XEPS103 Space-Saving Powerline Network Extender

NETGEAR

User Guide

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Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

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 an experienced radio/TV technician for help.

Bestätigung des Herstellers/Importeurs

Es wird hiermit bestätigt, daß das XEPS103 Space-Saving Powerline Network Extender gemäß der im BMPT-AmtsblVfg 243/1991 und Vfg 46/1992 aufgeführten Bestimmungen entstört ist. Das vorschriftsmäßige Betreiben einiger Geräte (z.B. Testsender) kann jedoch gewissen Beschränkungen unterliegen. Lesen Sie dazu bitte die Anmerkungen in der Betriebsanleitung.

Das Bundesamt für Zulassungen in der Telekommunikation wurde davon unterrichtet, daß dieses Gerät auf den Markt gebracht wurde und es ist berechtigt, die Serie auf die Erfüllung der Vorschriften hin zu überprüfen.

Certificate of the Manufacturer/Importer

It is hereby certified that the XEPS103 Space-Saving Powerline Network Extender has been suppressed in accordance with the conditions set out in the BMPT-AmtsblVfg 243/1991 and Vfg 46/1992. The operation of some equipment (for example, test transmitters) in accordance with the regulations may, however, be subject to certain restrictions. Please refer to the notes in the operating instructions.

Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations.

Product and Publication Details

Model Number:	XEPS103
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Technical Support

Please refer to the support information card that shipped with your product. By registering your product at *http://www.netgear.com/register*, we can provide you with faster expert technical support and timely notices of product and software upgrades.

NETGEAR, INC. Support Information

Phone: 1-888-NETGEAR, for US & Canada only. For other countries, see your Support information card.

E-mail: support@netgear.com

Web site: *http://www.netgear.com*

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XEPS103 Space-Saving Powerline Network Extender User Guide

About This Manual

The *XEPS103 Space-Saving Powerline Network Extender User Guide* describes how to install, configure, and troubleshoot the NETGEAR® XEPS103 Powerline Extender. The information in this manual is intended for readers with intermediate computer and Internet skills. For information about product features, see the NETGEAR website at *http://www.netgear.com*.

Conventions, Formats, and Scope

The conventions, formats, and scope of this manual are described in the following sections.

- **Typographical conventions.** This manual uses the following typographical conventions.

Italics	Emphasis, books, CDs, URL names
Bold	User input
Monospace	Screen text, file and server names, extensions, commands, IP addresses

- **Formats.** This manual uses the following formats to highlight special messages.

 Note: This format is used to highlight information of importance or special interest.

 Tip: This format is used to highlight a procedure that will save time or resources.

 Warning: Ignoring this type of note may result in a malfunction or damage to the equipment.

 Danger: This is a safety warning. Failure to take heed of this notice may result in personal injury or death.

- **Scope.** This manual is written for the XEPS103 Powerline Extender according to these specifications.

Product version	XEPS103 Space-Saving Powerline Network Extender
Manual publication date	February 2007

Product updates are available on the NETGEAR website at *http://kbserver.netgear.com/products/XEPS103.asp.*

How to Print This Manual

To print this manual, you can choose one of the following options, according to your needs. Your computer must have the free Adobe Acrobat Reader installed in order to view and print PDF files. The Acrobat Reader is available on the Adobe website at *http://www.adobe.com*.

- **Printing a chapter.** Use the *PDF of This Chapter* link at the top left of any page.

  – Click the PDF of This Chapter link at the top right of any page in the chapter you want to print. The PDF version of the chapter you were viewing opens in a browser window.

  – Click the print icon in the upper left of the window.

> **Tip:** If your printer supports printing two pages on a single sheet of paper, you can save paper and printer toner by selecting this feature.

- **Printing the full manual.** Use the *Complete PDF Manual* link at the top left of any page.

  – Click the Complete PDF Manual link at the top left of any page in the manual. The PDF version of the complete manual opens in a browser window.

  – Click the print icon in the upper left of the window.

> **Tip:** If your printer supports printing two pages on a single sheet of paper, you can save paper and printer toner by selecting this feature.

Package Contents

The product package should contain the following items:

- One XEPS103 Space-Saving Powerline Network Extender
- Power cord
- *XEPS103 Resource CD*, including:
    - This guide.
    - *XEPS103 Installation Guide*.
    - Encryption utility
- Printed *XEPS103 Installation Guide*, Warranty Registration Card, and Support Information Card.

If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the Powerline extender for repair.

