

**NEXXT**  
SOLUTIONS



**Ion 150**  
WIRELESS-N PCI-E ADAPTER | User Guide

### Copyright Statement

Nexxt Solutions™ is a registered trademark. Other trademarks or brand names contained herein are the trademarks or registered brand names of their respective owners. Copyright of the whole product as integration, including its accessories and software, belongs to Nexxt Solutions Ltd. No individual or third party is allowed to copy, plagiarize, reproduce, or translate it into other languages, without express consent from Nexxt Solutions, Ltd. All of the photos and product specifications mentioned in this manual are used as reference only. Upgrades of software and hardware may occur, and should there be any changes, Nexxt Solutions shall not be responsible for notifying about any such modifications in advance. If you would like to know more about our products, please visit our website at [www.NexxtSolutions.com](http://www.NexxtSolutions.com).

## Table of Contents

### Chapter 1 Introduction

- 1.1 Package contents
- 1.2 Product features
- 1.3 Product applications
- 1.4 Preliminary steps
- 1.5 Product care

### Chapter 2 Installation Guide

- 2.1 Hardware Installation
- 2.2 Low-profile bracket installation
- 2.3 LED Indicator

### Chapter 3 How to use the Windows Built-in Wireless Configuration

- 3.1 Wireless Network Connection under Windows 7
- 3.2 Wireless Network Connection under VISTA
- 3.3 Wireless Network Connection under Windows XP
- 3.4 Disabling other manufacturer's wireless network adapters

Appendix 1: Acronyms and terms

Appendix 2: Regulatory information

## Chapter 1

### Introduction

Thank you for purchasing the Ion 150 Wireless-N PCIe Network Adapter from Next Solutions. Now you can take advantage of this great new technology and the freedom of setting up a network wirelessly in your home or office. By integrating the most advanced N-networking technology, this convenient PCI adapter is designed to deliver reliable high-speed connectivity along with enhanced performance in high-bandwidth applications. The hassle-free installation and configuration will get you connected to your network in minutes. We also encourage you to read this manual thoroughly to become familiar with the most important features and achieve optimal performance from your new PCI fast Ethernet adapter.

#### 1.1 Package contents

- APLDT150U2 Wireless-N PCIe Adapter
- One detachable, omnidirectional antenna
- Additional low-profile bracket
- One CD ROM (with a digital copy of the user guide and driver configuration tool).

#### 1.2 Product features

- **Wireless N 150Mbps Speed**  
Compatible with IEEE wireless standards, it provides three times the wireless speed of the 802.11g technology. Perfect for video streaming, online conferencing and large file transfer applications.
- **Backward-Compatibility**  
Supports 802.11b/g devices, so you can upgrade your network to the latest N standard at no extra cost.
- **Networking modes**  
Infrastructure and ad-hoc (peer-to-peer).
- **Robust signal**  
Delivers reliable high-speed connectivity to wireless networks, by providing longer transmitting distances and enhanced signal reception.
- **Auto negotiation capability**  
Detects wireless networks and selects the optimal transmission rate automatically.
- **Advanced security**  
WEP data encryption and WPA-PSK/WPA2-PSK encryption methods.
- **Operating systems**  
Supports Windows 7/XP/2000/Vista

### 1.3 Product applications

This wireless adapter offers a fast, reliable and extendable solution for wireless access. Most relevant features of this adapter are the following:

**Greater mobility** – enables you to have access to the wireless network from any location within the operating range.

**Hassle-free installation** – enables wireless communication for companies or places which are not suitable for wired LAN installations due to budget or building environment restrictions, such as historical buildings, rentals, or places for short-term usage.

**Flexibility** – adapts easily to businesses or individuals that require regular alteration of the networking topology.

**Easy expansion** – allows you to expand your network in order to include multiple devices and peripherals.

**Small office/Home office** – provides a quick way to establish a SOHO network installation, either on a permanent or temporary basis, according to the user's needs.

