Bluetooth Modem
User Manual

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March 19, 2003   Rev01

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.

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.

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.

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.

Contents

1 Introduction

1.1 Overview

Thank you for choosing Bluetooth Modem. The Bluetooth Modem allows you to connect your personal computer to the Internet without cable. This is possible because it utilizes Bluetooth technology. Bluetooth is an open specification for short-range wireless networking standard and it is a low-cost wire-replacement technology that enables connectivity among a wide variety of electronic device such as computers, mobile phones, printers, laptops, PDAs and digital cameras.

1.2 Features

- Plug-and-Play installation
- Wireless connection with all Bluetooth Devices
- Compliant with Bluetooth 1.1
- Supports File Transfer, Data Synchronization, Object Exchange, Network Access, Dial-up Networking, Serial Port Application
- Supports up to 8 Bluetooth enable Devices

1.3 Package Contents

Check the contents of the package against the pack contents checklist below. If any of the items is missing, contact the dealer from whom the equipment was purchased.

- Bluetooth Modem
- Bluetooth USB Dongle
- Installation CD
- Quick Installation Guide
- Power Adapter and Cord

1.4 Minimum System Requirements

Before installation, please check that your computer complies with the following requirements:

- CPU 166 MHz or higher
- Minimum 16Mb RAM
- Operating System: Windows 98, Me, 2000, XP
- CD-ROM
- USB port

2 Bluetooth Modem Installation

Bluetooth Modem is extremely practical; it does not require installation software or driver. Just plug the AC Power cord in the Bluetooth Modem and it is ready for use.

For safety, make sure the telephone line is UNPLUGGED from your modem.

2.2 Rear Panel

1. Plug one end of the RJ-11 phone cord into the **LINE** jack on the Bluetooth Modem, and plug the other end into your phone jack on the wall.

2. If you want to use a telephone on the Bluetooth Modem's phone line while the modem is not used, plug the telephone's cord into the modem's **PHONE** jack.

3. Plug the AC adapter into the modem's **AC IN** jack, and plug the other end into an electrical outlet.
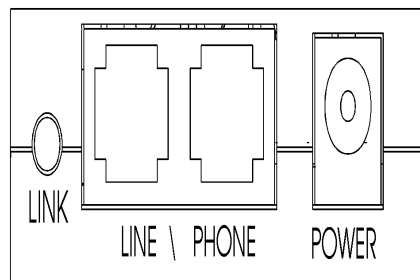

Figure 2-2 Bluetooth Modem back panel

LINK button

If the Bluetooth USB Dongle cannot find the Bluetooth Modem after 1 minute press the **LINK** button to try again.

2.1 LED Indicators

The Bluetooth Modem is equipped with three LEDs. Check the table below for more information.

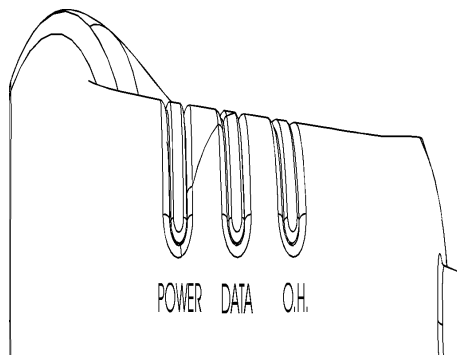| LEDs	Color	Status	Description
Power	Green	Off	No power is supplied to the unit.
		Solid	Power is connected to the unit.
Data	Green	Off	Idle.
		Blinking	Transmitting/receiving data.
O.H.	Green	Off	Modem OFF Hook.
		Solid	Modem ON Hook.

Figure 2-1 Bluetooth Modem LED

3 Bluetooth USB Dongle Installation

3.1 Software Installation

First, install the software provided in the CD and ONLY insert the Bluetooth USB Dongle after rebooting the PC. Follow the instructions below to install the software.

1. Close all Windows programs that are running.
2. Insert the provided Software Utility CD into your CD-ROM drive. If the installation screen does not pop up, run **Setup.exe** from **D:\Utility&Driver** of the Software Utility CD where **D** is the drive letter.
3. When the **Welcome** screen pops up, click **Next**.

4. When the **License Agreement** screen appears, select the **I accept the terms in the license agreement** check box, and click **Next**.

5. In the **Device Information** screen, enter the name of your computer in **Device Name** field and select whether it is Desktop or Laptop in **Device Type**.