Label Information and Status Lights

The Powerline extender has a label with important information and status light indicators. Familiarize yourself with these features of your product.

The Label

The label on the bottom of the Powerline extender contains the items listed below.

- MAC address
- Model number
- Serial number
- Unique device Passcode (PWD)

Front Panel Status Lights

The front panel of the XEPS103 contains status lights. You can use them to verify connections. The table below describes the lights on the front panel.

Table 1-1. Front Panel Status Light Descriptions

Status Light	Description
Power ⏻	• **On green solid.** Power is supplied to the Powerline extender. • **Off.** Power is not supplied to the Powerline extender.
Ethernet 🖧	• **On green solid.** The Ethernet port is linked but there is no activity. • **Blink.** Data is being transmitted or received on the Ethernet port. • **Off.** No link is detected.
HomePlug ⌂	• **On.** The HomePlug port has detected another PowerLine device on the PowerLine network. • **Blink.** Data is being transmitted or received on the PowerLine network. • **Off.** No other PowerLine devices detected on the PowerLine network.

How the Powerline Extender Fits in Your Network

Besides its function as a Powerline adapter, the XEPS103 acts as the power adapter for your router. Thus power can be provided to both the XEPS103 and your router through one AC power outlet. You can use the XEPS103 Powerline Extender with other HomePlug Powerline adapters (such as the XE103 Wall-plugged Ethernet Adapter) to implement or extend an Ethernet local area network (LAN) anywhere in your house using your existing electrical power line in place of a dedicated LAN wiring infrastructure. An example is illustrated in the following diagram for a minimal network consisting of two PowerLine devices:
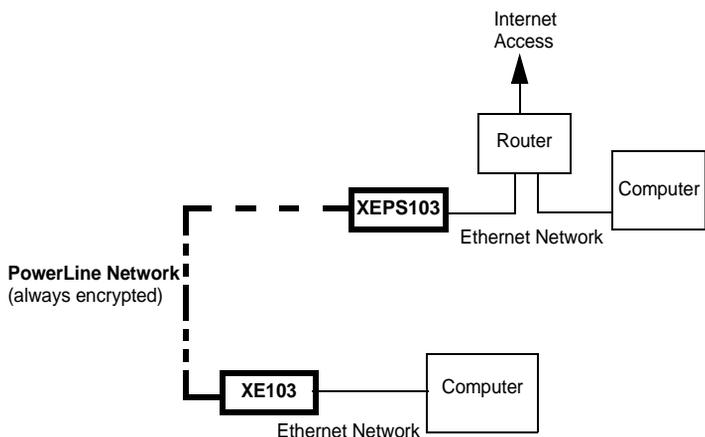
Figure 1-1

Follow the instructions below to set up your Powerline extender.

Prepare to Install Your Powerline Extender

The XEPS103 is designed for easy installation. Check that these minimum requirements are met.

- Your router uses a 12V 1A power adapter. This includes, but is not limited to, the following Netgear router and switch models:
    - FVS318
    - GS105, GS605, GS608
    - WG102
    - WGPS606
    - WGR614, WGT624, WGT624SC

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– WPN824, WPNT834

– WNR834M, WNR834B

If in doubt, check the label on your router's power adapter.

- Your Ethernet network is set up and an Ethernet LAN port is available on your router.

- Your Internet connection is working.

- Each computer or device to be used on your network has an Ethernet port.

Connect the XEPS103 to the Router

1. Disconnect your router from its power adapter.

2. Plug the gray dual output cable, attached to the XEPS103 Space-Saving Powerline Network Extender, into a LAN port and DC power inlet on your router.

Figure 1-2

3. Plug the XEPS103 Powerline Extender into an electrical outlet. Take care that the electrical outlet is not controlled by a wall switch so as to avoid someone does not unknowingly turn off power to your adapter. Check that the XEPS103 power light comes on.
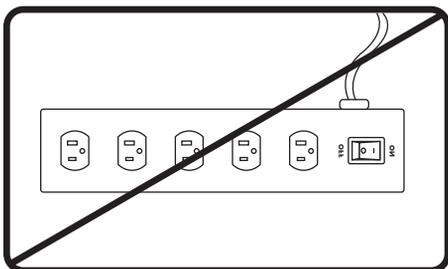
Do not connect the Powerline extender to a power strip, extension cord, or surge protector as this may prevent it from working properly or degrade the network performance.

Do not tie or twist the XEPS103 power cord with the dual output cable, or any other Ethernet cable, as this may degrade the network performance.

