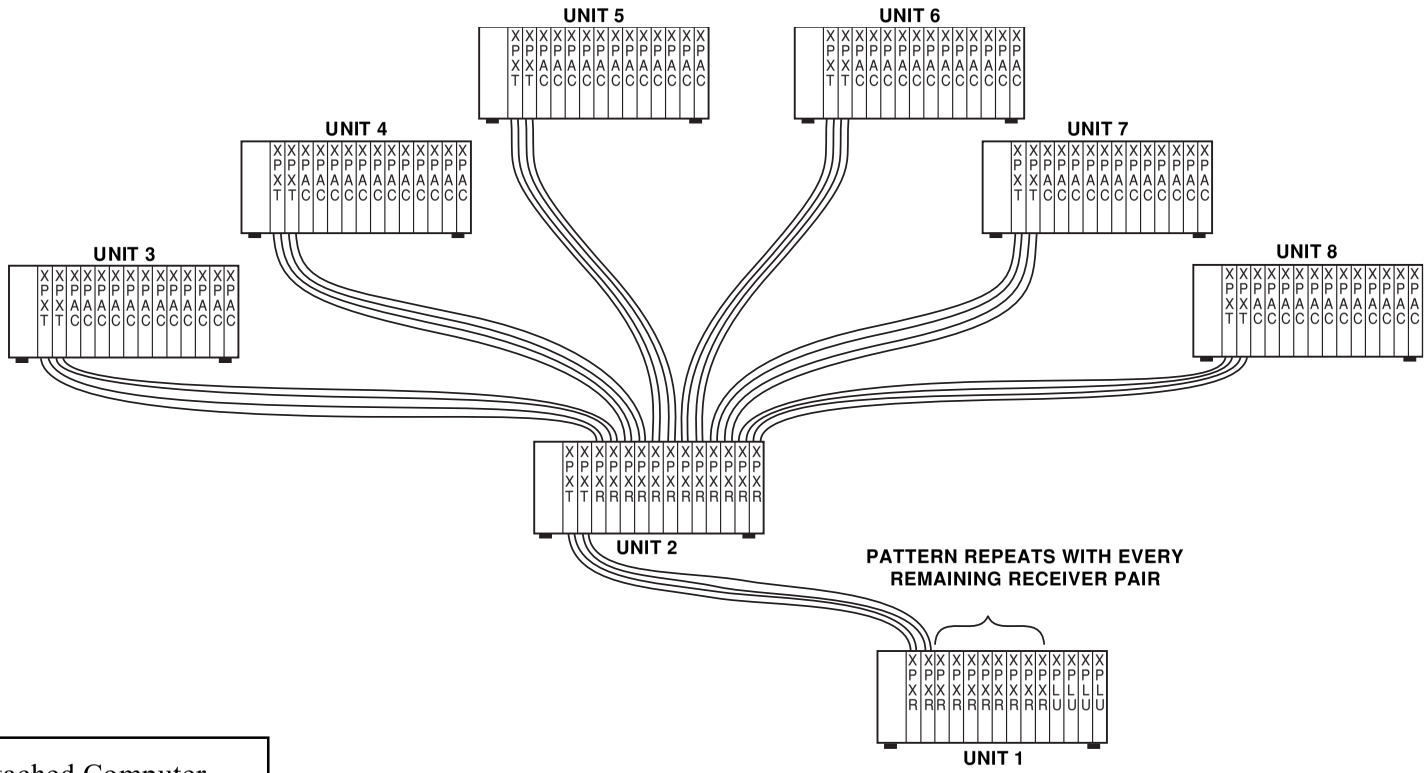
61 to 360 Attached Computers

Due to space constraints, only the leftmost “leg” of this configuration is shown. The pattern logically repeats with every remaining receiver pair in the system.



APPLICATIONS VIEW

Example: 61-360 Computer Configuration

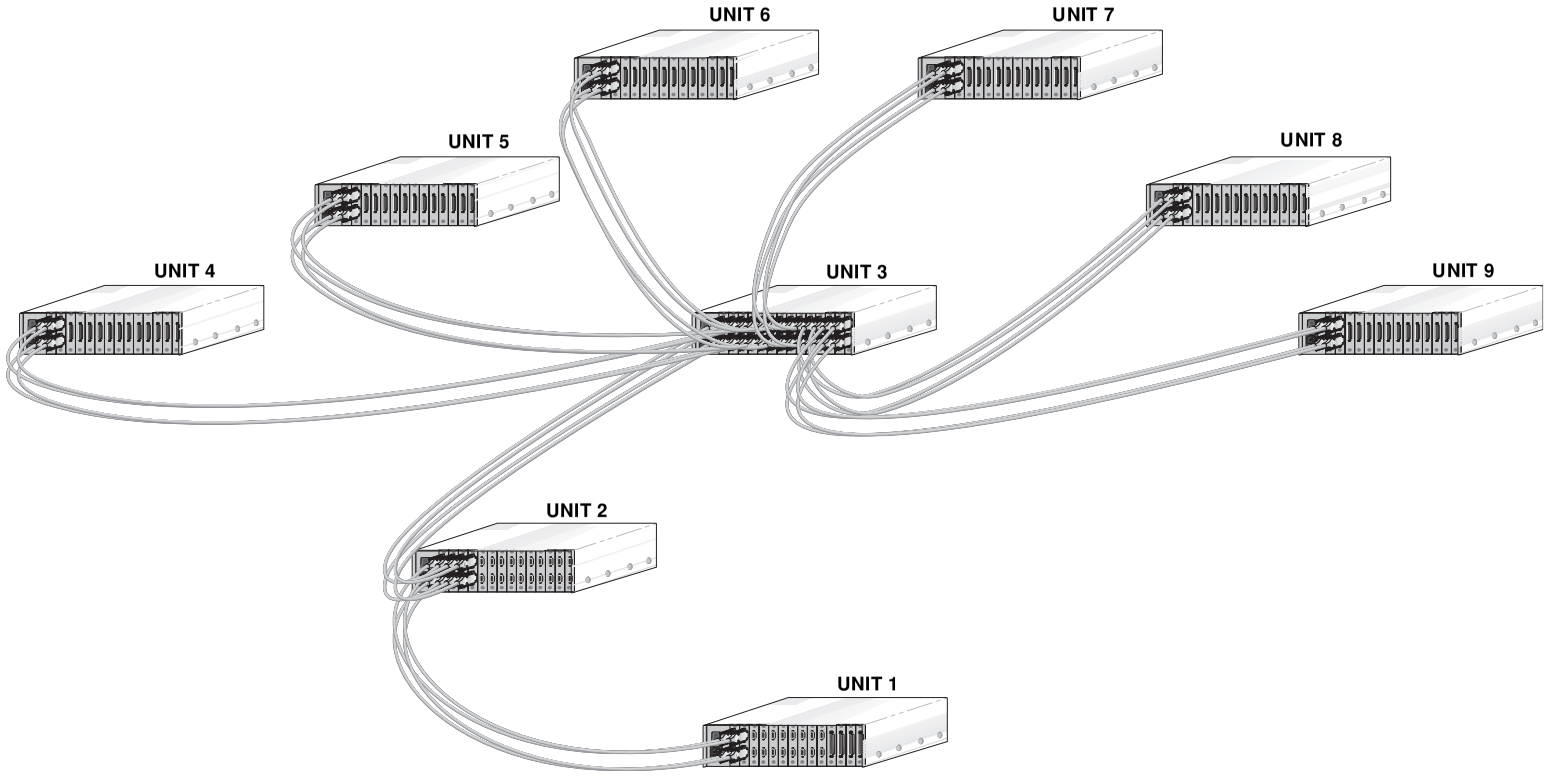


SCHEMATIC VIEW

XPAC - Attached Computer
XPLU - User Console
XPXR - Expansion Receiver
XPXT - Expansion Transmitter

