



Home DSL Modem User Manual

ALE800



Table of Contents

I.	About This Manual	2
II.	Preface	3
III.	Overview	4
	About ADSL	4
	Protocol and Device Driver Selection	4
	Features	8
	Description of the Front Panel LEDs	9
	Description of the Rear Panel Connectors	9
IV.	USB ADSL Modem Hardware Installation	10
V.	Software Installation	11
	Before You Start	11
	Windows Installation	13
	Installing the Driver Software	13
VI.	Customizing Communication Settings	19
VII.	Updating the USB ADSL Modem Software	20
VIII.	The DSL Modem Status	21
IX.	Software Uninstall	23
X.	Appendix A: Point-to-Point Protocol Over Ethernet	25
	PPPoE for WAN Applications	25
	PPPoE for LAN Applications	26
	PPPoE for ATM Applications	26
XI.	Appendix B: Specifications	27
	USB ADSL Modem Connector	27
	Data Transfer Rates	27
	Power Requirements	28
	System Requirements	29
	Hardware Requirements	29

About this Manual

This manual provides a comprehensive user's guide and installation manual for USB ADSL modem. It has been organized in a way that should make it easy to follow by users worldwide. In order to ensure optimal comprehension, the following list provides brief descriptions of the formatting styles used in this manual.

- **Commands:**

Commands are always shown as shadow words with the word "click" preceding them. For example, click **Next**, click **OK**, or click **Cancel**.

- **Names of Windows (Dialog Boxes):**

The names of the windows (also referred to as dialog boxes) that appear on the PC screen are referred to in Bold. For example, the **Remote Access Setup** window, or the **Setup Wizard**.

- **Names of Options in Windows:**

The names of options to choose from inside the windows that appear on the PC screen are referred to in shadow. For example, choose the **Don't detect my modem** option, or choose the **Accept any authentication** option from the window.

- **Notes:**

In some cases, preparatory or cautionary information is needed before proceeding onto the next step in an installation process. This kind of information is provided in the form of notes, which appear in a frame:

Note: Required if not using default value.

Preface

This manual contains information regarding the installation, operation, and configuration of the USB ADSL Modem. Additionally, it outlines the use of the Control Panel Application.

The following chapters are included in this manual:

- Overview:
It offers a brief description of ADSL, protocol and device driver selection, and the features of the USB ADSL Modem.
- USB ADSL Modem Hardware Installation
It describes the steps for connecting the USB ADSL Modem.
- Software Installation
It describes the steps for installing the USB ADSL Modem drivers under various operating systems.
- Customizing Communication Settings
It provides detailed steps for altering the ATM Virtual Path ID (VPI), ATM Virtual Circuit ID (VCI), Encapsulation type and/or Modulation type values previously defined.
- Updating the USB ADSL Modem Software
It details the procedure for updating to a new version of the modem software.
- The DSL Modem Status
It describes how to configure and check the performance of the USB ADSL Modem and the ADSL connection.
- Software Uninstall
It provides detailed steps for removing the USB ADSL modem software from the PC.

Overview

About ADSL

Asymmetric Digital Subscriber Line (ADSL) technology provides high-speed data access across regular phone lines (copper wires) by making use of previously unused frequency bandwidth above the voice band. By placing the ADSL signal above the frequency of the voice signal, ADSL service is able to coexist on the same line with your telephone service. ADSL is asymmetric in the sense that it provides a higher data rate in the downstream (receive) direction than in the upstream (transmit) direction. Asymmetric operation is ideal for typical home and small office use where files and information are downloaded more frequently than uploaded.

The USB ADSL Modem is capable of supporting the following DSL standards: ANSI T1.413 Issue 2, ITU G.992.1 (G.DMT), ITU G.992.2 (G.lite), and ITU G.992 Annexes A, B, and C as applicable.

Protocol and Device Driver Selection

The USB ADSL Modem can be easily connected to a USB port on the PC via a standard USB cable. The USB ADSL Modem is fully software upgradeable so that new features and updates may be added by simply loading a new version of the device driver onto your PC.

ADSL modems employ ATM (Asynchronous Transfer Mode) framing. ATM is a protocol that divides packets into small fixed sized cells for rapid transmission over high-speed networks. The ATM protocol allows various types of traffic (e.g. data, voice, and video) to be securely and efficiently carried over the same network. ATM is being widely deployed by telecommunications carriers in their backbone networks. Two type of ATM connections are possible, PVC (Permanent Virtual Circuit) and SVC (Switched Virtual Circuit).

