

Adaptec USB2Xchange

User's Guide

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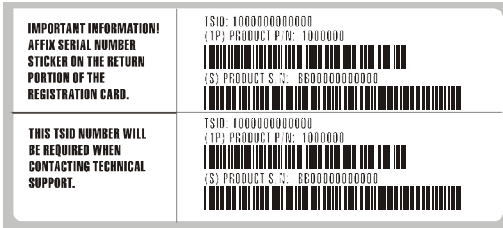
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WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. However, if this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.
- Use a shielded and properly grounded I/O cable and power cable to ensure compliance of this unit to the specified limits of the rules.

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European Union Compliance Statement

This Information Technology Equipment has been tested and found to comply with the following European directives:

EMC Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC

EN50081-1 (1992)

EN55022 (1994) Class B

EN50082-1 (1992)

EN61000-4-2 (1998)

EN61000-4-3 (1998)

EN61000-4-4 (1995)

EN61000-4-5 (1995) Surges

EN61000-4-6 (1996) Conducted immunity

EN61000-4-11 (1994) Supply dips of variation



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Canadian Compliance Statement

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Introduction

This user's guide explains how to use the *USB2Xchange* adapter to plug your SCSI devices into the Universal Serial Bus (USB) port of your Windows computer.

The SCSI controller in the *USB2Xchange* lets you connect up to seven SCSI devices to your desktop or laptop computer. The *USB2Xchange* provides USB 2.0 data transfer rates, up to 480 Megabits per second, while maintaining backward compatibility with USB 1.1 devices.



Note: USB 1.1 devices cannot operate at USB 2.0 speeds even when connected to a USB 2.0 adapter.

For more information about USB and SCSI, go to the Adaptec Support Knowledgebase at ask.adaptec.com.

Kit Contents

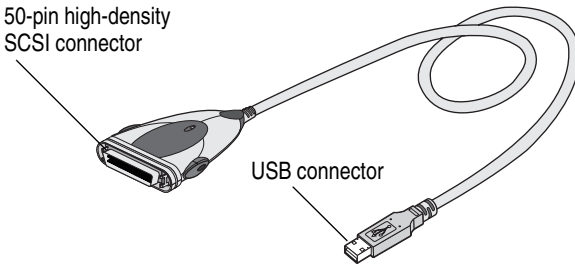
- *USB2Xchange* adapter to 50-pin High-Density SCSI Connector
- *USB2Xchange* CD with Windows drivers and *USB2Xchange User's Guide*
- Quick-Install Guide (printed on the CD jacket)

System Requirements

- Desktop or laptop PC computer with a USB port
- Windows® 98SE, Windows Me®, Windows® 2000, or Windows® XP
- (Optional) UL approved DC adapter for external power supply

USB2Xchange Connectors

The USB2Xchange is an integrated adapter with a 50-pin high-density connector at one end and a USB connector at the other, as shown in the figure below.



The USB2Xchange adapter acts like a self-powered device— it receives its electrical power from attached SCSI devices. If no device is available, the adapter switches automatically to receive power from the USB bus.

You may need to use an optional DC power supply in some rare cases—for example, if you're using an unpowered USB hub with attached SCSI devices that do not supply SCSI termination power. See [Understanding the USB2Xchange Power Supply on page 21](#) for more information.



Note: Adaptec strongly recommends that you plug the USB2Xchange adapter directly into a USB port on your system. If you must connect through a USB hub, use only a self-powered USB hub.

Hot-Plugging

The USB2Xchange adapter is *hot-pluggable*, which means you can connect and disconnect it from a live system.

However, SCSI devices are not hot-pluggable. You must shut down your device and your computer before disconnecting a SCSI device from the USB2Xchange adapter.

Installing USB2Xchange

To install the USB2Xchange adapter, perform these tasks in this order:

- 1 Connect your SCSI devices to the USB2Xchange. See the next section, [Connecting to Your SCSI Devices](#), for detailed instructions.
- 2 Connect the USB2Xchange to your computer (see [Connecting to Your Computer on page 5](#)) or external hub (see [Connecting to an External USB Hub on page 6](#)) for detailed instructions.
- 3 Install the driver software for your operating system. See [Installing the Driver on page 7](#) for detailed instructions.

If you are unfamiliar with SCSI, read [Understanding SCSI on page 24](#) before you begin the USB2Xchange installation.



Note: Installing the drivers for the USB2Xchange adapter before connecting and powering-on at least one SCSI device might cause a drive load failure. This failure will show as a yellow exclamation point beside the USB2Xchange adapter in Device Manager.