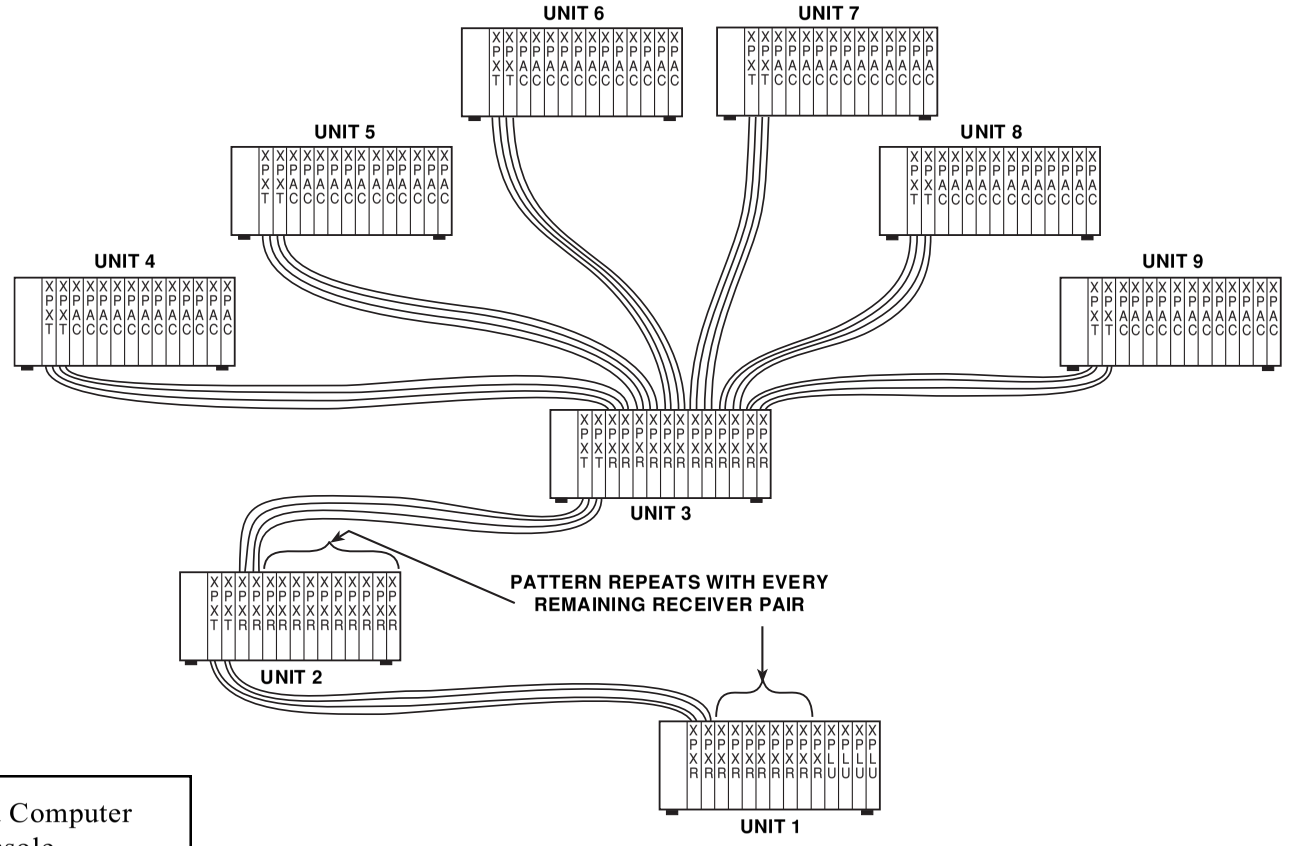
361 to 2160 Attached Computers

Due to space constraints, only the leftmost “leg” of this configuration is shown. The pattern logically repeats with every remaining receiver pair in the system.



APPLICATIONS VIEW

Example: 2160 Computer Configuration



XPAC - Attached Computer
XPLU - User Console
XPXR - Expansion Receiver
XPXT - Expansion Transmitter

11 Complement Products and Optional Modules

XPRB Module

The XPRB power control module allows a user to independently control up to 6 ReBoot xP units. Additionally, the XPRB provides an XP4000 Series system menu interface via an RJ-45 connector. This menu interface can be used for FLASH upgrading.

XPRB modules contain seven storage, or Flash positions that will hold information for any Flash upgradable module in the system. You can download the firmware for the XPLU, XPAB, XPRB, LCI, XPDU, XPSI, XPXT, XPST, XPSR and XPXR modules into these Flash positions, and upgrade these modules through the XPRB menuing system. Refer to Chapter 9, Advanced Operations for more information on this application of the XPRB module.

Installation

Follow the instructions below to install the XPRB module.

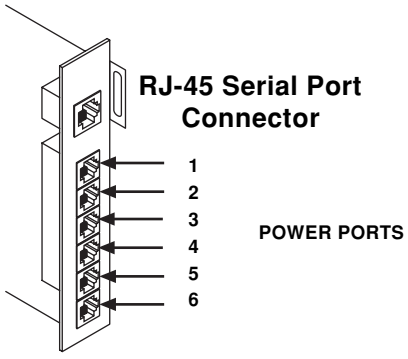
1. Turn the rear panel of your XP4000 Series unit toward you. Choose an available slot.

2. Remove the panel covering the available slot by unscrewing the two Phillips-head screws on the rear of the unit that hold the panel in place.

3. Locate your XPRB power control module. Make sure that all of the positions on the SW1 DIP switch are in the OFF position. Now, slide the module gently into the open slot of the unit until the connectors lines up flush with the back of the unit.

4. Retighten the holding screws completely. DO NOT overtighten.

To utilize the reboot functions of the XPRB module, you must have at least one ReBoot xP in your configuration.



XPRB MODULE

There are two methods of operating the reboot function of the XPRB: direct addressing and associated addressing. Direct addressing allows you to cycle the power of a specific Power Port on an XPRB. See Figure 10-1 below.

The following key sequence is used for direct address rebooting.

Key Sequence	Action
<CM>REBOOT*Addr[n]***<Enter>**	Reboots the device connected to the XPRB at *Addr*. The value, *n* (1-6), indicates Power Port on XPRB. After pressing <Enter>, type 'Yes' and press <Enter> again to confirm the reboot. Pressing any key sequence besides 'Yes' will abort the reboot.

Associated addressing allows you to associate a Power Port on an XPRB with a computer interface module within your system. Similar to direct addressing, associated addressing allows you to cycle the power of a specific Power Port on an XPRB. This method allows you to associate, or link, the Power Port number to a specific computer channel address. So, once you have made the link, you only need to remember a computer's channel address to cycle the power. See Figure 10-1. The key sequences below are used for associated addressing.

Key Sequence	Action
<CM>XPRB*Addr1[n]=Addr2***<Enter>**	Associates the XPRB at *Addr1,* Power Port *n* with the computer interface module at *Addr2*.

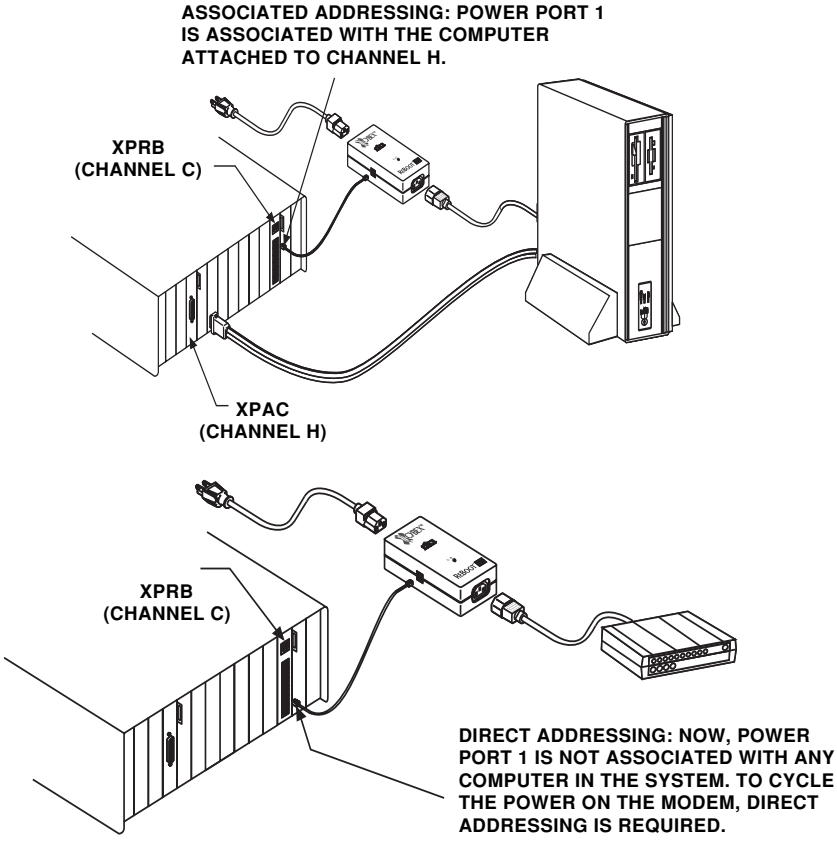


FIGURE 10-1

Association example

Key Sequence	Action
1.**<CM>**XPRBC2=H**<Enter>**	Associates Power Port 2 of the XPRB in slot C with the XPAC in slot H.
2.**<CM>**REBOOTH**<Enter>**	Reboots the computer attached to channel H.
3.**<CM>**H**<Enter>**	Selects the computer attached to channel H.
4.**<CM>**REBOOT**<Enter>**	Reboots the selected computer (channel H).

The ReBoot xP

Overview

The ReBoot xP allows you to control the power to computers in your system individually. It is used in conjunction with modules that include a Power Port, such as the XPAB and XPRB modules, and connects using a standard RJ-11 cable. Power is controlled via hot-key sequence. Follow the instructions below to connect the ReBoot xP to your system.

Installation

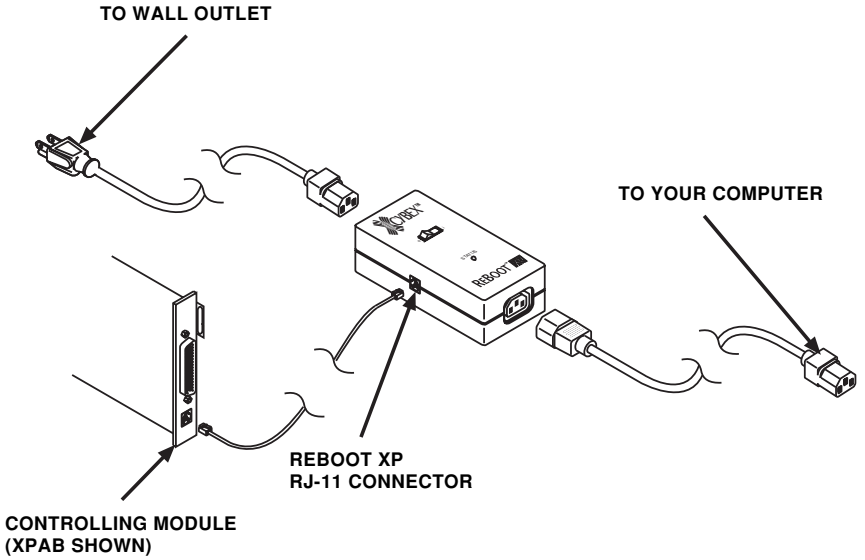
1. Locate the ReBoot xP unit and the two cables that came with it: the flat cable with an RJ-11 connector on each end, and the 6-foot female to female power cable.

