

HIGH Speed SURFING

User Manual



*SM 200
Modular Cable Modem*

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1 Overview

This chapter provides an introduction to using HighSpeed Surfing's SM 200 modular cable modem. The modem is a certified DOCSIS 1.0 modem, which will work in any cable system supporting this standard. In addition, the modem is software upgradeable to the DOCSIS 1.1 standard.

This manual is divided into the following sections:

Chapter 1: Overview

Chapter 2. Introduction

Welcome to the world of high-speed data (broadband).

1. General Information
2. Getting more information
3. What's on the CD-ROM

Chapter 3: Before You Begin

Provides preliminary information needed to understand your product's installation. We recommend reading this chapter for instructions on how to make the most of your new cable modem.

Chapter 4: Set up Your Cable Modem

Instructions for installing the cable modem and connecting the cable network to your personal computer.

1. Connecting the coaxial cable
2. Connecting to AC power
3. Connecting the Modem via USB port
4. Connecting the Modem via Ethernet port (RJ45)

Chapter 5: USB Driver Software Installation

Instructions for installing the cable modem and using the Universal Serial Bus (USB) port.

- a. Windows 98 / ME
- b. Windows 2000
- c. WindowsXP

Chapter 6: Cable Modem LED Operation

Provides operating instructions for using your new HighSpeed Surfing Cable modem.

Chapter 7: Appendix A: Specifications

Provides the specifications for the cable modem.

Chapter 8: Appendix B: FCC Statement

2 Introduction

Congratulations on selecting HighSpeed Surfing's SM 200 modular cable modem.

Your SM 200 is a true cable modem (MODulator-DEModulator) that connects to your PC or Ethernet LAN to the Internet and to other multimedia services and networks through your cable TV network at a high-speed transfer rate. Your SM 200 not only frees up your telephone lines but gives you unprecedented transmission speeds for accessing the Internet, the World Wide Web, interactive communications, e-mail, file transfers, and data downloads and uploads. Depending on your cable service's performance, your SM 200 will provide downstream (receiving) and upstream (sending) data speeds up to 50 times faster than the fastest 56kbps dial-up (telephone) modem. Since the cable modem is always on, you can access the Internet and your e-mail anytime

Innovative Modular Design

The SM 200 is a modular system that allows you to add additional functionality by purchasing snap-on modules. Check with your local cable company or broadband service provider for available modules. You can also check our web site at www.HighSpeedSurfing.com

2.1 General Description

This is a complete DOCSIS 1.0 compliant cable modem product and works with all existing DOCSIS 1.0 compliant headend equipment and networks. Please confirm that your cable provider supports this standard.

The HighSpeed Surfing cable modem is a device that allows you to connect the cable TV network to your computer using either a 10/100Mbps Ethernet or the USB port inside your personal computer.

2.2 Getting More Information

If you experience problems with your cable modem, please contact your local cable provider for assistance.

2.3 What's on the CD-ROM

1. Adobe Acrobat Reader. This is required to open the Quick Installation Guide, Manual, and Warranty. (If you already have the Reader installed on your computer, you do not need to install it again.)
2. Quick Installation Guide
3. Installation Software – REQUIRED FOR USB INSTALLATION (OPTION 1)
4. Warranty
5. Manual

3 Before You Begin

The following instructions are for **SELF-INSTALLATION** of your **SM 200 Cable Modem**. Before installing your cable modem, please read the following sections of this chapter:

- System Requirements
- Safety Precautions
- Unpacking and Inspection
- Operational and Environmental Specifications
- Important Cable Company Information

3.1 Recommended System Requirements:

- If doing an Ethernet installation
 - Windows 95SE, 98, Me, NT 4.0, 2000, Macintosh or other workstation that supports TCP/IP protocol
 - 10/100 Base-T Ethernet adapter
 - Ethernet cable (provided)
 - Microsoft TCP/IP protocol installed
- If doing a USB installation
 - Windows 98,/Me /2000/XP
 - Macintosh users: Mac OS is currently not supported for USB installation.
- CD-ROM drive

3.2 Safety Precautions

For your protection, observe the following safety precautions when setting up and using your equipment. Failure to observe these precautions can result in serious personal injury and damage to your equipment.

