

# WIRELESS LAN USB ADAPTER

11 Mbits/sec USB 802.11b Wireless  
Mini Adapter

USB511WB

Instruction Guide



\* Actual product may vary from photo

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## FCC COMPLIANCE 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.

### **FCC Caution**

This equipment must be installed and operated in accordance with provided instructions and a minimum 20cm (8 inches) spacing must be provided between computer mounted antenna and a person's body (including extremities of hands, wrists, and feet) during wireless modes of operation.

### **R&TTE Compliance Statement**

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of March 9, 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) as of April 8, 2000.

### **Safety**

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacturer must therefore be allowed at all times to ensure the safe use of the equipment.

### **EU Countries Intended for Use**

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. The ETSI version of this device is also authorized for use in EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.

### **Potential Restrictive Use**

None

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## Introduction

Thank you for purchasing a StarTech.com 11 Mbits/sec USB 802.11b wireless mini adapter. Based on the IEEE 802.11b 2.4 GHz wireless standard, the USB511WB instantly provides your USB-enabled desktop or notebook computer with wireless LAN (WLAN) access. Whether you are setting up a peer-to-peer Ad Hoc network with other computers using 802.11b devices (like the StarTech.com CB511WB) or setting up an Infrastructure network with a wireless access point (like the StarTech.com WAP1011BB), this Plug and Play adapter connects quickly and easily with 11 Mbits/sec of data transfer.

## Features

- Complies with IEEE 802.11b (DSSS) 2.4 GHz standard
- Uses high-speed data transfer rate up to 11 Mbits/sec
- Plugs directly into USB port without cables
- Supports 64/128-bit WEP Data Encryption for high security
- Supports peer-to-peer communication between wireless users with no Access Point required
- Suitable for any notebook or desktop PC
- Supports RTS and CTS threshold control for better throughput
- Automatic rate fallback enables data security and reliability
- Supports Plug and Play specifications
- Backed by StarTech.com's lifetime year warranty

## Before You Begin

To ensure a quick and easy adapter installation, please read through this section carefully before attempting to install the adapter.

### System Requirements

- A desktop or laptop computer running Windows XP, 2000, Me, 98SE
- An open USB port

### Package Contents

- 1 x USB511WB wireless LAN USB adapter
- 1 x driver/utility CD
- 1 x USB cable

## Installation

### Installing the Card and Drivers

1. With your computer turned on, insert the adapter into your computer's USB port. You can also use the USB cable to adjust the location of the adapter. Make sure that the adapter is firmly seated.
2. Windows will automatically detect the new device. Insert your driver/utility disk into the disk drive and direct the system to the appropriate location in the "Driver" folder on the disk. For example, Windows 2000 users should select the "Driver\Win2000" folder. The system will now install the necessary drivers.

### Installing the Utility

1. Insert your driver/utility disk into the disk drive. From the disk, open the "Utility" folder and run **setup.exe**.
2. Click **Next**.
3. Choose the location where you want the application installed and click **Next**. Windows will complete the rest of the installation automatically.

**Note:** If Windows XP/2000 gives you a "Digital Signature Not Found" message, you can safely choose "Yes."

4. To launch the program, click on **Start** and select "ZyDAS Wireless LAN - USB."

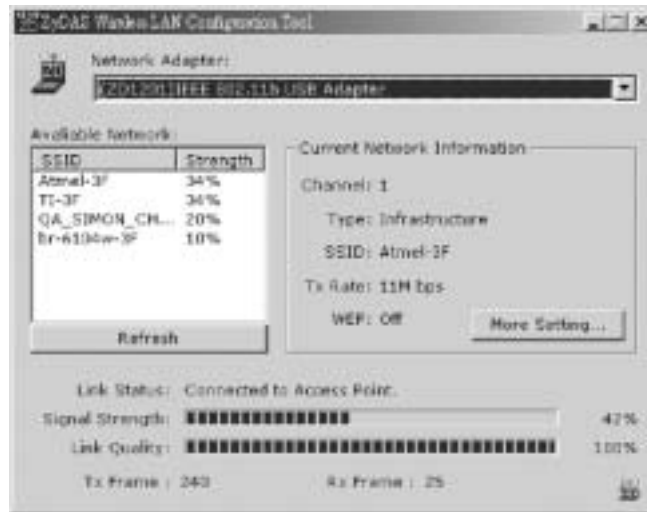
### Removing the Windows XP Wireless Utility

