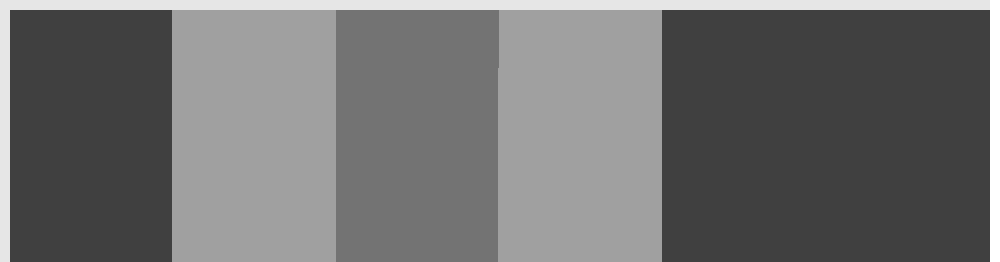


THG520/DHG525

digital | **BROADBAND**

VOICE OVER IP CABLE MODEM

THOMSON



Important Information

CAUTION

Disconnect power before servicing.

CAUTION

This device is intended for indoor operation only. Telephone jacks Line 1 and Line 2 must not be connected to outside wiring.

CAUTION

To ensure reliable operation and to prevent overheating, provide adequate ventilation for this modem and keep it away from heat sources. Do not locate near heat registers or other heat-producing equipment. Provide for free air flow around the cable modem and its power supply.



NORTH AMERICAN CABLE INSTALLER:

This reminder is provided to call your attention to Article 820-40 of the National Electrical Code (Section 54 of the Canadian Electrical Code, Part 1) which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.

Euro-DOCSIS compliant (THG520)

This product was designed according to Euro-DOCSIS Specifications but can also receive signals according to the DOCSIS specifications if the used frequencies are between 112-858 MHz.

PacketCable and DOCSIS compliant (DHG525)

This product was designed according to Data Over Cable Service Interface Specifications and PacketCable Voice Over IP Cable Telephony Specifications.

It will operate on any DOCSIS-compliant Hybrid Fiber Coax (HFC) cable system and offers DOCSIS and PacketCable Baseline Privacy to promote secure internet transactions and PC-secure telephone service.

Operating Information

Operating Temperature: 0° - 40° C (32° - 104° F)

Storage Temperature: -30° to 65° C

If you purchased this product at a retail outlet, please read the following:

Product Information

Keep your sales receipt to obtain warranty parts and service and for proof of purchase. Attach it here and record the serial and model numbers in case you need them. The numbers are located on the back of the product.

Model No. _____ Serial No _____

Purchase Date: _____ Dealer/Address/Phone: _____

Table of Contents

Chapter 1: Connections and Setup

Introduction	1
Voice Over IP Cable Modem Features	1
What's on the CD-ROM	1
Accessing the Diagnostics Display through the CD-ROM.....	1
Computer Requirements.....	2
Placing the Rubber Feet on the Cable Modem	2
Cable Modem Overview THG520	3
Front Panel.....	3
Rear Panel	4
Wall Mounting	4
Cable Modem Overview DHG525	6
Front Panel.....	6
Rear Panel	7
Wall Mounting	7
Installing the Battery	8
Relationship Among the Devices	10
What the Modem Does	10
What the Modem Needs to Do Its Job.....	10
Contact Your Local Cable Company	11
Connecting the Cable Modem to a Single Computer.....	13
Attaching the Cable TV Wire to the Cable Modem	13
Important Connection Information	14
USB Connection to One Computer	14
Using Windows 2000 for USB Connection	15

Table of Contents

Using Windows Me for USB Connection.....	18
Using Windows XP for USB Connection	19
Ethernet Connection to One Computer	23
Connecting More Than Two Computers to the Cable Modem.....	24
Telephone or Fax Connection.....	25
Activating the Cable Modem	26
Frequently Asked Questions	27
General Troubleshooting	29
FCC Declaration of Conformity and Industry Canada Information.....	31
Service Information.....	31
Glossary	33

Chapter 1: Connections and Setup

Introduction

Voice Over IP Cable Modem Features

- Provides two-line telephone service
- Capable of receiving data at rates of up to 10 Megabits per second
- Able to send and receive data over the cable line
- Able to connect multiple computers through 10/100 BaseT Ethernet, USB at the same time (if applicable and your service provider offers multiple computer connections)
- Plug-and-play operation for easy setup and installation

What's on the CD-ROM

Insert the cable modem CD-ROM into your CD-ROM drive to view troubleshooting tips, the internal diagnostics, and other valuable information.

Note: You will need to use the CD-ROM to install the USB driver if you are connecting via the USB port.

CD-ROM Contents:

- Links to RCA and Thomson web sites
- Electronic file of the instruction book in additional languages
- Usage and troubleshooting tips

Accessing the Diagnostics Display through the CD-ROM

A button on the CD-ROM menu called "Look at Diagnostics" (found under the "About My Cable Modem" menu) launches your browser and displays status and diagnostic information stored within the modem in HTML format.

Your PC must receive an IP address assignment from the Cable company's server, over the cable network. You may want to "bookmark" the IP address in your browser after the diagnostics page is displayed.

DOCSIS and PacketCable are trademarks of Cable Television Laboratories, Inc.

Chapter 1: Connections and Setup

Computer Requirements

For the best possible performance from your cable modem, your personal computer must meet the following minimum system requirements (note that the minimum requirements may vary by cable company):

	IBM PC COMPATIBLE	MACINTOSH**
CPU	Pentium preferred	PowerPC or higher
System RAM	16MB (32MB preferred)	24MB (32MB preferred)
Operating System	Windows* NT/2000/Me/XP, Linux	Mac OS** 7.6.1 or higher
Available Disk Space	125MB	50MB
Sound Card	Required for audio on CD-ROM	N/A
Video	VGA or better (SVGA preferred)	VGA or better (SVGA built-in preferred)
CD-ROM Drive	Required	Required
Ethernet	10BaseT or 100BaseT	10BaseT or 100BaseT
	An Ethernet card makes it possible for your computer to pass data to and from the internet. You must have an Ethernet card and software drivers installed in your computer. You will also need a standard Ethernet cable to connect the Ethernet card to your cable modem.	
USB Port	USB (Windows 2000/ME/XP only)	
	The Universal Serial Bus is a high-speed bus that enables your computer to communicate simultaneously with a variety of peripherals. However, if you have other peripherals that send and receive a lot of information, such as speakers, printers or scanners, we recommend using an Ethernet card to support this modem.	

*Windows is a trademark of Microsoft Corporation.

**Macintosh and the Mac OS are trademarks of Apple Computer, Inc.

Placing the Rubber Feet on the Cable Modem

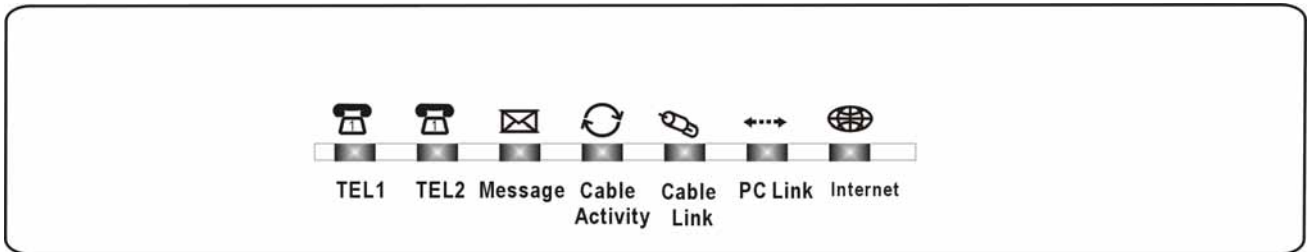
A set of rubber pads has been packaged with your modem. These pads (or "feet") can be attached to keep the modem from sliding around on your desktop.