- Make sure the voltages and frequency of the power outlet match the electrical rating labels on the AC adapter.
- DO NOT place objects on top of the cable modem or force it into a confined space.
- Never push objects of any kind through openings in the casing. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electrical shock, or damage to the equipment.
- When installing the modem, be sure to observe the anti-static caution in the installation section of this user guide. This will prevent damage to the board and other components.
- When there is danger of lightning, disconnect the power cable and the cable network from the modem to prevent damage to the unit. The use of an AC

protection device will not completely protect the cable modem product from damage caused from the transmission across the cable TV network.

3.3 Unpacking and Inspection

The following items are included in this kit:

- Cable Modem
- AC Adapter
- User Guide
- Ethernet Cable
- USB Cable
- USB Driver CD-ROM

If any items are missing or damaged, please contact your local cable provider.

3.4 Operational Environment System Requirements

3.5 Important Cable Company Information

Before installing your SM 200 cable modem, you must first establish an Internet account with your local cable provider. Your cable provider will need the following information about the modem to set-up your account:

1. The Serial Number: _____
2. The MAC Address: _____
3. The Model Number: SM 200

This information is located on the bottom of your modem.

Note: Your SM 200 cable modem is DOCSIS compliant and should work with all cable companies that support this standard.

4 Set Up Your Cable Modem

This chapter describes the proper steps for self-installing your new cable modem. Please be sure to follow the steps in the sequence outlined below. Failure to do so could result in improper operation or failure of your cable modem.

There are 2 (two) ways to connect the cable modem to your computer. Before proceeding you will need to decide which method to use.

Deciding Which Network Connector to Use

The DOCSIS 1.0 cable modem allows you to connect to the Internet using either the USB port or the Ethernet port. Be sure to follow the instructions provided for the port that you want to use.

CAUTION 1: Deciding Which Installation Process to Use on Your Computer:

Do not attempt to connect the Ethernet and USB cable to the same computer at the same time from the same modem.

CAUTION 2: Connecting to More Than One Computer Device:

This cable modem provides you the feature for Ethernet and USB interfaces to operate on 2 different computer devices simultaneously.

However, you have to obtain additional IP addresses from your cable service provider.

OPTION 1: USB Port (Windows only)

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

OPTION 2: Ethernet Port (Windows and Macintosh)

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

Step 1: Connecting the Coaxial Cable

Connect the coaxial cable to the F-connector in the back of the cable modem as illustrated in Figure 1. Confirm that the center conductor of the coaxial cable is inserted directly into the center of the F-connector. Secure the coaxial cable by carefully turning the outer shell of the coaxial cable connector onto the F-connector in a clockwise direction until tight. Be careful not to over-tighten.

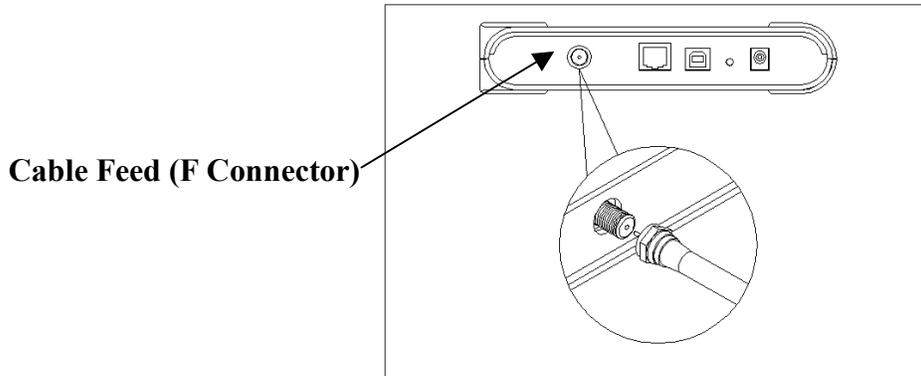
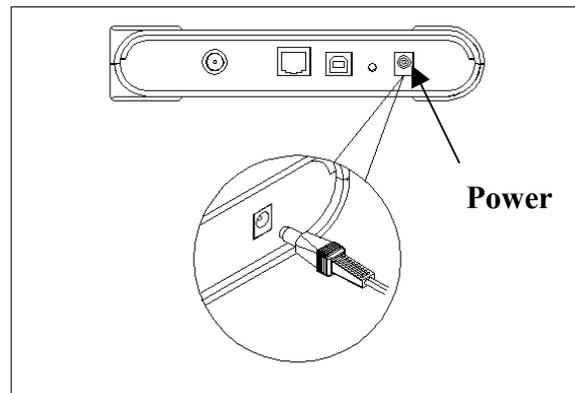


