InfoRanger User Guide

SCM-120U

InfoRanger User Guide

SCM-120U

CLASS B Digital device or Peripheral

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 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 experienced radio TV technician for help.

Stop using PC and get rid of all the cables, such as power cable, coaxial cable, Ethernet cable, connected to InfoRanger and PC during a thunderstorm. An electrical interaction can cause death, severe injury, or damage to the equipment.

Samsung recommends to turn off and on the InfoRanger once in a while to triger to download the latest software automatically.

Limited Warranty

1. What Is Covered And For How Long ? SAMSUNG TELECOMMUNICATIONS AMERICA, INC.("SAMSUNG")warrants to the original purchaser that SAMSUNG's Cable Modems are free from defects in material and workmanship under normal use and service for the period commencing upon the date of purchase and continuing for the following specified period of time after that date :

InfoRanger™ Cable Modem 2 years

2. What is not covered? This Limited Warranty is conditional upon proper use of the product by the purchaser. The Limited Warranty does not cover : (a) defects or damage resulting from accident, misuse, abuse, neglect, unusual physical, electrical or electromechanical stress, modification of any part of the product, or cosmetic damage; (b) equipment that has the serial number removed or made illegible;(c) all plastic surfaces and other externally exposed parts that are scratched or damaged due to normal use;(d) malfunctions resulting from the use of the product in conjunction with accessories, products or ancillary or peripheral equipment not authorized and approval of by SAMSUNG; (e) defects or damage from improper testing, operation, maintenance, installation, or adjustment. Please call SAMSUNG's customer care center at 1-888-987-4357 for updated pricing on non-warranty repairs.

3. **What Are SAMSUNG's Obligations?** During the applicable warranty period, SAMSUNG will repair or replace, at SAMSUNG's sole option, without charge to purchaser, any defective component part of the Cable Modem or accessory. To obtain service under this Limited Warranty, purchaser must return the product to an authorized SAMSUNG service facility in an adequate container for shipping, accompanied by purchaser's sales receipt or comparable substitute proof of purchase showing the date of purchase, the serial number of the product, and the sellers name and address. To obtain assistance on where to deliver the Cable Modem, call SAMSUNG customer care at 1-888-987-4357. Upon receipt, SAMSUNG will promptly repair or replace the defective product. SAMSUNG may, at SAMSUNG's sole option, use rebuilt, reconditioned, or new parts or components when repairing any product or replace a product with a rebuilt, reconditioned or new product. Repaired products will be warranted for a period equal to the remainder of the original Limited Warranty on the original product or for 90 days, which ever is longer. All replaced parts, components, boards and equipment shall become the property of SAMSUNG. If SAMSUNG determines that the product is not covered by this Limited Warranty or that the product is not defective, the purchaser must pay all parts, shipping, and labor charge for the testing, repair and return of the product.

4. **What Are The Limits On SAMSUNG's Liability?** THE WARRANTIES GIVEN IN THIS WARRANTY ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY SET OUT ABOVE. EXCECT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, SAMSUNG SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, INDIRECT OR SIMILAR DAMAGES, LOSS OF PROFITS, DAMAGES TO PURCHASER PROPERTY, OR INJURY TO PURCHASER OR OTHERS ARISING OUT OF THE USE, MISUSE OR INABILITY TO USE ANY SAMSUNG CABLE MODEM, BREACH OF WARRANTY, BREACH OF CONTRACT, OR NEGLIGENCE, INCLUDING BUT NOT LIMITED TO SAMSUNG'S OWN NEGLIGENCE, EVEN IF SAMSUNG OR ITS AGENT HAS BEEN ADVISED OF SUCH DAMAGES, OR FOR ANY CLAIM BROUGHT AGAINST PURCHASER BY ANY OTHER PARTY. THIS LIMITED WARRANTY IS THE COMPLETE WARRANTY FOR SAMSUNG'S CABLE MODEM, AND SAMSUNG HEREBY DISCLAIMS ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, IMCLUDING ANY

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The Limited Warranty allocates the risk of product failure between purchaser and SAMSUNG, and SAMSUNG's product pricing reflects this allocation of risk and the limitations of liability contained in this Limited Warranty. The agents, employees, distributors, and dealers of SAMSUNG are not authorized to make modifications to this Limited Warranty, or make additional warranties binding on SAMSUNG. Accordingly, additional statements such as dealer advertising or presentation, whether oral or written, do not constitute warranties by SAMSUNG and should not be relied upon. **5.**

5. How Does State Law Apply To This Warranty? SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU IN THEIR ENTIRETY.

The Limited Warranty gives you specific legal rights. You may also have other rights that vary from one jurisdiction to another.

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Plano, TX 75074
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The software provided with this product is not covered under the hardware warranty described above. See **Minimum End-User Software License Terms** which was shipped with the product for details on the software warranty.

Intellectual Property

All Intellectual Property, as defined below, owned by or which is otherwise the property of Samsung or its suppliers relating to the InfoRanger™, including but not limited to, accessories, parts or software relating thereto (the Cable Modem System), is proprietary to federal laws and state laws, and international treaty provisions. Intellectual Property includes, but is not limited to, inventions (patentable or unpatentable), patents, trade secrets, copyrights, software, computer programs, and related documentation and other works of authorship.

You may not infringe or otherwise violate the rights secured by the Intellectual Property. Moreover, you agree you will not (and will not attempt to) modify, prepare derivative works of, reverse engineer, decompile, disassemble, or otherwise attempt to create source code from the software.

No title to or ownership in the Intellectual Property is transferred to you. All applicable rights of the Intellectual Property shall remain with Samsung and its suppliers.

About This Guide

This manual is for users of the SAMSUNG InfoRanger™ cable modem. This manual includes an introduction of the InfoRanger and shows how to install, connect to a network, and use the InfoRanger. It also explains various problems that the user may encounter while using the InfoRanger and how to troubleshoot these problems.

Users who are accustomed to cable modem products as well as first time users should read this manual carefully before installing and using the InfoRanger.

If you have any questions about this product or you think that the product is damaged, please contact the SAMSUNG customer service center, as described in the technical support page at the end of this manual or at the store where you purchased this product.

Document Organization

This InfoRanger User Guide includes the following contents in each chapter.

Chapter 1 **Introduction to the InfoRanger** explains the features of the cable modem, the reasons for its wide use, the features and advantages of the InfoRanger.

Chapter 2 **Prior to Installation** explains the items that the user should prepare prior to installing the InfoRanger. It also explains the environment configuration of a PC for use with the InfoRanger.

Chapter 3 **Installing the InfoRanger** explains how to install the InfoRanger and how to connect cables.

Chapter 4 **Using the InfoRanger** explains the names and features of each part of the InfoRanger, how to distinguish the product status from the LEDs and how to check whether the product is installed correctly or not.

Appendix A **Troubleshooting** explains how to troubleshoot various problems that may occur while using the InfoRanger.

Appendix B **Product Specifications** explains the specification of the InfoRanger in table format.