Chapter 1: Connections and Setup

Cable Modem Overview THG520

Front Panel

The following illustration shows the front panel of the THG520 model:



The LEDs on the front panel are described in the table below (from left to right):

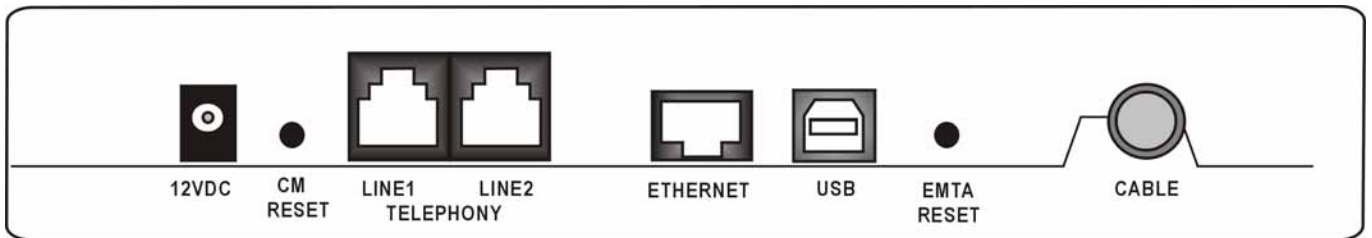
THG520	Tel 2	Tel 1	Message	Cable Activity	Cable Link	PC Link	Internet	Description
Start-up Operation	X	X	OFF	OFF	OFF	OFF	FLASH	Tuning (Searching downstream signal)
	X	X	OFF	OFF	OFF	FLASH	FLASH	Ranging - Awaiting Response (DS carrier acquire, ranging in process but RNG-RSP has not been detected)
	X	X	OFF	OFF	OFF	FLASH	FLASH	Any RNG-RSP detected (Normalizing power level and timing offset)
	X	X	OFF	OFF	FLASH	FLASH	FLASH	Connecting (Ranging complete, DHCP in progress)
	X	X	OFF	FLASH	FLASH	FLASH	FLASH	Configuring (DHCP complete, configuration file download in process)
	X	X	FLASH	FLASH	FLASH	FLASH	FLASH	Registering and Baseline Privacy Initializing (configuration file download complete, initialize BPI if BPI is ON, registration in process)
	X	X	Enter Normal Operation Mode					
Normal Operation	X	X	X	X	X	X	OFF ON	Internet ON-OFF switch off Internet ON-OFF switch on
	X	X	X	X	X	OFF FLASH ON	X	NO Ethernet/USB carrier present Ethernet/USB TX/RX traffic Ethernet/USB carrier present, no traffic
	X	X	X	X	OFF FLASH ON	X	X	NO Cable Link Cable BSS/OSS has set the CM into de-activated state CM is registered
	X	X	X	OFF FLASH	X	X	X	Internet ON-OFF switch off/No RF DS/US network traffic RF DS/US network traffic
	X	X	OFF FLASH	X	X	X	X	No message is delivered by the MSO Email is available fro the user on the server (Implementation of the message waiting LED will be via Proprietart MIB)
No service Operation	X	X	X	X	Wink	X	X	NACO =OFF BPI unauthorize (when BPI is ON)
	Three seconds ON followed by a flash OFF							

Illustrations contained in this document are for representation only.

Chapter 1: Connections and Setup

MTA initialization	OFF	FLASH	<CM Normal Operation>					MTA DHCP
	FLASH	OFF						MTA SNMP/TFTP
	FLASH	FLASH						RSIP
MTA Operation	ON	ON						Both Lines On-Hook
	ON	FLASH						Tel1 Off-hook, Tel2 On-hook
	FLASH	ON						Tel1 On-hook, Tel2 Off-hook
	FLASH	FLASH						Both Lines Off-Hook
SW Download Operation	ON	FLASH						FLASH
	FLASH	ON	From Right to Left					

Rear Panel



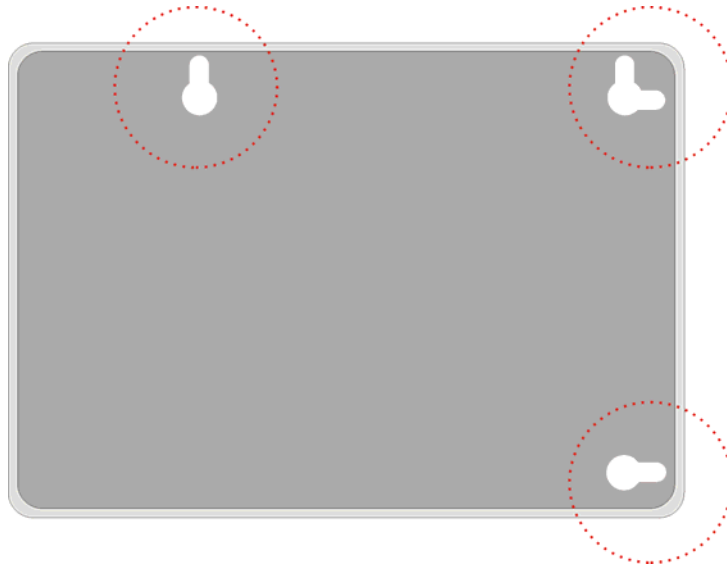
- 12VDC:** 12V Power connector
- CM RESET:** Reset this cable modem to the factory settings
- Telephony (LINE1/LINE2):** RJ-11 Phone set connector
- ETHERNET:** Ethernet 10/100 BaseT RJ-45 connector
- USB:** USB Connector
- EMTA RESET:** Reset this cable modem
- CABLE:** F-Connector

Wall Mounting

The number of the screw: 2 pcs
 Direction for wall mounting: LED panel upward.
 Dimension for the screw: TBD

There are 3 slots on the underside of the Cable Modem that can be used for wall mounting:

Chapter 1: Connections and Setup



Note: When wall mounting the unit, ensure that it is within reach of the power outlet. You will need 3 screws (4.4mm) to wall mount the unit. To do this:

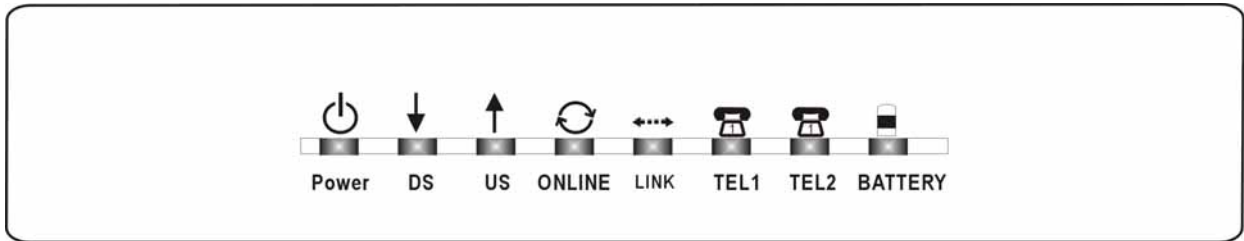
1. Ensure that the wall you use is smooth, flat, dry and sturdy and use the 3 screw holes which both are 101.6mm apart.
2. Fix the screws into the wall, leaving their heads 3 mm (0.12 in.) clear of the wall surface.
3. Remove any connections to the unit and locate it over the screw heads. When in line, gently push the unit on to the wall and move it downwards to secure.
4. Wall mounting orientation: LED panel upper.

