

SURFboard® Cable Modem

SB2100

User Guide



GI General Instrument®

REGULATORY INFORMATION

Federal Communications Commission Radio and Television Interface Statement for a Class 'B' Device

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 the 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 the 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 to correct the interference by one of the following measures:

- Increase the separation between the equipment and the effected receiver
- Connect the equipment on a circuit different from the one the receiver is on
- Ensure that the cover plate for the security card is secured and tight

You may find the following booklet, prepared by the Federal Communication Commission, helpful:

How to Identify and Resolve Radio-TV Interference Problems

Stock No. 004-000-0342-4,
U.S. Government Printing Office
Washington, DC 20402

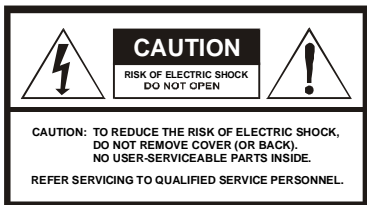
Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



This product was FCC certified under test conditions that included the use of the supplied cable between system components. To be in compliance with FCC regulation, the user must use this cable and install it properly.

Declaration of Conformity

According to 47CFR, Parts 2 and 15 for Class B Personal Computers and Peripherals; and/or CPU Boards and Power Supplies used with Class B Personal Computers, General Instrument, 6450 Sequence Drive, San Diego, CA 92121, declares under sole responsibility that the product identifies with 47CFR Part 2 and 15 of the FCC Rules as a Class B digital device. Each product marketed is identical to the representative unit tested and founded to be compliant with the standards. Records maintained continue to reflect the equipment being produced can be expected to be within the variation accepted, due to quantity production and testing on a statistical basis as required by 47CFR 2.909. Operation is subject to the following condition: This device must accept any interference received, including interference that may cause undesired operation. The above named party is responsible for ensuring that the equipment complies with the standards of 47CFR, Paragraph 15.101 to 15.109. The Class B digital apparatus meets all requirements of the Canadian Interface Causing Equipment Regulations.



Graphical symbols and supplemental warning marking locations on bottom of terminal.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

TO PREVENT ELECTRICAL SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE, OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CANADIAN COMPLIANCE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

REPAIRS

If repair is necessary, contact your cable TV service provider.

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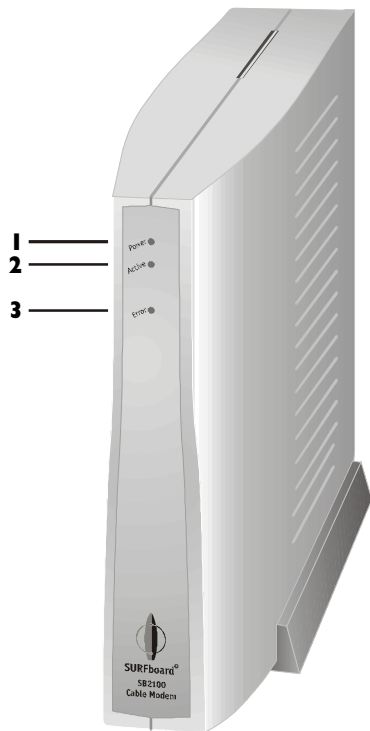
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INTRODUCTION



The General Instrument SURFboard® SB2100 cable modem enables you to connect your home or business computer to a DOCSIS-compliant data network. It provides high-speed access to the Internet and other online services. The SB2100 transmits and receives data at much higher speeds than traditional telephone or ISDN modems.

Unlike a telephone modem, the SB2100 is always online. Just open your browser and surf.



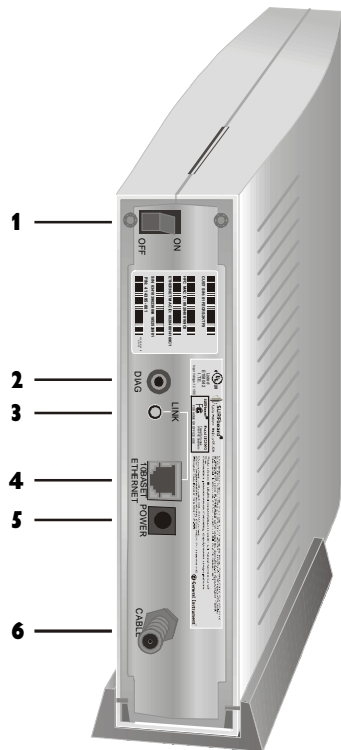
Front Panel

The three front-panel lights provide information about power, communications, and errors.