2. Connect one end of the RJ-11 flat cable into the ReBoot xP. Plug the other end into the Power Port on the controlling XPAB/XPRB module.

3. Power down your computer. Unplug your computer's power cord from the CPU and plug it into the INPUT socket on the ReBoot xP. (Input and Output sockets are labeled on the bottom of the ReBoot xP unit.)

4. Plug the power cable that came with your ReBoot xP into your computer. Plug the other end of this cable in the OUTPUT socket on the ReBoot xP.

5. Power up your computer and turn on the ReBoot xP. If you are correctly connected and have power, the green STATUS light will be lit.



Operation

The following key sequences control the ReBoot xP. The first sequence reboots the selected computer. The second sequence is used to reboot any computer in the system without selecting it.

Key Sequence	Action
<CM>REBOOT**<Enter>**	Reboots the selected computer
<CM>REBOOT*Addr[n]***<Enter>**	Reboots the device connected to the XPRB at *Addr*. The value, *n* (1-6), indicates Power Port on XPRB. After pressing <Enter> the user must type Yes and press <Enter> again to confirm the ReBoot. Pressing any key sequence besides Yes will abort the reboot.
<CM>CONFIRM+**<Enter>**	Enables confirmation of the ReBoot command
<CM>CONFIRM-**<Enter>**	Disables confirmation of the ReBoot command

12 Product Assistance and Troubleshooting

Customer/ Technical Support

Our Customer Support staff is ready to assist you with any installation or hardware problem you may encounter with your XP4000 Series product. If a problem should develop, please follow the steps listed below to receive the fastest possible service:

1. Check the Troubleshooting section of this manual to see if the problem can be resolved by following the procedures outlined.

2. Fill out the Configuration sheets completely in Appendix A and the Customer Problem Report in Appendix B.

3. Call Cybex Customer Support . Have your configuration information and Customer Problem Report with you when you call, or fax it to Technical Support. Have this manual with you when you call, along with a copy of your invoice giving the date the unit was purchased and other identifying data.

Troubleshooting

Before attempting to troubleshoot any aspect of an XP4000 Series unit:

1. Ensure that the power to the unit and attached computers is on.
2. Ensure that all cable connections are correct and tight.
3. Ensure all peripheral devices (keyboards, mice, etc.) are connected.
4. Verify that all cards are plugged in completely.

SYMPTOM	ACTION
Channel Cannot Be Selected	Ensure the selected computer is turned on. If you are attempting to keyboard switch, verify that you are in Command Mode and that you are using the correct channelsequence. Alternately, if you are using an XPDU card, verify that the OSD command line is visible. See 'Basic Operation' in Chapter 6, for further details on channel switching commands.

SYMPTOM	ACTION
The Channel is Selected, but No Video is Present	Recheck the jumper settings on the XPAC/XPAB module. See Chapter 3. Re-verify that the VGA connector on the computer input cable is attached to your video card Recheck the DIP switch settings on the XPAC/XPAB module. See Chapter 3 for details.
Video Can Be Seen but is Distorted, Discolored or Out of Sync.	Recheck the jumper settings on the XPAC/XPAB module. See Chapter 3. Recheck the DIP switch settings on the XPAC/XPAB module. If your monitor uses sync on green, make sure it is set accordingly. See Chapter 3 for details. Ensure your monitor is capable of the desired resolution.
Keyboard Does Not Work	Re-verify that the selected computer is turned on. Verify that the keyboard is communicating with the switch by going into Command Mode. Check the keyboard connection to the unit. Make sure it is secure. Only 1 keyboard can be plugged into a user console at a time. If multiple keyboards are attached to a single local or secondary console, remove all but one of them. Check the status of the Scroll Lock. When mixing platforms, some keys are “remapped” using the Scroll Lock to provide all platform-dependent keys. See “Multiplatform Keyboard Translation” in Chapter 7.
Mouse Does Not Work	Ensure that the mouse connection to the unit is secure. Only 1 mouse can be plugged into each user console. If multiple mice are attached to a single console, remove all but one of them. Enter the **<CM>**M+**<Enter>** sequence to re-enable the mouse. See Chapter 7, “Keyboard Control”, for details.
Serial Device Does Not Work	Ensure you have selected a channel with control of a serial device. Recheck the serial device connection to the unit and make sure it is secure. Check communication port settings on both the computer and the serial device, such as baud rate, parity, start and stop bits, and flow control.

SYMPTOM	ACTION
Speakers Do Not Work	Ensure you have selected a channel with speaker control. Recheck the speaker connection to the unit. Make sure it is tight. Ensure the speakers have enough power to operate with the unit. See “Limitations and Restrictions” in Chapter 1. Check the volume controls and make sure the volume is set high enough to be heard.
Microphone Does Not Work	Ensure that the connected computer has multimedia cable with the microphone connected. Recheck the microphone connection to the unit and make sure it is secure. Ensure the microphone is supported by the unit. See “Limitations and Restrictions” in Chapter 1. Check all volume controls and make sure the volume is set high enough to be heard.
Channel Cannot Be Selected in multi unit system	Recheck the address of the computer you are switching to. Ensure that each unit has a unique unit address. Ensure that you are not trying to connect to a computer over four units away. Recheck the XPAC for proper configuration.
Video is Superim-posed with Another Computer's Video	Ensure that each unit has a unique unit address. Ensure that all transmitter and receiver boards are plugged in completely. Make sure all connecting screws are tight.
Video is Poor or Degraded	Ensure that the jumpers on the transmitter and receiver are set for the correct distance. Ensure that the cable distance for the affected computer is less than 500 feet. Recheck the XPAC for proper configuration.
Transmitter LEDs are flashing	Two or more transmitters within one unit are set with conflicting unit addresses or are conflicting with the redundant power supply. See Chapter 2 for details. If only one transmitter is installed in the chassis, check the Intelli-gent Power Supply address. See Chapter 2 for details.

SYMPTOM	ACTION
Video Blanks out unex-pectedly	Set admin timeout to a more appropriate selection. See Chapter 8 for more information. Verify user timeout is set to your liking. See Chapter 8 for more information
OSD doesn't appear on a Sun or Mac monitor	Verify that you are connected to an XPDU card. Enable the non-pc monitor support for the XPDU. See page 15 for more details.
RS-6000 Keyboard is not responding	Some RS-6000 computers experience difficulty in working with an XP4000 Series system while connected through an XPAC/XPAB card. Switching the S5 jumper on the XPAC/XPAB card to the "ON" position can sometimes correct this.

Appendices

Appendix A

Configuration

Please fill out all three pages of configuration information completely. Record your channel and peripheral configuration as you install your system and update the information whenever changes are made. If you need to call our Technical Support Department, fill out the Customer Problem Report in Appendix B and have all information on hand for the best possible service.

If you are dealing with a multi chassis configuration it is recommended that you have a configuration drawing available showing current layout and connections between chassis. This may be required to further diagnose and solve any problems you may be encountering.

Company Name: _____

Contact Name: _____

Phone Number: _____ Fax Number: _____

Sales Order Number (if purchased direct from Cybex): _____

Date Purchased: _____

Vendor Information (if not purchased direct from Cybex):

Company Name: _____ Phone Number: _____

Date Installed: _____

Front Panel (local console) Peripherals:

Keyboard Type (Circle one): PC Sun Mac RS/6000 SGI HP

Brand/Model: _____

Mouse Type (Circle one): PS/2 PC Serial PC Sun Mac

Brand/Model: _____

Monitor Brand/Model: _____

Speaker Brand/Model: _____

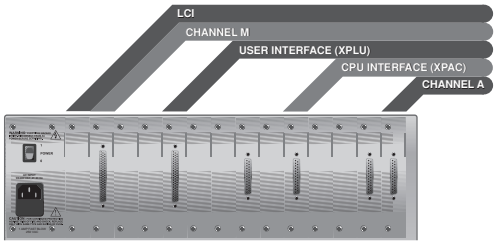
Microphone Brand/Model: _____

Serial Device Type: _____

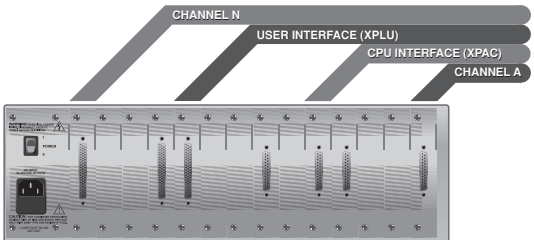
Brand/Model: _____

The following three pages contain configuration charts for the components of your XP4000 Series system. Fill out Chart I for each channel containing a computer interface module and Chart II for each channel containing a user interface module. If you are using an expanded system you will either need to fill out Chart III if you are using multiple XP4040 or 4080 units or Chart IV if you are using XP4040 and 4080 units with XP4400 units.