Chapter 1: Connections and Setup

Cable Modem Overview DHG525

Front Panel

The following illustration shows the front panel of the DHG525 machine:

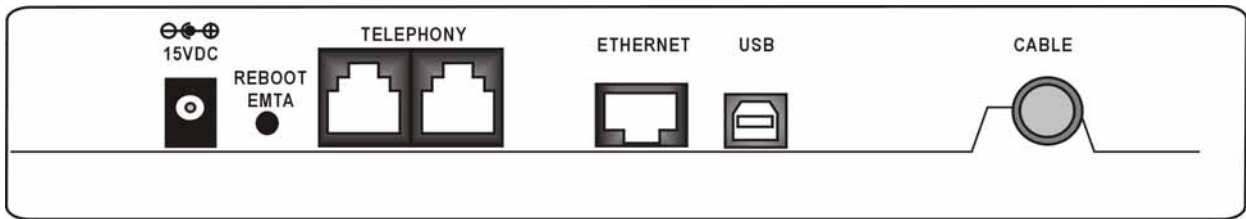


The LEDs on the front panel are described in the table below (from left to right):

PKE 220VB-D49	Power	Internet			Link	Tel 1	Tel 2	Battery	Description
	DS	US	Online						
Boot-up Operation	ON	ON	ON	ON	ON	ON	ON	ON	Power on 0.25 sec
	ON	0.25 second			ON	ON	ON	ON	
	ON	FLASH	FLASH	FLASH	X	X	X	X	From power ON to system initialization complete
	ON	ON	ON	ON	X	X	X	X	Following system initialization complete to (before) DS scanning
DOCSIS Start-up Operation	ON	FLASH	OFF	OFF	X	X	X	X	During DS scanning and acquiring SYNC
	ON	ON	FLASH	OFF	X	X	X	X	From SYNC completed, receiving UCD to ranging completed
	ON	ON	ON	ON	X	X	X	X	During DHCP, configuration file download, registration, and Baseline Privacy initialization
	ON	ON	ON	ON	X	X	X	X	Operational (NACO=ON)
MTA initialization	ON	FLASH	FLASH	OFF	X	X	X	X	Operational (NACO=OFF)
	ON	ON	ON	ON	X	FLASH	OFF	OFF	MTA DHCP
	ON	ON	ON	ON	X	OFF	FLASH	OFF	MTA SNMP/TFTP
CPE Operation	ON	ON	ON	ON	X	FLASH	FLASH	OFF	RSIP
	ON	X	X	X	OFF ON FLASH	X	X	X	No Ethernet Link Ethernet Link TX/RX Ethernet Traffic
AC Good Battery Good	ON	X	X	X	X	X	X	X	No USB Link USB Link TX/RX USB Traffic
	ON	X	X	X	X	X	X	X	
AC Good Battery Low	ON	<CM Normal Operation>			ON	ON	FLASH	ON	Both Lines On-Hook
	ON				FLASH	ON			Tel1 Off-hook, Tel2 On-hook
	ON				ON	FLASH			Tel1 On-hook, Tel2 Off-hook
	ON				FLASH	FLASH			Both Lines Off-Hook
AC Good Battery Bad	ON	<CM Normal Operation>			ON	ON	FLASH	FLASH	Both Lines On-Hook
	ON				FLASH	ON			Tel1 Off-hook, Tel2 On-hook
	ON				ON	FLASH			Tel1 On-hook, Tel2 Off-hook
	ON				FLASH	FLASH			Both Lines Off-Hook
AC Fail Battery Good	ON	FLASH			ON	ON	FLASH	OFF	Both Lines On-Hook
	ON				FLASH	ON			Tel1 Off-hook, Tel2 On-hook
	ON				ON	FLASH			Tel1 On-hook, Tel2 Off-hook
	ON				FLASH	FLASH			Both Lines Off-Hook
AC Fail Battery Low	ON	FLASH			ON	ON	FLASH	FLASH	Both Lines On-Hook
	ON				FLASH	ON			Tel1 Off-hook, Tel2 On-hook
	ON				ON	FLASH			Tel1 On-hook, Tel2 Off-hook
	ON				FLASH	FLASH			Both Lines Off-Hook
AC Fail Battery Bad	ON	FLASH			ON	ON	FLASH	OFF	Both Lines On-Hook
	ON				FLASH	ON			Tel1 Off-hook, Tel2 On-hook
	ON				ON	FLASH			Tel1 On-hook, Tel2 Off-hook
	ON				FLASH	FLASH			Both Lines Off-Hook
SW Download Operation	< All LEDs may be unlit due to lack of battery power >								
	ON	FLASH	FLASH	ON	X	X	X	X	Both Lines On-Hook
	ON	FLASH	FLASH	ON	X	X	X	X	Tel1 Off-hook, Tel2 On-hook
	ON	FLASH	FLASH	ON	X	X	X	X	Tel1 On-hook, Tel2 Off-hook
SW Download Operation	ON	FLASH	FLASH	ON	X	X	X	X	Both Lines Off-Hook
	ON	FLASH	FLASH	ON	X	X	X	X	Both Lines On-Hook
	ON	FLASH	FLASH	ON	X	X	X	X	Tel1 Off-hook, Tel2 On-hook
	ON	FLASH	FLASH	ON	X	X	X	X	Tel1 On-hook, Tel2 Off-hook

Chapter 1: Connections and Setup

Rear Panel



15VDC:	15V Power connector
REBOOT EMTA:	Reset this Voice Over IP Cable Modem to the factory settings
Telephony (LINE1/LINE2):	RJ-11 Phone set connector
ETHERNET:	Ethernet 10/100BaseT RJ-45 connector
USB:	USB Connector
CABLE:	F-Connector

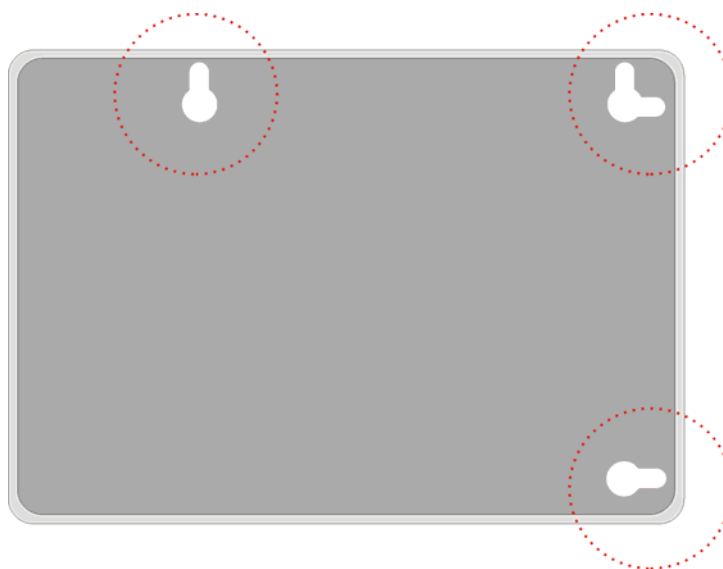
Wall Mounting

The number of the screw: 2 pcs

Direction for wall mounting: LED panel upward.

Dimension for the screw: TBD

There are 3 slots on the underside of the Cable Modem that can be used for wall mounting:



Note: When wall mounting the unit, ensure that it is within reach of the power outlet. You will need 3 screws (4.4mm) to wall mount the unit. To do this:

Illustrations contained in this document are for representation only.

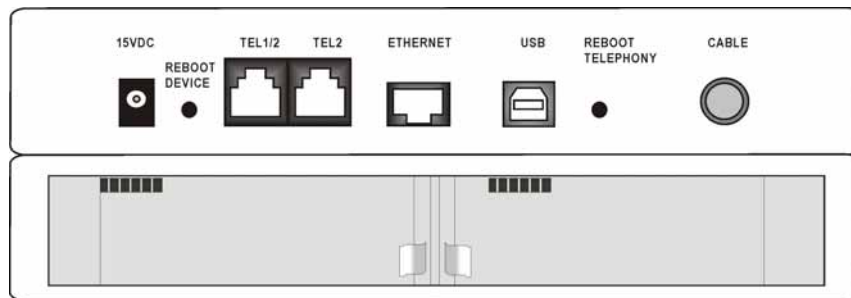
Chapter 1: Connections and Setup

5. Ensure that the wall you use is smooth, flat, dry and sturdy and use the 3 screw holes which both are 101.6mm apart.
6. Fix the screws into the wall, leaving their heads 3 mm (0.12 in.) clear of the wall surface.
7. Remove any connections to the unit and locate it over the screw heads. When in line, gently push the unit on to the wall and move it downwards to secure.
8. Wall mounting orientation: LED panel upper.