	Light	Color	Description
1	Power	Green	When the light is on, the modem is on.
2	Active	Amber	When the light is blinking, data is being transmitted over the Ethernet cable.
3	Error	Red	When the light is on, the modem is in an error condition or going through a start up procedure.

Rear Panel

The rear panel provides an Ethernet link status light, the power ON/OFF switch and all the connectors.



	Item	Description
1	ON/OFF	This is the power switch.
2	DIAG	This port is used by the service provider.
3	LINK	When the light is on, the Ethernet connection is available.
4	10BASET ETHERNET	This port transfers data to and from your computer.
5	POWER	This connector provides power to the SB2100.
6	CABLE	This port transfers data to and from the service provider.

BEFORE YOU BEGIN

Before you begin the installation, check that you received:

Power adapter with cord

Required to connect the cable modem to the electrical outlet.

One 10Base-T Ethernet cable

Required to connect your computer to the cable modem.

You need to purchase a 75-ohm coaxial cable with F-type connectors for connecting your SB2100 to the nearest cable outlet. If you have a TV set attached to the cable outlet, you may need a 5-900 MHz splitter to use both the TV and the cable modem.

BEFORE YOU BEGIN



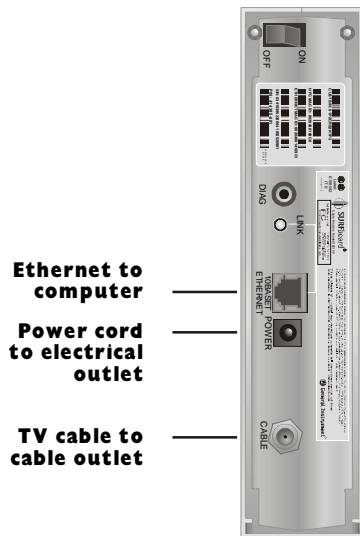
NOTE

The Ethernet card must be installed before the SB2100. If it isn't, follow the installation instructions that came with your Ethernet card.

To use the SB2100 with your computer system, you need the following:

Service Provider	You must sign up with your local cable TV service provider who provides access to the Internet and other online services.
Computer	Your computer must support Ethernet and the TCP/IP protocol to access the SB2100. The SB2100 is compatible with Microsoft [®] , Macintosh [®] , and UNIX [®] operating systems. You don't need special software to operate the SB2100.
Ethernet card	Any standard 10Base-T Ethernet card operates with the SB2100. Your computer must be configured for TCP/IP and have an IP address for the SB2100 to operate. Your service provider furnishes the IP address.
HTML Browser	Any standard HTML (web) browser works with the SB2100.

INSTALLATION

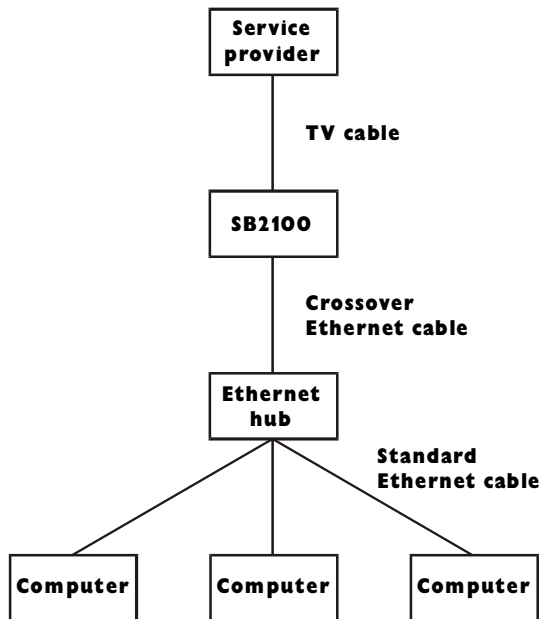


You must call your service provider to activate your service. You need to provide the media access control (MAC) address. This address is found on the barcode label marked HFC MAC ID on the rear panel. The address format is 00:20:40:00:00:00.