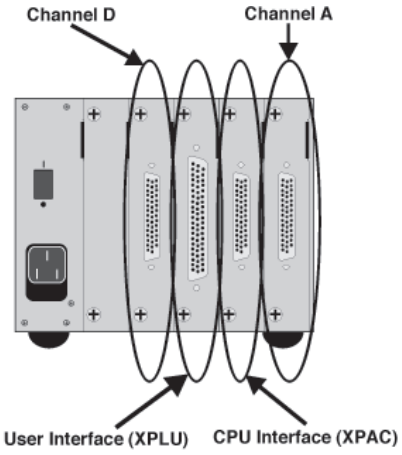
Computer interface modules have a 44-pin male connector that fits through the rear of the unit; user interface modules have a larger 62-pin female connector. Channels are designated by letters on the front panel of the unit, with slot A to the far right (viewed from the rear). See the diagrams below.



XP4040 REAR PANEL
(Front Access Model)

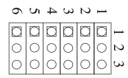
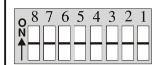
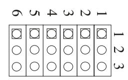
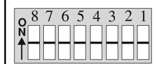
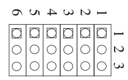
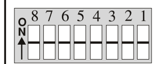
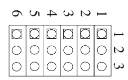
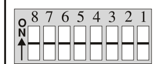
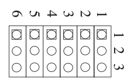
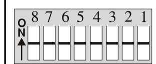
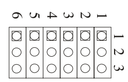
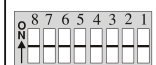
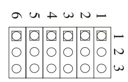
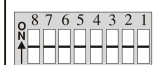
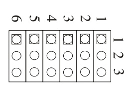
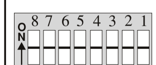
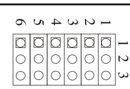
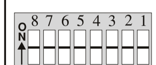
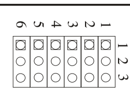
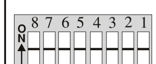
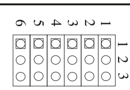
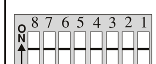
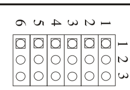
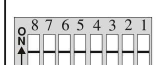


XP4040 REAR PANEL
(Rear Access Model)



1xP REAR PANEL

Chart I: XPAC/XPAB Configuration Chart

Channel	XPAC Label Information*	Cable Part #	Video Jumper Settings	DIP Switch Settings	CPU Type (Sun, Mac, PC)	Computer Brand/Model	Operating System	BIOS Mfg./Rev	Graphics Card	Video Resolution
										
										
										
										
										
										
										
										
										
										
										
										

*Label information is located to the right of each 44-pin CPU Interface module connector (as viewed from the rear).

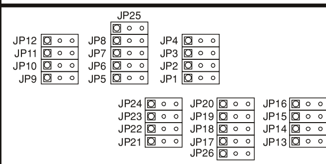
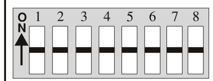
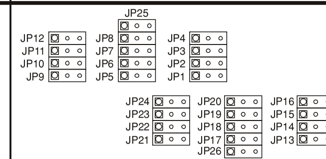
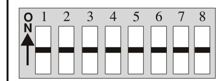
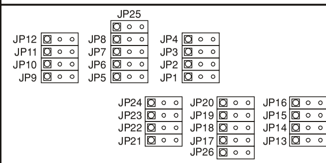
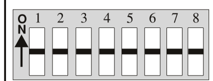
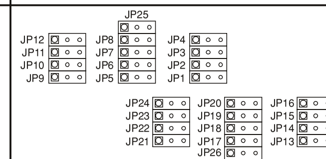
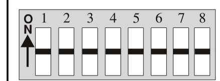
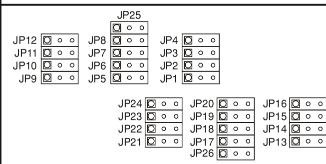
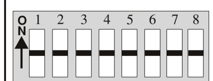
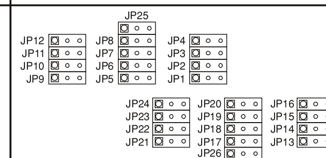
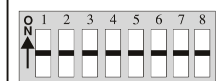
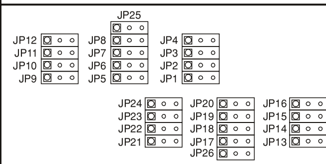
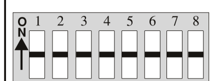
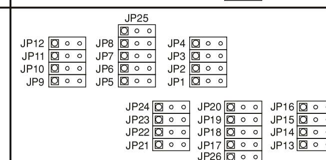
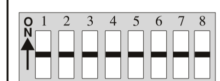
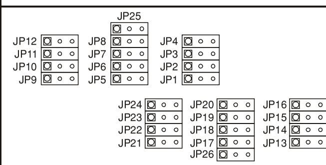
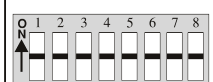
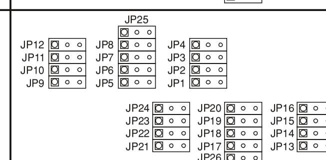
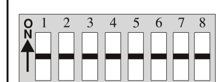
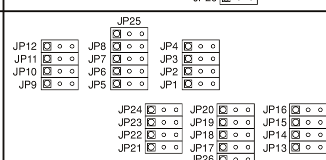
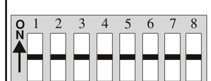
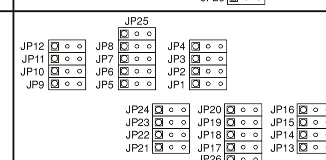
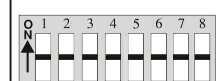
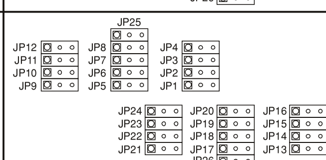
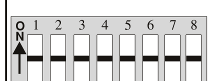
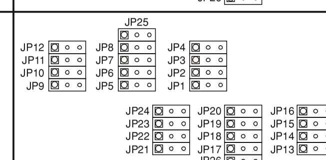
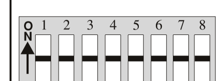
Chart II: XPLU/XPDU Configuration Chart

Channel	XPDU	XPLU/XPDU Label Information*	Cable Part #	Sun, Mac or PC peripherals	Brand/Model of Monitor	Brand/Model of Keyboard	Brand/Model of Mouse	Brand/Model of High Speed Serial Device	Brand/Model of Speakers	Brand/Model of Microphone

*Label information is located to the right of each 62-pin User Interface module connector (as viewed from the rear).

Chart III: Expansion Configuration Sheets

Chart III: XPXT/XPST Configuration Chart

<table>
<tr><th>Channel</th><th>XPXT/XPST Label Information*</th><th>Video Jumper Settings</th><th>DIP Switch Settings</th><th>Channel</th><th>XPXT/XPST Label Information*</th><th>Video Jumper Settings</th><th>DIP Switch Settings</th></tr>
<tr><td></td><td></td><td>  </td><td>  </td><td></td><td></td><td>  </td><td>  </td></tr>
<tr><td></td><td></td><td>  </td><td>  </td><td></td><td></td><td>  </td><td>  </td></tr>
<tr><td></td><td></td><td>  </td><td>  </td><td></td><td></td><td>  </td><td>  </td></tr>
<tr><td></td><td></td><td>  </td><td>  </td><td></td><td></td><td>  </td><td>  </td></tr>
<tr><td></td><td></td><td>  </td><td>  </td><td></td><td></td><td>  </td><td>  </td></tr>
<tr><td></td><td></td><td>  </td><td>  </td><td></td><td></td><td>  </td><td>  </td></tr>
<tr><td></td><td></td><td>  </td><td>  </td><td></td><td></td><td>  </td><td>  </td></tr>
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*Label information is located to the right of the connectors (as viewed from the rear).

Chart IV: XP4400 Configuration Sheets

Ports	XP 4400 Chassis Number	Module Type	Cable Length	DIP Switch Settings All three banks in the same area will have the same setting	Channel	XP 4400 Chassis Number	Module Type	Cable Length	DIP Switch Settings All three banks in the same area will have the same setting
1					2				
3					4				
5					6				
7					8				
9					10				
11					12				
13					14				
15					16				

Appendix B

Customer Problem Report

Today's Date: _____ Your Name: _____

Phone Number: _____ Fax Number: _____

Date problem first began: _____

Problem Description:

_____

_____

_____

_____

_____

_____

_____

XPAC/XPAB Channels Affected: _____ XPLU/XPDU Channels Affected: _____

XPXT/XPST Channels Affected: _____ XPXR/XPSR Channels Affected: _____

TX4400/RX4400 Channels Affected: _____

XP4010, 4040, 4080 or XP4400 unit? Front or Rear Access? _____

Problem Resolution: (Fill this section out for your future reference)

_____

_____

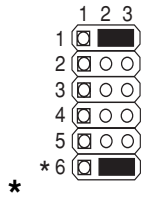
_____

_____

In case of a problem, fax Appendices A and B to your Cybex Technical Support Representative for the best possible service.

