

External Fax Modem Installation Guide

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Hardware Introduction

This 56K* or 33.6K PnP (Plug-N-Play) External Voice/Data/Fax Modem allows your computer to connect to an ISP supporting K56Flex_ or V.34+ protocols (depending on your model). This manual describes the hardware and software installation procedures for your new 56K or 33.6K external modem.

Features

- K56Flex_ (56K) or 33.6K bps operation (depending on your model)
- Plug-N-Play installation to get you up and running in minutes
- Telephone Answering Machine and Voice Mail capabilities
- Transmits data up to 115,200 bps with compression
- Background broadcast fax send and receive
- Free technical support
- Full-duplex speakerphone (optional feature)

*The K56Flex_ model is capable of 56K downloads. However, due to FCC rules which restrict the power output of your ISP's modems, current download speeds are limited to 53K bps. Depending on the conditions of your telephone lines, full 53K bps connections may not be achieved. In these cases, you will achieve speeds up to 53K bps.

Getting Started

Preparation

Be certain that you have all the items listed below. This package contains:

- An External fax/modem
- This user's manual
- Communication software and installation diskette(s)
- Software user's manual
- An interface cable
- An external power adapter
- A telephone cable

Note: Depending on the model, a microphone and/or speaker cable may be included

What You Need

1. **A) Plug-N-Play enabled Operating System (e.g. Windows 95) or**
B) Plug-N-Play Revision 1.0a compliant PC (see your computer manual)
2. "Unimodem V" Drivers installed. (see **Before You Begin** on the next page)

Before You Begin

Installing Unimodem V:

In order for the voice functions of the modem to work properly under 32-bit Telephony API (TAPI) applications, you need to install the unimodem V components of Windows 95. If you have Windows 95 OEM Service Release 2; Version 4.00.950 B; you do not need to download this file as it may already be built into the operating system.

To find the Windows 95 Version on your system, select: **Start** | **Settings** | **Control Panel** | double-click on the **System** icon. If the version of Windows 95 is 4.00.950 or 4.00.950A, download the Unimodem V driver set from the Microsoft web page which is usually located at:

<http://www.microsoft.com/kb/articles/q139/3/83.htm>

Note: Driver location subject to change. Typically under: Microsoft | Download Free Software | Support Drivers, Patches & Service Packs | Software Support Library | Windows 95 | Modem Drivers | Unimodem/Telephony V.

The file is called **UNIMODV.EXE** under the listing of **Unimodem/Telephony V**. Follow your web browser instructions on how to download the Unimodem V driver. Place the UNIMODV.EXE file into a temporary folder on the hard drive. Double click the UNIMODV. EXE file icon and it will self-extract.

UNIMODV will extract a series of files and place them into the temporary folder you created on the hard drive. Using "**Windows Explorer**" or "**My Computer**", go to the temporary folder where the UNIMODV files are stored. Place the cursor over the icon for file: UNIMODV.INF. Click the right mouse button and choose the **INSTALL** option. This will install the Unimodem drivers. You must **restart** the computer to enable the drivers. After Windows restarts the system with the drivers enabled, you may proceed to the section: **Installing the Modem.**

Installing the Modem

Installing the Interface Cables

The drawing below shows the side panel of the external fax/modem and the correct cable installation. The computer interface cable has both 9-pin and 25-pin serial port connectors for use on most computers (see your computer owners manual for the location and function of your serial [COM] ports).

Note: Connect only one connector (either 9 pin or 25 pin as appropriate) to your computers serial (COM) port. Do not connect both.

