

USB Adapter  
WL-170G-C

User Manual  
Version 1.0

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## 1. Installation Guide

### 1.1 System requirements

Before the installation, please confirm your system meets the following requirements:

- At least 300MHz CPU
- At least 32MB RAM
- Window XP/2000/ME/98SE operation system
- CD-ROM (In order to install drivers)

### 1.2 Packing Contents

The following contents should be found in your box. If any of the listed contents are damaged or missing, please contact the retailer from whom you purchased the adapter for assistance.

Standard contents:

- Wireless USB adapter
- Driver and utility CD.
- Quick Installation Guide

## 2. Installation

This chapter describes how to install the adapter, driver and utility. The adapter is compatible to Windows 98/Me/2000/XP system. This guide guide you the installation of the software and hardware on Windows XP.

## 2.1 The installation of the adapter

Insert adapter to the USB port on the computer, and check if the connection is ok.

## 2.2 The installation of the driver and utility

Follow the following steps:

1. Insert adapter to the USB port, figure 2-1 will appear. After a second, the found new hardware guide dialog box should be appear, please click cancel'to dismiss it. See figure 2-2.



Figure 2-1 Found New Hardware

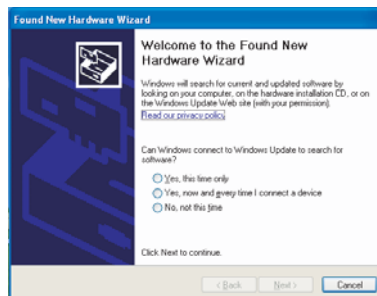


Figure 2-2 Found New Hardware Wizard

2. Please Insert the CD which contains driver and utility to CD-ROM, and choose ZD1211BWinPkgS\_6\_8\_0\_0.exe to execute it. Figure 2-3, install the program.

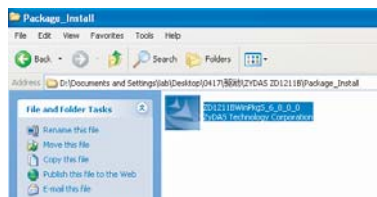


Figure 2-3 Execute the driver and Utility program

3. Choose 'Next' in figure 2-4 proceed to the installation, or choose cancel to quit the installation.

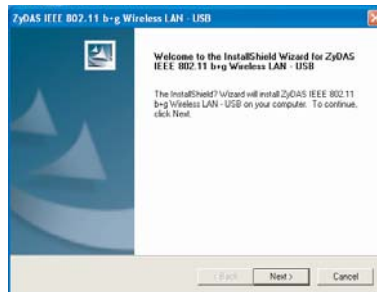


Figure 2-4 ZyDAS Utility installation

4. You can change the install destination folder by click 'Browse' in figure 2-5.



Figure 2-5 select the install destination folder

Note: In the installation process, if you were prompted that the program has not passed the Microsoft Logo Test, don't mind it, please click 'continue anyway' as shown in Figure 2-6.



Figure 2-6 Hardware Installation

5 Click 'Finish' in Figure 2-7 to complete the installation.

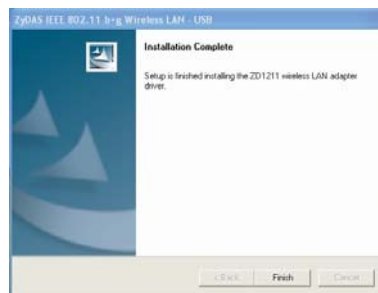


Figure 2-7 Installation Finish

6. You can check if the Driver is well installed. Select [My Computer] icon on the desktop, right-click it and select [Attribute] icon, then select [Hardware] tab, click [Device Manager] icon. If your hardware driver has been installed ok, you can see the information as Figure 2-8.

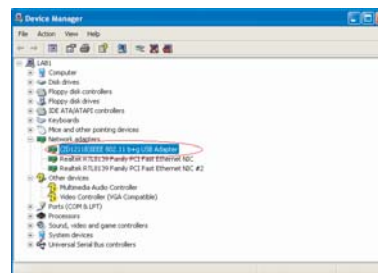


Figure 2-8 Device manage window

### 2.3 Check if TCP/IP Protocol is installed

To ensure the adapter works well, your operation system should has been installed TCP /IP protocol. On Windows XP platform, TCP/IP Protocol is a default setting. (You can skip this section). If you are on other operation systems, please check first if this protocol is installed.

On Windows XP platform, please check as the following steps:

1. Click [Start] →[Connect to ] →[Display all connections]

You will see the Network Connection as Figure 2-9.



Figure 2-9 Network Connection Windows

2. Right click and select [Attribute], the network connection properties will appear as figure 2-10, you can check if the TCP/IP Protocol has installed.