WARNING!

4. Wait for the router to indicate that the LAN port that is connnected to the XEPS103 Powerline Extender is linked and active. On the XEPS103, check that the Ethernet and Powerline status LEDs are on and blinking. Refer to Table 1-1 for a detailed explanation of the LED behavior.

Connect other Ethernet Powerline Extenders

1. Before plugging in your other PowerLine devices, take a note of the device password printed on the label on the back of each device. You will need this password later if you want to change the PowerLine network password. If you are adding more than one other Powerline extender, also note the MAC address given on the label, so that you will know which device the password is for.

2. Plug your other PowerLine devices into power outlets in your home near to the other computers and peripherals to be included in your PowerLine local area network.

3. Use an Ethernet cable to connect an Ethernet port on each of the computers and peripherals to the nearest PowerLine device.

4. When you plug in a second Powerline extender into a power outlet, check the blue HomePlug LEDs. They should turn on and then briefly blink at the same time as the Ethernet activity LED.

This completes the PowerLine installation.

Install the XEPS103 PowerLine Encryption Utility (Highly Recommended)

The utility gives you the option of setting a unique encryption PowerLine network password.

Important features:

- The encryption password is not case-sensitive.

- Each device must be set to exactly the same encryption password—if they are to communicate on the same network. PowerLine devices on different networks will not be able to communicate.

- A default button resets the encryption password to the default password (HomePlug).

- The encryption password can protect your network from unauthorized access through the PowerLine network.

- A device password is printed on each NETGEAR PowerLine product. This is not the network password, but you are required to enter it if you are setting the network password with another Powerline extender device.

To install the PowerLine Encryption Utility, follow these steps:

1. Insert the *XEPS103 Resource CD* into a CD drive on the computer that is connected to your router. The CD starts automatically. The following screen is displayed:

NETGEAR®
Connect with Innovation®

Welcome
XEPS103 Space-Saving Powerline Ethernet Extender

Install Encryption Utility

Documentation

Online Support

Register your product with NETGEAR

Quit

Figure 1-3

If the CD does not start automatically:

*   Go to My Computer on the Windows Start menu, and double-click the drive that contains the *XEPS103 Resource CD* or

*   Select the CD drive and click on the Autorun.exe executable file.

2. Click Install Encryption Utility. A dialog will give you the choice between installing from the CD, or checking for an upgrade. If you click the **Check for Upgrade** button, the CD software will check a Netgear server for a newer version of the utility. If found, the newer version will be downloaded and run. If the utility on the CD is up-to-date, or you click the **Install from CD** button, the setup program on the CD will be run.

3. A Welcome screen appears.
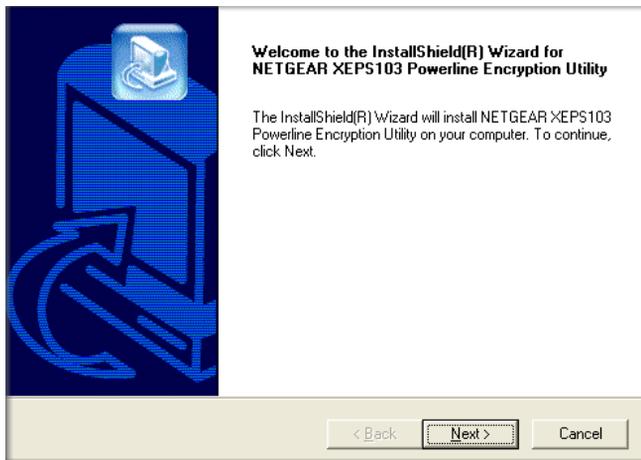
Figure 1-4

4. Click **Next** and follow the instructions on the screen until the installation of the utility is complete.

5. When the installation is complete, click **Finish**.

Set Your Network Password

The fastest and most reliable way to set the network password is to set the password for all devices at once. To do this, you need the device password on the back label of each PowerLine device. There are two steps to setting the password: first enter the device password for each remote PowerLine device, and then set the network password.