Windows XP has contains a default built-in wireless network utility. **It is recommended that you use the utility provided with the USB511WB.** To remove this default utility, perform the following steps:

1. Click on **Start, Control Panel**, and select **Network Connections**.
2. Right click **Wireless Network Connection**, and click **Properties**.
3. Click the **Wireless Networks** tab.
4. Clear the "Use Windows to configure my wireless network settings" checkbox and click **OK**.

## Using the Configuration Utility

The Configuration Utility helps you configure your USB wireless mini adapter and monitor the communication statistics for the device. You can dynamically configure your card while the card is operating. From the main screen, you can view information about your connection and nearby devices.



<i>Parameter</i>	<i>Description</i>
<b>Network Adapter</b>	Displays the product information about the adapter.
<b>Available Network</b>	Displays the <b>SSID</b> and <b>Signal Strength</b> of nearby wireless devices. Use the <b>Refresh</b> button to re-survey the area. To make a connection to one of the devices on the list, double-click on the name of the device, or click on the name of the device and press the "Connect to this site" button.
<b>Current Network</b>	Displays information about the wireless network the card is connecting to. You can edit these (and more) network settings by clicking on the <b>More Settings</b> button. See "More Settings" on page 5 for more information.
<b>Link Status</b>	Displays the status of the wireless connection.
<b>Signal Strength</b>	Displays the signal strength level. The higher the percentage shown in the bar, the stronger the signal. You can use this indicator to find the proper position of the wireless device.
<b>Link Quality</b>	Displays the quality of the link. The higher the percentage shown in the bar, the higher the link quality.
<b>TX/RX Frame</b>	Displays the number of data frames successfully sent/received by the device.

## More Settings

On the **More Settings** screen, you can configure many aspects of your device, including the channel, network type, SSID, WEP encryption settings, and profile settings.



<i>Parameter</i>	<i>Description</i>
<b>Channel</b>	Select the radio channel to use for networking. The channel should be the same as the other wireless stations you want to connect to.
<b>Tx Rate</b>	Select the transmit rate to be use: 11, 5.5, 2, or 1 Mbits/sec. If you select <b>Auto</b> , the adapter will automatically adjust to the highest possible rate available.
<b>SSID</b>	Enter an SSID for the device. The SSID can be up to 32 printable ASCII characters. If you specify an SSID for the device, it must be the same as the other wireless stations you want to connect to.
<b>Any</b>	If you check the <b>Any</b> box, the adapter will survey and connect to an available wireless station without checking the consistency of channel and SSID with the wireless station.
<b>Network Type</b>	<p><b>Infrastructure:</b> This mode requires the presence of a wireless access point or wireless router to create a wireless network. All communication is processed through the wireless access point or wireless router.</p> <p><b>Ad Hoc:</b> This mode enables wireless network adapters to connect to each other without a wireless access point or wireless router.</p>
<b>Change/Apply</b>	Before you can change any of these settings, first press the <b>Change</b> button. When you have made your changes, click <b>Apply</b> .