Appendix C **Glossary** explains the terms that are useful when you use the InfoRanger.

Appendix D **Cable Specifications** explains the cable specifications that are used to connect the InfoRanger.

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Chapter 1
Introduction to the InfoRanger

Chapter 1 Introduction to the InfoRanger

The SAMSUNG InfoRanger is an external cable modem, which enables high-speed data communication using a cable TV network.

With the SAMSUNG InfoRanger, you can receive data at 40Mbps, and send data at 10Mbps. Compared with conventional telephone lines, this remarkable speed is 100 times faster than 56Kbps modem.

SAMSUNG InfoRanger is specially designed for the users who want to transmit data at high speed with lower cost. With SAMSUNG InfoRanger, you can enjoy the highest communication.

InfoRanger speed can be changed by the following factors.

- User's computer specifications
- Number of programs
- Network traffic when user is connected
- Bandwidth provided by your service provider to the users

Features of InfoRanger

High speed

The InfoRanger enables you to connect to the Internet, transmit e-mails, and download data up to 100 times faster than a 56Kbps modem.

Two-way data communication

The InfoRanger provides two-way data communication. With the InfoRanger, you can download data up to 40Mbps, and simultaneously upload data up to 10Mbps.

Excellent Compatibility : DOCSIS-compliant InfoRanger

In compliance with DOCSIS (Data Over Cable Service Interface Specification), the InfoRanger can receive services from all cable operators and can be used with other DOCSIS compliant's CMTS(Cable Modem Termination System).

Quick and easy installation process

With the InfoRanger, the IP address is set automatically. You only have to connect the cables and any setting up procedure according to this guide.

Compact and convenient design

The InfoRanger is designed for easy to use and it fits well in any office environment.

Support USB port

The InfoRanger supports USB port so that you can save trouble to open the case of PC and install network interface card. It is a fast, bi-directional isochronal, low-cost, dynamically attachable serial interface that is consistent with the requirements of the PC platform. It supports up to 127 physical devices, and its transfer rate assures up to 12Mb/s.

Examples of Network Connection

If you subscribe to both Cable TV and the Cable Internet Services

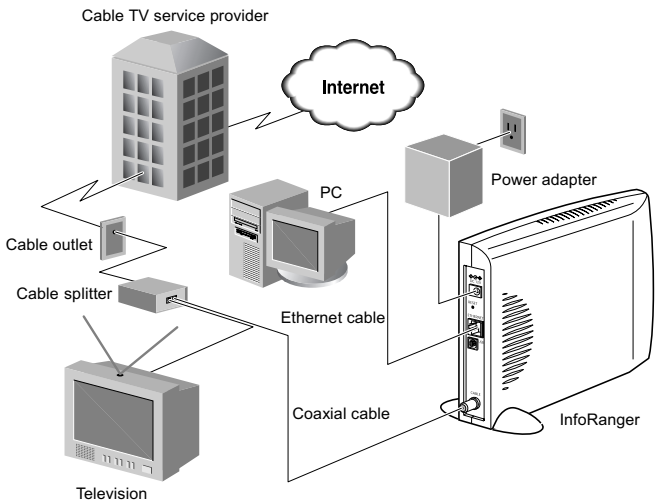


Figure 1-1 Network connection if you subscribe to both cable TV and the cable Internet service

If you only subscribe to a Cable Internet Service

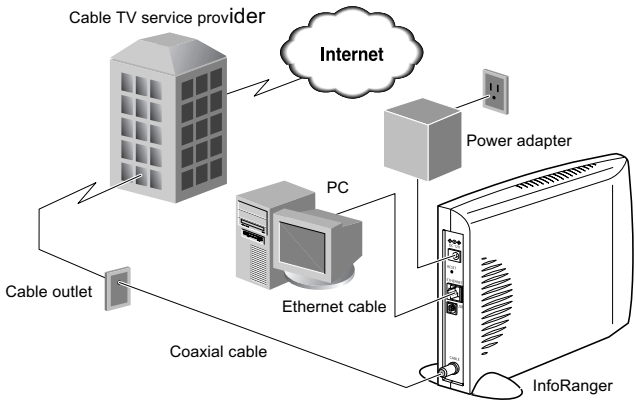


Figure 1-2 Network connection if you only subscribe to a cable Internet service

NOTE The above example is showing the case of connecting the PC to Ethernet port of InfoRanger. The case of connecting the PC to USB port of InfoRanger is identical.

Chapter 2
Prior to Installation

Chapter 2 Prior to Installing

This chapter explains what you should do before installing the InfoRanger.

Subscribing to Cable Internet Service

The cable modem receives data through a cable TV network. Therefore, it is necessary to have a cable Internet service to use your cable modem. If you are already subscribing to cable TV, please make sure that you are also subscribing to cable Internet service. If you do not have cable Internet service, contact your cable TV provider and ask the following services.

- **Whether they support two-way cable modem access service or not.**

  ☞ The InfoRanger enables two-way data communication. If you want to use all features of the InfoRanger, you need to subscribe to a cable TV provider which provides two-way cable modem access service.

- **Whether they provide the Internet service or not.**

  ☞ If you want to send or receive e-mails, access to WWW and/or use other Internet services through the cable modem, you need to have cable Internet service. Once you are an Internet service subscriber, your cable TV provider will provide you with an Internet account, which you can connect to via your cable modem. Please note that your Internet account should be established before the installation of cable modem.

Environment Preparation for Installation

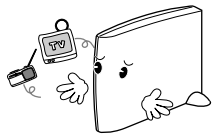
The InfoRanger should be kept at moderate temperature, humidity, and stable electric power. The recommended environment is as follows :

- Operation temperature : 32°F to 104°F
  Storage temperature : - 13°F to 158°F
- Operation humidity : below 90% (104°F, non-condensing),
  Preservation humidity : below 90% (140°F, non-condensing)
- Power Consumption : 7 Watt
- Input voltage : AC 120V
- Rated frequency : 60Hz

CAUTION While the InfoRanger is operating, keep the fluctuation range of input voltage within 5% of regulated voltage. In addition, ground the electric outlet which is connected to input terminal.

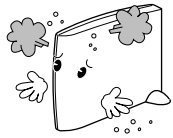
◆ Avoid static electricity and electric noise....

Use preventive equipment if the InfoRanger is installed in a place where high static electricity or electric noise is present.



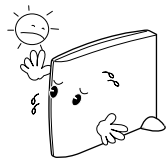
◆ Clean and well ventilated place....

Install the InfoRanger in a ventilated place where the appropriate temperature and airflow is present. As dust can cause a serious failure of operation, install the InfoRanger at a clean place.



◆ Avoid the direct sunlight

Direct sunlight can increase temperature of the InfoRanger and this can cause damage to operational parts and lead to operation failure. Therefore, Samsung recommends keeping the InfoRanger away from direct sunlight.



Preparing the Necessary Items

The following items should be prepared in order to use the InfoRanger.

