GL2422MU-MT
User Manual
2.4GHz Wireless Mini USB Adapter

Contents

Contents of Package:

GL2422MU-MT

2.4 GHz Wireless USB Adapter

Manual on CD-ROM

Quick Installation Guide

Package Contents

If any of the above items are missing, please contact your reseller.

System Requirements:

Windows XP/2000/Me/98SE！

 A computer or laptop with an available USB port！

At least 32 MB of memory and a 300 MHz processor！

Properly installed and working USB Controller

USB Cable

Introduction

The GL2422MU-MT 2.4GHz Wireless USB Adapter is a convenient
Plug & Play USB 1.1 solution that brings wireless networking to your laptop or
desktop PC. It provides up to 256-bit level of WEP security to your wireless
data transfers.
 After completing the steps outlined in the *Quick Installation Guide* (included in
your package) you will have the ability to share information and resources,
such   as   files,   printers,   and   Internet   connection   and   enjoy   the   freedom
that wireless networking delivers.
The GL2422MU-MT comes with software drivers for the most popular Microsoft
Windows operating systems and can be integrated into a larger network, running
Windows XP, Windows 2000, Windows Me, or Windows 98SE   in either Ad-
Hoc mode (without an Access Point or Router) or Infrastructure mode (with an
Access Point or Router). The IEEE 802.11b Ethernet standard allows you to
connect computers and 802.11b compatible devices at speeds up to 22Mbps*,
dependent upon the distance between wireless adapters, the configuration of
your working environment, or the capabilities or limitations of your computer
systems.
* This is the theoretical maximum of the chipset used in the GL2422MU-MT USB Adapter.
    Actual through-put may vary.

Features and Benefits

Convenience of Plug & Play installation！
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* Environmental factors may adversely affect range

Connects at up to 328 feet indoors*
User-friendly configuration and utilities
Supports infrastructure networks via an Access Point or Router and
Peer-to-Peer communication in Ad-Hoc mode

Stronger Network Security with 256-bit WEP encryption
USB 1.1 standard
Fully 802.11b compatible

  Wireless products are based on industry standards to provide easy-to-
use and compatible high-speed wireless connectivity within your home, business
or public access wireless networks.   wireless products will allow you
access to the data you want, when and where you want it. You will be able to
enjoy the freedom that wireless networking brings.
A WLAN is a cellular computer network that transmits and receives data with
radio signals instead of wires. WLANs are used increasingly in both home and
office environments, and public areas such as airports, coffee shops
and universities. Innovative ways to utilize WLAN technology are helping people to
work and communicate more efficiently. Increased mobility and the absence of
cabling and other fixed infrastructure have proven to be beneficial for many
users.
Wireless users can use the same applications they use on a wired network.
Wireless adapter cards used on laptop and desktop systems support the same
protocols as Ethernet adapter cards.

Wireless Basics

Features

Link/Activity LED
Power - Indicates that the GL2422MU-MT is properly installed in the computer.
Link - Blinks when data is being transmitted through the wireless connection.
Antenna
Used to wirelessly connect to 802.11b networks
Mini-USB port
Used to connect the GL2422MU-MT to your computer

Wireless Basics *(continued)*

People use wireless LAN technology for many different purposes:

Mobility - Productivity increases when people have access to data in any location within the operating range of the WLAN.   Management decisions based on real-time information can significantly improve worker efficiency.

Low Implementation Costs . WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation and Network Expansion - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.

Scalability . WLANs can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to larger infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

Inexpensive Solution - Wireless network devices are as competitively priced as conventional Ethernet network devices.

Standards-Based   Technology
Based on the IEEE **802.11b** standard, the GL2422MU-MT is   interoperable with existing compatible 2.4GHz wireless technology with data transfer speeds of up to 22Mbps when used with other   devices.

Wireless Basics *(continued)*
Installation Considerations
The   GL2422MU-MT lets you access your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

    Keep the antenna of the GL2422MU-MT in an upright position.
Keep the number of walls and ceilings between the GL2422MU-MT and other network devices   to a minimum - each wall or ceiling can reduce your D-Link wireless product.s range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate extreme RF noise.

Building Materials can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.

Getting Started

With its default settings, the GL2422MU-MT will connect with other products, right out of the box.

