

WebSTAR™ DPC2223™ and EPC2223™ VoIP Cable Modem with DECT Base Station User's Guide

Introduction

Welcome to the exciting world of high-speed Internet and high-quality digital telephone service. Your new WebSTAR™ DPC2223™ or EPC2223™ Voice-over-Internet Protocol (VoIP) Cable Modem with Digitally Enhanced Cordless Telephone (DECT) Base Station is a modem that meets industry standards for high-speed data connectivity along with reliable digital telephone service. With a DPC2223 or EPC2223, your Internet enjoyment, home and business communications, and personal productivity will surely soar.

This guide provides procedures and recommendations for placing, installing, configuring, operating, and troubleshooting your DPC2223 or EPC2223 cable modem for high-speed Internet or digital telephone service for your home or office. Refer to the appropriate section in this guide for the specific information you need for your situation. Contact your service provider for more information about subscribing to these services.

Benefits and Features

Your new DPC2223 or EPC2223 offers the following outstanding benefits and features:

- Features an embedded media terminal adapter (EMTA) supporting two-line voice services along with a DECT base station. The DECT base station gives the user the option to support up to four DECT cordless handsets
- Provides a high-speed broadband Internet connection that energizes your online experience, such as providing hassle-free downloading and sharing files and photos with your family and friends
- Includes 10/100BaseT Ethernet and USB ports to provide connectivity for high-speed data services or to other Internet devices
- Assures a broad range of interoperability with most service providers by complying with Data Over Cable System Interface Specifications (DOCSIS®) 1.0, 1.1, and 2.0 standards along with PacketCable™ 1.5 specifications to deliver high-end performance and reliability
- Includes two RJ-11 telephony ports for connecting conventional telephones or fax machines
- Allows you to attach multiple devices in your home or office to the cable modem for high-speed networking and sharing of files and folders without first copying them onto a CD or diskette
- Features Plug and Play operation for easy set up and installation
- Provides parental control and advanced firewall technology
- Utilizes an attractive compact design that allows for vertical, horizontal, or wall-mount placement
- Allows automatic software upgrades by your service provider
- Optional model includes an internal Lithium-Ion cartridge-style battery for convenient and long-lasting backup power

Notice for CATV Installers

CATV Installers Notice

If you are a CATV installer, read the information in the box below.

Note to CATV System Installer (U.S.A. and Canada Only)

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC (Section 54, Part I of the Canadian Electrical Code), that provides guidelines for proper grounding and, in particular, specifies that the CATV cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



This symbol is intended to alert you that uninsulated voltage within this product may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this product.



CAUTION: To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

WARNING
TO PREVENT FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS UNIT TO RAIN OR
MOISTURE.



This symbol is intended to alert you of the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.

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IMPORTANT SAFETY INSTRUCTIONS

Heed Warnings

Adhere to all warnings on the product and in the operating instructions.

Read, Retain, and Follow These Instructions

Read all of the instructions before you operate this product. Follow all operating instructions that accompany this product. Retain the instructions for future use. Give particular attention to all safety precautions.

Comply With Warnings

Avoid electric shock. Comply with all warnings and cautions in the operating instructions, as well as those that are affixed to this product.

Power Warnings

Providing a Power Source

A label on this product indicates the correct power source for this product. Operate this product only from an electrical outlet with the voltage and frequency indicated on the product label.

If you are uncertain of the type of power supply to your home or business, consult your cable service provider or your local power company.

Grounding This Product (U.S.A. and Canada Only)

If this product is equipped with either a three-prong (grounding pin) safety plug or a two-prong (polarized) safety plug, follow these safety guidelines to properly ground this product:

- For a 3-prong plug (one prong on this plug is a protective grounding pin), insert the plug into a grounded mains, 3-prong outlet.

Note: This plug fits only one way. If you are unable to insert this plug fully into the outlet, contact your electrician to replace your obsolete outlet.

- For a 2-prong plug (a polarized plug with one wide blade and one narrow blade), insert the plug into a polarized mains, 2-prong outlet in which one socket is wider than the other.

Note: If you are unable to insert this plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact an electrician to replace your obsolete outlet.



WARNING:

To avoid electric shock and fire hazard, match the plug and outlet connections carefully, then fully insert. If the plug and outlet do not match, or you cannot fully insert the plug, contact an electrician to update your power outlets.



WARNING:

Avoid electric shock and fire hazard! Do not overload mains AC outlets and extension cords. For products that require battery power or other power sources to operate them, refer to the operating instructions for those products.

Overloading

Do not overload electrical outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock. For products that require battery power or other sources to operate, refer to the operating instructions for that product.

Preventing Power Cord Damage

Arrange all power cords so that people or pets cannot walk on the cords. Do not place objects on the cords. Do not lean objects against the cords. Placing objects on or leaning objects against cords can damage the cords. Give particular attention to cords at the point at which the cord connects to plugs, at the electrical outlets, and where the cords exit the product.

Usage Warnings

Providing Ventilation

This product has openings for ventilation that protect it from overheating. To ensure the reliability of this product, do the following:

- Do not block or cover these openings.
- Do not place entertainment devices (such as VCRs or DVDs), lamps, books, vases with liquids, or other objects on top of this product.
- Do not place this product in any of the following locations:
 - On a bed, sofa, rug, or similar surface
 - Near heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat
 - In an enclosure, such as a bookcase or rack, unless the installation provides proper ventilation



WARNING:

Avoid personal injury and damage to this product! An unstable surface may cause this product to fall.

Selecting a Proper Location

Place this product in a location that is close enough to an electrical outlet and where the power cord is easily accessible to be disconnected from the wall outlet or from the rear panel of the product.

Important: The power cord is the mains power supply disconnect device.

Place this product on a stable surface. The surface must support the size and weight of this product.

Cleaning This Product

Before cleaning this product, unplug it from the electrical outlet. Use a damp cloth to clean this product. Do not use a liquid cleaner or an aerosol cleaner. Do not use a magnetic/static cleaning device (dust remover) to clean this product.



WARNING:

Avoid electric shock and fire hazard! Never push objects through the openings in this product. Foreign objects can cause electrical shorts that can result in electric shock or fire. Do not expose this product to rain or moisture. Do not place objects filled with liquid, such as vases, on this product.

Protecting This Product From Foreign Objects and Water or Moisture Damage

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock.

Do not expose this product to liquids or moisture. Do not place this product on a wet surface. Do not spill liquids on or near this product.

Do not use this product near water (such as a bathtub, washbowl, sink, or laundry tub), in a wet basement, or near a swimming pool.

Accessories Warnings



WARNING:

Avoid any potential for electric shock or fire. Do not use accessories with this product unless recommended by your cable service provider.

Avoid any potential for electric shock or fire. Do not use accessories with this equipment unless recommended by your cable service provider.

Handling the Optional Replaceable Battery Pack

This product may contain a replaceable battery pack. If your product contains a replaceable battery pack, heed the following warning and see the instructions later in this guide for handling, replacing, and disposing of the battery.



WARNING:

There is danger of explosion if the battery is mishandled or incorrectly replaced. Replace only with the same type of WebSTAR battery. Do not disassemble it or attempt to recharge it outside the system. Do not crush, puncture, dispose of in fire, short external contacts, or expose to water or other liquids. Dispose of the battery in accordance with local regulations and instructions from your cable service provider.



WARNING:

Avoid electric shock! Opening or removing the cover may expose you to dangerous voltages. This product contains no user-serviceable parts. Refer all servicing to qualified service personnel.

Service Warnings

Servicing This Product

Do not open the cover of this product. If you open the cover, your warranty will be void. Refer all servicing to qualified personnel only. Contact your cable service provider for instructions.

Obtaining Service for Product Damage

For damage that requires service, unplug this product from the AC outlet. Then, contact your cable service provider or qualified service personnel to obtain service for the following conditions:

- If there is damage to the power-supply cord or plug
- If liquid enters the equipment
- If you drop this product, a heavy object falls on this product, or damage occurs to the cover of this product
- If you expose this product to rain or water
- If this product does not operate normally by following the operating instructions
- If this product exhibits a distinct change in performance

Checking Product Safety

Upon completion of any service or repairs to this product, the service technician must perform safety checks to determine that this product is in proper operating condition.

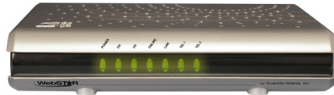
Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges. Plugging this product into a surge protector may reduce the risk of damage.

20050912MDBR

What's In the Carton?

When you receive your WebSTAR Cable Modem, you should check the equipment and accessories to verify that each item is in the carton and that each item is undamaged. The carton contains the following items:



One WebSTAR DPC2223 or
EPC2223 Cable Modem



One power adapter with power cord



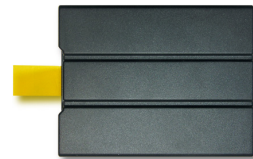
One Ethernet cable (CAT5/RJ-45)



One USB cable



One CD-ROM containing the user's
guide and the USB drivers



Lithium Ion cartridge battery
(Optional model only)

If any of these items are missing or damaged, please contact your cable service provider for assistance.

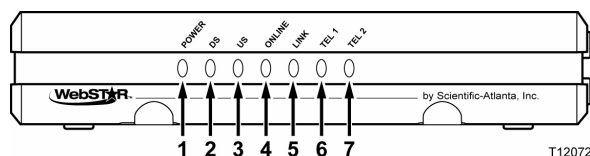
Notes:

- You will need an optional cable signal splitter and additional standard RF coaxial cables if you want to connect a VCR, a Digital Home Communications Terminal (DHCT) or a set-top converter, or a TV to the same cable connection as your cable modem.
- Cables and other equipment needed for telephone service must be purchased separately. Contact your service provider to inquire about the equipment and cables you need for telephone service.

