

SNU6500

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**EN** User manual

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**PHILIPS**

## Helpline

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## European Regulations

This product has been designed, tested and manufactured according to the European R&TTE Directive 1999/5/EC.

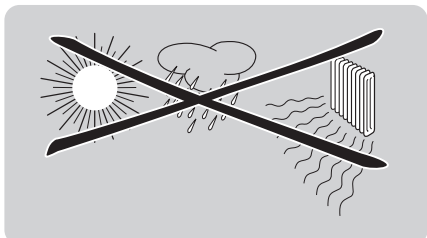
Following this Directive, this product can be brought into service in the following states:

|       |      |     |      |     |
|-------|------|-----|------|-----|
| B ✓   | DK ✓ | E ✓ | GR ✗ | F ✓ |
| IRL ✓ | I ✓  | L ✓ | NL ✓ | A ✓ |
| P ✗   | SU ✓ | S ✓ | UK ✗ | N ✓ |
| D ✓   | CH ✓ |     |      |     |

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## Important safety information

- Please install and connect the product in the order as described in the “**Quick Start Guide**” booklet only. This assures best installation results with the least technical hassles.
- Please read this manual and the “**Quick Start Guide**” booklet carefully before using the Wireless USB Adapter 11g True Turbo 108 Mbps; and keep these documents for future reference.
- The most recent downloads and information on this product will be available through our web site [www.philips.com/support](http://www.philips.com/support)
- During set-up and installation, it may be helpful to have the instructions for your PC and other network components at hand.



### Safety Precautions

- Radio equipment for wireless applications is not protected against disturbance from other radio services.
- Do not expose the system to excessive moisture, rain, sand or heat sources.
- The product should not be exposed to dripping or splashing. No object filled with liquids, such as vases, should be placed on the product.
- Keep the product away from domestic heating equipment and direct sunlight.
- Allow a sufficient amount of free space all around the product for adequate ventilation.
- Do not open this product. Contact your Philips retailer if you experience technical difficulties.

### Environmental information

All redundant packing material has been omitted. We have done our utmost to make the packaging easily separable into two mono materials: cardboard (box) and polyethylene (bags, protective foam sheet). Your set consists of materials that can be recycled if disassembled by a specialised company. Please observe the local regulations regarding the disposal of packing materials and old equipment.

### Disclaimer

This product is provided by “Philips” “as is” and without any express or implied warranty of any kind of warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed.

In no event shall Philips be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of information, data, or profits; or business interruption) howsoever caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of inability to use this product, even if advised of the possibility of such damages.

Philips further does not warrant the accuracy or completeness of the information, text, graphics, links or other items transmitted by this product.

## What's in the box

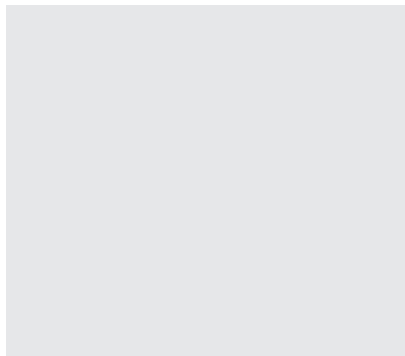
EN



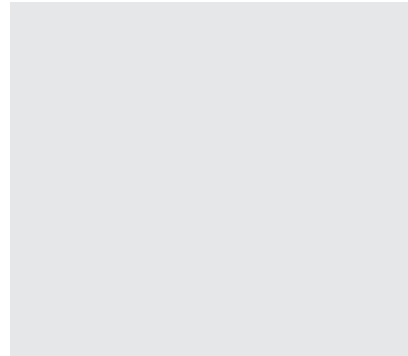
Wireless USB Adapter I Ig True turbo  
108 Mbps



USB 2.0 cable

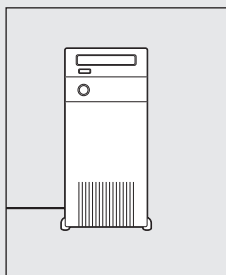


Quick Start Guide

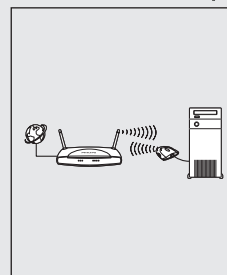


Installation CD

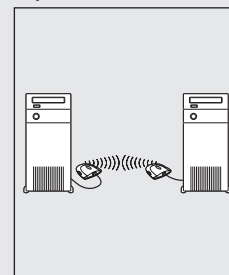
## What else you'll need



Computer  
USB port  
Windows 2000/XP



Wireless Basestation



Other wireless devices

## SNU6500

Thank you for purchasing the Philips Wireless USB Adapter 11g True Turbo 108 Mbps. This Wireless USB Adapter 11g True Turbo 108 Mbps is a WiFi (IEEE 802.11g) compatible USB device. It fully supports high data rates up to 108 Mbps with automatic fallback to lower speeds for secure operation at lower data rates in even the most difficult of wireless environments.

In this manual we will expand on how to install, configure, and use your Wireless USB Adapter 11g True Turbo 108 Mbps.

This chapter will give you background information on wireless networks and their security in general.

## What are wireless network connections?

Your wireless network adapter uses a wireless protocol (called IEEE 802.11g or WiFi) to communicate with other network computers by means of radio transmissions. WiFi radio waves travel outwards from the antenna in all directions, and can transmit through walls and floors. Wireless transmissions can theoretically reach up to 450 meters in an open environment and reach speeds of up to 108 megabits per second (Mbps) at close range. However, the actual network range and data throughput rate will be less, depending on the wireless link quality.

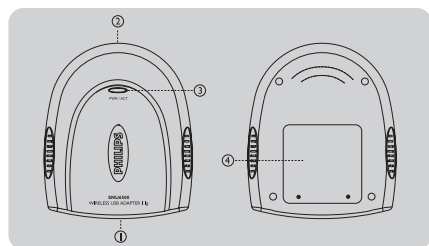
## Factors determining your network range and network speed

- The environment: Radio signals can travel farther outside of buildings, and if the wireless components are in direct line of sight to one another. Putting wireless components in high places helps avoid physical obstacles and provides better coverage.
- Building construction such as metal framing and concrete or masonry walls and floors will reduce radio signal strength. Avoid putting wireless components next to walls and other large, solid objects; or next to large metal objects such as computers, monitors, and appliances.
- Wireless signal range, speed, and strength can be affected by interference from neighbouring wireless networks and devices. Electro-magnetic devices such as televisions, radios, microwave ovens, and cordless phones, especially those with frequencies in the 2.4 GHz range, may also interfere with wireless transmission.
- Standing or sitting too close to wireless equipment can also affect radio signal quality.
- Adjusting the antenna: Do not place antennas next to large pieces of metal, because this might cause interference.

## Securing your wireless network

As wireless computer networks use radio signals, it is possible for other wireless network devices outside your immediate area to pick up the wireless signals and either connect to your network or to capture the network traffic. Therefore, you should always enable the Wired Equivalent Privacy (**WEP**) or WiFi Protected Access (**WPA**) network encryption key to help prevent unauthorised connections or the possibility of eavesdroppers listening in on your network traffic.

For an example of how to secure your network, please see the chapter on “An example of how to secure your wireless network”.



## 1 USB Connector to PC

For connecting the Wireless USB Adapter I Ig True Turbo 108 Mbps to the USB port of your PC.

The difference between USB 2.0 and USB 1.1:

- USB 2.0 wireless speed is max. 108 Mbps
- USB 1.1 wireless speed is max. 11 Mbps

## 2 Integrated antenna

Built-in antenna for establishing wireless connections.

## 3 Indicator LED

Displays the network status.