Included Items

- InfoRanger (SCM-120U)
- A power adapter
- A stand holder
- A RJ-45 Ethernet cable (6Ft.)
- A USB cable (6Ft.)
- This manual
- USB Driver Floppy Diskette for USB port (used for both Windows 98 SE (Second Edition) and Windows 2000 environment)

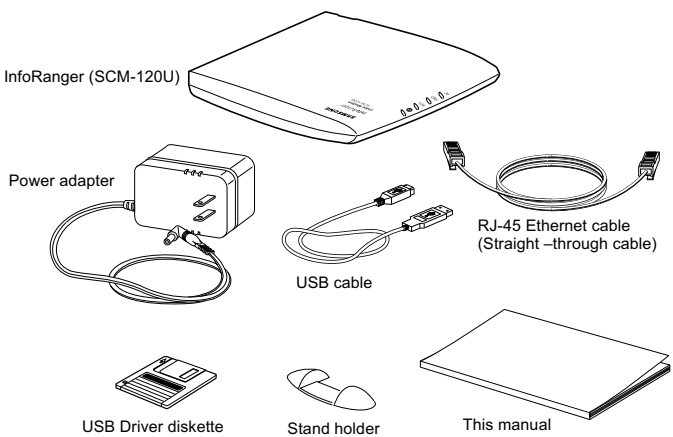


Figure 2-1 Included items in the InfoRanger package

NOTE Specification and shape of the power cable contained in the package may vary according to the regions where InfoRanger is purchased.

Not Included Items

The following items are not included in the InfoRanger package. These need to be prepared separately.

- An IBM compatible PC which TCP/IP is installed on and runs Windows 95 (or later) or a Macintosh which TCP/IP is installed on and runs System 7.5 (or later).
- A two-way coaxial cable
- A crossover cable for connecting hub
- A Network Interface Card (NIC)

If a user needs more than one straight-through cable, he/she should prepare the necessary ones by himself/herself because only one straight-through cable is supplied with InfoRanger by default.

It is necessary to prepare IBM-compatible PC running Windows 98 SE (Second Edition) or later version, such as Windows Me(Millenium Edition) or Windows 2000, to use USB port.

Configuring TCP/IP Protocol

Once you have set-up the IBM compatible PC running on Windows 95 (or later) or the Macintosh running on System 7.5(or later), you need to install TCP/IP protocol and network interface card, only when using Ethernet port of InfoRanger.

You do not need to install TCP/IP protocol when using USB port, because TCP/IP protocol is installed automatically while USB driver is installed. Skip this section and go to the next chapter when using USB port.

Referring to the manual that provided with your network interface card, please install the network interface card on your computer and install the network interface card driver. Then, install TCP/IP protocol as follows. If you already installed TCP/IP protocol, skip this section and go to the next chapter.

The TCP/IP protocol is installed automatically during Windows 2000 installation. Generally it is not necessary to install TCP/IP protocol in Windows 2000 environment unless you removed TCP/IP protocol on purpose.

Installing TCP/IP Protocol on IBM Compatible PC

This installation is an example of an IBM compatible PC running on Windows 98 SE (Second Edition)/2000. Installation of TCP/IP protocol may vary depending on the different operating system and/or a network interface card used and/or Cable Service Provider, but the overall process is generally similar. Contact the Cable Service Provider to install TCP/IP protocol accuately.

For Windows 98 SE

1. Click the **[Start]** button on the desktop, and click **Settings ➔ Control Panel**.

2. In <Control Panel> window, double click **Network** icon.

3. When <Network> window appears, click **[Add...]** button.

4. When <Select Network Component> window appears, click **Protocol** and then click **[Add...]** button.

5. When <Select Network Protocol> window appears, click **Microsoft** from the 'Manufacture' list and then click **TCP/IP** from the 'Network Protocols' list. Click **[OK]** button. Insert Windows 98 SE CD into CD-ROM drive and designate its location in case a pop up window requesting to insert Windows 98 SE CD appears. Otherwise you do not need to.

6. In <Network> Window, click **TCP/IP** from 'The following network components are installed' list and click **[Properties]** button.

7. When <TCP/IP Properties> window appears, click <**IP Address**> tab. On the <IP Address> tab, select **Obtain an IP address automatically** item and then click **[OK]** button.

8. When the system reboot prompt message appears, click **[Yes]**.

For Windows 2000

1. Click the **[Start]** button on the desktop, and click **Settings ➔ Control Panel**.

2. In <Control Panel> window, double click **Network and Dial-Up Connections** icon.

3. When <Network and Dial-Up Connection> window appears, select **Local Area Connection** icon and press the right button of the mouse.

4. When <Local Area Connection Properties> window appears, Click **[Install]** button.

5. When <Select Network Component Type> window appears, select **Protocol** and then click **[Add...]** button.

6. When <Select Network Protocol> window appears, select **Internet Protocol (TCP/IP)** and click **[OK]** button. TCP/IP protocol is installed. While TCP/IP is installed, insert Windows 2000 CD into CD-ROM drive and designate its location in case a pop up window requesting to insert Windows 2000 CD appears. Otherwise you do not need to.

7. Select the newly installed **Internet Protocol (TCP/IP)** in <Select Network Protocol> window, click **[Properties]** button.

8. When <Internet Protocol (TCP/IP) Properties> window appears, select **Obtain an IP address automatically** item and **Obtain DNS Server address automatically** item then click **[OK]** button.

9. When the system reboot prompt message appears, click **[Yes]**. Otherwise, it is not necessary to reboot the system.

Installing TCP/IP Protocol on Macintosh PC

This installation is an example of a Macintosh running on System 8.5. Installation method of TCP/IP protocol may vary depending on the different operating system and/or a network interface card used and/or the Cable Service Provider, but the overall process is generally similar. Contact the Cable Service Provider to install TCP/IP protocol accuately.

1. Click the Apple icon and select the **TCP/IP** icon in the Control Panels.

2. In <TCP/IP> window, there are two menus, AppleTalk and Ethernet, in the **Connect Via** list. Select **Ethernet** in the list.

3. The Setup box is changed. There are 4 menus in the **Configure** list. Select **Using DHCP Server** in the list. Clicking this menu brings the IP address, router address to be set automatically by InfoRanger.

4. Close the window to finish the TCP/IP installation. When <Save changes to the current configuration?> message appears, click **[Save]**.

5. If a message appears to restart the system, reboot the system. Otherwise you do not need to.

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Chapter 3
Installing the InfoRanger

Chapter 3 Installing the InfoRanger

This chapter explains how to install the InfoRanger and how to connect the cables to the InfoRanger. The following describes the process.

1. Put the InfoRanger the appropriate place.
2. Connect the coaxial cable.
3. Connect to PC (Single PC / Multi PCs).
4. Connect the power adapter.

Do not connect the InfoRanger's power adapter before connecting any cables to it. Installation with conneting the power adapter can cause serious damage to the equipment.