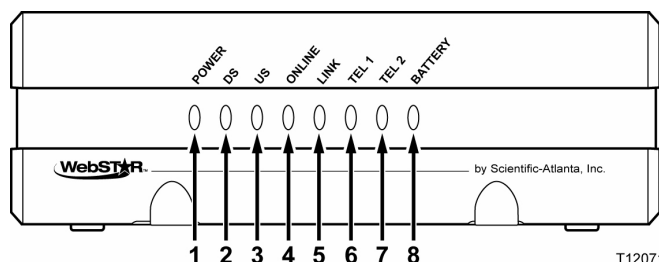
Front Panel Description

The front panel of your cable modem provides status LEDs that indicate how well and at what state your cable modem is operating. See **Front Panel LED Status Indicator Functions**, later in this guide, for more information on front panel LED status indicator functions.

DPC2223 (without battery)



DPC2223 (optional model with battery)



- 1 **POWER**—Illuminates solid green to indicate that AC power is being applied to the cable modem. AC power must be available to recharge the optional battery.
- 2 **DS (Downstream)**—Blinks to indicate that the cable modem is receiving data from the cable network
- 3 **US (Upstream)**—Blinks to indicate that the cable modem is sending data to the cable network
- 4 **ONLINE**—Illuminates solid green when the cable modem is registered on the network and fully operational. This indicator blinks to indicate one of the following conditions:
 - The cable modem is booting up and not ready for data
 - The cable modem is scanning the network and attempting to register
 - The cable modem has lost registration on the network and will continue blinking until it registers again
- 5 **LINK**—Illuminates solid green to indicate that an Ethernet/USB carrier is present and blinks to indicate that Ethernet/USB data is being transferred between the PC and the cable modem
- 6 **TEL 1**—Illuminates solid green when telephony service is enabled. Blinks when line 1 is in use.
- 7 **TEL 2**—Illuminates solid green when telephony service is enabled. Blinks when line 2 is in use.
- 8 **BATTERY**—(Optional model only) Illuminates solid green to indicate that the battery is charged. Blinks to indicate that the battery charge is low. Off when operating from battery power or when the battery charge is depleted or the battery is defective.

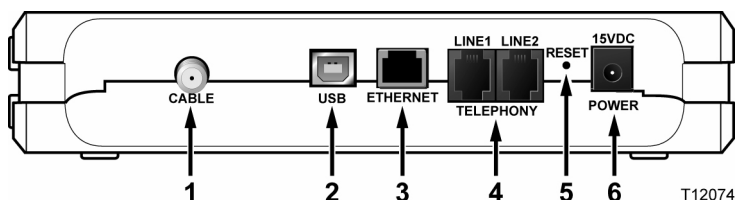
Notes:

- After the cable modem is successfully registered on the network, the POWER (LED 1) and ONLINE (LED 4) LEDs illuminate continuously to indicate that the cable mode is active and fully operational.
- LEDs may behave differently when the cable modem is running on battery power (without AC power-optional model only). Most LEDs are disabled if the unit is operating on battery power. In this mode, the POWER LED blinks to indicate that the unit is operating under battery power but AC power has failed.

Back Panel Description

The following illustration shows the description and function of the back panel components on the DPC2223 and EPC2223.

IMPORTANT: Do not connect your PC to *both* the Ethernet and USB ports at the same time. Your modem will not function properly if both the Ethernet and USB ports are connected to your PC at the same time.



- 1 **POWER**—Connects the cable modem to the AC power supply that is provided with your cable modem



CAUTION:

Avoid damage to your equipment. Only use the AC power supply that is provided with your cable modem.

- 2 **TEL 1/TEL 2**—RJ-11 telephone ports connect to home telephone wiring to conventional telephones or fax machines
- 3 **ETHERNET**—RJ-45 Ethernet port connects to the Ethernet port on your PC or your home network
- 4 **USB**—12 Mbps USB port connects to the USB port on your PC
- 5 **REBOOT EMTA**—Activating this switch reboots the EMTA. Pressing this switch for more than ten seconds resets the device to factory default values and reboots the EMTA



CAUTION: The Reboot EMTA button is for maintenance purposes only. Do not use unless instructed to do so by your cable or telephone service provider. Doing so may cause you to lose any cable modem settings you have selected.

- 6 **CABLE**—F-Connector connects to an active cable signal from your cable service provider

Where Is the Best Location for My Cable Modem?

The ideal location for your cable modem is where it has access to outlets and other devices. Think about the layout of your home or office, and consult with your service provider to select the best location for your cable modem. Read this user's guide thoroughly before you decide where to place your cable modem.

Consider these recommendations:

- Position your PC and cable modem so that they are located near an AC power outlet.
- Position your PC and cable modem so that they are located near an existing cable input connection to eliminate the need for an additional cable outlet. There should be plenty of room to guide the cables away from the modem and the PC without straining or crimping them.
- Airflow around the cable modem should not be restricted.
- Choose a location that protects the cable modem from accidental disturbance or harm.

What Are the System Requirements for Internet Service?

To ensure that your cable modem operates efficiently for high-speed Internet service, verify that all of the Internet devices on your system meet or exceed the following minimum hardware and software requirements.

Note: You will also need an active cable input line and an Internet connection.

Minimum System Requirements for a PC

- A PC with a Pentium MMX 133 processor or greater
- 32 MB of RAM
- Web browsing software (Netscape or Internet Explorer)
- CD-ROM drive

Minimum System Requirements for Macintosh

- MAC OS 7.5
- 32 MB of RAM

System Requirements for an Ethernet Connection

- A PC with Microsoft Windows 95 operating system (or later) with TCP/IP protocol installed, or an Apple Macintosh computer with TCP/IP protocol installed
- An active 10/100BaseT Ethernet network interface card (NIC) installed PC

System Requirements for a USB Connection

- A PC with Microsoft Windows 98SE, ME, 2000, or XP operating system
- A master USB port installed in your PC or your Apple Macintosh computer

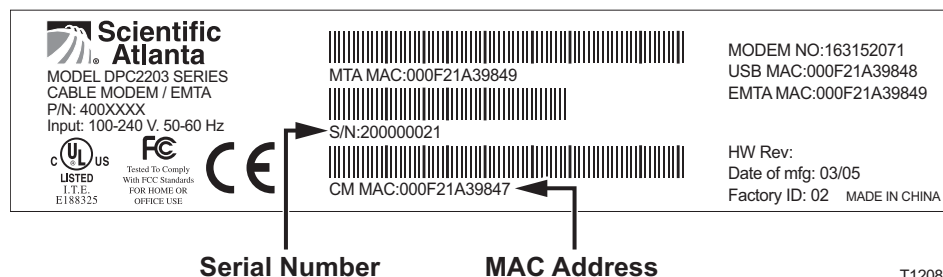
How Do I Set Up My High-Speed Internet Access Account?

Before you can use your cable modem, you need to have a high-speed Internet access account. If you do not have a high-speed Internet access account, you need to set up an account with your local cable service provider. Choose *one* of the following two options.

I Do Not Have a High-Speed Internet Access Account

If you do *not* have a high-speed Internet access account, your cable service provider will set up your account and become your Internet Service Provider (ISP). Internet access enables you to send and receive e-mail, access the World Wide Web, and receive other Internet services. When you contact your cable service provider, they will ask you for the serial number and the Media Access Control (MAC) address of the cable modem.

These numbers appear on a label located on the side of the cable modem. The serial number consists of a series of alphanumeric characters preceded by **S/N**. The MAC address consists of a series of alphanumeric characters preceded by **CM MAC**. See the following illustration of a sample label.



Write down these numbers in the space provided here.

Serial Number _____

MAC Address _____

I Already Have an Existing High-Speed Internet Access Account

If you have an existing high-speed Internet access account, you must give your cable service provider the serial number and the MAC address of the cable modem. Refer to the serial number and MAC address information listed previously in this section.

Note: You may be able to continue to use your existing e-mail account with your cable modem. Contact your cable service provider for more information.

How Do I Connect My Devices to Use the Internet?

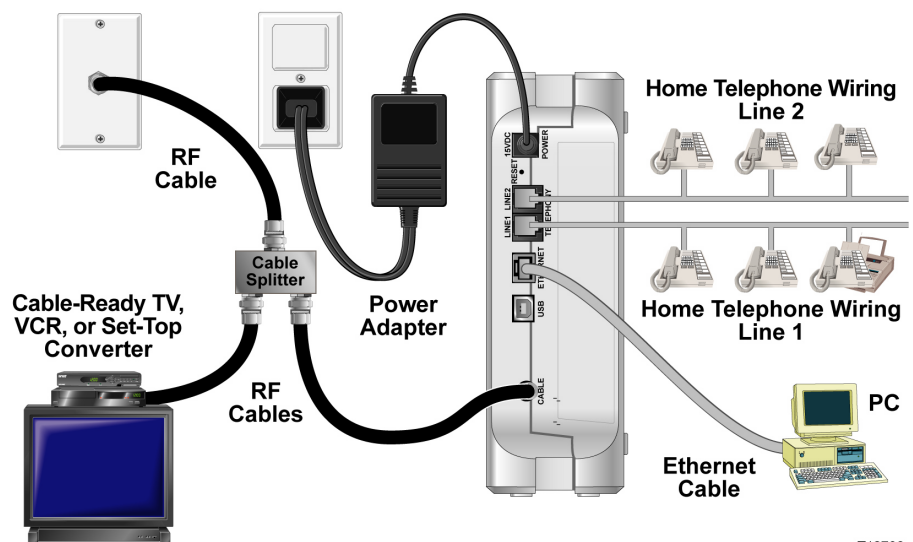
You can use your cable modem to access the Internet, and you can share that Internet connection with other Internet devices in your home or office. Sharing one connection among many devices is called networking.

