

Samsung InfoRanger™ Cable Modem

User's Manual

Before connecting and using your Samsung InfoRanger™ Cable Modem, please read this manual thoroughly, and keep it handy for reference.



IMPORTANT NOTICE
Essential requirements for connecting and using the
Samsung InfoRanger™ Cable Modem

1. You must have cable TV network service(CATV)

If you do not have cable TV network service in your home or office, you will need to contact your local CATV provider and arrange for cable TV installation.

2. Your cable TV service must be able to provide modem connectivity.

Not every CATV network is presently equipped to offer its subscribers cable modem applications. If your cable TV provider cannot offer the service at this time, ask when it will be available.

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- (b) prohibit further copying;
- (c) prohibit transfer of the licensed software;
- (d) prohibit reverse assembly, reverse compilation or other translation of licensed software or any portion thereof; and
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Table of Contents

Table of Contents

I. Introduction	1-2
1. What is the Samsung InfoRanger™ Cable Modem ?	2
2. Connectivity/Adaptability: the DOCSIS-compliant InfoRanger™	2
II. Inventory	3-4
1. Your InfoRanger™ package should contain the following items	4
2. What is NOT included but required in order to connect and use your InfoRanger™ ?	4
III. Getting Acquainted with Your InfoRanger™ Cable Modem	5-10
1. InfoRanger™ Front Panel, LED light indicators	6
2. InfoRanger™ Back Panel, Connectors, Switches, LEDs	8
IV. How to connect and Use Your InfoRanger™ Cable Modem	11-14
1. Essential Requirements	12
2. Connection if you subscribe to Cable TV	13
3. Connection if you subscribe to cable Internet service only	13
4. Installing your InfoRanger™ to an Ethernet	14
5. Cable Modem Service Authorization	14

Table of Contents

V. Troubleshooting	15-16
VI. Product Specifications	17-18
VII. Technical Support — Samsung Customer Care Center	19-20
VIII. Glossary	21-23
IX. FCC Requirements	24

Introduction

Thank you for purchasing the Samsung InfoRanger™ Cable Modem

1. What is the Samsung InfoRanger™ Cable Modem?

Simple and smart, the InfoRanger™ is a true cable modem (MODulator - DEModulator) that connects your PC or Ethernet LAN to the Internet and other multimedia services and networks through your cable TV network. The InfoRanger™ not only frees up your telephone lines, but gives you unprecedented transmission speeds for accessing the Internet and the World Wide Web, interactive communications, e-mail, file transfers and data downloads and uploads.

Depending on your cable service's performance, the InfoRanger™ will provide downstream (receiving) data speeds up to 100 times faster than the fastest dial-up (telephone) modem, and upstream (sending) speeds up to 100 times faster than dial-up modems.

The Samsung InfoRanger™ Cable Modem puts you at the leading edge of PC-connectivity technology.

With this device, you'll be entering a new dimension of PC and PC-network capabilities and productivity through a quantum leap in the speed of accessing the Internet and other multimedia resources via your local cable TV network.

2. Connectivity/Adaptability: the DOCSIS-compliant InfoRanger™.

The Samsung InfoRanger™ complies with DOCSIS (Data Over Cable Service Interface Specification).

This assures you that your InfoRanger™ will operate with the connectivity technology of all cable TV service providers and will be compatible with other brands of cable modems.

Inventory

Inventory

1. Your InfoRanger™ package should contain the following items.



• InfoRanger™



• 6-ft. RJ-45 Ethernet cable
(also known as CAT 5
Ethernet Cable)



• Power Adapter



• Plastic Base



• User's Manual



• Quick reference Card

• Warranty Information
and Registration Form

2. What is NOT included but required in order to connect and use your InfoRanger™?

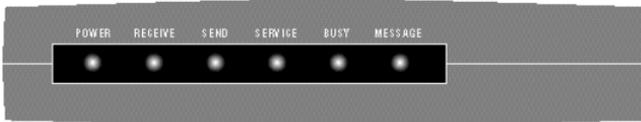
- Ethernet adapter (also known as Network Interface Card, such as Samsung SmartEther SC1200-TX 10/100 Network Interface Card available through retail stores nation wide)

Getting Acquainted

Getting acquainted with Your InfoRanger™ Cable Modem

1. InfoRanger™ Front Panel, LED light indicators

This panel has six LED indicator lights that signal the operating status of the InfoRanger™'s functions. From left to right they are:



- POWER
- RECEIVE
- SEND
- SERVICE
- BUSY
- MESSAGE

(NOTE: When the InfoRanger™ is on, the front panel LEDs flash cyclically and start a series of initialization process. In a fully operational state, the first four LEDs should be green and illuminated continuously, i.e., not flashing.)