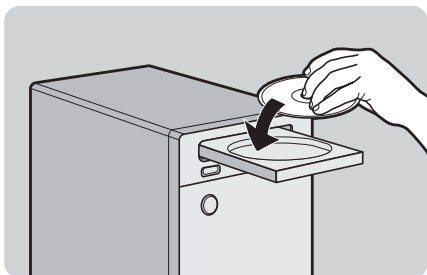
| LED     | LED colour | Meaning                                                                                                                                                                                                                        |
|---------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PWR/ACT | Blue       | <ul style="list-style-type: none"> <li>• Off when not connected or with PC switched off.</li> <li>• On when receiving power and ready for operation.</li> <li>• Blinking when transmitting data (network activity).</li> </ul> |

## 4 Label with MAC address

The designation consisting of 12 characters (e.g. 00:30:F1:A1:F4:A5 or, in general, xx:xx:xx:xx:xx:xx) is the unique MAC address of this network device. Some safety features or network identification purposes need this MAC address.

## Install the drivers

Place the **Installation CD** in the CD-drive



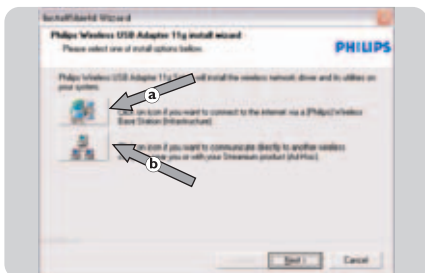
### Select **Agree**

If this screen does not appear, start the CD manually

- 1 Open **My Computer**
- 2 Open **CD-drive**
- 3 Open **Setup.exe**

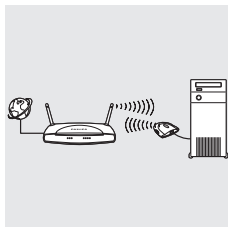
Click on the **Wireless USB Adapter 11g True Turbo 108 Mbps** photo

Click on **Install software**



Choose your situation:

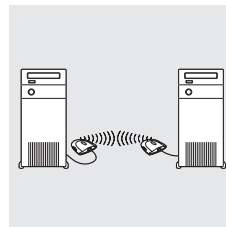
Either: Infrastructure (a)



Click



Or: Ad-Hoc (b)



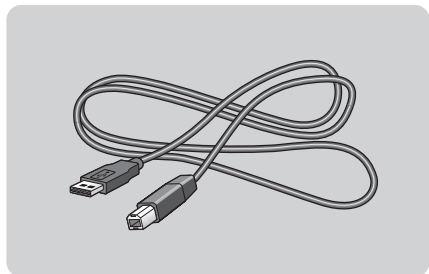
Click



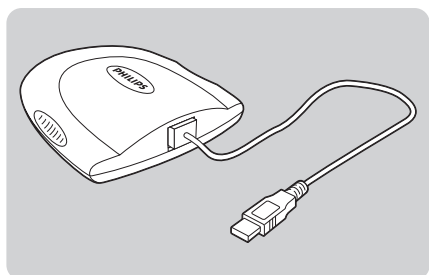


Wait until you see this window

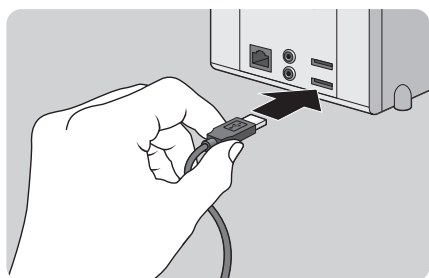
**Connect your Wireless USB Adapter 11g True Turbo 108 Mbps to the computer**



1 Take the USB cable



2 Plug the square connector of the USB cable into the **Wireless USB Adapter 11g True Turbo 108 Mbps**



3 Plug the **Wireless USB Adapter 11g True Turbo 108 Mbps** into one of the USB ports on your computer

The difference between USB 2.0 and USB 1.1:

- USB 2.0 wireless speed is max. 108 Mbps
- USB 1.1 wireless speed is max. 11 Mbps

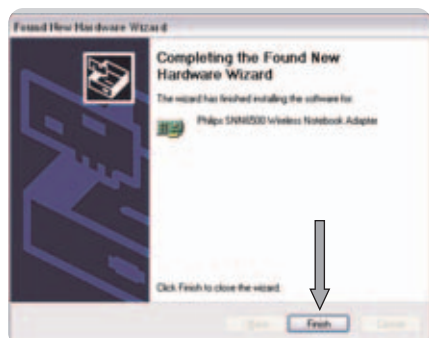
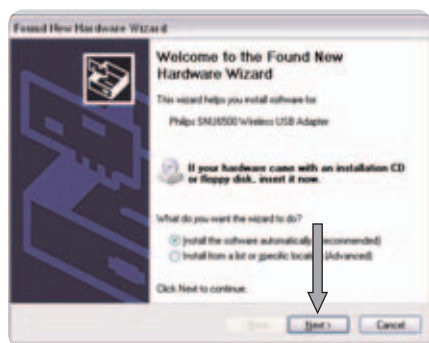
## Install hardware for Windows

Either: Windows 2000

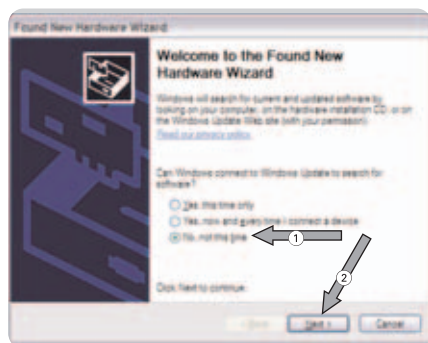
- No Additional actions needed

Or: Windows XP / Windows XP Service Pack 1

1 Select **Next**

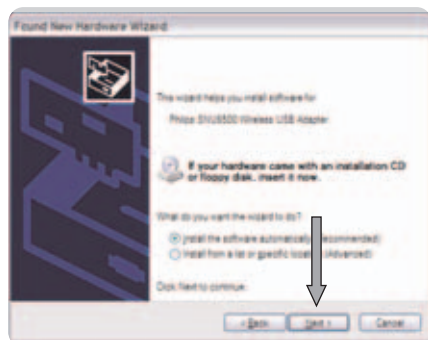


2 Select **Finish**

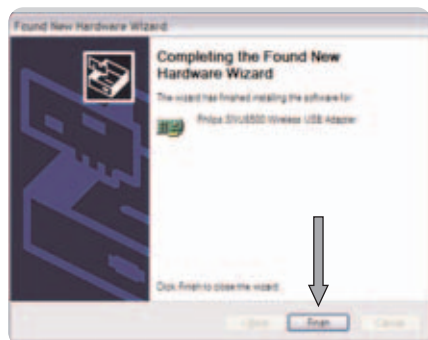


### View the available wireless networks

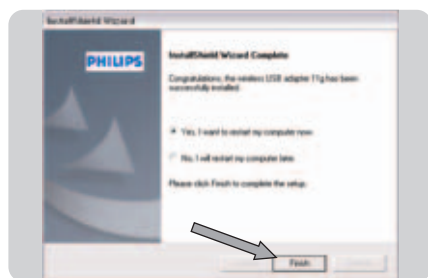
- 1 Select **No, not this time**
- 2 Select **Next**



- 3 Select **Next**



- 4 Select **Finish**



Click on **finish**

> **Your Wireless USB Adapter 11g True Turbo 108 Mbps is ready for use after the reboot**