A wireless broadband Router-
   GL2422RT
A laptop computer with a USB wireless network adapter -
   GL2422MU-MT
A desktop computer with a USB wireless network adapter -
   GL2422MU-MT
A Cable modem -

There are basically two modes of networking:
Infrastructure . using an Access Point or Router, such as the DI-614+.
Ad-Hoc . directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more GL2422MU-MT wireless USB adapters.
On the following pages we will show you an example of an **Infrastructure Network** and an **Ad-Hoc Network**.
An **Infrastructure** network contains an Access Point or Router. The **Infrastructure Network** example shown on the following page contains the following   network devices (your existing network may be comprised of other devices):

You will need broadband Internet access (a Cable or DSL-subscriber line into your home or office)
Consult with your Cable or DSL provider for proper installation of the modem
Connect the Cable or DSL modem to your broadband router (*see the Quick Installation Guide included with your router.*)
Install the   DWL-120 wireless USB adapter into an available USB port on your desktop computer. *(See the Quick Installation Guide included with the GL2422MU-MT.)*
If you are connecting a laptop computer to your network, you can install the GL2422MU-MT into an available USB port on your laptop.

Using the Configuration Utility

GL2422MU-MT uses the **Configuration Utility** as the management software. The utility provides the user an easy interface to change any settings related to the wireless adapter. When the computer is started, the **Configuration Utility** starts automatically and the system tray icon is loaded in the toolbar (see illustration below.) Clicking on the utility icon will start the **Configuration Utility**. Another way to start the **Configuration Utility** is to click on **Start>Programs> GL2422MU-MT**.
If you are using Windows XP, you can use either the Zero Configuration Utility or the Configuration Utility. To use the Configuration Utility with XP, click on the Zero Configuration Utility in the taskbar in the lower corner of your computer screen and uncheck the box in the properties window that enables windows configuration. After you have done this, you can then use the Configuration Utility with XP.

Link Info

SSID:
The Service Set Identifier is the name assigned to the wireless network. The factory SSID setting is set to default.

Tx Rate:
The default setting is Auto; Tx Rate settings are automatically determined for optimal speed up to a maximum speed of 22Mbps.

Status:
Displays the current connection state of the GL2422MU-MT.

Channel:
The default setting is 6.

Link Quality:
Displays the wireless signal strength for the GL2422MU-MT wireless connection to the access point.

Data Rate:
Displays the statistics of the data that is transmitted and received.
A new icon will appear in your Icon tray. **Double-click** on the icon shown at right. The screen below will be displayed with the following default settings:
Auto

Configuration

Using the Configuration Utility

Wireless Mode:
Infrastructure is the factory default setting. **Ad-Hoc** mode is used for peer-to-peer networking. See the *Getting Started* section in this manual for examples of these network types.

SSID:
The Service Set Identifier is the name assigned to the wireless network. The factory SSID setting is set to **default**. Make changes here to match the SSID on the existing Wireless Router or Access Point.

Tx Rate:
You can adjust the transmission rate to get the best signal possible depending on your usage and your environment. The Tx Rate will be determined automatically by signal strength. Default is set to **Auto**.

Power Mode:
Select from three modes:
Continuous Access Mode - this default setting consumes the most power
Maximum Power Save - this setting consumes the least power
Power Save - this setting consumes a moderate amount of power
Click **Apply** to save changes.

Preamble:
Select **Long** or **Short Preamble**. The Preamble defines the length of the CRC block (Cyclic Redundancy Check is a common technique for detecting data transmission errors) for communication between the Access Point and the roaming wireless Network adapters. *Long Preamble* is the default setting. High network traffic areas should use the *Short Preamble*.

Channel:
The default channel setting is channel **6**. In **Infrastructure** mode, the GL2422MU-MT will automatically select the channel to match the channel setting for the selected Access Point. In **Ad Hoc** mode, the channel must be manually set to the same channel for each wireless adapter.
Auto

Using the Configuration Utility
Encryption
Data Encryption:
Enable encryption by clicking in the box. Data encryption is de-selected as the default setting.

Default Key:
Enter a key in either ASCII (e.g., a word) or hexadecimal format. Select one of the 4 keys that you have created to be the default key.

