



Phonex ***Broadband***



NeverWire 14 User Guide

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Awarded 'Best of Innovations'

Phonex Broadband Corporation is proud to be the first company worldwide to market a broadband networking device that turns any electrical outlet into a 10BaseT Ethernet portal.

The NeverWire 14 is the winner of the **Best of Innovations 2002** award in the Home Data Networking category of products from the Consumer Electronics Association. As the most widely renowned consumer technology awards program, Innovations recognizes the best designed and engineered products in digital communications technology.



NeverWire 14 User Guide

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Introduction

Thank you for purchasing the NeverWire 14 home networking system. The NeverWire 14 allows you to share files, printers, and high-speed Internet access at any electrical power outlet in your home or office. We are confident you will enjoy the many benefits of this innovative device.

A History of Leadership

Phonex Broadband Corporation, based in Midvale, Utah, is a privately held company recognized as the world's leading developer of powerline technology. Our proprietary technologies enable voice and data devices to communicate reliably using standard electrical wiring. We have been designing, manufacturing, and marketing a broad base of telephone accessories, communication equipment, and Internet access products for over twelve years, and over 9 million nodes of our products have been installed worldwide.

The strong history of Phonex Broadband's successes has resulted in a knack for being "first to market" with the most innovative solutions for the digital home of today. The NeverWire 14 is proof of the company's leadership in the home networking arena.

Where to Find Information

Your NeverWire 14 product is backed by helpful information designed to get your home network up and running quickly and securely.

Quick Start Guide

Use the quick installation instructions to guide you in the most common setup tasks. There is a separate Quick Start Guide in the package box as well as on pp. 6-8.

User Guide

This manual offers more detailed installation instructions, along with suggestions about configuring your home network and helpful references, including a Frequently Asked Questions (FAQ) file, a Troubleshooting Guide, and a Glossary.

Web Site

See the Phonex Broadband Corporation web site for the latest product news, or to find a convenient retail source for additional NeverWire 14 units:

<http://www.phonex.com>

Technical Support

If you have questions about your NeverWire 14, please contact us in one of these ways.

On the Web Site

<http://www.phonex.com>

By Email or Fax

Contact us by email or fax at any time:

Email: **customerservice@phonex.com**

Fax: **801-566-0880**

By Telephone

The Customer Service Center is available 24 hours a day, seven days a week. The number is toll-free from anywhere in the U.S.:

800-257-0601

Quick Start Guide

The following Quick Start Guide will help you to set up your NeverWire 14's quickly. For more details on setup, refer to Chapter 5, "Getting to Know the NeverWire 14," and Chapter 6, "Connecting Your Hardware."

Also see "Safety" in the Appendices at the end of this User Guide.

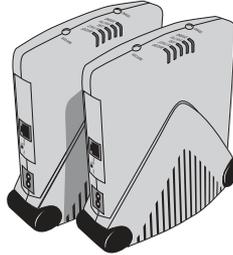
After setting up your NeverWire 14's with the Quick Start Guide, refer to Chapter 7, "Configuring Your Computer(s)," for helpful instructions about setting up your home network.

Before you begin your NeverWire 14 Installation, please note:

- Installing units near halogen lamps, light dimmers and touch lamps may cause interference and slow data transfer speeds.
- In addition, units **will not** function if plugged into a surge protector.

Step 1: Verify Number Of Units

Verify that you have **TWO** or more NeverWire 14 units. The NeverWire 14 home networking system requires at least two units to function. You cannot establish a network with only one NeverWire 14 unit.



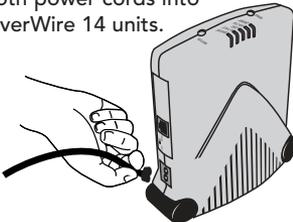
Step 2: Box contents

Check contents of box--You should have one NeverWire 14 unit, one Power Cord, one Ethernet Cable, one User Guide, one Quick Start Guide and one Registration card per box. If you do not have all of these materials, please call at **1-800-257-0601**, visit our web site at **www.phonex.com**, or email us at **customerservice@phonex.com**.

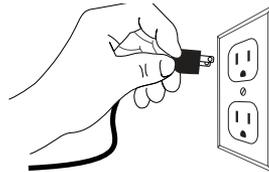


Step 3: Connect Power Supply

Plug both power cords into the NeverWire 14 units.



Plug both power cords into the wall.

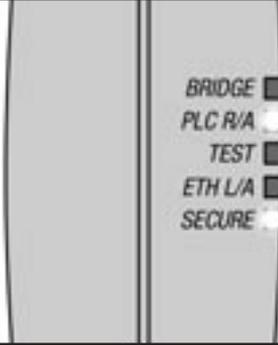


Step 4: Verify Operation

Within a few seconds of plugging units in, LED lights (at the top of the unit) will begin to flash.

The **PLC R/A** LED should now be on. This indicates that the units are ready to connect to each other via your outlets.

The **SECURE** LED should now be on, blinking off every five seconds. This indicates that the units are using default security encryption.



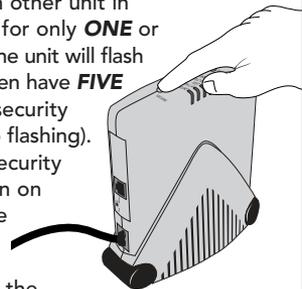
Step 5: Setting Security (optional)

Advanced security encryption prevents neighboring households from accessing your data traffic over the powerline system. Setting security encryption is recommended. If you do **NOT** want to set encryption, go to step 7. If you would like to set security encryption, press the **SECURE** button on the top of **ONE** unit for **FIVE seconds**. The **SECURE** LED will blink rapidly. This indicates that the first unit is waiting for other units to set their security encryption. Go to step 6.



Step 6: Setting Security On Additional Units

After setting the first unit in step 5, go to each other unit in your home and press the **SECURE** LED button for only **ONE** or **TWO** seconds. The **SECURE** LED on the top of the unit will flash for about five seconds and then go solid. You then have **FIVE minutes** to get to the next unit. After setting security encryption, all secure LEDs will stay on solid (no flashing). At this point, either wait five minutes for the security feature to activate, or press the **SECURE** button on the first unit for five seconds again to finish the security setting cycle.



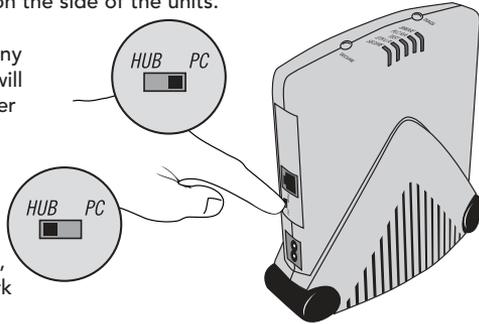
Note: Unplugging the units will not deactivate the Security setting.

Step 7: HUB/PC Switch Settings

Refer to HUB/PC switch on the side of the units.

Set the switch to **PC** on any NeverWire 14 units that will be installed for a computer or network printer.

Set to **HUB** all other NeverWire 14 units that will be installed to cable/DSL modems, hubs, switches, or other network access devices.



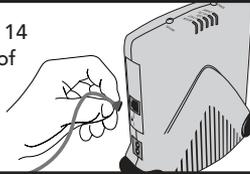
Step 8: Turn Off All Devices

Shut off power to all the device that will be connected to the NeverWire 14 units. You may leave the NeverWire 14 units plugged in.



Step 9: Plug In Ethernet Cables

Plug an Ethernet cable into each NeverWire 14 and connect the cable to the Ethernet port of the device it will be networking (computers, cable modems, etc.).

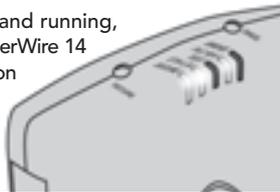


Step 10: Turn On All Devices/Verify Operation

Turn on all the devices. Once all devices are up and running, the **ETH L/A** LED (Ethernet) on each installed NeverWire 14 should now be on, indicating an Ethernet connection has been established. (A flashing **ETH L/A** LED indicates network traffic.)

Enjoy your new Home Network!

There are some Ethernet devices that use the PC setting instead of the HUB setting, if the ETH LA light does not come on, try the other switch setting.



Welcome to Home Networking

Your NeverWire 14 system allows you to tap into a new world of home networking. This section explains some of the advantages of home networking and how powerline technology makes it even easier to bring into your home or small office.

Learning about Home Networking

Networks

A network is a system of interconnected computers and other devices. A network can be specific to a local area within a room, house, or building – a local area network, or LAN – or it can cover a wide area spanning many buildings, or even across cities and regions – a wide area network, or WAN.

Networks can connect to other networks, forming ever-larger interconnections among people and their digital devices. The widest collection of networks created so far is the Internet, which links up millions of computers worldwide in a vast web of information exchange.

Bringing It Home

Within the home or small office, it is now possible to set up a local area network that is connected to the Internet via a high-speed, or broadband, access. Some examples of broadband access are Digital Subscriber Line (DSL), cable, and Integrated Services Digital Network (ISDN). Broadband technology makes it possible to use bandwidth-intensive services in the home such as streaming audio/video and interactive computer gaming. The rapid proliferation of personal computers (PC's) in the home has also spurred the need to link up resources and devices.

So whether you want to work from the living room couch, outside on the patio, or upstairs in a comfortable bedroom, your home network lets you stay connected to the flow of information from the Internet, and, via the Internet, to the activities of businesses, other homes, and many other enterprises. It also allows you to share files and printers with other computers on the network, or to play games with other people on the network.