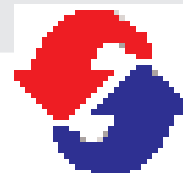


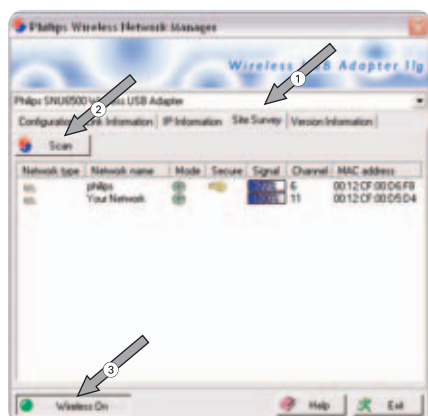
### Connect

Connect to your network

**Start Philips Wireless Network Manager program**  
Double click on the tray icon

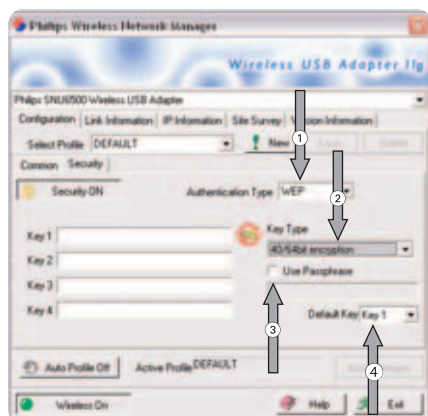
If the Philips Wireless Network Manager does not start,  
double-click this icon





### View the available wireless networks

- 1 Select **Site Survey**
- 2 Click on **Scan**
- 3 Double click on your wireless **Network Name**

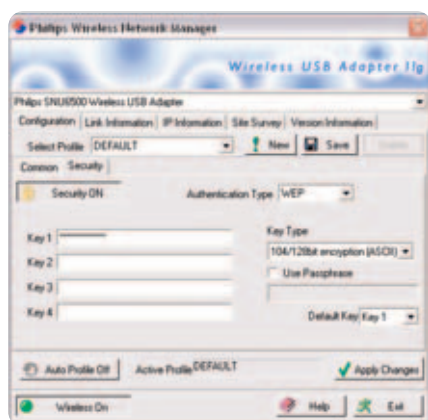


### When asked: Input Security credentials

- 1 Select your **Authentication Type**
- 2 Select your **Key Type**
- 3 Select **Use Passphrase** if applicable
- 4 Enter your encryption **Key**

See the user manual of your basestation on how to identify these security credentials.

**TIP** for more information on encryption see “Configuration – sub-tab Security” on page 15.



### Store your profile details Select **Save**

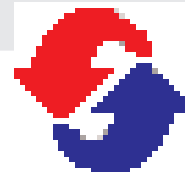
### Activate the current profile Select **Apply Changes**

## Advanced

### Securing your wireless network.

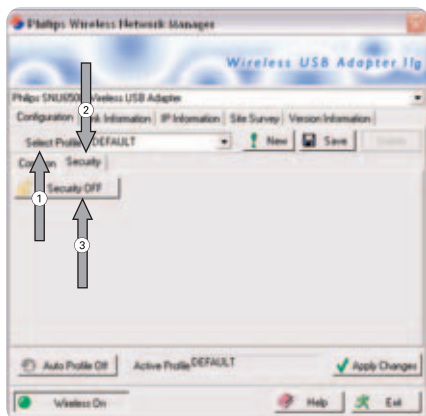
**Start Philips Wireless Network Manager program**  
Double click on the tray icon

If the Philips Wireless Network Manager does not start, double-click this icon.



#### Go to security settings

- 1 Select **Configuration** tab
- 2 Select **Security** tab
- 3 Click on **Security off**, to switch it on

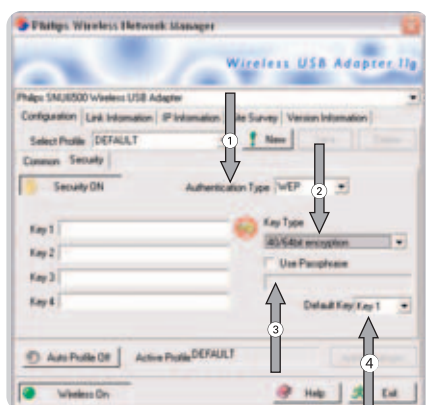


#### Input Security credentials

- 1 Select your **Authentication Type**
- 2 Select your **Key Type** if applicable
- 3 Select **Use Passphrase** if applicable
- 4 Enter your encryption **Key**

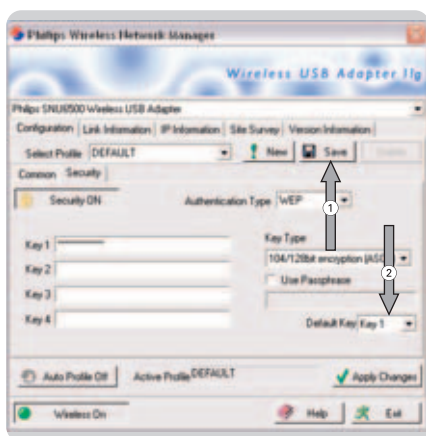
See the user manual of your basestation on how to identify these security credentials.

TIP for more information on encryption see "Configuration – sub-tab Security" on page 15.



**Store your profile details**  
Select **Save**

**Activate the current profile**  
Select **Apply Changes**



#### Configure other devices

Make sure other networked devices use the same **Network Name (SSID)**, **Ad-Hoc** wireless mode and Security credentials

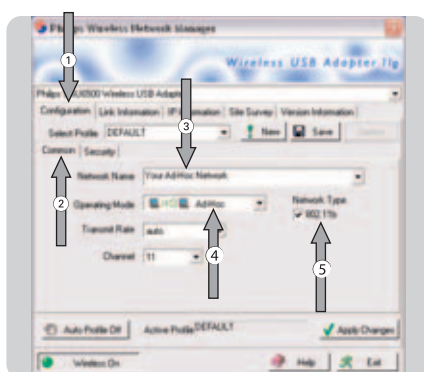
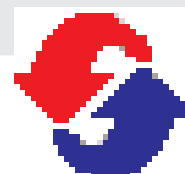


## Setup of an Ad Hoc computer network

Start **Philips Wireless Network Manager** program

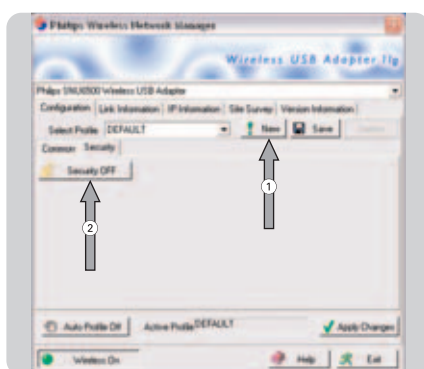
Double click on the tray icon

If the Philips Wireless Network Manager does not start, double-click this icon.



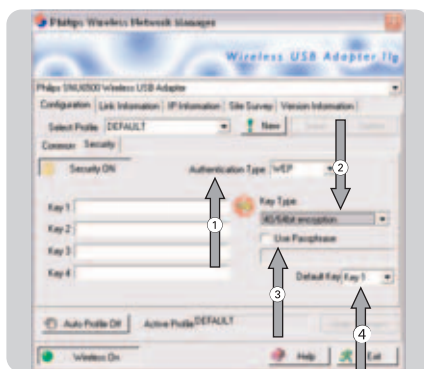
## Create an Ad-Hoc wireless network

- 1 Click on **Configuration**
- 2 Click on **Common**
- 3 Enter the wireless **Network Name** (SSID)
- 4 Select **Ad-Hoc** as operating mode
- 5 Select the **Network Type**



## Go to the Security settings

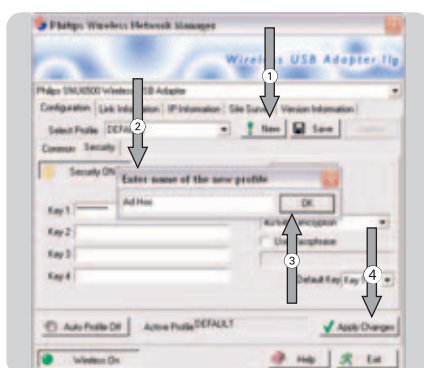
- 1 Select **Security** tab
- 2 Click on **Security off**, to switch it on



## Setup the encryption

- 1 Select your **Authentication Type**
- 2 Select your **Key Type**
- 3 Select **Use Passphrase** if applicable
- 4 Enter your encryption **Key**

TIP for more information on encryption see "Configuration – sub-tab Security" on page 15.