Several different protocols are used on top of ATM. The protocol required in your configuration depends on the equipment deployed by your DSL service provider.

There are several possibilities:

1. Point to Point Protocol (PPP) Over ATM (RFC 2364)

PPP provides session setup, user authentication (login), and encapsulation for upper layer protocols such as IP (Internet Protocol). The use of PPP makes the modem appear as a dial modem to the operating system. Dial-Up Networking is used to establish a connection. The WAN (Wide Area Network) driver and the ATM driver support PPP.

2. Bridged/Routed Ethernet/IP over ATM (RFC 1483)

This protocol makes the modem appear as a local area network (LAN) device to the operating system.

3. RFC 1577

This is a local area network protocol which supports IP to ATM and ATM to IP address mapping.

4. Point-to-Point Protocol (PPP) Over Ethernet (RFC 2516)

This protocol, commonly called **PPPoE**, allows multiple computer users on an Ethernet to share a common DSL connection to the Internet. The WAN, LAN, and ATM drivers support PPPoE. Refer to

for more details.

Three types of device drivers are provided for the ADSL USB modem, WAN, LAN, and ATM.

Note: All three drivers support ATM protocol. In addition, the ATM driver works with ATM services that are available in recent Windows operating systems. The proper choice of driver depends on the combination of Windows operating system and protocol.

1. WAN driver

This driver causes the modem to resemble a dial-up modem. Call establishment is performed through Dial-Up Networking. This driver supports RFC 2364 and 2516 with PVC connections. It can be used with Windows 98, Windows 98 SE, Windows 2000, Windows Me, and Windows XP.

2. LAN driver

This driver makes the modem appear as a LAN or Ethernet device. Connection establishment is automatic. This driver supports RFC 1483 with PVC connections. Additionally, PPPoE is supported via third-party software. This driver can be used with Windows 98, Windows 98 SE, Windows 2000, Windows Me, and Windows XP.

3. ATM driver

This driver works in conjunction with ATM services provided by Windows. RFC 1577, PPPoE, and RFC 2364 are supported. The ATM driver uses Dial-Up Networking to create a PVC or SVC connection to establish a PPP (RFC 2364) connection. This driver can be used with Windows 98 SE, Windows 2000, Windows Me, and Windows XP.

Note: PPPoE support is provided for Windows XP only.
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The device driver choices are summarized in the table below:

Driver Type	Protocol	Operating System
WAN	RFC 2364 RFC 2516 (not with MAC OS 9.x, nor with MAC OS X)	Windows 2000 Windows XP Windows Me Windows 98 SE Windows 98
LAN	RFC 1483 RFC 2516 (MAC OS X 10.1.x and above, only)	Windows 2000 Windows XP Windows Me Windows 98 SE Windows 98
ATM	RFC 1577 RFC 2364 RFC 2516 (Windows XP only)	Windows 2000 Windows XP Windows Me Windows 98 SE

Features

The USB ADSL Modem provides the following features:

- Compliant with Universal Serial Bus Specification Revision 1.1
- USB bus-powered; an external power supply is not required
- Supports three device drivers: Microsoft NDIS 4.0 WAN Miniport, NDIS 4.0 LAN Miniport or NDIS 5.0 ATM Miniport
- Compatible with T1.413 i2, G.DMT, and G.lite compliant CO DSLAM equipment
- Software upgradeable
- ATM driver supports up to sixteen simultaneous ATM virtual connections
- Includes a control panel monitoring program for configuring the adapter and checking the status of the connection on both Windows and Macintosh systems
- Provides an RJ-11 connector for connection to the telephone line
- Supports DSL downstream data rates up to 8 Mbps (125 times faster than standard 56K modems)
- Supports DSL upstream data rates up to 1024 kbps
- Support for PPP over Ethernet (PPPoE)

Description of the front Panel LEDs

LED LABEL	Power (PW)	LINK (LK)
Color Status	Green	Green
Green steady	Power On	Link
Green blink	N/A	No Connection
OFF	Power Off	N/A

Table 1-1 Front Panel LEDs

Description of the Rear Panel Connectors

BACK PANEL CONNECTOR	DESCRIPTION
Line	ADSL Port
Phone	RJ-11 phone connector (optional)
USB	USB Port

Table 1-2 Back Panel Connectors

USB ADSL Modem Hardware Installation

Hardware Installation

Install the USB ADSL Modem by following these steps with the PC running:

1. Insert the rectangular end of a USB cable into the USB port of your PC.
2. Insert the square end of the USB cable into the USB port of the USB ADSL Modem.