Appendix C

Jumpers 1-6 Video Settings (XPAC/XPAB Module)



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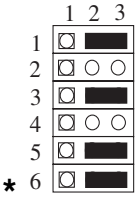
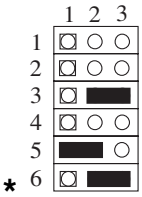
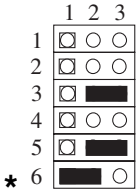


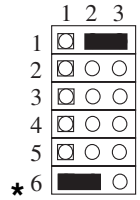
IBM XGA



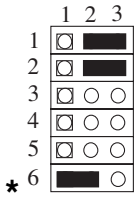
IBM XGA II



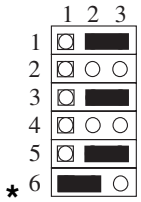
Sun
1152 x 900 @66 Hz



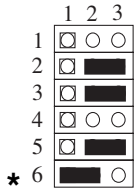
Sun
1152 x 900 @76 Hz



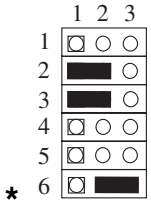
Sun
1152 x 900 @76 Hz



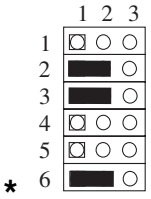
Sun
1280 x 1024 @76 Hz



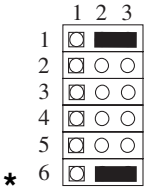
Sun
1600 x 1280 @76 Hz



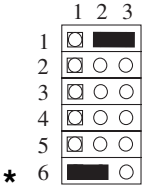
Apple
Standard VGA (HS,VS)



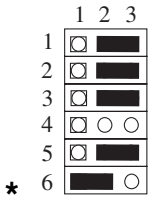
Apple
Standard VGA (CS)



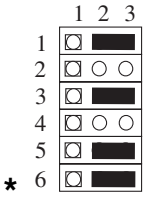
Apple HiRes (HS, VS)



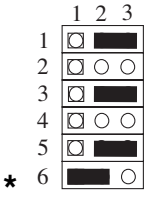
Apple HiRes (CS)



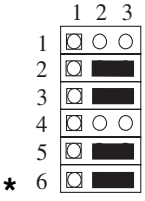
Apple 21"



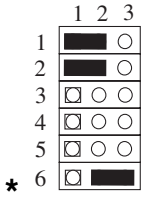
Apple
Color RGB (HS, VS)



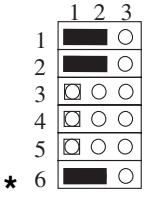
Apple
Color RGB (CS)



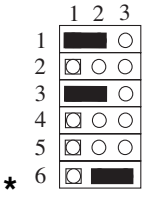
Apple Portrait



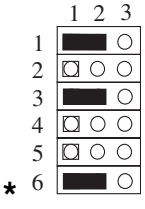
Apple 19" Color (HS, VS)



Apple 19" Color (CS)



Apple 16" Color (HS,VS)

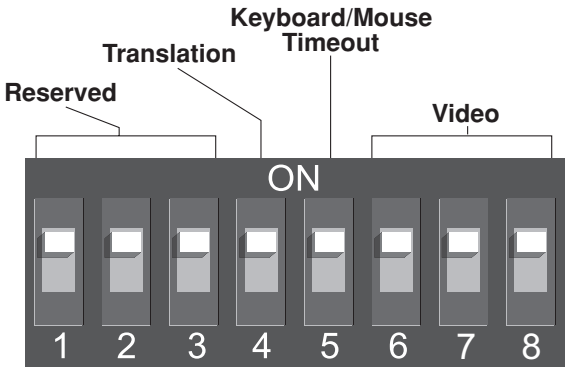


Apple 16" Color (CS)

* XPAC Modules only

HS = horizontal sync, VS = vertical sync, CS = composite sync

Appendix D Summary of DIP Switch Settings (XPAC/XPAB Module)



Video Options

Switch 1 Setting	Switch 2 Setting	Switch 3 Setting	Function
Off	Off	Off	Normal video (default)
On	Off	Off	Strip sync on green
Off	On	Off	Use composite sync to generate horizontal and vertical sync
On	On	Off	Use composite sync and strip sync on green to generate horizontal and vertical sync
Off	Off	On	Use sync on green to generate horizontal and vertical sync
On	On	On	Disable video

Keyboard/Mouse Time-out

S4	Time
Off	1 second (default)
On	10 seconds

Keyboard Translation Options (Mac)

S5	Translation Option
Off	F12 maps to COMMAND, ALT maps to OPTION (default)
On	F12 maps to OPTION, ALT maps to COMMAND

Keyboard Translation Options (RS-6000)

S5	Translation Option
Off	Normal (Default)
On	Corrects keyboard problems on some RS-6000 systems

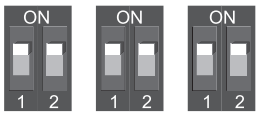
Appendix E

XP4400 Transmitter and Receiver DIP Switch Settings

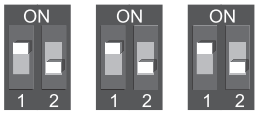
Below is a summary of the DIP Switch settings for the XP4400 Transmitter and Receiver modules. Each set of DIP Switches should be set to match the length of their corresponding Category 5 cable.

Receiver Settings

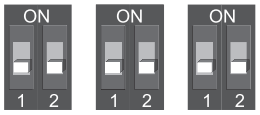
226-250ft



126-225ft



3-125ft

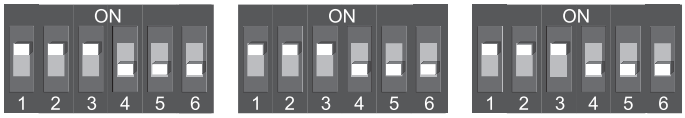


Transmitter Settings

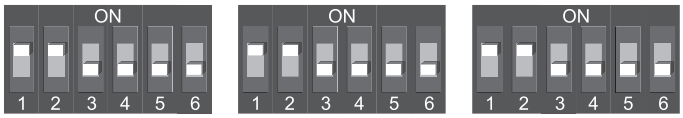
226-250ft

176-225ft

126-175ft



76-125ft



26-75ft

3-25ft

Appendix F

Summary of Keyboard Control and Operational Commands

Below is a summary of all notational conventions used in this manual. Whenever you see one of the symbols listed on the left side of the table, substitute the corresponding steps or values listed on the right side of the table.

Convention	Key Sequence or Value
<CM>	Enter Command Mode: 1. Press and hold down the 'Num Lock' key. 2. Press and release the minus (-) key on the numeric keypad. 3. Release the 'Num Lock' key.
<Enter>	Press the 'Enter' or 'Return' key. The **<Enter>** command is used to execute an instruction and exit from Command Mode.
Addr	Enter the letter that corresponds to the channel you wish to select.
<ESC>	Press the 'Escape' key. The **<ESC>** command is used to exit Command Mode without executing an instruction.

The following is a summary of all commands used.

Key Sequence	Action
<CM>*Addr***<Enter>**	Selects an active computer channel with the keyboard.
<CM>KD*nn***<Enter>**	Configures the dwell time. Substitute *nn* with a value from 1 to 65 seconds. The default value is 5 seconds.
<CM>KG**<Enter>**	Enables the KeyScan Go command.
<CM>KH**<Enter>**	Enables the KeyScan Halt command.
<CM>RESET**<Enter>**	Resets the active user module.
<CM>RESET*Addr***<Enter>**	Resets any module in the system, computer or user. Replace *Addr* with the address of the module to reset.
<CM>OFF**<Enter>**	Logs a secondary user off of the system. User screen goes blank. Video channel is freed up for other users in the system. Selecting a channel re-enables the user.
<CM>M+**<Enter>**	Re-enables the mouse on the current active channel. Use after a mouse failure, after switching the type of mouse connected to a user station, or after the RESET command has been used on the active computer interface module.
<CM>MW+**<Enter>**	Re-enables the Microsoft IntelliMouse on the current channel.
<CM>ZF**<Enter>**	Starts the Configuration Menu if you are connected through an unattached computer.
<CM>ZB**<Enter>**	Starts the Configuration Menu if you are connected through an attached computer.
<CM>ZS**<Enter>**	Starts the Configuration Menu if you are connected through the serial mouse port of an XPLU module.
<CM>ZQ**<Enter>**	Quits the Configuration Menu.

Key Sequence	Action
<CM>KM*nnn***<Enter>**	Sets the highest unit address that the system will scan through during a session. Substitute *nnn* with a value from 1 to 254. Required for expansion systems only.
<CM>KM0**<Enter>**	Resets scanning to include channels in the local unit only.
<CM>TG**<Enter>**	Enables the Broadcast Go command
<CM>TH**<Enter>**	Enables the Broadcast Halt command
<CM>T+*[channel list]***<Enter>**	Enables the Broadcast Add Channel (+) command
<CM>T-*[channel list]***<Enter>**	Enables the Broadcast Remove Channel (-) command
<CM>FOLLOW*Addr***<Enter>**	Sets the address of the leader console to be followed
<CM>FOLLOW+**<Enter>**	Enables Follow Mode
<CM>FOLLOW-**<Enter>**	Disables Follow Mode
<CM>SWAP*Addr***<Enter>**	Sets the address of the console to be swapped with
<CM>SWAP+**<Enter>**	Enables Swap Mode
<CM>SWAP-**<Enter>**	Disables Swap Mode
<CM>X*Addr***<Enter>**	Places a computer channel in Privacy Mode
<CM>SAVE**<Enter>**	Saves user console configuration (i.e. Broadcast Mode, DIP switch settings, KeyScan channels) settings to permanent memory. Any configuration changes not saved will not be retained after a power reset.
<CM>SW=*n***<Enter>**	Overrides DIP switch settings on XPAC/XPAB computer interface modules. Sets the bank of switches (1-8) to a user specified ON/OFF combination. To determine the correct DIP switch code for your system (*n*), refer to Appendix H.
<CM>SW+**<Enter>**	Enables override of DIP switch settings.
<CM>SW-**<Enter>**	Disables override of DIP switch settings.
<CM>CHASSIS=*n***<Enter>**	Changes the unit address of the local unit to *n* (0-254). Used in expansion systems only. If your chassis does not contain either an XPXT or an intelligent power supply (XPPS-2), you will need to use this command to assign the chassis a unit address. Valid chassis addresses are necessary for proper upgrading of expansion systems.
<CM>SUN=*n***<Enter>**	**Foreign Sun Workstations Only** Sets all XPAC/XPAB computer interface modules attached to Suns to emulate country-specific key codes. To determine the correct code for your system (*n*), refer to your Sun workstation documentation and Appendix G.
<CM>SUNI=*n***<Enter>**	**Foreign Sun Workstations Only** Sets the current XPAC/XPAB computer interface module (Sun only) to emulate country-specific key codes. To determine the correct code for your system (*n*), refer to your Sun workstation documentation and Appendix G.