1.1 Power LED

When you turn on the InfoRanger™'s power, the green LED flashes to indicate that the modem is automatically performing self-diagnostic routines. When the diagnostics are completed, a green LED is illuminated and remains continuously lighted while the modem is operational.

1.2 Receive LED

The green LED flashes during modem initialization, which means scanning for a downstream (receiving) channel.

When the scanning is completed, this LED is illuminated continuously as long as the modem is locked on the channel.

The LED is turned off when the modem is not in an operational state.

The red LED flashes to indicate the modem is receiving data through the cable.

1.3 Send LED

The green LED flashes during initialization (ranging) for transmitting data.

After ranging is completed, the LED is illuminated continuously and is turned off if the modem becomes non-operational.

The red LED flashes when the modem is transmitting data.

1.4 Service LED

This green LED flashes during the modem registration and service authorization process.

It will be continuously illuminated when this process is completed and turned off when the modem is non-operational.

1.5 Busy LED

This green LED flashes if the modem cannot transmit data.

1.6 Message LED

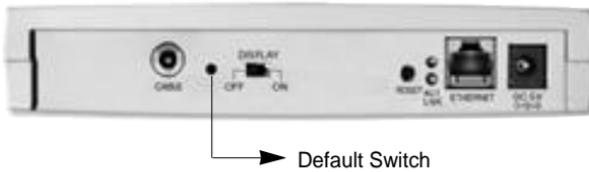
This green LED indicates incoming e-mail messages.

It flashes 60 times per minute (or once every second).

Currently, this feature is only available through a limited number of cable service provider, who actually send out signals to cable modem to activate the message LED function.

2. InfoRanger™ Back Panel, Connectors, Switches, LEDs

From left to right, the back panel of the InfoRanger™ features the following:



- Cable Connector
- Default Switch
- Display Switch
- Reset Switch
- Ethernet Activity LED
- Link LED
- Ethernet Jack
- Power Connector (DC 5V)

2.1 Coaxial Cable Connector

The modem connects to your CATV provider's head-end (see illustration page 13) via coaxial cable.

2.2 Default Switch

After the cable modem is installed, cable service provider will authorize and customize the cable modem settings by downloading software image to the cable modem's memory. The original factory default settings are stored in primary memory. Factory default settings will never be changed.

If you experience difficulty using cable modem, please call your cable service provider immediately. Your service representative will determine if the cable modem needs to be reset to factory default. The cable modem can be reset to factory default by pressing this switch.

Please use the Default Switch **ONLY** when instructed by an authorized cable service representative or by a Samsung technical support engineer.

2.3 Display Switch

This display (or virtual power) switch serves two functions: (1) to turn off the LEDs and (2) to disconnect the Ethernet interface, which isolates the modem from the PC.

When this display switch is off, the modem is still powered, interfaced to the cable, and is on standby.

The modem in this state can send to, and receive data from, the head-end, but cannot communicate with the PC through the Ethernet port.

In this state, the LEDs are off. There is no indication of modem operation.

2.4 Reset Switch

The modem can be reset by pressing this switch.

After reset, the modem will automatically reconnect with the cable provider.

2.5 Ethernet Activity LED

This green LED flashes when transmitting or receiving data through the Ethernet port.

2.6 Link LED

This green LED is continuously illuminated when there is a secure electrical connection between the modem and the PC or Ethernet hub.

2.7 RJ-45 Ethernet Connector

The InfoRanger™ is connected to the PC with a twisted-pair category 3,4,5 UTP/STP straight cable.

The modem connects to an Ethernet hub with a crossover cable.

2.8 5-Volt DC Power Connector

When the power is applied initially, the modem is reset.

