# Cable Modem External with USB

# User's Guide and Reference

## Deciding Which Installation Process to Use

The 3Com ® HomeConnect ™ cable modem allows you to connect to the Internet using either the USB port or the Ethernet port. Be sure to follow the instructions provided for the port that you want to use.

Using the USB port to connect to the Internet allows you to install the cable modem more quickly and easily than connecting to the Internet using the Ethernet port, because you do not need to install a network interface card (NIC). USB, however, only allows you to connect one computer to the cable modem.

Using the Ethernet port allows you to use a hub to connect multiple computers to the cable modem. To do this, you may need to obtain additional IP addresses from your cable service provider.

*CAUTION: You cannot use the USB and Ethernet connections simultaneously. Therefore, you should not have the USB cable and the Ethernet cable plugged into the cable modem at the same time. Having the USB and Ethernet cables plugged into the cable modem at the same time might prevent you from accessing the Internet.*

## ***Ethernet Installation***

### Configuring the TCP/IP Protocol

*NOTE: If you are using a Macintosh computer, go to the Macintosh instructions.*

### Configuring the TCP/IP Protocol on a Windows PC

You need to have an Ethernet Network Interface Card (NIC) and the TCP/IP communications protocol installed on your system before you install your cable modem. Follow these instructions to verify that TCP/IP is installed and configured correctly.

1. Right-click the Network Neighborhood icon on your desktop and then click Properties.
2. A list of installed network components appears. Look for an entry named "TCP/IP". This entry may be followed by an arrow and a description of the NIC hardware device installed in your computer.
3. If a similar entry is NOT present, click Add...
4. Click Protocol, and then click Add...
5. Click Microsoft in the "Manufacturers:" list and then click TCP/IP in the "Network Protocols:" list. Click OK.
6. "TCP/IP" will appear in the list of installed network components. Click OK.

7. Windows will now ask you if you would like to restart your computer. It is very important that you click No.
8. Right-click on the Network Neighborhood icon on your desktop then click Properties in the drop-down menu that appears.
9. Double-click the entry in the "Configuration" menu named "TCP/IP". This entry may be followed by an arrow and a description of your NIC or dialup adapter.
10. Click on the NIC adapter.
11. Click the "Advanced" tab and then make sure the box next to "Set this protocol to be the default protocol." is checked. If it is not, click the box to put a check in it. (If this option is grayed out, then TCP/IP is already the default protocol.)
12. Click OK and then click OK again.
13. Make sure you are using Windows Logon and NOT Client for Microsoft Network.
14. Reboot your PC by clicking Windows Start, clicking Shut Down, clicking "Restart the computer?" and then clicking Yes.
15. When your desktop reappears, click the Windows Start button and then click Run.
16. When the "Run" screen appears, type winipcfg in the text field and click the OK button.
17. The "IP Configuration" window will appear. Click the Release button. A line of zeros will appear in the "IP Address" and "Subnet Mask" fields.
18. Click the Renew button. Numbers will replace the zeros. Click OK

## Configuring the TCP/IP Protocol on a Macintosh PC

You need to make sure the TCP/IP communications protocol and an Ethernet device is installed on your system before you install your cable modem. Many Macintosh computers have Ethernet devices installed at the factory.

1. Click the Apple icon in the upper left corner of the Finder. Scroll down to Control Panels, and click TCP/IP.
2. Click Edit on the Finder (gray bar) at the top of the screen. Scroll down to the bottom of the menu and click User Mode.
3. Click the Advanced button then click OK.
4. Click the Up/Down selector arrows (to the right of "Connect Via") and click "Using DHCP Server".
5. Click the Options button. Then click the Active button.

   *NOTE: In some cases, the Load only when needed button will not appear. If it is visible, click the box. A check mark should appear in the box.*
6. Verify that the "Use 802.3" box is unchecked (circled in the following image). If there is a check mark in the box, click it to remove the check mark. Then click the Info button in the lower left corner.
7. Ensure there is a Hardware Address listed in this window. If there is, click the OK button and close the "TCP/IP Control Panel" (click File and scroll down to click Close). If there is no Hardware Address, you must shut down and power off your Macintosh. With the power off, simultaneously depress and hold down the Command (Apple), Option, P, and R keys on your keyboard. Keeping those keys depressed, power on the Macintosh. The machine will start and you will hear the Apple chime.