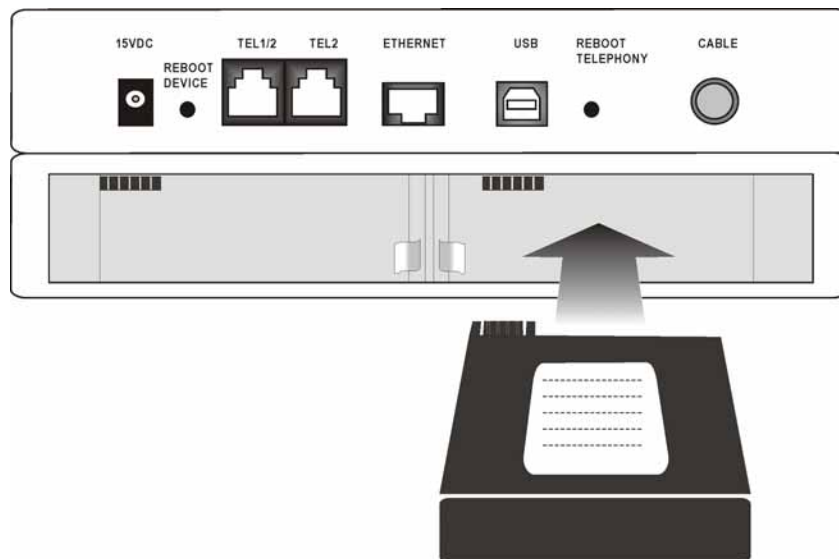
Installing the Battery

This section provides you information of installing batteries into the modem. Follow the steps below:

1. Unplug the power cord of the power adapter from the modem if you have plugged it.
2. Remove the cover of the rear panel. There are two spare drives for you to install the battery.



3. Insert the battery into the rear battery drive with the direction that the following picture shows you.



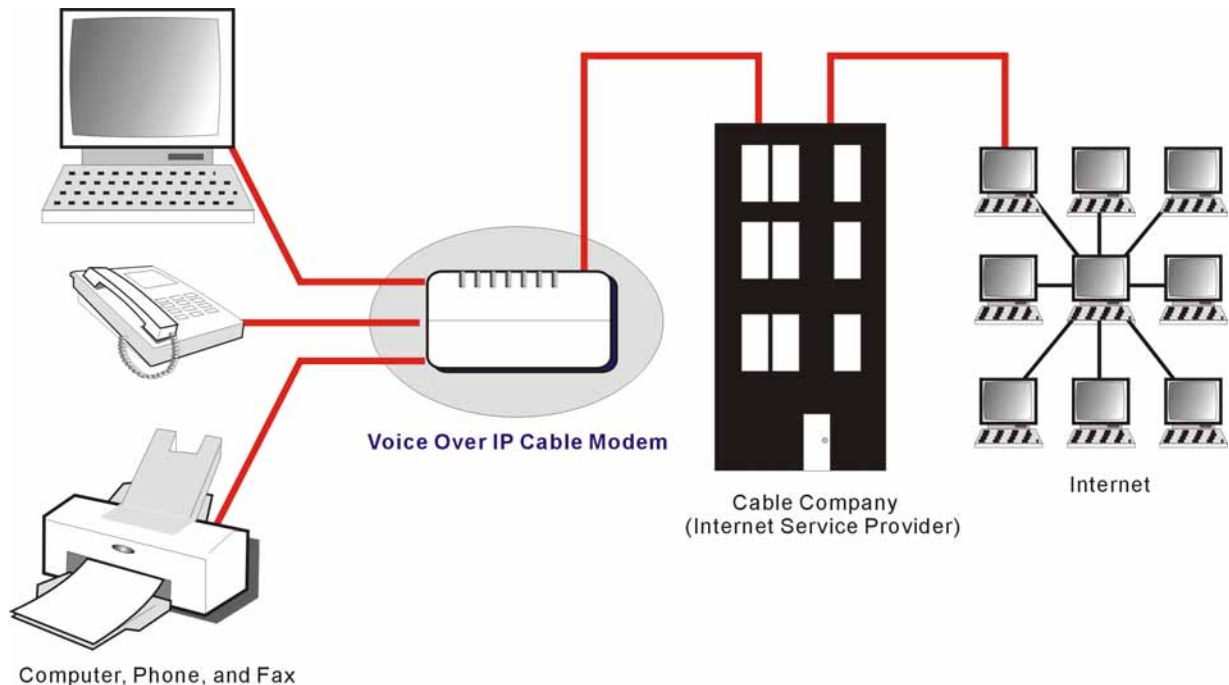
Chapter 1: Connections and Setup

4. Put back the cover of the real panel.
5. Now, the cable modem in on with the power of the battery. It is not necessary for you to use power adapter again.

Chapter 1: Connections and Setup

Relationship Among the Devices

This illustration shows a cable company that offers Euro-DOCSIS/DOCSIS compliant voice/data services.



What the Modem Does

The voice over IP cable modem is a residential voice-enabled cable modem that provides voice and high-speed data services over cable via your Telephony and Internet Service Providers (TSPs/ ISPs). It converts information that originates from the Internet or your computer into electronic messages that can be transported over the same wires your cable company uses to transport video signals. In addition, it converts standard telephone signals to a format that can be reliably transported over the Internet.

What the Modem Needs to Do Its Job

- **The Right Cable Company:** Make sure your local cable company provides data services that use cable TV industry-standard Euro-DOCSIS or DOCSIS compliant technology (THG520 and DOCSIS, only for frequencies between 112-858 MHz).
- **The Internet/Telephony Service Provider (ISP/TSP):** Your cable company provides you access to an Internet Service Provider (ISP) and Telephony Service Provider (TSP). The ISP is your gateway to the Internet and provides you with a pipeline to access Internet content on the World Wide Web (WWW). The TSP provides you with telephony access to other modems or other telephony services over the Public Switched Telephone Network (PSTN).

Check with your cable company to make sure you have everything you need to begin; they'll know if you need to install special software or re-configure your computer to make your cable

Chapter 1: Connections and Setup

internet service work for you.

Contact Your Local Cable Company

You will need to contact your cable company to establish an internet account before you can use your modem. You should have the following information (which you will find on the sticker on the modem) ready:

- The serial number
- The model number of the modem
- The Cable Modem (CM) Media Access Control (MAC) address
- The Media Terminal Adapter (MTA) MAC address

Record your information here: _____



Serial Number: _____

Model Number: _____

CM MAC Address: _____

MTA MAC Address: _____

Chapter 1: Connections and Setup

Please verify the following with the cable company

- The cable service to your home supports Euro-DOCSIS or DOCSIS compliant two-way modem access (note on frequencies for DOCSIS usage on the THG520).
- Your internet account has been set up. (The Media Terminal Adapter will provide data service if the cable account is set up but no telephony service is available.)
- You have a cable outlet near your PC and it is ready for cable modem service.

Note: It is important to supply power to the modem at all times. Keeping your modem plugged in will keep it connected to the Internet. This means that it will always be ready when you are.

Important Information

Your cable company should always be consulted before installing a new cable outlet. Do not attempt any rewiring without contacting your cable company first.

