WB2500

802.11b Wireless

CardBus PC Card

User Manual

Doc. No.: 022103-02

REGULATORY STATEMENTS

FCC Certification

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of electronic equipment.

Part15, Class B

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- 1) This device may not cause harmful interface, and
- 2) This device must accept any interface received, including interface that may cause undesired operation. 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 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 distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

CAUTION:

- 1) This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- 2) This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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INTRODUCTION

The 802.11b Wireless 32bit CardBus PC Card is a high-speed 11 Megabits per second (Mbps) Ethernet wireless network adapter that plugs into any CardBus enabled PC. Once connected with other networked PC's, it allows you to share hard disk drives, DVD drives, CD drives, printers, and the likes. It also provides shared access to a modem for Internet access. Based on radio frequency (RF) technology, a wireless LAN transmits and receives data over the air, along with the guarantee to provide privacy and noninterference by the use of separate radio frequency.

The 802.11b Wireless 32bit CardBus PC Card allows you to take full advantage of your PC's mobility with access to real-time information and online services anytime and anywhere. Plus, with the network installation simplicity and flexibility, you can eliminate the need to pull cable through walls and ceilings and allow the network to go where wires cannot go. Exploring WWW and augmenting networks can never be done more easily.

Features

- > Complies with IEEE 802.11b standard for 2.4GHz Wireless LAN
- > Complies with PC Card standard
- > Supports PC Card hot swap and true Plug & Play
- > Works with all existing network infrastructure
- > Complies with specific wireless products and services
- > Capable of up to 128-Bit WEP Encryption
- > Freedom to roam while staying connected
- > 11 Mbps high-speed transfer rate
- > Rich diagnostic LED indicators with Integrated Antenna
- Supports Window 98/2000/ME/XP
- Lower power consumption
- Easy to install and configure

Wireless Network Options

The Peer-to-Peer Network

This network installation lets you set a small wireless workgroup easily and quickly. Equipped with wireless PC Cards or wireless PCI, you can share files and printers between each PC and laptop.



Or you can use one computer as an Internet Server to connect to a wired global network and share files and information with other PCs via a wireless LAN.



The Access Point Network

The network installation allows you to share files, printers, and Internet access much more conveniently. With wireless PC Cards, you can connect wireless LAN to a wired global network via an **Access Point**.



LED Indicators

Link: Green (On/Off)

Glow - linking to an Access Point or Peer-to-Peer mode.

Act: Orange (Blink)

Blink - Transmitting/receiving wireless data.

INSTALLATION

Install the Device

- 1. Locate the CardBus slot of your system.
- 1. Align the Wireless PC Card in the CardBus slot. Push evenly and slowly until it is seated.
- 2. Once the device has been connected to your computer, Windows will detect the new hardware and then automatically copy all of the files needed for networking.

Install the Driver

In Windows 98

1. In Add New Hardware Wizard, click Next.



2. Select Search for the best driver for your device (Recommended). Click Next.



 Insert the supplied CD-ROM into the CD-ROM drive. Select Specify a location: and click Browse to provide the appropriate path (e.g. D:\WIN98). Click Next.

Add New Hardware Wi	zard
	Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
	Eloppy disk drives
	CD-ROM drive
😣 🛴	Microsoft Windows Update
	Specify a location:
	D:\WIN98
	Biowse
	< Back Next > Cancel

4. Click Next, Windows will copy all the necessary files to your system.

Add New Hardware Wiz	ard
	Windows driver file search for the device:
	802.11b Wireless Cardbus PC Card
	Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.
🗞 😵	Location of driver:
<u> </u>	D:\WIN98\NETR8180.INF
\sim	
	< Back Next > Cancel

5. Insert Windows 98 CD-ROM, and then click OK.



6. Click **Finish** to complete the installation.



7. When Windows prompts you to restart your computer, click Yes.

In Windows ME

1. Select Specify the location of the driver (Advanced), click Next.



 Insert the supplied CD-ROM into the CD-ROM drive. Select Search for the best driver for your device (Recommended) and click Browse to provide the appropriate path (e.g. D:\WINME.) Click Next.



