10/100 Fast Ethernet
&
56K V.90 Fax/Modem

Multifunction PC Card

User   Manual

FCC REGULATORY STATEMENTS

FCC Certification

10/100 Fast Ethernet + 56K Fax/Modem PC Card

PLANET ENW-3503F

Made in Taiwan

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of modems and other electronic equipment.

FCC Part 68 Registration

This high speed 10/100 Fast Ethernet + 56K FAX/MODEM PC Card complies with FCC Part 68 rules, and the use of this modem is subject to the following restrictions:

1. The FCC has established rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in it's facilities, equipment, operation and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the situation with the FCC.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:
   a. The telephone number to which this unit is connected.
   b. The Ringer Equivalence Number (REN).
   c. The USOC jack required.
   d. The FCC Registration number.

Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the REN's of all the devices on any one line should not exceed 5.0. If too many devices are attached, they may not ring properly.

FCC Part 15 Registration

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

1) This device may not cause harmful interface, and
2) This device must accept any interface received, including interface that may cause undesired operation.

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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

(1) Reorient or relocate the receiving antenna.

      (a) Increase the distance between the equipment and receiver

      (b) Connect the equipment into an outlet on a circuit different from that to which the
          receiver is connected.

  (2) Consult an experienced radio/TV technician for help.

CTR 21 pan-European Certification

This equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point. In the event of problems, you should contact your equipment supplier in the first instance.

This device is designed to work with the notified networks in all EC member states. Nevertheless, some of the network services in invidual countries might not be supported, but they will not affect the normal data and fax applications. For example, the metering charge service in Germany. Besides you may encounter difficulty of using PULSE dialing function in some of the countries, such as Nordic countries. This kind of network compatibility is dependent on the physical and software settings of this device. If the users are desired to use this device on those networks, they should contact the vendor or supplier first.

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Revision

This user's manual is for PLANET PC Card family,

model -- **ENW-3503F**

10/100 Fast Ethernet + 56K Fax Modem multifunction card

Rev: 2.00 (January, 2000)

Part No: EM3503FV2

TABLE OF CONTENTS

1. INTRODUCTION

1.1. ABOUT THIS MANUAL

This manual will explain how to install and use your multifunction 10/100 Fast Ethernet + 56K Fax/Modem PC Card

1.2. ABOUT THIS PRODUCT

The 10/100 Fast Ethernet + 56K Fax/Modem PC Card is a multifunction communication device that lets you perform multiple communication tasks at the same time:

(1) transmit and receive data up to 56,000 bps
(2) send and receive FAXes from computers or
     FAX machines
(3) connect to an 10/100 Fast Ethernet LAN

And it uses only one PCMCIA socket while it can provide the functions listed above.

This PC Card is a credit-card-size Type II PCMCIA adapter that complies with the PCMCIA 2.1 and JEIDA 4.1 standards and works with computers that incorporate a compatible interface.

It is Bell, ITU-T (formerly CCITT) and Hayes AT commands compatible, allowing it to be used worldwide with today's popular communication software programs. You will be able to send and receive faxes with any Group 3 fax machine. Using standard phone lines and 10/100 Fast Ethernet, the data communication functions of the 10/100 Fast Ethernet + 56K Fax/Modem PC Card will enable you to successfully access to the servers on 10/100 Fast Ethernet LAN and hook up to the Internet, transmit E-Mail, send and receive information and communicate with other PCs, Bulletin Board Services (BBS) or on-line computer networks such as CompuServe and America On line.

1.2.1. Specifications

PC Card Interface
   PCMCIA Type II.
Dimension
   120 mm X 54 mm X 5 (or 18) mm
Weight
   60 g
Power
   +5V ±5%
Cable and Connector
   One with a RJ-11 6-pin jack for 56K Fax/Modem and one with a RJ-45 8-pin jack for 10/100 Fast Ethernet LAN connections.
LEDs
   Link,Activity,10/100Mbs(lit if 100), Modem Carrier Detect   , Modem Transmit, Modem Receive
Environmental Specificaions
   Operating Temperature   32¢ K120¢ K

Storage Temperature   -4¢ K158¢ K

Operating Humidity   10%-85%N.C.

Storage Humidity   5%-90%N.C.

Network

IEEE 802.3 10BaseT, 10Mbps.

IEEE 802.3u 100BaseTX, 100Mbps.

NE2000 compatible.

Modem

V.90, K56flex 56Kbps, V.34+ 33.6Kbps, V.34 28.8Kbps, V.32bis 14.4Kbps.

V.42bis/V.42, MNP 2-5 data compression and error correction.

AT command set.

Fax

Group 3, V.17 14400bps, V.29 9600bps

Fax Service Class 1 compliant.

Modem COM Port

COM2, COM3, COM4

IRQ

3, 4, 5, 7, 9, 10, 11, 12, 15

I/O Address

220, 300, 320, 340

Features

1. Compatible with most notebook computers and PCMCIA Card and Socket Service drivers.
2. High degree of reliability letting you out of trouble.
3. Easy to install and play.
4. Support most of the popular Network Operating Systems.
5. Include popular 56K Fax/Modem communication programs.
6. Hot swappable.
7. Feature concurrent use of 10/100 Fast Ethernet LAN and 56K Fax/Modem.

1.3.   SYSTEM REQUIREMENTS

- An IBM compatible PC or notebook computer with 386SX or faster processor
- At least one type II PCMCIA socket
- PCMCIA release 2.1 compliant Card Services and Socket Services
- Drivers and utilities provided with this product
- RJ11 jack for connecting to a phone plug
- RJ45 jack for 10/100Tx connectivity to your network resources
- Driver software loaded on your PC
- Data and/or fax communications software.

1.4.   CONTENTS INCLUDED IN THE PACKAGE

- Multifunction 10/100 Fast Ethernet + 56K Fax/Modem PC Card
- A 3-1/2" driver diskette
- User' s Manual
- Two Ferrite Cores
- Windows-based 56K Fax/Modem application program

2.   INSTALLATION

This chapter describes how to install your 10/100 Fast Ethernet + 56K Fax/Modem multifunction PC Card. Installation procedures also cover many popular Network Operating Systems.

2.1.   HARDWARE INSTALLATION

1. Hold the card label up and insert the card into the computer's PCMCIA slot with the 68 pin connector facing the computer.
2. Connect the RJ-45 (8-pin) plug to the LAN and the RJ-11 (6-pin) plug to the telephone wall outlet.

LEDs

Your Fast Ethernet 10/100+56K Modem PC Card has six diagnostic performance LED indicators on the coupler housing.

LINK :
   ON when a link is detected on the RJ-45 port.

10/100:
   ON when the Fast Ethernet PC Card is communicating with the LAN at 100Mbps.

ACT:
   Flickers when activity is detected on the RJ-45 port (either   receiving or transmitting data).

CD:
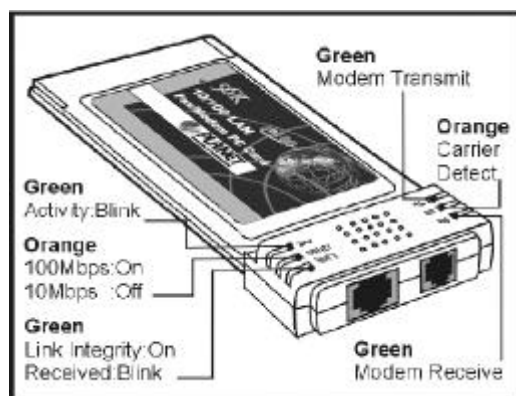   ON when a carrier is detected and the modem has established a link.

TX:
   Flickers when the modem is transmitting data.

RX:
   Flickers when the mdoem is receiving data.

As shows:

2.2.   INSTALLING THE SOFTWARE

For Non-Windows 95/98 & Non-Windows NT System

Plug the driver diskette into the floppy drive and set the current drive to the floppy drive (A:\).
Then run **INSTALL** to install the dirver.

2.2.1. Novell Netware Installation

Follow the steps bellow to complete the Novell Netware installations.