Chapter 1: Connections and Setup

Connecting the Cable Modem to a Single Computer

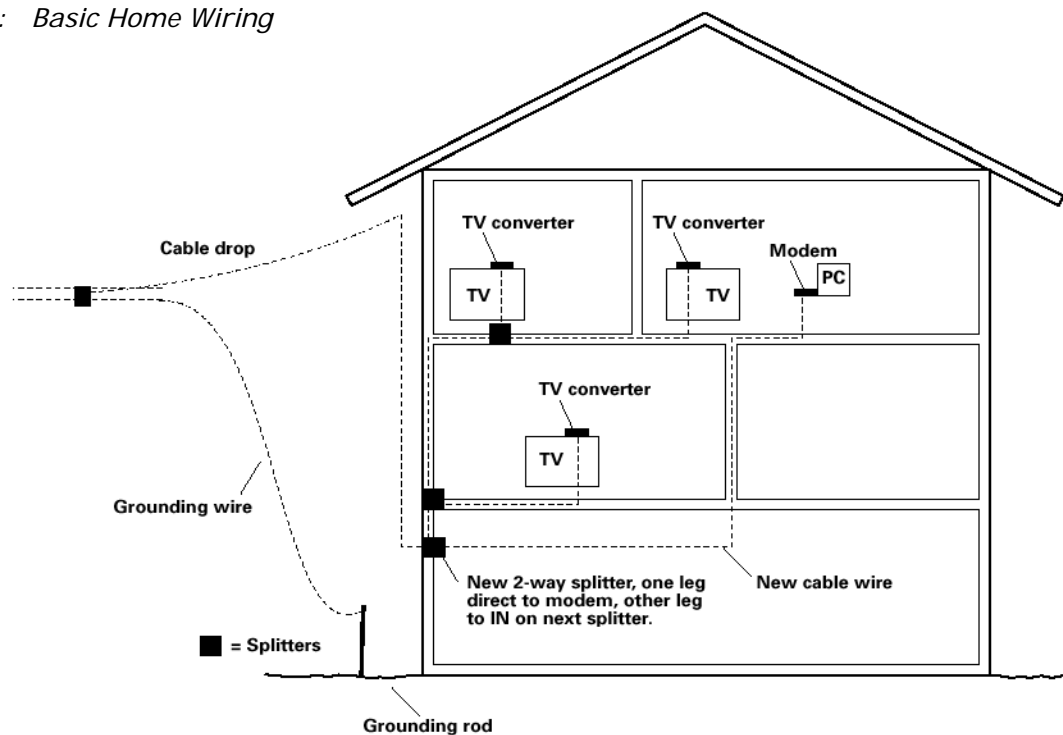
This section of the manual explains how to connect your cable modem to the USB or Ethernet port on your computer and install the necessary software. Please refer to Figure 1 to help you connect your cable modem for the best possible connection.

Attaching the Cable TV Wire to the Cable Modem

1. Locate the Cable TV wire. You may find it one of three ways:
 - a. Connected directly to a TV, a Cable TV converter box, or VCR. The line will be connected to the jack which should be labeled either IN, CABLE IN, CATV, CATV IN, etc.
 - b. Connected to a wall-mounted cable outlet.
 - c. Coming out from under a baseboard heater or other location. See Figure 1 for the wiring example.

Notes: For optimum performance, be sure to connect your cable modem to the first point the cable enters your home. The splitter must be rated for at least 1GHz.

Fig. 1: Basic Home Wiring



Chapter 1: Connections and Setup

Important Connection Information

The cable modem supports Ethernet and USB connections simultaneously.

Below are important points to remember before you connect the Voice Over IP Cable Modem:

- For USB connections, follow the instructions on this page.
- For Ethernet connections, go to page 23.
- For telephone and fax connections, go to page 25.

USB Connection to One Computer

Note: Only use the power supply provided with this unit. Using other power supplies may damage the unit.

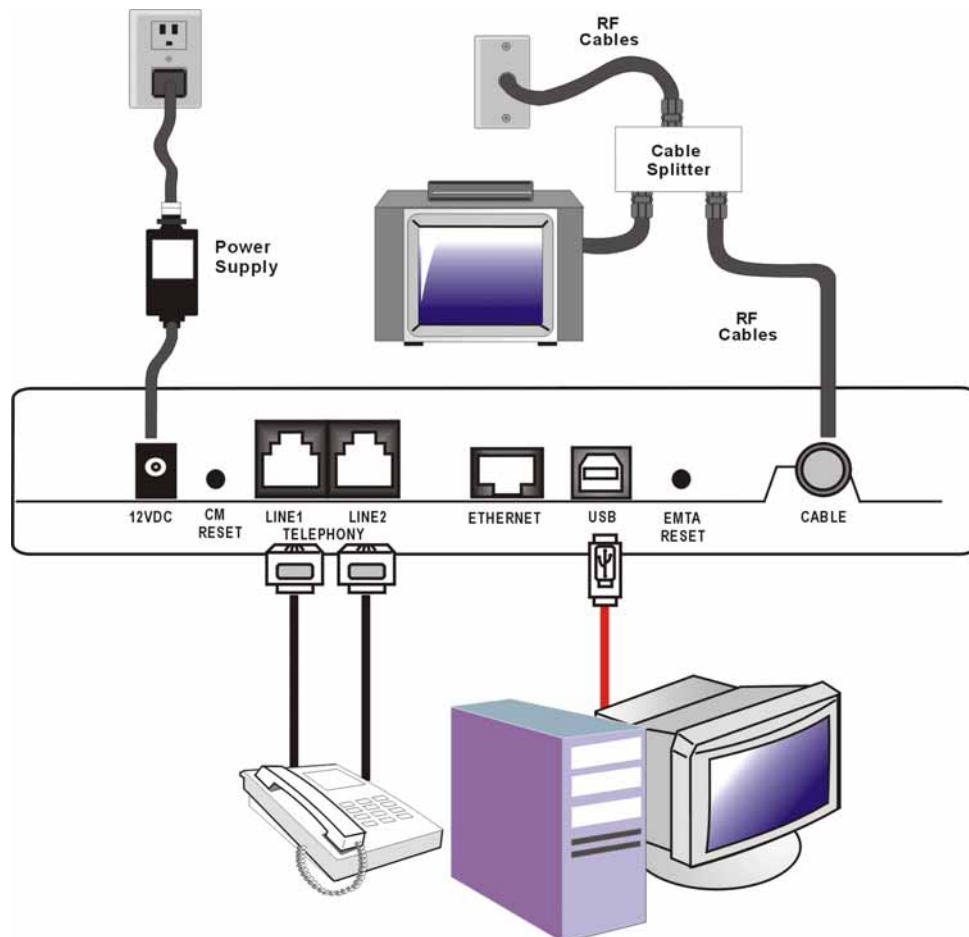


Fig. 2: USB Connection

If you received an Installation/Quick Start kit with the purchase of your modem, you should use the software provided in that kit. If not, the Voice Over IP Cable Modem CD included with your modem contains the drivers, Installation Wizard, and other information you need to install your

Chapter 1: Connections and Setup

Voice Over IP Cable Modem. The Installation Wizard serves as your step-by-step guide to connecting and configuring your Voice Over IP Cable Modem.

1. Instructions must be followed in the order they appear.

1. Before you begin, close all open applications and dialog boxes as they may interfere with your Voice Over IP Cable Modem installation.
2. Insert the supplied Voice Over IP Cable Modem CD-ROM. Wait momentarily for the CD window display.



3. Close **all** open applications and dialog boxes, including the CD window.

Note: Open applications may interfere with your Voice Over IP Cable Modem installation.

4. Connect one end of the USB cable to the USB port located on the back of your computer.
Connect the other end of the USB cable to the USB port on the Voice Over IP Cable Modem.

Note: Use only the power supply that accompanied this unit. Using other power supplies may damage the unit.

Next, you need to install the USB driver for your operating system.

Using Windows 2000 for USB Connection

Follow steps 6 through 14 if you have a Windows 2000 operating system:

5. When the "Found New Hardware Wizard" appears, click "Next" to initiate the search for drivers for your USB device.

Chapter 1: Connections and Setup



Note: If Windows 2000 does not recognize the Voice Over IP Cable Modem's presence, your BIOS settings may not permit USB and/or Plug-and-Play devices. Please contact your computer's customer service department.

6. Choose the "Search for a suitable driver for my device (recommended)" option, and click "Next".

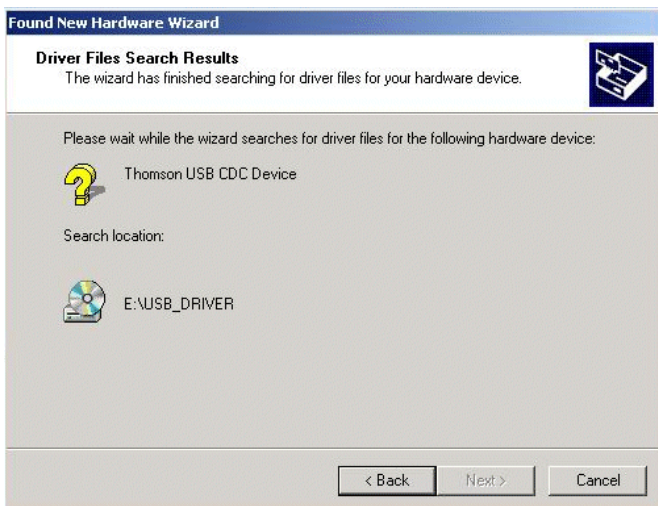


7. Choose **ONLY** the "CD-ROM" option and click "Next".

Chapter 1: Connections and Setup



8. The search should find the driver for the "Thomson USB CDC Devices". To confirm that this is the case, click "Next" to continue and proceed to step 11. Otherwise, see step 10.