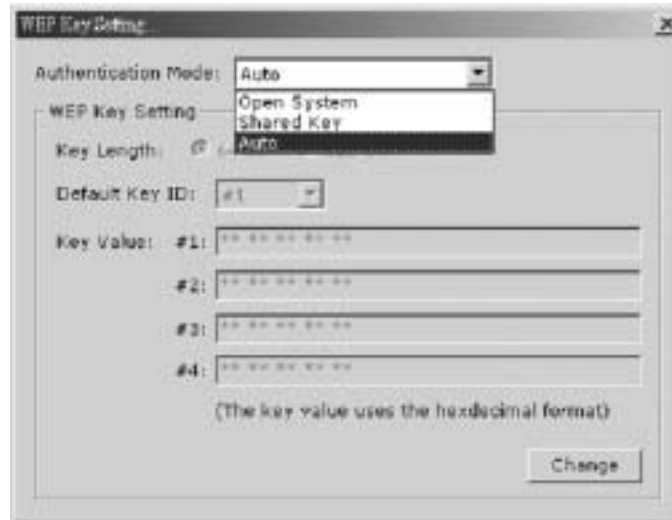
**(More Settings, continued)**

<i>Parameter</i>	<i>Description</i>
<b>Enable WEP</b>	Check the <b>Enable WEP</b> box and click <b>WEP More...</b> to set up your encryption settings. See “WEP Key Settings” on page 7 for more details.
<b>Profile Name</b>	Enter a profile name to save your settings, or enter the profile name whose settings you want to load.
<b>Load Profile Settings</b>	Loads the profile whose name you entered in the <b>Profile Name</b> box. (For example, to open the settings file named “Test”, type Test in the Profile name field and click Load Profile Settings.) The new settings will be active immediately.
<b>Write Current Settings to Profile</b>	Writes the current setting values to a file with the name you entered in the profile box. (For example, to save your current settings as “Test”, enter Test in the Profile Name field and click Write Current Settings to Profile.) Make sure you record the name of the profile.
<b>Load Factory Default</b>	Restores the settings to the factory defaults. The default values are: <b>Channel:</b> 6 <b>Tx Rate:</b> Auto <b>SSID:</b> Any <b>Network Type:</b> Infrastructure
<b>Advanced Setting</b>	Allows you to configure the adapter’s advanced settings, including power save mode and RTS/CTS threshold. See “Advanced Settings” on page 8 for more details.
<b>Information</b>	Displays the driver version, firmware version, and MAC address of the adapter.



## WEP Key Settings

The WEP Key Setting screen lets you configure your WEP encryption settings. WEP protects authorized LAN users against eavesdroppers. With WEP enabled, your data will be transmitted over your network more securely.



Parameter	Description
<b>Authentication Mode</b>	<p>The setting must be consistent with the other wireless stations you want to connect to.</p> <p><b>Open System:</b> No authentication is needed.</p> <p><b>Shared Key:</b> Only wireless stations using a shared key (WEP key identified) are allowed to connect with each other. Set up the same key with each wireless adapter you want to connect to.</p> <p><b>Auto:</b> Auto switch the authentication algorithm depending on the wireless stations that the adapter is connecting to.</p>
<b>Key Length</b>	Select either 64-bit or 128-bits. The larger key length will provide more security, but will lower throughput.
<b>Default Key ID</b>	Select one of the keys (1~4) as the encryption key.
<b>Key 1 ~ Key 4</b>	<p>For each key, fill in the text box using the rules below:</p> <p><b>64-bit:</b> Input a 10-digit hexadecimal value (0~9, a~f). For example: 01234abcde</p> <p><b>128-bit:</b> Input a 26-digit hexadecimal value (0~9, a~f). For example: 0123456789abcdef0123456789</p>

## Advanced Settings

On the Advanced Settings screen, you can configure your power savings settings, set the fragmentation threshold, and RTS/CTS threshold of the adapter.



<i>Parameter</i>	<i>Description</i>
<b>Power Saving Mode</b>	Check the <b>Power Saving Mode</b> box and adjust the power save level between 0 and 4. The higher the power save level, the lower the power used. Using lower power may slow down the adapter's transmission rate.
<b>Fragmentation Threshold</b>	Defines the maximum size of a packet. Any packet larger than this value will be fragmented. If you have decreased this value and are experiencing high packet error rates, you can increase the rate again, but it will likely decrease network performance. Minor changes are recommended.
<b>RTS/CTS Threshold</b>	Defines the minimum packet size for a Request to Send/Clear to Send (RTS/CTS). For packets smaller than this threshold, an RTS/CTS is not sent and the packet is transmitted directly to the LAN. Minor changes are recommended when adjusting this value.