Keep these keys depressed for up to 3 chimes, then release the keys and allow the computer to start-up. When fully rebooted, ensure that all TCP/IP settings match those in the preceding instructions. If your computer still does not have a Hardware Address, please contact your local Apple authorized dealer or Apple support.

## Hardware and Software Installation

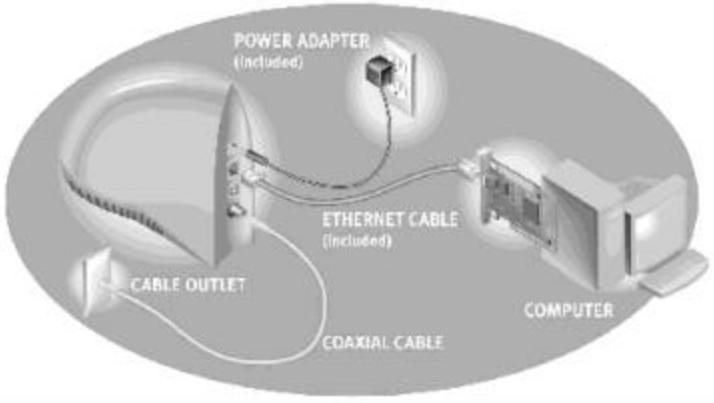
## Connecting the Cable Modem to Your Computer

*TIP: Before you unplug any cords, label them or make a sketch of how they are connected. This can be helpful when you plug them back in later.*

*CAUTION: To avoid risk of electric shock, make sure your computer and all peripheral devices are turned off and unplugged from electrical sockets.*

1. Switch off your computer and unplug it from the electrical socket.
    a. Connect your cable line to the cable modem's CATV cable connector. Be careful not to bend the wire in the center of the cable line when you connect it to the cable modem. After hand-tightening the CATV cable connector, use your adjustable wrench to firmly tighten it. Be careful not to over-tighten the connector or you may damage either the connector or your cable modem. If you plan to have your cable line connected to your television as well as your cable modem, you will need a cable line splitter (not included). See the illustration at the end of this chapter for more information.
    b. Plug the cable modem's power supply into a wall socket or surge protector and into the cable modem's power jack.
    c. Plug one end of the RJ-45 network cable into the cable modem's RJ-45 jack and the other end into the existing network interface card or USB network interface installed in your computer.
2. Verify that your cable modem starts up and initializes properly. You can tell that your modem is operating properly if the cable modem Power and Link Status LED's (shown below) are lit a solid green. If you are powering up your cable modem for the first time, allow 15 minutes for this process to complete.


3. Plug the computer's power cord back into the computer. Switch on the computer. When installation is complete, your setup should resemble the diagram below.



## *Troubleshooting the Ethernet Installation*

### I cannot access my e-mail or Internet service.

1. Check all connections. Make sure the cable line is securely connected to the cable jack on the back of the modem. Verify that the RJ-45 cable is securely plugged into both the modem and your network interface card. Make sure your power supply is properly plugged into both the modem and a wall outlet or surge protector. If your cable modem is properly connected, the "Cable Modem Power", "Cable Modem Status", and "PC Link Status" indicator lights on the front of the modem should all be a solid color.
2. Power cycle your cable modem by removing the power adapter from its outlet and then plugging it back into the outlet. Then try reconnecting to your Broadband Service Provider (BSP).
3. Your network interface card or USB network interface may be malfunctioning. Refer to its documentation for troubleshooting information.
4. Make sure that TCP/IP is the default protocol in use by your system. See the section entitled "Configuring the TCP/IP Protocol" for more information.
5. If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting your cables so that your cable modem is connected directly to your cable wall jack. Then try reconnecting to your BSP.
6. Right-click the My Computer icon on your desktop. Then click Properties. Click the Device Manager tab and look for a yellow exclamation point or red X over your NIC in the "Network adapters" field. If you see either, you have an IRQ conflict. Click on your NIC's description to highlight it and then click Remove. Then double-click Computer. A list of used IRQs appears. If all of the IRQs between 0 and 15 are in use, you will need to remove a device to free an IRQ for your NIC before you can reinstall it (by restarting your computer).