### 1.4 Preliminary steps

1. Please read this user guide thoroughly before installing and using this product.
2. In order to avoid possible UI (user interface) conflicts, close or uninstall any configuration programs belonging to other manufacturers prior to setting up the Next Solutions network adapter.
3. To avoid any potential conflicts with network adapters from other manufacturers, we recommend that you first disable them completely before proceeding with the installation of the Next Solutions driver.

### 1.5 Product care

1. To guarantee best performance of the unit, never expose this device to water or humid environments.
  2. Keep the adapter away from hazardous substances, chemicals, acids and alkalis.
  3. Never expose the adapter to direct sunlight or excessive heat.
- Please contact Next Solutions tech support if any problems occur during the setup process.

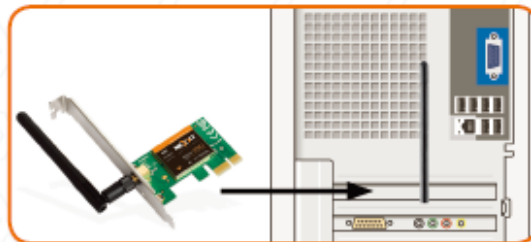
## Chapter 2

### Installation guide

This installation guide will guide you through the set up process of the Ion 150 Wireless N PCI-E Adapter, including basic hardware and software configuration.

#### 2.1 Hardware Installation

1. Turn off your desktop PC and disconnect the AC power cable.
2. As soon as you remove the cover of your PC, locate an available PCI-E slot on the motherboard. Remove the metal slot cover on the back of the PC. Should you need further instructions, consult with your computer manufacturer.



3. Slide the PCI adapter into the PCI-E slot. Make sure that all of its pins are touching the slot contacts. Once the adapter is firmly in place, secure it to your PC chassis with the mounting screw. Then, close your PC case.
4. Reconnect the AC power cable and turn your PC back on.

**Note:**

If the Found New Hardware Wizard system dialogue appears, select **Cancel** and use the supplied Setup Wizard software CD for fast installation.

#### 2.2 Low-profile bracket installation

1. If you want to install the low-profile bracket (Small Form Factor; SFF), use a Phillips screwdriver to unfasten the two screws located above the PCB.
2. After removing the standard plate, replace the mounting screws to attach the low-profile bracket to the PCB.

### 2.3 LED indicator

Status	Description
Off	The driver has not been installed. The adapter radio has been disabled.
Flashing slowly	The driver has been installed but there is no data being transmitted or received.
Flashing quickly	There is data being transmitted or received

## Chapter 3

### How to use the Windows built-in wireless configuration

This chapter explains how to use the Windows built-in wireless configuration to connect to the wireless network.

Use of the Windows Built-in Wireless Configuration requires enabling the windows wireless configuration feature (enabled by default).

#### 3.1 Wireless Network Connection under Windows 7

1. Click the wireless connection icon in the lower right corner of the computer's desktop to view the available networks.
2. Select the wireless network you wish to connect to.



3. If the wireless network you are connecting to is encrypted, you will be prompted to enter the key. Click OK once you enter the correct security key



4. The window will display the Connected message once the link has been established successfully
5. When Connected appears on the screen, you will be able to start enjoying wireless access to the Internet.
6. You can disconnect the network, view its status, or modify the wireless network properties simply by right-clicking on the wireless network icon.



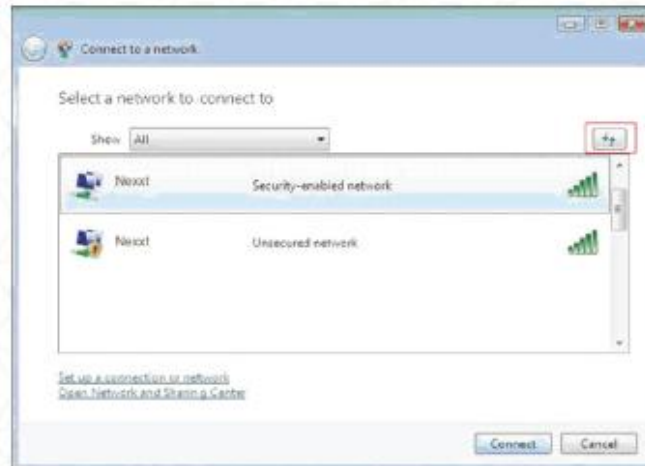


### 3.2 Wireless Network Connection in VISTA

1. Click the Wireless Connection icon in the lower right corner of your desktop. Select **Connect to a network**, as shown below.