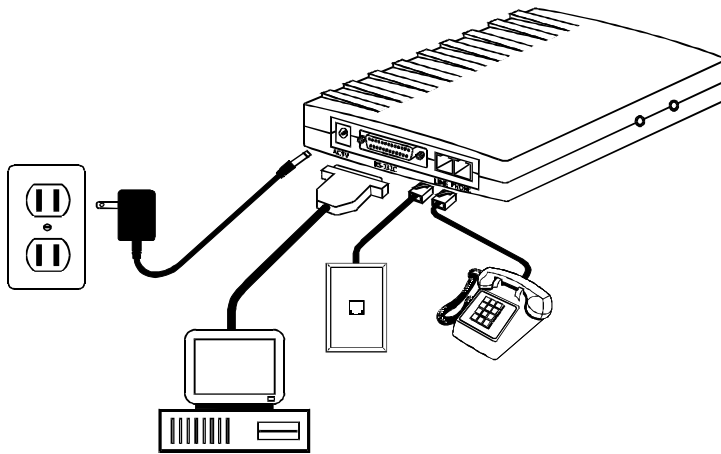


Fig 1: Connecting the Cables

◆ **Caution.** Always discharge static electricity before handling your modem. You may discharge static electricity by touching a grounded metal structure or by using any commercially available grounding strap.

◆ **Caution.** The modem will be damaged if you use a digital phone line. Since some homes and most businesses have digital phone lines, before connecting your modem to a phone jack you are unsure of; a phone jack at work for example; ask if the phone system is digital.

Connecting Auxiliary Devices to the Modem

On the front panel of your modem are input jacks to connect two additional devices to the modem.* There are jacks for connection to an external *microphone* and also to an output device for sound (external *speakers* or *headphones*). In order to access the speakerphone functions of the modem, an external microphone and external powered speakers are necessary attachments for the transmission of sound. _

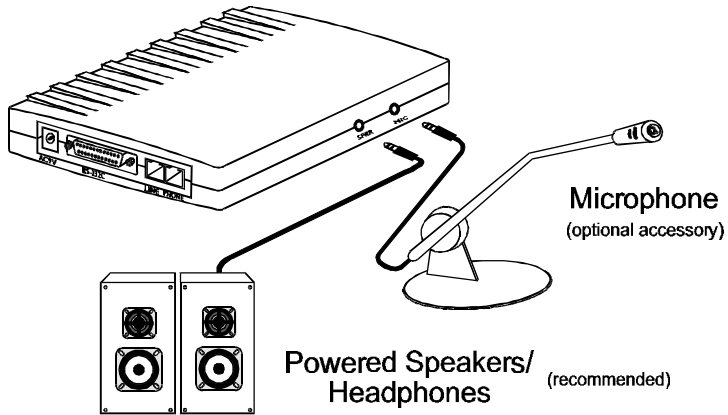


Fig 2: Installing Speakerphone* Peripherals

* Some Models of the External Fax/Modem do not have these features. However, voice functions are available by using the telephone handset.

_ Depending on the model number, a microphone and or speaker cable may be included with your modem package .

Modem Controls and Indicators

One side of the modem contains the power switch and modem indicator lights. These are shown in the drawing below:

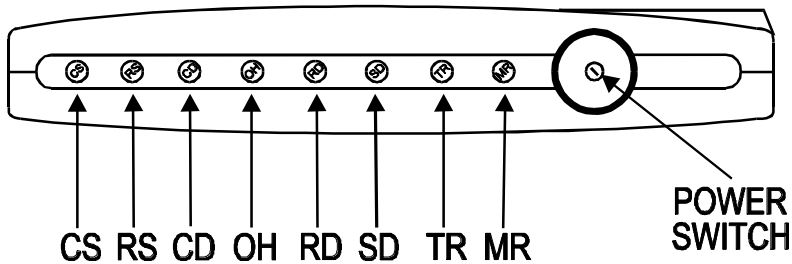


Fig. 3: Modem Indicators and Controls

The power switch is a push-on/push-off type. This switch controls the ON and OFF state of the modem. Please note that the external power adapter shown in fig. 1 also needs to be correctly installed for power to be applied to the modem.