Important: Do NOT continue if the search finds "USB Composite Device" driver. Proceed to step 10.

9. Follow these instructions **ONLY** if the driver found was NOT the "Thomson USB CDC Devices."
- Click "Back" to return to the previous window.
 - Ensure that you have selected the "CD-ROM" option.
 - In **addition** to the CD-ROM option, choose "Specify a location." Click on "Next" to continue.
 - In the location box, type in your CD-ROM drive. For example, if your CD-ROM is located on the E: drive, type "E:\." Click on "Ok" to continue.
 - Click "Next" to continue.
 - The search should find "RCA or Thomson USB Cable Modem"
10. Windows should now prompt you to install the "Thomson USB CDC Devices". Click "Next" to install the driver.

Chapter 1: Connections and Setup

At this point your PC needs to copy Windows 2000 specific files. If these files are not located on your hard drive, you may need to insert your Windows 2000 installation media (i.e., Windows 2000 CD-ROM), but first remove the Voice Over IP Cable Modem CD-ROM.

11. After the Windows specific files are copied, you may be asked for another USB driver file named "NETRCACM.SYS," located on the Voice Over IP Cable Modem CD-ROM. Remove the Windows 2000 CD-ROM (if necessary), and reinsert the Voice Over IP Cable Modem CD-ROM that accompanied your Voice Over IP Cable Modem.
12. Click on "Finish" to complete the process.



13. The Voice Over IP Cable Modem installation is now complete. To validate a proper installation, perform the following instructions:
 - A. Click on the "Start" icon in the lower left-hand corner of your screen.
 - B. Select "Settings," followed by "Control Panel." The "Control Panel" window appears.
 - C. Double-click on the "System" icon, select the "Hardware" tab, and choose "Device Manager."
 - D. Scroll down the list until you come to "Network Adapters." Double-click on "Network Adapters."
 - E. The "RCA or Thomson USB Cable Modem" should exist. If the "RCA or Thomson USB Cable Modem" does not exist, the Voice Over IP Cable Modem was **NOT** installed correctly. Please install again.

Using Windows Me for USB Connection

Follow steps 6 through 9 if you have a Windows Me operating system:

6. Windows Me will briefly display the "Found New Hardware Wizard," and automatically proceed to the "Add New Hardware Wizard".
Choose the "Automatic search for a better driver (Recommended)" option, and click "Next."

Chapter 1: Connections and Setup

Note: If Windows Me does not recognize the Voice Over IP Cable Modem's presence, i.e., the "Add New Hardware Wizard" did not automatically appear, your BIOS settings may not permit USB and/or Plug-and-Play devices. Please contact your computer's customer service department.

7. The automatic search should find and install the driver for the "RCA or Thomson USB Cable Modem". Click on "Finish" to complete the process.



8. When the "System Settings Change" window appears, click "Yes" to restart your computer.



9. The Thomson Voice Over IP Cable Modem installation is now complete. To validate a proper installation, perform the following instructions:
 - A. Click on the "Start" icon in the lower left-hand corner of your screen.
 - B. Select "Settings," followed by "Control Panel." The "Control Panel" window will appear.
 - C. Double-click on the "System" icon, and select the "Device Manager."
 - D. Scroll down the list until you come to "Network Adapters." Double-click on "Network Adapters."
 - E. The "RCA or Thomson USB Cable Modem" should exist. If "RCA or Thomson USB Cable Modem" does not exist, the Voice Over IP Cable Modem was **NOT** installed correctly.

Using Windows XP for USB Connection

Follow steps 6 through 9 if you have a Windows XP operating system:

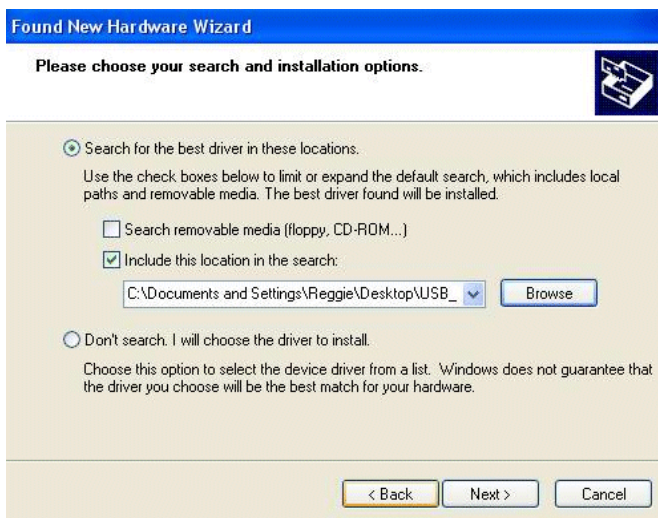
6. Windows XP will briefly display the "Welcome to the Found New Hardware Wizard," and ask you to insert the installation CD-ROM that came with the unit. Choose the "Install the software automatically (Recommended)" option, and click "Next."

Chapter 1: Connections and Setup



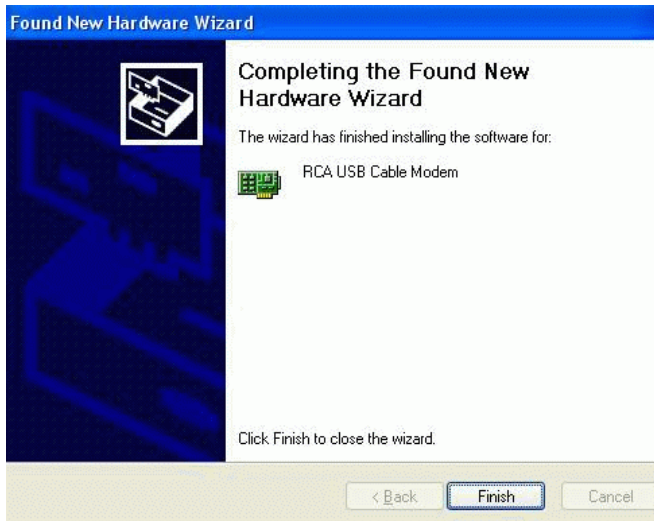
Note: If Windows XP does not recognize the Voice Over IP Cable Modem's presence, i.e., the "Welcome to the New Hardware Wizard" did not automatically appear, your BIOS settings may not permit USB and/or Plug-and-Play devices. Please contact your computer's customer service department.

7. Your computer will install the drivers for the "RCA or Thomson USB Cable Modem". Click on "Next" to complete the process.



8. When the "Completing the Found New Hardware Wizard" window appears, click "Finish" to complete the process.

Chapter 1: Connections and Setup



9. The Voice Over IP Cable Modem installation is now complete. To validate a proper installation, perform the following instructions:
 - A. Click on the "Start" icon in the lower left-hand corner of your screen.
 - B. Select "Settings," followed by "Control Panel." The "Control Panel" window will appear.
 - C. Double-click on the "System" icon, and select the "Device Manager."
 - D. Scroll down the list until you come to "Network Adapters." Double-click on "Network Adapters."
 - E. The "RCA or Thomson USB Cable Modem" should exist. If "RCA or Thomson USB Cable Modem" does not exist, the Voice Over IP Cable Modem was **NOT** installed correctly.

Chapter 1: Connections and Setup

Chapter 1: Connections and Setup

Ethernet Connection to One Computer

Make the connections to the modem in the following sequence:

1. Connect one end of the coaxial cable to the cable connection in the wall, and the other end to the CABLE jack on the cable modem.
2. Connect the plug from the AC power supply into the POWER AC ADAPTER jack on the cable modem, and plug the power supply into an AC outlet.

Note: Use only the power supply that accompanied this unit. Using other adapters may damage the unit.