## Saving the profile settings

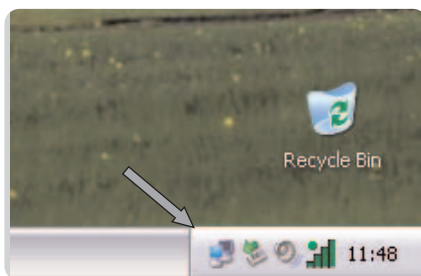
- 1 Click on **New**
- 2 Enter the **Profile name**
- 3 Click **OK**

## Activating the new profile's settings

- 4 Click on **Apply**

## Configure other devices

Make sure other networked devices use the same **Network Name** (SSID), **Ad-Hoc** wireless mode and Security credentials

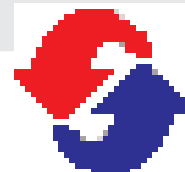


## Accessing your wireless network setting.

### Start Philips Wireless Network Manager program

Double click on the tray icon

If the Philips Wireless Network Manager does not start, double-click this icon.



## What do the settings mean

The Philips Wireless Network Manager program has five main tabs with information and settings.

Note: The Wireless On/Off button appears on the bottom of every tab to give you control over enabling and disabling the wireless link.

### • Configuration

The **Configuration** tab lets you manage your profiles, and gives you access to your wireless network and encryption settings.

**Select profile** – A profile is a set of all settings needed for a particular wireless connection. If you want to change between wireless networks, you can simply switch from one saved profile to the other.

Use the **New**, **Save** and **Delete** buttons for managing your profiles.

### Auto Profile On/Off

When Auto Profile is On, the New profile and Save profile buttons will be disabled. After you Apply Changes a profile will automatically be created with your network settings

The Configuration tab contains two sub-tabs: **Common** and **Security**. See below for an explanation of the settings of these sub-tabs.

### • Configuration – sub-tab Common

**Network Name** – Input a wireless network name for the wireless network to which you want to connect. Alternatively, use the Site Survey tab to choose from the list of available Network Names. (Default: philips.)

**Operating Mode** – Set the operation mode to Ad Hoc (Peer-to-Peer) for network configurations that do not have a Wireless Base Station, and to Infrastructure for configurations with a wireless base station. (Infrastructure is the default setting.)

**Transmit Rate** – Auto will automatically negotiate the highest possible wireless network speed. Or set a lower speed manually. Lower speeds will give better range.

**Channel** – If you are setting up an Ad Hoc wireless network, set the channel number to the same radio channel as that used by the other wireless devices in your group. However, if you are connecting to a network via a base station, then the channel is automatically set to the channel of the base station to which the adapter connects. The Channel can only be set when the Operating Mode is set to Ad Hoc (Peer-to-Peer).

**Power Save** – Click the box if you want to use power management to reduce your portable computer's consumption of battery power and still keep the computer available for immediate use.

**IMPORTANT:** All computers and wireless network devices in the same network should have the same Network Name (SSID) and the same encryption key for wireless security. In Ad Hoc mode, you must also specify the same radio channel for all wireless devices.





#### • Configuration – sub-tab Security

First, click the **Security ON/OFF** button to enable or disable wireless security.

**Authentication Type** – Choose WEP or WPA-PSK depending on the type of wireless security in the rest of your wireless network.

**Wired Equivalent Privacy (WEP) and WiFi Protected Access (WPA)** are implemented in the adapter to prevent unauthorized access to your wireless network.

**Key Type** – For more secure data transmissions, set encryption to the highest number of bits. E.g. a 128-bit setting gives you a higher level of security than 64-bit. **IMPORTANT:** The setting must be the same for all clients in your wireless network.

**Use Passphrase** – If Passphrase is selected, security keys for WEP encryption are generated from your passphrase string. If encryption is set to 128 bit, only Key 1 is generated. If encryption is set to 64 bit, Keys 1-4 are generated. You must use the same Passphrase and Default Key settings on all the other stations in your network. Note: A passphrase string can consist of up to 32 alphanumeric characters.

The **WPA (WiFi Protected Access)** implemented in this Wireless USB Adapter I Ig True Turbo 108 Mbps uses an alphanumeric password between 8 and 63 characters long. This password may include symbols and spaces. **IMPORTANT:** You must use the same encryption key throughout your network.

**Apply changes** – Click on “Apply changes” to activate the changes you made.

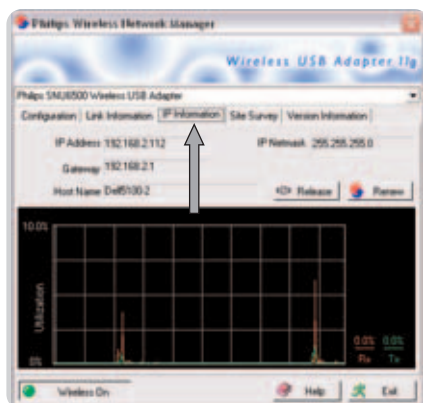
**Key 1-4** – If the Key Type is set to Hex, the security keys are four 10 digit keys for the 64-bit WEP setting and four 26-digit keys for the 128-bit WEP setting. (The hexadecimal digits can be 0~9 & A~F, e.g. D7 0A 9C 7F E5.)

**Default Key** – Choose the Key ID that has the encryption string you prefer. If you are using a key generated from the passphrase, you must use the same passphrase and key on each wireless device.



#### • Link information

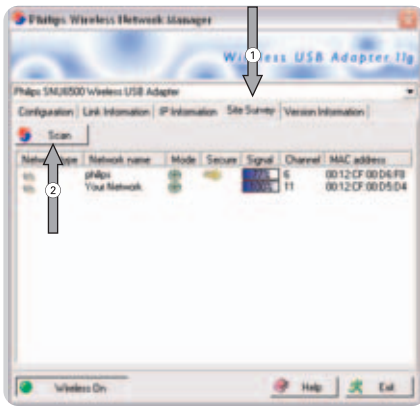
The **Link information tab** displays information on the wireless network name (SSID) to which there is a wireless connection: the signal strength, Throughput history, current connection speed, channel and Basestation Name ID (MAC).



#### • IP information

The **IP information tab** displays information on the Host Name, IP Address, IP Netmask, and Gateway.

This window also contains buttons for **releasing** and **renewing** the IP address. This is done to bring a computer back onto the network after moving it to a different location, or after experiencing an unexpected outage. First release, then renew the IP address. Computers on DHCP networks often (but not always) re-establish network connectivity automatically.



### • Site Survey

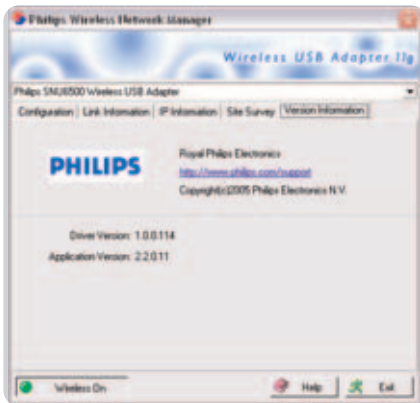
Selecting the Site Survey tab displays a list of available wireless network access points.