Putting in a place

Put InfoRanger in a flat surface away from direct sunlight. It is also necessary to put InfoRanger in a place close to the cable outlet or cable splitter for easier connection of cables. Then fix the stand holder into the InfoRanger as following:

1. There is a small protrusion at the lower right part on the front side (on which SAMSUNG logo is printed) of the InfoRanger. Also, there is another one at the lower left part on the backside of the InfoRanger. First, fix the protrusion on the backside of the InfoRanger into the narrow groove of the stand holder.

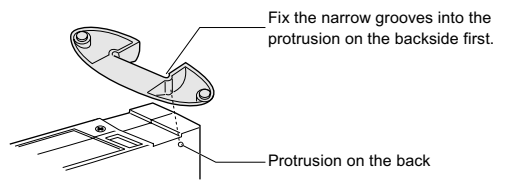


Figure 3-1 Fixing the protrusion on the front to the groove of the stand holder

2. Next, adjust the middle of the stand holder to the hollow part under the InfoRanger. Then, press the middle of the stand holder.

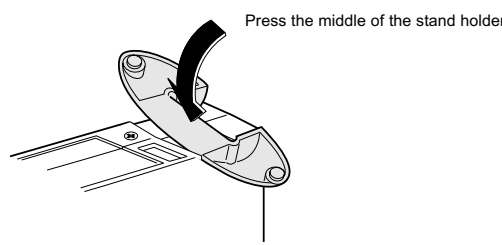


Figure 3-2 Press the stand holer to the InfoRanger

3. The InfoRanger with stand holder is described below.

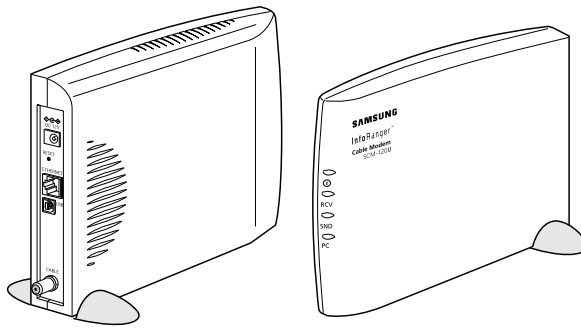


Figure 3-3 InfoRanger with stand holder

Be sure to fix the stand holder into the InfoRanger with the proper attention. Failure to fix the stand holder into the InfoRanger accurately as is described in this chapter can break the stand holder.

Connecting the Coaxial Cable

Connect one end of the coaxial cable to the **CABLE** connector of the InfoRanger and connect the other end of the coaxial cable to the cable outlet or cable splitter. Slide pin in the center of the coaxial cable into the hole in the **CABLE** connector carefully without bending, and turn the connector clockwise until the cable is firmly attached.

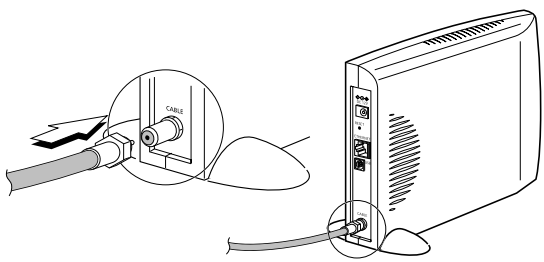


Figure 3-4 Connecting the coaxial cable to the CABLE connector

NOTE The coaxial cable is not provided by default.

Connecting PCs

You can connect the InfoRanger to a single PC or to group of PCs through a hub or a switch. You must use RJ-45 Ethernet cable (straight-through cable) or USB cable which are provided with the InfoRanger to connect the InfoRanger to PC. To connect additional PCs to the InfoRanger, you must prepare the additional Straight-through Ethernet cables, a hub, and a Crossover Ethernet cable.

You can use both Ethernet port and USB port at a time without any kind of specific operation.

Use Ethernet port and prepare Network Interface Card and a Hub to connect the InfoRanger to multiple PCs. You can connect the USB port to only one PC at a time. Or, use both Ethernet port and USB port simultaneously.

It is possible to connect the InfoRanger to multiple PCs by using USB port and Ethernet port at a time, but the amount of PCs is dependent on the Cable Service Provider. Contact your Cable Service Provider for further information.

Single PC Connection

(1) Using Ethernet port

First, turn off the PC, which you connect to the InfoRanger. Connect the **ETHERNET** port of the InfoRanger to the port of the network interface card on the PC using the RJ-45 network cable (provided with the InfoRanger).

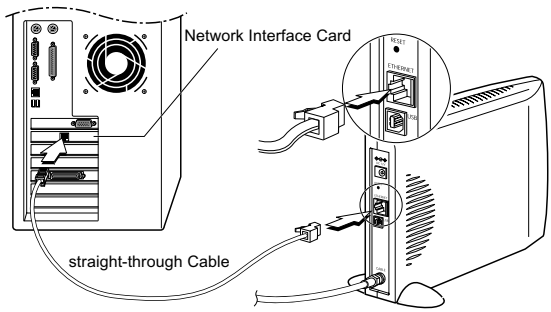


Figure 3-5 Connecting the RJ-45 Ethernet cable to the ETHERNET port and a PC

(2) Using USB port

NOTE Use IBM compatible PC running Windows 98 SE (Second Edition)or later version such as Windows Me (Millenium Edition) and Windows 2000 in case of using USB port.

NOTE The specifications of USB cable are described at Appendix D in detail.

To use USB port, there should be a USB port in the PC supposed to be connected to InfoRanger. Make sure if there is a USB port in the PC most of all.

Connect the USB port of PC and the USB port of InfoRanger using USB cable, which is provided with InfoRanger. It is not necessary to turn off the PC to connect the PC to InfoRanger.

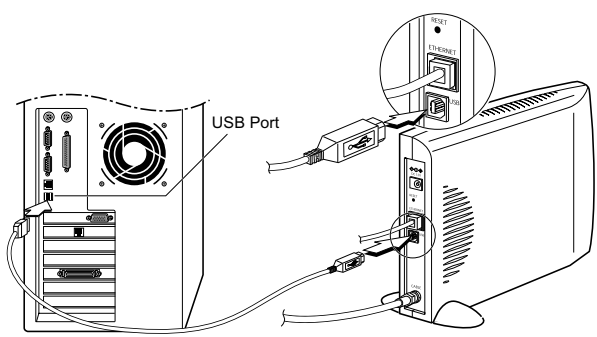


Figure 3-6 Connecting the USB cable to the USB port and a PC

Install the driver for USB port

The final step for using USB port is to install the driver for USB port using USB driver diskette provided with InfoRanger. Do the following steps to install USB driver.

You can download a manual describing more in detail how to install USB driver for InfoRanger (SCM-120U) in www.samsungnetwork.com.

▲ For Windows 98 SE

1. When you connect the InfoRanger and PC, the <Add New Hardware Wizard> window appears. Click **[Next]** to go on to the next step.

2. Select **Search for the proper driver for your device (Recommended)** in the following window, and click **[Next]** to go on to the next step.