The LED (light emitting diode) indicators report modem status. They are:

CS (Clear to Send)	On when CTS signal is active
RS (Request to Send)	On when RTS signal is active
CD (Carrier Detect)	On when remote carrier has been detected
OH (Off Hook)	On when the modem is off hook
RD (Receive Data)	On when the modem is receiving data
SD (Transmit Data)	On when the modem is sending data
TR (Terminal Ready)	On when DTR signal is active
MR (Modem Ready)	On when power is applied to the modem

Hardware Configuration

The standard configuration for your modem is for it to use one of your computers available serial ports. In most systems, "COM2" is the serial port most often available. Depending on the operating system you are using, installation will be manual or Plug-N-Play. Plug-N-Play operating systems will automatically detect the modem and prompt you for the installation diskette(s).

Consult your PC owner's manual to determine if it is Plug-N-Play Revision 1.0a compliant. You most likely have a Plug-N-Play Revision 1.0a compliant system if it was purchased after June 1994, or if the computer's BIOS is dated after June 1994.

Proceed to one of the following sections, depending on your system's configuration:

- *Configuring Windows 3.1X*
(Running Windows 3.1X on a system with or without PnP BIOS)
- *Configuring your modem under Windows 95*
(Running Windows 95 with or without a system with PnP BIOS)
- *Configuring your modem under Windows NT*
(Running Windows NT with or without a system with PnP BIOS)

Configuring Windows 3.1X

Since your fax modem uses a preexisting COM port, configuration should be automatic. The communications software provided will search for and recognize the modem for you. Proceed to the section: **Software Installation and Configuration** to complete your modem installation.

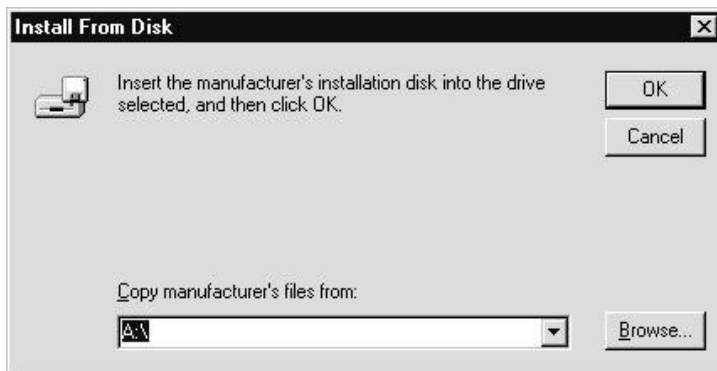
Configuring in Windows 95

Step 1 Upon startup, Windows 95 detects the modem and displays the **New Hardware Found** dialog box.



Select "Driver from disk provided by hardware manufacturer" then Click **OK**.

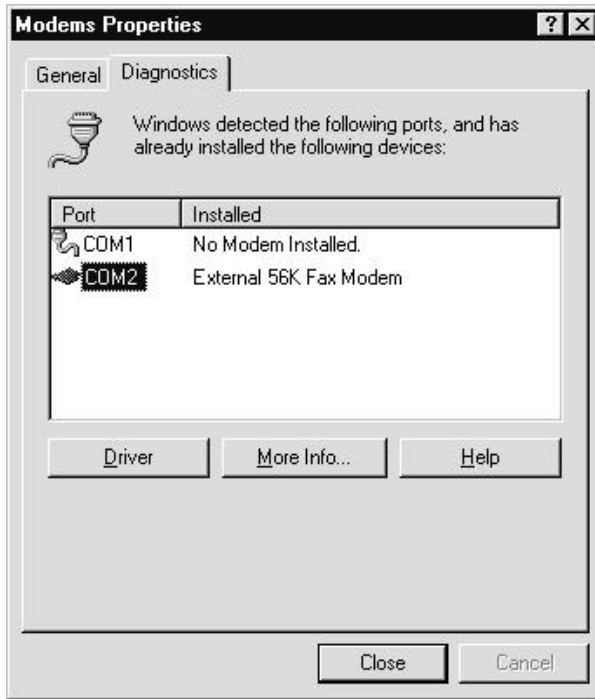
Step 2 Insert the diskette containing the modem's Windows 95 .INF files and click **OK**.