Connecting and Installing Internet Devices

You must connect and install your cable modem to access the Internet. Professional installation may be available. Contact your local cable service provider for further assistance.

To connect devices

The following diagram illustrates one of the various connection options that are available to you.



T12706



WARNING:
To avoid personal injury or damage to your equipment, follow these steps in the exact order shown.

To install the cable modem for high-speed data service

1. Power off your PC and unplug it from the power source.
2. Connect your PC to *either* the **ETHERNET** port *or* the **USB** port using the appropriate data cable. Do not connect your PC to *both* the Ethernet and USB ports at the same time. You *can* connect two separate PCs to the cable modem at the same time by connecting one PC to the Ethernet port and one PC to the USB port.
3. Connect the active RF coaxial cable to the **CABLE** connector. Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.
4. Insert the AC power cord into the **POWER** connector on the back of the cable modem, and then plug the cord into an AC power source.
5. Plug in and power on your networked devices including your PC. The cable modem will then begin an automatic search to locate and sign on to the broadband data network. This process may take up to 5 minutes. The modem will be ready for use when the **ONLINE** LED status indicator on the front panel stops blinking and illuminates continuously.
6. The next step in setting up your cable modem is to configure your Internet devices for Internet access. Choose one of the following options:
 - If you want to use Ethernet connections, you must configure the TCP/IP protocol. To configure the TCP/IP protocol go to **How Do I Configure TCP/IP Protocol**, next in this guide.
 - If you want to use USB connections, you must install the USB drivers. To install the USB Drivers for USB go to **How Do I Install USB Drivers**, later in this guide.

How Do I Configure TCP/IP Protocol?

To configure TCP/IP protocol, you need to have an Ethernet Network Interface Card (NIC) with TCP/IP communications protocol installed on your system. TCP/IP is a communications protocol used to access the Internet. This section contains instructions for configuring TCP/IP on your Internet devices to operate with the cable modem in Microsoft Windows or Macintosh environments.

Configuring TCP/IP on Your Internet Devices

TCP/IP protocol in a Microsoft Windows environment is different for each Windows version. Follow the appropriate instructions in this section for your operating system.

To configure Windows 95, 98, 98SE, or ME systems

1. Click **Start**, select **Settings**, and choose **Control Panel**.
2. Double-click the **Network** icon in the Control Panel window.
3. Read the list of installed network components under the **Configuration** tab to verify that your PC contains the TCP/IP protocol/Ethernet adapter.
4. Is TCP/IP protocol listed in the installed network components list?
 - If **yes**, go to step 7.
 - If **no**, click **Add**, click **Protocol**, click **Add**, and then go to step 5.
5. Click **Microsoft** in the Manufacturers list.
6. Click **TCP/IP** in the Network Protocols list, and then click **OK**.
7. Click the **TCP/IP Ethernet Adapter** protocol, and then choose **Properties**.
8. Click the IP Address tab, and then select **Obtain an IP address automatically**.
9. Click the **Gateway** tab and verify that these fields are empty. If they are not empty, highlight and delete all information from the fields.
10. Click the **DNS Configuration** tab, and then select **Disable DNS**.
11. Click **OK**.
12. Click **OK** when the system finishes copying the files, and then close all networking windows.
13. Click **YES** to restart your computer when the System Settings Change dialog box opens. The computer restarts. The TCP/IP protocol is now configured on your PC and your Ethernet devices are ready for use.
14. Try to access the Internet. If you cannot access the Internet, go to **Having Difficulty**, later in this guide. If you still cannot access the Internet, contact your cable service provider for further assistance.

To configure Windows 2000 systems

1. Click **Start**, select **Settings**, and choose **Network and Dial-up Connections**.
2. Double-click the **Local Area Connection** icon in the Network and Dial-up Connections window.
3. Click **Properties** in the Local Area Connection Status window.
4. Click **Internet Protocol (TCP/IP)** in the Local Area Connection Properties window, and then click **Properties**.
5. Select *both* **Obtain an IP address automatically** and **Obtain DNS server address automatically** in the Internet Protocol (TCP/IP) Properties window, and then click **OK**.
6. Click **Yes** to restart your computer when the Local Network window opens. The computer restarts. The TCP/IP protocol is now configured on your PC and your Ethernet devices are ready for use.
7. Try to access the Internet. If you cannot access the Internet, go to **Having Difficulty**, later in this guide. If you still cannot access the Internet, contact your cable service provider for further assistance.

To configure Windows XP systems

1. Click **Start**, select **Connect to**, and choose **Show all connections**.
2. Double-click the **Local Area Connection** icon in the **LAN or High-Speed Internet** section of the Network Connections window.
3. Click **Properties** in the Local Area Connection Status window.
4. Click **Internet Protocol (TCP/IP)**, and then click **Properties** in the Local Area Connection Properties window.
5. Select *both* **Obtain an IP address automatically** and **Obtain DNS server address automatically** in the Internet Protocol (TCP/IP) Properties window, and then click **OK**.
6. Click **Yes** to restart your computer when the Local Network window opens. The computer restarts. The TCP/IP protocol is now configured on your PC and your Ethernet devices are ready for use.
7. Try to access the Internet. If you cannot access the Internet, go to **Having Difficulty**, later in this guide. If you still cannot access the Internet, contact your cable service provider for further assistance.

To configure Macintosh systems

1. Click the **Apple** icon in the upper left corner of the Finder. Scroll down to **Control Panels**, and then 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 then click **User Mode**.
3. Click **Advanced** in the User Mode window, and then click **OK**.
4. Click the **Up/Down** selector arrows located to the right of the Connect Via section of the TCP/IP window, and then click **Using DHCP Server**.
5. Click **Options** in the TCP/IP window, and then click **Active** in the TCP/IP Options window.

Note: In some cases, the **Load only when needed** option will not appear. If it appears, select the option. A check mark appears in the option.

6. Verify that the **Use 802.3** option located in the upper right corner of the TCP/IP window is unchecked. If there is a check mark in the option, deselect the option, and then click **Info** in the lower left corner.
7. Is there a Hardware Address listed in this window?
 - If **yes**, click **OK**. To close the **TCP/IP Control Panel** window, click **File**, and then scroll down to click **Close**. You have completed this procedure.
 - If **no**, you must power off your Macintosh.
8. With the power off, simultaneously press and hold down the **Command (Apple)**, **Option**, **P**, and **R** keys on your keyboard. Keeping those keys pressed down, power on your Macintosh but do not release these keys until you hear the Apple chime.
9. Continue pressing these keys for at least three chimes, then release the keys and allow the computer to restart.
10. When your computer fully reboots, repeat steps 1 through 7 to verify that all TCP/IP settings are correct. If your computer *still* does not have a Hardware Address, contact your authorized Apple dealer or Apple technical support center for further assistance.

How Do I Install USB Drivers?

To install USB drivers, your PC must be equipped with a USB network interface and a Microsoft Windows 98SE, ME, 2000, or XP operating system. This section contains instructions for installing the USB drivers for the cable modem.

Note: If you are not using the USB interface, skip this section.

Installing USB Drivers

The USB driver installation procedures are different for each operating system. Follow the appropriate instructions in this section for your operating system.

To install Windows 98SE and Windows ME USB drivers

1. Insert the **USB Cable Modem Driver Installation Disk** into the CD-ROM drive of your PC.
2. Wait until the **POWER** and **ONLINE** LED status indicators on the front panel of the cable modem illuminate solid green.
Result: The Add New Hardware Wizard window opens.
3. Click **Next** in the Add New Hardware Wizard window.
4. Select **Search for the best driver for your device (Recommended)** in the Add New Hardware Wizard window, and then click **Next**.
5. Select **CD-ROM drive** in the Add New Hardware Wizard window, and then click **Next**.
6. Select **The updated driver (Recommended)** in the Add New Hardware Wizard window, and then click **Next**.
7. Click **Next** in the Add New Hardware Wizard window. The Copying Files window opens. After 10 to 20 seconds have passed, the Add New Hardware Wizard window reopens.
8. Click **Finish**. The USB driver installation is complete.
9. Click **Yes** in the System Settings Change window to restart your computer. The computer restarts. The USB drivers are now installed on your PC and your USB devices are ready for use.
10. Try to access the Internet. If you cannot access the Internet, go to **Having Difficulty**, later in this guide. If you still cannot access the Internet, contact your cable service provider for further assistance.

To install Windows 2000 drivers

1. Insert the **USB Cable Modem Driver Installation Disk** into the CD-ROM drive of your PC.
2. Wait until the **POWER** and **ONLINE** LED status indicators on the front panel of the cable modem illuminate solid green.
3. Click **Next** in the Found New Hardware Wizard window.
4. Select **Search for a suitable driver for my device (recommended)** in the Found New Hardware Wizard window, and then click **Next**.
5. Select **CD-ROM drives** in the Found New Hardware Wizard window, and then click **Next**.
6. Click **Next** in the Found New Hardware Wizard window. The system searches for the driver file for your hardware device.
7. After the system finds the USB driver, the Digital Signature Not Found window opens and displays a confirmation message to continue the installation.
8. Click **Yes** to continue the installation. The Found New Hardware Wizard window reopens with a message that the installation is complete.
9. Click **Finish** to close the Found New Hardware Wizard window. The USB drivers are installed on your PC and your USB devices are ready for use.
10. Try to access the Internet. If you cannot access the Internet, go to **Having Difficulty**, later in this guide. If you still cannot access the Internet, contact your cable service provider for further assistance.