Components

Essentially, each network consists of these components:

- **Nodes:** Computers and other devices with network interface cards (NIC's)

Some computers and peripherals like modems, printers, and scanners are now manufactured with NIC's already installed. You can also purchase NIC's separately and install them yourself.

- **Links:** Transmission lines or other means to handle the transfer of data

When networks were first created, the communication among network nodes was done over cable lines, either coaxial cable, which resembles television cable, or twisted pair cable,

which looks like the wire that connects your telephone to the wall jack. Now, however, network communications can be handled in a variety of ways, including over regular phone lines, with serial cables, by radio waves (wireless), and over powerlines.

Networks may also have a **hub or switch**, used to route traffic among the nodes of the network, much like a telephone switchboard routes calls between telephones.

Taking Advantage of Powerline Technology

Phonex Broadband has engineered solutions that provide a way to readily access communications signals in the home affordably and conveniently, with no additional wiring. The NeverWire 14 is the first high-speed home networking product that provides access to data devices over the powerline.

How Powerline Carrier (PLC) Technology Works

Because most data communication is electrical in nature, normal home electrical wiring can be used to transmit modulated electrical signals. Powerline carrier technology takes advantage of the existing bandwidth of the power cable to transmit data over existing home power wiring. The transceivers made by Phonex Broadband plug into the wiring system and translate the modulated signals into meaningful data, which is then sent via Ethernet cable to computers and other devices.

Advantages of Powerline Carrier Technology

Phonex Broadband Corporation uses PLC technology in the engineering and design of all of its products and believes this technology to be the most functional, convenient, and low-cost

solution to today's home networking needs. Powerline carrier technology makes it possible for virtually any home or small office to have its own network, with these advantages:

- **Ease and simplicity:** No new wiring is necessary. Connection to the network is available from any power outlet in the home.
- **Distance:** Nodes on the network can be up to 150 feet apart.
- **Construction independent:** The signal can travel through walls and floors.
- **Mobility:** The ports can move to new locations, and no settings are lost.

Uses for the NeverWire 14

The NeverWire 14 uses the existing electrical wiring in your home or office to pass digital signals between Ethernet-enabled devices. This creates a variety of opportunities for connectivity in the home or office. Whether you have one computer and need to access a broadband modem in another location in the house, or you have multiple computers to connect, powerline carrier technology in the NeverWire 14 makes it a snap to connect up a home network.

File Sharing

- Transfer files between computers across the network without the need of a floppy disk.
- Back up your files onto a second computer across the network.

Sharing Printers and Other Devices

- Print to any printer that is connected to a computer on the network. Or print to stand-alone Ethernet-enabled printers.

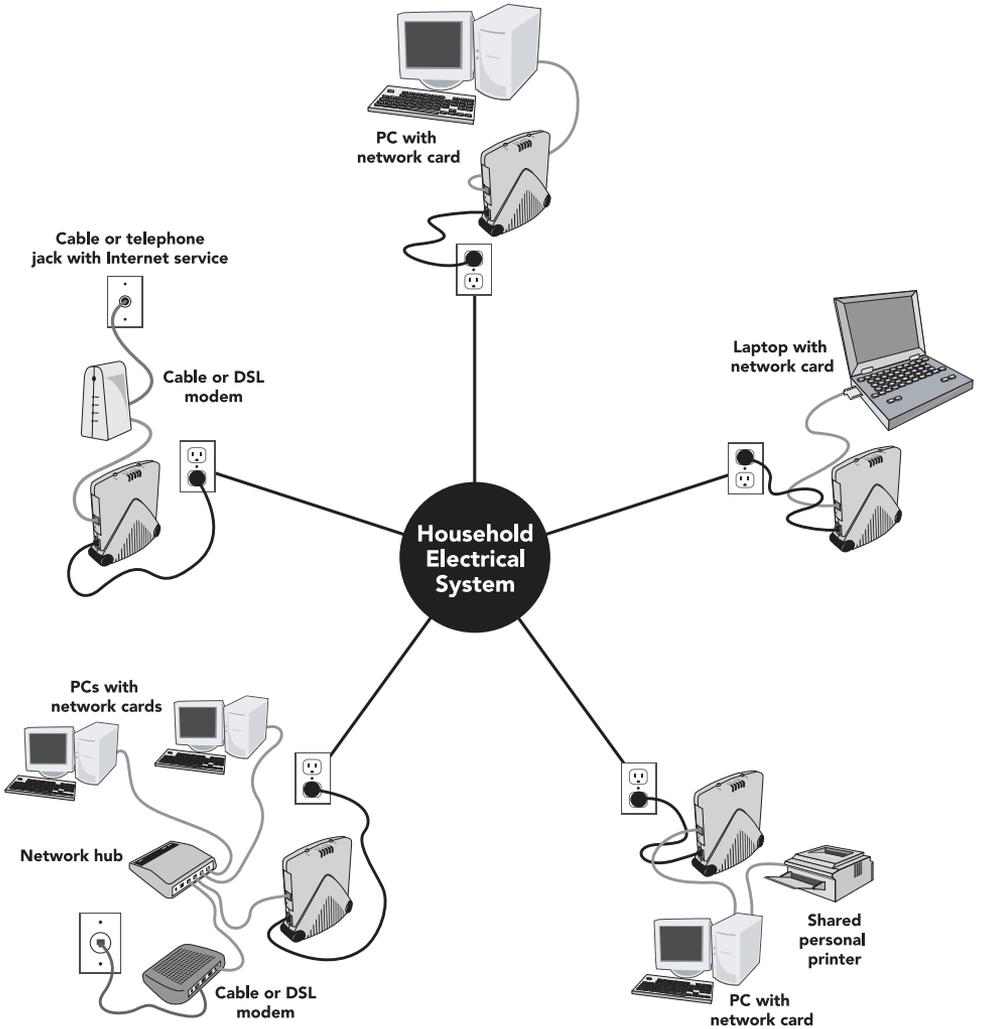
- Use other devices that are attached to another computer and not available on your computer. For example, if your computer does not have a CD-ROM drive, you can use a CD-ROM drive on another computer on the network to install software, read files, or play games.

Internet Access Sharing

- Place your computer anywhere in the house and still access your broadband modem via the powerline. Cable modem comes into the basement den, and you want to surf the Net from your second-floor bedroom? Powerline technology makes it easy.
- Share your broadband Internet access with all computers in the house. The shared DSL, ISDN, or cable modem lets all users browse the Internet from any electrical outlet in your home.
- Access office resources and email from your home office.

Putting It All Together

This configuration diagram shows some of the many possibilities for using the NeverWire 14 in your home or office:



Getting to Know the NeverWire 14

Prerequisites

You will need the following:

- **Power outlets** to the electrical wiring system of your home or office

Note: The NeverWire 14 unit will **not** work if plugged into a surge suppressor.

- **Network interface card (NIC)** for each computer or device you want to connect, supporting 10BaseT or 10/100BaseT Ethernet

Note: The NeverWire 14 will **not** work with Ethernet devices that support **only** 100BaseT Ethernet.

- **Broadband access** through an Internet service provider (if using the NeverWire 14 to access the Internet)

Package Contents

Carefully remove the NeverWire 14 units from the packaging. If there is any visible damage, DO NOT ATTEMPT TO INSTALL OR OPERATE the equipment. Notify your dealer or shipping carrier immediately.



Verify that you have the following items (at least two sets):

- NeverWire 14 unit
- Power cord
- Ethernet cable, CAT 5 with RJ-45 connectors
- User Guide
- Quick Start Guide
- Registration card

The NeverWire 14

Ethernet Port

The Ethernet port for the NeverWire 14 is on the side. It accommodates a standard Ethernet cable connector. You will use a cable in this port to connect the NeverWire 14 to a device on your network.

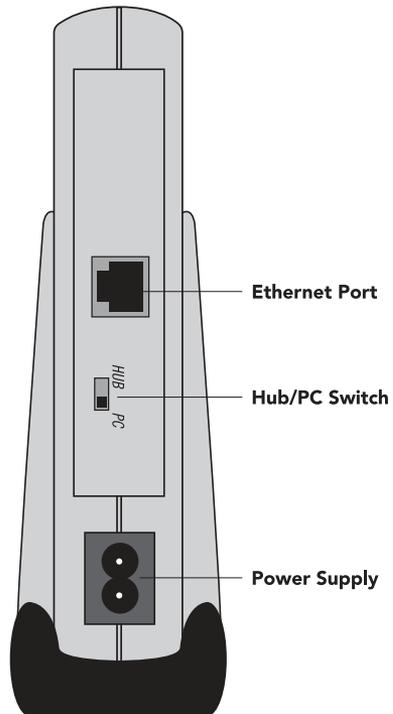
Hub/PC Switch

Hub/PC switching allows the NeverWire 14 to connect to either hubs and hublike devices such as broadband modems or to personal computers. The installation directions let you know whether to set a particular device to **HUB** or **PC**.

Power Supply

The power cord will plug into the NeverWire 14 on the side.

SIDE VIEW



Security Button

The NeverWire 14 ships with default security encryption. You may activate advanced security encryption to protect better the privacy of your network from other households or businesses which may share the same power system, such as in an apartment building. See the section on “Security Encryption” in Chapter 6.

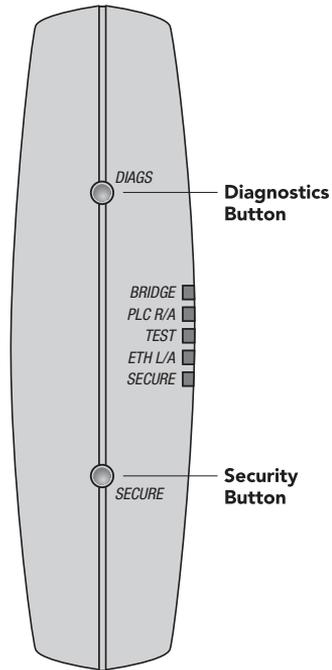
Diagnostics Button

You can check the connection status of the various NeverWire 14 units on your home network. See the “Diagnostics” section in Chapter 8 for more information.