3. Connect one end of the Ethernet cable (straight-wired, see below) to the Ethernet port on the back of your computer, and the other end to the ETHERNET port on the cable modem.

Make sure that the Ethernet cable is straight-wired (not "null" or crossover-wired). However, you will need a crossover-type cable if you are connecting the modem to a hub, or a hub within a port switch that provides the same function.

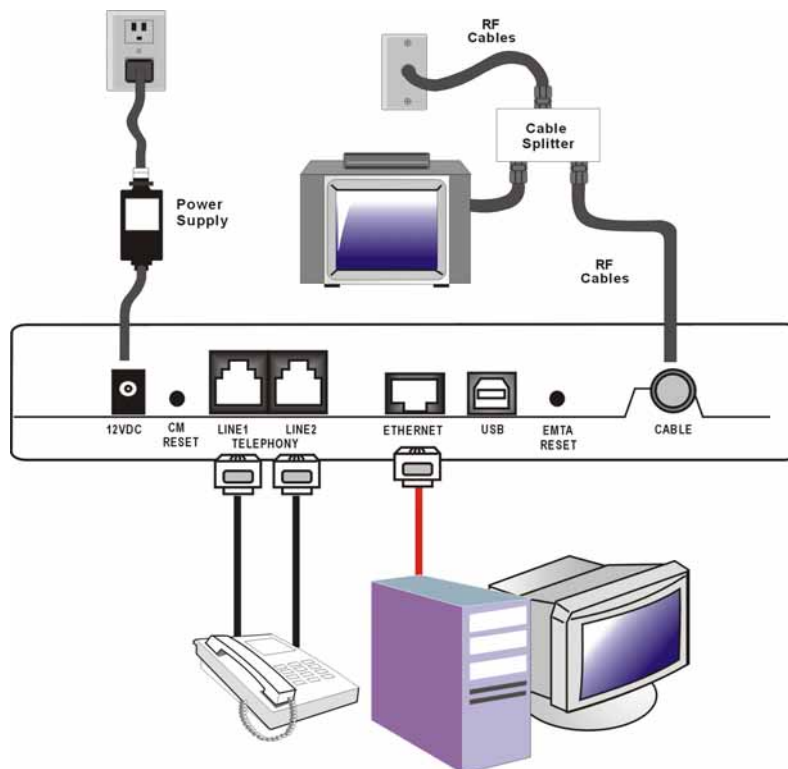


Fig.3: Ethernet Connection

Chapter 1: Connections and Setup

Connecting More Than Two Computers to the Cable Modem

If you need to connect more than two computers or if you need to connect two computers, but USB is not available, you'll need the following additional equipment:

- Crossover-wired, or "null," category 5 Ethernet cable for the cable modem to be connected to the hub
- 10BaseT or 100BaseT Hub or Switch
- Straight through, or standard, category 5 Ethernet cable (one for each computer to be connected)

If you have a hub with an uplink port*, a straight through cable can be used in combination with that port in lieu of the crossover cable.

*An uplink port has a small switch on it to change the polarity of the connection. It can accept either a crossover or a straight cable, depending on the setting.

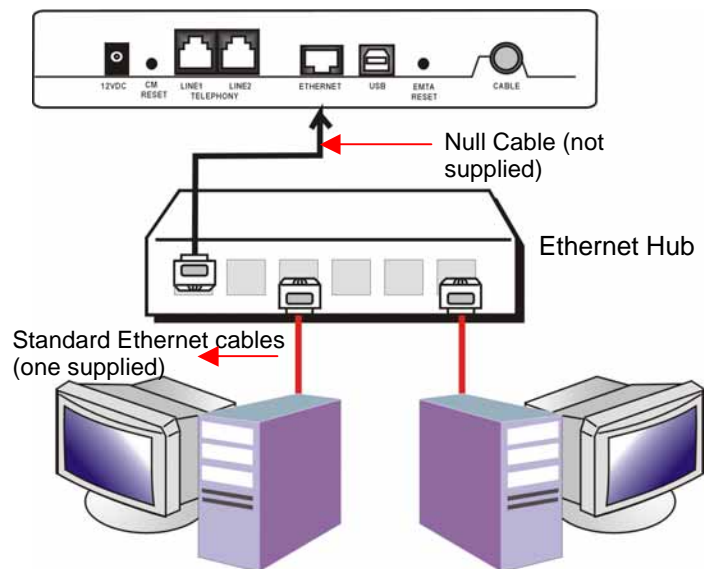


Fig.4: Ethernet Hub Connection

Note: You may need to check with your service provider in order to connect multiple computers.

Chapter 1: Connections and Setup

Telephone or Fax Connection

When properly connected, most telephony devices can be used with the cable modem just as with conventional telephone service. To make a normal telephone call, pick up the handset, listen for a dial tone, then dial the desired number. For services such as call waiting, use the hook switch (or FLASH button) to change calls. The following procedures describe some of the possible connection schemes for using telephony devices with the cable modem.

1. Connect a standard phone line cord directly from the phone (fax machine, answering machine, caller ID box, etc.) to one of the LINE jacks on the cable modem (see Fig. 5).
2. If there is a phone line in your home which is NOT connected to another telephone service provider, connect a standard phone line cord from a jack on this line to one of the LINE jacks of the cable modem. Connect a standard phone line cord directly from the phone (fax machine, answering machine, caller ID box, etc.) to one of the other jacks in the house that uses that line.
3. If you have a multi-line telephone, connect a standard phone line cord (not an RJ-14 type line cord) from the phone to the left RJ-11 jack on the cable modem. (Other phones can be added to each line by using standard phone line splitters.

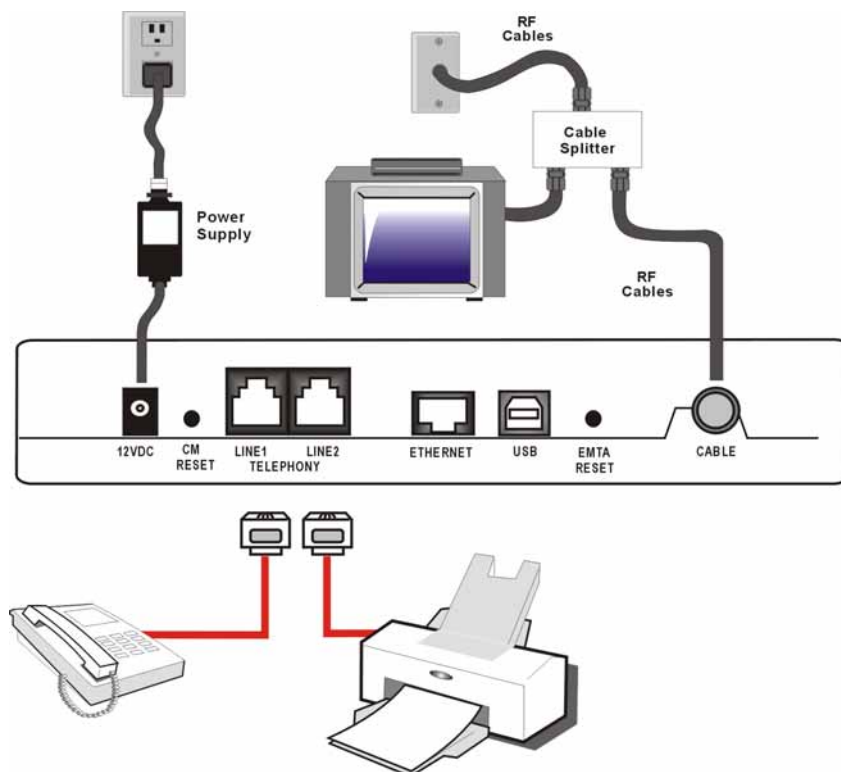


Fig. 5: Phone/Fax Connection

Chapter 1: Connections and Setup

Activating the Cable Modem

After you install the cable modem and turn it on for the first time (and each time the modem is reconnected to the power), it goes through several steps before it can be used. Each of these steps is represented by a different pattern of flashing lights on the front of the modem.

Note: All indicators flash once prior to the initialization sequence.