- Step 3 After the installer has copied the .INF files to the hard disk, a **New Hardware Found** dialog box should appear prompting for the “Wave Device for Voice Modem”. Click **OK**. (see **Before You Begin** for information on UNIMODV.INF if this screen does not appear)



- Step 4 Click **OK** to copy the Wave Device .INF file from the A:\ drive to the hard drive. Windows 95 may request its own installation diskettes for some files. Insert the Windows 95 disks or CD-ROM as required.
- Step 5 To determine what COM port and IRQ is assigned to the modem in Windows 95, click on the **Modems** icon in **Control Panel** and run **Diagnostic**. Click on the COM Port icon then **More Info** to view the modem properties.



Step 6 Remember this COM port number. When you install your Data/Fax software, you will need to set your modem port location to this same number.

Configuring in Windows 95 OEM Service Release 2

- Step 1 Upon startup, Windows 95 detects the modem and launches the **Update Device Driver Wizard** dialog box. Insert the diskette containing the modem's .INF files and click **Next >**.



- Step 2 After Windows 95 has found the updated drivers for your modem, click **Finish**.



Step 3

After the Wizard has copied the .INF files to the hard disk, it should detect “Wave Device for Voice Modem” or similar verbiage, and prompt for its driver. Click **Next >**.

(if you do not see this screen, go to the section: **Before You Begin** for information on UNIMODV. INF)



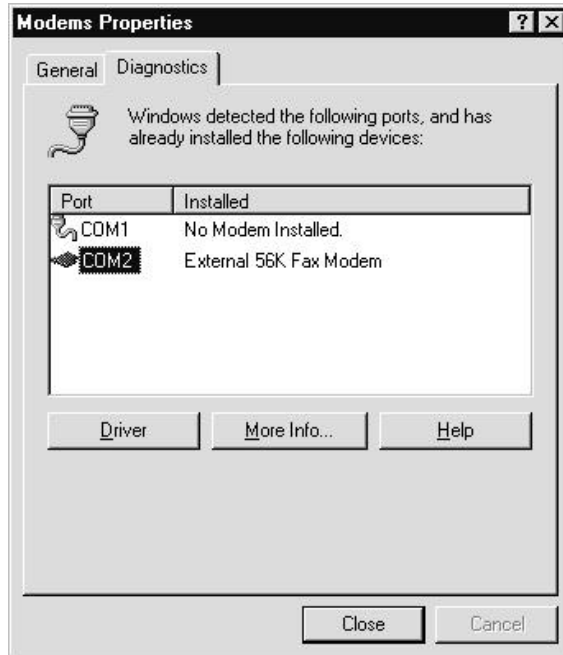
Step 4

Click **Finish** to copy the Wave Device .INF file from the A:\ drive to the hard drive. Windows 95 may request its own installation diskettes for some files. Insert the Windows 95 disks or CD-ROM as required.



Step 5

To determine what COM port and IRQ is assigned to the modem in Windows 95, click on the **Modems** icon in **Control Panel** and run **Diagnostic**. Click on **More Info**, to view the modem properties.