Key Sequence	Action
<CM>@0**<Enter>**	Changes the hot-key sequence to the default: 1.Press and hold down the 'Num Lock' key. 2.Press and release the minus (-) key on the numeric keypad. 3.Release the 'Num Lock' key.
<CM>@1**<Enter>**	Changes the hot-key sequence to the 1st alternate: 1.Press and hold down the 'Num Lock' key. 2.Press and release the asterisk (*) key on the numeric keypad. 3.Release the 'Num Lock' key.
<CM>@2**<Enter>**	Changes the hot-key sequence to the 2nd alternate: 1.Press and hold down the 'Num Lock' key. 2.Press and release the plus (+) key on the numeric keypad. 3.Release the 'Num Lock' key.
<CM>@3**<Enter>**	Changes the hot-key sequence to the 3rd alternate: 1.Press and hold down the 'Num Lock' key. 2.Press and release the numeric keypad forward slash (/) key. 3.Release the 'Num Lock' key.
<CM>@4**<Enter>**	Changes the hot-key sequence to the 4th alternate: 1.Press and hold down the 'Control' key. 2.Press and release the tilde (~) key. 3.Release the 'Control' key.
<CM>REBOOT*Addr[n]***<Enter>**	Reboots the device connected to the XPRB at *Addr*. The value, *n* (1-6), indicates Power Port on XPRB.
<CM>XPRB*Addr1[n]=Addr2***<Enter>**	Associates the XPRB at *Addr1,* Power Port *n* with the computer interface module at *Addr2.*
<CM>REBOOT**<Enter>**	Reboots the selected computer, if connected to an XPAB or associated with a power port on an XPRB.
<CM>K*n***<Enter>**	Sets the keyboard scanset for AT and PS/2 systems where *n* is a scanset number 1-3.

Appendix G

Technical Specifications

Mechanical:

Size:	XP4040	—	5.25" H x 17.1" W x 13.6" D 13.08 cm x 43.4 cm x 34.5 cm
	XP4010	—	5.5" H x 8.2" W x 13.6" D 13.97 cm x 20.83 cm x 34.5 cm
	XP4080	—	5.25" H x 8.2" W x 13.6" D 13.08 cm x 20.83 cm x 34.5 cm
	XP4400	—	15.75” H x 19” W x 13.5” D 40 cm x 48.2 cm x 33.3 cm

Weight:	XP4040 (chassis, power supply, LCI)	— 18.5 lbs. (8.4 kg)
	XP4080 (chassis, power supply, LCI)	— 18.5 lbs. (8.4 kg)
	XP4010 (chassis, power supply, LCI)	— 13.2 lbs. (6 kg)
	XP4400 (chassis, power supplies, fans)	— 55 lbs. (25 kg)

Environmental/Power:

Operating temperature: 41° F to 98.6° F/5° C to 37° C
Storage temperature: -4° F to 122° F/-20° C to 50° C
Operating/storage humidity: up to 90% (non-condensing).

Operating heat dissipation:	XP4040	—92 BTU/hr. (nominal)
	XP4080	—92 BTU/hr. (nominal)
	XP4010	—41 BTU/hr. (nominal)
	XP4400	—1020 BTU/hr. (nominal)
Power consumption:	XP4040	—27 watts (nominal)
	XP4080	—27 watts (nominal)
	XP4010	—12 watts (nominal)
	XP4400	—300 watts (nominal)

Power frequency: 47-63 Hz
Operating voltage: 90-240 VAC
Maximum operating altitude: 12,000 ft.
MTBF (Mean Time Between Failure): 135,000 POH
MTTR (Mean Time To Repair): 15 minutes
Audio response (microphone input/speaker output): 20 Hz - 20 kHz ± 3dB
Meets or exceeds FCC Part 15 class A

Supported Hardware:

Computer support: IBM PC/AT, PS/2 and 100% compatible computers, Macintosh computers and Sun workstations.

Video support: VGA, SVGA, XGA, XGA II, Sun and Macintosh.
Maximum: 1600 x 1280 @ 60 Hz (155 MHz)

Serial device support: RS232 @ 9600 baud using hardware flow control or 115200 baud using inband flow control

Appendix H

Table 1-1: Unit Address Configuration Table

	(8 ------ 1)		(8 ------- 1)		(8 ------- 1)		(8 ------- 1)		(8 ------- 1)
0	Reserved	52	00110100	104	01101000	156	10011100	208	11010000
1	00000001	53	00110101	105	01101001	157	10011101	209	11010001
2	00000010	54	00110110	106	01101010	158	10011110	210	11010010
3	00000011	55	00110111	107	01101011	159	10011111	211	11010011
4	00000100	56	00111000	108	01101100	160	10100000	212	11010100
5	00000101	57	00111001	109	01101101	161	10100001	213	11010101
6	00000110	58	00111010	110	01101110	162	10100010	214	11010110
7	00000111	59	00111011	111	01101111	163	10100011	215	11010111
8	00001000	60	00111100	112	01110000	164	10100100	216	11011000
9	00001001	61	00111101	113	01110001	165	10100101	217	1101100
10	00001010	62	00111110	114	01110010	166	10100110	218	11011010
11	00001011	63	00111111	115	01110011	167	10100111	219	11011011
12	00001100	64	01000000	116	01110100	168	10101000	220	11011100
13	00001101	65	01000001	117	01110101	169	10101001	221	11011101
14	00001110	66	01000010	118	01110110	170	10101010	222	11011110
15	00001111	67	01000011	119	01110111	171	10101011	223	11011111
16	00010000	68	01000100	120	01111000	172	10101100	224	11100000
17	00010001	69	01000101	121	01111001	173	10101101	225	11100001
18	00010010	70	01000110	122	01111010	174	10101110	226	11100010
19	00010011	71	01000111	123	01111011	175	10101111	227	11100011
20	00010100	72	01001000	124	01111100	176	10110000	228	11100100
21	00010101	73	01001001	125	01111101	177	10110001	229	11100101
22	00010110	74	01001010	126	01111110	178	10110010	230	11100110
23	00010111	75	01001011	127	01111111	179	10110011	231	11100111
24	00011000	76	01001100	128	10000000	180	10110100	232	11101000
25	00011001	77	01001101	129	10000001	181	10110101	233	11101001
26	00011010	78	01001110	130	10000010	182	10110110	234	11101010
27	00011011	79	01001111	131	10000011	183	10110111	235	11101011
28	00011100	80	01010000	132	10000100	184	10111000	236	11101100
29	00011101	81	01010001	133	10000101	185	10111001	237	11101101
30	00011110	82	01010010	134	10000110	186	10111010	238	11101110
31	00011111	83	01010011	135	10000111	187	10111011	239	11101111
32	00100000	84	01010100	136	10001000	188	10111100	240	11110000
33	00100001	85	01010101	137	10001001	189	10111101	241	11110001
34	00100010	86	01010110	138	10001010	190	10111110	242	11110010
35	00100011	87	01010111	139	10001011	191	10111111	243	11110011
36	00100100	88	01011000	140	10001100	192	11000000	244	11110100
37	00100101	89	01011001	141	10001101	193	11000001	245	11110101
38	00100110	90	01011010	142	10001110	194	11000010	246	11110110
39	00100111	91	01011011	143	10001111	195	11000011	247	11110111
40	00101000	92	01011100	144	10010000	196	11000100	248	11111000
41	00101001	93	01011101	145	10010001	197	11000101	249	11111001
42	00101010	94	01011110	146	10010010	198	11000110	250	11111010
43	00101011	95	01011111	147	10010011	199	11000111	251	11111011
44	00101100	96	01100000	148	10010100	200	11001000	252	11111100
45	00101101	97	01100001	149	10010101	201	11001001	253	11111101
46	00101110	98	01100010	150	10010110	202	11001010	254	11111110
47	00101111	99	01100011	151	10010111	203	11001011	255	Reserved
48	00110000	100	01100100	152	10011000	204	11001100		
49	00110001	101	01100101	153	10011001	205	11001101		
50	00110010	102	01100110	154	10011010	206	11001110		
51	00110011	103	01100111	155	10011011	207	11001111		