6. To install the software to the default destination folder, click **Next**. If you are to install the software into a different folder, click **Change** to select another folder. Click **Next** to continue.
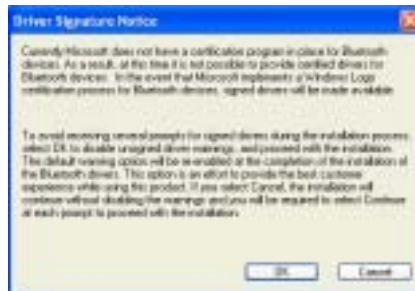

7. Click **Install** when the following screen appears.

8. Installation process can take some minutes, be patient.

9. On Windows XP, if the **Driver Signature Notice** appears, click **OK** to continue the installation.

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10. Click **Finish** when the following screen appears

11. Plug your Bluetooth USB Dongle into your computer and click **Yes** to reboot.

Note: Don't remove the installation CD until the installation process is completely finished.

Subject to your Windows OS, different situations will occur during or after the software installation. Follow these instructions to complete the installation.

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For Windows XP

After rebooting the Windows, plug **Bluetooth USB Dongle** into your computer. The PnP wizard will appear as described below:

1. Windows **Found New Hardware Wizard** will pop up. Click **Next.**

2. If Windows logo compatibility message appears, click **Continue Anyway.**

3. Click **Finish**.

Now you are done with the installation procedure. You should be able to find the **Bluetooth Configuration** icon located on the system tray and **My Bluetooth Places** icon the Desktop. Proceed to the next chapters to configure and obtain further information about how to operate this device.

4 Making Internet Connection

4.1 Connecting to the Internet

Before you begin, make sure the **Bluetooth Modem** is turned on and it's the distance with the **Bluetooth USB Dongle** does not exceed 10 meters, this is the maximum range covered by the Bluetooth 1.1. Now, just follow the steps below described:

1. Double-click **Bluetooth Configuration** icon on the system tray.

2. Double-click **ZeevoEmbeddedDevice ZV-DUN** icon

   If the connection between the Dongle and the Modem were successful, you will be able see this icon

   and the **Connect BluetoothConnection** screen will automatically pop-up.

Figure 4-1 Connect BluetoothConnection screen

In the related field(User name, Password, dial) enter the information provided by your Internet Service Provider and click **Dial**.

Congratulation! You are ready to access the Internet.

4.2 Sharing Internet Connection

You might want to allow other Bluetooth enabled devices such as computer or laptop to access the Internet using the same connection. Follow the instructions below to deploy your wireless personal network.

Server Side

1. Select Start > Settings > Network Connections.
2. Right click on Bluetooth Connection icon, then click on Properties. The following screen will pop-up. Click on Advanced tab. On **Internet Connection Sharing** section, check all boxes.

3. Click **OK** to finish.

Client Side

1. Double-click **Bluetooth Configuration** icon on the system tray.
2. Select and double-click **Entire Bluetooth Neighborhood**.
3. Select and double-click on the computer that made the Dial-up Connection(in this case, Laptop B).

4. Double-click **Network Access** icon and the following screen will pop-up. Just click **Connect.** It will not initiate a real dial-up connection, it will just register your computer on the network and establish a connection between your computer(client) and the computer(server) that, in fact, made the dial-up.
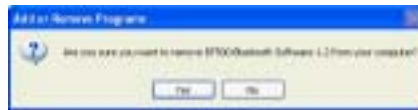
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5 Removing Bluetooth Software

If for any reason you have to remove **Bluetooth Configuration** software, follow the steps below:
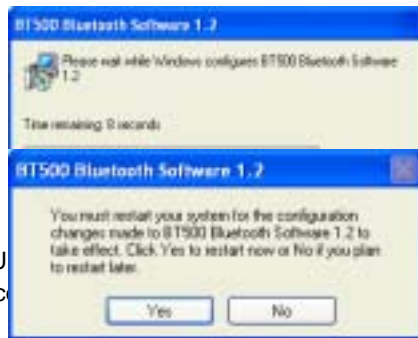
1. Click the **Start** > **Settings** > **Control Panel**.
2. Double-click **Add or Remove Programs** icon.
3. Select **BT 500 Bluetooth Software 1.2** and click Remove.

4. Click **Yes** to continue the uninstallation.

5. Uninstallation process takes some minutes, be patient.

6. U   k **Yes** to reboot the
c

6 Specification

6.1 Bluetooth USB Dongle BT 210D

Power Supply	
Power Supply	5.0 VDC USB bus-powerd
Operation Voltage	1.8V for core logic, 3.3V for RF
Power Consumption (T=25C)	Peak current in ACL data transfer 720Kbps = 55mA Peak current in SCO HV1 connection = 60mA Stand by current = 100uA

RF Characteristics	
Radio Output Power	0dBm (Bluetooth Spec. 1.1 class 2 device)
Receiver Sensitivity	-80dBm (Single slot BER = 0.1%)
Frequency Range	2402 – 2480MHz, in 2.4GHz license-free ISM band
Carrier Frequency Drift	±25 KHz (Single slot packet)