### All of the LED's on the front of my modem look right, but I still can't access the Internet.

1. If the Power, Link Status LED's, and Data Rate LED's are lighted, your cable modem is operating properly. Try shutting down and powering off your computer and then turning it back on. This will cause your computer to re-establish communications with your cable company's computer.
2. Power cycle your cable modem by removing the power adapter from its outlet and then plugging it back into the outlet. Then try reconnecting to your Broadband Service Provider (BSP).
3. You may not have installed TCP/IP properly.

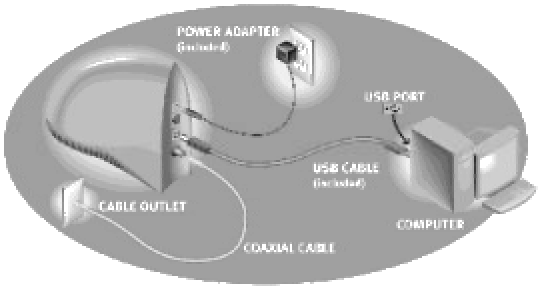
4. If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting your cables so that your cable modem is connected directly to your cable wall jack. Then try reconnecting to your service provider.

# ***USB Installation***

## Using USB with the Windows 98 Operating System

To use the USB port with Windows 98:

1. Power on the computer.
2. Use the illustration below as a guide to make the following connections:
    a. Connect the cable line to the cable modem's CATV cable connector. Be careful not to bend the wire in the center of the cable line when you connect it to the cable modem. After hand-tightening the CATV cable connector, use the adjustable wrench to firmly tighten it. Be careful not to over-tighten the connector or you may damage either the connector or the cable modem. If you plan to have the cable line connected to a television as well as the cable modem, you will need a cable line splitter (not included).
    b. Connect the USB cable line to the cable modem's USB port and to the USB port on the computer.




    c. Plug the cable modem's power adapter into a wall outlet or surge protector and into the cable modem's power jack. Windows detects the cable modem. The Found New Hardware screen appears.
3. When the Add New Hardware Wizard screen appears, insert the Cable *Connections* CD into the computer's CD-ROM drive.
4. Click *Next*.
5. Select *Search for the best driver for your device. (Recommended)* and click *Next.*
6. Check the *CD-ROM drive* check box and click *Next* to search for the necessary driver files.
7. If Windows finds an updated driver, select *The updated driver (Recommended) 3Com HomeConnect Cable Modem* and click *Next*.
8. Click *Next.* The computer automatically copies the necessary driver files from the CD.
9. The computer finishes copying the driver files and prompts you to insert the Windows 98 CD into the CD-ROM drive.

10. Insert the Windows 98 CD and click *OK*. If the Copying Files dialog box appears, make sure that you have inserted the correct CD and that you have pointed it to the correct path. In the following example, the path is *x*:\win98, where *x* represents the CD-ROM drive. Replace the x with the letter of your CD-ROM drive. After you point the Add New Hardware Wizard to the correct path, click *OK*.
11. The computer automatically copies the necessary system files.
12. Click *Finish* after the computer has copied the necessary files.
13. The System Settings Change dialog box opens.
14. Click *Yes* to restart the computer
15. Verify that the cable modem is operating properly. When the modem is operating properly, the cable modem *Link Status* and *Power* LED's are lighted a solid green.


If you are powering up the cable modem for the first time, allow 15 minutes for this process to finish. See "Cable Modem Operation" for a more in-depth description of the front panel LED indicators.

### Uninstalling the Cable Modem (Windows 98 Operating System Only)

To uninstall the cable modem:

1. Close all open applications.
2. Click Windows *Start* and select *Settings*.
3. Click *Control Panel*.
4. Double-click *Add/Remove Programs.*
5. Select *3Com HomeConnect Cable Modem*. Make sure you have selected the software you want to delete. If you accidentally select the wrong software and click *Add/Remove*, the Windows deletes the software and you will have to re-install it.
6. Click *Add/Remove.* The system removes the 3Com HomeConnect Cable Modem software.
7. The system prompts you to restart the computer. Click *Yes*.
8. Click Windows *Start*, then click *Shut Down.*
9. Select *Restart the Computer and click Yes to restart the computer.*