Indicator Lights

The five indicator lights give information about the status of the NeverWire 14. In Chapter 6, we will follow along with the changes in indicator lights during successful installation. Also see the section on “Indicator Lights” in the Troubleshooting Guide in Chapter 8 for a complete listing.

TOP VIEW



Connecting Your Hardware

Quick installation instructions are available in the “Quick Start Guide” at the front of this User Guide. Use this section if you would like more detail and background on the setup process.

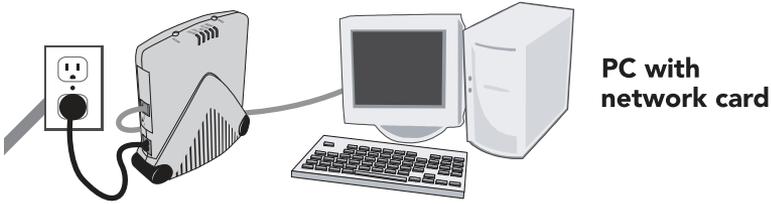
Selecting Locations for the NeverWire 14

Consider these guidelines when selecting locations for the NeverWire 14:

- Choose a location with an accessible power outlet nearby.
- The NeverWire 14 should **not** be placed near a sink or bathtub, or any other source of water.
- Avoid plugging the NeverWire 14 into the same outlet as a halogen lamp, light dimmer, touch lamp, fluorescent lamp, or surge suppressor. These items may cause interference and slow data transfer speeds.



Caution: Refer to the “Safety” section in the Appendices for more information about safe operation of the NeverWire 14.



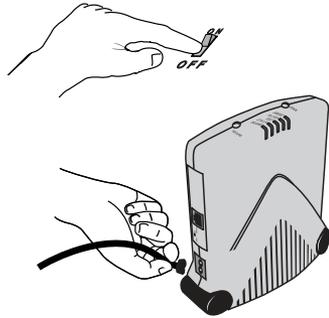
Connecting a Single Computer

Before you start: Your computer must have a network interface card (NIC) with an Ethernet port in order to make the necessary connections.

Connect each computer on your network by following these steps. Changes in the status of the indicator lights on the top of the NeverWire 14 will help you to verify your success.

1. Shut down the computer.
2. Plug the power cord into the NeverWire 14 and then plug the power cord into a power outlet near the computer.

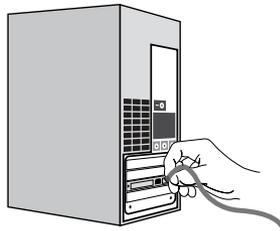
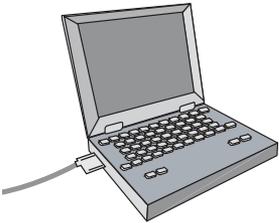
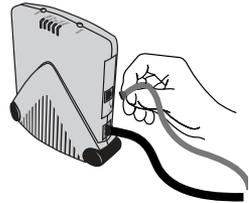
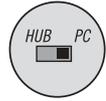
Note: The NeverWire 14 unit will **not** work if plugged into a surge suppressor.



LIGHT STATUS

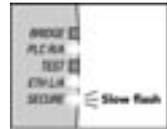


3. Set the crossover switch on the side of the NeverWire 14 to the **PC** position.
4. Connect the Ethernet cable from the NeverWire 14 to the Ethernet port on the computer. The Ethernet port is on the computer's network interface card (NIC).

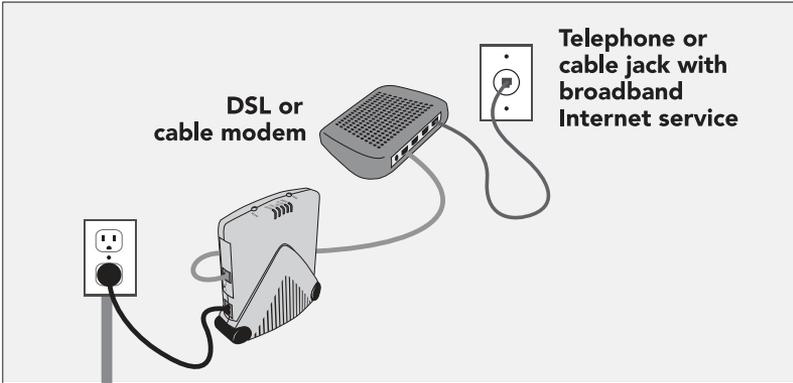


5. Turn on the power to the computer. The **ETH L/A** indicator light will activate.
6. If you are connecting additional computers, repeat steps 1–5.

LIGHT STATUS



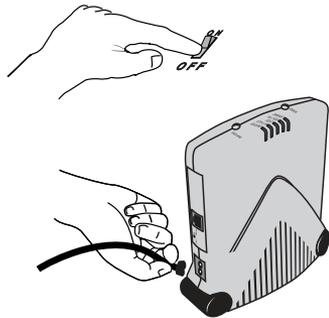
The hardware connections for networking your computers are now complete. If you want to share a broadband modem, a hub, or a switch, proceed to those sections below. After finishing all of your hardware connections, go to the section on “Security Encryption” on p. 28.



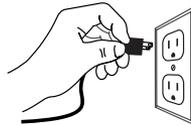
Connecting a Broadband Modem

Before you start: To share Internet access within your home network, you must have a broadband Internet access account set up with an Internet service provider and a broadband modem installed successfully. Your broadband modem (e.g., DSL modem or cable modem) must have an Ethernet port in order to make the necessary connections.

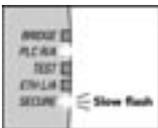
1. Turn off the power to the broadband modem.
2. Plug the power cord into the NeverWire 14 and then plug the power cord into a power outlet near the computer.



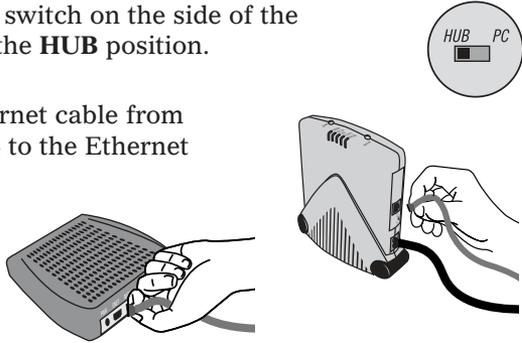
Note: The NeverWire 14 unit will **not** work if plugged into a surge suppressor.



LIGHT STATUS



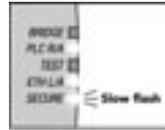
3. Set the crossover switch on the side of the NeverWire 14 to the **HUB** position.
4. Connect the Ethernet cable from the NeverWire 14 to the Ethernet port on the broadband modem.



Note: Use only the standard Ethernet cable provided with your NeverWire 14. Do **not** use a crossover cable provided with the broadband modem.

5. Turn on the power to the broadband modem. The **ETH L/A** indicator light will activate.

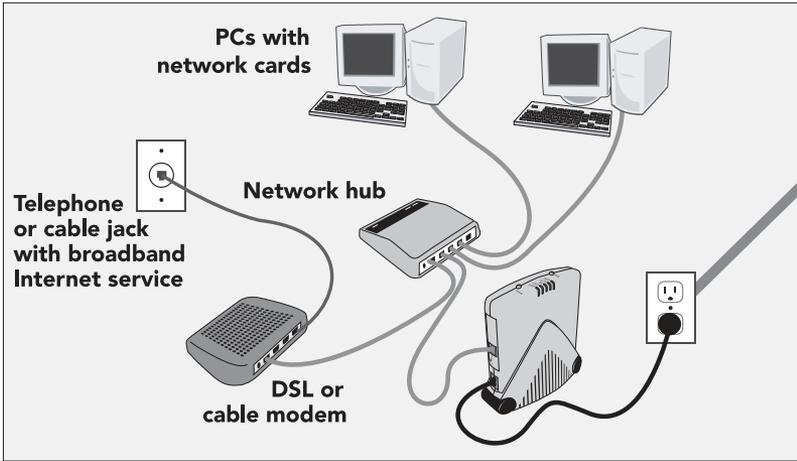
LIGHT STATUS



Note: Some modems may cause the **BRIDGE** light to activate as well.

Note: Some Ethernet devices use the **PC** setting instead of the **HUB** setting. If the **ETH L/A** light does not activate, try changing the crossover switch to the **PC** position instead.

The hardware connections for sharing Internet access are now complete. If you want to share a hub or switch, proceed to the next section. If you have finished your hardware connections, go to the section on “Security Encryption” on p. 28.



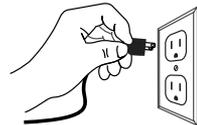
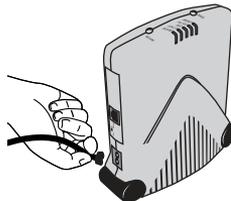
Connecting a Hub or Switch

You can connect a NeverWire 14 to an Ethernet hub or switch, and then connect multiple Ethernet devices to the hub or switch. On the NeverWire 14 this is called “bridge mode.”

Note: If you connect two NeverWire 14’s in bridge mode, disable security (see the directions under “Security Encryption” below).

Note: Only two NeverWire 14’s on your powerline network can have multiple Ethernet devices attached to them. Up to 14 other NeverWire 14’s can be connected to your powerline network.