Connecting to Your SCSI Devices

You can use the USB2Xchange adapter to connect your computer to one SCSI device, or up to seven SCSI devices. (In Windows 2000 and Windows XP, you can connect a maximum of four SCSI devices to the USB2Xchange adapter.)

Ensure that you have the proper connector to attach the USB2Xchange to the first SCSI device, and that you have a high-quality SCSI cable for each additional SCSI device being connected.

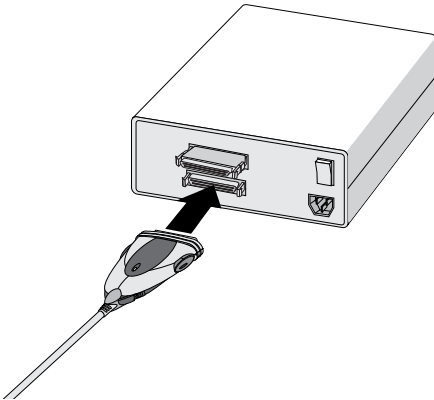


Note: It is important to use only high-quality cables to ensure that data is written and read correctly.

If your device has a different connector than the one provided on the USB2Xchange, a 50-pin High-Density to 25-pin SCSI converter (Adaptec part # ACK-DB25M-50HDF) is available for purchase on the Adaptec Web site. Additionally, Adaptec provides a wide range of SCSI cables designed specifically for use with SCSI devices. Go to the Adaptec Web site at www.adaptec.com for more information.

To connect your USB2Xchange adapter to your SCSI devices:

- 1 Prepare your device(s) for connection by setting the SCSI IDs and termination. See [SCSI IDs on page 24](#) and [Terminating the SCSI Bus on page 25](#) for more information.
- 2 Connect the USB2Xchange adapter to the first SCSI device, as shown in the figure below.



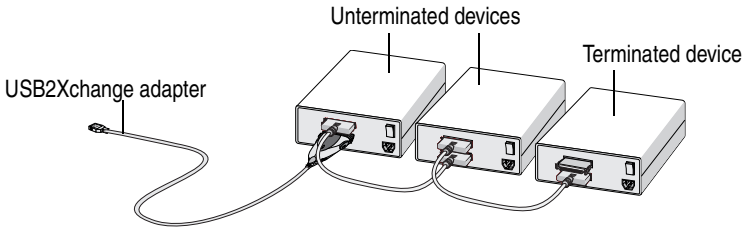
Depending on the SCSI device connector type, you can either attach the SCSI connector of the USB2Xchange directly to your SCSI device, or you may require an additional cable or converter.



Note: Do not power on the SCSI device until it is attached to the USB2Xchange adapter.

- 3 Fasten the cable securely using the built-in locking clamps.
- 4 If you are connecting only one device, terminate the device. Refer to your device's documentation for instructions.

- 5 Connect other devices by cabling each device to the previous one, as shown in the figure on [page 5](#).
- 6 Terminate the last device in the SCSI chain, as shown in the figure below. All other devices must have termination set to disabled. See [Terminating the SCSI Bus on page 25](#), for more information.

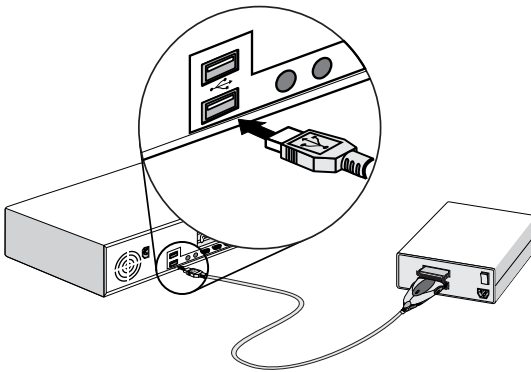


- 7 Power on your SCSI devices.

Connecting to Your Computer

To connect your USB2Xchange adapter to your computer:

- 1 Power on your computer.
- 2 Plug the USB connector into the USB port on your computer.



- 3 Make sure the cable ends are firmly connected. *Do not* force your connections as this may damage your system or the USB2Xchange.



Note: The USB2Xchange receives its +5V power from either the terminator power line of the attached SCSI device, or if no termination power is available, from the USB bus.