Figure 1. Connecting the Coaxial Cable

Step 2: Connecting the AC Power

Connect the AC adapter to the cable modem by plugging the barrel-shaped connector into the mating power connector in the back of the cable modem as illustrated in Figure 2. Be careful that the connectors are properly aligned prior to insertion and ensure the plug is fully inserted. The cable modem is shipped with an AC adapter which supplies 9 VDC @ 1.5A. The +9 V is on the center connector, and ground is on the outer connector.



Step 3: Connecting the Cable Modem Using OPTION 1 - USB

- A) To connect your computer to the cable modem using the USB port, connect the USB cable to the cable modem by inserting the square end of an USB cable into the USB port of the cable modem as illustrated in Figure 3b. Ensure that the connectors are locked together by listening for a snap. Insert the other end of the cable into the USB port on your computer.
- B) Install the USB Driver software from the enclosed CD-ROM on your computer, please refer to Section 5.

USB Port 10/100Mbps

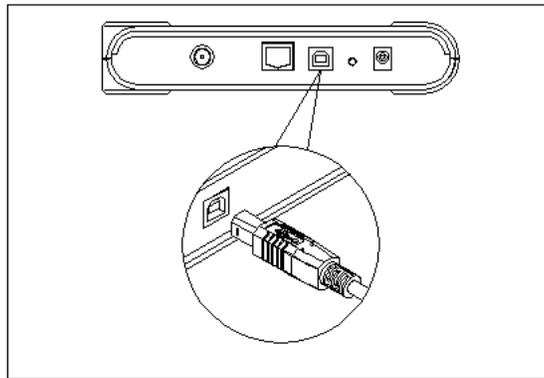


Figure 3a. Connecting the USB Cable

Step 4: Connecting the Cable Modem Using OPTION 2 – Ethernet (RJ45)
(Computer must have an Ethernet adapter installed and TCP/IP protocol installed)

1. Make sure you have installed the coaxial cable from the wall into the back of your SM 200 cable modem (See Figure 1).
2. Plug the AC power cord into the modem (See Figure 2).
3. Connect one end of the RJ45 connector to the modem (see Figure 3b.) and the other end to your computer's Ethernet port.
4. Configure the network settings as directed by your cable provider. These settings will be unique to each cable provider.

Connecting to a Network Interface Card (NIC) 10/100 Mbps

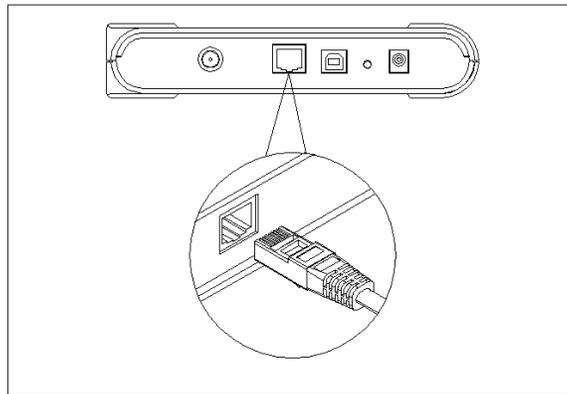


Figure 3b. Connecting the Ethernet Cable

Congratulations! You have successfully set up your new SM 200 cable modem.

5 USB Driver Software Installation

If you have connected the cable modem to your computer using the USB cable, use the following instructions to complete the installation of the modem.