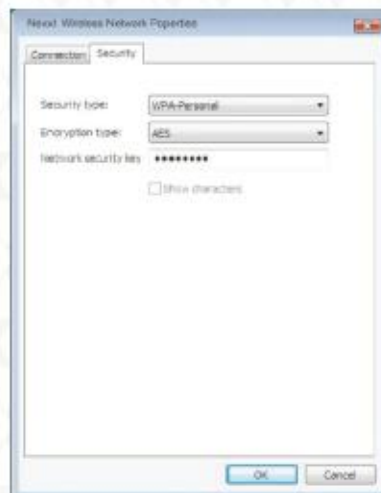
2. After selecting the desired wireless network, click **Connect** or double-click the wireless network in order to enable it. Click the **Refresh** icon located in the upper right corner to update the network list, if the specified wireless network is not being displayed at this stage.



5. If you want to change the wireless network key, simply right click the wireless network SSID and then select Properties.



6. You can modify the key using the dialogue box that opens when selecting this option:

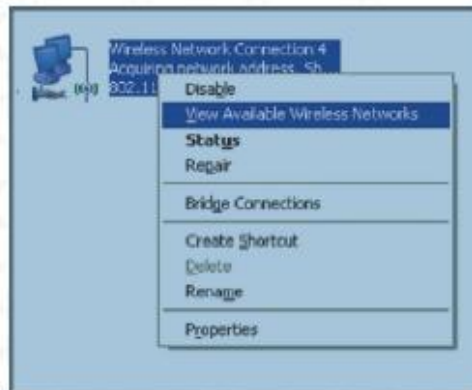


### 3.3 Wireless Network Connection under Windows XP

1. Right click **My Network Places** on the desktop and select **Properties**.

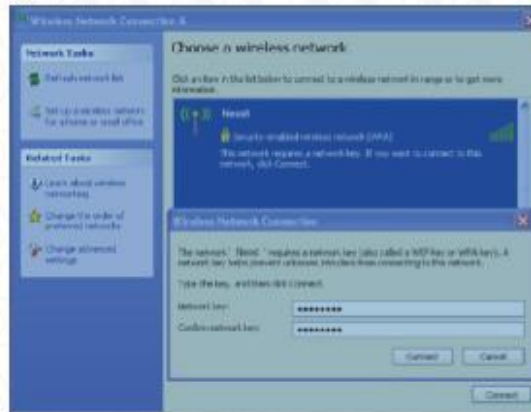


2. Open the network connection. In the drop-down menu, right-click **Wireless Network Connection** and select **View Available Wireless Network**, as shown below.



3. The currently scanned wireless networks will be displayed on the right side of the screen. If the one you want to connect to has not been scanned, click **Refresh Network List** to update the network list.

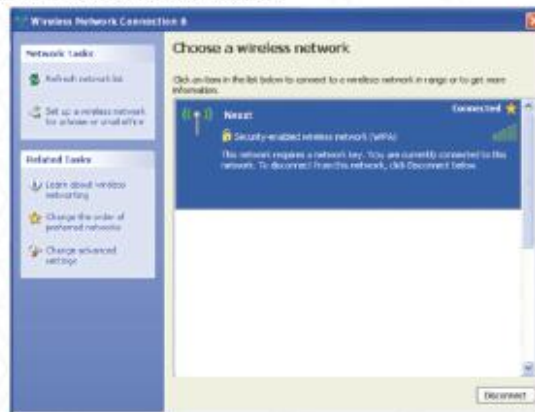
After selecting the desired wireless network, click **Connect** or double-click the wireless network to enable it. Enter the key in the corresponding dialogue box (which is case-sensitive), and click **Connect** to continue.