Step 6

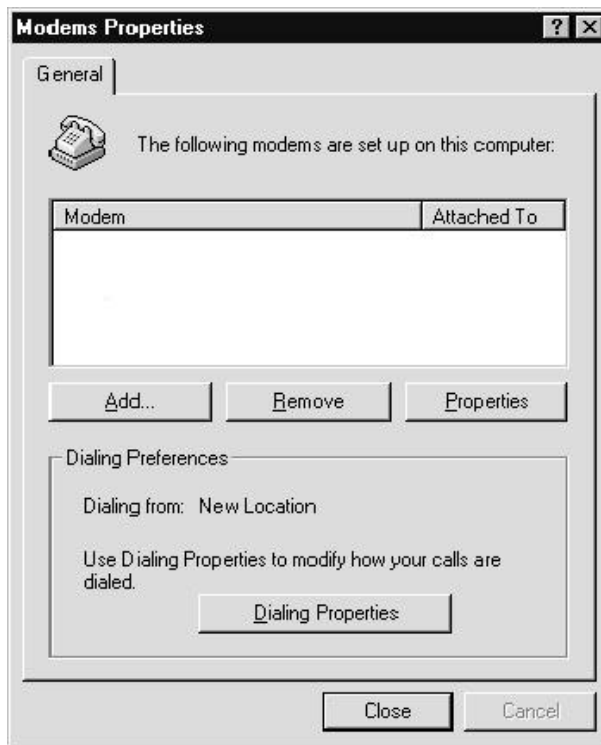
Remember this COM port number. When you install your Data/Fax software, you will need to set your modem port location to this same number.

Configuring in Windows NT 4.00

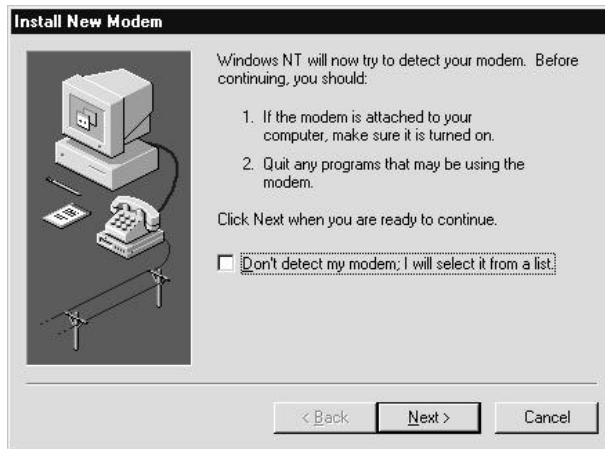
Step 1 Reboot the computer and log on to Windows NT 4.00.

Step 2 Click on the **Modems** icon in the **Control Panel**. At the **Modem Properties** dialog box, Click **Add**

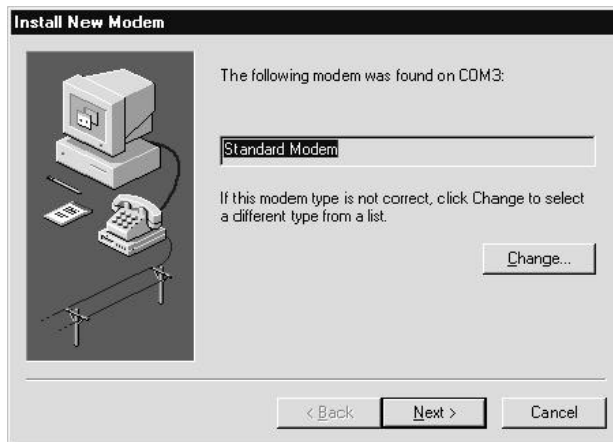
(This screen appears only if you have not previously installed a modem. If a modem is already present, then that modem will be listed in the box. See "Step 7".)



Step 3 An **Install New Modem** dialog box should appear. Allow Windows NT to detect your modem. Click **Next >**.