3. Select **Floppy Disk Drive** as a location of a new driver and insert the USB driver diskette provided with InfoRanger into floppy disk drive. Click **[Next]**.

4. Select **Use an updated Driver (Recommended)-Samsung Cable Modem USB Driver** in the following window, click **[Next]** to go on to the next step.

5. A window appears reporting it has found the appropriate driver in the floppy disk as following. Click **[Next]** to go on to the next step.

6. Click **[Next]** in the following window which reports it is ready to install Samsung Cable Modem USB Driver. Insert Windows 98 SE CD into CD-ROM drive during installation when a message appears requesting to insert Windows 98 SE CD into CD-ROM drive. Click **[Next]** when CD-ROM is ready.

7. Click **[Finish]** to finish the installation process and restart the system.

▲ For Windows 2000:

1. When you connect the InfoRanger and PC, the <Found New Hardware Wizard > window appears. Click **[Next]** to go on to the next step.

2. Select **Search for a suitable driver for my Device (Recommended))** in the following window, and click **[Next]** to go on to the next step.

3. Select **Floppy Disk Drive** as a location of a new driver and insert the USB driver diskette provided with InfoRanger into floppy disk drive. Click **[Next]**.

4. In this step, a window appears reporting it has found the suitable driver in the floppy disk. Click **[Next]** to go on to the next step.

5. When an window alarming **Microsoft Digital Signature** is not included in the software, just click **[Yes]** to proceed installation.

6. Click **[Next]** in the window which reports it is ready to install the driver.

7. Insert Windows 2000 CD into CD-ROM drive during installation when a message appears requesting to insert Windows 2000 CD into CD-ROM drive. Click **[Next]** when CD-ROM is ready. Files are copied from Windows 2000 CD. If no message appears, skip this step.

8. Click **[Finish]** to finish the installation process. It is not necessary to restart the system in the Windows 2000 environment.

Multiple PCs Connection

The amount of PCs is dependent on the Cable Service Provider. Contact your Cable Service Provider for further information.

If you want to connect more than one PC to the InfoRanger, you need to prepare the following additional items:

- An Ethernet hub or switch of 10/100Mbps transmission speed
- Twisted pair category-3,4,5 crossover cable
- Twisted pair-category-3,4,5 straight-through cables equal to the number of PCs

The specifications of twisted pair category-3,4,5 crossover cables and straight-through cables are described at Appendix D in detail.

You can connect the InfoRanger to fifteen PCs simultaneously by using Ethernet port.

If the user needs more than one straight-through cable to connect multiple PCs to InfoRanger, he/she should prepare the necessary cables by himself/herself because only one straight-through cable is supplied with InfoRanger by default.

After preparing all the things to connect additional PCs, do the followings.

1. Turn off all the PCs you want to connect to the InfoRanger.

2. Connect one end of twisted pair category-3,4,5 **crossover** cable to the **ETHERNET** port of the InfoRanger. Then, connect the other end of cable to the port of hub.

3. Connect one end of twisted pair category-3,4,5 **straight-through** cable to the port of network interface card installed on PC. Then, connect the other end of cable to the port of hub.

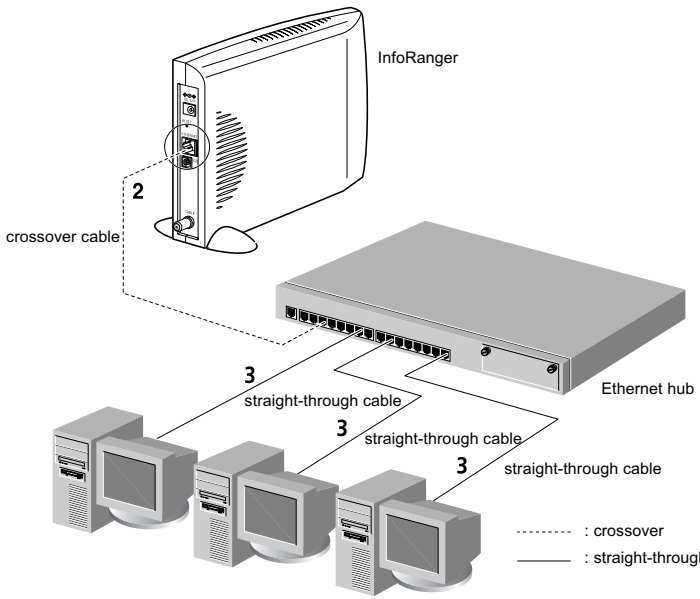


Figure 3-7 Connecting the InfoRanger to multiple PCs through an Ethernet hub

Connecting the Power Adapter

Be sure to connect the power adapter to the InfoRanger only after connecting other cables.

WARNING **Do not connect the InfoRanger's power adapter before connecting any cables to it.** Installation with conneting the power adaper can cause serious damage to the equipment.

Connect one end of the power adapter to **DC 12V** jack of the InfoRanger and the other end to a wall outlet as follows.

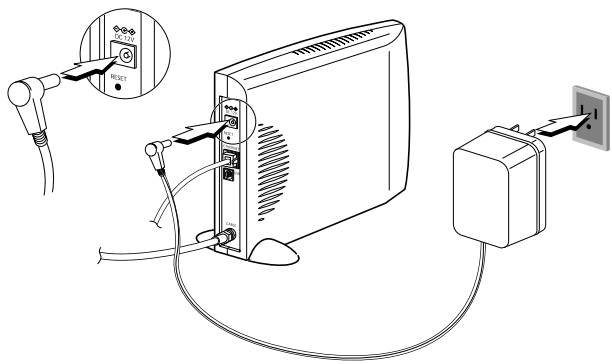


Figure 3-8 Connecting the power adapter

CAUTION Use the power adapter supplied with the InfoRanger only. Using other type of power adapter can cause critical damage to the InfoRanger.

Inspecting Cable Connection

The following diagram shows the correct cable connections.

Single PC Connection

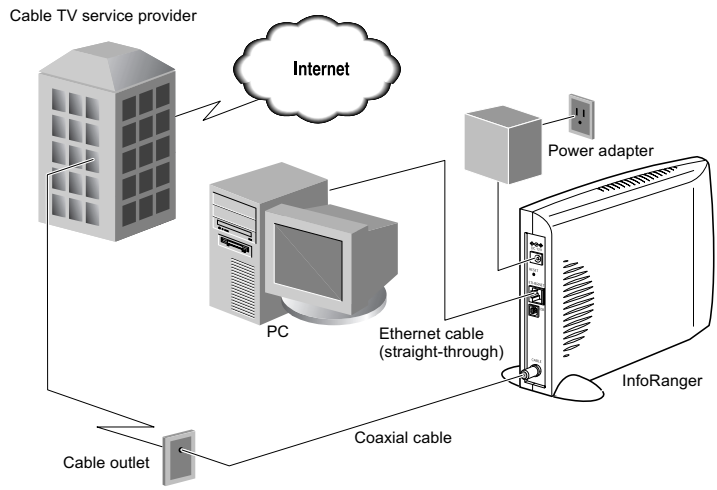


Figure 3–9 Cable connection in case of a singal PC connection

NOTE

The above diagram is showing the case of connecting the PC to Ethernet port of InfoRanger. The case of connecting the PC to USB port of InfoRanger is identical.