3. Click Next, Windows will copy all the necessary files to your system.

Add New Hardware Wiz	ard
Add New Hardware Wiz	ard Windows driver file search for the device: 802.11b Wireless Cardbus PC Card Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue. Location of driver: D: WINME\NETR8180.INF
	< Back Next > Cancel

4. Click **Finish** to complete the installation.



5. When Windows prompts you to restart your computer, click Yes.



In Windows 2000

1. In Found New Hardware Wizard, click Next.



2. In Install Hardware Device Drivers, select Search for a suitable driver for my device (recommended), click Next.



3. Insert the supplied CD-ROM into the CD-ROM drive. Select **Specify a location**, click **Next**.

Found New Hardware Wizard
Locate Driver Files Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
Ethernet Controller
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
C CD ROM diver
V Specify a location
En Microsoft Windows Update
< <u>B</u> ack <u>N</u> ext > Cancel

4. Click **Browse** to provide the appropriate path (e.g. **D:**\WIN2000). Click **OK**.

Found Nev	w Hardware Wizard	
	Inset the manufacturer's installation disk into the drive OK selected, and then click OK.	
<	2009/manufacturer's files from: D:W/IN2000	>

5. Click Next, Windows will copy all the necessary files to your system.

Found New Hardware Wizard
Driver Files Search Results The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
Ethernet Controller
Windows found a driver for this device. To install the driver Windows found, click Next.
d \win2000\netr8180.inf
The wizard also found other drivers that are suitable for this device. To view a list of these drivers or install one of these drivers, select the following check, box, and then click Next.
Install one of the other drivers
< Bac Next > Cancel

6. In Digital Signature Not Found window, click Yes to continue.



7. Click **Finish** to complete the installation.

In Windows XP

1. Select Install from a list or specific location (Advanced) and click Next.



2. Insert the supplied **CD-ROM** into the CD-ROM drive. Select **Include this location in the search:** and click **Browse** to provide the appropriate path (e.g. **D:\WINXP**). Click **Next**.

Found New Hardware Wizard
Please choose your search and installation options.
• Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
Include this location in the search:
D:\WINXP Browse
O Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.

3. Click **Continue Anyway** to proceed. Windows will copy all the necessary files to your system.

Har dwa	re Installation
1	The software you are installing for this hardware: 802.11b Wireless Cardbus PC Card has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
	Continue Anyway STOP Installation

4. Click **Finish** to complete the installation.



Verify

To verify if the device exists in your computer and is enabled, go to Start \rightarrow Settings \rightarrow Control Panel \rightarrow System (\rightarrow Hardware) \rightarrow Device Manager. Expand the Network adapters category. If the 802.11b Wireless CardBus PC Card is listed here, it means that your device is properly installed and enabled.



Install the Utility

1. Insert the supplied **CD-ROM** into the CD-ROM drive. Double click on **Setup.exe** to install the **Wireless LAN Utility**.

🗀 Utility	
<u>File Edit View Favorites</u>	Tools Help
🕒 Back 🔹 🕥 🕤 🏂	🔎 Search 🌔 Folders 🛛 🗰 🗸
Address D:\Utility	\sim
File and Folder Tasks	Reatek
Other Places	*
Details	۲

2. When the Welcome screen appears, click Next to continue.



3. In License Agreement, click Yes to accept the terms.



4. Click **Finish** to complete the installation.



NETWORK CONNECTION

Once the driver has been installed, you must make some changes to your network settings.

In Windows 98/ME

- 1. Go to Start \rightarrow Settings \rightarrow Control Panel \rightarrow Network.
- 2. Make sure that the following components are installed.

letwork ?	×
Configuration Identification Access Control	
The following network components are installed:	
Client for Microsoft Networks 10	
■ Dial-Up Adapter 3 TCP/IP -> 802.11b Wireless Cardbus PC Card 3 TCP/IP -> Dial-Up Adapter	
Add Remove Properties	
Client for Microsoft Networks	
<u>File and Print Sharing</u>	
Description	
OK Cancel	

- 802.11b Wireless CardBus PC Card
- IPX/SPX-compatible Protocol
- NetBEUI
- TCP/IP

If any components are missing, click on the **Add** button to add them in. All the protocols and clients required and listed above are provided by Microsoft.