Next, click **Scan** to update the list.

It shows you the following information:

- Network type shows the network setup
- The name of the wireless connection (Network Name, or SSID)
- Network mode shows which WIFI standard is used
- An icon reflecting if encryption is enabled
- Signal strength
- Channel that is used by the network
- MAC address of the device

Double-click one of the network names to open the Profile Wizard for establishing a wireless connection with that network.



### • Version information

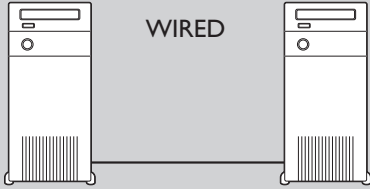
Selecting this tab displays vendor and version information.

Read this chapter if you want to know how to interpret the terminology used in this manual.

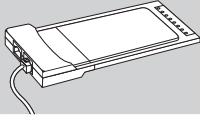
A network provides a means of communication between two or more computers (and other devices) that are connected to each other through wired or wireless means.

At each computer, you will need a network adapter or Network Interface Card (NIC) to be able to connect the computer to the network cable. Examples are:

## WIRED



Ethernet cable



Ethernet notebook adapter



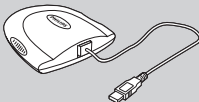
ETHERNET

Already built-in

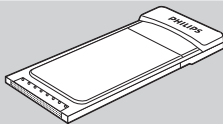
## WIRELESS



At each computer, you will need to install a WiFi wireless adapter to be able to connect to another wireless enabled device. Examples are:



Wireless USB adapter

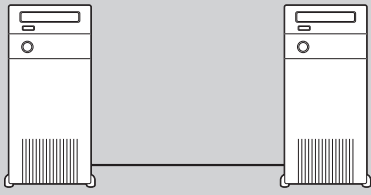


Wireless notebook adapter | Ig



Already built-in

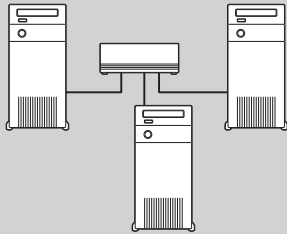
In a network, the computers need to be able to connect to each other physically. Therefore, another important network property is how the computers connect to each other, either directly or through a central device.



### ONE-ON-ONE WIRED NETWORK

also known as: Direct connection (max. 2 PCs)

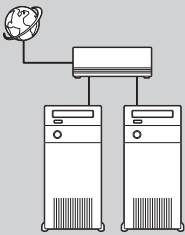
**NOTE:** Use a crossover Ethernet cable to connect two computers directly to each other.



### WIRED NETWORK WITH MORE THAN 2 PCs

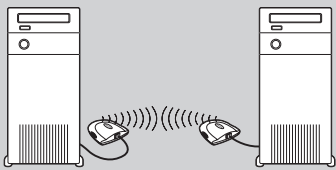
Use a hub or switch to connect more than 2 PCs to each other.

**NOTE:** Use straight-through Ethernet cables to connect the computers to the central device (hub/switch).



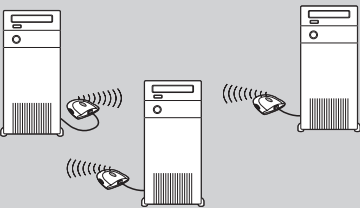
### HOW TO INTERCONNECT WIRED NETWORKS

Use a gateway router to connect one network to another (e.g. to the Internet, also known as WAN).



### ONE-ON-ONE WIRELESS NETWORK

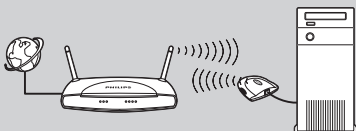
Also known as: Ad Hoc / Peer-to-Peer



### WIRELESS NETWORK WITH MORE THAN 2 PCs

Also known as: Ad Hoc / Peer-to-Peer

The wireless medium forms a hub in and of itself. No hardware hub is needed.



### CONNECTING WIRELESS TO WIRED NETWORKS

also known as: Infrastructure / Access Point

Use a **wireless base station**.

Central devices, like a hub, switch, router or wireless access point may be stand-alone devices or built into a computer.

- A **hub** has multiple ports and serves as a central connection point for communication lines from all computers on a wired network. It copies all data arriving at one port to the other ports. A **switch** is similar to a hub, but is able to handle different network speeds at each port.
- **Gateway routers** and **wireless access points** route network traffic from one network to another (e.g. from a wired network to the Internet, or from a wireless network to a wired network or to the Internet).

**DHCP** Dynamic Host Configuration Protocol. This protocol automatically configures the TCP/IP settings of every computer on your home network.

**DNS** Server Address DNS stands for Domain Name System, which allows Internet host computers to have a domain name and one or more IP addresses . A DNS server keeps a database of host computers and their respective domain names and IP addresses, so that when a domain name is requested , the user is sent to the proper IP address. The DNS server address used by the computers on your home network is the location of the DNS server your ISP has assigned.

**DSL** Modem DSL stands for Digital Subscriber Line. A DSL modem uses your existing phone lines to transmit data at high speeds. Ethernet A standard for computer networks. Ethernet networks are connected by special cables and hubs, and move data around at up to 10 million bits per second (Mbps).

**HPNA** Home Phone line Networking Alliance, which is an association of corporations (including ) working to ensure the adoption of a single, unified phone line networking standard. Your Home Connect home network gateway is compliant with HPNA Specification 2.0, which allows networking speeds of up to 1 million bits per second (Mbps) using your existing home phone lines.

**IP** Address IP stands for Internet Protocol. An IP address consists of a series of four numbers separated by periods, that identifies an single, unique Internet computer host. Example: 192.34.45.8.

**ISP Gateway Address(see ISP for definition).** The ISP Gateway Address is an IP address for the Internet router located at the ISP's office. This address is required only when using a cable or DSL modem.

**ISP Internet Service Provider.** An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.  
**LAN** Local Area Network. A LAN is a group of computers and devices connected together in a relatively small area (such as a house or an office). Your home network is considered a LAN.

**MAC Address** **MAC** stands for Media Access Control. A MAC address is the hardware address of a device connected to a network.

**NAT** Network Address Translation. This process allows all of the computers on your home network to use one IP address. Using the NAT capability of the Home Connect home network gateway, you can access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

**PPPoE** Point-to-Point Protocol over Ethernet. Point-to-Point Protocol is a method of secure data transmission originally created for dial-up connections; PPPoE is for Ethernet connections.

**Secondary Dial-Up** A secondary dial-up phone number is used by your ISP in case your primary dial-up number has too many other customers accessing it. The secondary dial-up phone number will be used if your primary dial-up phone number cannot be accessed.

**SPI** Stateful Packet Inspection. SPI is the type of corporate-grade Internet security provided by your Home Connect home network gateway. Using SPI, the gateway acts as a "firewall," protecting your network from computer hackers.

**Subnet Mask** A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must assigned by InterNIC).

**TCP/IP** Transmission Control Protocol/Internet Protocol. This is the standard protocol for data transmission over the Internet.

**WAN** Wide Area Network. A network that connects computers located in geographically separate areas, (i.e., different buildings, cities, countries). The Internet is a wide area network.