Multiple PCs Connection

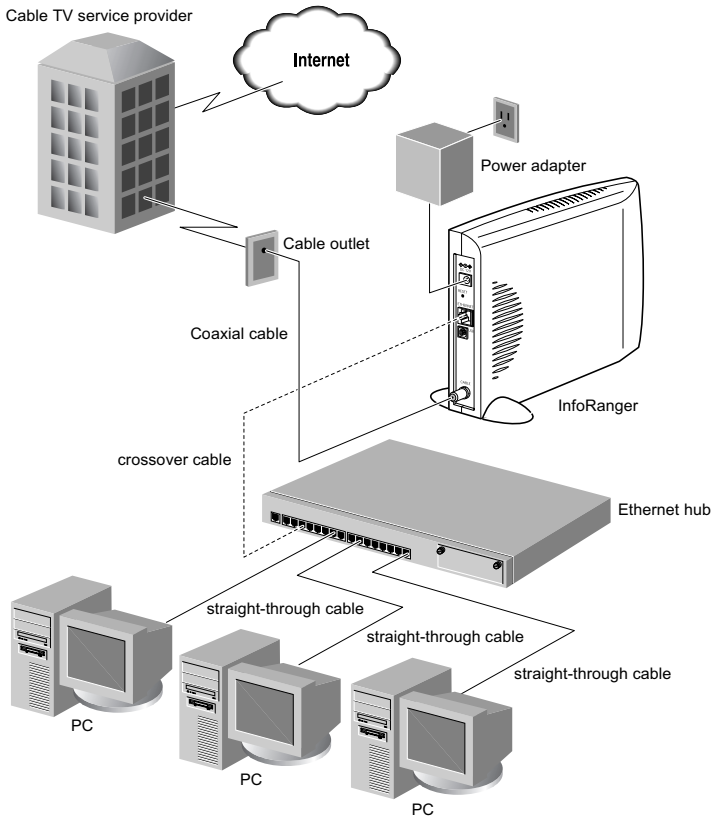


Figure 3-10 Cable connection in case of multiple PCs connection

Chapter 4
Using the InfoRanger

Chapter 4 Using the InfoRanger

This chapter explains features of the LEDs and the connectors of the InfoRanger.

Front View

There are 4 LED indicators lights on the front side of the InfoRanger.

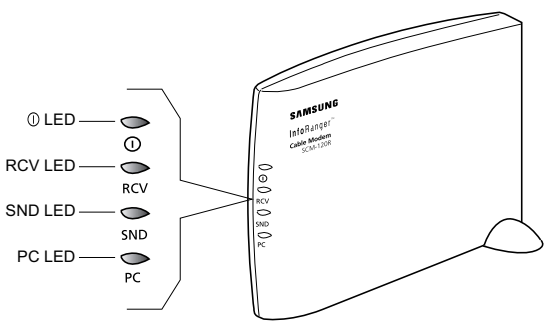


Figure 4-1 Front view of the InfoRanger

NOTE

When you connect the power adapter to the InfoRanger, a green light is on ⓘ LED first, and the InfoRanger processes Self diagnosis ➔ Initialization for receiving ➔ Initialization for sending ➔ Registering modem and Authentificating services. While these processes are running, the RCV LED and SND LED blinks. When this process is complete and the InfoRanger operates normally, the ⓘ LED, RCV LED and SND LED turn on green. After you connect the Ethernet cable to the Ethernet port or USB cable to the USB port of InfoRanger, the PC LED also turns on green.

The simple meaning of each LED is as follows:

LED	Green
①	Indicates that the power is provided to InfoRanger normally
RCV	Indicates InfoRanger is locked, initialization process, Receiving Data
SND	Indicates InfoRanger is locked, initialization process, Sending Data
PC	Indicates Ethernet link status is fine

① LED (POWER LED)

☞ When the power is provided to the InfoRanger's, the green light turns on in LED. The ① LED is turned off when the power is not provided to the InfoRanger.

Color	Description	
Green	ON	Power is provided
	OFF	No Power

RCV LED (RECEIVE LED)

☞ The green RCV LED blinks during modem initialization, which means scanning a downstream (receiving) channel. When the scanning is complete, the green RCV LED remains continuously lit as long as the modem is locked on the channel. The RCV LED is turned off when the modem stops working. The green RCV LED blinks fastly to indicate the modem is receiving data through the cable network.

Color	Description	
Green	ON	Channel Locked
	Blinking	Low speed : Channel scanning, Fast speed : Receiving data

SND LED (SEND LED)

☞ The green SND LED blinks during initialization (channel ranging) for transmitting data (upstream). When ranging is complete, the green SND LED turns green and remains continuously lit. The SND LED is turned off when the modem stops working. The green SND LED blinking fastly when the modem is sending data.

Color	Description	
Green	ON	Ranging Locked
	Blinking	Low Speed : Channel ranging Fast Speed : Sending Data

PC LED

☞ The green PC LED turns on if the link status (Ethernet link or USB link) between PC and InfoRanger is normal. The PC LED is turned off when the link failed.

Color	Description		Misc.
Green	ON	Link OK	Ethernet/USB Link
	OFF	Link Fault	

If the SND LED, RCV LED and the PC LED are off while you are using the InfoRanger, check to see if the cable and the Ethernet cable/USB cable are not connected to the CABLE connector and Ethernet port/USB port properly.

Rear View

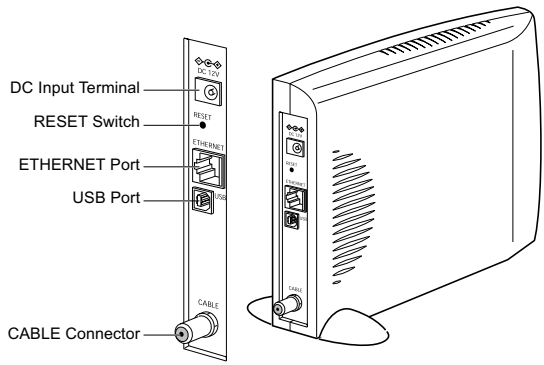


Figure 4-2 Rear View of the InfoRanger

CABLE Connector

☞ This is used to connect the coaxial cable to the cable outlet or the cable splitter.

RESET Switch

☞ This is used to initialize the modem.

ETHERNET Port

☞ The InfoRanger supports up to 40Mbps to download data and also up to 10Mbps to upload data with this ETHERNET port. This port is connected to the network interface card installed on PC or a hub or a switch if it is connected to multiple PCs using the Ethernet cable.

USB Port

☞ This is a USB port with supports up to 12Mbps. This port is connected to the USB port of PC.