Using USB with the Windows 98/Me Operating System

1. Connect the USB Cable from PC to cable modem
2. The cable modem may reboot if you previously connected it through the Ethernet port.
3. Wait until the cable modem registers and the cable LED is steady. It will take from 40 seconds to 4 minutes depending on network traffic.
4. Windows will prompt when it has found new hardware. Click "Next"



5. Click "Search for the best driver for your device" then "Next"



6. Insert the driver disc and click "Next".



7. Windows will locate the driver automatically. Click "The update driver" then "Next"



8. Windows finds the driver file, click "Next"



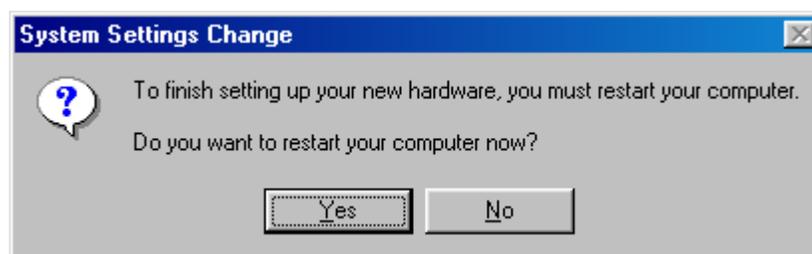
9. Please insert the Windows 98 CD-ROM and click "OK"



10. Windows will install the USB driver. Click "Finish" and Windows will request that you reboot the machine.



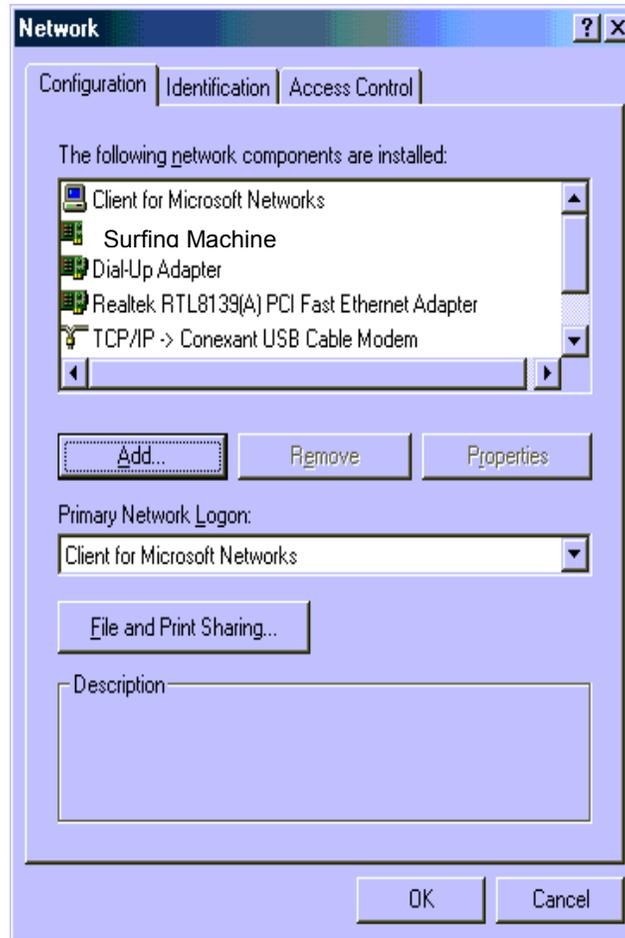
11. Please reboot your PC, click "Yes" to complete the driver installation



Congratulations! You have successfully set up your new SM 200 cable modem.