To install Windows XP drivers

1. Insert the **USB Cable Modem Driver Installation Disk** into the CD-ROM drive of your PC.
2. Wait until the **POWER** and **ONLINE** LED status indicators on the front panel of the cable modem illuminate solid green.
3. Select **Install from a list or specific location (Advanced)** in the Found New Hardware Wizard window, and then click **Next**.
4. Select **Search removable media (floppy, CD-ROM)** in the Found New Hardware Wizard window, and then click **Next**.
5. Click **Continue Anyway** in the Hardware Installation window to continue the installation. The Found New Hardware Wizard window reopens with a message that the installation has finished.
6. Click **Finish** to close the Found New Hardware Wizard window. The USB drivers are installed on your PC and your USB devices are ready for use.
7. Try to access the Internet. If you cannot access the Internet, go to **Having Difficulty**, later in this guide. If you still cannot access the Internet, contact your cable service provider for further assistance.

What Are the Requirements for Ethernet Network Devices?

How Many Ethernet Network Devices Can I Connect?

The WebSTAR Cable Modems can support several Ethernet network devices using external Ethernet hubs that must be purchased separately. The theoretical maximum number of Ethernet network devices supported is by the cable modem is 63. However, under normal circumstances, the number of devices connected should be a much lower number. Contact your service provider for more information on the maximum number of Ethernet network devices to connect to the cable modem in order to maintain optimal network performance.

What are the Wiring Requirements for Ethernet Networking?

A number of factors can impact the practical limit of the network. Although the WebSTAR Cable Modem is designed to support several Ethernet network devices, it is important to view the characteristics of the entire network and not just each individual node. The theoretical distance between two 10/100BaseT CAT-5 Ethernet hubs is 382 feet (100 meters). Contact your service provider or consult the documentation for your Ethernet network devices for more information.

Note: Scientific-Atlanta recommends that you use CAT-5 Ethernet cables.

Do I Need to Configure the TCP/IP Protocol on My Computer?

In order for you to use Ethernet network devices on your network, you must have the TCP/IP protocol properly configured on your PC. Refer to **How Do I Configure TCP/IP Protocol**, earlier in this guide, for detailed information on configuring the TCP/IP protocol.

How Do I Select and Place Ethernet Network Devices?

You can use a large variety of Ethernet network devices with your cable modem. These include NIC cards, hubs, bridges, etc. Contact your service provider or consult the documentation for your Ethernet network devices for more information on configuring Ethernet network devices.

Where Is the Best Location for My Ethernet Network Devices?

You should work with your service provider to choose the best location for your Ethernet network devices. Consider these recommendations:

- Location of two-way cable outlets
- Distance of the Ethernet network devices from the cable modem
- Location of computers and other equipment from AC power outlets
- Ease of running Ethernet cable to the Ethernet network devices

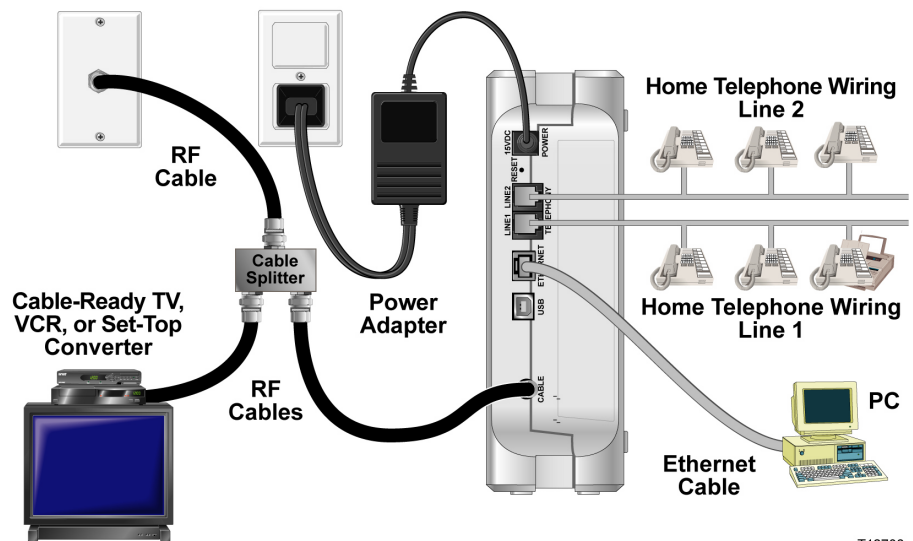
Now that you have selected a location for your Ethernet network devices, the next step is to place and connect your Ethernet network devices. Go to **How Do I Connect Ethernet Network Devices**, next in this guide.

How Do I Connect Ethernet Network Devices?

Connecting Ethernet Devices

You must connect your Ethernet devices for use with the cable modem. Professional installation may be available. Contact your local cable service provider for further assistance.

The following diagram illustrates one of the various Ethernet network connection options that are available to you.



T12706

To connect Ethernet devices



WARNING:

- **Hazardous electrical voltages can be present on any connected wiring. Ethernet wiring and connections must be properly insulated to prevent electrical shock. Disconnect power from the cable modem before attempting to connect to any device.**
- **To avoid personal injury, follow these steps in the exact order shown.**



CAUTION:

To prevent possible damage to the equipment, disconnect any other service before connecting your cable modem to other devices.

Read the warnings and caution on this page. Then, follow the subsequent installation procedures to ensure proper cable modem operation when connecting Ethernet network devices.

1. Select locations for Ethernet network devices. For more information, see **How Do I Select and Place Ethernet Network Devices**, earlier in this guide.
2. Connect the Ethernet port on the cable modem to your PC.
3. Connect additional Ethernet network devices by connecting an Ethernet hub or router to the cable modem.
4. Connect the active RF coaxial cable to the **CABLE** connector on the back of the cable modem. Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.
5. After all connections are complete, insert the AC power cord into the **POWER** connector on the back of the cable modem, and then plug the cord into an AC power source.
6. The cable modem begins an automatic search to locate and sign on to the network. In some unusual circumstances, this process may take up to 5 minutes. The cable modem is ready for use when the **CABLE** status indicator on the front panel stops blinking and illuminates continuously.
7. Verify that all Ethernet network devices are working properly.
Note: You will not be able to check the front panel LED status indicator on the cable modem until after one or more Ethernet network devices are connected to the cable modem.

What Are the Requirements for USB Network Devices?

How Many USB Devices Can I Connect?

Contact your service provider for more information on the maximum number of USB network devices to connect to the cable modem in order to maintain optimal network performance.

What Are the Wiring Requirements?

Several factors can impact the practical limit of the network. Use correct USB cables. Contact your service provider or consult the documentation for your USB network device for more information.

Do I Need to Install USB Drivers on My Computer?

To use USB network devices, you must have the correct USB drivers installed on your PC. Refer to **How Do I Install USB Drivers**, earlier in this guide, for information on installing USB drivers.

How Do I Select and Place USB Network Devices?

You can use a large variety of USB network devices with your cable modem. These include desktop computers, laptop computers, devices with USB ports, and USB adapters. Contact your cable service provider or consult the documentation for your USB network devices for more information on selecting USB network devices.

Where Is the Best Location for My USB Network Devices?

You should work with your service provider to choose the best location for your USB network devices. Consider these recommendations:

- Location of two-way coaxial cable outlets
- Distance of the USB network devices from the cable modem
- Location of computers and other equipment from AC power outlets
- Ease of running USB cable to the USB network devices

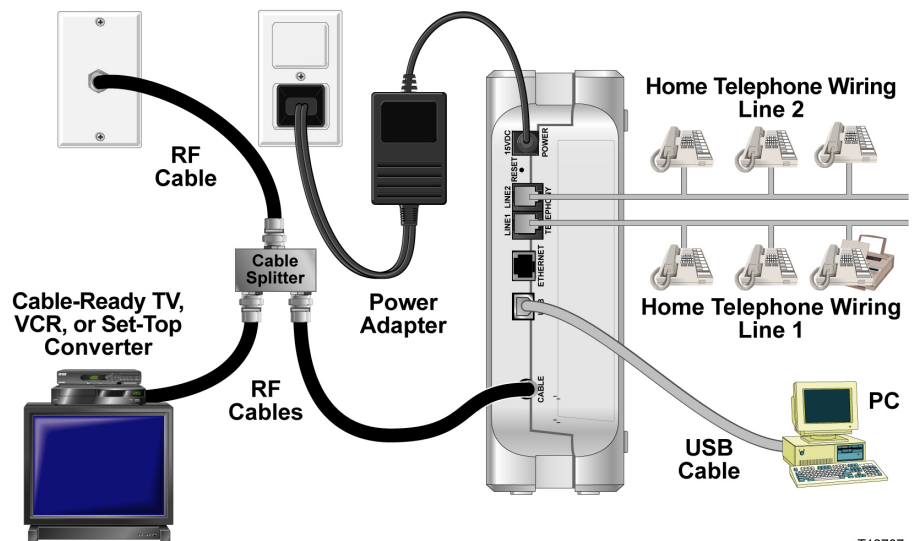
Now that you have selected a location for your USB network devices, the next step is to place and connect your USB network devices. Go to **How Do I Connect USB Network Devices**, next in this guide.

How Do I Connect USB Network Devices?

Connecting USB Devices

You must connect your USB devices for use with your cable modem. Professional installation may be available. Contact your local service provider for further assistance.

The following diagram illustrates one of the various USB network connection options that are available to you.



T12707

To connect USB devices



WARNING:

- **Hazardous electrical voltages can be present on any connected wiring. USB wiring and connections must be properly insulated to prevent electrical shock. Disconnect power from the cable modem before attempting to connect to any device.**
- **To avoid personal injury, follow these steps in the exact order shown.**



CAUTION:

To prevent possible damage to the equipment, disconnect any other service before connecting your cable modem to other devices.

Read the warnings and caution on this page. Then, follow the subsequent installation procedures to ensure proper cable modem operation when connecting USB network devices.