DC Input Terminal

☞ This is an input terminal, which provides DC 12V to the InfoRanger through the power adapter.

Appendix A
Troubleshooting

Appendix A Troubleshooting

Appendix A explains the most common and frequent problems that may occur while you are using the InfoRanger and suggests how to solve these problems. If you can not solve the problem with the method described in this Appendix, please refer to the Technical Support page at the end of this manual or contact the retailer where the InfoRanger was purchased.

Problem **Cannot connect to the Internet service.**

Solution

- Check to see if the cables are connected correctly.
- If PC LED is off, check the Ethernet interface card installed on PC and the USB port of PC.
  ☞ *Please refer to the manual of Ethernet interface card.*
- Check to see if PC runs normally.
- Check to see if TCP/IP protocol is installed on PC.
- Check to see if the specification of RJ-45 Ethernet cable or USB cable, which is used for connecting the Ethernet interface card installed on PC or USB port of PC, is suitable.
  ☞ *Please refer to Appendix D.*
- Make sure the cable TV service provider uses two-way cable communication.

Problem **The ⏻ LED is not turned on even though the power adapter is connected.**

Solution

- Check to see if the wall outlet where the power adapter is connected.
- Make sure that the power adapter is the one supplied with the InfoRanger.
- Pull out the power adapter from the DC input terminal and connect it again in about 10 seconds later.

Problem **All LEDs on the side panel of the InfoRanger are not turned on.**

Solution

- Check to see if the power adapter is connected to the wall outlet and DC input terminal of the InfoRanger.
- Check the wall outlet where the power adapter is connected.
- Check to see if the coaxial cable and Ethernet cable are not connected to the CABLE connector and Ethernet port properly.

Problem **PC LED is not turned on even though the cable is connected to the ETHERNET port or USB port.**

Solution

- Check to see if the cable is connected properly to the Ethernet interface card equipped in PC or the USB port of PC.
- Check the Ethernet interface card equipped in PC or USB port of PC.
  ☞ *Please refer to the manual of Ethernet interface card.*
- Check to see if PC runs normally.
- Check to see if TCP/IP protocol is installed on PC.
- Check to see if the specification of RJ-45 Ethernet cable or USB cable, which is used for connecting the Ethernet interface card installed on PC or USB port of PC, is suitable.
  ☞ *Please refer to Appendix D.*

Problem **Cannot connect to the network after rebooting the PC in Windows 2000 environment when using Ethernet port of InfoRanger.**

Solution

- Pull out the Ethernet cable from the Ethernet port of InfoRanger and connect it again to get the new IP address.

Appendix B
Product Specifications

Appendix B Product Specifications

Item		Specification
Interface	Ethernet	10/100Mbps, RJ-45 1 port (6 ft.)
	USB	12Mbps, USB 1 port (6 ft.)
Temperature	Operating	32°F to 104°F
	Storage	-13°F to 158°F
Frequency	Downstream	90 ~ 858MHz
	Upstream	5 ~ 42MHz
Modulation	Downstream	256QAM : 64QAM
	Upstream	16QAM : QPSK
Data rate	Downstream	64QAM (30Mbps), 256 QAM (40Mbps)
	Upstream	QPSK (5Mbps), 16QAM (10Mbps)
Channel spacing / bandwidth	Downstream	6MHz
	Upstream	200KHz, 400KHz, 800KHz, 1.6MHz, 3.2MHz
FEC	Downstream	RS (128,122) / Trellis
	Upstream	RS (Programmable)
Symbol rate	Downstream	64QAM : 5.056941Msps 256QAM : 5.360537Msps
	Upstream	160K, 320K, 640K, 1280K, 2560Ksps
Bits per symbol	Downstream	64QAM : 6-bits 256QAM : 8-bits
	Upstream	QPSK : 2-bits 16QAM : 4-bits
Level range	Downstream	-15 ~ +15dBmV
	Upstream	QPSK : +8 ~ +58dBmV 16QAM : +8 ~ +55dBmV

Item		Specification
Carrier to noise ratio		64QAM : >23.5dB @ BER < 10^{-8} 256QAM : >30dB @ BER < 10^{-8}
Security		DES decryption / encryption
Physical dimension	Size	1.52 (W) x 7.12 (D) x 6.12 (H) (″))
	Weight	2.42lb (InfoRanger + Adapter)
Power supply	AC	AC 120V, 60Hz
	DC	+12V, 1.2A
Regulatory Agency Approval		FCC, UL / CUL, CE

Table B-1 Specifications of the InfoRanger

Appendix C
Glossary

Appendix C Glossary

10BASE-T

A 10BASE-T is a version of Ethernet using category 3,4,5 cable interface.

Cable modem

A cable modem is a device connected to your computer that enables you to receive and request information from the Internet over your local cable TV line. Cable modems are designed to enable peak connection speeds over 100 times faster than traditional dial-up connections.

Cable splitter

A cable splitter is a metal interface that accepts single input and divides it into multiple outputs.

Coaxial cable

A coaxial cable is an electrical cable that contains two separate wires. One wire is solid and the other is a tube. The solid wire is inside the tube, both wires have the same center point, or axis. Cable TV companies for distributing video signal typically use it.

DOCSIS (Data Over Cable Service Interface Specification)

DOCSIS defines interface requirements for cable modems involved in high-speed data distribution over cable television networks. The certified cable modem project also provides cable modem equipment suppliers with a fast, market-oriented method for obtaining cable industry acknowledgment of DOCSIS compliance and has resulted in high-speed modems being certified for retail sale.

Downloading

Downloading is the transfer of data from a server to your computer's hard disk. You can use your browser or an FTP program to download files to your computer. When you're retrieving your email, you're downloading your email to your computer.

E-mail (Electronic mail)

An e-mail is a message, usually text, transmitted over the Internet and sent from one person to another (although you can also send an e-mail to a large number of e-mail addresses (mailing list)).

Ethernet

Ethernet is one of the standard specifications for LAN connection. In the Ethernet configuration, computers are connected with the same axle cable or twisted pair cable that compete for network access using CSMA/CD method. Data is transmitted at a maximum speed of 100Mbps.
The representative cables that can be used for Ethernet connection are of three-types such as 10BASE-5, 10BASE-2, 10BASE-T. InfoRanger uses 10BASE-T cable.

Hub

A hub is a communication device used to connect several devices and share resources with the computers on network. It retransmits the signal that is sent by a device and transmits the received signal dividing it.

Internet

Internet is:

1. The worldwide system of linked networks that is capable of exchanging mail and data through a common addressing and naming system based on TCP/IP protocols. (Internet)
2. Any group of linked networks capable of exchanging electronic mail and data using a common protocol. (internet)

IP address

An IP address is defined as IP protocol and a 32-bit address, assigned to the host using TCP/IP. All resources of Internet have their own number, IP address that is marked as decimal system. The address consists of a network part, optional subnet part and host part.