Note: The USB cable should not be inserted until you are prompted by software installation to do so.

Software Installation

The software installation procedures vary depending upon the operating system of your PC. Be sure to follow the instructions provided for the operating system appropriate for you.

Before you start...

The following information may be required for software installation. Contact your DSL service provider before proceeding with software installation.

- **IP Address Settings**

The software installation process allows the server to dynamically assign IP Address settings. If your application requires static setting of specific address information you will need to know:

IP Address

Subnet Mask (for Bridged Ethernet applications only)

Default Gateway (for Bridged Ethernet applications only)

- **Name Server Information**

The software installation process allows the server to dynamically assign Name Server Address settings. If your application requires static setting of specific address information you will need to know:

Primary DNS Address

Secondary DNS Address

Primary WINS Address

Secondary WINS Address

- **Type of Driver to be installed**

WAN, LAN and ATM software drivers are supported.

Note: Required if not using default value

- ATM Virtual Path ID (VPI)

Note: Required if not using default value

- ATM Virtual Circuit ID (VCI)

Note: Required if not using default value

- Encapsulation type

Note: Required if not using default value

- Modulation type

Note: Required if not using default value

- User Name (for PPP applications only)

- Password (for PPP applications only).

Windows Installation

The software setup process for Microsoft Windows applications (XP, 2000, Me, 98 SE, and 98) is described below with operating system specific differences noted. The USB ADSL Modem should be connected to your PC prior to installing the driver software. No other Windows programs should be running on your PC during the software install process.

Note: The appearance of the windows and the wording of the options may be slightly different for each operating system, but the same procedure applies.

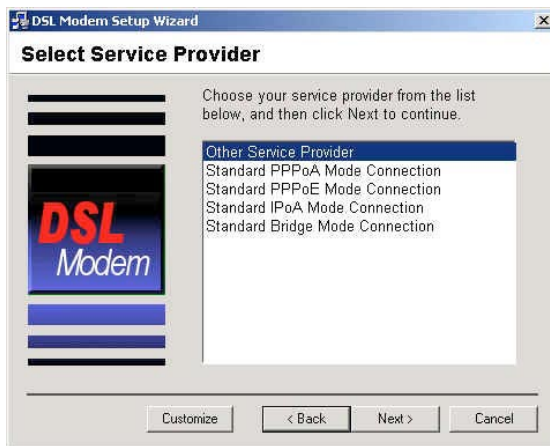
Installing the Driver Software

1. Insert the Installation CD into your CD-ROM drive. In the folder where the driver located, double-click on `setup.exe` to start the **DSL Modem Setup Wizard**. The Installing window displays as the Wizard prepares your system for the installation
2. The **Welcome** window appears to start the next phase of the installation, and provides an opportunity to quit the setup process to exit all Windows programs before continuing. If the Windows programs were previously closed, click `Next`.

Note: If you quit this process, run `setup.exe` from the Device Driver Folder to resume the installation.

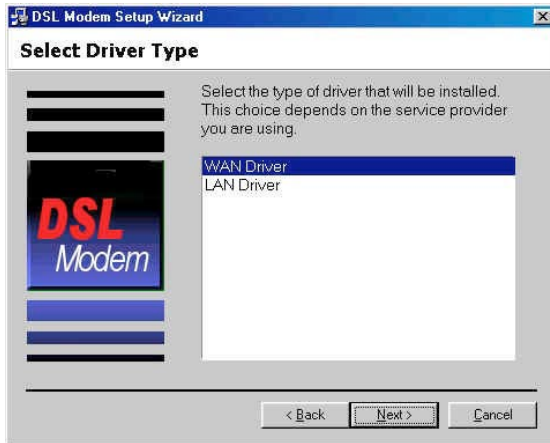


3. A Licensing Agreement message will be displayed; click **Accept**.
4. The **Select Service Provider** window allows you to specify your DSL service provider. A list of service providers is displayed. Default values for the Type of Driver, ATM Virtual Path ID (VPI), ATM Virtual Circuit ID (VCI), Encapsulation type and Modulation type are provided for each DSL service provider listed in the window.