1. Turn off the power to the hub or switch.
2. Plug the power cord into the NeverWire 14 and then plug the power cord into a power outlet near the computer.

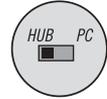


LIGHT STATUS

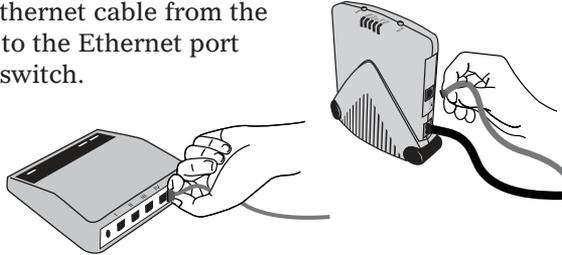


Note: The NeverWire 14 unit will **not** work if plugged into a surge suppressor.

3. Set the crossover switch on the side of the NeverWire 14 to the **HUB** position.



4. Connect the Ethernet cable from the NeverWire 14 to the Ethernet port on the hub or switch.



5. Turn on the power to the hub or switch. The **ETH L/A** light and the **BRIDGE** light will activate.
6. If you have an additional hub or switch to connect to a second NeverWire 14, repeat steps 1-5.

LIGHT STATUS



Note: Do not attempt to connect more than two nodes in bridge mode.

Note: If you connect two nodes in bridge mode, disable security (see the directions under “Security Encryption” below).

The hardware connections for bridging a subnet into the powerline network are now complete.

Security Encryption

Out of the box, the NeverWire 14 is set to a default security encryption level. You may choose to activate the optional advanced security encryption. We recommend that you do this to prevent others from accessing your data, particularly when your powerline system is shared by multiple households, such as in an apartment complex. To enable advanced security, see the directions under “Advanced Security Encryption” below.

You may instead, if you choose, disable security encryption completely. To disable encryption, see the directions under “Disabling Security” below.

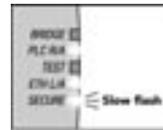
Default Security Encryption

The NeverWire 14 ships with a default security encryption that is compliant with the HomePlug 1.0 specification. This default security uses a default key and restricts access to data on the powerline network to HomePlug-compliant devices. However, this is **not** adequate protection for your network.

Note: We recommend that you enable the advanced security encryption as described in the next section.

When the security encryption is at the default HomePlug-compliant level, the **SECURE** indicator light on the top of the NeverWire 14 unit flashes off every 5 seconds.

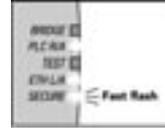
LIGHT STATUS



Advanced Security Encryption

To protect the privacy of your data traffic, you must activate the optional Phonex advanced security encryption. This 56-bit DES encryption/decryption generates a random key that is significantly harder to break. We recommend that you enable this higher level of security.

1. Press the **SECURE** button on the top of one of the NeverWire 14 units for 5 seconds. It does not matter which unit you start with. This starts the security setting cycle. The **SECURE** indicator light will begin to flash rapidly.

LIGHT STATUS

2. Go to each of the additional NeverWire 14 units and press the **SECURE** button for 1-2 seconds. On each unit, the **SECURE** indicator light will flash and, after a few seconds, will stop flashing and become steady.

Note: After each additional unit's **SECURE** light activates, you have 5 minutes to press the **SECURE** button on the next NeverWire 14 unit. If you take longer than 5 minutes to get to the next NeverWire 14, the cycle will time out and the first unit will stop flashing. If this happens, you may go back to step 1 above and start the process again.

3. Either wait 5 minutes for the security feature to activate, or press the **SECURE** button on the first unit for 5 seconds again to finish the security setting cycle.

4. Check the **SECURE** indicator light on each NeverWire 14 unit. If the security setting was successful, the **SECURE** light on each unit will be on and steady.

LIGHT STATUS

Note: If the **SECURE** light on any unit is not steady, go back to step 1 above, starting with one of the NeverWire 14's whose **SECURE** lights are on and steady. Then perform step 2 above on the NeverWire 14(s) whose **SECURE** light is not on and steady.

Disabling Security

Under certain circumstances, you may need to completely disable the security encryption. For example, under bridging mode, the

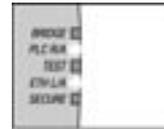
security encryption may interfere with some nodes being able to “see” the network (see “Connecting to a Hub or Switch” earlier in this chapter).

Note: Unplugging the units will **not** disable the security encryption.

To turn the security feature entirely off:

Press the **DIAGS** button on **each** unit in the network for at least 12 seconds. You must do this for each unit. Any units that are forgotten will not connect to the powerline network. The **SECURE** indicator light on the top of the NeverWire 14 unit will go off.

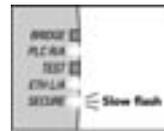
LIGHT STATUS



To revert to the default security encryption:

Press the **SECURE** button on each unit in the network for at least 12 seconds. You must do this for each unit. Any units that are forgotten will not “see” the powerline network. The **SECURE** indicator light on the top of the NeverWire 14 unit will be on, flashing off every 5 seconds.

LIGHT STATUS



You may reactivate the advanced security encryption at any time by following the directions above under “Advanced Security Encryption.” Or you may reactivate the default security encryption by following the directions for “Default Security Encryption.”

Moving the Units

You may move the NeverWire 14 units to other locations in the house or office without losing their settings. This is especially useful with a laptop computer, which may be moved with its NeverWire 14 to different locations depending on the need for the computer.

Configuring Your Computer(s)

This complimentary guide is provided to assist you in configuring your computer for various networking applications. Keep in mind that you may need to consult with others, such as your Internet service provider, to complete this configuration. Phonex Broadband assumes no responsibility for the adequacy of your computer configuration.

Using the connectivity provided by the NeverWire 14's you have installed, you can access the inherent networking capabilities of your computer(s). You can make either or both of these connections with your powerline network:

- Connect a broadband modem to computer(s) in other room(s).
- Connect two or more computers or other Ethernet devices in different rooms to each other, and then share files, share printer(s), and/or play interactive computer games.

The steps described in this chapter are suggestive only and cannot **exactly** describe what you need to do on your computer. The variation in configurations from computer to computer can be very dramatic; the particular steps you need to take will depend on (a) the types of Ethernet devices you have connected to your network; and (b) the details of how your particular Internet service provider handles assigning IP addresses and other tasks (if you are connecting computers to the Internet over your network).

Before You Start

Before you start configuring your network, you may want to determine that you have the items that are necessary:

- **Computer(s), each with a network interface card (NIC)**, and each connected to the powerline network via a NeverWire 14 (see the installation instructions in the “Quick Start Guide” or in Chapter 6)

Note: You can connect multiple computers to a hub or switch that is then connected to a single NeverWire 14 unit. See “Connecting to a Hub or Switch” in Chapter 6.

- **Hub or switch**, if you want to connect two or more computers in the same room on a single NeverWire 14 unit

Note: If your broadband modem has more than one Ethernet port, you can connect more than one computer to the Internet without using a hub or switch. Simply plug in the different computers to the Ethernet ports on the modem.

If you want to connect computers on your powerline network to the Internet, you will need the following as well:

- **Broadband Internet service**, set up through an Internet service provider
- **Broadband modem (DSL or cable modem)**
- **Internet configuration information** from your Internet service provider
- **Internet browser software** installed on any computers that will be used to access the Internet

Depending on what you are setting up, you may also need:

- **Printer driver(s)** for any printer(s) you will be setting up on the network
- **Windows setup files** (“.cab” files), either on the original Windows software CD-ROM, or on your hard drive if these have been copied onto your hard drive (if using a Windows-based computer)

Overview

Each computer must be configured separately. Configuring each computer is done in two basic steps:

1. Determine your operating system. See “Determining Your Operating System” below.
2. Determine what networking applications you want to set up and go to the appropriate directions for the particular operating system:
 - File sharing (see “Configuring File and Printer Sharing” below)
 - Printer sharing (see “Configuring File and Printer Sharing” below)

Note: These directions describe how to share a standard attached printer (i.e., a personal printer attached with a printer cable to one of the computers on the powerline network). To share a stand-alone printer (i.e., one that has a print server of its own), see your printer manual or call the customer support center for your printer’s manufacturer.

7 Configuring Your Computer(s)

- Sharing Internet access (see “Configuring a Shared Internet Connection” below for Windows 98SE ONLY)
- Interactive computer gaming (consult your software provider for instructions)

Determining Your Operating System

Before you start: Determine which operating system is installed on your computer and go to the directions below for that operating system. Each computer on your network may use a different operating system. If you are using a Macintosh computer, go to the “Macintosh” section on p. 45. To find out which Windows operating system is installed, follow these steps:

1. Right-click the **My Computer** icon on the desktop and select **Properties** from the pop-up menu.
2. Click the **General** tab. Read the name of the operating system that is installed and click **OK**.
3. Write down the operating system (OS) for each computer here for further reference:

Computer 1, located _____ OS: _____

Computer 2, located _____ OS: _____

Computer 3, located _____ OS: _____

Computer 4, located _____ OS: _____

For Windows 95, 98, or 98SE, go to the next page. For other Windows operating systems, go to p. 44. For Macintosh, go to p. 45.

Windows 95/98/98SE

Setting Up Basic Networking in Windows 95/98/98SE

1. Click the **Start** button on your taskbar. Select **Settings** and then **Control Panel**.
2. Double-click the **Network** icon in the Control Panel. The Network dialog box will open.
3. Each computer in your network must have a unique name in order for the network to function. If you have already assigned a name to your computer, go to step 4. If you have not yet done so, click the **Identification** tab and follow these steps:

Caution: Do not change the **Computer name** and **Workgroup** if they are preset by your Internet service provider (ISP). They may include account codes for Internet access.