## Using USB with the Windows 2000 Operating System

To use the USB port with Windows 2000:

1. Power on the computer.
2. Use the illustration on page 23 as a guide to make the following connections:
    a. Connect the cable line to the cable modem's CATV cable connector. Be careful not to bend the wire in the center of the cable line when

you connect it to the cable modem. After hand-tightening the CATV cable connector, use the adjustable wrench to firmly tighten it. Be careful not to over-tighten the connector or you may damage either the connector or the cable modem. If you plan to have the cable line connected to a television as well as the cable modem, you will need a cable line splitter (not included).

b. Connect the USB cable line to the cable modem's USB port and to the computer's USB port.

c. Plug the cable modem's power adapter into a wall outlet or surge protector and into the cable modem's power jack. The Found New Hardware screen appears.

3. The Found New Hardware Wizard screen appears. Insert the included Cable *Connections* CD into the CD-ROM drive and Click *Next*.
4. Select *Search for a suitable driver for my device (recommended)* and click *Next*.
5. Check the *CD-ROM drives* check box and click *Next* to search for the necessary driver files.
6. The Found New Hardware Wizard displays the search results. Click *Next* to install the driver files for the cable modem.
7. The Digital Signature Not Found screen appears. Click *Yes* to continue the driver installation.
8. The Found New Hardware Wizard completes the driver installation. Click *Finish* to close the Found New Hardware Wizard.
9. Verify that the cable modem is operating properly. When the modem is operating properly, the cable modem *Link Status* and *Power* LED's are lighted solid green.



If you are powering up the cable modem for the first time, allow 15 minutes for this process to finish. See "Cable Modem Operation" for a more in-depth description of the front panel LED indicators.

## Uninstalling the Cable Modem (Windows 2000 Operating System Only)

To uninstall the cable modem while using Windows 2000:

1. Close all open applications.
2. Click Windows *Start*.
3. Select *Settings*.
4. Click *Control Panel*.
5. Double-click *Add/Remove Programs.* The Add/Remove Hardware Wizard screen appears.
6. Click *Next*.
7. Select *Uninstall/Unplug a device* and click *Next*.

8. Select *Uninstall a device. Choose this option to permanently uninstall a device and its driver.*
9. Click *Next*.
10. Select *3Com HomeConnect Cable Modem* and click *Next.*
11. Verify that you have selected *3Com HomeConnect Cable Modem* then select *Yes, I want to uninstall this device.*
12. Click *Next*.
13. Click *Finish* when Windows informs you that it has successfully uninstalled the selected device.

# *Troubleshooting the USB Installation*

## I cannot access my e-mail or Internet service.

1. Check all connections. Make sure the cable line is securely connected to the cable jack on the back of the modem. Verify that the USB cable is securely plugged into both the modem and the computer. Make sure the power adapter is properly plugged into both the modem and a wall outlet or surge protector. If the cable modem is properly connected, the Cable Modem Power and Link Status indicator lights on the front of the modem should all be a solid color.
2. Power cycle the cable modem by unplugging the power jack from its electrical outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
3. Power off the computer. Power cycle the computer by unplugging the computer from its electrical outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
4. If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting the cables so that the cable modem is connected directly to the cable wall jack. Then try reconnecting to your cable service provider.
5. If you use the Windows 98 operating system, verify that you have fewer than five TCP/IP bindings. Click Windows *Start*, select *Settings*, and click *Control Panel*. Double-click *Network* and count the number of TCP/IP bindings listed. You cannot have more than five TCP/IP bindings for the cable modem to operate. You must remove enough TCP/IP bindings so that you have no more than five TCP/IP bindings. After you remove the extra bindings, uninstall the cable modem. Reboot the computer and re-install the cable modem, following the instructions in this guide.
6. Release and renew the computer's IP address.

   *To release and renew the IP address for the Windows 95/98 operating system:*

   a. Click Windows *Start* and click *Run*.

   b. Type *winipcfg* in the Open field and click *OK*. The IP Configuration screen appears.

c. In the Ethernet Adapter Information group area, click the drop down arrow and select *3Com HomeConnect Cable Modem.*

d. Click *Release*. The IP address changes to *0.0.0.0.*

e. Click *Renew* to refresh the IP address. The refreshed address may or may not be the same as the original IP address.