Connecting to an External USB Hub

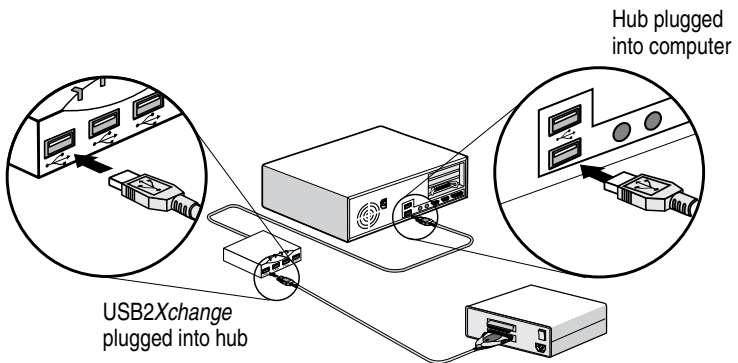
To connect your USB2Xchange adapter to an external USB hub:

- 1 Connect the external USB hub (purchased separately) to the USB port of your computer. (For information on Adaptec's USB hubs, go to the Adaptec Web site at www.adaptec.com.)



Note: To ensure proper operation, Adaptec recommends using only *self-powered* hubs (hubs that receive their power from an A/C connection). Otherwise, you will need to connect the USB2Xchange adapter to an optional power supply. See [Understanding the USB2Xchange Power Supply on page 21](#) for more information.

- 2 Connect the USB connector of your USB2Xchange to a port on the external USB hub.



Installing the Driver

You can find installation instructions for the driver appropriate for your operating system in one of these sections:

- For Windows XP, see the next section (*Windows XP*).
- For Windows 2000, see [page 11](#).
- For Windows Me, see [page 14](#).
- For Windows 98SE, see [page 16](#).



Note: The USB2Xchange drivers will overwrite USBXchange drivers. You can continue to use USBXchange with the new USB2Xchange drivers.

Windows XP

When you connect the USB2Xchange adapter to your computer, Windows XP automatically detects it. The first time you connect the adapter, you are prompted to install the driver from the USB2Xchange CD.

To install the Windows XP driver:

- 1 Ensure that Windows XP is running.
- 2 Plug the USB2Xchange adapter into the USB port on your computer. Make sure the adapter is connected to a powered-up SCSI device.

The Found New Hardware Wizard opens.

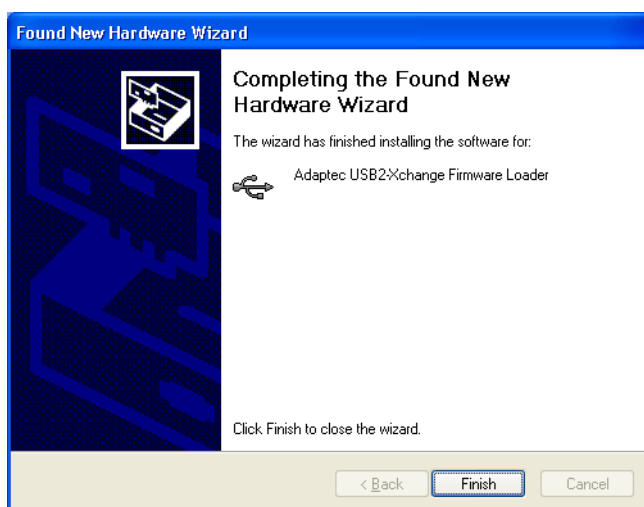
- 3 Insert the USB2Xchange CD into your CD-ROM drive. Select **Install the software automatically (Recommended)**, then select **Next**.



- 4 Click **Continue Anyway**.

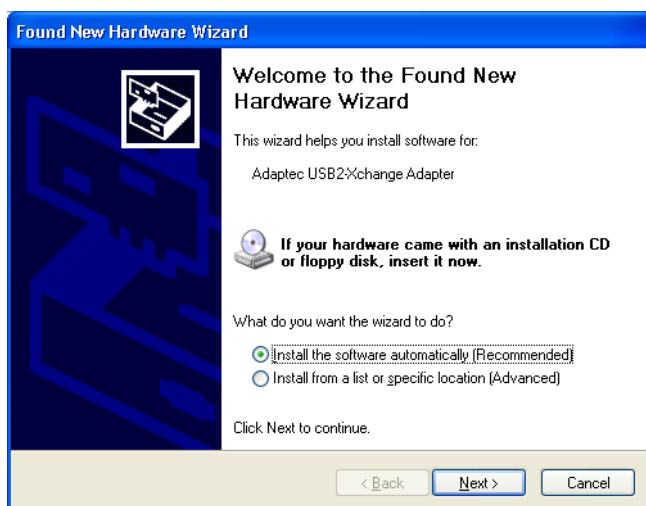


- 5 When the installation is complete, click **Finish**.



A new Found New Hardware Wizard appears.