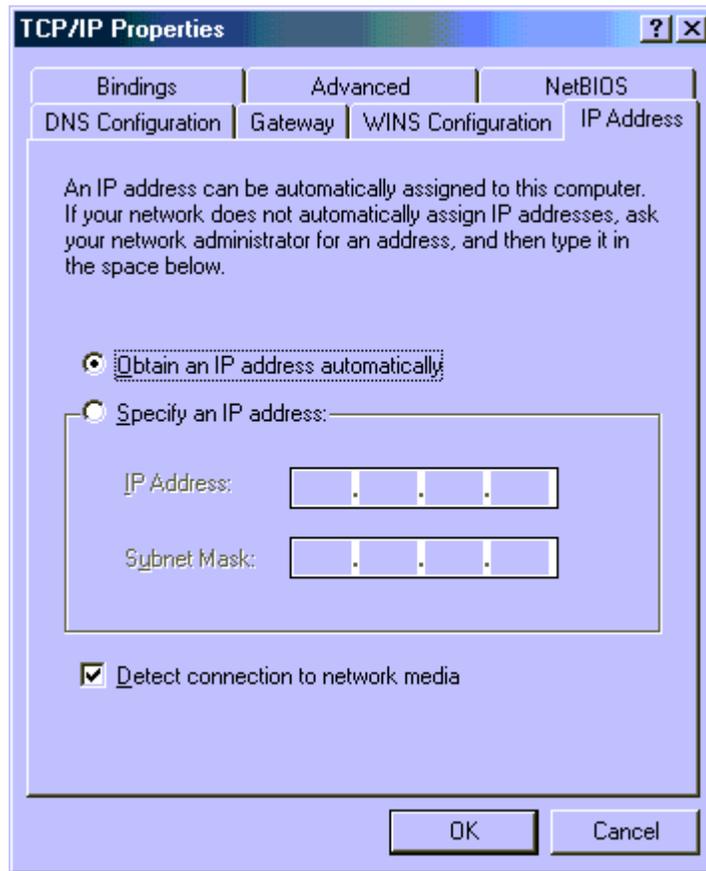
Checking the USB Installation (Windows 98)

1. Click Network on Control Panel to confirm that the USB cable modem has been installed.



2. Double click TCP/IP -> Surfing Machine.

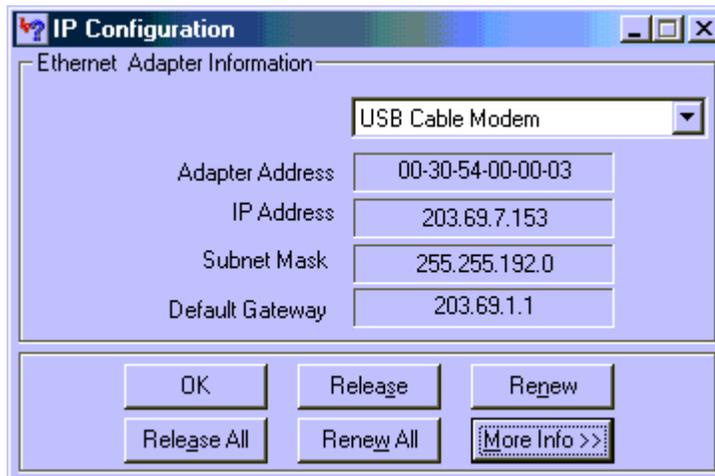
2. Click the IP Address TAB; choose Obtain an IP address automatically.



4. For Windows 98/Me, On the Windows desktop, click “Start”.
5. Select “Run”.
6. Type winipcfg and Click “OK”.



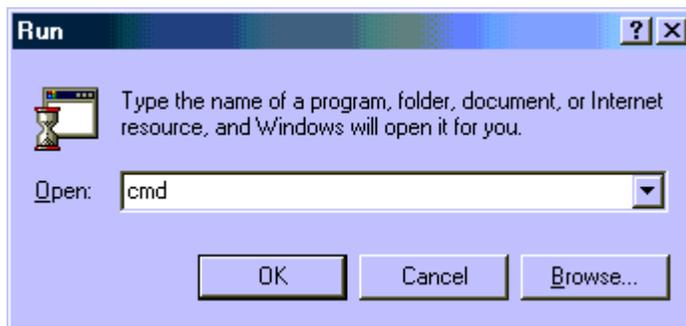
7. Select your adapter name- USB cable modem.