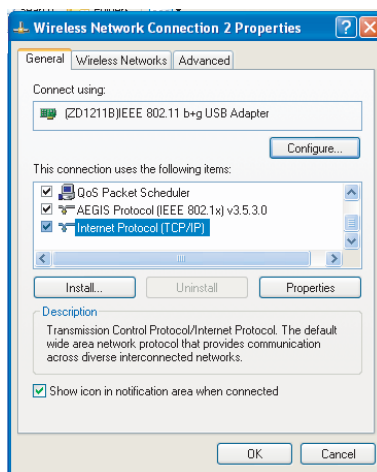


Figure 2-10 TCP/IP protocol

Note: If there is no TCP/IP Protocol been installed in your operation system, you should insert the OS CD to install it before you can use you Adaptor to connect Network. You can refer to other relevant document for installation.

### 3. Usage of utility

Utility is a tool to manage the adapter. Using it, you can check and adjust the settings, or control the working status of the adapter.

#### 3.1 Open the Utility

After the opening of the utility, the following icon (as figure 3-1) will appear at the task bar at right bottom of screen.



Figure 3-1 Utility Icon

Double-Click the icon to open the Main Window of this program as shown in figure 3-2.

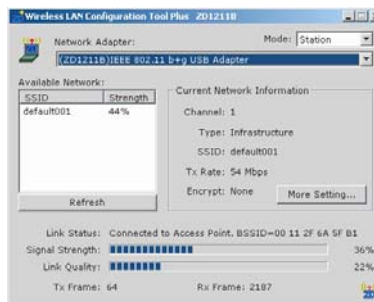


Figure 3-2 Utility Main Window

### 3.2 Main Window information

Main Window of the utility shows the connection status of the wireless adapter to Wireless Networking (If the communication has been setup) as Figure 3-2.

Mode – This selection frame is to choose the working mode for wireless adapter. You can choose Station or Access Point. In Station mode, the device can build connection to the surrounding AP. In Access Point, the equipment can be accessed to the point, and also other equipment can build connections with the access point. See figure 3-3.

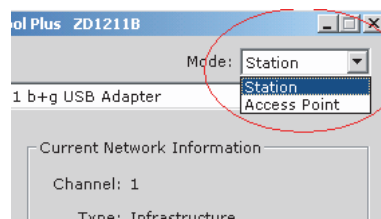


Figure 3-3 Work Mode Switch

SID- It shows the wireless network name has connected or is ready to connect. The figure 3-2 shows the Wireless adapter has connected to the wireless network - default 001.

BSSID –It means the MAC Address of its connected AP or the Ad Hoc of the basic service system (BSS) ID

Strength - It means the signal intensity of the access point. It indicates the signal intensity of different networking in order that the user can auto choose the good networking to build up connection.

The current networking connection information includes the networking signal channel, network topology structure, data transmission ratio, and encryption mode.

Signal Channel - It shows the current signal channel. The figure can vary, because the equipment will scan the usable signal channel and it also varies.

Encryption-- Wireless adapter encrypts the information. All the devices in network should use the same encryption to ensure the communication.

Two kinds network topology structure:

- basic structure
- point to point structure

Basic structure -- It means to build connection with AP. Once the connection is built, AP will allow you to visit any wireless LAN or Wired LAN (Ethernet)

Point to Point -- It means the connection to wireless end user without AP. The connection can be built very quickly, without any pre-configure, eg, all the meeting attendee can share the meeting content.

Connection Status — it shows the connection status of wireless adapter and BSSID.

Rescan - Wireless adapter will re-search all Wireless Network, if the current connection is too low, the signal strength is weak or want to find the other wireless Network, the re-scan will let the adapter to connect to equipment with better signal quality.

### 3.4 More settings

More settings –This website allows user to adjust the current working attribute , including transmission ratio, input networking SSID, networking topology structure, identity authentication and encryption mode , etc. User can also set up different working mode in one networking, and save them as different profile, avoid set up repeatedly when you re-using.

[Normal connection setting]

Tx Rate:Set-up the valid ratio, including:

54,48,36,24,18,12,9,6,11,5.5,2,1Mbps or automatically, normally use automatically. See Figure 3-4.

Networking Type:change the network topology between Infrastructure and Ad Hoc Mode.

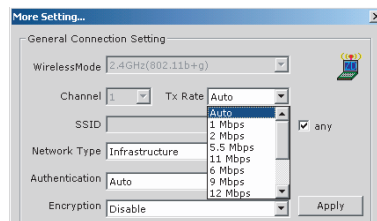


Figure 3-4 More setting

Authenticate and encrypt the set-up:

As to the safety in Wireless environment, IEEE 802.11 stipulates WEP(Wire Equivalent encryption) , the agreement is made to ensure the transmission security. WEP uses the keys to encrypt or decode the data package. The encryption process interrupted the frame order in order to be leaked. The WPA /WPA2 is used to develop 802.11 security system to overcome the defectiveness of WEP.