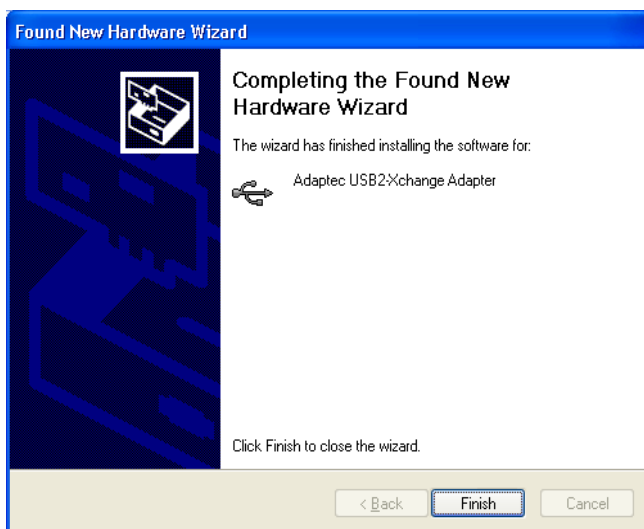
- 6 Select **Install the software automatically (Recommended)**, then click **Next**.



- 7 If this screen appears, select **Continue Anyway**.



- 8 Click **Finish** to complete the installation.



Note: Installing the drivers for the USB2Xchange adapter before connecting and powering-on at least one SCSI device might cause a drive load failure. This failure will show as a yellow exclamation point beside the USB2Xchange adapter in Device Manager.

Windows 2000

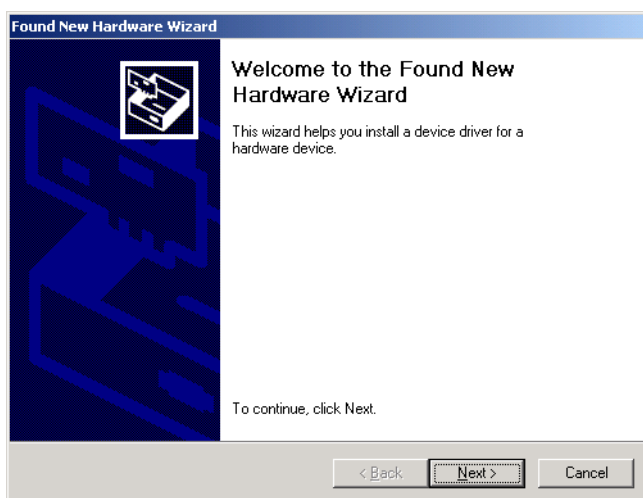
When you connect the USB2Xchange adapter to your computer, Windows 2000 automatically detects it. The first time you connect the adapter, you are prompted to install the driver from the USB2Xchange CD.

To install the Windows 2000 driver:

- 1 Ensure that Windows 2000 is running.
- 2 Plug the USB2Xchange adapter into the USB port on your computer. Make sure the adapter is connected to a powered-up SCSI device.

The Found New Hardware Wizard opens.

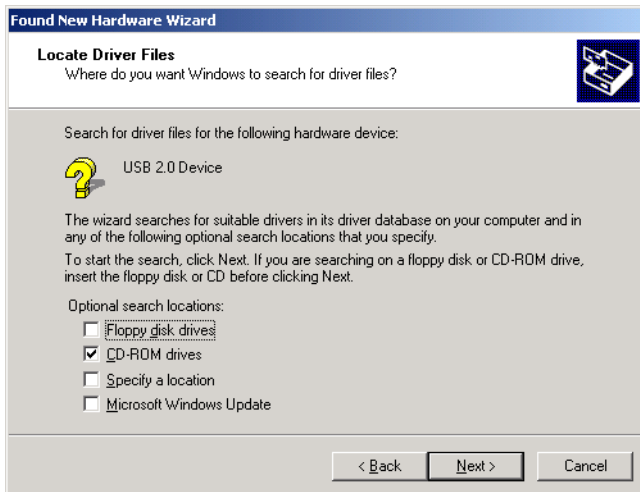
- 3 Click **Next** to continue.