Note: Verify that you have installed the USB drivers on your PC before continuing with these instructions. See **How Do I Install USB Drivers**, earlier in this guide, for more information on installing the USB drivers.

1. Select locations for USB network devices. For more information, see **How Do I Select and Place USB Network Devices**, earlier in this guide.
2. Connect the USB port on the cable modem to your computer.
3. Connect one or more USB network device to the cable modem.
Note: If you want to connect more than one USB network device to the cable modem or to your computer, you will need to purchase and install a USB hub.
4. Connect the active RF coaxial cable to the **CABLE** connector on the back of the cable modem. Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.
5. After all connections are complete, insert the AC power cord into the **POWER** connector on the back of the cable modem, and then plug the cord into an AC power source.
6. The cable modem begins an automatic search to locate and sign on to the network that provides the telephone service. This process may take up to 5 minutes. The cable modem is ready for use when the **CABLE** status indicator on the front panel stops blinking and illuminates continuously.
7. Verify that all USB devices are working properly.
Note: You will not be able to check the front panel LED status indicator on the cable modem until after at least one USB network device is connected and operating on the network.

Troubleshooting My Internet Service Installation

I Cannot Connect to the Internet

- Verify that the plug to your cable modem AC power is properly inserted into an electrical outlet.
- Verify that your cable modem AC power cord is not plugged into an electrical outlet that is controlled by a wall switch. If a wall switch controls the electrical outlet, make sure the switch is in the **ON** position.
- Verify that the **POWER**, **CABLE**, and the appropriate indicator lights for your network connection and on the front panel of your cable modem are illuminated.
- Verify that all cables are properly connected, and that you are using the correct cables.
- Verify that your cable service is active and that it supports two-way service.
- Verify that TCP/IP is properly installed and configured on all devices if you are using the Ethernet connections.
- Verify that you have followed the procedure in **How Do I Install USB Drivers**, earlier in this guide, if you are using the USB connection.
- Verify that you have called your cable service provider and given them the serial number and MAC address of your cable modem.
- If you are using a cable signal splitter so that you can connect the cable signal to other devices, remove the splitter and reconnect the cable so that the cable modem is connected directly to the main cable input. If the cable modem now functions properly, the cable signal splitter may be defective and may need to be replaced.

My Cable Modem Does Not Register an Ethernet Connection

Even new devices do not always have Ethernet capabilities. Verify that your device has a 10/100BaseT Ethernet card and that the Ethernet driver software is properly installed. If you purchase and install an Ethernet card, follow the installation instructions very carefully.

My Cable Modem Does Not Register a Cable Connection

- The cable modem works with a standard, 75-ohm, RF coaxial cable. If you are using a different cable, your cable modem will not function properly. Contact your service provider to determine if you are using the correct cable.
- You may need to renew the IP address on your PC. Refer to **I need to renew the IP address on my PC**, next in this section, for instructions on how to renew the IP address for your particular operating system.
- Your USB interface may be malfunctioning. Refer to the troubleshooting information in your USB documentation.

I Need to Renew the IP Address on My PC

If your PC cannot access the Internet after the cable modem is online, it is possible that your PC did not renew its IP address. Follow the appropriate instructions in this section for your operating system to renew the IP address on your PC.

To renew the IP Address for Windows 95, 98, 98SE, and ME systems

1. Click **Start**, and then click **Run** to open the Run window.
2. Type **winipcfg** in the Open field, and click **OK** to execute the winipcfg command. The IP Configuration window opens.
3. Click the down arrow to the right of the top field, and select the Ethernet adapter that is installed on your PC. The IP Configuration window displays the Ethernet adapter information.
4. Click **Release**, and then click **Renew**. The IP Configuration window displays a new IP address.
5. Click **OK** to close the IP Configuration window, you have completed this procedure.

Note: If you cannot access the Internet, contact your cable service provider for further assistance.

To renew the IP Address for Windows 2000, NT, or XP systems

1. Open a Command Prompt (DOS) window.
2. Type **ipconfig/release** at the C:/ prompt and press **Enter**. The system releases the IP address.
3. Type **ipconfig/renew** at the C:/ prompt and press **Enter**. The system displays a new IP address.
4. Click the **X** in the upper-right corner of the window to close the Command Prompt window. You have completed this procedure.

Note: If you cannot access the Internet, contact your service provider for further assistance.

How Do I Use My Modem for Telephone Service?

Contacting Your Local Service Provider

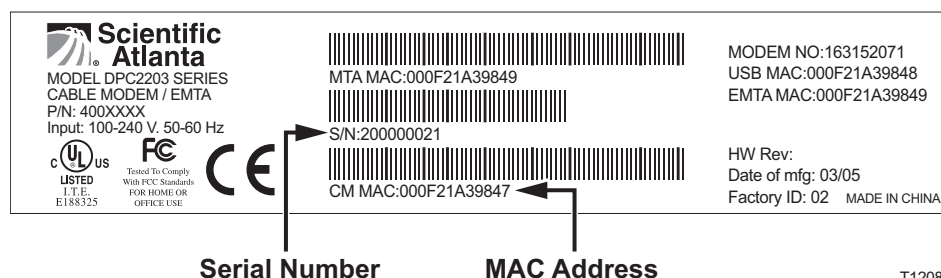
You need to set up a telephone account with your local cable service provider in order to use your cable modem for telephone service. When you contact your cable service provider, verify the following conditions:

- Does the cable service to your home support two-way, DOCSIS-compatible cable modem access? If your cable service provider does not provide two-way service, this modem will not be able to communicate with your cable service provider's Internet access and telephone services.
- Can you transfer your existing telephone numbers from another telephony service provider to your current cable telephony service provider? In some areas, you may be able to transfer your existing telephone numbers, or your cable telephony service provider will assign a new telephone number for each current or additional active telephone line. Discuss these options with your cable telephony service provider.

You may also need to give your cable service provider the following information:

- The serial number of the modem
- The Media Access Control (MAC) address of the modem

These numbers appear on a bar code label located on the cable modem. The serial number consists of a series of alphanumeric characters preceded by **S/N**. The MAC address consists of a series of alphanumeric characters preceded by **CM MAC**. The following illustration shows a sample bar code label.



T12087

Write down these numbers in the space provided here.

Serial Number _____

MAC Address _____

Where Do I Place My Modem for Telephone Service?

If you are planning to use your modem for telephone service, you should work with your cable telephony provider to choose the best location for your modem.

Where Is the Best Location for My Modem?

When choosing a location for your modem, consider the following recommendations:

- Choose a location close to your computer if you will also use the cable modem for high-speed Internet service.
- Choose a location that is near an existing RF coaxial connection to eliminate the need for an additional RF coaxial outlet.
- Choose a location for the cable modem that is adjacent to your telephone equipment if you are using only one or two pieces of telephone equipment.

Note: If you are using the cable modem to provide service to several telephones, a professional installer can connect the cable modem to your existing home telephone wiring. To minimize changes to the home telephone wiring, you may want to locate the cable modem near an existing telephone outlet. See **How Do I Install the Modem to Provide Telephone Service**, later in this guide, for further instructions.

- Choose a location that is relatively protected from accidental disturbance or harm, such as a closet, basement, or other protected area.
- Choose a location so that there is plenty of room to guide the cables away from the modem without straining or crimping them.
- Airflow around the cable modem should not be restricted.
- Read this user's guide thoroughly before installing the cable modem.

What Are the Requirements for Telephone Service?

This section provides hardware and software requirements for utilizing your cable modem for telephone service.

Number of Telephone Devices

The RJ-11 telephone-style connectors on the cable modem can each provide telephone service to multiple telephones, fax machines, and analog modems. The maximum number of telephone devices connected to each RJ-11 port is limited by the total Ringing Load of the telephone devices that are connected. Many telephone devices are marked with a Ringer Equivalent Number (REN). Each telephone port on the cable modem can support up to a 5 REN load. The sum of the REN load on all of the telephone devices attached to each port must *not* exceed 5 REN.

Telephone Device Types

You can use telephone devices that are *not* labeled with a REN number, but the maximum number of attached telephone devices cannot be accurately calculated. With telephone devices that are not labeled, each device should be connected and the ring signal should be tested before adding additional devices. If too many telephone devices are attached and the ring signal can no longer be heard, telephone devices should be removed until the ring signal works properly.

Telephones, fax machines, and other telephone devices should use the center 2 pins of the RJ-11 connectors to connect to the cable modem telephone ports. Some telephones use other pins on the RJ-11 connectors and require adapters in order to work.

Dialing Requirements

All your telephones should be set to use DTMF dialing. Pulse dialing is typically not enabled by your local provider.

Telephone Wiring Requirements

The cable modem is designed to support interior telephone wiring. The maximum distance from the unit to the most distant telephone device must not exceed 1000 feet (300 meters). Use 26-gauge twisted-pair, or larger, telephone wiring.

Important: Connection to an existing or a new permanently installed home telephone wiring network must be done by a qualified installer.

How Do I Install the Modem for Telephone Service?

The cable modem can be used to provide telephone service for one or two telephone lines. This section describes how to connect a single telephone, fax machine, analog telephone modem, or other telephone device to each telephone port on the cable modem.

Important: Connecting the cable modem permanently to the installed home telephone wiring is not covered by this document.

Installing the Cable Modem to Provide Telephone Service

Heed the following warnings, and then follow the subsequent installation procedures to ensure proper cable modem installation and configuration for providing telephone service.