*To release and renew the IP address for the Windows 2000 operating system:*

1. Click Windows *Start* and select *Programs,* then *Accessories*.
2. Click *Command Prompt*.
3. At the command prompt (C:\), type `ipconfig /release` and press the *Enter* key (notice that there is a space between *ipconfig* and */release*).
4. After the system releases the IP address, at the command prompt type `ipconfig /renew` and press the *Enter* key (notice that there is a space between *ipconfig* and */renew*).

Exit the Command Prompt screen to return to the Windows desktop.

## The Cable Status LED never stops blinking.

The signal from your cable service provider's equipment may be too weak or the cable line may not be properly attached to the modem. If the cable line is properly connected to the modem, call your cable service provider to verify whether a weak signal is the problem.

## All four of the LED's on the front of my cable modem are lighted and blinking.

Call your cable service provider or 3Com's technical support for assistance.

## All of the LED's on the front of my modem look right, but I still cannot access the Internet.

1. If the Power, Link Status LED's, and Data Rate LED's are lighted, the cable modem is operating properly. Try shutting down the computer and then turning it back on. This will cause the computer to re-establish communications with your cable service provider's computer.
2. Power cycle the cable modem by removing the power adapter from its outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
3. You may not have installed TCP/IP properly (for Windows 95 and 98SE: *winipcfg*; for Windows 2000: *ipconfig*), or the TCP/IP parameters provided by your cable service provider may not be correct for your computer.
4. If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting the cables so that the cable modem is connected directly to the cable wall jack. Then try reconnecting to your cable service provider.

## The power on my modem goes on and off sporadically. The Link Status light never stops blinking.

You may be using the wrong power adapter. Check that the power adapter you are using is the one that came with the cable modem.

# *References for Ethernet & USB Installations*

## Installing the Cable Connections *TM* CD-ROM

Although you do not need to install the included Cable Connections *TM* CD-ROM to use your cable modem, you will want to discover the valuable free software products and Internet service provider offers included on the CD-ROM. To install the Cable Connections CD, follow the instructions inside the CD's jacket or on the CD-ROM itself.

## Cable Modem Operation

Once your cable modem is properly installed and the power supply is connected to AC power, it will automatically scan for the active cable modem channel from your cable company's server. Once the front panel LED's indicate the modem is connected to the server, all you need to do is launch your Internet or e-mail software and you're ready to work online.

## Interpreting Your Cable Modem's LED's

Here's a quick overview of the LED lights on the front of your modem and what they can tell you about the performance of your modem and the condition of your connection.

## LED's on the Front of the Modem

1. Power - Indicates power is applied to the cable modem. This light is solid green when the modem is on. You will also hear an audio notification once power is applied.

2. Link Status - This LED indicates the modem's connection status. It blinks steadily until the modem has established a connection. Once a connection is established, the LED is lighted solid green. You will also hear an audio notification once a connection is established.

3. Data Rate - Indicates data is being transmitted over the cable network. This LED should blink when data is being transmitted over the RF interface and at a rate dependent on data throughput.

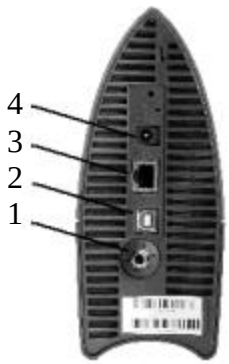
   
   

4. Multifunction - The function of this LED will be determined by your cable company. Depending on how your Broadband Service Provider utilizes this LED, there may or may not be an audio notification associated with this LED, as well.

multifunction

## Connectors and Switches on the Back of Your Cable Modem

The following paragraphs are numbered so that they refer to the diagram below.




1. **Cable RF Connector:** This is where you connect the coaxial cable that leads to your splitter or your cable wall jack.
2. **USB Port:** This is where you plug the included USB Cable. The other end connects to the USB port on the computer.
3. **RJ-45 Jack:** This is where you plug the included RJ-45 Ethernet cable. The other end connects to the RJ-45 jack on your NIC or to the RJ-45 jack on your USB network interface, depending on the type of installation you chose.
4. **Power Jack:** This is where you plug in the power adapter that came with your cable modem. Remember to use only the power supply that came with your cable modem.