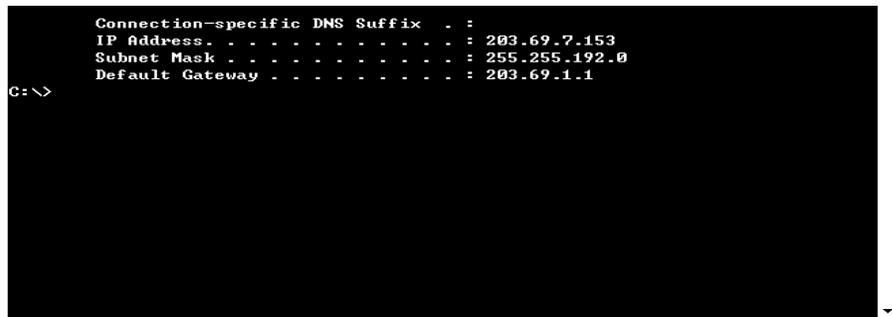
8. Click “Renew”. If you don’t receive an IP address.

9. Please note if you use Windows NT/2000, click “Start”, “Run”, on the Windows desktop.

10. Type **cmd** and click ”OK”



11. Type **ipconfig** and press “Enter”.



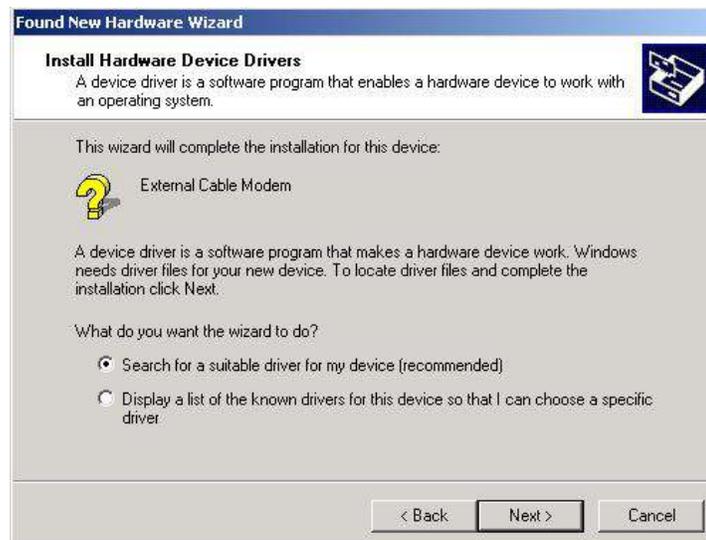
12. Type **ipconfig /renew** if you do not receive an IP address

Using the USB port with Windows 2000:

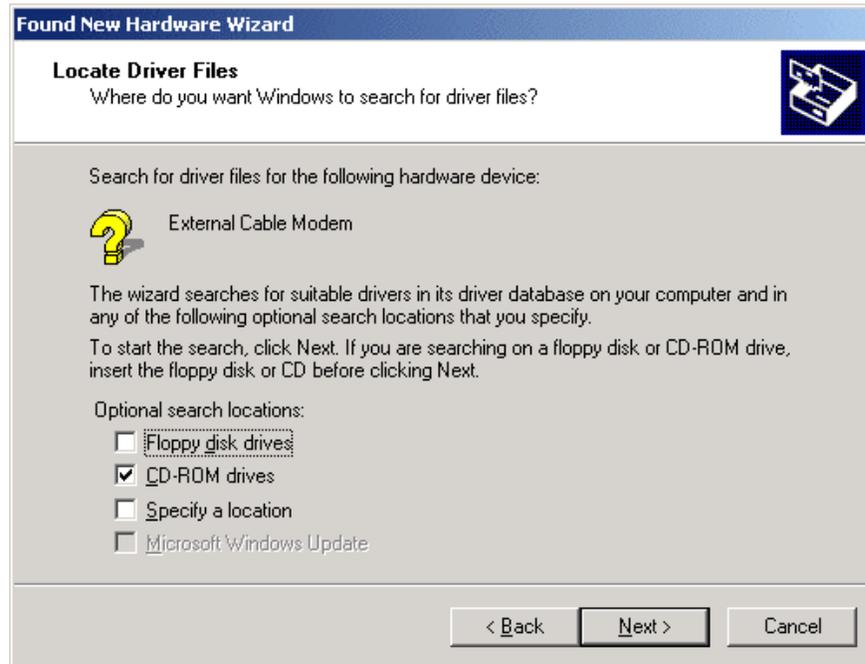
1. Connect USB cable from PC to Cable Modem
2. Make sure that the RF (coax) cable and the AC Power cord are plugged in to the modem. Wait until Cable Modem register and Cable LED light steadily, it will take from 40 seconds to 4 minutes depending on Network traffic. The Cable Modem may reboot if you previously connect it through the Ethernet port Cable Modem may reboot if you previously connect it through Ethernet port
3. Windows will prompt new hardware found, click "Next"