3. After clicking Add, highlight the component you need, click Add.



4. Highlight **Microsoft**, and then double click on the item you want to add. Click **OK**.

Select Network Protocol		×
Click the Network Pro an installation disk for	otocol that you want to install, then this device, click Have Disk.	click OK. If you have
Manufacturers:	Network Protocols:	
Y Microsoft	TATM Call Manager	
	TATM LAN Emulation Client	
	FIPX/SPX-compatible Protoco	
	🗿 NetBEUI	
	PPP over ATM (protocol)	
	Realtek EAPPkt Protocol	-
		<u>H</u> ave Disk
	ОК	Cancel

- 5. For making your computer visible on the network, enable the File and Print Sharing.
- 6. Click the **Identification** tab. Make up a name that is unique from the other computers' names on the network. Type the name of your workgroup, which should be the same used by all of the other PCs on the network.

Network
Configuration Identification Access Control
Windows uses the following information to identify your computer on the network. Please type a name for this computer, the workgroup it will appear in, and a short description of the computer.
Computer name:
Workgroup:
Computer Description:
OK Cancel

7. Click the Access Control tab. Make sure that "Share-level access control" is selected. If connecting to a Netware server, share level can be set to "User-level access control."

Network ?	×
Configuration Identification Access Control	
Control access to shared resources using: C [Share-level access control Enables you to supply a password for each shared resource.	
C User-level access control Enables you to specify users and groups who have access to each shared resource. Obtain jist of users and groups from:	

8. When finished, restart your computer to activate the new device.



- 9. Once the computer has restarted and Windows has booted up, a Logon window will appear and require you to enter a username and password. Make up a username and password and click OK. Do not click the Cancel button, or you won't be able to log onto the network.
- Double-click the Network Neighborhood icon on the windows desktop, and you should see the names of the other PCs on the network.

In Windows 2000/XP

1. (In Windows 2000)

Go to Start \rightarrow Settings \rightarrow Control Panel \rightarrow Network and Dial-up Connections \rightarrow Local Area Connection \rightarrow Properties.

(In Windows XP)

Go to Start \rightarrow Control Panel \rightarrow Network Connections \rightarrow Wireless Network Connection Enabled 802.11b Wireless CardBus PC Card \rightarrow Properties.



Local Area Connection Properties			
General			
Connect using:			
802.11b Wireless Cardbus PC Card			
Components checked are used by this connection:			
Client for Microsoft Networks Sile and Printer Sharing for Microsoft Networks Sile and Printer Sharing for Microsoft Networks Sile and Printer Protocol Sile and Protocol (TCP/IP)			
Install Uninstall Properties			
Allows your computer to access resources on a Microsoft network.			
Show icon in taskbar when connected			
OK Cancel			

- 2. Make sure that you have all the following components installed.
 - Client for Microsoft Networks
 - NWLink NetBIOS
 - NWLink IPX/SPX/NetBIOS Compatible Transport Protocol
 - Internet Protocol (TCP/IP)
- 3. If any components are missing, click on the **Install...** button to select the **Client/Service/Protocol** required. After selecting the component you need, click **Add...** to add it in.

Select Network Component Type
Click the type of network component you want to install:
Elient Service Frotocol
Description A protocol is a language your computer uses to communicate with other computers.
Add Cancel
Select Network Protocol
Click the Network Protocol that you want to install, then click OK. If you have an installation disk for this component, click Have Disk.
Network Erotocol Apple7 alk Protocol DLC Protocol Network Monitor Driver Network Monitor Driver NWLink IPX/SPX/NetBIOS Compatible Transport Protocol
Have Disk
OK Cancel

- 4. For making your computer visible on the network, make sure you have installed **File and Printer Sharing for Microsoft Networks**.
- 5. When finished, you must restart your computer to complete the installation.

CONFIGURATION

After successful installation of the Wireless PC Card's Driver and Utility, a **Network Status** icon (see Fig.1) will display in the system tray. Meanwhile, a **RTL8180 Shortcut** icon (see Fig.2) will appear on the desktop.



Accessing the Configuration Utility

The Configuration Utility is accessed by double-clicking on the **Shortcut** icon.



Click Advanced to enter the Configuration Window.



All settings are categorized into 6 Tabs:

Config Tab

Advanced Config Tab

Status Tab

Statistics Tab

About Tab

Exit Tab

Config Tab

The **Config** tab allows you to configure WEP encryption and add/remove Profile(s).