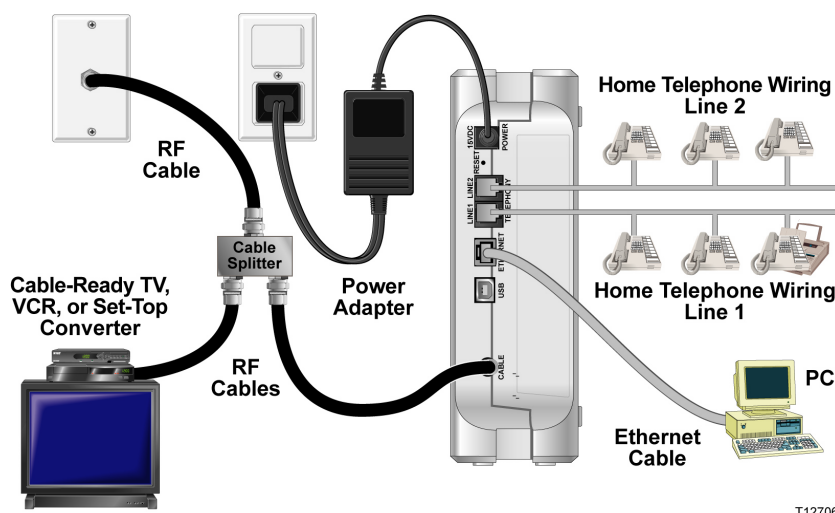
WARNING:

- To avoid personal injury, follow the installation instructions in the exact order shown.
- Telephone connections to an installed home telephone wiring network must be done by a qualified installer. The cable telephone service provider may offer professional installation and connection to the home telephone wiring network. A fee may be charged for this service.
- Hazardous electrical voltages can exist on the telephone ports on the cable modem and can be present on any connected wiring. Telephone wiring and connections must be properly insulated to prevent electrical shock. Disconnect power from the cable modem before attempting to connect to any device.
- To prevent possible damage to equipment, disconnect any other telephone service before connecting your cable modem to the same wires.

Note: Professional installation may be available. Contact your service provider for further assistance.

Installation Diagram

The following diagram illustrates one of the various connection options that are available to you.



To install the cable modem for telephone service

1. Connect a telephone, fax machine, or analog modem to each of the appropriate RJ-11 ports on the cable modem.

Notes:

- The cable modem provides one line of telephone service on each of the RJ-11 connectors.
 - Service must be set up and enabled by the cable telephone service provider.
 - The two center conductors (pins 3 and 4) on the RJ-11 connector provide electrical connections to directly attached telephone devices or to a permanently installed in-home telephone wiring network.
 - The telephone port labeled Line 1 also supports multi-line telephone devices. Line 1 is supported on pins 3 and 4, and Line 2 is supported on pins 2 and 5.
 - The use of telephones that require electrical connections to other RJ-11 pins requires an adapter.
2. After all telephone connections are complete, insert the AC power cord into the power connector on the back of the cable modem, and then plug the cord into an AC power source.
 3. Connect the active RF coaxial cable to the **CABLE** connector on the back of the cable modem. The cable modem begins an automatic search to locate and sign on to the network that provides the telephone service. This process may take up to 5 minutes. The modem will be ready for use when the **CABLE** light on the front panel stops blinking and illuminates continuously

Note: Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.

4. Test your telephone service by lifting the receiver of each attached telephone to verify that the dial tone can be heard and that you can make and receive telephone calls. This process may take several minutes.

Notes:

- The **TEL 1** and **TEL 2** LED status indicators on the front panel of the cable modem **illuminate** when telephony service is enabled.
- The **TEL 1** or the **TEL 2** LED status indicators on the front panel of the cable modem **blink** when the attached device is “off the hook.”

How Do I Maintain the Battery? (Optional Model only)

Your modem may include an optional rechargeable Lithium-Ion battery to provide stand-by operation in the event of an AC power failure. You can replace the battery without the use of any tools.



WARNING:

There is danger of explosion if the battery is mishandled or incorrectly replaced. Replace only with the same type of WebSTAR battery. Do not disassemble it or attempt to recharge the battery outside the system. Do not crush, puncture, dispose of in a fire, short external contacts, or expose to water or other liquids. Dispose of the battery in accordance with local regulations and instructions from your service provider.

Charging the Battery

The battery begins to charge automatically as soon as you attach the modem to the AC electrical outlet. When you first plug in the modem, the **POWER** LED status indicator illuminates.

Important: It may take as long as 24 hours for the battery to charge fully.

Using the Modem Without a Battery

If you want, you can use the modem *without* a battery. If you need to remove the battery, follow the procedures found in **Removing and Replacing the Battery**, later in this section.

Important: If you choose to operate your modem *without* a battery, you risk losing your telephone service during a power outage.

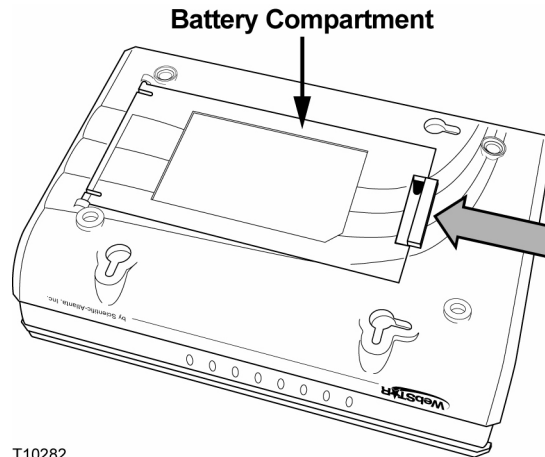
Replacing the Battery

Under normal circumstances, the battery should last for several years. The **BATTERY** LED status indicator turns off to indicate that the battery should be replaced soon. Contact your service provider to obtain replacement batteries and for disposal instructions.

Note: Follow the steps found in **Removing and Replacing the Battery**, later in this section, to remove and replace the battery.

Location of the Battery (Optional Model Only)

The following illustration shows the location of the battery on the DPC2223 and the EPC2223 models that include an internal rechargeable battery.

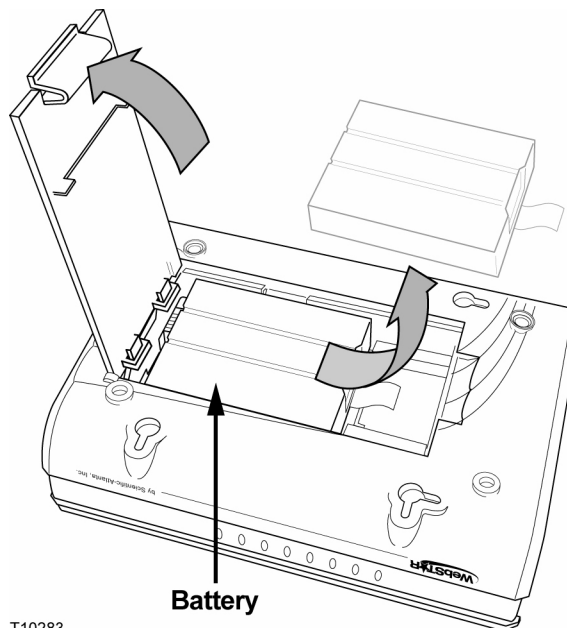


T10282

Removing and Replacing the Battery (Optional Model Only)

Follow these steps to remove and replace the battery. You can remove and replace the battery without disconnecting the AC power source.

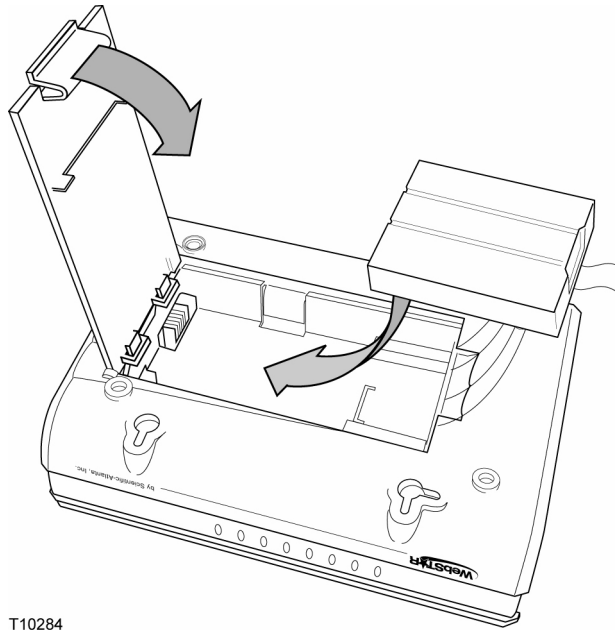
1. Carefully turn the modem over.
2. Gently release the latch to open the battery cover and gain access to the battery compartment.



T10283

3. Grasp the plastic strip on the front of the battery and gently slide the battery forward to remove it from the battery compartment.

4. Insert a new battery into the battery compartment.



T10284

5. Close the battery compartment door. The battery lock will automatically re-engage.

Important: It may take as long as 24 hours for the battery to charge fully.

Note: Dispose of the battery in accordance with local regulations and instructions from your service provider.