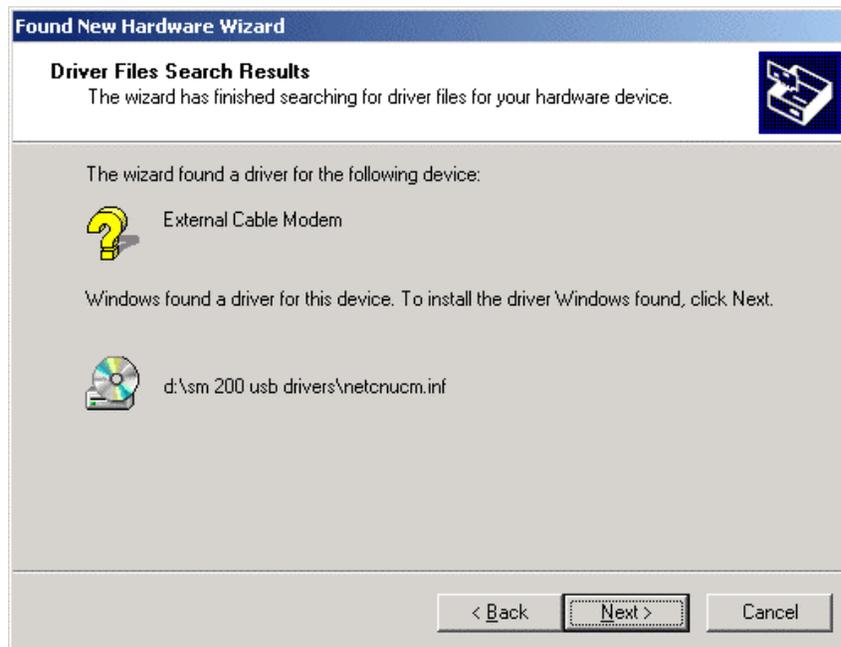
4. Insert the Driver CD-ROM
5. Click "Search for a suitable driver." then "Next"



6. Windows will locate the driver automatically, select "CD-ROM" then "Next"



7. Windows finds the driver file, click "Next".



8. After windows install the USB driver. Click "Finish" and Windows will ask for reboot



Checking the USB Installation (Windows 2000)

To confirm that your installation has been completed successfully, perform the following steps:

- 1) Click the following: "Start" then "Settings" then "Control Panel".
- 2) After the "Control Panel" window appears, double click the "System" icon. Then select the "Hardware" tab and choose "Device Manager".
- 3) Scroll down the list of devices until you come to "Network Adapters" You may need to click on the "+" symbol to reveal the underlying items.
- 4) The "Surfing Machine" driver should be listed. If you do not see it, your cable modem driver was not installed correctly. Please repeat the USB driver installation.

Congratulations! You have successfully set up your new SM 200 cable modem.

Using USB Port with WindowsXP

- 1) Connect USB cable from Cable Modem to computer.
- 2) Make sure that the RF (coax) cable and the AC Power cord is plugged in to the modem. Wait until Cable Modem register and Cable LED light steadily, it will take from 40 seconds to 4 minutes depending on Network traffic. The Cable Modem may reboot if you previously connect it through the Ethernet port
- 3) Windows will prompt new hardware found, click "Next"



4) After inserting the Driver CD-ROM, the following screen will appear:



5) Press "Continue Anyway". Despite the warning, the USB driver you are installing has been tested and is compatible with the WindowsXP operating system.