Item		Description		
Available Wi Network(s)	ireless	Displays all available networks.		
Configure		Highlight an available network, click Configure to set up WEP encryption (see diagram below).		
		Wireless network properties		
		Network Name(SSID): 3Com		
		Wireless network key(WEP)		
		This network requires a key for the following:		
		Data encryption(WEP enabled)		
		Network Authentication(shared mode)		
		Network key:		
		Confirm network key:		
		Key index (advanced):		
		Enable IEEE 802.1x authentication for this network		
		 Inis is a computer-to-computer(ad noc) network; wireless access points are not used. 		
		Cancel		
Refresh		Click the button to refresh and search for all available networks.		

Item	Description		
Available Profile(s)	Displays all available profiles.		
Add	Click the button and the Wireless Network Properties window will appear. In the Network Name (SSID) field, enter your desired network name listed in the above Available Wireless Network(s) box, and click OK. Wireless network properties		
	Wireless network properties Network Name(SSID): Wireless network key(WEP) This network requires a key for the following: Data encryption(WEP enabled) Network Authentication(Shared mode) Network key: Confirm network key: Key index (advanced): Enable IEEE 802.1x authentication for this network This is a computer-to-computer(ad hoc) network; wireless access points are not used. OK Cancel		
Remove	Highlight the unwanted profile listed in the Available profile(s) box, and click the button to remove it.		
Set Default	Highlight a profile, click the button to set it as a default profile.		

Advanced Config Tab

The Advanced Config Tab allows you to change advanced configuration settings, such as the Ad Hoc default channel, Power Save and Radio Off.



Item	Description
Ad Hoc default channel	Select the appropriate channel from the list provided to correspond with your network settings. All devices in the wireless LAN must be configured to share the same radio channel in order to function properly.
Power Save	
⊙ CAM (Constantly	Keeps the PC card powered up continuously so there is little lag in message response time.
Awake Mode)	Consumes the most power but offers the highest throughput. Is recommended for desktop computers and devices that use AC power.

Item	Description		
⊙ Max PSP (Power Save Mode)	 Causes the access point to buffer incoming messages for the client adapter, which wakes up periodically and polls the access point to see if any buffered messages are waiting for it. The PC card can request each message and then go back to sleep. 		
	Conserves the most power but offers the lowest throughput. Is recommended for devices which power consumption is the ultimate concern (such as small battery-powered devices).		
⊙ Fast PSP (Power Save Mode)	Switched between PSP mode and CAM mode, depending on network traffic. This mode switched to CAM when retrieving a large number of packets and switches back to PSP after the packets have been retrieved.		
	Is recommended when power consumption is a concern but you need greater throughput than that allowed by Max PSP.		
Channel	Channel button is enabled only in Peer-to-Peer mode. (There are 14 channels available, depending on the country.)		
□ Show icon in System Tray	Check this box to show icon in system tray.		
Dedicate Probe			
□ Radio Off	Check/Uncheck this box to disable/enable the radio module function of the Wireless PC Card.		
Rescan	Searches for all available networks. Click this button to rescan and issue an updated list of all available sites.		

Status Tab

The Status Tab displays basic link information, including Channel Set, MAC Address, Network Type and Power Save Mode.

		Profile 3	Com 🗾 – ×	
	Config	Manufacturer NDIS Driver Version Using Short Radio Headers	= Realtek = 5.116.0110.2003 = No	
	Advanced	WEP Status Authentication Type Chapped Sat	= Disabled = Open - ECC	
/	Config	MAC Address 1 Mbps Data Rate	= 00:E0:4C:81:80:13 = Basic	
$\left(\right)$	Status	Mbps Data Rate 5.5 Mbps Data Rate	= Basic = Basic	
	Statistics	11 Mbps Data Rate Channel (Frequency)	= Basic = 1 (2412 MHz)	
	About	Status SSID Network Type	= Associated = 3Com = Tofractructure	
	Exit	Power Save Mode Associated AP MAC	= CAM = 00:04:76:28:78:28	
		Up Time (hh:mm:ss)	= = 0:10:42	
	Signal Strength			
	Signal Quality			