## Technical specifications

|                                         |                                                                                             |
|-----------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Radio</b>                            | IEEE 802.11g                                                                                |
| <b>Radio Technology</b>                 | Direct Sequence Spread Spectrum (DSSS)<br>Orthogonal Frequency Division Multiplexing (OFDM) |
| <b>Antenna Type</b>                     | Built-in antenna                                                                            |
| <b>Data Rate</b>                        | 1 / 2 / 5.5 / 6 / 9 / 11 / 12 / 18 / 24 / 36 / 48 / 54 / 72 / 96 / 108 Mbps                 |
| <b>Host interface</b>                   | USB specification version 2.0 (max. 108 Mbps) & 1.1 (max. 11 Mbps)                          |
| <b>Power consumption send / receive</b> | Approx. 500 mA / 420 mA                                                                     |
| <b>Dimensions (h x w x d)</b>           | 22 x 79 x 93 mm                                                                             |
| <b>Weight</b>                           | Approx. 55 g (adapter only)                                                                 |
| <b>Operating Temperature</b>            | 0 ~ 55°C                                                                                    |
| <b>Storage Temperature</b>              | -20 ~ 75°C                                                                                  |
| <b>Humidity</b>                         | 5 ~ 90% non-condensing                                                                      |

## Troubleshooting

Please, check the following troubleshooting items and our web site [www.philips.com/support](http://www.philips.com/support) before contacting our technical support.

| Problem                                                                                        | Possible cause                 | Solution                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ADAPTER INSTALLATION PROBLEMS</b>                                                           |                                |                                                                                                                                                                           |
| Your PC cannot find the Wireless USB Adapter or the network driver does not install correctly. | USB Adapter not connected.     | Make sure the USB cable is securely connected to the USB connectors of both the adapter and of your PC.                                                                   |
|                                                                                                | USB Adapter damaged            | Check for any hardware problems, such as physical damage to the adapter's connector.                                                                                      |
|                                                                                                | USB Adapter or port defective. | Try to connect the adapter to another USB port.<br>If this also fails, test your computer with another USB device that is known to operate correctly.                     |
|                                                                                                | Conflicting network adapters.  | If there are other network adapters in the computer, they may be causing conflicts. Remove all other adapters from the computer and test the wireless adapter separately. |

If it still does not work, try re-installing the wireless USB adapter 11g from the original Installation CD. Restart your PC.

| Problem | Possible cause | Solution |
|---------|----------------|----------|
|---------|----------------|----------|

## NETWORK CONNECTION PROBLEMS

|                                                                                                                                                      |                                                                                                              |                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If the Link LED on the Wireless USB Adapter 11g True Turbo 108 Mbps does not light, or if you cannot access any network resources from the computer. | PC or other network devices switched off.                                                                    | Make sure the computer and other network devices are receiving power.                                                                                                                                                                                                   |
| No access to a Windows or NetWare service on the network.                                                                                            | Service unavailable.                                                                                         | Check that you have enabled and configured the service correctly. If you cannot connect to a particular server, be sure that you have access rights and a valid ID and password. If you cannot access the Internet, be sure you have configured your system for TCP/IP. |
| If your wireless adapter cannot communicate with a computer in the network when configured for Infrastructure mode.                                  | Base Station / Access Point is switched off.<br>Range too long (weak radio signal).<br>Wrong settings        | Make sure the access point that the station is associated with is powered on.<br>Reposition your Wireless Adapter.<br>Make sure the SSID and the network encryption key are the same as those used by the wireless access point.                                        |
| Network speed does not exceed 11 Mbps.                                                                                                               | USB 1.1 port used in stead of USB 2.0.<br>Other network components are unsuitable for higher network speeds. | Connect the wireless adapter to a hi-speed USB 2.0 port for maximum speed.<br>Make sure all network components are suitable for high network speeds.                                                                                                                    |

## English

Hereby, Philips Consumer Electronics, BLC P&A CC, declares that this SNU6500 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

## Finnish

Philips Consumer Electronics, BLC P&A CC vakuuttaa täten että SNU6500 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

## Dutch

Hierbij verklaart, Philips Consumer Electronics, BLC P&A CC dat het toestel SNU6500 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.

## French

Par la présente, Philips Consumer Electronics, BLC P&A CC, déclare que l'appareil SNU6500 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE

## Swedish

Härmed intygar, Philips Consumer Electronics, BLC P&A CC, att denna SNU6500 står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

## Danish

Undertegnede Philips Consumer Electronics, BLC P&A CC erklærer herved, at følgende udstyr SNU6500 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF

## German

Hiermit erklärt Philips Consumer Electronics, BLC P&A CC die Übereinstimmung des Gerätes SNU6500 mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG.

## Greek

ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ ΠΡΟΫΠΟΘΕΤΗ ΓΡΑΦΕΙΟ ΕΜΕΓΥΣΟΞΙΤ, Β.Φ. ΠΕΡΙΠΡΕΣΑΤ  
ΑΓΓΕΤΤΟΣΙΕΤ ΤΗΛ ΎΝΕΙ ΟΤΙ SNU6500 ΣΥΜΜΟΡΦ ΎΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙ  
ΎΤΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΤΙΑΤΑΞΕΙΣ ΤΗΣ ΟΤΗΓΙΑΣ Ι  
999/5/

## Italian

Con la presente Philips Consumer Electronics, BLC P&A CC dichiara che questo SNU6500 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

## Spanish

Por medio de la presente, Philips Consumer Electronics, BLC P&A CC, declara que el SNU6500 cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE

## Portuguese

Philips Consumer Electronics, BLC P&A CC declara que este SNU6500 está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

## FCC compliance

This device complies with Part 15 of the FCC Rules (U.S.A.).

Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: 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 to 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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radion & your body.

## IMPORTANT

Any changes or modifications to the equipment by the user not expressly approved by the [guarantee](#) or manufacturer could void the user's authority to operate such equipment.



# PHILIPS

AQ95-56F-529-PF  
(report No.)

## DECLARATION OF CONFORMITY

We, Philips Consumer Electronics, BLC P&A CC  
Building SBP6  
(manufacturer's name)

P.O.Box 80002, 5600 JB Eindhoven, The Netherlands  
(manufacturer's address)

declare under our responsibility that the radio product :

Philips  
(name)

CPWUA054/00,  
(type or model)

Wireless USB Adapter 802.11g  
(product description)

to which this declaration relates is in conformity with the following standards:

EN 300 328-1 v1.3.1 (2001-12)  
EN 300 328-2 v1.2.1 (2001-12)  
EN 301 489-1 v1.3.1 (2001-09)  
EN 301 489-17 v1.2.1(2002-09)  
EN 60950 (2000-01)

(title and/or number and date of issue of the standards)

following the provisions of 1999/5/EC ( R&TTE Directive).

Eindhoven, 25 February 2004,  
(place, date)

P.Frantzen.  
General Approbations Manager  
(signature, name and function)

**Guarantee certificate**  
**Certificat de garantie**  
**Garantieschein**  
**Garantiebewijs**

**Certificado de garantia**  
**Certificato di garanzia**  
**Certificado de garantia**  
**Εγγύηση**

**Garantibevis**  
**Garanticertifikat**  
**Garantibevis**  
**Takuutodistus**

2

year warranty  
année garantie  
Jahr Garantie  
jaar garantie  
año garantia  
anno garanzia

χρόνος εγγύηση  
år garanti  
år garanti  
år garanti  
vuosi takuu  
año garantia

Type: **SNU6500**

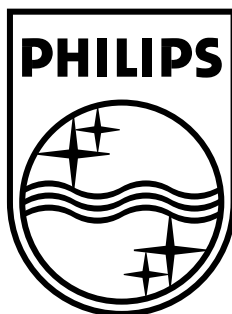
Serial nr: \_\_\_\_\_

Date of purchase - Date de la vente - Verkaufsdatum - Aankoopdatum - Fecha de compra - Date d'acquisto -  
Data da aquisição - Ημερομηνία αγοράς - Inköpsdatum - Anskaffelsesdato - Kjøpedato - Oatopäivä -