- a. Enter a name in the **Computer name** field; use letters and numbers only, as spaces and other characters are not allowed.
 - b. Enter a **Workgroup** name in the applicable field. All computers on your network must have the same workgroup name.
 - c. You can also enter a **Computer Description** in the applicable field, but this is not required.
4. Click the **Configuration** tab.
 5. In the **Primary Network Logon** listbox, select “Windows Logon.”

6. Click **OK** in the Network dialog box. If the computer asks for the Windows CD, click **OK**, insert the CD into the CD-ROM drive (or browse to the location where you have copied the Windows setup files), and click **OK**. After the needed files have been installed, you will be prompted to restart your computer.
7. Click **Restart**.
8. Windows will prompt you for a network password during the startup process. If you want to require a password each time your computer is started, enter a password in the **Password** field. Alternatively, you can create a blank password. To create a blank password, enter a user name in the **User name** box, but do not enter a password in the **Password** field. Just click **OK**. When the computer is restarted in the future, you can press the **Enter** key (or click **OK**) when asked for the network password.

Configuring for Internet Service in Windows 95/98/98SE

Note: If you have set up your broadband Internet access service, these steps are likely to be already complete. If so, go to the next section, “Configuring File and Printer Sharing.”

1. Verify that your network interface card adapter is included in the list of installed components. Computers connected to a broadband modem may have more than one network adapter listed. There may also be a Dial-Up Adapter in the list. If your NIC adapter is not included, refer to your NIC documentation and install the adapter.
2. Verify that “Client for Microsoft Networks” is included in the list of installed components. If it is not included, add it:

- a. Click the **Add** button. The Select Network Component Type dialog box opens.
 - b. Double-click “Client” in the list. The Select Network Client dialog box opens.
 - c. Select “Microsoft” in the list at the left. Select “Client for Microsoft Networks” in the list at the right. Click **OK**.
 - d. Click **Cancel** in the Select Network Component Type dialog box.
3. Select “Client for Microsoft Networks” in the list of installed components, and click the **Properties** button. Make sure that the checkbox for **Log on to Windows NT domain** is not checked, and click **OK**.
 4. The installed network protocols are listed below the adapter(s). You may need to scroll down to see everything that is listed. If the TCP/IP protocol is not listed, add it:
 - a. Click the **Add** button. The Select Network Component Type dialog box opens.
 - b. Double-click “Protocol” in the list. The Select Network Protocol dialog box opens.
 - c. Select “Microsoft” in the list at the left. Select “TCP/IP” in the list at the right. Click **OK**.
 - d. Click **Cancel** in the Select Network Component Type dialog box.

Note: It takes a few minutes to add a component, after which the configuration window will be redisplayed with “TCP/IP” in the list of installed components.

5. In the list of installed components, select “TCP/IP” for your network adapter, and click the **Properties** button. Then

follow your Internet service provider's instructions for configuring your TCP/IP. Click **OK** when you are done.

6. Click **OK** in the Network dialog box. If the computer asks for the Windows CD, click **OK**, insert the CD into the CD-ROM drive (or browse to the location where you have copied the Windows setup files), and click **OK**. After the needed files have been installed, you will be prompted to restart your computer.

Configuring File and Printer Sharing in Windows 95/98/98SE

You will configure your computer for file and printer sharing in three steps: (A) setting up the computer software required for sharing; (B) designating which drives, files, and/or folders to share and how to share them; and (C) designating any shared printer(s).

A. File and Printer Sharing Setup for Windows 95/98/98SE

Install the networking components for sharing files and printers:

1. Click the **Start** button on your taskbar. Select **Settings** and then **Control Panel**.
2. Double-click the **Network** icon in the Control Panel. The Network dialog box will open.
3. Click the **Configuration** tab.
4. Click the **Add** button.
5. Double-click "Service" in the list. The Select Network Service dialog box opens.
6. Select "File and printer sharing for Microsoft Networks" from the list, and click **OK**.

7. Click **Cancel** in the Select Network Component Type dialog box. "File and printer sharing for Microsoft Networks" will now appear in the networked components list.
8. Set up sharing:
 - a. On the Configuration tab, click the **File and Print Sharing** button. The File and Print Sharing dialog box opens.
 - b. Check the checkbox for both options:

I want to be able to give others access to my files, and
I want to be able to allow others to print to my printer(s).
 - c. Click **OK**.
9. Click **OK** in the Network dialog box.

B. Designating Shared Files and Folders for Windows 95/98/98SE

Once you have installed the file and printer sharing components, you can designate which files on your computer you want to share. Only files or folders (directories) that you have specifically designated as "shared" will be accessible to other users on the network. You can restrict the access of some users, and/or require a password from others.

The following instructions are for setting up a *shared level* security. This is the simplest type of security and is the Microsoft default.

1. On the computer's desktop, double-click **My Computer**, then double-click the drive letter you want to share (e.g., C:). You can share an entire drive, or selected folders or files.
2. Right-click the icon for the file, folder, or drive you want to share.

7 Configuring Your Computer(s)

3. In the pop-up menu that appears, left-click the **Sharing** choice. The Properties dialog box for the item will appear with the Sharing tab on top.
4. Click the **Shared As** choice. Change the **Share Name** if you wish. The **Share Name** is the name that will be seen on other computers on your network.
5. Select the type of access that you want to allow for the item. Click one of the three radio buttons under “Access Type”:
 - **Read-Only:** users on other computers can open and view the item, but they cannot modify or delete the original copy in your shared folder. To restrict read-only access only to users with a password, enter a password into the **Read-Only Password** field.
 - **Full:** users on other computers can view, modify, or delete the item (or the files in the item, if the item is a drive or folder). To restrict full access only to users with a password, enter a password into the **Full Access Password** field.
 - **Depends on Password:** depending on the password that users have, they have either read-only access or full access to the item (or the files in the item). Enter a password into the **Read-Only Password** field and the **Full Access Password** field.
6. After you have made the necessary designations, click **OK**. The icon will now be shown with an extended hand under it to indicate that the item is shared.
7. Repeat steps 1-6 for any other drives, folders, or files you want to share over the network.

C. Designating a Shared Printer in Windows 95/98/98SE

You can share any printer that is attached via printer cables to any computer that is on the NeverWire 14 network, either

directly connected to a NeverWire 14 unit or connected to a hub or switch that is connected to a NeverWire 14 unit.

Before you start: The printer drivers must be installed on the computer. If you have not already run the installation program for your printer drivers, do so before following the instructions below.

Note: These directions describe how to share a standard attached printer (i.e., a personal printer attached with a printer cable to one of the computers on the powerline network). To share a stand-alone printer (i.e., one that has a print server of its own), see your printer manual or call the customer support center for your printer's manufacturer.

1. Perform the following steps to designate a shared printer:
 - a. Double-click **My Computer**, and then double-click the **Printers** folder.
 - b. Right-click the icon of the printer you want to share, and left-click the **Sharing** choice. If the "Sharing" tab is not on top, click it.
 - c. Select **Shared As**. Enter a **Share Name** for the printer that will be seen by users on other computers. You can also establish a password if you want to restrict access to the printer to those who have the password.
 - d. Click **OK**. The hand icon will now appear beneath this printer's icon to indicate that it is shared.
2. Before this printer can be used from other computers, you must install it on the other computers:
 - a. Go to one of the other computers on your network. Double-click **My Computer**, and then double-click the **Printers** folder.

- b. Double-click **Add Printer**, and click **Next**.
- c. Select **Network Printer**, and click **Next**.
- d. Click **Browse**. This displays all of the computers on your network that have a shared printer installed. Select the computer with the printer you want to make available. You should see the printer Share Name that you defined above.
- e. Select the printer and click **OK** to place it in the queue dialog box.
- f. Indicate whether or not you will print from DOS programs (yes or no).
- g. Indicate whether or not you want this to be the default printer.
- h. Click **Next**, and then **Finish**. Windows will copy the necessary driver files onto the hard drive. You may be prompted to insert the Windows CD to provide the required files. When the installation is complete, Windows will ask you if you want to print out a test page on the printer. You may do so if you wish.

Note: In order to print to a shared printer attached to another computer, the printer's host computer must be attached to the network, and the host computer and the printer must be turned on.

Configuring a Shared Internet Connection ***(in Windows 98SE ONLY)***

Note: Follow these steps **only if you have Windows 98SE**. For other operating systems, see your Internet service provider for instructions.

1. Click the **Start** button on your taskbar. Select **Settings** and then **Control Panel**.
2. Double-click **Add/Remove Programs**.
3. Select the **Windows Setup** tab.
4. Click Internet Tools, and then click **Details**.
5. Click the **Internet Connection Sharing** box, and then click **OK**.
6. Click **OK** again.
7. The Internet Connection Sharing Wizard will take you through the required steps to share one connection with two or more computers. It will also help you create a shared disk that you can use to copy files from one computer to another.

Testing Your Network in Windows 95/98/98SE

1. Turn on every computer in your network.
2. Go to one of the computers and click **Start**, select **Settings** and then **Control Panel**, and then double-click **Network** (or right-click the **Network Neighborhood** icon and select **Properties** from the menu that pops up).
3. Click the **Identification** tab. Write down the computer name that is listed in the **Computer name** box.
4. Click **Cancel**.
5. Repeat steps 2–4 on every computer in your network.
6. Double-click the **Network Neighborhood** icon on the desktop of one of your computers. This window should list every computer in your network.