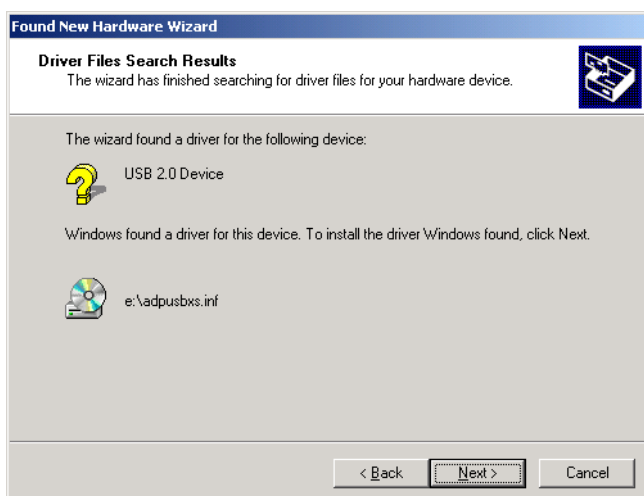
4 Select **Search for a suitable driver...**, then click **Next**.



5 Insert the USB2Xchange CD into your CD-ROM drive. Select **CD-ROM drives**, then click **Next**.



6 Click **Next** to install the driver.



Note: Your CD-ROM drive may have a different drive letter than the one shown in the example above.

7 Click **Finish** to complete the installation.





Note: Installing the drivers for the *USB2Xchange* adapter before connecting and powering-on at least one SCSI device might cause a drive load failure. This failure will show as a yellow exclamation point beside the *USB2Xchange* adapter in Device Manager.

Windows Me

When you connect the *USB2Xchange* adapter to your computer, Windows Me automatically detects it. The first time you connect the adapter, you are prompted to install the driver from the *USB2Xchange* CD.

To install the Windows Me driver:

- 1 Ensure that Windows Me is running.
- 2 Plug the *USB2Xchange* adapter into the USB port on your computer. Make sure the adapter is connected to a powered-up SCSI device.

The Found New Hardware Wizard opens.

- 3 Insert the USB2Xchange CD in your CD-ROM drive. Select **Automatic search for a better driver (Recommended)**, then click **Next**.



Windows Me installs the driver.

- 4 Click **Finish** to complete the installation.



Note: Installing the drivers for the USB2Xchange adapter before connecting and powering-on at least one SCSI device might cause a drive load failure. This failure will show as a yellow exclamation point beside the USB2Xchange adapter in Device Manager.

Windows 98SE

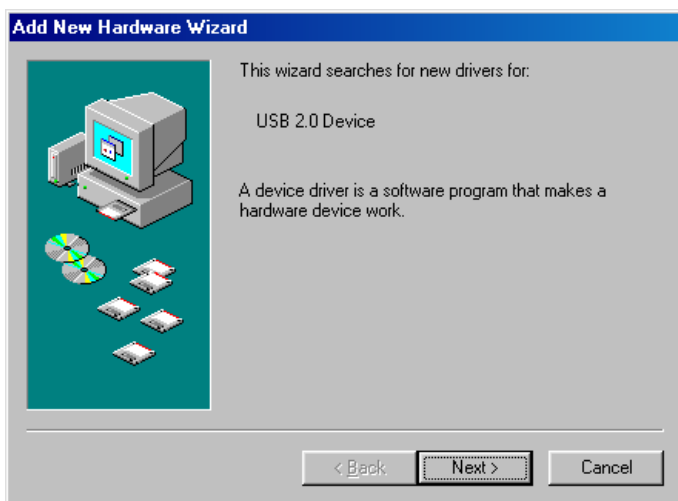
When you connect the USB2Xchange adapter to your computer, Windows 98SE automatically detects it. The first time you connect the adapter, you are prompted to install the driver from the USB2Xchange CD.

To install the Windows 98SE driver:

- 1 Ensure that Windows 98SE is running.
- 2 Plug the USB2Xchange adapter into the USB port on your computer. Make sure the adapter is connected to a powered-up SCSI device.

The Found New Hardware Wizard opens.

- 3 Click **Next** to continue.

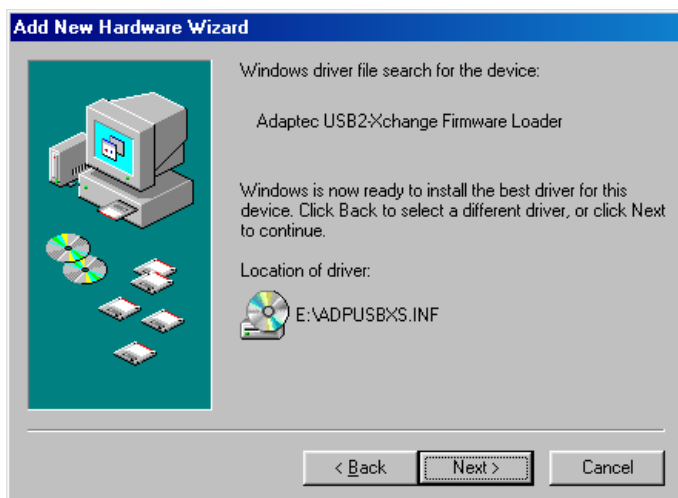


- 4 Select **Search for the best driver...**, then click **Next**.