Appendix I

DIP Switch Code Table

Code	(8 ------ 1)	Code	(8 ------- 1)	Code	(8 ------- 1)	Code	(8 ------- 1)	Code	(8 ------- 1)
00	00000000	34	00110100	68	01101000	9C	10011100	D0	11010000
1	00000001	35	00110101	69	01101001	9D	10011101	D1	11010001
2	00000010	36	00110110	6A	01101010	9E	10011110	D2	11010010
3	00000011	37	00110111	6B	01101011	9F	10011111	D3	11010011
4	00000100	38	00111000	6C	01101100	A0	10100000	D4	11010100
5	00000101	39	00111001	6D	01101101	A1	10100001	D5	11010101
6	00000110	3A	00111010	6E	01101110	A2	10100010	D6	11010110
7	00000111	3B	00111011	6F	01101111	A3	10100011	D7	11010111
8	00001000	3C	00111100	70	01110000	A4	10100100	D8	11011000
9	00001001	3D	00111101	71	01110001	A5	10100101	D9	11011001
0A	00001010	3E	00111110	72	01110010	A6	10100110	DA	11011010
0B	00001011	3F	00111111	73	01110011	A7	10100111	DB	11011011
0C	00001100	40	01000000	74	01110100	A8	10101000	DC	11011100
0D	00001101	41	01000001	75	01110101	A9	10101001	DD	11011101
0E	00001110	42	01000010	76	01110110	AA	10101010	DE	11011110
0F	00001111	43	01000011	77	01110111	AB	10101011	DF	11011111
10	00010000	44	01000100	78	01111000	AC	10101100	E0	11100000
11	00010001	45	01000101	79	01111001	AD	10101101	E1	11100001
12	00010010	46	01000110	7A	01111010	AE	10101110	E2	11100010
13	00010011	47	01000111	7B	01111011	AF	10101111	E3	11100011
14	00010100	48	01001000	7C	01111100	B0	10110000	E4	11100100
15	00010101	49	01001001	7D	01111101	B1	10110001	E5	11100101
16	00010110	4A	01001010	7E	01111110	B2	10110010	E6	11100110
17	00010111	4B	01001011	7F	01111111	B3	10110011	E7	11100111
18	00011000	4C	01001100	80	10000000	B4	10110100	E8	11101000
19	00011001	4D	01001101	81	10000001	B5	10110101	E9	11101001
1A	00011010	4E	01001110	82	10000010	B6	10110110	EA	11101010
1B	00011011	4F	01001111	83	10000011	B7	10110111	EB	11101011
1C	00011100	50	01010000	84	10000100	B8	10111000	EC	11101100
1D	00011101	51	01010001	85	10000101	B9	10111001	ED	11101101
1E	00011110	52	01010010	86	10000110	BA	10111010	EE	11101110
1F	00011111	53	01010011	87	10000111	BB	10111011	EF	11101111
20	00100000	54	01010100	88	10001000	BC	10111100	F0	11110000
21	00100001	55	01010101	89	10001001	BD	10111101	F1	11110001
22	00100010	56	01010110	8A	10001010	BE	10111110	F2	11110010
23	00100011	57	01010111	8B	10001011	BF	10111111	F3	11110011
24	00100100	58	01011000	8C	10001100	C0	11000000	F4	11110100
25	00100101	59	01011001	8D	10001101	C1	11000001	F5	11110101
26	00100110	5A	01011010	8E	10001110	C2	11000010	F6	11110110
27	00100111	5B	01011011	8F	10001111	C3	11000011	F7	11110111
28	00101000	5C	01011100	90	10010000	C4	11000100	F8	11111000
29	00101001	5D	01011101	91	10010001	C5	11000101	F9	11111001
2A	00101010	5E	01011110	92	10010010	C6	11000110	FA	11111010
2B	00101011	5F	01011111	93	10010011	C7	11000111	FB	11111011
2C	00101100	60	01100000	94	10010100	C8	11001000	FC	11111100
2D	00101101	61	01100001	95	10010101	C9	11001001	FD	11111101
2E	00101110	62	01100010	96	10010110	CA	11001010	FE	11111110
2F	00101111	63	01100011	97	10010111	CB	11001011	FF	11111111
30	00110000	64	01100100	98	10011000	CC	11001100		
31	00110001	65	01100101	99	10011001	CD	11001101		
32	00110010	66	01100110	9A	10011010	CE	11001110		
33	00110011	67	01100111	9B	10011011	CF	11001111		

Safety Precautions

To avoid potential video or keyboard problems when using Cybex products:

- If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.
- Use only Cybex-supplied cable. Cybex warranties do not apply to damage resulting from user-supplied cable.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

- Use equipment only as intended.
- Do not use equipment outside or in wet rooms.
- Avoid exposure to direct sunlight.
- Keep the equipment away from sources of vibration or physical shock.
- Isolate equipment from strong electromagnetic fields produced by electrical devices.
- Do not cover the ventilation openings.
- Never install equipment that appears damaged. If the equipment is malfunctioning, contact the supplier. Never open the equipment yourself. There are no serviceable parts inside.
- With the exception of adding or removing original Cybex manufactured modules in accordance with written Cybex instructions, the equipment and all attached computers should be powered down before servicing. Always disconnect the power cord from the unit. Note: The AC inlet is the main disconnect. Caution: XP4400 may have two power cords. To remove power completely, both line cords must be disconnected.
- XP4400 power supplies are hot swappable; they can be removed while XP4400 is receiving power from the supply in the other slot. But the supply must not be connected to AC power before being installed or removed.
- The equipment is safety class I (as defined by IEC950/EN60950) and has protective earthing terminals. There must be an uninterruptible safety earth ground from the main power source to the equipment's input wiring terminals, power cord, or supplied power cord set. Whenever it is likely the protection has been impaired, disconnect the power cord until the ground has been restored.
- Do not use a 2-wire extension cord in any Cybex product configuration.
- Use only with grounded outlets at both the computer and monitor.
- Test AC outlets at computer and monitor for proper polarity and grounding.
- When using a backup power supply (UPS), power the computer, the monitor and the KVM equipment off the supply.
- The safety status of all interconnection points, that are for connection of other equipment is SELV (safety extra-low voltage, as defined by IEC950/EN60950). SELV circuits should only be connected to other SELV circuits.

Rack Mount Safety Considerations

- Elevated Ambient Temperature: If installed in a closed rack assembly, the operation temperature of the rack environment may be greater than room ambient. Use care not to exceed the rated maximum ambient temperature of the unit.
- Ventilation: Make sure the air flow around the sides and top of the equipment is not restricted. The distance between ventilation openings and other equipment should be at least +" (2cm). Ensure that for any slot into which no module is installed, the cover plate is installed to cover the slot. A cover plate is required for safe operation, and to ensure proper cooling. Avoid placing the equipment in an overly congested rack because the heated exhaust air from other devices can enter the inlet air vents and cause an overtemperature condition inside the equipment.
- Clearance: Allow at least 19" (48cm) of clearance at the back of the rack for maintenance.
- Mechanical Loading: The rack or cabinet should be adequately secured to prevent it from becoming unstable and/or falling over. Devices installed in a rack or cabinet should be mounted as low as possible, with the heaviest device at the bottom and progressively lighter devices installed above. The mechanical load of the rack or cabinet must not exceed the maximum load indicated. Be sure to use all of the screws provided to secure the equipment to the rack posts.
- Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. To determine the possibility of overloading the supply circuits, add together the ampere ratings of all devices installed on the same circuit and compare the total with the rating limit for the circuit. Consider equipment nameplate ratings for maximum current.
- Reliable Earthing: Reliable earthing of rack mounted equipment should be maintained. Make sure that the power source circuits are properly grounded, then use the power cord supplied with the equipment to connect it to the power source. If your installation requires a different power cord than the one supplied with the equipment, be sure to use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. If the equipment is mounted in racks, grounding by power cord with earth conductor cannot be replaced by grounding the rack. Additional earthing of the rack or cabinet has no influence on the safety of the whole system but can be done in parallel.
- Lifting Guidelines: A fully configured XP4400 weighs approximately 77lb (35kg); it is not intended to be moved frequently. Before you install the equipment, ensure that your site is properly prepared so you can avoid having to move the XP4400 later to accommodate power sources and connections. Whenever you lift any heavy assembly, follow these guidelines:
  - Have a second person available to help lift the assembly; avoid lifting the assembly alone.
  - Ensure that your footing is solid; balance the weight of the object between your feet.
  - Lift the assembly slowly; never move suddenly or twist your body as you lift.
  - Keep your back straight and lift with your legs, not your back. If you must bend down to lift the assembly, bend at the knees, not at the waist, to reduce the strain on your lower back muscles.
  - Always disconnect all external cables before lifting or moving the XP4400. Caution: To prevent damage, never attempt to lift or tilt the XP4400 using the handles on the fan modules or on the power supplies. These handles are not designed to support the weight of the XP4400.
- Nameplate Rating: The equipment is rated 100-240V~, 50/60Hz. All components except the XP4400 are rated 1.6A (single component power supply) or 3.2A (dual component power supply). XP4400 is rated 7A (single or dual power supply).

Sicherheitshinweise

Um eventuelle Video- oder Tastaturprobleme bei der Verwendung von Cybex-Produkten zu vermeiden, beachten Sie bitte folgende Punkte:

- Falls das Gebäude über einen 3-Phasen Netzanschluss verfügt, müssen Computer und Monitor an derselben Phase betrieben werden. Idealerweise sollten sie zudem an dieselbe Steckdosenleiste angeschlossen werden.
- Verwenden Sie nur von Cybex gelieferte Kabel. Defekte, die durch Verwendung anderer Kabel entstehen, werden nicht durch die Cybex-Garantie abgedeckt.