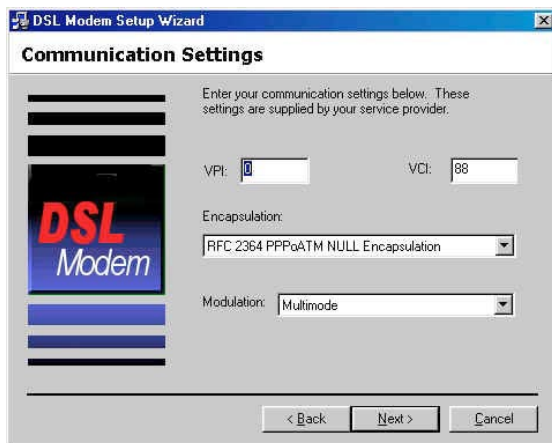


- If your DSL service provider is listed and you would like to accept the default values, highlight the provider's name and click **Next**. Continue with Step 5.
- If your DSL service provider is listed and you would like to change the default values, highlight the provider's name and click **Customize**. Continue with Step a.
- If your DSL service provider is not listed select **Other Service Provider** and click **Next**. Continue with Step a.

- a) Select the type of driver to be installed from the **Select Driver Type** window and click **Next**.

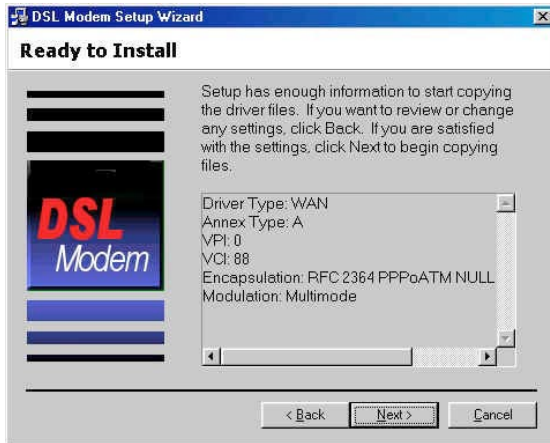


- b) Enter/Select the VPI, VCI, Encapsulation type and Modulation type from the **Communication Settings** window and click **Next**.

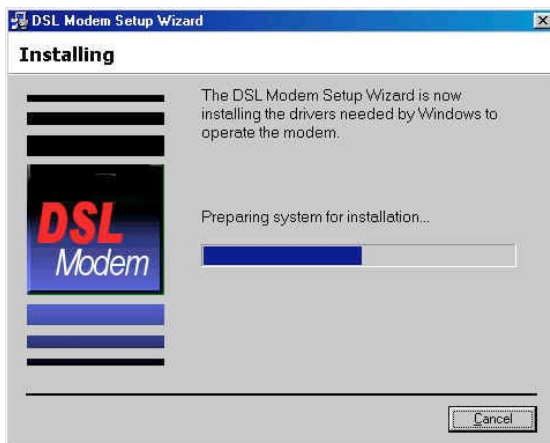


Note: The encapsulation types that appear in the drop-down list vary depending upon the type of driver selected in the previous step.

5. The **Ready to Install** window will be displayed. You may review the current settings and click **Back** to change the settings, or click **Next** to accept the current settings.



6. A message will be displayed indicating that the drivers are being installed.

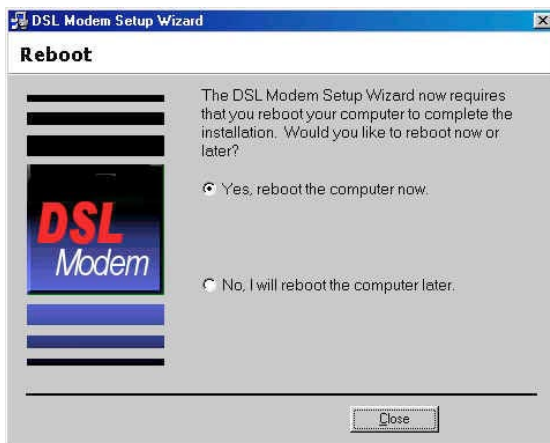


Note: You may need the Windows CD to complete the installation.

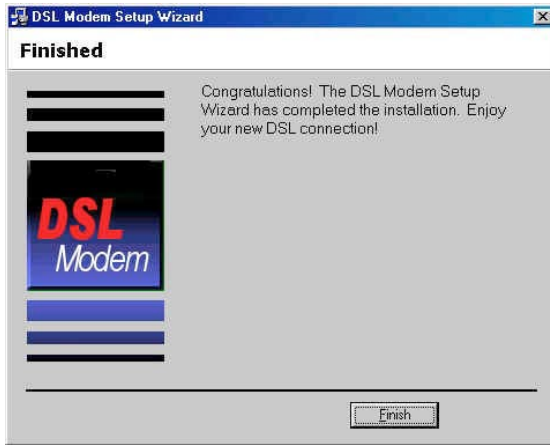
7. The **Installing** window will be displayed. You may insert USB cable now.