Antenna	
Type	High-performance solid-state LTCC chip DRA (Dielectric Resonance Antenna)
Impedance	50 ohm
Gain	0 – 2 dBi
VSWR	2 max
Polarization	Linear
Azimuth Beamwidth	Omni-directional

6.2 Bluetooth Modem 010 IC + V.90

Specifications are subject to change without notice

General Description

- External 5V DC power supply
- LED display for Power on, off-hook and data transmit
- Bluetooth profile support modem dial-up network
- Support TAM through bluetooth (E-mail station's option)
- Support external case
- Operation distance up to 10m
- Support Firmware upgrade

Bluetooth General Description

- Bluetooth 1.1 core specification compliant
- Encryption key length can option up to 128bytes
- Support Internal antenna

V.90 Modem General Description

- ITU-T V.90 data rates 28000 bits/s – 56000 bits/s.
- ITU-T V.42 LAPM and MNP1-4 error correction.
- ITU-T V.44/V.42bis and MNP Class 5 data compression.
- TIA/EIA 578 Class 1 FAX AT command.
- TIA/EIA 602 standard for AT command set.
- DTE speed up to 115200bps

Bluetooth RF specification

- Spread-Spectrum type: Frequency Hopping
- Carrier Frequency drift: +/-25K
- Modulation Type: GFSK
- Frequency Range: 2402MHz ~ 2480MHz
- (F=2402+KMHz, K=0,1,2~78)
- Frequency Hopping times: 1600 times/sec

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- Overall Rx Sensitivity: -80dBm (typical) -70dBm (Maximum)
- Output Power: (Class 2) up to 4dBm

Bluetooth Data transmit

- Line Rate: Asymmetric mode: 721Kbps & 57.6Kbps

V.90 Modem Compatibility:

- V.90 --- 56000,54667,53333,52000,50667,49333,48000,46667,45333,42667,41333,40000,38667,37333,36000,34667,33333,32000,30667,29333,28000bps.
- ITU-T V.34annex --- 33600,31200
- ITU-T V.34 --- 8800,26400,24000,21600,19200,16800bps
- ITU-T V.32 bis --- 14400,12000,9600,7200,4800bps
- ITU-T V.32 --- 9600,4800bps

V.90 Modem Modulation:

- 56000bps --- PCM
- 33600,31200bps (V.34annex) --- TCM
- 28800,26400,24000,21600,19200,16800bps (V.34) --- TCM
- 14400,12000,9600,7200bps (V.32 bis) --- TCM
- 4800bps (V.32bis) --- QAM
- 9600,4800bps (V.32) --- TCM,QAM
- 2400bps (V.22bis) --- QAM

V.90 Modem Operation:

- Full duplex or half duplex in Data mode.
- Asynchronous operation.
- Auto dial/answer.
- Manual originate/answer.

V.90 Modem Dialing Type:

- Tone dialing.

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V.90 Modem Telephone Line Interface:

- RJ-11 phone jack to PSTN line.

V.90 Modem Receive Sensitivity:

FCC/DOC	JAPAN	CTR21
-29 ±2 dBm	-29 ±2 dBm	-29 ±2 dBm

V.90 Modem Transmit Level:

FCC/DOC	JAPAN	CTR21
< -12 dBm	-17±2dBm	-15 ±2dBm

V.90 Modem DTMF Signal Level (dBm)

FCC/DOC	JAPAN	CTR21
Hi. G = -8 ± 1 dBm Lo. G = -10 ± 1 dBm	Hi. G = -8 ± 1 dBm Lo. G = -10 ± 1 dBm	Hi. G = - 9 ± 1 dBm Lo. G = -11 ± 1 Dbm

V.90 Modem M/B Ratio

FCC/DOC	JAPAN	CTR21
39/61±5% 10±1PPS	40/60±5% 10±1PPS	40/60±5% 10±1PPS

V.90 Modem Return Loss

FCC/DOC	JAPAN	CTR21
300Hz ~ 3400Hz > 10 dB	300Hz ~ 3400Hz >10 dB	300Hz ~ 3400Hz >7 dB

V.90 Modem COMMUNICATION STANDARD

- Compliant with FCC, JATE, CTR21

V.90 Modem DTMF Tone Frequency:

		Low Group Frequency (Hz)			
		697	770	852	941
High Group Frequency	1209	1	4	7	*
	1336	2	5	8	0

Frequency (Hz)	1477	3	6	9	#
	1633	A	B	C	D

Operation Temperature and Humidity:

- +0 to 45 ¢J
- 20% to 75% (Humidity)

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