If all of the lights are flashing sequentially, it means the cable modem is automatically updating its system software. Please wait for the lights to stop flashing. You cannot use your modem during this time. Do not remove the power supply or reset the cable modem during this process.

Chapter 2: Additional Information

Frequently Asked Questions

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

A. If cable TV is available in your area, data and voice service may be made available with or without cable TV service. Contact your local cable company for complete information on cable services, including high-speed internet access.

Q. How do I get the system installed?

A. Professional installation from your cable provider is strongly recommended. They will ensure proper cable connection to the modem and your computer. However, your retailer may have offered a self installation kit, including the necessary software to communicate with your cable ISP.

Q. Once my cable modem is connected, how do I get access to the Internet?

A. Your local cable company provides your internet service*, offering a wide range of services including email, chat, and news and information services, and a connection to the World Wide Web.

Q. Can I watch TV, surf the Internet, and talk to my friends through the cable modem at the same time?

A. Absolutely!

Q. What do you mean by "Broadband?"

A. Simply put, it means you'll be getting information through a "bigger pipe," with more bandwidth, than a standard phone line can offer. A wider, "broader" band means more information, more quickly.

Q. What is DOCSIS and what does it mean?

A. "Data Over Cable Service Interface Specifications" is the industry standard that most cable companies are adopting as they upgrade their systems. Should you ever decide to move, the cable modem will work with all upgraded cable systems that are Euro-DOCSIS-compliant* or DOCSIS**-compliant.

* Only THG520

**The THG520 will only operate in Euro-DOCSIS downstream frequencies .

Chapter 2: Additional Information

Q. What is Euro-DOCSIS and what does it mean?

A. Euro-DOCSIS is the modified DOCSIS standard to accommodate European cable systems, which often use 8 MHz channel spacing cable networks.

Chapter 2: Additional Information

General Troubleshooting

You can correct most problems you have with your product by consulting the troubleshooting list that follows.

I can't access the internet.

- Check all of the connections to your cable modem.
- Your Ethernet card or USB port may not be working. Check each product's documentation for more information.
- The Network Properties of your operating system may not be installed correctly or the settings may be incorrect. Check with your ISP or cable company.

All of the lights are flashing in sequence.

- This means the cable modem is automatically updating its system software. Please wait for the lights to stop flashing. The updating process typically lasts less than one minute.
- Do not remove the power supply or reset the cable modem during this process.

I can't get the modem to establish an Ethernet connection.

- Even new computers don't always have Ethernet capabilities – be sure to verify that your computer has a properly installed Ethernet card and the driver software to support it.
- Check to see that you are using the right type of Ethernet cable.

The modem won't register a cable connection (CABLE LINK light not on continuously).

- If the modem is in Initialization Mode, the INTERNET light will be flashing. Call your Cable company if it has not completed this 5-step process within 30 minutes, and note which step it is getting stuck on. (See page 24 for details.)
- The modem should work with a standard RG-6 coaxial cable, but if you're using a cable other than one your Cable company recommends, or if the terminal connections are loose, it may not work. Check with your Cable company to determine whether you're using the correct cable.
- If you subscribe to video service over cable, the cable signal may not be reaching the modem. Confirm that good quality cable television pictures are available to the coaxial connector you are using by connecting a television to it. If your cable outlet is "dead", call your Cable company.

Chapter 2: Additional Information

- Verify that the cable modem service is Euro-DOCSIS or DOCSIS compliant by calling your cable provider (DOCSIS on the THG520 will only work if the used frequencies are between 112-858 MHz).

I don't hear a dial tone when I use a telephone.

- Telephone service is not activated. If the rightmost light on the cable modem stays on while others flash, check with your TSP or cable company.
- If the cable modem is connected to existing house telephone wiring, make sure that another telephone service is not connected. The other service can normally be disconnected at the Network Interface Device located on the outside of the house.
- If using the second line on a two-line telephone, use a 2-line to 1-line adapter cable.

For more Usage and Troubleshooting Tips use the web site links provided on the CD-ROM:

Chapter 2: Additional Information

FCC Declaration of Conformity and Industry Canada Information

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

Trade Name:	RCA Model: DHG525
Equipment Classification:	Computing Device Accessory
Responsible Party:	Thomson Inc. 10330 N. Meridian Street Indianapolis, IN 46290

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and 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 this equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC regulations state that unauthorized changes or modifications to this equipment may void the user's authority to operate it.

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Service Information

If you purchased or leased your cable modem directly from your cable company, then warranty

Chapter 2: Additional Information

service for the cable modem may be provided through your cable provider or its authorized representative. For information on 1) Ordering Service, 2) Obtaining Customer Support, or 3) Additional Service Information, please contact your cable company. If you purchased your cable modem from a retailer, see the enclosed warranty card.

Chapter 2: Additional Information

Glossary

10BaseT – Unshielded, twisted pair cable with an RJ-45 connector, used with Ethernet LAN (Local Area Network). “10” indicates speed (10 Mbps), “Base” refers to baseband technology, and “T” means twisted pair cable.

Authentication - The process of verifying the identity of an entity on a network.

DHCP (Dynamic Host Control Protocol) – A protocol which allows a server to dynamically assign IP addresses to workstations on the fly.

DOCSIS (Data Over Cable Service Interface Specifications) – A project with the objective of developing a set of necessary specifications and operations support interface specifications for cable modems and associated equipment.

Ethernet card – A plug-in circuit board installed in an expansion slot of a personal computer. The Ethernet card (sometimes called a Network Interface Card or NIC) takes parallel data from the computer, converts it to serial data, puts it into a packet format, and sends it over the 10BaseT or 100BaseT LAN cable.

Euro-DOCSIS – The modified DOCSIS standard to accommodate European cable systems which often use 8 MHz channel spacing cable networks.

F Connector – A type of coaxial connector, labeled CABLE IN on the rear of the cable modem that connects the modem to the cable system.

HTTP (HyperText Transfer Protocol) – Invisible to the user, HTTP is used by servers and clients to communicate and display information on a client browser.

Hub – A device used to connect multiple computers to the cable modem.

IP Address – A unique, 32-bit address assigned to every device in a network. An IP (Internet Protocol) address has two parts: a network address and a host address. This modem receives a new IP address from your cable operator via DHCP each time it goes through Initialization Mode.

Key exchange - The swapping of mathematical values between entities on a network in order to allow encrypted communication between them.

MAC Address – The permanent “identity” for a device programmed into the Media Access Control layer in the network architecture during the modem’s manufacture.

Network Driver – A file that is loaded on the computer to allow the computer to recognize the Ethernet card or USB port.

NID - Network Interface Device, the interconnection between the internal house telephone wiring
Illustrations contained in this document are for representation only.

Chapter 2: Additional Information

and a conventional telephone service provider's equipment. These wiring connections are normally housed in a small plastic box located on an outer wall of the house. It is the legal demarcation between the subscriber's property and the service provider's property.

PacketCable – A project with the objective of developing a set of necessary telephony specifications and operations support interface specifications for cable modems and associated equipment used over the DOCSIS-based cable network.

PSTN (Public Switched Telephone Network) – The worldwide voice telephone network which provides dial tone, ringing, full-duplex voice band audio and optional services using standard telephones.

Provisioning - The process of enabling the Media Terminal Adapter (MTA) to register and provide services over the network.

TCP/IP (Transmission Control Protocol/Internet Protocol) – A networking protocol that provides communication across interconnected networks, between computers with diverse hardware architectures and various operating systems.

TFTP - Trivial File Transfer Protocol, the system by which the Media Terminal Adapter's configuration data file is downloaded.

TSP - Telephony Service Provider, an organization that provides telephone services such as dial tone, local service, long distance, billing and records, and maintenance.

Universal Serial Bus (USB) – USB is a "plug-and-play" interface between a computer and add-on devices, such as a cable modem.

Please do not send any products to the Indianapolis address listed in this manual or on the carton. This will only add delays in service for your product.

Thomson Inc.

10330 North Meridian Street

Indianapolis, IN 46290

© 2005 Thomson Inc.

Trademark(s) Registered

Marca(s) Registrada(s)

Printed in China

Part No. 5207-006270