Statistics Tab

The **Statistics** tab shows the available statistic information. Press **Reset** button to renew this list of statistics.

a. D	Profile 3	Com 💌 -×	
	Counter Name	Value	
Sector Sector	T× OK	905	
Config	Tx Error	0	
	Tx Retry	133	
Advanced	Tx Beacon OK	0	
Config	Tx Beacon Error	0	
	R× OK	572	
Ctatura	Rx Packet Count	9686	
Status	Rx Retry	94	
	Rx CRC Error(0-500)	797	
Statistics	Rx CRC Error(500-1000)	0	
Statistics	Rx CRC Error(>1000)	0	
	R× ICV Error	0	
About			
And Aller and			
Exit			
		D	
		Reset	
		Manager and the second s	
Signa	Signal Strength		
Signal Quality			
	And the second		
and Theory and the		and the second se	
and the second second second	A REAL PROPERTY OF A REAL PROPER	and the second	

About Tab

Click on the **About** tab to view basic version information about the **Configuration Utility**.



Exit Tab

Click on the Exit tab to exit the application.



UNINSTALLATION

In case you need to uninstall the Utility or Driver, please refer to below sections.

Uninstall the Utility

- 1. Go to Start → (Settings →) Control Panel → Add or Remove Programs.
- 2. Highlight RTL8180, Click Change/Remove.

B Add or Remo	ve Programs		
	when a second programme	Sort by: Name	×
Change e Remove	🕫 RINELAD	Sin (.77240
B	To charge the program or remove it from your computer, city. Charge/Temove.	Chevenite	
Add tigen Programs		Resolution of the	
6			
Add/Femove Windows			
Components			
			_
		0	gse

3. Click **Next** to continue.



4. Click **OK** to continue.



5. Click **Finish** to complete the uninstalled procedure.



Uninstall the Driver

- Right-click My Computer → Properties → Hardware → Device Manager.
- 2. Right-click **802.11b Wireless CardBus PC Card** then click **Uninstall** (or **Remove**).

A Device Manager		
File Action View Help		
+ + 🗉 🗗 🖨 😰 🗶 🎘 🗶	₫.	
🖂 📕 ADO-BERA34K4X3P		
🛞 😼 Computer		
Disk drives		
Oisplay adapters O		
Floppy disk controllers		
E Boppy dsk drives		
IDE ATA/ATAPI controllers		
Keyboards		
Mice and other pointing devices		
 Monitors 		
 Wetwork adapters 		
- BOO2.11b Wireless Cardbus PC Card	Li state Driver	
	Dicable	-
B PUPLIA adapters	lipital	
- J Ports (COPI a (P1)	Contractioner	
Second wides and same controllers	Scan for hardware changes	
 Bouha, video and game concrollers 		
System on the second	Properties	
Hereit and the second		
Uninstalls the driver for the selected device.		

3. Click OK.



4. The system may prompt you to restart your computer. Click Yes

SPECIFICATIONS

Standards	IEEE 802.11b,Wi-Fi compliant	
Host Interface	32-bit CardBus	
Antenna	Patch Antenna	
Physical	Weight: 40 g	
Specifications	Dimension: 119(L) x 53.94 (W) x 6.88(H) mm	
LED Indicators	LINK: Green (ON) ACT: Orange (Blink)	
	Operating Voltage: 3.3V	
Power Requirement	TX consumption: 320mA (Max)	
	RX consumption: 150mA (Max)	
Operating Frequency Range	2.412GHz-2.4835GHz	
Number of Selectable Channels	USA, Canada: 11 channels	
	Europe: 13 channels	
	Japan: 14 channels	
Modulation	Direct Sequence Spread Spectrum (CCK, DQPSK,	
Technique	DBPSK)	
Security	0/64/128 bit WEP	
Spreading	11 chip Barker sequence	
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK	
Supported OS	Windows 98/ME/2000/XP	
EMC Contification	FCC Part 15 in US	
ENIC Certification	EN300328 and EN300826 (EN301489-17) in Europe	
	Operating Temperature: 0~65°C ambient temperature	
Environment	Storage Temperature: -20~75°C ambient temperature	
Specifications	Operating humidity: 95% maximum (non-condensing)	
	Storage humidity: 95% maximum (non-condensing)	