How Do I Mount the Cable Modem on a Wall? (Optional)

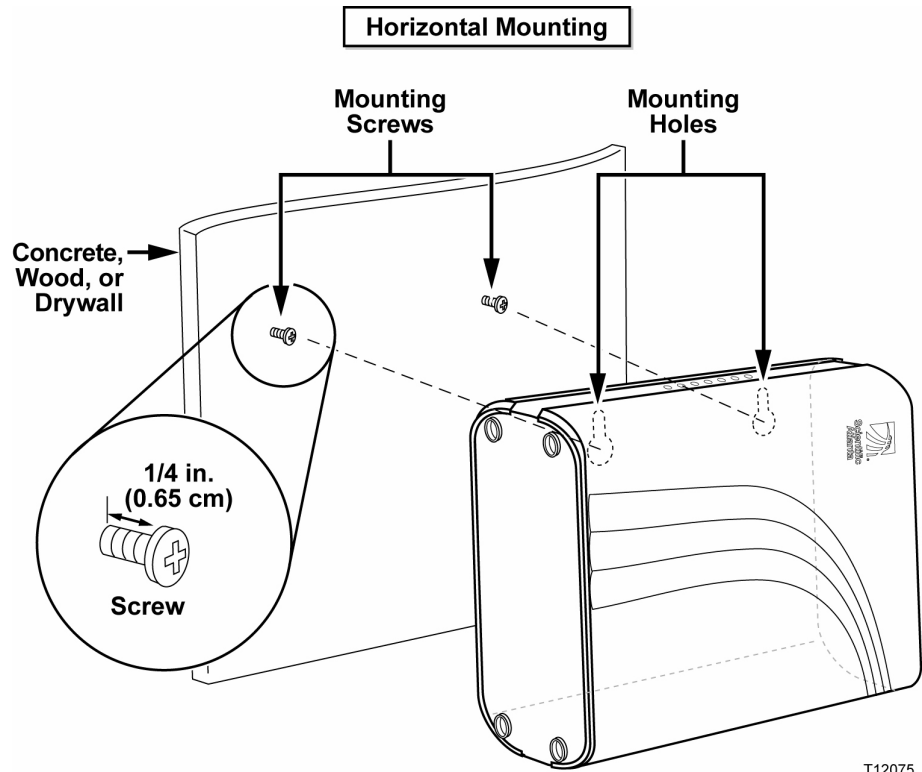
You can mount the cable modem on a wall using two wall anchors, two screws, and the mounting slots located on the unit. The modem can be mounted vertically or horizontally.

Before You Begin

Before you begin, choose an appropriate mounting place. The wall can be made of cement, wood, or drywall. The mounting location should be free of obstructions on all sides, and the cables should be able to easily reach the cable modem without strain. Leave sufficient clearance between the bottom of the cable modem, and any flooring or shelving underneath, to allow access to cabling. In addition, leave enough slack in all cables so that the cable modem can be removed for any required maintenance without disconnecting the cables. Also, verify that you have the following items:

- Two wall anchors for #8 x 1 inch screws
- Two #8 x1 inch pan head sheet metal screws
- Drill with a 3/16-in. wood or masonry bit, as appropriate for the wall composition
- A copy of the wall-mounting template shown on the following page

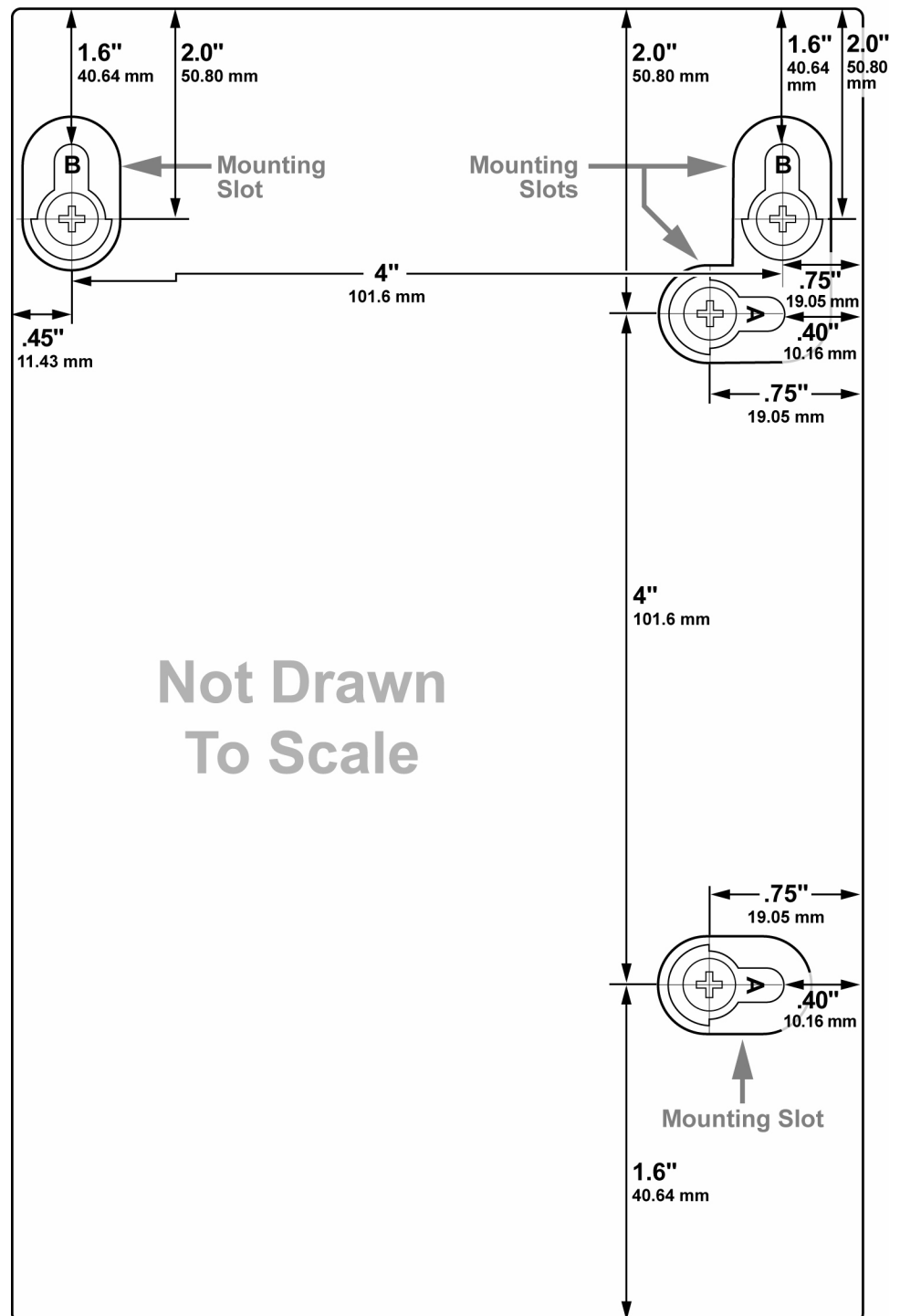
Mount the modem as shown in the following illustration.



Using the Wall-Mounting Template

The following illustration shows the wall-mounting template. Copy this page and use the measurements on the wall-mounting template as a guide to mark the mounting screw locations.

DPC2223 and EPC2223 Wall Mount Template



T12078

Mounting the Cable Modem on a Wall

To mount the cable modem on a wall

Complete these steps to mount the cable modem on the wall.

1. Using a drill with a 3/16-in. bit, drill two holes in the wall as follows:
 - To mount the cable modem vertically, drill the holes at the same height and 4 inches apart.
 - To mount the cable modem horizontally, drill the holes at the same height and 4 inches apart.

Note: The graphic on the preceding page illustrates the location of the mounting holes on the back of the cable modem.
2. Are you mounting the cable modem into a drywall or concrete surface where a wooden stud is available?
 - If **yes**, go to step 3.
 - If **no**, drive the anchor bolts into the wall, and install the mounting screws into the anchor bolts leaving a gap of about 1/4-in. between the screw head and the wall. Then, go to step 4.
3. Install the mounting screws into the wall leaving a gap of about 1/4-in. between the screw head and the wall. Then, go to step 4.
4. Verify that no cables or wires are connected to the cable modem.
5. Lift the cable modem into position. Slip the large end of both mounting slots (located in the back of the cable modem) over the mounting screws, then slide the cable modem down until the narrow end of the keyhole slot contacts the screw shaft.

Important: Verify that the mounting screws securely support the cable modem before you release the unit.

Telephone Service Frequently Asked Questions

This section provides answers to frequently asked questions regarding cable modem telephone service. For issues regarding cable modem Internet service, see **Troubleshooting My Internet Service Installation**, earlier in this guide.

Frequently Asked Questions

Q. What if I don't subscribe to telephone service from my cable operator, can I still use the cable modem to make and receive phone calls?

A. No. Telephone service is enabled for each telephone port on the cable modem by the cable telephony service provider. Contact your cable telephony service provider to get telephone service through the cable modem.

Q. How do I arrange for installation?

A. Professional installation from your cable telephony service provider may be provided. A professional installer can connect the telephone service to your existing telephone wiring in your home or install new wiring if needed. Professional installation also ensures proper cable connection to the modem and to your PC, and ensures proper configuration of all hardware and software settings. Contact your cable telephony service provider for more information about installation.

Q. Can I use my existing phone number with the cable modem?

A. Telephone numbers are portable in some areas. Contact your telephone service provider for more information about using an existing telephone number.

Q. Do I automatically receive high-speed Internet service with the cable modem?

A. Your cable modem may be used to provide telephone service, high-speed Internet service, or both services. Your cable service provider enables Internet service. Contact your cable service provider for more information if you are not currently subscribing to Internet service.

Q. How many telephones can I connect?

A. The RJ-11 telephone-style connectors on the cable modem can each provide telephone service to multiple telephones, fax machines, and analog modems. The maximum number of telephone devices connected to each RJ-11 port is limited by the total Ringing Load of the telephone devices that are connected. Many telephone devices are marked with a Ringer Equivalent Number (REN). Each telephone port on the cable modem can support up to a 5 REN load. The sum of the REN load on all of the telephone devices attached to each port must *not* exceed 5 REN.

Q. Can I surf the Internet and make telephone calls at the same time?

A. Absolutely! Telephone service is provided separately from Internet data services. Internet surfing and other data services do not affect the quality of your telephone calls. If these services are enabled by your cable service provider, you can make telephone calls and surf the net at the same time.

Having Difficulty?

Common Troubleshooting Suggestions

The modem does not register a cable connection.