1. Run installation program **INSTALL.EXE** in the driver disk (for example, A:\INSTALL).
2. Select **Netware 3.x and 4.x Workstation** in the installation program dialog box.
3. Check the card settings. If current settings are correct, select **Start Installation** and go to
   step 5. Otherwise, select **Modify Parameters** to change settings.
4. Select the appropriate values then press **Enter**. When you are finished,   press **OK** to exit.
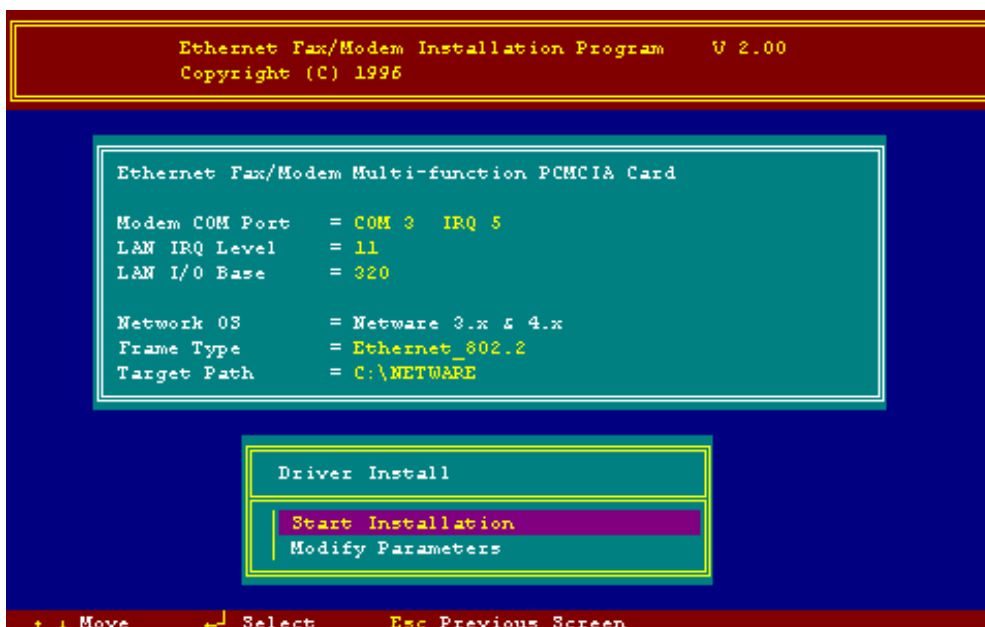
5. Installation program starts installing drivers and modifying **AUTOEXEC.BAT** and
   NET.CFG. Select **Yes** then press **Enter** to modify the files.
6. Now, the installation is completed.
7. Restart your computer to make Netware connections.

To install the ODI driver manually, follow the instructions below:

1. Copy the file
   \NETWARE\LMODI.COM \NETWARE\NET.CFG
   and the file
   \ENABLER\LMVXD.386
   from the driver disk to your local hard disk.
2. Using text editor to edit the NET.CFG for setting the frame type. The frame type default is set to 802.3 for Netware 3.11 server and 802.2 for Netware 3.12 and 4.x servers. The frame type set in NET.CFG must match that set in Netware servers.
3. Using following format to create a startup batch file

```
LSL              ;Link Support Layer Module
                 ;provided by Novell
LMODI      ;Hardware Specific Module
IPXODI         ;IPX Protocol Stack Module
                 ;provided by Novell
NETx        ;Shell Support Module provided by
                 ;Novell
LOGIN
```

2.2.2. MS LAN Manager Installation

1. Cast a look at the README.TXT in the **\NDIS2** directory in 10/100 Fast Ethernet + 56K Fax/Modem multifunction PC Card driver disk. Before installing the drivers, please ensure that the Microsoft LAN Manager has been installed in the target path. The installation program will check and modify the PROTOCOL.INI file for LAN Manager.
2. Run **INSTALL.EXE** in the root of driver diskette (A:\INSTALL).
3. Select **Microsoft LAN Manager** from the menu screen.
4. Check the card settings. If current settings are correct, select **Start Installation** and go to step 5. Otherwise, select **Modify Parameters** to change settings.
5. Select the appropriate values then press **Enter**. When you are finished,   press **OK** to exit.
6. Installation program starts installing drivers and
   modifying **CONFIG.SYS** and **PROTOCOL.INI**
   Select **Yes** then press **Enter** to modify the files.
7. Now, the installation is completed.
8. Reboot the computer to load driver and start LAN Manager.

Example of PROTOCOL.INI:

```
[PROTMAN]
    DRIVERNAME = PROTMAN$
    DYNAMIC = YES
    PRIORITY = NETBEUI

[NETBEUI_XIF]
    Drivername = netbeui$
    SESSIONS = 6
    NCBS = 12
    BINDINGS = "LMNDIS_NIF"
    LANABASE = 0
```

```
[LMNDIS_NIF]
; protocol.ini session for multifunction
  LAN/MODEM driver.
     IOADDRESS = 0x320
     INTERRUPT = 11
     DRIVERNAME = LMNDIS$
```

2.2.3. Packet Driver Installation

1. Run **INSTALL.EXE** file in the driver diskette (A:\INSTALL).
2. Select **Packet Driver** from the menu screen.
3. Check the card settings. If current settings are correct, select **Start Installation** and go to step 5. Otherwise, select **Modify Parameters** to change settings.
4. Select the appropriate values then press **Enter**. When you are finished, press **OK** to exit.
5. Installation program starts installing drivers and modifying **AUTOEXEC.BAT.** Select **Yes** then press **Enter** to modify the files.
6. Now, the installation is completed.
7. Reboot the computer to load driver.

2.2.4. Windows for Workgroups 3.11 Installation

1. Run INSTALL.EXE in root directory of 10/100 Fast Ethernet + 56K Fax/Modem PC Card driver disk.
2. Select **Windows for Workgroup** in Network Operating System screen.
3. If current settings are accepted, select **Start Installation** and go to step 13. Otherwise, select **Modify Parameters** to make modifications.
4. Move cursor to the setting you want to make a change for then press **Enter** to select a fit value.
5. When the configuration is accepted, press **Enter** on the **OK** field to exit the screen and go back to step 3.
6. Select **NDIS Server (LAN Manager,...)** as the network server that you will attach to then press **Enter**.
7. Installation program starts installing drivers and modifying AUTOEXEC.BAT. Select **Yes** then press **Enter** to modify the files.
8. Run Windows for Workgroups and click **Network Setup** icon in **Network** group.
9. In **Network Settings** dialog box, click **Networks...** button to select the network operating system.
10. In **Networks dialog** box, check the radio button before **Install Microsoft Windows Network** and **No Additional Network**. Press **OK** to go back the **Network Settings** screen.
11. Click **Drivers...** button to select network driver.
12. From **Network Drivers** dialog box, press **Add Adapter...** button to enter **Add Network Adapter** dialog box. Select **Unlisted or Updated Network Adapter** and press **OK**.
13. Windows will prompt a **Install Driver** dialog box; put the driver diskette into floppy drive then press **OK**.
14. Select **Enhanced mode NDIS3 for....** then press **OK**.
15. Follow Windows instructions to complete the installation and exit Windows
16. Reboot the computer to run with WFW 3.11.

2.2.5. Windows NT 3.51 & NT 4.0 Installation

Getting Start for Windows NT3.51

1. Run Windows NT 3.51
2. Login with a full access level , i.e. ADMINISTRATOR
3. Remove all existing network support
   -- open **Program Manager** → **Main** group → **Control Panel** → **Network**
   -- remove all existing network components
   Note: remove all adapters first, then servers, then workstations, etc.

Add PCMCIA to Your Laptop
1. Open **Program Manager** → **Main group** → **Control Panel** → **Devices**
2. Select **PCMCIA**
3. Press **STARTUP**
4. Select **BOOT**, then press **OK**
5. When all PCMCIA adapters are added, press **Close** and restart Windows NT

Check **Event Viewer** when system reboots. Ask your laptop dealer for help if any problems occur during the pre-installation.

10/100 Fast Ethernet + 56K Fax/Modem PC Card Installation in NT 3.51
1. Insert the 10/100 Fast Ethernet + 56K Fax/Modem multifunction PC Card into one of the PCMCIA slots
2. Run Windows NT
3. Login with a full access level i.e. ADMINISTRATOR
4. Open **Program Manager** → **Main** group → **Control Panel** → **Network**
5. Press **YES** to install network components
6. Enter the correct path for NT installation media (CD-ROM). For example, **D:\i386**.
7. Press **o not detect for the network adapter"**
8. Open the **Network Adapter Card** selection box
9. Select **<OTHER> REQUIRES DISK FROM MANUFACTURER**
10. Click **CONTINUE** button
11. Insert the driver disk into floppy disk drive, then enter the correct path (A:\).
12. Take a choice for the 10/100 Fast Ethernet + 56K Fax/Modem PC Card then press **OK**.
13. A dialog box will be poped up for the driver settings change.
14. Give appropriate system resources to the 10/100 Fast Ethernet + 56K Fax/Modem PC Card, the settings must be unique for this device. Resources Recommendation

I/O Base	I/O:300. Possible alternative: 220, 320, 340
Interrupt (IRQ)	IRQ:5. If your laptop is equipped with multimedia devices, a higher interrupt (IRQ:11) may be needed.
Base Memory	D000. Possible alternative: D800
COM Port	COM2 to COM4. Select one of the COM port that is not in use by other communication devices.