8. The system must be rebooted to have the new settings take effect, therefore the **Reboot** window will appear. Remove all disks from their drives, select **Yes, reboot the computer now;** and click **Close** to reboot.



9. Once the PC has rebooted, installation of the USB Modem is complete. The **Finished** window will be displayed indicating the installation has been completed. Click **Finish**.

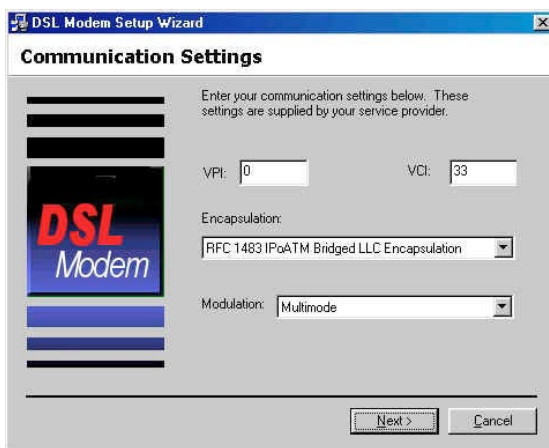


Customizing Communication Settings

Accessing Communication Settings on Windows

Once the USB ADSL Modem and software have been installed, the communication settings may be easily updated by performing the following steps:

1. From your PC desktop click **Start** → **Programs** → **DSL Modem** → **Configure**.
2. The **Communication Settings** window will be displayed.



Make the necessary changes to the **VPI**, **VCI**, **Encapsulation** type and/or **Modulation** type and click **Next**.

3. The system must be rebooted to have the new settings take effect, therefore the **Reboot** window will appear. Remove all disks from their drives, select **Yes, reboot the computer now**; and click **Close** to reboot.

Updating the USB ADSL Modem Software

Windows Drivers Update

Once the USB ADSL Modem has been installed, updating to a new version of the software is an easy process. Simply uninstall the existing drivers, and then install the new drivers.


Note: Be sure to follow the instructions provided for the appropriate operating system for your application.

The DSL Modem Status

The DSL Modem Status provides a quick and easy way to configure and check the performance of the modem and the ADSL connection. When open, the monitor window updates every 2 seconds.

DSL Modem Status

1. There are two methods to access the control panel:

- From your PC desktop, click **Start** → **Programs** → **DSL Modem** → **DSL** or
- From the PC desktop, double click the DSL Modem icon  in the system tray.

Note: To access the DSL Modem Status, the device driver must be running. Also, make sure the USB cable is plugged into the modem.

2. The **Status** page displays the DSL modem transmission information: **State**, **Modulation**, **Received Data Rate**, and **Transmitted Data Rate**.



3. **Driver Version and Control Panel Version** would be listed after clicking  button.



Software Uninstall

Windows Uninstall

Remove the USB ADSL Modem software drivers by performing the following steps.

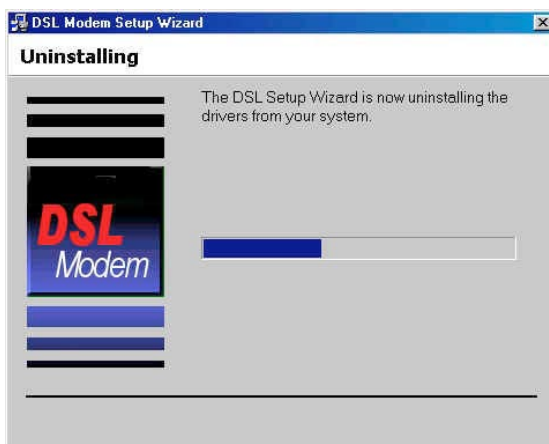
1. From your PC desktop click **Start** → **Programs** → **DSL Modem** → **Uninstall**.
2. A message will be displayed asking you to confirm the removal of the USB ADSL modem software, click **Yes**.



3. A message will be displayed to remind you don't unplug the USB cable until after the Setup Wizard has finished. Click **OK**.