(Caution : Be sure NOT to connect other power adapter than the accompanying one. Applying other power adapter, especially of higher voltage, to this port may cause serious damage to the modem.)

How to Connect

How to Connect and Use Your InfoRanger™ Cable Modem

1. Essential requirements

1.1 You must have cable TV network service (CATV).

If you do not have cable TV network service in your home or office, you will need to contact your local CATV provider and arrange for cable TV installation.

1.2 Your cable TV service must be able to provide modem connectivity.

Not every CATV network is presently equipped to offer its subscribers cable modem applications.

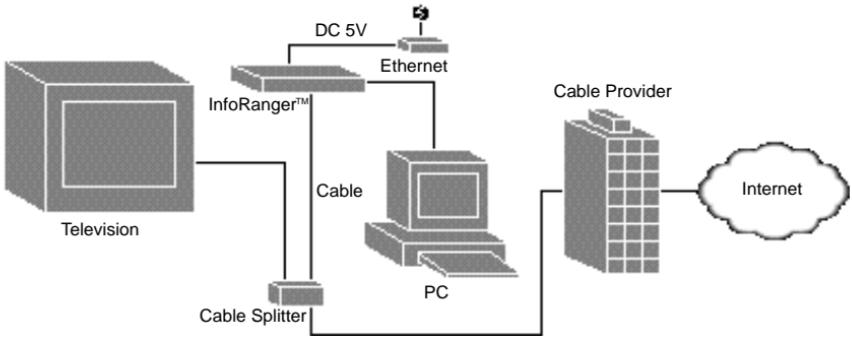
If yours cannot offer the service at this time, ask when it will be available.

1.3 Your PC must have an Ethernet interface ready to function.

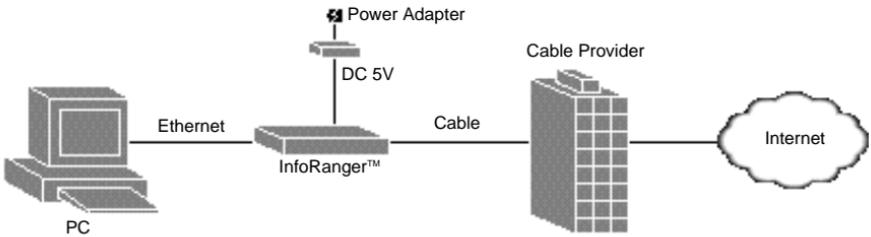
If you do not have an Ethernet interface, you will need to call your CATV provider.

If you do have an interface, then call your CATV provider for TCP/IP configuration settings, such as DHCP settings, domain name, host name, DNS service search order, primary WINS server IP address and secondary WINS server IP address.

2. Connection if you subscribe to Cable TV.



3. Connection if you subscribe to cable Internet service only.



4. Installing your InfoRanger™ to an Ethernet

Plug one end of the Ethernet cable into a cable modem Ethernet jack and the other end into a PC Ethernet card.

5. Cable Modem Service Authorization

5.1 MAC Address

You do not need to configure the MAC address of your InfoRanger™. The unit has a built-in MAC address.

5.2 IP Address

You also do not need to configure the IP address of your unit. The InfoRanger™ gets an IP address from a DHCP server in a CATV network during the power-on cycle.

Troubleshooting

1. Missing Parts

Contact Samsung (Customer Care information located on page 20).

2. No LED (front panel)

See back panel diagram.

- 2.1 Check power connector.
- 2.2 Check display switch.
- 2.3 Check power outlet.

3. No Power LED

- 3.1 Check power outlet.

For the following conditions, contact your CATV operator or retailer

- 3.2 Defective power adapter.
- 3.3 Defective cable modem.
- 3.4 Defective power LED.

4. No Link LED

- 4.1 No power on PC. Check power outlet.
- 4.2 Cable to Ethernet jack is not connected.
- 4.3 Ethernet adapter not properly configured. (Contact Ethernet adapter manufacturer. If your CATV provider supplied this adapter, contact them.)

5. Internet Connectivity

See Connecting and Using Your InfoRanger™ on page 12.