## Troubleshooting

If you are experiencing trouble with your USB511WB, first make sure that the adapter is firmly seated, then try the following:

- Make sure that the IP address, subnet mask, gateway, and DNS settings are correctly entered for the network. Check with your operating system vendor if you are having difficulty with these network settings. Remember that each computer must be configured for networking and file sharing before the wireless network is in place.
- Make sure that you have selected the proper network connection mode. Use **Ad Hoc** mode if you are connecting two wireless devices without a wireless access point. Use **Infrastructure** mode when you are using a wireless access point.
- If you are in **Infrastructure** mode, make sure that the same **SSID** is specified for each wireless client and access point. In **Ad-Hoc** mode, make sure both wireless clients have the same **SSID**.
- If you have enabled encryption options, make sure that the correct encryption key has been entered on each device. Make sure that the key selected on your USB511WB is the same key entered on the other wireless device you want to connect to.
- If your wireless adapter appears as an “Unknown device” in the Device Manager, remove the device from Device Manager and repeat the installation procedure.
- Make sure that there are no resource conflicts that may exist. Check your Device Manager to make sure that devices have been installed properly.
- If you are experiencing intermittent network connections, try re-orienting the adapter. See Appendix A: Installation Considerations on page 10 for more details.

## Appendix A: Installation Considerations

The USB511WB lets you use your desktop or laptop to access your WLAN from virtually anywhere, but there are some things to keep in mind when attempting to set up a wireless connection. The wireless signal range can be limited by the number, location, thickness, and material of ceilings, walls or similar that the signal must pass through. To maximize your wireless range, keep the following considerations in mind:

- Try to minimize the number of walls, ceilings, and similar between your wireless devices. Each wall or ceiling the signal must cross can reduce the signal range by up to 90 feet (30m). Position your receiving devices so that the path between them is as unobstructed as possible.
- The type of material the wireless signal must cross through also affects its range. A solid metal door or concrete wall can decrease the signal's range. Whenever possible, position the adapters so that the signal can pass through drywall or open doors.
- Make sure that you are aware of the line the signal must take to travel between devices. The angle that the signal is on as it travels through a door, wall, or ceiling affects how thick the obstruction is. For example, if a wall is 1.5 feet thick and the signal passes through it at a 45-degree angle, the signal must pass through 3 feet (1m) of wall. At a 2-degree angle, the wall appears to be 42 feet (14m) thick. Always try to position your devices so that the signal can travel at 90-degree angles.
- Electrical devices or appliances that generate RF noise (such as microwaves, electric motors or computer monitors) can interfere with the wireless signal. Try to keep your adapter at least 3-6 feet (1-2 m) away from these types of devices.

## Appendix B: Setting Up A Wireless Ad Hoc Network

To install an Ad Hoc network, you need two computers and two wireless adapters. Follow the instructions below to set up an Ad Hoc network between your two adapters, using the product Quick Install Guide or Instruction Guide for details when necessary.



1. Install your USB511WB network adapter, drivers, and utility program to your computer using the instructions provided in the Quick Install Guide.
2. Install your second 802.11b wireless adapter, drivers, and utility program to your other computer using the instructions provided in the Quick Install Guide.
3. Using your configuration utility, set each adapter to **Ad Hoc** mode and make sure that both adapters are on the same **Channel** and have the same **SSID** (see Configuration on page 5 and 6 for details).
4. From your operating system software, make sure that the IP addresses assigned to each computer are in the same range as (but not identical to) each other and that the computers use the same subnet mask. Check with your operating system vendor for information on setting up networking and file sharing.