15. When all settings are completed, press **OK**

   Windows NT will load network and grant configurations for
          -NWLink
          -TCP/IP
          -Netbeui

Typically the configurations are unique for each network. Ask your network administrator for help if you want to change them.

16. Once all network softwares are well loaded, press **OK**. The configuration and bindings for the PC Card might be confirmed. Answer the questions accordingly.
17. Connect to your network using the provided 10/100 Fast Ethernet RJ-45 jack.
18. Reboot the system.

Getting Start for Windows NT4.0

1. Remove all existing PC Cards from the system.
2. Run Windows NT 4.0
3. Login with a full access level i.e. ADMINISTRATOR
4. Remove all existing network support from
   MY COMPUTER → CONTROL PANEL → NETWORK → ADAPTERS
5. Press **CLOSE** after all network components are removed.
6. Remove all serial port devices in
   MY COMPUTER → CONTROL PANEL → PORTS
7. Press **CLOSE** after all serial port devices are removed.

10/100 Fast Ethernet + 56K Fax/Modem PC Card Installation in NT 4.0

1. Insert 10/100 Fast Ethernet + 56K Fax/Modem PC Card into one of the PCMCIA Slots
2. Start Windows NT 4.0
3. Login with a full access level **ADMINISTRATOR**
4. Open **MY COMPUTER → CONTROL PANEL → NETWORK**.

If **Network** has not been installed,
♦   select **YES** to start Network installation,
♦   press **Next** and press **SELECT FROM LIST** button, then press **HAVE DISK** button,
♦   insert the 10/100 Fast Ethernet + 56K Fax/Modem driver disk into drive floppy disk drive, then enter the correct path**.**
♦   select the only one choice for the 10/100 Fast Ethernet + 56K Fax/Modem PC Card, then press **OK** and **NEXT**
♦   Windows NT 4.0 will grant configurations for
               -- TCP/IP
               -- NWLink IPX/SPX
               -- NetBEUI

               ...
    These configurations are unique for each network. If you want to change them, ask your network administrator for help.
♦   Press **Next** twice to use default NETWORK SERVICES settings
♦   Enter the correct path for NT 4.0 system source files.
♦   A dialog box will pop up. Give appropriate system resources to the 10/100 Fast Ethernet + 56K Fax/Modem PC Card; the settings must be unique for this device. Refer to esources Recommendation" for NT 3.51 details
♦   Press **NEXT** twice. Enter **COMPUTER NAME** then press **NEXT**
♦   Press **FINISH**

If **Network** has been installed
♦   Select **ADAPTERS**
♦   Press **ADD** to add network adapters

- ♦ Press **HAVE DISK** button
- ♦ Insert the 10/100 Fast Ethernet + 56K Fax/Modem PC Card driver disk into floppy disk drive
- ♦ Enter the correct path for Windows NT 4.0 drivers then press **OK**.
- ♦ A dialog box will pop up. Give appropriate system resources to the 10/100 Fast Ethernet + 56K Fax/Modem PC Card; the settings must be unique for this device. Refer to esources Recommendation" for NT 3.51 details
- ♦ Press **OK** when all setting are completed.
- ♦ Press **CLOSE** to complete NETWORK setting
- ♦ Reboot Windows NT.

Modem configuration for NT 4.0

1. Open **MY COMPUTER** → **CONTROL PANEL** → **MODEMS**
2. Using default settings and press **NEXT**
3. System should have detected your LANmodem PC Card, and enter the Modem Manufactures & Models list screen.
4. Press **FINISH** and then **CLOSE** to complete modem setting.
5. Reboot the system.
6. The installations for both LAN and Modem are completed.

2.2.6. Windows 95 Installation

1. Assume that the PCMCIA card reader and drivers have been loaded and well functioning. The **System** Icon in the **Control Panel** can report on its functionality. If not, check your computer dealer for technical support.
2. Insert 10/100 Fast Ethernet + 56K Fax/Modem multifunction PC Card into PCMCIA slot. Windows 95 will prompt **New Hardware Found** dialog box. In **New Hardware Found** dialog box, select **Driver from disk provided by hardware manufacturer**.
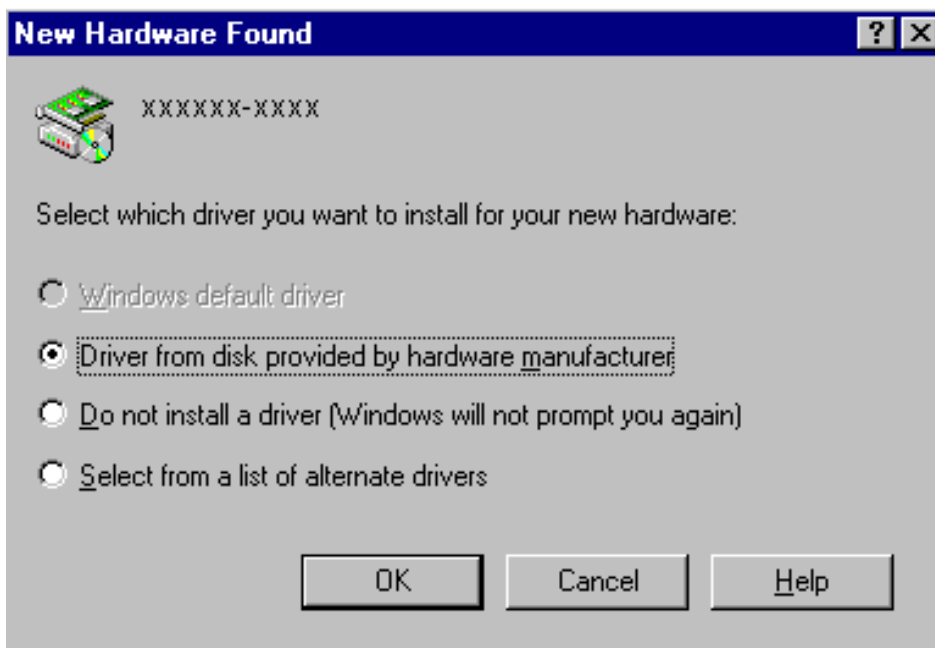
3. Enter the correct path, i.e. "**A:**", then insert 10/100 Fast Ethernet + 56K Fax/Modem PC Card driver disk. The driver will be installed automatically, and system may ask for the Windows 95 installation CD/disks to update the existing files or drivers. After the update, system will reboot automatically.

4.For the first time installation, click **Network** icon in **Control Panel** to correctly add Protocols, Client and Service according to your application requirements.

5.   Reboot the machine and the card will fully function.

2.2.7. Working with Windows 98

1. Turn on your computer.

2. Insert the Fast Ethernet/Fax/Modem combo PC Card into the free PCMCIA slot, and make sure it is firmly seated.

3. Windows 98 will prompt **New Hardware Found** then **Add New Hardware Wizard** dialog box. Click **Next**.

4. Select "Search for the best driver for your device (Recommended)", then click Next.

5. Insert Fast Ethernet/Fax/Modem combo PC Card driver disk, select "**Floppy disk drives**", then click **Next.**

6. Press **Finish** to complete the installation**.** Reboot the machine and now the Fast Ethernet/fax/modem combo PC card is ready to go.

2.2.8. Artisoft Lantastic 6.0 Installation

1. Install LANTASTIC 6.0 first.
2. Run INSTALL.EXE in the 10/100 Fast Ethernet + 56K Fax/Modem multifunction PC Card driver disk   root directory.
3. Select **LANTASTIC 6.0** in Network Operating System screen then enter **Driver Install** screen.
4. If current settings are correct, select **Start Installation** and go to step 6. Otherwise, select **Modify Parameters** to make changes.
5. Move cursor to each field you want to make modification and press **Enter** to set correct value. Then press **Enter** on the **OK**.
6. Installation program starts copying drivers and modifying CONFIG.SYS, PROTOCOL.INI, and STARTNET.BAT.
7. Reboot the computer to have the driver take effect.

3. MODEM BASICS

This chapter covers the basic commands and techniques involved in modem operation. In many cases, this is the only information you will need in order to get your 10/100 Fast Ethernet + 56K Fax/Modem PC Card up and running with communication software, and to start making connections with your PC Card.

3.1 Understanding AT Commands

The 10/100 Fast Ethernet + 56K Fax/Modem PC Card communicates asynchronously with computers using AT commands. AT commands are used to configure and control the PC Card. Commands are usually sent to the modem in way of communication software, but can also be entered manually with the computer keyboard.

Command statements must be written in a specific form in order for the 10/100 Fast Ethernet + 56K Fax/Modem PC Card to recognize them. A command statement always begins with the letters **AT** or **at**. It is then followed by one or more commands and the <Enter> key.