6. After several attempts, the cable modem will not operate properly

Unplug the power adapter plug from the back of the cable modem for 10 seconds. Plug the power adapter back into the modem. Cable modem will restart.

If these actions do not remedy the problem, call Samsung Telecommunications Helpline. The Helpline staff can often resolve problems or recommend service when needed.

Product Specifications

Product Specifications

	Downstream (Input to Cable Modem)	Upstream (Output from Cable Modem)
Frequency Range	91 to 857MHz	5 to 42MHz
Modulation	64QAM, 256QAM	QPSK, 16QAM
Data Rate	30 Mbps/64QAM 40 Mbps/256QAM	Up to 5Mbps/QPSK Up to 10Mbps/16QAM
Channel Spacing/ Bandwidth	6MHz	200K, 400K, 800K, 1600K, 3200KHz
FEC	RS(128, 122)/Trellis	RS(Programmable)
Symbol Rate	5.056941Msps/64QAM 5.360537Msps/256QAM	160K, 320K, 640K, 1280K 2560Ksps
Bit Per Symbol	6bits/64QAM 8bits/256QAM	2bits/QPSK 4bits/16QAM
Level Range	-15 to +15dBmV	+8 to +58dBmV/QPSK +8 to +55dBmV/16QAM
Carrier to Noise Ratio		> 23.5dB @ BER < 10 ⁻⁸ / 64QAM > 30dB @ BER < 10 ⁻⁸ / 256QAM
Security	DES Decryption	DES Encryption
Power		AC Power 88-132VAC, 60Hz DC Power 5VDC, 2A Power Consumption 10 Watt
Dimensions		7 (W) X 9.5 (L) X 1.5 (H)
Weight		3 Pounds
Warranty		2-Year Limited

Technical Support

Technical and Other Support — Samsung Customer Care Center

Samsung offers the highest level of customer service in the industry.

There's always a friendly and knowledgeable customer service representative available to provide you with the following:

- General Information
- Order Entry
- Order and Shipment Status
- Technical Support
- Warranty Support
- System Configuration and Optimization Assistance

Our support hours are 6 a.m. to 9 p.m. CST 7 days a week.

TOLL-FREE PHONE : 1-888-987-HELP (4357)

WEB SITE :

<http://www.samsungtelecom.com/networks/products/inforanger.asp>

FAX : 972-761-7501

E-MAIL : webmaster@telecom.sna.samsung.com

For on-line warranty registration through Samsung's web page, please call technical support at 1-888-987-4357 for detailed instructions.

Glossary

Glossary

10 Base T	10 Mbps baseband twisted-pair. It is an Ethernet using Category 5 cable interface.
Cable Modem	Cable Modem is a device that allows high-speed data access (such as to the Internet) via a cable TV (CATV) network. A cable modem will typically have two connections, one to the cable wall outlet and the other to a computer (PC).
Cable Provider	This is your Cable TV service provider.
Cable Splitter	Metal interface that accepts single input and divides it into multiple outputs.
Coaxial Cable	A cable with high resistance to electrical interference. This medium is typically used by cable television companies for video distribution.
CAT 5 Ethernet Cable	Category 5 cable that connects Ethernet based network using RJ45 connectors (already installed on both ends of the Category 5 cable). This cable is needed to connect the Network Interface Card to cable modem.
RJ45 Ethernet Connector	See "CAT 5 Ethernet Cable."
DHCP	Dynamic Host Configuration Protocol, used to autoconfigure nodes with IP addresses and other information.

Glossary

DOCSIS	Data Over Cable Service Interface Specifications.
Ethernet	A 10 Mbps Local Area Network technology. A LAN protocol standard that allows nodes in a network to communicate over a coaxial, twisted-pair or fiber-optic cable.
Internet	The worldwide network of networks which use the TCP/IP protocol suite.
IP	Internet Protocol, the protocol used to forward datagrams between nodes on an Internet.
MAC	Media Access Control.
TCP/IP	Transmission Control Protocol/Internet Protocol. TCP is used to provide reliable transport of data between networked computers.

FCC Requirements

Model Name : Samsung InfoRanger™ Cable Modem

Model Number : SCM-100R

FCC Class B ID : A3LSCM100R

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 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 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 the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment. 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.

Responsible Party :

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