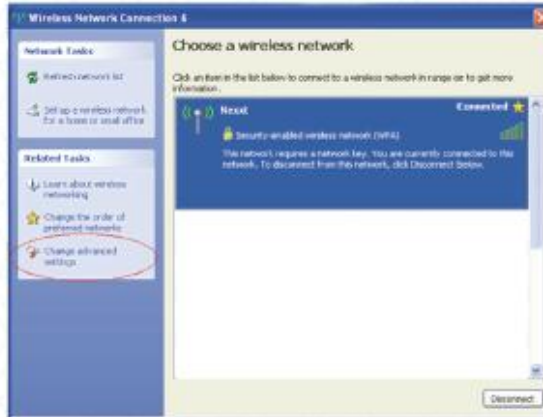
**Note:**

If the wireless device you are connecting to is not encrypted, the key dialogue box will not pop up.

4. When **Connected** is displayed on the screen, as shown in the picture below, you will be able to start enjoying wireless access to the Internet.



5. If you like, you can change the wireless network key by opening the **Change advanced settings** window.



6. Select **Wireless Networks** in order to choose the one you wish to modify, and then click **Properties**.



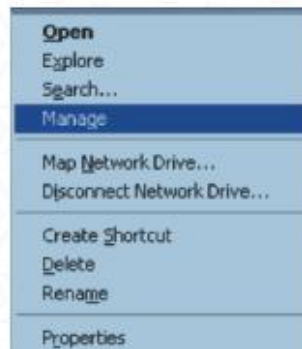
7. Enter the new key in dialogue box, as indicated below.



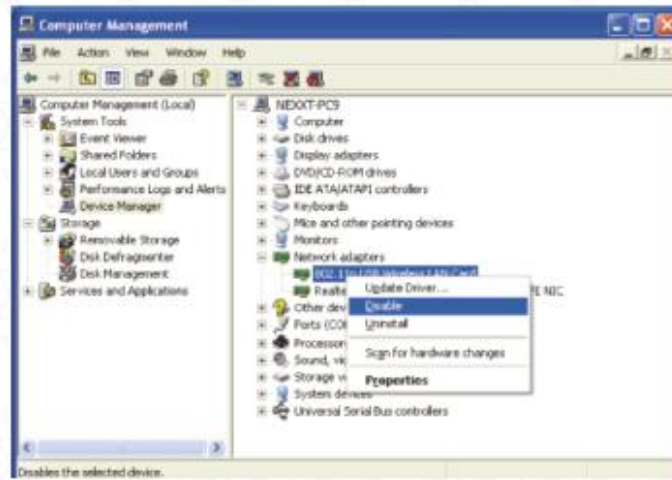
### 3.4 Disabling other manufacturers' wireless network adapters

(Note: screenshots in this manual might look slightly different, depending on the Windows version you own).

1. Right click My Computer and then select Manage.




2. On the Computer Management screen, go to **Device Manager - Network adapters**, and right-click the network adapter you wish to disable. Click on **Disable** to continue.



2. When prompted, click the **Yes** button on the dialogue box in order to disable the network adapter you just selected.