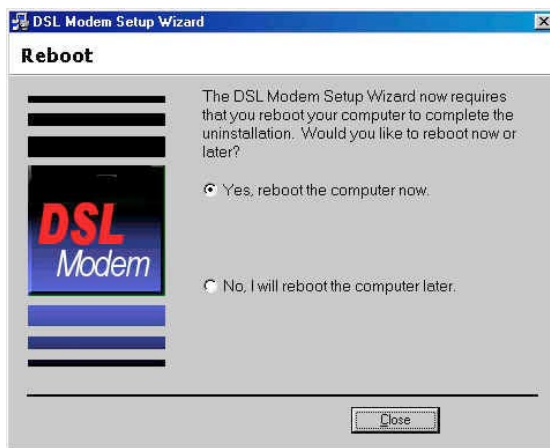
4. A **Uninstalling** message will be displayed indicating the software is being removed.



5. A message will be displayed to remind you to unplug your modem. You may unplug the USB cable now.



6. The **Reboot** window will appear. Remove all disks from their drives, select **Yes, reboot the computer now**; and click **Close** to reboot.



Note: The USB cable must be unplugged before the system is rebooted.

Appendix A: Point-to-Point Protocol Over Ethernet

Point-to-Point Protocol over Ethernet

PPPoE (Point-to-Point Protocol over Ethernet) is a specification for connecting multiple computer users on an Ethernet to a remote site through common customer premises equipment. PPPoE can be used to have an office or building-full of users share a common DSL (Digital Subscriber Line) connection to the Internet. PPPoE combines the Point-to-Point Protocol commonly used in dialup connections, with the Ethernet protocol, which supports multiple users in a local area network. The PPP Protocol information is encapsulated within an Ethernet frame.

The USB ADSL Modem supports PPPoE for WAN, LAN and ATM applications, as presented in this section.

PPPoE for WAN Applications

PPPoE support is embedded into the WAN driver making the modem appear as a dial-up modem to the operating system. Dial-Up Networking is used to establish a connection.

Follow the installation instructions provided in this manual when implementing PPPoE with the WAN driver.

PPPoE for LAN Applications

PPPoE is supported via third party software when implemented with a LAN driver, making the modem appear as a local area network (LAN) device to the operating system. It allows multiple computer users on an Ethernet to share a common DSL connection to the Internet.

After installing the LAN driver, follow the installation instructions provided with the third party PPPoE software. The third party software will search for existing drivers. If multiple drivers are installed, select the USB ADSL Modem as the adapter of choice.

Internet connection will be made through the third party software. You will be required to enter your User Name and Password.

PPPoE for ATM Applications

PPPoE is supported with the ATM driver for Windows XP only. After installing the ATM driver, follow the installation instructions provided by Microsoft for PPPoE.

Appendix B: Specifications

USB ADSL Modem Connector

The USB ADSL Modem is connected to your PC via a USB cable. The rectangular end of the USB cable inserts into the USB port of your PC while the square end of the cable inserts into the USB port of the USB ADSL Modem. An RJ-11 connector is provided for connection to the telephone line.

Data Transfer Rates

ANSI T1.413 / ITU G.992.1 Data Rates

Data rates for DMT mode are partitioned at 32 kb/s increments for both the upstream and downstream data rates adhering to the DMT Standards. The downstream data rates extend from 32 kb/s to 8.064 Mb/s. The upstream data rates extend from 32 kb/s to 1024 kb/s.

Bit Rate (kb/s)		
	Min	Max
Downstream	32	8064
Upstream	32	1024

Table 1: ANSI T1.413 Payload Bit Rates

ITU G.992.2 Data Rates

Data rates for G.992.2 (G.lite) mode are likewise partitioned at 32kb/s increments. The downstream data rates extend from 64 kb/s to 4 Mb/s. The upstream data rates extend from 32 kb/s to 1024 kb/s.

Bit Rate (kb/s)		
	Min	Max
Downstream	64	4000
Upstream	32	1024

Table 2: G.992.2 Payload Bit Rates

Power Requirements

Typical Power Consumption

CP USB Modem Power Consumption	
Power Supply	Data Mode
+5V Digital	0.100 W
+5V Analog	0.250 W
+3.3V	0.995 W
+12V	0.896 W
Total:	2.241 W

Table 3: CP USB Modem Power Consumption

System Requirements

Windows Operating Systems

Windows 98, Windows 98SE, Windows ME, Windows 2000, or Windows XP

32 MB RAM

Pentium-class processor (200MHz or better)

1 Universal Serial Bus (USB) port

10 MB free HD space

Hardware Requirements

Processor

Intel-compatible 80486 or higher, including Pentium and Pentium Pro.

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