AT commands can only be issued when the 10/100 Fast Ethernet + 56K Fax/Modem PC Card is in "Command mode" or "Off-line." Once the PC Card has established a connection with another modem, it is said to be "On-line" or in "Data mode." In this mode, the characters sent to the Ethenet + 56K Fax/Modem PC Card by your computer are transmitted to the remote modem rather than being interpreted by the PC Card as commands.
Using the Windows 95/98 Hyper Terminal Program
To issue an AT command statement, you first need to run a communication program such as the Microsoft Windows "Typer Terminal" program. This program provides a simple method to manually enter AT commands so you can do such things as "Customize" the settings of your 10/100 Fast Ethernet + 56K Fax/Modem PC Card, or store phone numbers you commonly connect to.

Once the 10/100 Fast Ethernet + 56K Fax/Modem PC Card is connected to your computer serial port and telephone line, open the Windows 95/98 ccessories" program group, and open the Hyper Terminal Program. The program will prompt you for a name and icon to use for your new connection. Type the name **Test Connection** then press <Enter>.

Next, you will be prompted for country information, area code, phone number, and the device used to make the connection. For this test purpose, do not enter a phone number; simply choose the COM port your 10/100 Fast Ethernet + 56K Fax/Modem is connected to from the "Connect Using" list. Click "OK" when finished.

The next window sets the COM port settings. The settings used for the Comet should be as follows:

Bits per second:	115200
Data bits:	8
Parity:	None
Stop bits:	1
Flow Control:	Hardware

Click "OK" when finished. After you have done this, save your new connection by selecting "Have" from the "File" menu then click "OK." A new connection icon will be added to your Hyper Terminal folder.

You are now ready to start entering AT commands.

In the terminal window, type:

  AT<Enter>

LANmodem responds

  OK

This confirms that the modem and your computer are communicating correctly.

To test the telephone line connection, issue the manual answer command. Type:
ATA<Enter>
The LANmodem will pick up the phone line, and try to communicate. Normally, this command is only used to answer an incoming call made from another modem. Thus the high pitched noise you will hear from the speaker. To abort the operation, press any key, or select isconnect" from the   all" menu.

3.2 Dialing and Answering Techniques

Depending on what communications software you use to make modem connections, you may not have much control of how the modem dials the telephone number. This section shows some useful examples of the AT commands used for dialing and answering operations. The command characters specific to each function are shown in bold type.

Dialing using the ATD Command

Touch Tone Dialing:	ATD**T** 555 1212
Pulse Dialing:	ATD**P** 555 1212
Tone and Pulse Dialing:	ATD**P** 555 1212 W**T** 24
Pausing During Dialing:	ATDT 9**,,**555 1212

Auto-Answer and Hook Controls

Enabling Auto-Answer: AT**S0=n**

Note: In this example, n is a number from 1 to 255 that corresponds to the number of rings after which your modem answers an incoming call.

Disabling Auto-Answer:	AT**S0=0**
Manually Answering a Call:	AT**A**
Take modem off-hook:	AT**H1**
Hang up modem (on-hook):	AT**H0**
Manually Disconnecting a Call:	**+++**AT**H**

4.   DRIVERS INFORMATION

4.1.   Notes for NDIS Driver

The following are examples of CONFIG.SYS file and AUTOEXEC.BAT for loading System Soft   Card Services and NDIS2 driver:

Examples of CONFIG.SYS file:
    device=c:\cardsoft \ss365sl.exe
    device=c:\cardsoft \cs.exe
    device=c:\cardsoft \csalloc.exe c:\cardsoft\csalloc.ini
    device=c:\lanman.dos\drivers\Ethernet\lmmdis\carden.exe /iop=nnn /irq=n /com=n /mir=n
    device=c:\cardsoft \cardid.exe
    device=c:\lanman.dos\deivers\protman.dos /i:c:\lanman.dos
    device=c:\lanman.dos\drivers\ Ethernet\lmndis\lmndis.dos

Examples of partial AUTOEXEC.BAT file:
    set path= c:\lanman.dos\netprog;%path%
    net start workstation
    load netbeui

The 10/100 Fast Ethernet function configuration information for the DOS NDIS driver is contained in the PROTOCOL.INI file. To make allowances for passing the requested modem COM port (1,2,3,4) to the driver, there has been another field added. The section of the PROTOCOL.INI file that contains configuration information for this card must begin with **[LMNDIS_NIF]**. The valid entries in the file are listed below:

[LMNDIS_NIF]
    DRIVERNAME - LMNDIS$
        This line must always be presend

    IOADDRESS - value
        where value is one of the following address:
            0x220, 0x300, 0x320, 0x340.
        The leading **0x** for the hex notation is required.
        To have Card Services select the address base from it's pool of available address then use a value of 0.

    INTERRUPT - value
        where values is one of the following interrupts:
            3, 4, 5, 7, 9, 10, 11, 12, 15.
        To have Card Services select an available interrupt resource then place a value of 0 at this location.

4.2.   Notes for Packet Driver

The following are examples of CONFIG.SYS file for loading System Soft   Card Services and packet driver:

Examples of partial CONFIG.SYS file:
```
device=c:\cardsoft\ss365sl.exe
device=c:\cardsoft\cs.exe
device=c:\cardsoft\csalloc.exe  c:\cardsoft\csalloc.ini
device=c:\tcpip\carden.exe /iop=nnn /irq=n /com=n /mir=n
device=c:\cardsoft\cardid.exe
device=c:\tcpip\lmpd.com
```

4.3.   Notes for Windows For Workgroups

After installation of the multi-function PCMCIA card drivers, the system will automatically update both CONFIG.SYS and AUTOEXEC.BAT for you so that the driver will be loaded upon system start up. When modifying the two files, the system will make copies named CONFIG.ABO and AUTOEXEC.ABO in the system's directory. If the driver of PC Card is not successfully loaded, replace the two *.ABO file for related file and try to start the system again.

The following are examples of CONFIG.SYS and AUTOEXEC.BAT for loading System Soft
    Card Services and drivers for Windows for Workgroups:

Examples of CONFIG.SYS file:
```
device=c:\cardsoft\ss365sl.exe
device=c:\cardsoft\cs.exe
device=c:\cardsoft\csalloc.exe  c:\cardsoft\csalloc.ini
device=c:\wfw311\carden.exe /iop=nnn /irq=n /com=n  /mir=n
device=c:\cardsoft\cardid.exe
device=c:\wfw311\ifshlp.sys
```

Examples of AUTOEXEC.BAT file:
```
C:\WFW311\NETSTART
```

5. QUESTIONS AND ANSWERS

This chapter provides a number of examples of Questions (Q:), Causes (C:), and Answers (A:). If your modem is not functioning properly, look up the problem here, or ask your dealer for technical assistance.

Q:The modem does not respond to AT commands.
C:The COMx: port that the modem is set to may be used by another card in the computer already.
A:Change the COMx: port of the PC CARD 56K FAX/MODEM modem to a different unused port. It might be best to set it to COM3: or COM4:.   Even if you are not using a serial port which is set to the same COMx: port as the modem, it can still interfere with the modem. Be sure to update your software COMx: port setting as well.
C:The Interrupt that the modem is using may be the same Interrupt that another card is using.
A:Change the IRQ settings to a different, unused, IRQ. Even if you are not using a serial port which is set to the same IRQ as the modem, it can still interfere with the modem.

Q:The modem does not execute the command line.
C:Make sure you are typing 'AT' at the beginning of command line.
C:Make sure the modem is not in Data Mode. type **+++** if necessary.
C:Make sure your software is set to the same COMx: port as the modem is.

Q:The modem does not give a response after an AT command was executed.
C:The echo and/or responses may be turned off by the ATE0Q1 commands. Use AT&V to check that.
A:Use ATE1Q0 then Enter to change them back.
C:Make sure the modem is in Command Mode not in Data Mode when you type the AT command.

Q:The modem gives an 'ERROR' response after an AT command was executed.
C:Make sure you did not type an invalid command.
C:Make sure your command line is 40 characters or less in length.

Q:The modem goes off-hook and disables the telephone line.
C:The modem may be set to auto-answer the phone when it rings.
A:Disable auto-answer by typing ATS0=0 then Enter at the command line.

Q:The modem does not auto-answer the phone.
C:If necessary, make sure the software is configured to auto-answer the phone.
A:To set auto-answer mode on from the AT commands, type ATS0=n then press Enter. The n stands for which number of rings the modem will answer on.
 Ex: ATS0=3 takes the modem answer on the third ring.

Q:The software does not control the modem properly or can not detect the modem.
A:Make sure the software has been set up correctly. Check the initialization and dial strings.
C:Some TSRs (programs that stay in memory after they are loaded) may conflict with the communications software.
A:Try starting your computer without loading any TSRs.

Q:The characters on the screen are doubled.
C:Both the modem and the software have the echo feature turned on.
A:Since only one needs an echo, turn the software echo feature off.
C:The remote modem is echoing your typed characters.
A:Type ATE1 then Enter at the command line. Then turn off the software echo feature.