7. Double-click a computer to see a list of shared resources on that computer (e.g., drives, folders, files, and printers).
8. Double-click a folder or file to open it.
9. If any of your computers is missing from **Network Neighborhood**, read the troubleshooting information on your computer:
 - Click the **Start** button on your taskbar, and then click **Help** from the menu that pops up.
 - Look for items in the menu that pertain to “Home Networking” or something similar. Click on those items for more information.

Windows Millennium Edition (Me), NT, 2000, and XP Pro/XP Home

For information about configuring your computer with any of these operating systems, refer to any or all of these suggested places:

- The Help files on your computer can be accessed this way:
 - Click the **Start** button on your taskbar, and then click **Help** from the menu that pops up.
 - Look for items in the menu that pertain to “Home Networking” or something similar. Click on those items for more information.
- Microsoft Corporation maintains information on home networking, organized by operating system, on its web site:

<http://www.microsoft.com>

- More information on home networking can be accessed on the Phonex Broadband web site:

<http://www.phonex.com> (click on the **Support** tab)

Macintosh

For information about how the NeverWire 14 works with Macintosh computers, see the Phonex Broadband web site:

<http://www.phonex.com> (click on the **Support** tab)

Troubleshooting

If you are experiencing problems with your NeverWire 14 system, work through the Troubleshooting Process Steps below. Or you can go directly to the Problem List on p. 54 below and see if your problem is in the list. You may also wish to refer to the Frequently Asked Questions (FAQ) on p. 59.

Troubleshooting Process Steps

For proper diagnosis, we suggest you answer questions about your problem in this order and note down your results and progress step by step. You are much more likely to resolve your problem quickly if you identify the proper challenges through this process.

This is the process that Technical Support uses to troubleshoot issues, and, if you call Technical Support, the support staff member is likely to ask you to follow this process if you have not already done so. If you have gone through this troubleshooting process before calling Technical Support, the staff will be able to help you much more quickly and with a much greater chance of success in solving your problem.

If you need to call Technical Support, please have your notes handy. Technical Support may be reached at 800-257-0601 (toll-free in the U.S., available 24 hours a day, 7 days a week).

Troubleshooting Computer Applications

1. Do none of the following work over your powerline network?

- Sharing drives, folders, or files?
- Connecting to the Internet?
- Printing to a printer that is attached to another computer on the network?
- Using a computer game with someone else on the network?

Yes: If none of the networking applications works, go to the next step below.

No: If at least one of the networking applications works, your NeverWire 14 units are working as intended, and the NeverWire 14 network is functioning. The problem you are encountering is due to your computer configuration or some other problem with your computer.

Note: The NeverWire 14 does not work with some older games that use the IPX/SPX protocol.

Troubleshooting a Single NeverWire 14 Unit

2. Is there power to the NeverWire 14?

Check the **PLC R/A** indicator light on the top of the NeverWire 14 unit. Is it on, either steadily or flashing intermittently?

No: Check for loose connections. Make sure all cables are plugged in completely. Check the outlet for power by plugging in another electrical appliance, such as a lamp or radio, and turning it on. Move the unit to

another power outlet. Try another power cord. If the **PLC R/A** light still does not activate, the unit may be malfunctioning. Call Technical Support at 800-257-0601 (toll-free in the U.S., available 24 hours a day, 7 days a week).

Yes: Go to the next step below.

3. Is the NeverWire 14 plugged directly into the power outlet?

No: Unplug the NeverWire 14 from any device, such as a surge suppressor, and re-plug it directly into the power outlet.

Yes: Go to the next step below.

4. Is the NeverWire 14 at least a few feet away from any source of interference, such as a halogen lamp, touch lamp, fluorescent lamp, dimmer switch, or surge suppressor?

No: Move the NeverWire 14 away from any source of interference.

Yes: Go to the next step below.

5. Does the NeverWire 14 unit pass the Hardware Self-test?

Each NeverWire 14 has a built-in self-testing mechanism. Run the self-test on each unit:

- a. Press and hold the **DIAGS** button on the top of the unit for 1-2 seconds.
- b. Count the number of times the **TEST** indicator light on the top of the unit flashes.

Twice: There is a malfunction in the NeverWire 14 hardware. Call Technical Support at 800-257-0601 (toll-free in the U.S., available 24 hours a day, 7 days a week).

Once: The hardware is functioning as intended. Go to the next step below.

Troubleshooting Connections to Ethernet Devices

Next, you should check the Ethernet devices (e.g., computers and broadband modems) that are connected to your NeverWire 14 network.

6. Check the ETH L/A indicator light on the top of the NeverWire 14 unit. Is it on, either steadily or flashing intermittently?

No: You have a connection problem with your Ethernet device. Go to the next question below to discover how to correct it.

Yes: The connection to the Ethernet device is good. Go to the next section (question #12).

7. Is the crossover switch (the Hub/PC switch) on the side of the NeverWire 14 set correctly for the kind of Ethernet device connected?

No: See Chapter 6 for more information about the proper setting for your particular Ethernet device. In general, a computer should be connected to a NeverWire 14 set to **PC**, while a broadband modem, hub, or switch should be connected to a NeverWire 14 set to **HUB**. Sometimes a device will require a different setting than expected, so you can experiment with switching the Hub/PC switch to the other setting. For example, if

the Hub/PC switch is set to **PC**, move it to **HUB** and see if that solves the problem.

Yes: Go to the next step below.

8. Is the Ethernet cable securely plugged into the NeverWire 14 and into the Ethernet device?

No: Plug the Ethernet cable in securely to both the NeverWire 14 unit and the Ethernet device.

Yes: Go to the next step below.

9. Is there power to the Ethernet device? Is the power indicator light (“on” light) activated on the Ethernet device?

No: Turn on the Ethernet device. Check the power cord and outlet.

Yes: Go to the next step below.

10. Check the speed of the Ethernet device. Is it compatible with 10BaseT or 10/100BaseT?

Note: The NeverWire 14 will not work with Ethernet devices that support only 100BaseT Ethernet.

No: Replace the Ethernet device with one that supports 10BaseT or 10/100BaseT.

Yes: Go to the next step below.

11. Connect the NeverWire 14 unit to another Ethernet device. Is the ETH L/A light on, either steadily or flashing intermittently?

No: If the ETH L/A light on the NeverWire 14 unit is still not activated after checking #7, #8, #9, #10, and #11, then the unit might have a malfunctioning network

interface card (NIC). Call Technical Support at 800-257-0601 (toll-free in the U.S., available 24 hours a day, 7 days a week).

Yes: Go to the next step below.

Troubleshooting Powerline Wiring

Next, use the built-in diagnostics of the NeverWire 14 units to check if the units are connecting to each other on the powerline network.

12. Does a Nodes Count test indicate signals from other unit(s) on the powerline network?

Conduct a Nodes Count test as follows to see if the NeverWire 14 units are receiving signals from other units:

- a. Press the **DIAGS** button on the top of one of the NeverWire 14 units on your network for 7 seconds. This unit will then send a signal to every other unit on the network that is powered on and in communication with the network. Each of the other units will send a signal back to the originating unit.
- b. Count the number of times the **TEST** indicator light flashes on the originating unit. The **TEST** light flashes once for each unit that responds. For example, if you have three NeverWire 14 units on your network, the originating unit will flash two times.
- c. Did it flash the number of times you expected?

Yes: Your NeverWire 14 network is functioning. The problem you are encountering is due to your computer configuration or some other problem with your computer.

Note: The NeverWire 14 does not work with some older games that use the IPX/SPX protocol.

No: Go to the next step below.

13. Check the TEST light on each of the other units. For all the units on your system, did the TEST light activate?

On each of the other units that successfully communicates with the originating unit during the Nodes Count test, the **TEST** indicator light will light steadily for three minutes and then go off automatically.

Yes: All units are receiving a signal from the originating unit successfully. Call Technical Support about this inconsistency and to resolve your problem: 800-257-0601.

No: Any unit whose **TEST** light is not activated during that time is not connected to the powerline network successfully. You probably have a problem either with distance between units or a wiring problem with the powerline. Go the next step below.

14. Plug the NeverWire 14 unit that failed the Nodes Count test into the same power outlet as another unit that passed the Nodes Count test, and repeat the Nodes Count test. Does the unit whose TEST light did not activate before now have an active TEST light?

Yes: Either your NeverWire 14 units were placed too far apart from each other or there is a wiring problem with where they are plugged in. Try changing the outlets that the unit is plugged into (i.e., to place the unit on another circuit). If that doesn't work, try plugging the unit into an outlet that is closer to the rest of the NeverWire 14 units.

No: Call Technical Support at 800-257-0601 (toll-free in the U.S., available 24 hours a day, 7 days a week).

Problem List

Here are some common problems and their solutions:

SYMPTOM	ACTION(S)
No power; PLC R/A light is off.	Check for loose connections. Make sure all cables are plugged in completely. Check outlet for power by plugging in another electrical appliance and turning it on. Move the unit to another power outlet. Try another power cord. Ensure units are not connected through a surge suppressor.
No Ethernet connection; ETH L/A light is off.	Check for loose Ethernet cables. Check for power to the Ethernet device. Check the setting on the crossover switch on the side of the unit. If the unit is connected to a computer or a printer, the switch should be set to PC . If the unit is connected to a hub, or most broadband modems, the switch should be set to HUB . Experiment with switching this switch to the other setting.
Low data rates	Ensure units are not connected through a surge suppressor. Avoid plugging any unit into the same outlet as a halogen lamp, touch lamp, fluorescent lamp, light dimmer, or surge suppressor. Move unit to another outlet. Ensure Ethernet card drivers and adapters are installed properly.
Can't set advanced security encryption; SECURE light is steady, blinking off every 5 seconds or SECURE light is off completely.	Move unit to another outlet. Ensure unit is not connected through a surge suppressor. Try setting advanced security encryption again; make sure to press the SECURE button on each unit within 5 minutes of the previous one. See the section on "Advanced Security Encryption" on p. 28.
Devices attached to nodes are not visible on the network.	Run the Nodes Count test (see the answer to question #12 in the Troubleshooting Guide on p. 52). Check the setting on the crossover switch on the side of the unit. Connect no more than two NeverWire 14 units to a hub or switch. If two NeverWire 14 units are connected to a hub or switch, disable security encryption (see "Disabling Security" in Chapter 6). Check your computer's configuration.
Unit fails the hardware self-test (see p. 49).	The unit may be malfunctioning. Call Technical Support at 800-257-0601 (toll-free in the U.S., available 24 hours a day, 7 days a week).