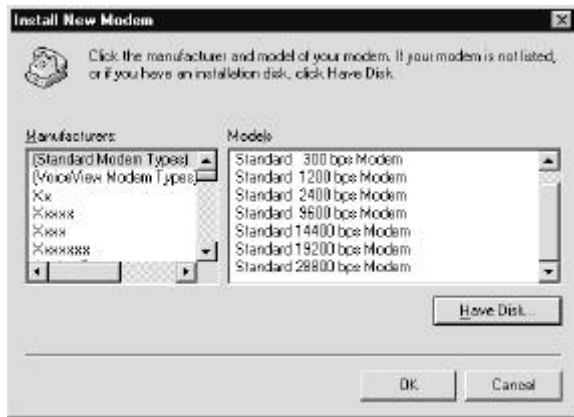


Step 4 If a modem is found, Windows NT will query it. In most cases Windows NT will detect the modem as a “Standard Modem”. Click on **Change ..**



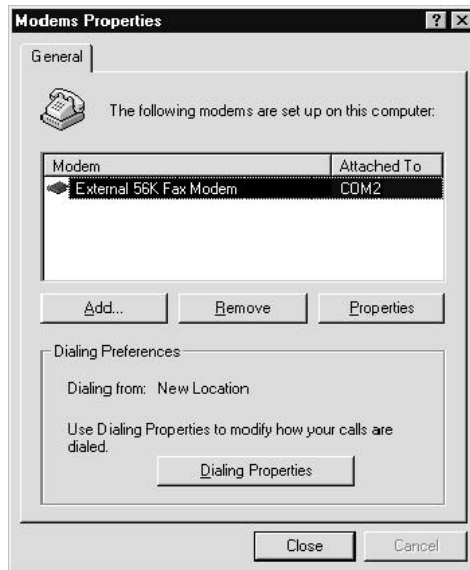
If Windows NT does not find your modem, you may need to enable Plug and Play in the BIOS

Step 5 Insert the diskette containing the modem's .INF files and click **Have Disk_** When prompted for the path, type **A:**, then Click **OK**.

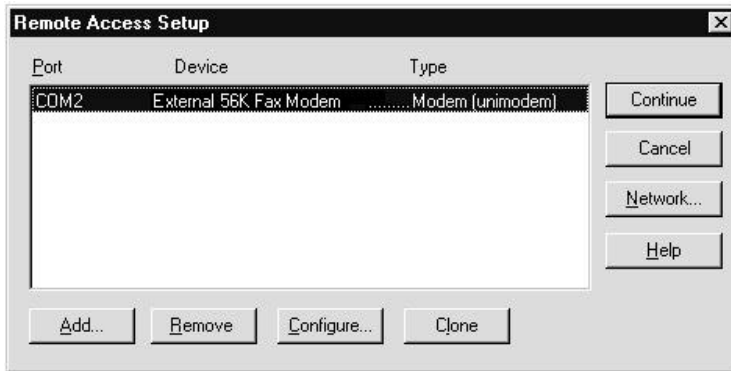


Step 6 When prompted to select the manufacturer and model of your modem, click **OK.**, then click **Next >**.

Step 7 Your Modem should be added to the list under modem properties. Click on **Close** .



- Step 8 If you wish to use your modem to dial into a Windows NT Remote Access Server or wish to connect to the Internet, you will need to configure Dial up Networking.
- Step 9 To install Dial Up Networking, Windows NT may request its own installation diskettes for some files. Insert the Windows NT disks or CD-ROM as required. At the **Remote Access Setup** dialog box, click on **Add_**. Select the RAS Device you wish to add and Click **OK**
- Step 10 Click **Continue** to finish the Installation.



- Step 11 After Windows NT has completed the binding process, allow Windows NT to shut down and restart the computer.

Software Installation and Configuration

Read the README.TXT file on your communications software diskette(s) for the latest installation updates.

You are now ready to install and configure the communication software. Refer to your software manual for installation procedures. The following communication parameters are recommended.

115200 bps; 8 data bits; no parity; 1 stop bit; RTS/CTS flow control set to "on;" initialization string: AT&F

Select a **Generic Class 1** modem type in your fax software.

Note that your software must be configured to communicate with the modem on the same COM port and IRQ line used by the modem.

Using the Fax/Voice Capabilities of the Modem

Please consult your FAX/Voice software manual about the procedures on using the advanced FAX/Voice features built into your modem.