Q:No text appears on the screen when in data mode.
C:The remote modem is not echoing your typed characters.
A:Type ATE0 then press Enter at the command line. Then turn the software echo feature on.
C:Your software may not be set to use Full Duplex or the remote modem may not be set to use Full Duplex either.
C:The remote modem may be waiting for you to type a command before it will reply with text.

Q:No text appears on the screen when in command mode.
A:If you can't see the characters you are typing, then type ATE1 then press Enter.

Q:The modem does not dial a phone number after you execute the AT dial command.
C:If you are using touch tone dialing on a phone line that requires pulses, then it may not work. Use ATDT in place of ATDP.

Q:When your communications software tells the modem to dial, it does not.
C:Make sure the software dialing prefix is ATDT.
C:Make sure the software and modem are set to the same COMx: port.
C:The modem may not have hung up the phone line since the last call.
A:Change to command mode and type ATH then press Enter.

Q:The modem can connect to some modems, but not others.
C:The remote modem may not support data compression or error correction, which might cause it to take too long to negotiate a link.
A:You might try changing the way the modem negotiates by using the AT&Qn, ATNn, and ATS37=n commands. It might be best to start with AT&Q0N1.

Q:When dialing another modem, you receive a 'CONNECT' response, but nothing else.
C:The remote modem may be waiting for you to type a command. Or try to press Enter for logging on to the remote site.

Q:The modem speaker does not make any sound when you're connecting to another modem.
C:The software may have the speaker disabled.
A:Change the setting in your software or use the ATMn command to turn the speaker on.

Q:The modem disconnects (looses the connection) in the middle of use.
C:The remote modem may have locked up.
C:The telephone switch may have disconnected your call.
C:Your software may have turned off the DTR signal.

Q:The modem does not connect with another modem.
C:There may be a problem with the remote modem if you do not hear the high pitched tone from the remote modem.

Q:Occasionally, the modem gives a burst of errors.
C:The telephone line may be noisy or bad.
A:Hang up the call and try to connect again for getting a better telephone line.
C:If there are other telephones on the same line that your modem is using, someone may have picked up a telephone on that extension.
C:Your telephone line may have the call waiting feature.
A:Try adding '*70,' to your ATDT dialing command line. If it doesn' t help, ask your telephone company how to disable it temporarily.

Q:The modem gets errors in transmitted data randomly.
A:Try to use V.42 or MNP1-4 if possible.
A:Connect the modems at a slower baud rate.

Q:After you download a file, it was not stored on your disk drive.
C:If both modems are using MNP or V.42 protocol, then the flow control may not be enabled.
A:Configure your software to use RTS/CTS flow control. That will cause your computer to pause long enough for the file to be stored to disk.

Q:The text on the screen is not legible.
C:Your software settings may not match the settings on the remote site.
A:Make sure your data bits, stop bits, and parity settings match the settings that the other computer is using. The two most common settings are: 8 data bits, None parity, and 1 stop bit (8,N,1) or 7 data bits, Even parity, and 1 stop bit (7,E,1).
C:If the telephone line is very noisy, you may see corrupted data on your screen.
C:Due to poor telephone line conditions, the modem may have fallen back to a slower communication speed. You may need to change the baud rate setting in your software to match this slower speed. To return the modem to the higher speed, disconnect the link and re-establish again.

Q:When using V.42bis or MNP5, some features are disabled.
C:You may be using a non-streaming protocol, like Xmodem or Ymodem to transfer files. Those are fine unless you are using V.42bis or MNP5
A:When using V.42bis or MNP5, you should use a streaming transfer protocol like Ymodem-G or Zmodem.
A:Configure your software to use hardware flow control (RTS/CTS ON).

Q:When the modem is connecting to another modem, it reports a higher connect baud rate that it is really using.
C:The modem defaults to report the modem-to-computer baud rate when it responds with CONNECT.
A:Go to command mode with your communication program (like Telix) and type ATW2, then press Enter. This tells the modem to report the modem-to-modem baud rate instead

Q:When I run CARDEN, the error message show   C-Card is not enabled successfully"
C:No memory space to map the attribute memory of PCMCIA card.
A:If memory management software e.g. EMM386 has been installed, you have to reserve some areas in upper memory (C000:0 -- EFFF:F) for attribute memory of PCMCIA card during enabling the card.

Example:Device=C:\DOS\EMM386.EXE RAM X=D000-D3FF.
Reserve D000 - D3FF for attribute memory.

C:No free I/O space or interrupt request can be assigned to the PCMCIA card.

A:The LAN/Modem card needs 32 contiguous I/O ports and one interrupt request for LAN. It also need 8 contiguous I/O ports and another interrupt request for 56K Fax/Modem. The LAN ports have to be located at one of the following I/O space. 0x300, 0x320, 0x340, 0x360. The 56K Fax/Modem ports have to be located at one of the 0x2F8, 0x3E8, 0x3E8. Besides for the compatibility consideration with some of the 56K Fax/Modem applications. The Modem interrupt (MIR) is recommended to be assigned at value less than 7 (IRQ3 to 6). Make sure that the resources are available for the LAN/Modem card.

Q:How can I know the LAN/Modem card has been enabled or not ?

A:If the Card Service is installed, you can check by hearing the beep when card insertion.

A:Run CARDEN /CHK to check, if the card has been enabled. The resources allocated for the card are shown as below at the last line of display message.

" IOP=0Xnnn   IRQ=nn   COM=nn   MIR=nn"

Q: How to install the Win 95 driver over SystemSoft CardWorks ?

A:1.Start the Win 95 then plug the LAN/Modem card into the PCMCIA slot. The SystemSoft Cardwizard window should appear.

2.Select the appropreate slot number which the LAN/Modem card is plugged in.

3.Select **View** pull down menu

4.Select **Properties**.

5.Select **Drivers** in **Properties.**

6.Select **Change Card Driver** to active the selective items above it.

7.Select **Use Plug and Play.**

8.Press **OK**. Win 95 will request to withdraw the card.

9.Insert the card again.

10.Follow the instruction to insert the diskette and input the path **A:** for LAN/Modem driver.

11.Add client and service as you wanted by **Network** Icon in **Control Panel**.

12.Reboot the system

Q: The Netware driver runs successfully but fails to login on to the Netware server

C: Frame type imcompatiable with server.

A: The default frame type for Netware 3.11 and before is 802.3 but it changed to 802.2 in Netware 4.x and 3.12. You may check the content of NET.CFG to see if the frame type is accepted by the server or not. If the frame type can not be accepted by server, edit NET.CFG to change the frame type at client site or add the frame type which can be accepted at sever site.

APPENDIX A: NDIS2 AND ODI DRIVERS FOR WFW 3.11

NDIS2 Driver for Workgroups

1. Run Windows for Workgroups and click **Network Setup** icon in **Network** group.
2. In **Network Settings** dialog box, click **Networks...** button to select the network operating system.
3. In **Networks** dialog box, check the radio button before **Install Microsoft Windows Network** and **No Additional Network**. Press **OK** to go back the **Network Settings** screen.
4. Click **Drivers...** button to select network driver.
5. In **Network Drivers** dialog box, press **Add Adapter...** button to enter **Add Network Adapter** dialog box. Select **Unlisted or Updated Network Adapter** then press **OK**.
6. Windows will prompt a **Install Driver** dialog box. In this time, put the driver diskette into floppy drive then press **OK**.
7. Select the **Real mode NDIS2 for...** string then press **OK**.
8. Follow Windows instructions to complete the installation and exit Windows.
9. Run INSTALL.EXE from root directory of driver diskette.
10. Select **Windows for Workgroup** in Network Operating System screen.
11. If current settings are acceptable, select **Start Installation** and go to step 13. Otherwise, select **Modify Parameters** to make settings changed.
12. Move cursor to the setting you want to make a change for then press **Enter** to select a fit value. When the configuration is set completely, press **Enter** on the **OK** field to exit the screen then go back to step 11.
13. Select **NDIS Server(LAN Manager,...)** as the network server that you will attach to then press **Enter** key.
14. Installation program starts to copy related files to the destination directory and modifies AUTOEXEC.BAT under user's agreement.
15. Reboot the computer to let the driver take effect.