1. Enter the device password for each remote PowerLine device:

    a. Make sure that all PowerLine devices are plugged into 100~240V AC wall sockets.

b. Start the PowerLine encryption utility and click the Main tab.
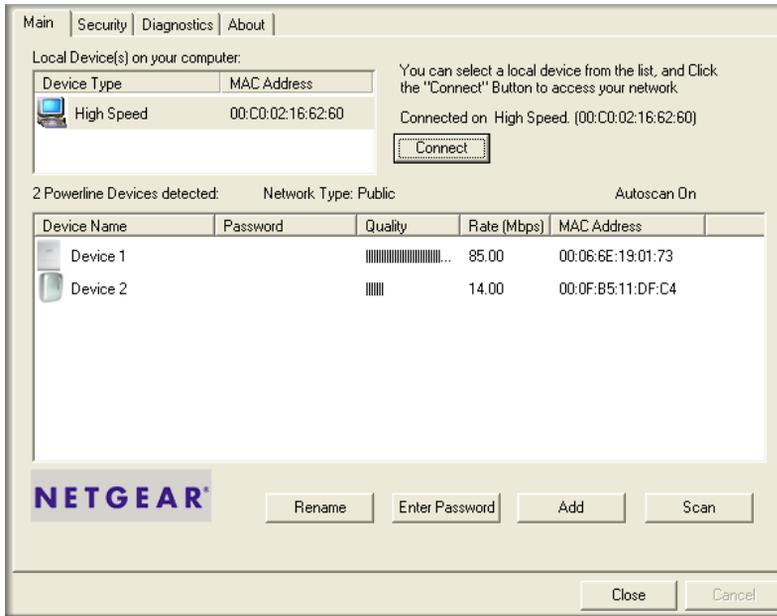
Figure 1-5

c. Check that the utility lists all the remote PowerLine devices

d. Select a PowerLine device and, if more than one remote device is listed, identify it from the MAC address.

e. Click **Enter Password**.

Figure 1-6

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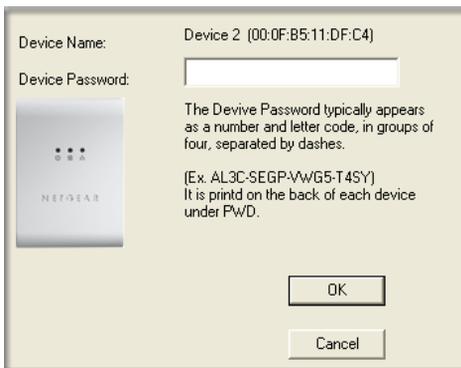
    f.   Enter the password recorded from the label on the back of the selected PowerLine device.

    g.   Click **OK**.

    h.   Repeat this step for all devices that you want attached to your network.

2. Set the network password.

    a.   Select the Security tab.
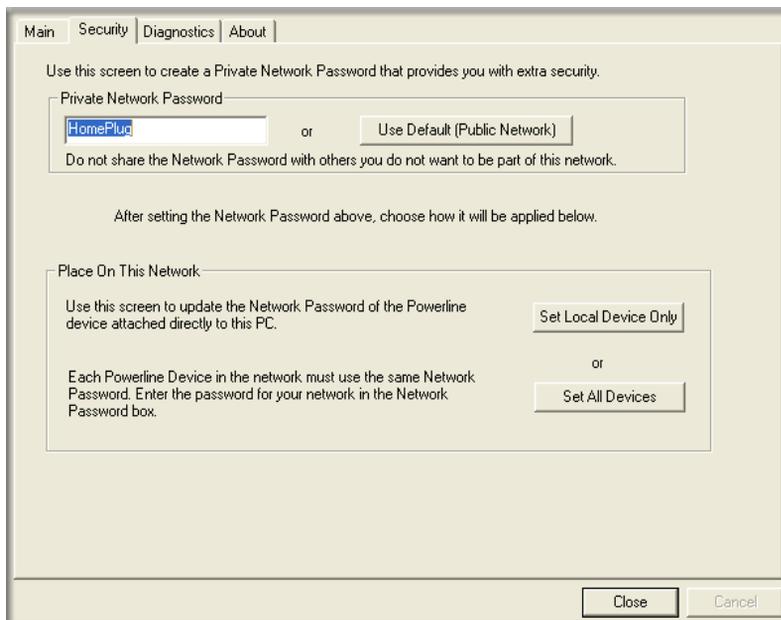
Figure 1-7

    b.   Type a password in the Private Network Password text box.

    c.   Click Set All Devices. A pop-up window indicates that the operation was successful.

Add a Device to an Existing PowerLine Network

To add a device to a PowerLine network with the default network password, all you need to do is plug the new device into a power outlet.

If the network password has been set, then you will need to run the PowerLine encryption utility to set the new device to the network password. How you do this depends on whether the computer running the PowerLine encryption utility is connnected directly to the new PowerLine device (local) or is connected to a different device in the PowerLine network (remote).