Dealer's name, address and signature  
Nom, adresse et signature du revendeur  
Name, Anschrift und Unterschrift des Händlers  
Naam, adres en handtekening v.d. handelaar  
Nombre, direccion y firma del distribuidor  
Nome, indirizzo e firma del fornitore

Ονοματεπώνμο, διεύθυνση και υπογραφή του εμπ. προμηθευτή  
Återförsäljarens namn, adress och signatur  
Forhandlerens navn, adresse og underskrift  
Forhandlerens navn, adresse og underskrift  
Jälleenmyyjän nimi, osoite ja allekirjoitus  
Nome, morada e assinatura da loja

CE 0682 ⓘ



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[www.philips.com](http://www.philips.com)

3122-377-0251.1

# Product Specifications

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## ***SNU6500***

IEEE 802.11g (**Super G**) USB2.0 Adapter

v 0.1

PHILIPS CE

Product Specification CPWUA054

AV84-MMN/LP/03-11-21.00 Rev  
0.2BCU PERIPHERALS &  
ACCESSORIES  
Project OfficePage: 2/18  
2004 Dec 13

Author: Luuk Pals

Supersedes:  
Date:

## Revision History

| <i>Edition #</i> |   | <i>Reason for revision</i>    | <i>Issue date</i>    | <i>Written by</i> |
|------------------|---|-------------------------------|----------------------|-------------------|
| V 0.1            | ◆ | Initial Document              | Dec. 2,2004          | Jason Lee         |
| V 0.2            | ◆ | Updated to Philips doc        | Dec. 13,2004         | Luuk Pals         |
| <b>V 0.3</b>     | ◆ | <b>Updated to Philips doc</b> | <b>Dec. 14, 2004</b> | <b>Jason Lee</b>  |

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Author: Luuk Pals

Supersedes:  
Date:

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## Introduction

### Introduction

The SNU6500 Wireless USB Adapter is a set containing:

- 1 x Wireless USB Adapter
- 1x USB2.0 Cable
- 1x Before You Start Card ( BYSC)
- 1x CD rom with PC connection wizard software + User Manual ( 12 languages)
- 1x Giftbox

SNU6500 is an industrial wireless 802.11g USB2.0 Adapter which enables wireless networking systems to attain data transmission speeds up to 108 megabits-per-second (Mbps), USB v2.0 while remaining backward compatible to the existing installed base of over 15 million Wi-Fi systems worldwide. It supports operation to both the IEEE 802.11b and IEEE 802.11g standards.

SNU6500 enables a next generation of high-data-rate platforms for operation in the 2.4 GHz band that deliver a five-fold speed increase. SNU6500 incorporates the 802.11g standard's mandatory modulation schemes—Complementary Code Keying (CCK), which is used in 802.11b, and Orthogonal Frequency Division Multiplexing (OFDM), used in 802.11g.

**Scope: This chapter describes the hardware architecture and product features for the Wireless USB adapter**

### Product Features

- High speed for wireless LAN connection, up at 108 Mbps data rate.
- Backward compatible to the existing IEEE 802.11b WLAN infrastructure.
- An user-friendly utility to configure SSID, security setup and site survey.
- Wireless data encryption with 64, 128 encryption for security.
- Support USB v2.0
- IEEE 802.11g Direct Sequence high rate compatible.
- IEEE 802.11b Direct Sequence high rate compatible.
- High data rate 108, 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2 and 1Mbps

- Auto fallback data rate under noisy environment.
- RC4 wireless data encryption with 64 and 128 bits encryption for security.(WEP)
- Built-in antenna
- User-friendly text input WEP Key by any text (comply with Atheros) or Hex input.
- Site survey tool to scan and easily join all nearby base stations.
- Support RTS and CTS threshold control for better throughput.
- Driver upgradeable.
- Supports for 802.1x, WPA, WPA2,TKIP
- USB 2.0 cable for connection to PC/laptop.
- CD with Driver and Utility (Arcadyan) , Install Wizard (Philips)

### Applications

- ◆ Home networking for device sharing.
- ◆ Wireless multimedia.
- ◆ Wireless office for extension Ethernet range.
- ◆ Mobile networking for notebook PC, Desktop PC, Monitor, PDA with USB port ready device.

## Chapter 1 Appearance

| LED 1 | Name  | Color | Function                              |
|-------|-------|-------|---------------------------------------|
| OFF   | Power | Blue  | Off: Power off                        |
| ON    | Power | Blue  | On : Power on                         |
| Blink | Power | Blue  | Blinking: activity, data transmitting |

**PCB Dimension : must be filled in by Arcdyan**

**PCB size: 6.9 x 4.7cm**

Same housing as used for the Philips CPWUA054 adapter. By re-using the housing the development time will decrease and time to market is as fast as possible.



## Chapter 2 Hardware

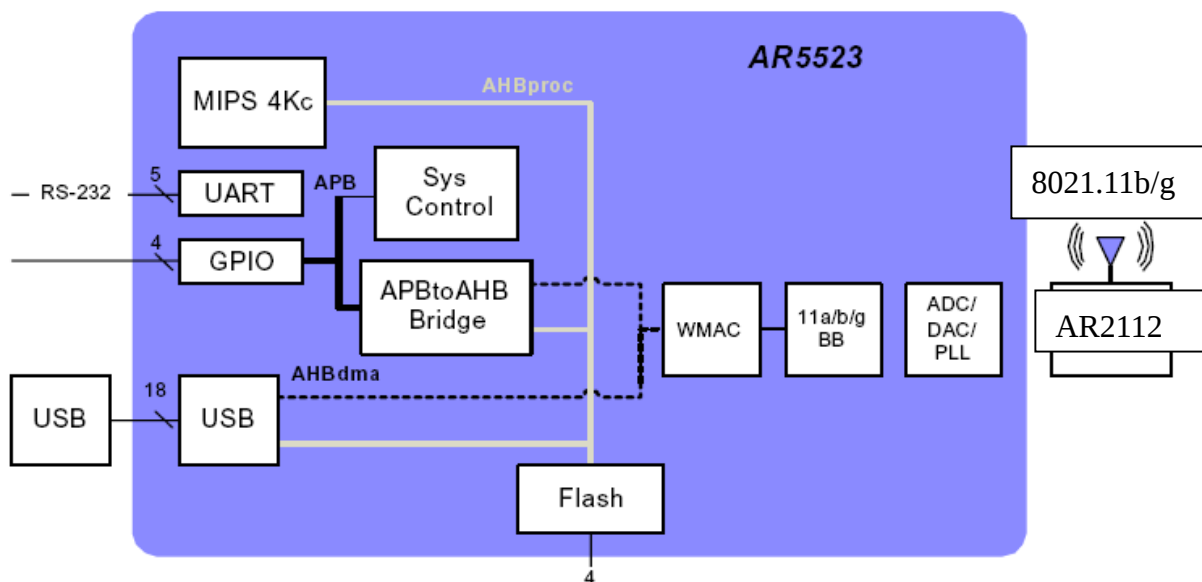
### General Overview

- ◆ USB 2.0 Interface and 802.11 g chipset-on-board design.
- ◆ Antenna: 1. Internal two Antenna  
2. External LNA module antenna → No external antenna

### 2.1 Hardware Architecture

The Hardware architecture displayed below is delivered from the specification of Arcadyan  
The architecture is based on the Atheros chipset

### Hardware Architecture:



### Main Chipset Information

#### 2.1.1 Atheros AR5523+AR2112

2.1.2 An IEEE 802.11g MAC + Baseband processor, on-chip SRAM memory and USB2.0 interface. Radio-on-Chip (RoC). A zero-IF direct down conversion transceiver.

2.4GHz power amplifier. 5GHz SiGe monolithic VCO.