ODI Driver for Workgroups

1. Run Windows for workgroups and click **Network Setup** icon in **Network** group.
2. In **Network Settings** dialog box, click **Networks...** button to select the network operating system.
3. In **Networks** dialog box, check the radio button before **Install Microsoft Windows Network** and **Others:**. Select **Netware Shell, 3.X or 4.0 and above**, then press **OK** to go back the **Network Settings** screen.
4. Click on **Drivers...** button to select network driver.
5. In **Network Drivers** dialog box, press **Add Adapter...** button to enter **Add Network Adapter** dialogbox. Select **Unlisted or Updated Network Adapter** then press **OK**.
6. Windows will prompt a **Install Driver** dialog box. In this time, put the driver diskette into floppy drive then press **OK**.
7. Select the **Netware ODI Driver ...** string then press **OK**.
8. Follow Windows' instructions to complete the installation and exit Windows.
9. Run INSTALL.EXE from root directory of driver diskette.
10. Select **Windows for Workgroup** in Network Operating System screen.
11. If current settings are accepted, select **Start Installation** and go to step 13. Otherwise, select **Modify Parameters** to make settings changed.

12. Move cursor to the setting you want to make a change for then press **Enter** to select a fit value. When the configuration is set completely, press **Enter** on the **OK** field to exit the screen.
13. Select **Novell Netware Server** as the network server that you will connect to then press **Enter** key.
14. Installation program starts to copy related files to the destination directory and modifies AUTOEXEC.BAT and NET.CFG under user   agreement.
15. Reboot the computer to let the driver take effect.

APPENDIX B: UNINSTALLATION THE 10/100 FAST ETHERNET + FAXMODEM IN WIN 95/98

When you face the installation problems of LAN/56K Fax/Modem PC Card, you need to uninstall the PC Card and install it once again. This uninstallation guide is used to conduct the users to fully uninstall the LAN/56K Fax/Modem properties in Windows 95/98.

1. Remove the **Multi-function adapters** properties
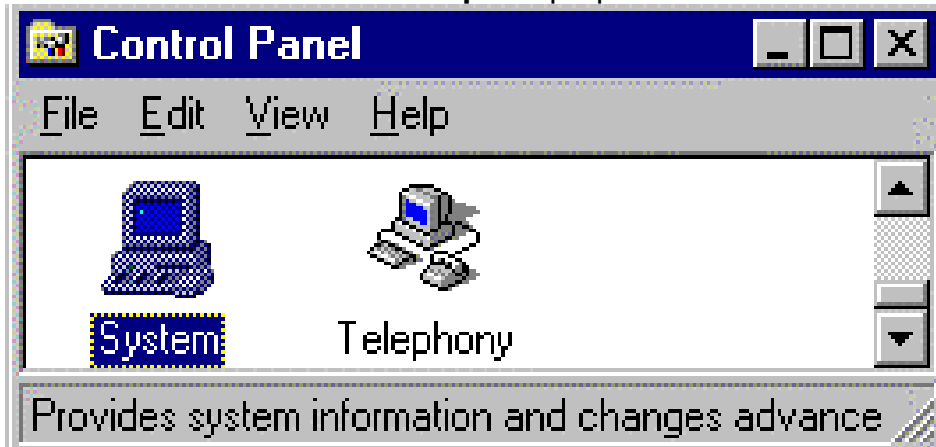
    from the **Device Manager** folder of **System** in **Control Panel** program group.

    Supposedly the **Intelligent xxxxx (Modem) Card** in **Modem** properties and the **Intelligent xxxxx (10/100 Fast Ethernet) Card** in **Network adapters** properties will be removed automatically. If not, remove them manually.

2. Click **Start** button in Windows 95/98 main screen
3. then select **Run...**
4. Insert the 10/100 Fast Ethernet + 56K Fax/Modem Program (Driver) Disk, then enter **A:\delinf.exe** then click on **OK**.
5. Re-start Windows 95/98. Now the 10/100 Fast Ethernet + 56K Fax/Modem PC Card is completely uninstalled.
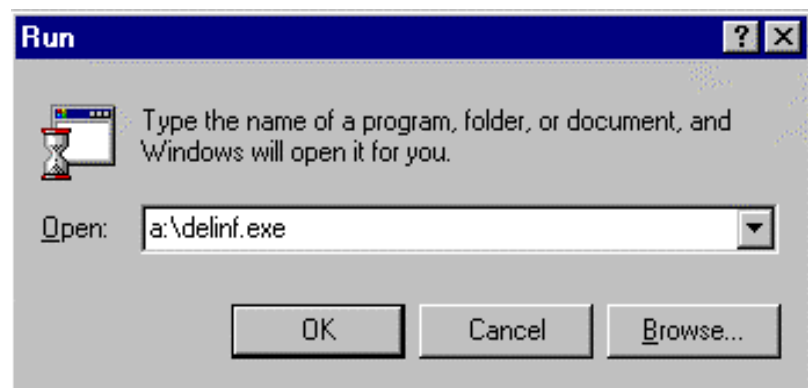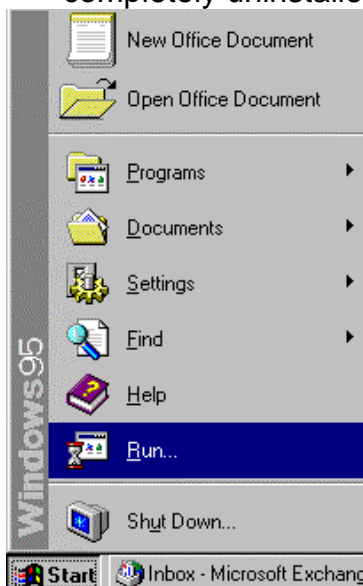
APPENDIX C: AT COMMAND QUICK REFERENCE

Modem AT Commands

Basic AT Command Set

Command	Options	Function & Description
A/		Re-execute the last command string
<any key>		Terminate the current connection attempt when entered in handshaking state
All the following commands require an "AT" prefix		
A		Go off-hook and attempt to establish a connection without waiting for a ring
Bn		Line modulation options
	B0	Select V.22 mode for 1200 bps connection
	B1 *	Select Bell 212A for 1200 bps connection
	B2	Select V.23 1200 bps for receiving, 75 bps for transmitting in originate mode; 75 bps for receiving and 1200 bps for transmitting in answer mode
	B3	Select V.23 75 bps for receiving, 1200 bps for transmitting in originate mode; 1200 bps for receiving and 75 bps for transmitting in answer mode
	B15	Select V.21 for 300 bps connection
	B16	Select Bell 103 for 300 bps connection
Dn		Dial command, beginning the dialing sequence. The string "n" (telephone number and modifiers) listed as follows is entered after the "D" command
	L	Re-dial last number. Should be the first character following ATD, ignored otherwise
	P	Pulse dial.
	R	Reverse dial. Originate call in answer mode (go on-line in answer mode)
	S=n	Dial the phone number stored in NVRAM at location "n" (n=0, 1, 2, 3)
	T	DTMF tone dial.
	W	Wait for second dial tone. The modem waits for the second dial tone before processing the dial string
	,	Pause. Cause the modem to pause for a time before processing the next character in the dial string (specified by S8 register)
	!	Hook Flash (for call transfer). Cause the modem to go on-hook for 0.5 second then return to off-hook
	@	Wait for 5 seconds of silence after dialing number
	;	Return to command state after dialing a number without disconnecting the call
En		AT command echo options
	E0	Echo disabled
	E1 *	Echo enabled
Hn		Switch-hook control

	H0 *	Modem goes on-hook
	H1	Modem goes off-hook
Mn		Speaker control
	M0	Speaker always off
	M1 *	Speaker on until carrier present
	M2	Speaker always on
	M3	Speaker off during dialing and on until carrier present
Nn		Select negotiate handshake
	N0	When originating or answering, handshake only at the communication rate specified by S37 register and "ATBn" and no fallback
	N1 *	When originating or answering, start handshaking only at the communication standard specified by S37 register and "ATBn". During handshake, fallback to a lower speed may occur.
On		Go on-line
	O0	Return modem to a previously established state (return to data mode).
	O1	Begin a retrain sequence, then return to on-line state.
	O3	Issue a rate re-negotiation, then return to on-line state.
P		Enable pulse dialing (Disabled in CTR 21 approved models)
Qn		Result code display options
	Q0 *	Result code enabled
	Q1	Result code disabled
T		Enable tone dialing
Vn		Result code form
	V0	Display result code in numeric form (see also the result code options table)
	V1 *	Display result code in verbose (text) form
Wn		Select extended result code options
	W0*	CONNECT result code reports DTE speed. Disable protocol result codes. (see also the "Result Code Options Table")
	W1	CONNECT result code reports DTE speed. Enable protocol result codes.
	W2	CONNECT result code reports DCE speed. Enable protocol result codes.
Xn		Select result codes/call progress options
	X0	Display CONNECT or "1" for all speeds. Ignore dial tone and busy tone detection.
	X1	Display connect message and the modem's data rate, and an indication of the modem's error correction and data compression. Ignore dial tone and busy tone detection.
	X2	Display connect message and the modem's data rate, and an indication of the modem's error correction and data compression. Check dial tone before proceeding dialing, ignore busy tone detection.