Authorization Mode:
Click **Apply** if you have made any changes
Open Authentication - communicates the key across the network
Shared Authentication - allows communication only with other devices with identical WEP settings
Auto - will automatically adjust to the Authentication mode of the wireless Access Point or Router

Key Format:
 ASCII (e.g., a word) or Hexadecimal format

Key Length:
select the key length, either 64, 128 or 256 bits
Hexadecimal *digits consist of the numbers 0-9 and the letters A-F*
ASCII *(American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127*

Using the Configuration Utility
Site Survey
Available Networks:
The top section of the window displays the **Available Networks**. Scroll up and down the list and highlight the network to which you wish to connect.

Click on the **Connect** button.
Profiles:
In the lower half of the screen, you can manage the profiles that you have
created for the wireless network at home, at the office and in public places.
Scroll up and down and highlight the profile that you wish to configure. You
can **ADD** or **REMOVE** a profile, or configure the **Properties** of the profile in
order to connect with an available network.
Properties:
Click on Properties and the screen on the next page will appear.

Using the Configuration Utility (continued)

In this window you can configure all the properties of a profile in order to
connect with a network of your choice.
Click **OK** to save the changes.
Properties
Current Setting
Current Setting/Default Setting
default

Using the Configuration Utility

About
The **About** tab displays the utility and the firmware versions.

Using the Network Setup Wizard in Windows XP
In this section you will learn how to establish a network at home or work,
using **Microsoft Windows XP.**
*Note: Please refer to websites such as http://www.homenethelp.com
and http://www.microsoft.com/windows2000 for information about
networking computers using Windows 2000, ME or 98SE.*
Go to **Start>Control Panel>Network Connections**
Select **Set up a home or small office network**

Networking Basics

When this screen appears, **Click Next.**

Please follow all the instructions in this window:
Networking Basics
Click **Next**
In the following window, select the best description of your computer.   If your computer connects to the internet through a gateway/router, select the second option as shown.
Click **Next**

Enter a **Computer description** and a **Computer name** (optional.)
Networking Basics
Click **Next**
Enter a **Workgroup** name.   All computers on your network should have the same **Workgroup name.**
Click **Next**

Please wait while the **Network Setup Wizard** applies the changes.
Networking Basics
When the changes are complete, click **Next**.
Please wait while the **Network Setup Wizard** configures the computer. This may take a few minutes.

Networking Basics
In the window below, select the option that fits your needs. In this example, **Create a Network Setup Disk** has been selected. You will run this disk on each of the computers on your network.   Click **Next**.
Insert a disk into the Floppy Disk Drive, in this case drive **A.**

Networking Basics
Please read the information under **Here.s how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network.   To continue click **Next.**

Networking Basics
Please read the information on this screen, then click **Finish** to complete the **Network Setup Wizard**.
The new settings will take effect when you restart the computer.   Click **Yes** to restart the computer.
You have completed configuring this computer.   Next, you will need to run the **Network Setup Disk** on all the other computers on your network.   After running the **Network Setup Disk** on all your computers, your new wireless network will be ready to use.

Networking Basics

Naming your Computer

To name your computer, please follow these directions:In **Windows XP**:
Click **Start** (in the lower left corner of the screen)
Right-click on **My Computer**
Select **Properties** and click
Select the **Computer**
Name Tab in the System
Properties window.
You may enter a **Com-**
puter Description if you
wish; this field is optional.
To rename the computer
and join a domain, Click
Change.

Networking Basics

Naming your Computer

In this window, enter the
Computer name
Select **Workgroup** and enter
the name of the **Workgroup**
All computers on your network
must have the same
Workgroup name.
Click **OK**

Checking the IP Address in Windows XP

The wireless adapter-equipped computers in your network must be in the same IP
Address range (see Getting Started in this manual for a definition of IP Address Range.)
To check on the IP Address of the adapter, please do the following:
Right-click on the
Local Area
Connection icon
in the task bar
Click on **Status**

Networking Basics

Checking the IP Address in Windows XP

This window will appear.
Click the **Support tab**
Click **Close**

Assigning a Static IP Address in Windows XP/2000

Note: Residential Gateways/Broadband Routers will automatically assign IP Ad-
dresses to the computers on the network, using DHCP (Dynamic Host Configura-
tion Protocol) technology. If you are using a DHCP-capable Gateway/Router you
will not need to assign Static IP Addresses.
If you are not using a DHCP capable Gateway/Router, or you need to assign a Static IP
Address, please follow these instructions:

Go to **Start**
Double-click on
Control Panel

Networking Basics
Assigning a Static IP Address in Windows XP/2000
Double-click on
Network
Connections

Double-click on
Properties
Right-click on **Local Area**
Connections

Networking Basics
Assigning a Static IP Address
in Windows XP/2000
 Input your **IP address and**
subnet mask. (The IP
Addresses on your network
must be within the same
range. For example, if one
computer has an IP Address
of 192.168.0.2, the other
computers should have IP
Addresses that are
sequential, like 192.168.0.3
and 192.168.0.4.   The
subnet mask must be the
same for all the computers
on the network.)
 Input your **DNS server**
addresses. (Note: If you
are entering a DNS server,
you must enter the IP
Address of the Default
Gateway.)
!
The DNS server information will be supplied
by your ISP (Internet Service Provider.)
! Click **OK**
Click on **Internet Protocol**
(TCP/IP)
Click **Properties**
!
!

Networking Basics
Checking the Wireless Connection byPinging in Windows XP and 2000*
Checking the Wireless Connection byPinging in Windows Me and 98*

Go to **Start** > **Run** >type **cmd**. A window similar to this one will appear. Type **ping xxx.xxx.xxx.xxx**, where **xxx** is the **IP Address** of the Wireless Router or Access Point. A good wireless connection will show four replies from the Wireless Router or Acess Point, as shown.
Go to **Start** > **Run** > type **command**. A window similar to this will appear. Type **ping xxx.xxx.xxx.xxx** where **xxx** is the **IP Address** of the Wireless Router or Access Point. A good wireless connection will show four replies from the wireless router or access point, as shown.

* The IP Addresses in these illustrations are examples only. The actual IP Addresses that you ping may be different than those displayed here.

1.   Check that the drivers for the GL2422MU-MT are   installed properly.
Click **Device Manager.**   Select the **Hardware Tab**

Troubleshooting

Go to Start >
My Computer >
Properties
!
This chapter provides solutions to problems that can occur during the installation and operation of the GL2422MU-MT. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows XP. If you have another operating system, these solutions will still apply although the appearance on your computer screen may differ.)

Troubleshooting
Double-click
on **Network**
Adapters
Right-click on
 GL2422MU-MT
Wireless USB Adapter
Select **Properties**
to check that the
drivers are
installed properly
Look under **Device**
Status to check that the
device is working
properly
Click **OK**

Troubleshooting
2.   What variables may cause my wireless products to lose reception?
 products let you access your network from virtually anywhere you want. However, the positioning of the products within your environment will affect the wireless range. Please refer to **Installation Considerations** in the **Wireless Basics** section of this manual for further information about the most advanta-

geous placement of your wireless products.
3. **Why does my wireless connection keep dropping?**
4. **Why can.t I get a wireless connection?**

If you have enabled Encryption on the GL2422MU-MT, you must also enable encryption on all wireless devices in the network in order to establish a wireless connection.
Antenna Orientation- Try different antenna orientations for the GL2422MU-MT. Try to keep the antenna at least 6 inches away from the wall or other objects.

If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the Channel on your Router, Access Point and Wireless adapter to a different Channel to avoid interference.

Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, Monitors, electric motors, etc.

The Encryption settings are: 64, 128 or 256-bit.   Make sure that the encryption bit level is the same on the Router and the GL2422MU-MT.

Make sure that the SSID on the Router (if you have one in your network) and the GL2422MU-MT are exactly the same. If they are not, wireless connection will not be established. The default SSID is **default**.

Technical Specifications

Temperature
　　　　Operating: 0ºC to 55ºC (32ºF to 131ºF)
　　　　 Storing: -20ºC to 75ºC (-4ºF to 167ºF)
IEEE 802.11b !
Standard
Power
Link Status
Diagnostic LED
95%, non-condensing
Humidity:
Antenna Type:
Single External, Dual Diversity

Modulation Technique:
DSSS
Physical Dimensions:
1.4cm x 7.8cm x 5.2cm
Data Rates:
1,2,5.5,11,22 Mbps (with Automatic Fallback)
Interface:

USB 1.1
Available Channels:
Eleven channels for North America
Media Access Protocol:
CSMA/CA with ACK

Federal Communication Commission Interference 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 of the following measures:

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

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.