**Product specifications:**

**Philips Codes number**

|             |                |             |
|-------------|----------------|-------------|
| Type number | 12NC           | Supplied to |
| SNU6500/00  | 9082 100 04463 | Europe      |
| SNU6500/37  |                | USA & CA    |

**Dimensions**

|        |                                                     |
|--------|-----------------------------------------------------|
| Length | 92.80mm                                             |
| Width  | 78.40mm                                             |
| Height | 21.40mm                                             |
| Weight | <b>55 g</b><br>(55 g for wireless USB adapter only) |

**Material**

|           |          |
|-----------|----------|
| PCB       | FR4      |
| Mechanics | ABS + PC |

|                      |     |            |
|----------------------|-----|------------|
| Current consumption: | Tx: | 500 mA Max |
|                      | Rx: | 420 mA Max |

Operating Temperature: 0 ~ 55 °C ambient

Storage Temperature: -20 ~ 75 °C

Humidity: 5 ~ 90% non-condensing

ESD: EN61000-4-2, which specifies 4kV contact and 8kV air discharge

Packaging: In protective bag

**USB cable****Dimensions (folded)mm**

|        |        |
|--------|--------|
| Length | 105 mm |
| Width  | 32 mm  |
| Height | 25 mm  |

**User instruction**

Instruction For Use:

Dimensions:

A5 format, thickness: 15 mm

Quick Starting Guide:

Dimensions

A5, folded A4 paper

**CDROM**

CDROM packaging

White envelope 120 x 120 mm

CDROM content

Drivers, installation SW, Instruction For Use, Warranty card

CDROM printing

Provided by Philips P&amp;A

**Gift box**

Dimensions

Length 251 mm

Width 162 mm

Height 50 mm

Printing

Provided by Philips P&amp;A

**Shipping carton**

|            |        |        |
|------------|--------|--------|
| Dimensions | Length | 545 mm |
|            | Width  | 373 mm |
|            | Height | 181 mm |

Number of single units      14

◆ Frequency Band:

802.11g Radio : 2.4 GHz

802.11b Radio : 2.4 GHz

|                        |                         |
|------------------------|-------------------------|
| USA – FCC              | 2412~2462MHz (Ch1~Ch11) |
| Canada – IC            | 2412~2462MHz (Ch1~Ch11) |
| Europe – ETSI          | 2412~2472MHz (Ch1~Ch13) |
| Japan – STD-T66/STD-33 | 2412~2484MHz (Ch1~Ch14) |

◆ Modulation TYPE: OFDM, CCK

◆ Operating Channels:

IEEE 802.11b compliant:

- 11 channels (US, Canada)
- 13 channels (ETSI)
- 14 channels (Japan)

IEEE 802.11g compliant:

- 11 channels (US, Canada)
- 13 channels (Europe, Japan)

◆ Security: Hardware 64/128-bit WEP, Support for WPA in Windows XP Zero Client Configuration

◆ Transmitted Power: *See Table 1(will update later)*

◆ Rates/Sensitivity/Allowable Path Loss: *See the Table 2(will update later)*

◆ Regulatory compliance:

◆ ETSI/ CE

◆ Current consumption: TX: 485mA Max; RX: 330mA Max;

◆ Host Interface: USB 2.0

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Author: Luuk Pals

Supersedes:  
Date:

- ◆ Operating Temperature: 0 ~ 50 °C ambient
- ◆ Storage Temperature: -20 ~ 70 °C ambient
- ◆ Humidity: 5 ~ 90% and must be non-condensing
- ◆ ESD: EN61000-4-2, which specifies 4kV contact and 8kV air discharge.

**Table 1: Modulation Scheme and Transmit Power**

| Modulation Rate   | Output Power 2.4-2.5GHz (dBm) |
|-------------------|-------------------------------|
| 802.11b – 1Mbps   | 17                            |
| 802.11b – 2Mbps   | 17                            |
| 802.11b – 5.5Mbps | 17                            |
| 802.11b – 11Mbps  | 17                            |

| Modulation Rate   | Output Power 2.4-2.5GHz (dBm) |
|-------------------|-------------------------------|
| 802.11g – 6Mbps   | 14                            |
| 802.11g – 9Mbps   | 14                            |
| 802.11g – 12Mbps  | 14                            |
| 802.11g – 18Mbps  | 14                            |
| 802.11g – 24Mbps  | 13                            |
| 802.11g – 36Mbps  | 13                            |
| 802.11g – 48Mbps  | 12                            |
| 802.11g – 54Mbps  | 12                            |
| 802.11g – 108Mbps | 12                            |

**Table 2: Typical Range at Which Frame (1000 Bytes PDUs) Packet Error Rate=10%**

| Modulation Rate   | Receiver Sensitivity (dBm) 2.412 ~ 2.484 GHz |
|-------------------|----------------------------------------------|
| 802.11b – 1Mbps   | -92                                          |
| 802.11b – 2Mbps   | -89                                          |
| 802.11b – 5.5Mbps | -85                                          |
| 802.11b – 11Mbps  | -82                                          |

| Modulation Rate   | Receiver Sensitivity (dBm) |
|-------------------|----------------------------|
| 802.11g – 6Mbps   | -82                        |
| 802.11g – 9Mbps   | -81                        |
| 802.11g – 12Mbps  | -79                        |
| 802.11g – 18Mbps  | -77                        |
| 802.11g – 24Mbps  | -74                        |
| 802.11g – 36Mbps  | -70                        |
| 802.11g – 48Mbps  | -66                        |
| 802.11g – 54Mbps  | -65                        |
| 802.11g – 108Mbps | -65                        |

## Chapter 3 Software

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### Operating System Supported

- ◆ Windows ME, Windows 2000 and Windows XP,

### Security

- ◆ Wired Equivalent Privacy (WEP) supports modes that have 64, and 128 bit keys.
- ◆ Support for WPA in Windows XP Zero Client Configuration

### Configuration Utility

- ◆ An Utility to set SSID, WEP key and dynamically view configuration.

### Utility + Installer for:

Windows Me

Windows 2000

Windows XP

**Mac OS X → Don't suport**

### SW User interface specification.

The SNU6500 will be supplied with PC software. The software developed for the CPWUA 054 can be re-used after it is updated. Both the drivers for USB2.0 and 802.11g needs to be added. With the backward compatibility of 802.11g standard also the software should enable to view the current connection type (802.11b or 802.11g). According document AV84-MMN/LP/03-11-21.01

### Packaging.

The SNU6500 will be supplied in a gift box with same dimensions as the CPWUA 54. The packaging artwork of the CPWUA 054 is available at Arcadyan and needs to be update by Philips to the SNA6500 situation (ie replace 802.11b by 802.11g etc)

For silkscreen in Mechanic and Approbation label Philips provide the content , Arcadyan update the print .

### Default SW settings

### Approbation Requirement

Approbation requirements and documentation for the CPWUA054 (/00 /37 and /50 /87) is discussed in the project team. Specification of approbation is communicated via the project managers and quality manager of both companies.

See reference [6]

## References

- ◆ Atheros Reference Design Functional Specification
- ◆ IEEE802.11b/IEEE802.11g Standard
- ◆ USB2.0 Specification

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## ***Reference list***

***[1] NRE on certification costs 20030924***

*covers requirements on approbation & safety, including notification per country.*

***[2] Quality requirement spec AHQ-LP-16260***

***[3] SW specification document AV84-MMN/LP/03-11-21.01***

***[4] 09242003 AR84-PRO\_MG\_03-064 Rev 1.0 Product spec USB 2.0 cable<sup>1</sup>***

***[5] Approbation Requirements specification***

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<sup>1</sup> Color will be Pantone 429C (grey) for connector and cable.

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**Signed for agreement:**

|                                 |         |                                              |         |
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|                                 |         |                                              |         |
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