Due to the inaccurate boundary of Wireless networking, the user should add some specific set-up to ensure the security. The identification way in build up wireless connection level provides different levels security method , eg, open system , share key, auto , WPA, WEP-PSK, WPA2, WPA2-PSK. See figure 3-5.

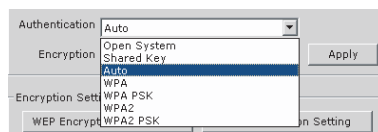


Figure 3-5 Authentication Configurations

**Open system** -this selection will make network in open system mode, and will not use any identification method. Open system and AP will identify each other. If WEP key exists, identification is also unnecessary.

**Shared Key** -This selection will make network in shared key mode. In Shared Key identification system, you should use 4 step frames' exchange to make sure if AP uses the same WEP key

WPA-PSK This selection allows to use WPA Pre-Shared key. It allows user and AP to use WPA PSK /WPA2-PSK encryption way.

WPA/WPA2- The networking use IEEE 802.1x identification method. This method will use in RADIUS (Remote Access Dial-in User Service, long-distance dial the user environment. RADIUS environment support EAP, including PEAP, TLS/Smart Card, TTLS and LEAP.

#### Data Encryption

The encryption method includes WEP, Temporal Key Integrity Protocol encryption and Advanced Encryption Standard (AES). See Figure 3-6.

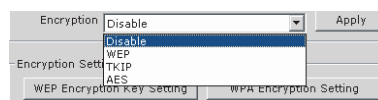


Figure 3-6 Encryption configurations

Prohibit - Prohibit encryption function.

WEP -- WEP is to encrypt before data wireless transmission, and use the same WEP wireless equipment to communicate.

TKIP -- TKIP use the stronger encryption rule than WEP to encrypt. It also uses the WLAN arithmetic to encryption. TKIP will test the security setting once the encryption key is confirmed.

AES -AES is a symmetrical 128 bit encryption technology. It can works in multi-layer in networking

#### [WEP KEY Setting]

This selection can set-up WEP KEY SETTING. WEP KEYs a cluster of 64 bytes(5 bites) , 128 bytes (13 bits) or 256 bytes (39 bits) , 16 hexadecimal figures to key or decode data package. See Figure 3-7.

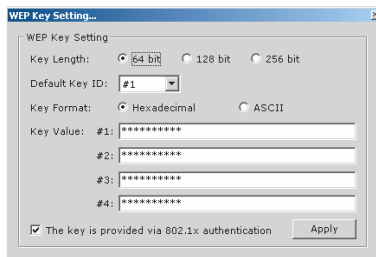


Figure 3-7 WEP Key setting

The KEYmode can be set-up as hexadecimal mode:  
 When you select WPA or WPA2 in identification mode, the setting this time will be valid. If you select Open or Shared Key, the setting here will not be valid.

Valid modes include: TLS, PEAP and TTLS. See figure 3-8.

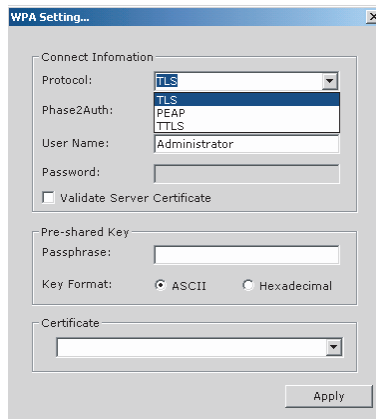


Figure 3-8 WPA Encryption setting



TLS/Smart Card TLS ( Transport Layer Security ) is used to create an encryption channel and get the identification of the Tech service, like SSL (Secure Sockets Layer) agreement's web interface service validation. This method uses the figure to check the identity of the end user and service.

TTLS -- TTLS validation uses the certificates to validate the service identity. Meanwhile, it saves the TLS security attribute. E.g., validate each other or share WEP Key secret.

PEAP -- PEAP (Protected Extensible Authentication Protocol) validation is another version of EAP ( Extensible Authentication Protocol) . EAP ensures the connection of the wireless end user and service in the network operation

#### Advanced Setting

This interface is mainly used to set up the language, area, power consumption, service mode and TRS /Frame figure in the user interface. See Figure 3-9.

Power consumption setting can be set according to your working environment, including Continuous Access mode, Maximum Power-saving mode and Power-saving mode.

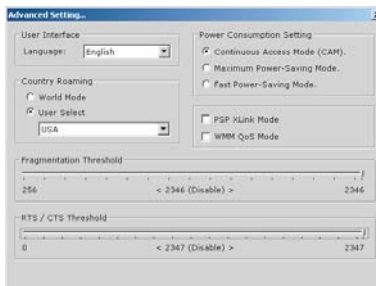


Figure 3-9 Advanced Setting

Frame Threshold -- Frame Threshold will show that 802.11 were divided into small parts, and deliver them to their destination. You can set the up and down limitation to each package to start the division function. If there is big conflict in the wireless networking, you can set different up and down limitation for testing to ensure the reliability. For the common use, you can only use default figure.