Indicator Lights

The status of the indicator lights on the top of the NeverWire 14 will help you to diagnose the status of the NeverWire 14 unit.

LIGHT	STATUS		
	OFF	ON STEADY	FLASHING
BRIDGE	No hub or switch detected on the network.	A hub or switch with multiple devices is detected.	—
PLC R/A	No power to the unit.	The unit is receiving power.	Data is transferring.
TEST	No test underway or, if test is underway, no other units are responding to the test.	The unit is receiving a test signal sent when the DIAGS button was pressed on another unit. Stays on for 3 min. and then goes off.	—
ETH L/A	No Ethernet detected.	Ethernet is detected to the connected Ethernet device.	Data is transferring.
SECURE	Security encryption has been entirely disabled.	Advanced security encryption is on.	Blinking off every 5 sec.: Default security encryption is on. Rapid flashing: Advanced security encryption cycle has begun but is not yet complete.

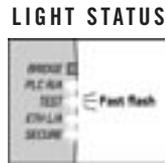
Diagnostics

The NeverWire 14 comes with two diagnostic tests, a unit self-test and a nodes count test. You may also download a software utility if you wish. See the “Troubleshooting Guide” for more information about checking your NeverWire 14 equipment and network.

Unit Self-Test

You can test each NeverWire 14 unit to see if its hardware is functioning as intended. This test checks only the individual NeverWire 14 unit. To perform the unit self-test:

1. Press and hold the **DIAGS** button on the top of the unit for 1-2 seconds.
2. Count the number of times the **TEST** indicator light on the top of the unit flashes:
 - If the **TEST** light flashes once, the hardware is functioning as intended.
 - If the **TEST** light flashes twice, there is a malfunction in the hardware. Call Technical Support at 800-257-0601 (toll-free in the U.S., available 24 hours a day, 7 days a week).



Nodes Count Test

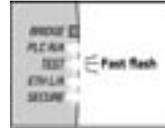
You can test the NeverWire 14 units to see if they are receiving signals from other units. Here is how it works:

1. Press the **DIAGS** button on the top of one of the NeverWire 14 units on your network for 7 seconds. This unit will then send a signal to every other unit on the network that is

powered on and in communication with the network. Each of the other units will send a signal back to the originating unit.

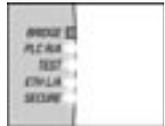
- Count the number of times the **TEST** indicator light flashes on the originating unit. The **TEST** light flashes once for each unit that responds. For example, if you have three NeverWire 14 units on your network, the originating unit will flash two times.

LIGHT STATUS



- If the **TEST** light flashes fewer times than you expected, check the **TEST** light on each of the other units. On each of the other units that successfully communicates with the originating unit, the **TEST** indicator light will light steadily for three minutes and then go off automatically. Any unit whose **TEST** light is not activated during that time is not connected to the powerline network successfully.

LIGHT STATUS



Utility Software

Utility software is available that is designed for advanced troubleshooting and diagnostic purposes. You can use this software to more accurately diagnose any problems you may be having on your network. It can be downloaded free of charge at:

<http://www.phonex.com/downloads/nw14.html>

Technical Support

If you have questions about your NeverWire 14, please contact us in one of these ways.

On the Web Site

<http://www.phonex.com>

By Email or Fax

Contact us by email or fax at any time:

Email: customerservice@phonex.com

Fax: **801-566-0880**

By Telephone

The Customer Service Center is available 24 hours a day, 7 days a week. The number is toll-free from anywhere in the U.S.:

Telephone: **800-257-0601** (toll-free within the U.S.)

Frequently Asked Questions

Top Five Questions

How does powerline carrier technology work?

Because most data communication is electrical in nature, data communication can also be sent via standard electrical wiring. Powerline technology takes advantage of the unused bandwidth of the electrical wiring in the home. The NeverWire 14 power cord plugs into the electrical outlet and draws power for the device. At the same time, it sends data signals down the power cord. You can plug a second NeverWire device into any electrical outlet in the home, and it will receive the signal. Connect any Ethernet device – for example, an Internet cable or DSL modem or another computer – to the NeverWire 14 Ethernet port and you have created a home network!

How fast will my data be transferred with the NeverWire 14?

The NeverWire 14 transfers data at 14 Mbps; the overhead associated with the protocol brings the effective throughput for file transfer to about 8 Mbps. This rate will handle any download speed or application use you may need.

Do I need to have had experience with networks to set up the NeverWire 14?

No experience with networks is required. The installation is very simple and takes only a few minutes.

Is the connection secure?

The optional 56-bit encryption makes your NeverWire 14 network secure and keeps your data private. See the section on “Security Encryption” on p. 28.

How do I get help?

You can contact us by web, email, fax, or phone. See the information on the “Technical Support” page on p. 58.

Benefits/Applications Questions

How many NeverWire 14 units can I use in one home or office?

We have successfully tested up to 16 units per powerline network.

Does the NeverWire 14 give me high-speed access to the Internet?

No, you need to arrange for a high-speed Internet access account through an Internet service provider. Once you have that access, the NeverWire 14 allows you to connect multiple computers in your home or office. It also allows you to connect one computer to a cable or DSL modem in another location in the house. To enable your NeverWire 14 connection to share access to the Internet, you must configure your PC (see Chapter 7.)

I have a hub with several computers, a modem, and a printer on it. How many Ethernet devices can I connect to a single NeverWire 14?

The NeverWire 14 unit is capable of handling an unlimited number of devices. Please call our Technical Support Center for the latest information available about this: 800-257-0601.

Can I use the NeverWire 14 to connect laptop computers into my network?

Yes. Each laptop needs to have an Ethernet network interface card (NIC).

Can I use the NeverWire 14 for interactive computer gaming?

Yes, except for some older gaming systems that use an IPX/SPX protocol, which is not compatible with this device.

Do you recommend that I set the optional Advanced Security Encryption feature?

Yes. The Advanced Security Encryption separates the traffic in a situation where powerlines are shared and ensures the privacy of your data. This will not affect performance of your network (except in the case of multiple hubs or switches being connected to the network; see “Connecting to a Hub or Switch” in Chapter 6).

Networking/Equipment Questions

How do I tell if my computer or other device already has an Ethernet network interface card (NIC)?

Look for a port (place for a connector to plug in) on the device that is marked “Ethernet” or “ENET.” You can also check the specifications on your computer for networking capability.

If I already have a home network, can I add NeverWire 14 units to get more nodes?

Yes, you can extend your existing network through the electrical wiring.

I have a new Ethernet-enabled device. Can I add it to my NeverWire 14 home network?

Yes. The NeverWire 14 can be used with any Ethernet-enabled device.

Can I use the NeverWire 14 with USB connections?

No, but Phonex Broadband Corporation may be releasing a USB product in the near future. Call our Customer Service Center at 800-257-0601 for more information about ordering or purchasing this product.

What do I need for high-speed Internet access?

You will need several things to have high-speed Internet access. These may include an Ethernet network interface card (NIC) for each computer that will be accessing the Internet, a broadband modem (DSL modem, cable modem, or ISDN modem), and Internet access service set up through an Internet service provider.

Why is no hub or switch required?

The NeverWire 14 sets up a peer-to-peer networking. Each unit is connected to every other unit on the network. No central hub, switch, or server is necessary.

Where can I obtain warranty information and what do I do if my product needs repair?

The warranty is for one year from the date of purchase, and it covers any manufactured defect or failure. Please call us at 800-257-0601, toll-free within the United States, and we would be happy to help you.

Installation Questions

How long will it take to install the NeverWire 14?

Each NeverWire 14 can be installed in a few minutes. Setting Advanced Security Encryption on all units in the network can take up to five minutes.

Do I need to install software?

No, although a Diagnostic Utility is available online for installation if you wish. See “Diagnostics” in Chapter 8.

Do I need to run new wiring?

No, the NeverWire 14 uses your existing electric wiring.

Does it matter where I place the NeverWire 14?

You must plug the NeverWire 14 directly into an electrical power outlet. It will not work if it is plugged into a surge suppressor.

Avoid plugging it into the same outlet as a halogen lamp, light dimmer, touch lamp, fluorescent lamp, or surge suppressor. These items may cause interference and slow data transfer speeds. Place it where it is protected from water.

How many NeverWire 14's can I place into one home network?

Up to 16 nodes can be used effectively in a normal home installation.

How far away can I place two NeverWire 14 units?

We have successfully tested them at a distance of 150 feet apart.

Why is there a switch marked "HUB/PC"?

So that the NeverWire 14 can be used for connecting either computers or devices like hubs and modems. See Chapter 6, "Connecting Your Hardware," for more details.

Is one of the NeverWire 14 units a main unit and the others merely extensions?