- 5 Insert the *USB2Xchange* CD in your CD-ROM drive. Select **CD-ROM drive**, then click **Next**.



6 Click Next.

Note: Your CD-ROM drive may have a different drive letter than the one shown in the example above.

7 Click Finish to complete the installation.



Note: Installing the drivers for the USB2Xchange adapter before connecting and powering-on at least one SCSI device might cause a drive load failure. This failure will show as a yellow exclamation point beside the USB2Xchange adapter in Device Manager.

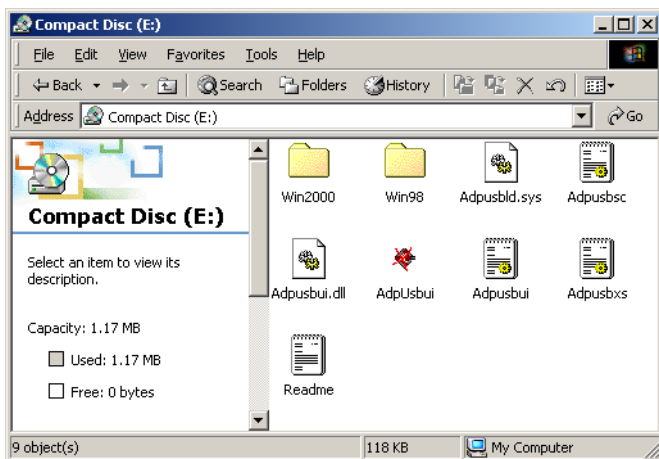
Uninstalling the Driver



Caution: If you uninstall the USB2Xchange driver, both USB2Xchange and USBXchange drivers will be removed.

To uninstall the USB2Xchange driver:

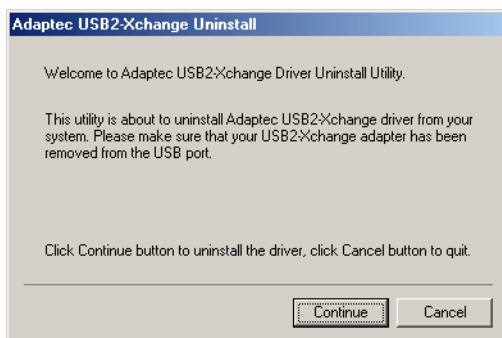
- 1 Unplug the USB2Xchange adapter from the USB port of your computer.
- 2 Insert the USB2Xchange CD into the CD-ROM drive.
- 3 On your desktop, double-click the **My Computer** icon, then double-click the CD-ROM drive icon.
- 4 Double-click **Adpusbui.exe**.



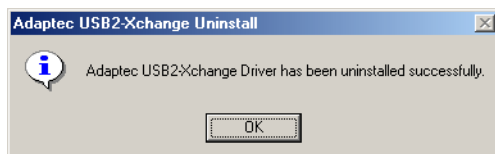


Note: Your CD-ROM drive may have a different drive letter than the one shown in the example above.

5 Click Continue.



6 This dialog box appears when you have successfully uninstalled the USB2Xchange driver.



Understanding the USB2Xchange Power Supply

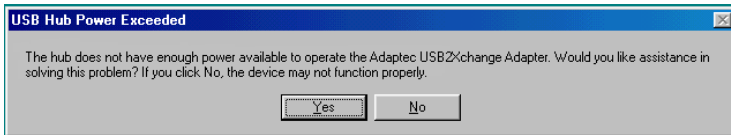
The USB2Xchange adapter receives its electrical power from the termination power line of attached SCSI devices. If this power supply is not available, the adapter switches automatically to receive power from the USB bus.

There are cases when the USB bus cannot supply the needed power for the USB2Xchange to operate—if, for example, you're using an unpowered USB hub and the attached SCSI devices don't supply SCSI termination power. In these cases, you may need to use an optional DC power supply.