	X3	Display connect message and the modem's data rate, and an indication of the modem's error correction and data compression. Ignore dial tone before proceeding dialing, check busy tone after making dialing.
	X4 *	Display connect message and the modem's data rate, and an indication of the modem's error correction and data compression. Check dial tone and busy tone.
	X5	Same as X4.
	X6	Same as X4.
	X7	Display CONNECT or "1" for all speeds. Check dial tone and busy tone.
Zn		Recall stored profile
	Z0	Reset and recall user profile 0. Either Z0 or Z1 restores the same single profile.

*   Manufacturer default

Extended "AT&" (Ampersand) Command Set

Command	Options	Function & Description
&Cn		Data carrier detect option
	&C0	State of carrier from remote modem is ignored. DCD circuit is always on
	&C1 *	DCD turns on when the remote modem's carrier signal is detected, and off when the carrier signal is not detected.
&Dn		Data Terminal Ready (DTR) option.
	&D0	DTR ignored
	&D1	Go to command mode on on-to-off DTR transition
	&D2 *	Hang up and go to command mode on on-to-off DTR transition. Auto-answer is disabled if DTR is low
	&D3	Hang up and reset from user profile 0 on the on-to-off DTR transition
&F		Recall factory default setting as active configuration
&Gn		V.22bis guard tone option
	&G0 *	No guard tone
	&G1	550 Hz guard tone
	&G2	1800 Hz guard tone
&Kn		Set local flow control
	&K0	Disable flow control
	&K3 *	Enable bi-directional hardware flow control (CTS/RTS)
	&K4	Enable bi-directional software flow control (XON/XOFF)
&Pn		Pulse dialing make/break ratio selection
	&P0	Make=39%, Break=61%, international version (Default)
		Make=33%, Break=67% for use in 20 pps, Japanese version
	&P1	Make=33%, Break=67%, international version
		Make=33%, Break=67% for use in 10 pps, Japanese version (Default)
&Qn		Async communications mode options
	&Q0	Async mode, buffered (same as "AT\N0")
	&Q5 *	Error control mode, buffered (same as "AT\N3")

	&Q8	MNP error control mode. If an MNP error control protocol is not established, the modem will fallback according to the current setting in S36 register.
	&Q9	V.42 or MNP error control mode. If neither error control protocol is established, the modem will fallback according to the current setting in S36 register.
&Sn		Data Set Ready (DSR) option
	&S0 *	DSR always on
	&S1	DSR on during handshake and on-line, off in test mode or idle mode
&Tn		Self-test commands
	&T0	Terminate any test in progress
	&T1	Local analog loopback test
	&T3	Local digital loopback (LDL) test
	&T6	Remote digital loopback test, in normal mode
&V		View active file and stored phone numbers
&W		Store active configuration into the modem's NVRAM
&Zn=x		Store telephone number 　　n=0 to 3 　　x=<string>　 see also the dial modifier 　　　　　　　　　in "ATDn" command The max. number of digits per string is 40.

*　　　　Manufacturer default

Extended "AT\" (Back Slash) Command Set

Command	Options	Function & Description
\Jn		Constant DTE speed option
	\J0 *	DCE and DTE rates are independent
	\J1	Force the DTE interface speed to the DCE connection rate (line speed) after on-line
\Nn		Error control mode options
	\N0	Buffered mode, no error control (flow control is allowed).
	\N1	Direct mode, no error control (no flow control is allowed).
	\N2	MNP reliable mode. If MNP 2-4 error control establishment fails, the modem disconnects.
	\N3 *	V.42, MNP or buffer mode. The modem attempts to connect in V.42 mode. If this fails, the modem attempts to connect in MNP mode. If this fails, the modem connects in buffer mode.
	\N4	V.42 or disconnect. The modem attempts to connect in V.42 mode. If this fails, the call will be disconnected.
\Qn		Local flow control options
	\Q0	Disable flow control (same as "AT&K0")
	\Q1	XON/XOFF software flow control (same as "AT&K4")
	\Q3 *	RTS/CTS hardware flow control (same as "AT&K3")
\Tn		Set inactive timer (for buffer mode only)
	n=0 *	Disable inactive timer
	n=1 - 255	Enable inactive timer. Length in minutes
\Vn		Protocol result codes

	\V0	Disable protocol result code appended to DCE speed
	\V1 *	Enable protocol result code appended to DCE speed

*   Manufacturer default

Extended "AT%" (Percent) Command Set

Command	Options	Function & Description
%B		View numbers in blacklist. If blacklisting is in effect, this command displays the numbers for which the last call attempted in the past two hours failed. The ERROR result code appears in the countries that do not require blacklisting.
%Cn		Data compression control
	%C0	No data compression
	%C1 *	V.42bis/MNP 5 data compression enabled.

*   Manufacturer default

Extended "AT-" (Dash) Command Set

Command	Options	Function & Description
-Cn		Data calling tone options
	-C0 *	Disable data calling tone
	-C1	Enable data calling tone (the freq. is 1,300 Hz with a cadance of 0.5 sec. ON and 2 sec. OFF)

*   Manufacturer default

Result Code Options

Result Code Options Table

ATV0	ATV1	X0	X1	X2	X3	X4	X7
0	OK	✓	✓	✓	✓	✓	✓
1	CONNECT	✓	✓	✓	✓	✓	✓
2	RING	✓	✓	✓	✓	✓	✓
3	NO CARRIER	✓	✓	✓	✓	✓	✓
4	ERROR	✓	✓	✓	✓	✓	✓
5	CONNECT 1200 EC*		@	@	@	@	
6	NO DIAL TONE		✓			✓	✓
7	BUSY				✓	✓	✓
8	NO ANSWER	✓	✓	✓	✓	✓	✓
10	CONNECT 2400 EC *		@	@	@	@	
11	CONNECT 4800 EC *		@	@	@	@	
12	CONNECT 9600 EC *		@	@	@	@	
13	CONNECT 14400 EC *		#	#	#	#	
14	CONNECT 19200 EC *		@	@	@	@	
18	CONNECT 57600 EC *		%	%	%	%	
24	CONNECT 7200 EC *		#	#	#	#	
25	CONNECT 12000 EC *		#	#	#	#	
28	CONNECT 38400 EC *		%	%	%	%	
40	CONNECT 300 EC *		@	@	@	@	
55	CONNECT 21600 EC *		#	#	#	#	
56	CONNECT 24000 EC *		#	#	#	#	

57	CONNECT 26400 EC *	#	#	#	#	
58	CONNECT 28800 EC *	#	#	#	#	
59	CONNECT 31200 EC *	#	#	#	#	
60	CONNECT 33600 EC *	#	#	#	#	
70	CONNECT 32000 EC *	#	#	#	#	
71	CONNECT 34000 EC *	#	#	#	#	
72	CONNECT 36000 EC *	#	#	#	#	
73	CONNECT 38000 EC *	#	#	#	#	
74	CONNECT 40000 EC *	#	#	#	#	
75	CONNECT 42000 EC *	#	#	#	#	
76	CONNECT 44000 EC *	#	#	#	#	
77	CONNECT 46000 EC *	#	#	#	#	
78	CONNECT 48000 EC *	#	#	#	#	
79	CONNECT 50000 EC *	#	#	#	#	
80	CONNECT 52000 EC *	#	#	#	#	
81	CONNECT 54000 EC *	#	#	#	#	
82	CONNECT 56000 EC *	#	#	#	#	
86	CONNECT 16800 EC *	#	#	#	#	
87	CONNECT 115200 EC *	%	%	%	%	
88	DELAYED **					
89	BLACKLISTED **					
90	BLACKLIS FULL **					
100	CONNECT 28000	#	#	#	#	
101	CONNECT 29333	#	#	#	#	
102	CONNECT 30666	#	#	#	#	
103	CONNECT 33333	#	#	#	#	
104	CONNECT 34666	#	#	#	#	
105	CONNECT 37333	#	#	#	#	
106	CONNECT 38666	#	#	#	#	
107	CONNECT 41333	#	#	#	#	
108	CONNECT 42666	#	#	#	#	
109	CONNECT 45333	#	#	#	#	
110	CONNECT 46666	#	#	#	#	
111	CONNECT 49333	#	#	#	#	
112	CONNECT 50666	#	#	#	#	
113	CONNECT 53333	#	#	#	#	
114	CONNECT 54666	#	#	#	#	

@ DTE/DCE speed

DCE speed (line speed)