LAN (Local Area Network)

A LAN is a network used for relatively small area (single-story or small building) as an Ethernet and token-ring network. LAN makes it possible for users to send/receive e-mail and share resources such as files, printers and modems. The bigger companies connect their own LAN with the Internet to allow users to connect with resources outside the LAN.

NIC (Network Interface Card)

A NIC is a hardware device that translates electronic signals between a computing device's native network hardware and the transmission media.

MAC (Media Access Control) address

A MAC address is the physical address of a devices connected to a network such as network interface card. MAC address is expressed by 6byte colon-separated hexadecimal numbers.

OSI 7-Layer model

OSI 7-Lay model is a method of describing the relationships between network protocols by grouping them according to the communication functions the protocols provide. The OSI model defines 7 distinct categories (Layers) that act successively on data as it makes its way between the user and the transmission media.

Protocol

A protocol is, in networking, a specification of the data structures and algorithm necessary to accomplish a particular network function.

RJ-45

A RJ-45 is a connector used with Ethernet and Token Ring devices that looks like a telephone jack but has eight wires instead of four or six.

TCP/IP (Transmission Control Protocol / Internet Protocol)

TCP/IP is one of the network protocols used mainly on LAN. When data is transmitted via network, data is divided into packets. IP transmits the data packets from one place to another. And TCP manages the data flow and confirms the correctness of data packets.

Twisted pair

A twisted pair is a cable made up of a pair of insulated copper wires wrapped around each other to cancel the effects of electrical noise.

USB

USB (Universal Serial Bus) is a new BUS specification, which is an answer to connectivity for the PC architecture. It is a fast, bi-directional isochronal, low-cost, dynamically attachable serial interface that is consistent with the requirements of the PC platform. It supports up to 127 physical devices, and its transfer rate assures up to 12Mbps.

Appendix D
Cable Specifications

Appendix D Cable Specifications

RJ-45 Ethernet Cable

Twisted pair category-3,4,5 straight-through cable

The following RJ-45 Twisted pair category-3,4,5 straight-through cable is used to connect the ETHERNET port of the InfoRanger and the network interface card installed on PC.

Cable

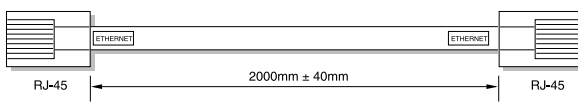


Figure D-1 Provided Straight-through cable with RJ-45 connectors

Connector

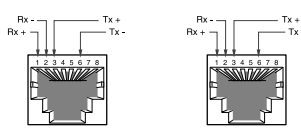
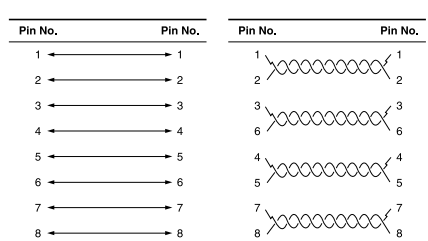


Figure D-2 Pin connections of the straight-through cable

Pin connection



< Pin Configuration > < Actual Pin Connections >

Figure D-3 Pin Signals of the straight-through cable

Twisted pair category-3,4,5 crossover cable

The following RJ-45 Twisted pair category-3,4,5 crossover cable is used to connect the ETHERNET port and the network devices such as a hub or a switch.

Cable

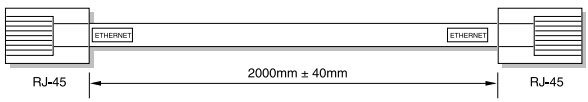


Figure D-4 Crossover cable with RJ-45 connectors

Connector

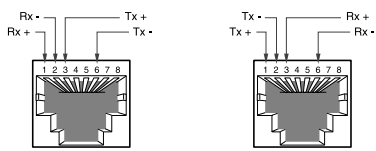


Figure D-5 Pin Signals of the crossover cable

Pin connection

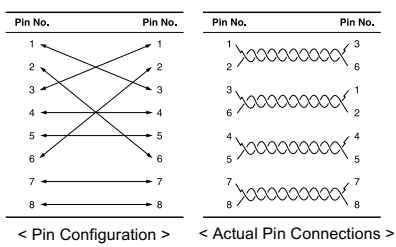


Figure D-6 Pin connections of the crossover cable

USB Cable

The following USB cable is used to connect the USB port of the InfoRanger and the USB port of the PC.

USB Connector Termination Data

Contact Number	Signal Name	Typical wiring Assignment
8	VBUS	Red
2	D-	White
3	D+	Green
4	GND	Black
Shell	Shield	Drain Wire

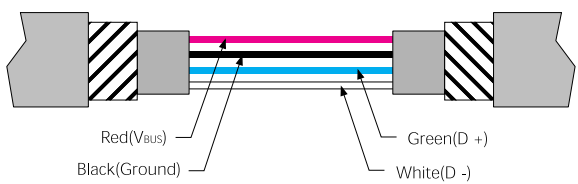


Figure D-7 USB Connector Termination

Cable

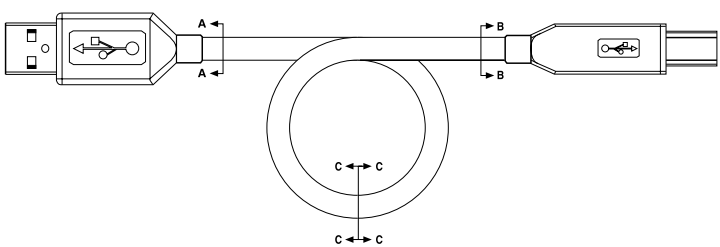


Figure D-8 USB Cable

Connector

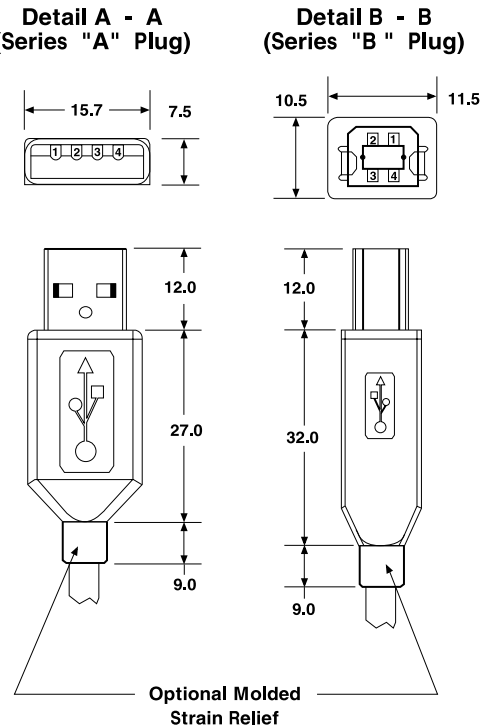


Figure D-9 Pin Signals of the USB cable

NOTE All dimensions are in millmeters (mm) in this page.

Technical Support

SAMSUNG offers the highest level of customer service in the industry. Friendly and knowledgeable customer service is available as follows through our web site or your service provider.

- General information about the product
- Support when problems arise
- FAQs

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