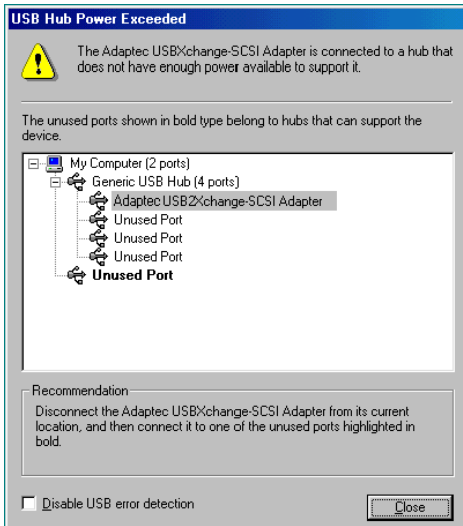


Note: Adaptec strongly recommends that you plug the USB2Xchange directly into a USB port on your computer. If you must connect through a USB hub, use only a self-powered USB hub.

You receive an error message (like the one shown below) if the USB2Xchange is not supplied with enough power to operate.



If you click **Yes** when the error message appears, you may receive this message:



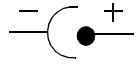
You can try either of these suggestions to correct the problem:

- Unplug the *USB2Xchange* and plug it directly into another USB port on your computer, or into a self-powered hub that is connected to your computer.
- Connect an external DC power supply to your *USB2Xchange*. See [Using an External DC Power Supply on page 23](#) for more information.

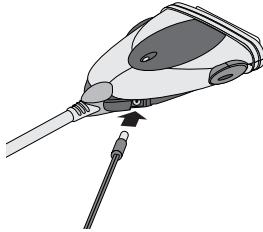
Using an External DC Power Supply

If you need an external power source, the USB2Xchange adapter can use a DC power supply with a 4.5V to 7.5V output and a minimum 500 mA output current.

Polarity:



An external 3.4 mm DC power plug (not included with kit) can be plugged into the DC input connector located on the side of the USB2Xchange, as shown in the figure below.



Understanding SCSI

SCSI (pronounced “scuzzy”) stands for Small Computer System Interface. SCSI is an industry standard computer interface for connecting SCSI devices (such as a hard disk drive, CD-ROM drive, or scanner) to a common SCSI bus.

A *SCSI bus* is the path or channel that connects your computer, USB2Xchange adapter, and one or more SCSI devices. It's not a physical object that you can point to; instead, it's the whole collection of SCSI cables and devices (including the USB2Xchange) that make up the communication channel. The size of the bus grows when more devices are added. When there is activity on the SCSI bus, the LED on the top of your USB2Xchange flashes.

For the SCSI bus to function properly, each SCSI device must have a unique SCSI ID and must be correctly terminated. For more information, see the next section ([Preparing SCSI Devices for Installation](#)).

Preparing SCSI Devices for Installation

When preparing to install SCSI devices, make sure to:

- Check the SCSI IDs. Ensure that the USB2Xchange adapter and each SCSI device you want to connect to it has a unique SCSI ID. See the next section, [SCSI IDs](#), for more information.
- Use only high-quality SCSI cables to ensure reliable data transfer. See [Using SCSI Cables on page 26](#) for more information.
- Terminate the ends of the SCSI bus. See [Terminating the SCSI Bus on page 25](#) for more information.

SCSI IDs

SCSI IDs identify each device on the SCSI bus and determine priority when two or more devices are trying to use the SCSI bus at the same time. The SCSI card is also identified by a SCSI ID. For the USB2Xchange adapter, SCSI IDs are numbers between 0 and 7.

Adaptec presets the USB2Xchange to SCSI ID 7. You cannot change this setting. SCSI ID 7 has the highest priority on the SCSI bus; the remaining SCSI IDs descend in priority from 6 to 0.

Use SCSI ID 0 for the first SCSI hard disk drive.

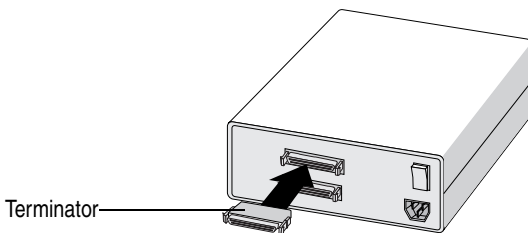
You generally set the SCSI ID on external SCSI devices by setting a switch on the back of the device. However, for specific instructions on setting the SCSI ID of your devices, refer to the devices' documentation.

Terminating the SCSI Bus

Your SCSI bus is a chain of devices with electrical signals running back and forth between them. If the SCSI bus is not properly terminated, any signal travelling down the bus bounces back when it hits the end of the bus, and interferes with itself. By terminating both ends of the SCSI bus, you ensure reliable communication on the bus by preventing this interference.

Termination is permanently enabled on the *USB2Xchange* adapter, since it is always at one end of the SCSI bus. You must enable termination on the device at the other end of the SCSI bus and disable termination on each device connected between the physical ends of the bus.