The installation of the SB2100 can be completed in a matter of minutes. After you attach the three cables, you must configure your computer.

For a Single User

- 1** Check that the power switch is in the OFF position.
- 2** Connect the coaxial TV cable to the SB2100 connector marked CABLE and the other end to the cable outlet or splitter. *Hand-tighten the connectors to avoid damaging them.* You may need a 5-900 MHz splitter if you have a TV connected to the cable outlet.
- 3** Connect the 10Base-T Ethernet cable to the SB2100 connector marked 10BASET ETHERNET and the other end to the Ethernet jack on the back of your computer.
- 4** Plug the power cord into the cable modem connector marked POWER and connect the power adapter to the electrical outlet.



For Multiple Users

The SB2100 can easily serve as a gateway to the Internet for up to 32 users. The users must be on the LAN and the SB2100 must be attached to the LAN and the cable system.

The network administrator at your service provider configures your modem for multiple users.



NOTE

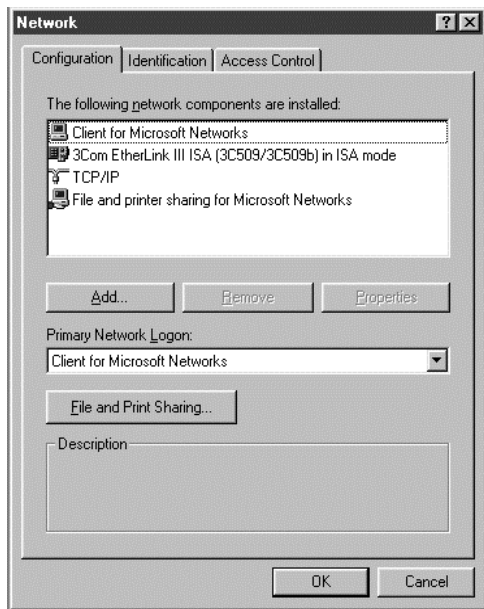
To turn on your SB2100, simply toggle the power switch on the rear panel to ON. It is not necessary to turn it off when not in use.

Powering Up the First Time

After you attach the cables to the SB2100, you must power up the SB2100. Powering up the SB2100 may take 5 to 30 minutes the first time because it must find and lock on the appropriate channels for communications. To power up:

- 1** Be sure that your computer is on and cable modem is OFF.
- 2** Turn the cable modem ON and notice that the lights on the front panel cycle through this sequence:
 - All three lights come on for several seconds.
 - The Error light and the Active light blink together several times and then stop.
 - The Active light blinks at a rate of one time/second for a few minutes.
 - The Active light stays on for a few seconds and then starts blinking at a rate of two times/second for several minutes.
 - The Active light stays on for a few seconds and then goes off.

When the SB2100 is operational, the Power light is on and the Error light is off. The Active light blinks when the SB2100 is transmitting or receiving data.



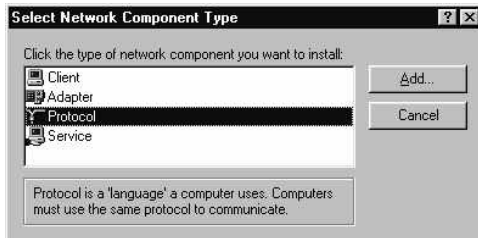
The SB2100 contains all necessary software. You don't need to configure the cable modem but you must configure your computer for TCP/IP and check for an IP address. Your service provider may provide additional instructions for setting up your computer. The following basic instructions are for Windows™ 95 or Windows 98. If you are using a different operating system, refer to that user guide.