6) WindowsXP should automatically find the correct driver from the CD-ROM. Or, you can manually browse to your CD-ROM drive and select the folder called "SM 200 USB Drivers".

7) After Windows install the USB driver. Click "Finish" and Windows will ask for a reboot





Checking the USB Installation (WindowsXP)

To confirm that your installation has been completed successfully, perform the following steps:

1. Click the following: "Start" then "Settings" then "Control Panel".
2. After the "Control Panel" window appears, double click the "System" icon. Then select the "Hardware" tab and choose "Device Manager".
3. Scroll down the list of devices until you come to "Network Adapters" You may need to click on the "+" symbol to reveal the underlying items.
4. The "Surfing Machine" driver should be listed. If you do not see it, your cable modem driver was not installed correctly. Please repeat the USB driver installation.

Congratulations! You have successfully set up your new SM 200 cable modem.

6 Cable Modem LED Operation

There are no user controls on your cable modem. To operate, simply apply power to the unit by inserting the AC adapter to an outlet. Connecting the AC adapter to an AC protection circuit is always recommended.

Your cable modem provides status information to the user. Five (5) light emitting diodes (LEDs) located on the front panel provide this information as detailed in Table 1.

Table 1. LED Indicators

NAME	COLOR	MODE	STATUS
Power	Red	On	O.K.
Cable	Green	On	Ready
		Blinking	Not Ready
LAN	Green	On (RJ45 port only)	LAN indicates the status of the modem's connection to your computer. This LED is steady green when a functional LAN connection (Ethernet) is detected.
RX	Green	Blinking	The RX Light flickering On and Off indicates that the cable network is successfully receiving data.
TX	Green	Blinking	The TX Light flickering On and Off indicates that the cable network is successfully transmitting data.

SM 200 Indicator Lights



Appendix A: Specifications

Table 2. RF Downstream Specification

PARAMETER	VALUE	NOTES
Center Frequency	91 MHz to 857 MHz +/- 30 kHz	
Level Range	-15 dBm V to +15 dBm V	One channel
Symbol Rate	5.056941 Msym/sec 5.360537 Msym/sec	64 QAM 256 QAM
Bandwidth	6 MHz	
Total Input Power	<30 dBm V	
Input Impedance	75 Ohms	
Input Return Loss	>6 dB	88 MHz to 860 MHz

Table 3. RF Upstream Specification

PARAMETER	VALUE	NOTES
Frequency	5 MHz to 42 MHz	Edge to edge
Level Range	+8 to +55 dBm V +8 to +58 dBm V	16QAM QPSK
Modulation	QPSK and 16 QAM	
Symbol Rate	160, 320, 640, 1280, and 2560 Kbs	
Bandwidth	200, 400, 800, 1600, and 3200 KHz	At edges
Output Impedance	75 Ohms	
Output Return Loss	>6 dB	5 MHz to 42 MHz

Table 4. Electrical Specifications

PARAMETER	MEASURED VALUE	NOTES
Supply voltage	9 VDC	
Current consumption	1.5 A Normal mode	Normal mode

Table 5. Physical Specifications

PARAMETER	MEASURED VALUE	NOTES
Size	202mm (L) x 171mm (W) x 50 mm (H)	
Weight		

Table 6. Environmental Specifications

PARAMETER	VALUE	NOTES
Operating Temperature	0 ° C to +40 ° C	
Operating Relative Humidity	10% to 90%	Non-condensing
Operating Altitude	-100 to +7,000 feet	
Storage Temperature	-10 ° C to +60 ° C	

7 Appendix B: FCC Statement

This SM 200 cable modem complies with Class B Part 15 of the FCC Rules. The device generates, uses and can radiate radio frequency energy. This cable modem must be installed and used as instructed or harmful interference to radio communication may occur. Only shielded USB and coaxial cables are to be used with this device in order to ensure compliance with FCC emissions limits. Accessories connected to this device by the user must comply with FCC Class B limits. The manufacturer is not responsible for any interference which results from use of improper cables, or which results from unauthorized changes or modifications to the device.

"A Minimum 26 AWG Line Core should be used for connection to the cable modem"