RTS Threshold -- RTS/CTS (Request to Send/Clear to send) function is used to decrease the conflict between the wireless station to the minimum. When RTS/CTS is started, Router will continuously send the figures to another RTS/CTS. And you can also set different up and down limitation to start RTS/CTS. You are suggested to use Default figure (2347).

## 4. AP function

This wireless LAN card has two working modes: Station and Access Point. When switched to AP mode, LAN Card will be an AP point, then it can accept the connect request from other wireless equipment.

### 4.1 Switch To AP Mode

In the main windows Mode slide down frame, click Access Point, switch to AP mode. See Figure 4-1.

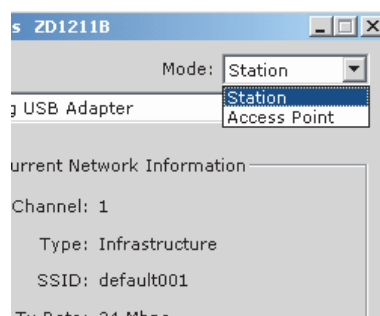


Figure 4-1 Work Mode Switch

## 4.2 AP mode main interface

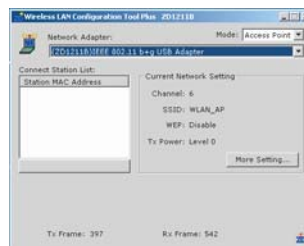


Figure 4-2 AP mode Configuration Status

As figure 4-2, it shows the current network configuration information, including Network working channel, SSID, encryption mode, delivering signal level, all of which can be adjusted by More Setting. See Figure 4-3.

## 4.3 Network Advanced settings

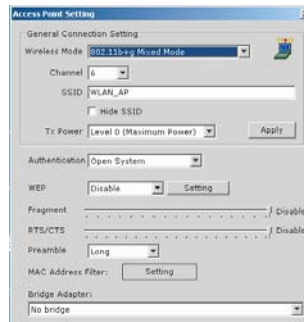


Figure 4-3 Access Point More Settings

As figure 4-3, when the equipment is in Access Point Mode, the user can set the working mode, including network mode, working signal channel, transmission power, identification mode, encryption mode, frame figure and RTS/CTS frame figure.

#### 4.4 Encryption

WEP Key setting:

If you need to encrypt the network, you can select key setting mode. The figure 4-4 shows the mode after WEP key setting. You can set the password to the networking setting.

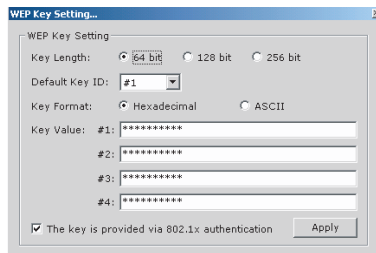


Figure 4-4 WEP Key Settings

## 5. Product Specifications

<b>General Features</b>	
Standards	IEEE 802.11g; IEEE 802.11b
Interface	USB 1.1/2.0
OS	Windows 98/SE/ME, Windows 2000/XP, Linux, MAX OSX
User interface	Easy to use user configuration software
Transmit distance	indoor up to 40 meters and outdoor up to 200 meters (standard transmit distance is limited to the environments)
roaming	Support multipoint auto roaming and configuration; Support wireless network environments auto detect.
LED	Link status indicator
Antenna type	Omni-directional interior Antenna
<b>RF and baseband Technical Features</b>	
Frequency range	2.4~2.4835GHz
Radio data rate	11g: 54/48/36/24/18/12/9/6M ( auto adaptive ) ; 11b: 11/5.5/2/1M ( auto adaptive )
Modulation	BPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/64-QAM)
Spectrum Spread Technology	DSSS
Transmit power	16-17dBm ( 11g ) , 18-20dBm ( 11b )
Channel	13
Media Access Protocol	CSMA/CA with ACK
Data security	WPA/WPA2; 64/128/152-bit WEP; TKIP/AES
<b>Environmental and Physical</b>	
Operation Temp.	0°C - 40°C
Storage Temp.	-40°C - 70°C
Operation Humidity	10% - 95% RH, Non-condensing
dimension	75mm x 25mm x 10mm

## **FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT**

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

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

## **FCC RF RADIATION EXPOSURE STATEMENT:**

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

## **IMPORTANT NOTE:**

This device has been tested for compliance with FCC RF Exposure (SAR) limits in the typical laptop computer configuration and this device can be used in desktop or laptop computers with side mounted USB slots. This device and its antenna must not be co-located or operated in conjunction with any other antenna or transmitter.