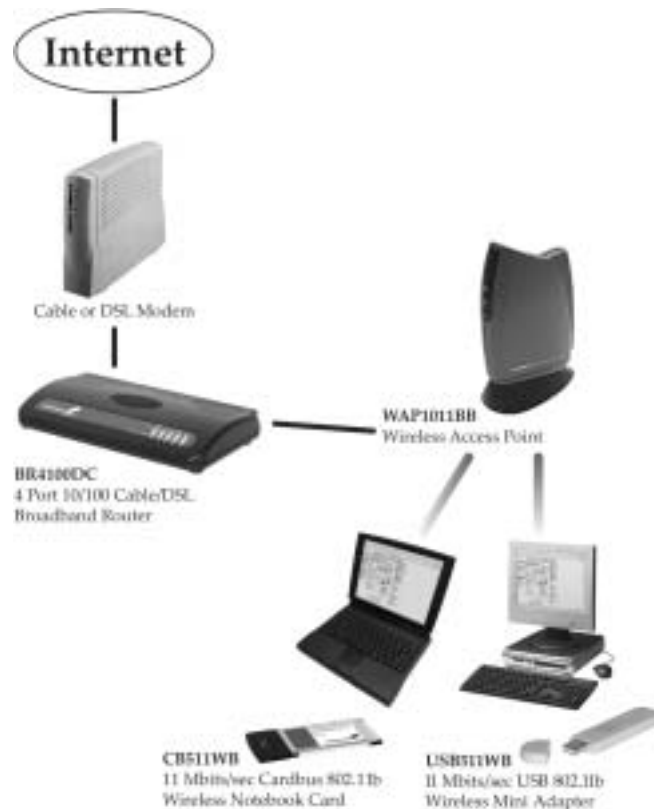
For example, if your first computer has an IP address of 192.168.0.2 and a subnet mask of 255.255.255.0, your second computer could be assigned an IP address of 192.168.0.3 with a subnet mask of 255.255.255.0.

5. When you have installed all the proper components, use the instructions on your Quick Install Guide or Instruction Guide to connect your two devices.

## Appendix C: Setting Up an Infrastructure Network

An Infrastructure network consists of both wired and wireless elements joined by a wireless access point (WAP). Follow the instructions below to set up an Infrastructure network between your two adapters, using the product Quick Install Guide or Instruction Guide for details when necessary.

The example above assumes a previously established wired network with Internet sharing supplied via a router.



1. Connect your wireless access point to one of your router's LAN ports using an Ethernet cable. Use the access point's instruction guide for installation details.
2. Install your wireless adapters, including their drivers and utility programs using the instructions provided by the vendor.
3. From your configuration utility, make sure that your **Network Type**, **SSID**, **Channel**, and **Security Settings** are all set to the same values for each device on your wireless network. Also make sure that the IP addresses for each device are in the same range as (but not identical to) each other and that the computers use the same subnet mask.

**Note:** You may be able to use your wireless access point to configure these settings on your wireless adapters. Check with your WAP's documentation for details.

## Glossary

**802.11b:** A family of IEEE-defined specifications for wireless networks. The 802.11b standard supports data transfer rates up to 11 Mbits/sec in the 2.4 GHz band using DSSS technology. Also known as WiFi.

**Access Point:** See wireless access point.

**Ad Hoc:** A wireless computer-to-computer LAN. An Ad Hoc network can consist of two devices with wireless adapters, and does not require a WAP, wireless router, or wireless gateway. Also known as peer-to-peer mode.

**BSS (Basic Service Set):** In Infrastructure mode, a BSS consists of a Wireless Access Point and the adapters associated with it.

**DSSS (Direct Sequence Spread Spectrum):** A transmission technology used as the basis for 802.11b wireless transmissions. DSSS helps increase a signal's resistance to interference and allows for some data bit recovery.

**Encryption:** The transformation of data into encoded ciphertext to ensure data transmission can not be accessed by users outside the network. Encryption uses an encryption algorithm and encryption keys to encode and decode the information. See also WEP.

**Encryption Algorithm:** A formula used to convert data from understandable "plaintext" into encoded "ciphertext." Each algorithm uses a key (a string of bits) to perform the calculations. The larger the key (most are 64 or 128-bits in length), the more difficult to break the code.

**ESS (Extended Service Set):** In Infrastructure mode, the ESS consists of two or more BSSes in the same subnet.

**IBSS (Independent Basic Service Set):** In Ad Hoc mode, an IBSS consists of two or more wireless devices that communicate directly and do not use a wireless access point.