Most SCSI devices come from the factory with termination enabled. You usually control termination on external SCSI devices by installing or removing a SCSI terminator module (similar to the one shown in the figure below), or by setting a switch on the back of the device. However, methods for setting termination vary and you should refer to each SCSI device's documentation for detailed instructions.



Note: Some SCSI devices require that termination power be supplied to the SCSI bus. The *USB2Xchange* adapter does not supply termination power. To use these devices with the *USB2Xchange*, a device which does supply termination power must be added to the SCSI bus.

Using SCSI Cables

High-quality cables are required in high-performance SCSI systems to ensure data integrity. Adaptec provides the highest quality SCSI cables designed specifically for use with SCSI devices. For purchasing information, visit the Adaptec Web site at www.adaptec.com.

The total length of cabling on the SCSI bus should not exceed the maximum lengths listed in the following table:

Maximum Cable Lengths

Maximum Devices Supported ¹	Data Transfer Rate	Maximum Cable Length
7	Fast SCSI (10 MB/sec)	3 m (9.8 ft.)
7	5 MB/sec asynchronous or synchronous	6 m (19.7 ft.)

¹ Includes the adapter.

Viewing SCSI Devices

You can use the Windows Device Manager to view the SCSI IDs and other information about the devices connected to the SCSI bus.

About USB

USB stands for Universal Serial Bus. It is the interface between your computer and the USB devices you plug into it. Your computer communicates with USB devices through the USB interface.

Some USB features are particularly important to desktop computer users:

- USB is one-size-fits-all—any USB device can be plugged into any USB port using the appropriate USB cable.
- USB devices feature plug-and-play installation—you don't have to open your computer or add special hardware to install a new USB device. Once you plug your USB device into your computer (or hub) and turn it on, you can start using it right away.
- You can hot-swap USB devices. You can easily unplug your digital camera to take away with you, or plug in your joystick during your lunch break.
- You can have many USB devices connected to your computer at once. Most newer computers come with 2 USB ports. USB hubs can provide additional ports.

USB 1.1 vs USB 2.0

USB 2.0 transfers data at 480 Megabits per second. USB 1.1 transfers data at 12 Megabits per second—that makes USB 2.0 up to 40 times faster than USB 1.1.

USB 1.1 devices cannot operate at USB 2.0 speeds even when connected to a USB 2.0 hub or adapter.

Troubleshooting

If you have problems with the *USB2Xchange*, work through these troubleshooting tips.

My device is not recognized. How can I get the system to recognize my device?

- All SCSI devices must be powered on before the system acknowledges the *USB2Xchange*. Power on all SCSI devices and then reconnect your *USB2Xchange* to your computer.
- Verify that the drivers are installed on your computer.
- The *USB2Xchange* adapter receives its electrical power from the termination power line of attached SCSI devices. If this power supply is not available, the adapter switches automatically to receive power from the USB bus.

There are cases when the USB bus cannot supply the needed power for the *USB2Xchange* to operate—if, for example, you're using an unpowered USB hub and the attached SCSI devices don't supply SCSI termination power. In these cases, you may need to use an optional DC power supply.

See [Understanding the USB2Xchange Power Supply on page 21](#) for more information.

My SCSI device has a different connector than the one provided on the *USB2Xchange*. How can I correct this problem?

A 50-pin High-Density to 25-pin SCSI converter is available for purchase on the Adaptec Web site. Additionally, Adaptec provides a wide range of SCSI cable solutions. Go to www.adaptec.com for more information.

When I change CDs using Windows, I don't see the new one in the drive.

Use the **View Menu/Refresh** option to refresh your screen.

When I power off/on my SCSI device while still connected to USB2Xchange, the system does not detect the USB2Xchange or the SCSI device appears to be missing. How can I correct this problem?

- Unplug the USB2Xchange adapter from the USB port, then plug it in again.
- Unplug the USB2Xchange adapter from the USB port, then turn all SCSI devices off, then on again. Then, reinsert the adapter.
- Power off your SCSI device. Disconnect the USB2Xchange adapter from the SCSI device, then reconnect it. Power on the SCSI device again.
- Restart your computer with the USB2Xchange adapter attached and the SCSI devices powered on.
- Shut down the computer, unplug the USB2Xchange adapter, then turn all SCSI devices off, then on again. Reconnect the adapter, then restart the computer.
- Run the Uninstall utility before reinstalling the driver. See [Uninstalling the Driver on page 19](#) for more information.

If, after working through this list, you are still unable to resolve a problem, go to the Adaptec Support Knowledgebase at ask.adaptec.com for additional troubleshooting assistance.



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