**Table of specifications**

<b>Product image</b>	
<b>General</b>	
Standards	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b, IEEE 802.1x, IEEE 802.11e, IEEE 802.11i
Media access protocols	CSMA/CA with ACK, PCIe 2.0
Wireless rate	150Mbps (maximum)
Interface	32 bit PCI Express Interface
LED	Status indicator
Dimensions	120.8x 78.5 x 21.5 mm
<b>Wireless</b>	
Frequency band	2.4-2.4835GHz
Radio data rate	11b: 1/2/5.5/11Mbps 11g: 6/9/12/18/24/36/48/54Mbps 11n: Up to 150Mbps
Channel	1-11
Frequency expansion	DSSS (Direct Sequence Spread Spectrum)
Modulation	11b: CCK, GFSK, BPSK 11g: OFDM 11n: QPSK, BPSK, 16-QAM, 64-QAM
Security	64/128/152-bit WEP Encryption WPA/WPA2, WPA-PSK/WPA2-PSK (TKIP/AES)
Receiver sensitivity	130M: -68dBm@10% PER 108M: -68dBm@10% PER 54M: -68dBm@10% PER 11M: -85dBm@8% PER 5M: -88dBm@10% PER 1M: -90dBm@8% PER
RF power	21dBm (max)
Antenna gain	2dBi
<b>Environmental and Physical</b>	
Temperature	Operating : 0°C~40°C (32°F~104°F)
	Storage: -40°C~70°C (-40°F~158°F)
Humidity	Operating: 10% - 90% RH, Non-condensing
	Storage: 5% - 90% RH, Non-condensing
Minimum requirements	CD-ROM drive 733 MHz CPU or above 64 MB memory and above Windows XP, Vista, 7 and above
Certificates	FCC



## Appendix 1: Acronyms and terms

**802.11** A family of specifications developed by the IEEE for WLAN technology.

**802.11a** An extension of 802.11 WLAN standards that provides up to 54 Mbps transmission in the 5 GHz UNI radio band.

**802.11b** An extension of the 802.11 WLAN standard that provides up to 11 Mbps of transmission in the 2.4 GHz ISM radio band. 802.11b uses DSSS modulation.

**802.11g** An extension of the 802.11 WLAN standard that provides up to 54 Mbps of transmission in the 2.4 GHz ISM radio band. 802.11g uses OFDM modulation and is backwards compatible with 802.11b.

**802.11n** A higher transmission rate, supports Multi-Input Multi-Output (MIMO) technology.

**WEP** Wired Equivalent Privacy. A security protocol for WLANs defined in the IEEE 802.11 standard.

**Ad hoc Network** - An ad hoc network is a group of computers, each with a Wireless Adapter, connected as an independent 802.11 wireless LAN. Ad hoc wireless computers operate on a peer-to-peer basis, communicating directly with each other without the use of an access point. Ad hoc mode is also referred to as an Independent Basic Service Set (IBSS) or as peer-to-peer mode, and is useful at a departmental scale or SOHO operation.

**DSSS** - (Direct-Sequence Spread Spectrum) - DSSS generates a redundant bit pattern for all data transmitted. This bit pattern is called a chip (or chipping code). Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need of retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).

**ICS** Microsoft Internet Connection Sharing enables multiple computers to share access to the Internet via one PC.

**Infrastructure Network** - An infrastructure network is a group of computers or other devices, each with a Wireless Adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.

**RSN** Robust Security Network. A substitute for WPA, and it adopts the 802.1x standard and advanced encryption.

**Spread Spectrum** - Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems.

It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise.

There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

**SSID** - A Service Set Identification is a thirty-two character (maximum) alphanumeric key identifying a wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name. See also Wireless Network Name and ESSID.

**WEP** - (Wired Equivalent Privacy) - A data privacy mechanism based on a 64-bit or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard. To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption. Keys are defined by entering in a string in HEX (hexadecimal - using characters 0-9, A-F) or ASCII (American Standard Code for Information Interchange - alphanumeric characters) format. ASCII format is provided so you can enter a string that is easier to remember. The ASCII string is converted to HEX for use over the network. Four keys can be defined so that you can change keys easily.

**WLAN** - (Wireless Local Area Network) - A group of computers and associated devices communicate with each other wirelessly, which network serving users are limited in a local area.

**WPA** - (Wi-Fi Protected Access) - A wireless security protocol uses TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server.

#### Appendix 2: Regulatory Information FCC statement

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.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example- use only shielded interface cables when connecting to computer or peripheral devices). The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**FCC Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with the minimum distance of 20 cm. Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

**Caution!**

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.