**Infrastructure:** A network configuration that typically combines both wired and wireless elements. Wireless devices communicate with a WAP in order to communicate with each other and with the wired elements of the network.

**IP Address (Internet Protocol Address):** An assigned number used to identify a computer on a network. An IP address consists of four numbers less than 255 separated by periods (for example, 192.168.2.1).

**LAN (Local Area Network):** A group of computers and devices connected together in a relatively small area (such as a house or an office).

**MAC Address (Media Access Control Address):** A unique serial number that identifies a piece of hardware connected to a network.

**Plug and Play:** A set of specifications that allows a computer to automatically detect and configure hardware devices. With Plug and Play computers, any new hardware device that is connected to a computer will automatically be recognized without the user having to tell the computer the device has been added.

**SSID** (Service Set Identifier): A name that uniquely identifies a WLAN. In order for wireless devices to communicate with each other, they must have the same SSID.

**Subnet**: An identifiably separate part of a network that is interconnected with, but still independent from, the rest of the network. Subnets can help improve network security and performance and typically use a router.

**Subnet Mask**: A technique used by the IP protocol to filter messages into a particular network segment or subnet. Subnet masks are expressed as four decimal numbers between 0 and 255 separated by periods. (Example: 255.255.255.1) It is used to create private IP addresses for use within a particular network. Also known as a network mask.

**WAN** (Wide Area Network): A network that connects computers in geographically separated areas. The Internet is an example of a WAN.

**WAP** (Wireless Access Point): A networking device that seamlessly connects wired and wireless networks. Used in Infrastructure networks, a wireless access point is capable of connecting to an Ethernet network as well as an 802.11 network.

**WEP** (Wired Equivalent Protocol): A security protocol designed to provide a wireless network with the same level of security as a wired LAN. WEP offers protection primarily by encrypting the information that flows between adapters.

**Wi-Fi**: See 802.11b.

**WLAN** (Wireless Local Area Network): A local area network that transmits wirelessly through the air, typically in an unlicensed frequency such as the 2.4GHz band.



## Technical Specifications

Standard	IEEE 802.11b, USB v1.1
Bus Type	USB Type A
Frequency Band	2.400 ~ 2.4835 GHz (Industrial Scientific Medical Band)
Modulation	CCK@11/5.5 Mbits/sec, DQPSK@2Mbits/sec, DBPSK@1 Mbit/sec
Radio Technology	Direct Sequence Spread Spectrum (DSSS)
Media Access Control	CSMA/CA
Security	64/128-bit WEP Encryption
Supported OS	Windows 98SE, Me, 2000, XP
LED Indicators	Link, Activity
Antenna	Internal
Supported bit rates	11, 5.5, 2, 1 Mbits/sec
Channels	1-11: North America
Operating Temperature	32~131°F (0~55°C)
Storage Temperature	-13~149°F (-25~65°C)
Certification	FCC Class B, CE

## Technical Support

The following technical resources are available for this StarTech.com product:

### On-line help:

We are constantly adding new information to the *Tech Support* section of our web site. To access this page, click the *Tech Support* link on our homepage, [www.startech.com](http://www.startech.com). In the tech support section there are a number of options that can provide assistance with this card.

Knowledge Base - This tool allows you to search for answers to common issues using key words that describe the product and your issue.

FAQ - This tool provides quick answers to the top questions asked by our customers.

Downloads - This selection takes you to our driver download page where you can find the latest drivers for this product.

Call StarTech.com tech support for help: **1-519-455-4931**

*Support hours: Monday to Friday 9:00AM to 5:00PM EST (except holidays)*

## Warranty Information

**This product is backed by a lifetime warranty. In addition, StarTech.com warrants its products against defects in materials and workmanship for the periods noted below, following the initial date of purchase. During this period, the products may be returned for repair, or replacement with equivalent products at our discretion. The warranty covers parts and labor costs only. StarTech.com does not warrant its products from defects or damages arising from misuse, abuse, alteration, or normal wear and tear.**

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