The modem works with a standard, 75-ohm, RF coaxial cable. If you are using a different cable, your cable modem will not function properly. Contact your cable service provider to determine whether you are using the correct cable.

There is no dial tone when I lift the telephone handset.

- Your telephone wiring may be connected to the wrong RJ-11 port on the cable modem. The cable modem has two telephone ports. Verify that you are connected to the correct telephone port.
- There may be a problem with your telephone set. Use a different telephone set and listen to hear dial tone.
- There may be a problem with your home telephone wiring. Use a telephone and connect directly to the same RJ-11 port on the back of the unit. If the dial tone is working here but does not work at other locations in the home, a professional may need to diagnose and repair a problem with your telephone wiring.
- Verify that the phone company has removed the previous telephone service from your home telephone wiring.
- Your telephone service may not be enabled from your cable telephony service provider. Contact your cable telephony service provider for more information.

Frequently Asked Questions

Q. What if I don't subscribe to cable TV?

A. If cable TV is available in your area, data service may be made available with or without subscribing to cable TV service. Contact your local cable service provider for complete information on cable services, including high-speed Internet access.

Q. How do I arrange for installation?

A. Call your cable telephony service provider to inquire about professional installation. A professional installation ensures proper cable connection to the modem and to your PC, and ensures proper configuration of all hardware and software settings. Contact your cable telephony service provider for more information about installation.

Q. How does the cable modem connect to my computer?

A. The cable modem connects to the USB port or the 10/100BaseT Ethernet port on your PC. If your PC is not equipped with an Ethernet interface, an Ethernet card is available from your local PC or office supply retailer, or from your cable service provider.

Q. After my cable modem is connected, how do I access the Internet?

A. Your local cable service provider becomes your Internet Service Provider (ISP). They offer a wide range of services including e-mail, chat, news, and information services. Your cable service provider will provide the software you will need.

Q. Can I watch TV and surf the Internet at the same time?

A. Absolutely! If you subscribe to cable television service, you can watch TV and use your cable modem at the same time by connecting your TV and your cable modem to the cable network using an optional cable signal splitter.

Q. Can I run more than one device on the modem?

A. Yes—a single WebSTAR cable modem will theoretically support up to 253 Ethernet devices utilizing user-supplied Ethernet hubs or routers that you can purchase at your local PC or office supply retailer. Another user at your location can simultaneously connect to the USB port on the cable modem. Contact your cable service provider for further assistance.

Common Troubleshooting Issues

I don't understand the front panel status indicators.

See **Front Panel LED Status Indicator Functions**, later in this guide, for more detailed information on front panel LED status indicator operation and function.

The modem does not register an Ethernet connection.

- Verify that your computer has a 10/100BaseT Ethernet card and that the Ethernet driver software is properly installed. If you purchase and install an Ethernet card, follow the installation instructions very carefully.
- Verify the status of the front panel status indicator lights.

The modem does not register an Ethernet connection after connecting to a hub.

If you are connecting multiple PCs to the cable modem, you should first connect the modem to the up-link port of the hub. The **LINK** LED of the hub will illuminate continuously.

The modem does not register a cable connection.

- The modem works with a standard 75-ohm RF coaxial cable. If you are using a different cable, your cable modem will not function properly. Contact your cable service provider to determine whether you are using the correct cable.
- Verify that you have followed the procedures in **Troubleshooting My Internet Service Installation**, earlier in this guide.
- Your NIC card or USB interface may be malfunctioning. Refer to the troubleshooting information in the NIC or USB documentation provided with the device.

Tips for Improved Performance

Check and Correct

If your cable modem does not perform as expected, the following tips may help. If you need further assistance, contact your cable service provider.

- Verify that the plug to your cable modem AC power is properly inserted into an electrical outlet.
- Verify that your cable modem AC power cord is *not* plugged into an electrical outlet that is controlled by a wall switch. If a wall switch controls the electrical outlet, make sure the switch is in the **ON** position.
- Verify that the **POWER** and **CABLE** LED status indicators on the front panel of your cable modem are illuminated.
- Verify that all cables are properly connected, and that you are using the correct cables.
- Verify that your cable service is active and that it supports two-way service.
- Verify that your TCP/IP is properly installed and configured if you are using the Ethernet connection.
- Verify that you have followed the procedures in **How Do I Install the USB Drivers**, earlier in this guide, if you are using the USB connection.
- Verify that you have called your cable service provider and given them the serial number and MAC address of your cable modem.
- If you are using a cable signal splitter so that you can connect the cable modem to other devices, remove the splitter and reconnect the cables so that the cable modem is connected directly to the cable input. If the cable modem now functions properly, the cable signal splitter may be defective and may need to be replaced.

Front Panel LED Status Indicator Functions

Initial Power Up, Calibration, and Registration (AC Power applied)

The following chart illustrates the sequence of steps and the corresponding appearance of the cable modem front panel LED status indicators during power up, calibration, and registration on the network. Use this chart to troubleshoot the power up, calibration, and registration process of your cable modem.

Note: After the cable modem completes Step 7 (Registration Completed), the modem proceeds immediately to Normal Operations. See **Normal Operations**, next in this section.

Front Panel LED Status Indicators During Initial Power Up, Calibration, and Registration								
Step →		1	2	3	4	5	6	7
Front Panel Indicator		Self Test	Downstream Scan	Downstream Signal Lock	Ranging	Requesting IP Address	Registering	Registration Completed
1	POWER	ON	ON	ON	ON	ON	ON	ON
2	DS	ON	BLINKING	ON	ON	ON	ON	ON
3	US	ON	OFF	OFF	BLINKING	ON	ON	ON
4	ONLINE	ON	OFF	OFF	OFF	OFF	BLINKING	ON
5	LINK	ON	ON or BLINKING	ON or BLINKING	ON or BLINKING	ON or BLINKING	ON or BLINKING	ON or BLINKING
6	TEL 1	ON	OFF	OFF	OFF	OFF	OFF	OFF
7	TEL 2	ON	OFF	OFF	OFF	OFF	OFF	OFF
8	BATTERY (Optional model only)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
* The ONLINE LED is on whenever a PC is connected to the modem, and it blinks to indicate that data is being transferred. If the modem is used to provide telephone service only and is not connected to a PC, the ONLINE LED is off.								

Normal Operations (AC Power applied)

The following chart illustrates the appearance of the cable modem front panel LED status indicators during normal operations.

Step →		8
Front Panel LED Status Indicators During Normal Operations		
Front Panel Indicator		Normal Operations
1	POWER	ON
2	DS	BLINKS – To indicate data is being transferred between the modem and the network
3	US	BLINKS – To indicate data is being transferred between the modem and the network
4	ONLINE	ON
5	LINK	ON – When a single device is connected to either the Ethernet or USB port and no data is being sent to or from the modem BLINKS – When only one Ethernet or USB device is connected and data is being transferred between the consumer premise equipment (CPE) and the cable modem OFF- When no devices are connected to either the Ethernet or USB ports NOTE: With both Ethernet and USB devices connected to the modem at the same time, when data is being transferred through only one of the devices (Ethernet or USB), the indicator will illuminate continuously. Whenever data is being sent through both data ports (Ethernet and USB) simultaneously, the indicator will blink as described above.
6	TEL 1	• ON when telephony service is enabled • BLINKS when line 1 is in use
7	TEL 2	• ON when telephony service is enabled • BLINKS when line 2 is in use
8	BATTERY (Optional model only)	• ON when battery is charged • BLINKS when battery charge is low • OFF when no battery is present

Notices

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Firmware Use Notice

The firmware in this equipment is copyrighted. You may only use the firmware in the equipment in which it is provided. Any reproduction or distribution of this firmware, or any portion of it, without express written consent is prohibited.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20cm between the radiator and your body.

FCC Compliance

United States FCC Compliance

Note: This equipment has been tested and found to comply with the applicable 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 instructions, may cause harmful interference to radio or TV 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 the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult your service provider, cable company, or an experienced radio/TV technician for help

Important: Any changes or modifications not expressly approved by Scientific-Atlanta could void the user's authority to operate the equipment.

The information shown in the FCC Declaration of Conformity paragraph below is a requirement of the FCC and is intended to supply you with information regarding the FCC approval of this device. *The phone numbers listed are for FCC-related questions only and not intended for questions regarding the connection or operation for this device. Please contact your service provider for any questions you may have regarding the operation or installation of this device.*

FCC Declaration of Conformity

This device complies with *Part 15 of FCC Rules*. Operation is subject to the following two conditions: 1) the device may not cause harmful interference, and 2) the device must accept any interference received, including interference that may cause undesired operation.

WebSTAR Cable Modems with Embedded MTA Model DPC2223 and Model EPC2223 Scientific-Atlanta, Inc. 5030 Sugarloaf Parkway Lawrenceville, Georgia 30044 USA Telephone: 770-236-1077

Canada EMI Regulation

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la class B est conforme à la norme NMB-003 du Canada.

FCC Privacy Statement

Privacy of communications may not be ensured when using this phone.

FCC Part 68

The Federal Communications Commission (FCC) of the United States restricts specific uses of modems, and places registration responsibilities on both the manufacturer and the individual user.

1. The modem may not be connected to a party line or to a coin-operated telephone.
2. The modem manufacturer must make any repairs to the modem to maintain valid FCC registration.
3. Notification to the telephone company is no longer required prior to connecting registered equipment, but upon request from the telephone company, the user shall tell the telephone company which line the equipment is connected to as well as the registration number and ringer equivalence number of the registered protective circuitry. FCC information is printed on a label on the bottom of the modem.

IC (Industry Canada) Notice

Notice: The Industry Canada (formerly Canadian Department of Communications) label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

For Information

If You Have Questions

If you have technical questions, contact your local cable service provider.



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