No, all of the NeverWire 14 units in a home network are "equal" as nodes. Each unit can send and receive to each other unit in the network. (The only time it is important to designate one NeverWire 14 unit in a network as "first among equals" is during the process of setting up Advanced Security Encryption. It doesn't matter which unit is set first.)

Why can't I find my printer over the network?

There are many reasons why your network configuration may not be exactly right. Try reviewing our suggestions on the web site at <http://www.phonex.com>. Also, look at your computer's **Help** files on troubleshooting a home network.

Ongoing Use Questions

How do I know that everything is functioning properly?

Use the status of the indicator lights on the top of the NeverWire 14 units to learn about the status of your network (see the

“Indicator Lights” table in Chapter 8). See also the “Troubleshooting Guide” in Chapter 8, which gives a flowchart for checking your network.

Can I move the NeverWire 14 once I have set it up in one location?

Yes. If you’re moving the device and the NeverWire 14 that it is using, simply unplug them both. You can move the pair to any outlet in your home or office that will still be part of your powerline network. The unit will automatically detect the network again, and no settings will be lost.

If unplugging the NeverWire 14 does not reset the security settings, what does?

You will need to use either the **DIAGS** button or the **SECURE** button to reset the security. The directions are given in “Disabling Security” in Chapter 6.

I have a new computer or Ethernet device in another room that I want to add to my network. What do I need?

Simply buy another NeverWire 14 and follow the installation instructions to connect that device. You do not need to re-install the items that are already on the network. If you have enabled advanced security on your NeverWire 14 network, follow the directions in “Advanced Security Encryption” in Chapter 6 to enable advanced security on the new device as well. Similarly, if you have disabled all security on your network, disable security on the new device by following the instructions in “Disabling Security” in Chapter 6. The security setting on the new device needs to match that of other nodes on the network.

My power went out. Do I have to reset the NeverWire 14?

No, when the power comes back on, the NeverWire 14 will automatically detect the network, and no settings will be lost.

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Specifications

Product Specifications

- System: identical transceiver nodes (at least 2 and up to 16 units) that communicate with each other via the electrical powerline
- Ethernet compatibility: IEEE 802.3 (Ethernet 10BaseT) specification and HomePlug Powerline Alliance 1.0 specification

Note: Phonex Broadband makes no warranties as to other companies' products being HPA 1.0-compliant.

- Security: one-button 56-bit DES encryption/decryption (optional)
- Power supply: internal switching, 95/264 VAC, 47/63 Hz, 1.0/0.5 A, consumption 5W max.

Environmental Specifications

- Temperature range: 32-85° Fahrenheit

Ordering Information

For more information regarding Phonex Broadband partners and distributors, please contact us in one of these ways:

Email: **sales@phonex.com**

Web site: **<http://www.phonex.com>**

U.S. Mail: Phonex Broadband Corporation
6952 High Tech Drive
Midvale, UT 84047-3756

Telephone: **800-257-0601** (toll-free within the U.S.)

Glossary

Analog

A representation of an object that resembles the original. Analog devices monitor conditions, such as movement, temperature, and sound, and convert them into analogous electronic or mechanical patterns. For example, an analog watch represents the planet's rotation with the rotating hands on the watch face. Telephones turn voice vibrations into electrical vibrations of the same shape. Analog implies continuous operation in contrast to digital, which is broken up into numbers.

Bandwidth

The maximum data transfer rate for a communications system; the amount of frequency that is allocated or used in the spectrum.

Bit

A unit of information storage capacity, as of memory.

Bridging

A connection between two different networking protocols that selectively moves packets from a subnet to a main network; automatically activated when the NeverWire 14 is used to link a hub or switch that has created a local area network to the powerline network.

Broadband

A communications network where a frequency band is divided into multiple separate channels for simultaneous transmission of signals (as voice, data, or video); the marriage of video, audio, gaming, telephony, Internet access, data and device sharing.

Cable Modem

A modem used to connect a computer to a cable TV service that provides internet access. Cable modems can dramatically

increase the bandwidth between the user's computer and the internet service provider. Cable modems link to the computer via Ethernet, which makes the service online all the time. However, Ethernet is a shared medium, and the speed will vary depending on how many customers on that cable segment are using the Web at the same time.

Coaxial Cable

A high-capacity cable used in communications and video, commonly called co-ax. It contains an insulated solid or stranded wire surrounded by solid or braided metallic shield, wrapped in a plastic cover. Fire-safe Teflon coating is optional. Although similar in appearance, there are several types of coaxial cable, each designed with different width and impedance for a particular purpose. Co-ax provides a higher bandwidth than twisted pair wire.

Computer Network

A network of computers; an intricately connected system of computers communicating with each other within a specified area (such as the home).

Digital

Traditionally, digital means the use of numbers and the term comes from digit, or finger. Today, digital is synonymous with computer. The 0's and 1's of digital data means more that just on and off. They mean perfect copying. When information, music, voice and video are turned into binary digital form, they can be electronically manipulated, preserved, and regenerated perfectly at high speed. The millionth copy of a computer file is exactly the same as the original.

DSL

Digital Subscriber Line; digital telecommunications procedures designed to allow high-speed data communications over existing telephone lines between end users and telephone companies.

Ethernet

Coaxial cable that carries radio frequency signals between computers at a rate of 10 megabits per second.

Home Networking

Interconnecting and sharing digitized signals or data between common household electronic devices.

ISDN

Integrated **S**ervices **D**igital **N**etwork; an international telecommunications standard for transmitting voice, video, and data over digital lines running at 64 kbps. The telephone companies commonly use a 64 kbps channel for digitized, two-way voice conversions. ISDN service is available in most parts of the U.S.

IP

Internet **P**rotocol; a method of data transmission where small blocks of data are transmitted rapidly over a channel dedicated to the connection only for the duration of the transmission.

kbps

Kilobits **p**er second; one thousand bits per second; a data transfer rate.

LAN

Local **a**rea **n**etwork; a data communications network which is geographically limited, allowing easy interconnection of computers, especially a network connecting computers, word processors, and other electrical office equipment to create an interoffice system.

Mbps

Megabits **p**er second; one million bits per second; a data transfer rate.

Modem

Modulator-demodulator; a device that adapts a terminal or computer to a telephone line. It converts the computer's digital pulses into audio frequencies analog for the telephone system and converts the frequencies back into pulses at the receiving side. The modem also dials the line, answers the call, and controls transmission speed. Although modems have come in speeds of 300, 1200, 2400, 9600, 14400, 28800, 33300, and 56000 bits per second, only the latter, higher speeds are typically used.

OEM

Original equipment manufacturer; a manufacturer that sells equipment to a reseller. Also refers to the reseller itself. OEM customers either add value to the product before reselling it, private label it, or bundle it with their own products.

PLC Technology

Powerline carrier technology; the narrowband or broadband transmission of information using the powerline or mains as the method of transmission without running new wires.

Residential Gateway

Something that serves as an entrance or a means of access to the home.

RF

Radio frequency; the range of electromagnetic frequencies above the audio range and below visible light. All broadcast transmission, from AM radio to satellites, falls into this range.

Self-Installable

A system which can be installed by the end user; not requiring additional wiring or outside installation expertise.

Set-top Box (STB)

An electronic device designed to connect the TV with either a cable or satellite connection to provide video and audio to the TV (on top of which it normally sits) and connected to other communication channels, such as telephone line for billing information.

Telephony

The use of a device for transmission of voice and data between widely separated points with or without connecting wires.

Twisted Pair

A thin-diameter wire (22-26 gauge) commonly used for telephone and network cabling. The wires are twisted around each other to minimize interference from other twisted pairs in the cable.

Alexander Graham Bell invented this and was awarded a patent for it in 1881. Twisted pairs have less bandwidth than coaxial cable or optical fiber.

USB

Universal serial bus; a device interface standard for communications between computers and other devices working at 12 megabits per second.

WAN

Wide area network; a communication network that uses devices such as telephone lines, satellite dishes, or radio waves to span a larger geographic area that can be covered by a local area network (LAN).

Wireless

Having no wires or no new wires.

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FCC Statement

This equipment has been tested and found to comply with the limitation for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful radio 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 of the TV or radio.
- 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.

The user is not allowed to make changes or modifications to the unit. Doing so may void the user's authority to operate the equipment.

Safety

CAUTION: THE POWER SUPPLY CORD IS USED AS THE MAIN DISCONNECT DEVICE. ENSURE THAT THE SOCKET-OUTLET IS LOCATED/INSTALLED NEAR THE EQUIPMENT AND IS ACCESSIBLE.

Do not use the device near water such as a bathtub or sink.

Do not spill liquid on the device.

Do not open the equipment. Doing so can expose you to dangerous voltages which can cause an electric shock.

Do not disassemble the device. Instead, if service or repair is required, take it to a qualified service facility. Incorrect reassembly can cause electric shock when the equipment is subsequently used.

Unplug the unit from the outlet before cleaning. Use a damp cloth for cleaning. Do not use liquid or aerosol cleaners.

The NeverWire 14 may be installed on a wall if desired. To install on a wall (or other flat hard surface) use two No. 8 or No. 10 size Pan Head/Dome screws (sold separately) drilled into the wall 2 5/8 inches apart from each other. After installing the screws, fit the NeverWire 14 unit onto the screws using the wall mount holes located on the back of the unit. Only install on a wall where the screws can be secured solidly without becoming loose when seven pounds of pressure are applied downward on the screw.



Phonex *Broadband*

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Midvale, UT 84047-3756

To order more NeverWire 14 units:

Email sales@phonex.com

Web www.phonex.com

Telephone 800-257-0601 (toll-free within the U.S.)