Um eventuelle Gefahren und mögliche Schäden an den Geräten zu vermeiden, beachten Sie bitte folgende Vorsichtsmaßnahmen:

- Verwenden Sie die Geräte nur für den vorgesehenen Zweck.
- Verwenden Sie die Geräte nicht im Freien oder in Feuchträumen.
- Setzen Sie die Geräte keiner direkten Sonneneinstrahlung aus.
- Halten Sie die Geräte von Vibrationsquellen und Erschütterungen fern.
- Setzen Sie die Geräte keinen starken elektromagnetischen Feldern (z. B. verursacht durch andere Geräte) aus.
- Decken Sie niemals irgendwelche Lüftungsöffnungen ab.
- Installieren Sie niemals Geräte, die defekt erscheinen. Im Falle eines Defektes, wenden Sie sich an Ihren Fachhändler. Geräte niemals selber öffnen. Es befinden sich keine zu wartenden Teile darin.
- Bei Wartungsarbeiten müssen die Geräte vom Netz getrennt und die angeschlossenen Computer ausgeschaltet werden. Dies gilt nicht für das Hinzufügen oder Entfernen anderer Cybex-Module in Übereinstimmung mit der relevanten Produktdokumentation. Die Trennung vom Netz erfolgt durch Ziehen des Netzkabels. Vorsicht: Das Modell XP4400 kann zwei Netzkabel haben. Um das Gerät völlig spannungsfrei zu machen, müssen beide Netzkabel entfernt werden.
- XP4400 Stromversorgungsmodule sind während des Betriebs austauschbar; ein Modul kann entfernt werden, während der XP4400 mit Strom vom zweiten Modul versorgt wird. Jedoch darf das Modul keinesfalls mit dem Netz verbunden sein, während es entfernt wird, beziehungsweise bevor es installiert wurde.
- Die Geräte entsprechen der Sicherheitsklasse I (gemäß IEC950/EN60950) und verfügen über einen Schutzleiteranschluss. Es muss ein ununterbrochener Schutzleiterpfad vom Gebäude- bis zum Geräteanschluss bestehen. Wann immer dieser Pfad unterbrochen scheint, entfernen Sie die Netzzuleitung zum Gerät, bis die Schutzleiterfunktion wiederhergestellt ist.
- Verwenden Sie innerhalb einer Cybex-Installation keine Zweileiterkabel.
- Verwenden Sie ausschließlich geerdete Netzausgänge, sowohl am Computer, als auch am Monitor.
- Überprüfen Sie die Netzausgänge am Computer und am Monitor auf korrekte Polarität und Erdung.
- Sollten Sie eine unterbrechungsfreie Stromversorgung (USV) im Einsatz haben, versorgen Sie damit sowohl die Computer und Monitore, als auch alle Cybex-Geräte.
- Der Sicherheitsstand aller Verbindungsstellen, die dem Anschluss von weiteren Geräten dienen, ist SELV (Sicherheits-Kleinspannung, entsprechend der Definition von IEC950/EN60950). SELV-Stromkreise sollten nur mit anderen SELV-Stromkreisen verbunden werden.

Sicherheitsaspekte bei Rack-Montage

- Erhöhte Umgebungstemperatur: Bei einem geschlossenen Rack kann die Betriebstemperatur im Inneren des Racks die umgebende Raumtemperatur übersteigen. Achten Sie darauf, dass hierbei die angegebene maximale Betriebstemperatur der Geräte nicht überschritten wird.
- Belüftung: Stellen sie eine ausreichende Belüftung an den Seiten und oberhalb der Geräte sicher. Der Abstand zwischen den Ventilationsöffnungen und anderen Gegenständen sollte mindestens 2cm (+“) betragen. Es muss sichergestellt sein, dass für jeden Einschub in dem kein Modul installiert ist, eine Abdeckung vorwendet wird. Eine Abdeckung ist für einen sicheren Betrieb und eine korrekte Belüftung notwendig. Vermeiden Sie zusätzliche Geräte in einem übervollen Rack zu installieren, weil bereits erwärmte Abluft in die Belüftungsöffnungen eintreten kann, wodurch ein Übertemperaturzustand im Inneren des Gerätes droht.
- Abstand: Erlauben Sie einen lichten Abstand von mindestens 48cm (19") an der Rückseite des Racks für Wartungsarbeiten.
- Mechanische Belastung: Das Rack sollte stets angemessen stabilisiert und gegen Umfallen gesichert sein. Die Geräte sollten soweit unten wie möglich in das Rack eingebaut werden. Achten Sie hierbei insbesondere darauf, dass das schwerste Gerät ganz unten und das leichteste Gerät ganz oben eingebaut wird. Die angegebene Maximallast darf hierbei in keinem Fall überschritten werden. Verwenden Sie alle mitgelieferten Schrauben, um die Geräte ordnungsgemäß im Rack zu befestigen.
- Netz-Überlastung: Besondere Berücksichtigung sollte den Verbindungen der Geräte mit dem Versorgungsstromkreis gegeben werden. Berücksichtigen Sie, dass eine Überlastung des Versorgungsstromkreises Auswirkungen auf Netz-Sicherungen und -Leitungen hat. Um die Möglichkeit einer Überlastung zu erkennen, addieren Sie die Nennströme aller Geräte, die an einem Versorgungskreis angeschlossen sind, und vergleichen Sie die Summe mit der maximalen Belastbarkeit des Versorgungsstromkreises. Angaben über die Nennströme finden Sie auf den Typenschildern der jeweiligen Geräte.
- Erdung: Alle in einem Rack installierten Geräte müssen stets ordnungsgemäß geerdet sein. Überprüfen Sie zunächst den Versorgungsstromkreis auf korrekte Erdung. Schließen Sie dann das mitgelieferte Netzkabel an. Sollte Ihre Installation ein anderes als das mitgelieferte Netzkabel erfordern, stellen Sie sicher, dass das verwendete Netzkabel über ein Prüfzeichen eines in Ihrem Land für elektrische Sicherheit zuständiges Prüfinstitut verfügt. Grundsätzlich kann die Erdung über das Netzkabel nicht durch die Erdung des Racks ersetzt werden. Eine Erdung des Racks hat keinen Einfluss auf die elektrische Sicherheit des gesamten Systems, kann aber zusätzlich durchgeführt werden.
- Hebe-Richtlinien: Ein vollständig konfigurierter XP4400 wiegt ungefähr 35kg (77lb); er ist nicht für häufiges Bewegen bestimmt. Bevor Sie das Gerät installieren, sollte sichergestellt werden, dass der jeweilige Ort korrekt vorbereitet wurde, um zu vermeiden, dass das Gerät später wegbewegt werden muss, um Netzanschlüsse oder Verbindungen herzustellen. Wann immer Sie schwere Gegenstände bewegen müssen, befolgen Sie diese Hinweise:
  - Heben Sie das Gerät nicht alleine hoch.
  - Achten Sie auf einen sicheren Stand, und balancieren Sie das Gewicht des Gerätes mit Ihren Füßen aus.
  - Heben Sie das Gerät langsam hoch, und vermeiden Sie plötzliche Bewegungen und Drehungen des Körpers.
  - Halten Sie Ihren Rücken gerade und heben Sie aus den Beinen heraus, nicht aus dem Rücken. Falls Sie sich nach unten beugen müssen, beugen Sie Ihre Knie, nicht Ihre Taille, dadurch entlasten Sie Ihre untere Rückenmuskulatur.
  - Bevor Sie den XP4400 heben oder bewegen, sollten Sie stets alle externen Kabel entfernen. Vorsicht: Um Beschädigungen zu vermeiden, verwenden Sie niemals die Griffe der Lüfter- oder der Stromversorgungsmodule zum Heben oder Kippen des XP4400. Diese Griffe sind nicht für das Gewicht des XP4400 ausgelegt.
- Nennangaben auf dem Typenschild: Der Versorgungsspannungsbereich aller Geräte beträgt 100-240V~, 50/60Hz. Alle Geräte, mit Ausnahme des XP4400, haben einen Nennstrom von 1,6A (Einzel-Stromversorgungsmodul) oder 3,2A (Doppel-Stromversorgungsmodul). Der XP4400 hat einen Nennstrom von 7A (ein oder zwei Stromversorgungsmodule).

LIMITED WARRANTY

Cybex Computer Products Corporation warrants to the original retail purchaser that this product is and will be free from defects in materials and workmanship for a period of 12 months from the date of purchase.

Additionally, all Cybex products carry an unconditional thirty-day satisfaction guarantee. If, for any reason, you are dissatisfied with the performance of this product, you may return it to the point of purchase for a refund of the purchase price (excluding shipping charges). This guarantee does not apply to special order products, and may not be available through all resellers. During the warranty period, purchaser must promptly call Cybex for a RETURN MATERIALS AUTHORIZATION (RMA) number. Make sure that the RMA number appears on the packing slip, proof of purchase, AND ON THE OUTSIDE OF EACH SHIPPING CARTON. Unauthorized returns or collect shipments will be refused.

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The above limited warranty is voided by occurrence of any of the following events, upon which the product is provided as is, with all faults, and with all disclaimers of warranty identified below:

1. If non-Cybex approved cabling is attached to the XP4000 Series unit. Poorly constructed and miswired cabling can diminish video quality and damage equipment. Cybex manufactured cabling is built to high quality standards utilizing overall braided shield to comply with FCC emission standards, and each cable is individually tested **under load**.
2. If defect or malfunction was caused by abuse, mishandling, unauthorized repair, or use other than intended.
3. If unauthorized modifications were made to product.
4. If unreported damages occurred in any shipment of the product.
5. If damages were due to or caused by equipment or software not provided by Cybex.
6. If the XP4000 Series unit is used with non-grounded or incorrectly polarized AC power.
7. If the product is used in contradiction to any instruction provided by any User Guide or Instruction Sheet provided to you or with the product.

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