TCP/IP

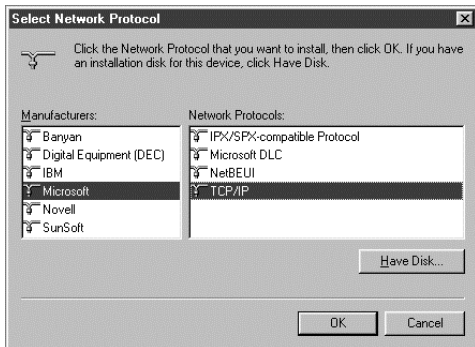
To configure for TCP/IP for Windows 95 or Windows 98:

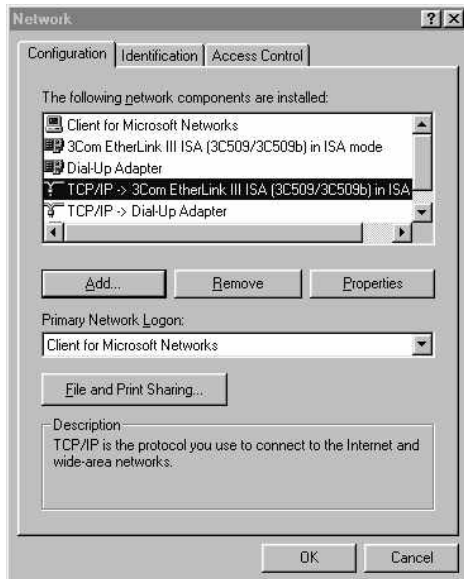
- 1** On the Windows Desktop, click Start.
- 2** Select Settings and then Control Panel from the pop-up menus.
- 3** Double-click the Network icon on the Control Panel window.
- 4** Select the Configuration tab on the Network window.
- 5** Check to see if TCP/IP has been installed for the Ethernet card. If TCP/IP appears in the list of network components, it is installed and you can proceed to step 10. If it doesn't appear on the list, continue with step 6.

BASIC CONFIGURATION

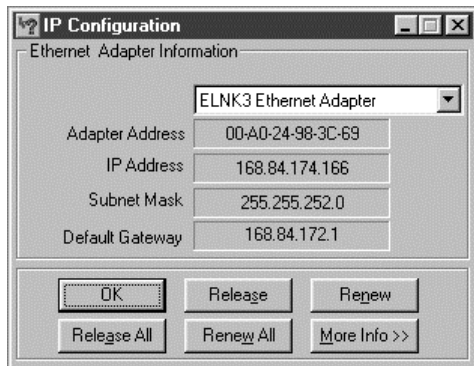


- 6 Click Add.
- 7 Double-click the Protocol option on Select Network Component Type window.
- 8 Click Microsoft in the Manufacturers section and then click TCP/IP in the Network Protocol section of Select Network Protocol window.
- 9 Click OK.





- 10** Click TCP/IP on the Network window. If you have more than one TCP/IP entry, choose the one associated with the Ethernet card connected to the cable modem.
- 11** Click Properties.
- 12** Select the IP Address tab on the TCP/IP window.
- 13** Click Obtain an IP address automatically.
- 14** Click OK to accept the TCP/IP settings.
- 15** Click OK to close the Network window.
- 16** Click OK when a prompt to restart your computer is displayed and then click OK again.



IP Address

The following basic instructions are for Windows 95 or Windows 98. If you are using a different operating system, refer to that user guide. To check the IP address:

- 1** On the Windows Desktop, click Start.
- 2** Select Run.
- 3** Type Winipcfg.exe. A window similar to the example is displayed.
- 4** Select your adapter name.
- 5** Click Renew, if an IP address isn't displayed.
- 6** Click OK after the system displays an IP address. If an IP address isn't displayed, call your service provider. They will assist in verifying your configuration.

TROUBLESHOOTING

This information is to help you quickly solve a problem. Before calling your service provider, try turning the SB2100 off and then on to reboot. Powering up the SB2100 may take 5 to 30 minutes.

The problem

Possible Solution

Green POWER light is off

Check that the power switch is on.

Check that the power cable at the modem and the adapter at the outlet.

Cannot receive or send data

Check that your TV is working if you have cable TV and you have a clear TV picture. If you aren't receiving your regular TV channels, your data service will not function.

Check the coaxial cable at the modem and outlet and hand-tighten if necessary.

Check the LINK light on the rear panel. If off, check the Ethernet cable at the modem and your computer.

Check the IP address (follow the steps on page 13); call your service provider if you need an IP address.

Red ERROR light blinking

Turn the cable modem off and then on to reboot.

Green POWER light blinking

Turn the cable modem off and then on to reboot.

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For use with General Instrument cable modem

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