Adding a New Device from a Locally Connected Computer

1. Plug the new PowerLine device into an available AC power outlet and connect it to an Ethernet port on the computer.

2. Start the PowerLine encryption utility and select the Security tab.

3. Type the network password in the Private Network Password text box and click Set Local Device Only.

4. Select the Main tab and check that the other devices in the PowerLine network appear in the device list. It may take a minute or two for all devices in the network to be detected.

Adding a New Device from a Remotely Connected Computer

1. Note the device password given on the label on the back of the new PowerLine device.

2. Plug the new PowerLine device into an AC power outlet.

3. Start the PowerLine encryption utility on the remote computer and select the Security tab.

4. Click Use Default (Public Network). The password in the Private Network Password text box changes to the default password, HomePlug.

5. Click Set All Devices.

6. Select the Main tab and wait for the new PowerLine device to be listed.

7. Select the new PowerLine device from the device list, and click Enter Password.

8. In the pop-up window, enter the password from the back label of the device and click OK.

9. Select the Security tab.

10. Re-enter the network password in the Private Network Password text box, and then click Set All Devices.

Troubleshooting

This chapter gives information about troubleshooting your XEPS103 Space-Saving Powerline Network Extender. After each problem description, instructions are provided to help you diagnose and solve the problem.

NETGEAR Product Registration, Support, and Documentation

Register your product at *http://www.netgear.com/register*.

Product updates and Web support are available at:
http://kbserver.netgear.com/products/XEPS103.asp.

When the Powerline extender is connected to the Internet, click the Knowledge Base or the Documentation link under the Web Support menu to view support information or the documentation for the Powerline extender.

Basic Functioning

After you plug in the Powerline extender, the following sequence of events should occur:

1. When power is first applied, verify that the Power light is on.

2. After approximately 10 seconds, check the LEDs on the Powerline extender. The following should occur:

   a. The power LED is solid green.

   b. The blue HomePlug LED is lit.

   c. The Ethernet LED blinks.

If any of these conditions does not occur, refer to the appropriate following section.

Power Light Not On

Make sure that, if power to the AC power outlet is controlled by a wall switch, the wall switch is in the **on** position.

Verify that the wall socket is live. To do this, disconnect the Powerline extender and plug in another electrical product, such as a lamp or a hairdryer.

If the Power LED still does not come on, and you have confirmed the power outlet is live, you have a hardware problem and should contact technical support.

HomePlug Light Not On

If the power light is on but the HomePlug light is not, check the following:

- Make sure that power is being provided to more than one PowerLine device. Another PowerLine device must be installed for successful communication across the PowerLine.
- Verify that the network password is the same on all devices in the PowerLine network.

Ethernet Light is Off

- Make sure that the Ethernet cable is plugged in properly to a router LAN port.
- On the attached Ethernet device or network adapter card, check that the Link light is on.

Technical Specifications

This section provides default settings and technical specifications for the XEPS103 Space-Saving Powerline Network Extender.

Default Configuration Settings

Table 1-1. PowerLine Device Default Configuration Settings

Feature		Description
Network		
	Port Speed	10/100 Mbps, Auto-negotiation
	Port Duplex	Auto-negotiation
		Auto uplink
Administration		
	Device password	See product label.
PowerLine		
	Encryption password	HomePlug

Technical Specifications

Power input	100~240V AC
Power output	12V DC at 1 A. Tolerance <5%
Dimensions	46mm x 70mm x 125mm (Height x Width x Length)
Weight	0.5 kg
Operating temperature	32° to 104° F (0° to 40°C)
Operating humidity	10-90% maximum relative humidity, noncondensing
Storage humidity	5-95% maximum relative humidity, noncondensing
Powerline standard	HomePlug 1.0
HomePlug Frequency	4.3-20.9 Mhz
Data transfer rate	Up to 85 Mbps with real throughput > 25 Mbps.

Data Encoding	HomePlug 1.0: Othogonal Frequency Division Multiplexing (OFDM), DQPSK, DBPSK, ROBO
HomePlug Security	DES (56 bit)
Network Protocol Compatibility	IEEE 802.3 (10Base-T); IEEE 802.3u (100Base-Tx); IEEE 802.3x (full-duplex flow control)
Electromagnetic emmissions	FCC Part 15 Class B; CE-Mark, commercial; VCCI Class B; A-tick; 3-home FCC Certificate; MIC
Power and Safety	UL Listed (UL 1950) /cUL IEC950; CE LVD
Power adapter regulations	CEEP