% DTE speed

* EC only appears when the Extended Result Code options are enabled

** For Blacklisting function enabled countries only

Extended Result Code Options Table

ATV0	ATV1	W0	W1	W2	W2\V0
5	CONNECT 1200	✓			✓
5	CONNECT 1200 EC*		✓	✓	
10	CONNECT 2400	✓			✓

No.	Model				
10	CONNECT 2400 EC *		✓	✓	
11	CONNECT 4800	✓			✓
11	CONNECT 4800 EC *		✓	✓	
12	CONNECT 9600	✓			✓
12	CONNECT 9600 EC *		✓	✓	
13	CONNECT 14400				✓
13	CONNECT 14400 EC *			✓	
14	CONNECT 19200	✓			✓
14	CONNECT 19200 EC *		✓	✓	
18	CONNECT 57600	✓			
18	CONNECT 57600 EC *		✓		
24	CONNECT 7200				✓
24	CONNECT 7200 EC *			✓	
25	CONNECT 12000				✓
25	CONNECT 12000 EC *			✓	
28	CONNECT 38400	✓			✓
28	CONNECT 38400 EC *		✓	✓	
40	CONNECT 300	✓			✓
40	CONNECT 300 EC *		✓	✓	
55	CONNECT 21600				✓
55	CONNECT 21600 EC *			✓	
56	CONNECT 24000				✓
56	CONNECT 24000 EC *			✓	
57	CONNECT 26400				✓
57	CONNECT 26400 EC *			✓	
58	CONNECT 28800				✓
58	CONNECT 28800 EC *			✓	
59	CONNECT 31200				✓
59	CONNECT 31200 EC*			✓	
60	CONNECT 33600				✓
60	CONNECT 33600 EC *			✓	
70	CONNECT 32000				✓
70	CONNECT 32000 EC*			✓	
71	CONNECT 34000				✓
71	CONNECT 34000 EC*			✓	
72	CONNECT 36000				✓
72	CONNECT 36000 EC*			✓	
73	CONNECT 38000				✓
73	CONNECT 38000 EC*			✓	
74	CONNECT 40000				✓
74	CONNECT 40000 EC*			✓	
75	CONNECT 42000				✓
75	CONNECT 42000 EC*			✓	
76	CONNECT 44000				✓
76	CONNECT 44000 EC*			✓	
77	CONNECT 46000				✓
77	CONNECT 46000 EC*			✓	
78	CONNECT 48000				✓

78	CONNECT 48000 EC*		✓	
79	CONNECT 50000			✓
79	CONNECT 50000 EC*		✓	
80	CONNECT 52000			✓
80	CONNECT 52000 EC*		✓	
81	CONNECT 54000			✓
81	CONNECT 54000 EC*		✓	
82	CONNECT 56000			✓
82	CONNECT 56000 EC*		✓	
86	CONNECT 16800			✓
86	CONNECT 16800 EC *		✓	
87	CONNECT 115200	✓		
87	CONNECT 115200 EC *		✓	

* EC is replaced by one of the following symbols.

V.42bis	V.42 error control and V.42bis data compression
V.42	V.42 error control only
MNP5	MNP 4 error control and MNP 5 data compression
MNP4	MNP 4 error control only
NoEC	No error control and data control protocols

APPENDIX D: S-REGISTERS QUICK REFERENCE

S-Registers,   TSn=x"

Register	Dec.	Function & Description	Default
S0=	0 - 255	Set the number of the rings required before the modem automatically answers a call. Set 0=0" to disable auto-answer mode	000
S1=	0 - 255	Count the incoming rings and store the value to this register. The value of this register is incremented with each ring. If no rings occur over an 8 sec. interval, this register is cleared. User can read but should not change this value	000
S2=	0 - 255	S2 holds the decimal value of the ASCII character used as the escape character. The default value (043) corresponds to an ASCII character "+". A value of 128 to 255 disables the escape process, i.e., no escape character will be recognized	043
S3=	0 - 127	Hold the decimal value of the Carriage Return <CR> character used as the command line and result code terminator. Pertain to asynchronous operation only	013
S4=	0 - 127	Hold the decimal value of the character recognized as a line feed. The line feed control character is output after the carriage return control character if verbose result code are used.	010
S5=	0 - 32, 127	Hold the decimal value of the character recognized as a backspace. The modem will not recognize the backspace character if this register is set to a value greater than 32	008
S6=		Set the length of time, in seconds, that the modem must wait (minimum 2 seconds even if the value is less than 2) after going off-hook before dialing the first digit of the telephone number	
	2 - 65	For international version	002
	4 - 65	For Japanese version	004
S7=		Set the time, in seconds, that the modem must wait before hanging up because carrier is not detected	
	1 - 255	For international version	050
	35 - 59	For Japanese version	050
S8=	0 - 65	Set the time, in seconds, that the modem must pause when the "," dial modifier is encountered in the dial string	002
S10=	1 - 255	Set the length of time, in tenths of a second, that the modem waits before hanging up after a loss of carrier	020
S11=	50 - 150	DTMF duration and inter digit delay. Set the duration and spacing, in mini-seconds, in DTMF touch tine dialing	095

S12=	0 - 255	Define the maximum period, in 2-hundredths of a second, allowed between consecutive asynchronous escape character "+" (plus) for the escape sequence to be considered valid	050
S28=	0 - 255	V.34 modulation en-/disabler 0: disabled 1- 255: enabled	001
S30=	0 - 90	Inactivity timer. Set the length of time, in minutes, that the modem counts when there is no data flow in or out the DTE serial port. A connection is disengaged when the counter reaches the preset value. Set S30 =0 to disable the inactivity timer. For buffer mode only.	000
S36=		Negotiation fallback options	007
	0, 2	Hang up	
	1, 3	Fall back to an async connection	
	4, 6	Attempt MNP mode. If MNP fails, hang up.	
	5, 7	Attempt MNP mode. If MNP fails, fallback to async connection.	
S37=		Desired DCE speed (line speed)	000
	0	Maximum modem speed	
	2	Attempt 1200/75 bps connection	
	3	Attempt to a 300 bps connection	
	5	Attempt to a 1200 bps connection	
	6	Attempt to a 2400 bps connection	
	7	Attempt to a 4800 bps connection	
	8	Attempt to a 7200 bps connection	
	9	Attempt to a 9600 bps connection	
	10	Attempt to a 12000 bps connection	
	11	Attempt to a 14400 bps connection	
	12	Attempt to a 16800 bps connection	
	13	Attempt to a 19200 bps connection	
	14	Attempt to a 21600 bps connection	
	15	Attempt to a 24000 bps connection	
	16	Attempt to a 26400 bps connection	
	17	Attempt to a 28800 bps connection	
	18	Attempt to a 31200 bps connection	
	19	Attempt to a 33600 bps connection	
S38=		56K Dial Line Rate Options. Set the max. 56K downstream speed that the modem attempts to connect (Selection for K56flex mode)	001
	0	56K disabled	
	1	56K enabled, auto-speed selection, max. modem speed	
	2	32000 bps	
	3	34000 bps	
	4	36000 bps	
	5	38000 bps	

	6	40000 bps	
	7	42000 bps	
	8	44000 bps	
	9	46000 bps	
	10	48000 bps	
	11	50000 bps	
	12	52000 bps	
	13	54000 bps	
	14	56000 bps	
S38=		56K Dial Line Rate Options. Set the max. 56K downstream speed that the modem attempts to connect.(Selection for V.90 mode)	001
	0	V.90 Disabled	
	1	V.90 auto-speed selection max. modem speed	
	2	28800 bps	
	3	29333 bps	
	4	30666 bps	
	5	32000 bps	
	6	33333 bps	
	7	34666 bps	
	8	36000 bps	
	9	37333 bps	
	10	38666 bps	
	11	40000 bps	
	12	41333 bps	
	13	42666 bps	
	14	44000 bps	
	15	45333 bps	
	16	46666 bps	
	17	48000 bps	
	18	49333 bps	
	19	50666 bps	
	20	52000 bps	
	21	53333 bps	
	22	54666 bps	
	23	56000 bps	

S48=	7, 128	LAPM error control and feature negotiation.	

		S48=7
		    Negotiation enabled
		S48=128
		    Negotiation disabled. Force immediate fallback options specified in S36
		S36=0 or 2, and S48=7
		    LAPM or hang up
		S36=0 or 2 and S48= 128
		    Don use
		S36=1 or 3, and S48=7
		    LAPM or async
		S36=1 or 3, and S48=128
		    Async
		S36=4 or 6, and S48=7
		    LAPM, MNP or hang up
		S36=4 or 6, and S48=128
		    MNP or hang up
		S36=5 or 7, and S48=7
		    LAPM, MNP or async
		S36=5 or 7, and S48=128
		    MNP or hang up	

S89=	0, 5 - 60	Sleep mode control timer. Specify the number of seconds of inactivity (no character sent from DTE, no RING) in the off-line command state before the modem places itself into standby mode. A value of "0" prevents standby mode. If a number between 1 and 4 is entered for this register, it will set the value to 5	030
S91=	6 - 15	Transmitting power level adjustment (Japanese version only) Range: -6 dBm to -15 dBm Default: -15 dBm	014