To access these FAX/Voice functions from your software, ensure that the proper input and output devices are plugged into the available jacks on the front of the modem. See the diagram under the Section: "**Connecting Auxiliary Devices To The Modem**".

AT Command Set

The communication software included with your modem should be sufficient to meet your communication needs. There may be times when you need to access the modem manually with AT commands. Commands may be sent to your modem from a PC running communications software.

Command Format

All commands must begin with the **AT** prefix, followed by the parameter and ending with the **ENTER** key. All commands may be typed in either upper or lower case, but not mixed. A command without any parameters will be considered as specifying the same command with a parameter of "0". The maximum command length is eight (8) characters. The modem does not count the **AT** prefix, carriage returns, or spaces.

Example: **ATH [ENTER]**

This command causes your modem to hang up.

Basic AT Commands

In the following listings, all default settings are printed in **bold text**.

<u>Command</u>	<u>Function</u>
A/	Repeat last command. Do not precede A/ with AT or follow with ENTER
A	Answer
Cn	Carrier control option
C0	Transmit carrier always off
C1	Normal transmit carrier (default)
D_	Dial command
P	Select pulse dialing; affects current and subsequent dialing
T	Select tone dialing; affects current and subsequent dialing
En	Command echo
E0	Disables echo
E1	Enables echo (default)
Hn	Switch hook Control
H0	Hangs up the telephone line (default)
H1	Picks up the telephone line
Ln	Speaker volume
L0	Off or low speaker volume
L1	Low volume

<u>Command</u>	<u>Function</u>
L2	Medium volume (default)
L3	High volume
<i>Mn</i>	Speaker control
M0	Speaker always off
M1	Speaker is on until carrier present (default)
M2	Speaker is off during dialing, speaker on until carrier present
<i>Qn</i>	Result code display control
Q0	Enables result codes (default)
Q1	Disables result codes
<i>Vn</i>	Result code format
V0	Choose numeric format
V1	Choose text format (default)
<i>Wn</i>	Response code data rate
W0	Reports DTE speed response codes (default)
W1	Reports DTE speed response codes
W2	Reports DCE speed response codes
W3	Reports DTE speed response codes and error correction and data compression information
<i>&Cn</i>	Data Carrier Detect (DCD) option
&C0	Ignores remote modem status; DCD always on
&C1	DCD set according to remote modem status (default)
<i>&F</i>	Load factory defaults
<i>&Kn</i>	Select serial port flow control
&K0	Disables flow control
&K3	Bi-directional hardware flow control (default)
&K4	Enables XON/XOFF software flow control
<i>%Cn</i>	MNP5 data compression control
%C0	No compression
%C1	Enables MNP5 data compression (default)
<i>/Gn</i>	Set modem port flow control
/G0	Disables modem port flow control (default)
/G1	Sets port flow control to XON/XOFF
<i>/Qn</i>	Set serial port flow control
/Q0	Disables flow control
/Q1	XON/XOFF software flow control
/Q2	Unidirectional hardware flow control
/Q3	Bi-directional hardware flow control (default)

Troubleshooting

Read the README.TXT file on your installation diskette(s) for the latest updates.

This section presents solutions to some common problems you may experience when installing your modem. Some solutions may not apply to your operating system or environment. If you cannot resolve your difficulty, contact your dealer or vendor for assistance.

MODEM DOES NOT RESPOND TO COMMANDS

- 1) Make sure the modem is installed into a serial (COM) port connector. Consult your computer user's manual for the location and function of your installed serial ports.
- 2) Make sure the modem is initialized correctly. Issuing AT&F and pressing the ENTER key will reset the modem to its factory default settings.
- 3) Make sure the baud rate setting in the communications software is set to the correct value. An incorrect baud rate prevents the modem from operating properly.

MODEM DOES NOT DIAL

- 1) Make sure the modem is connected to a working phone line. Replace the modem with a telephone to ensure that the line is working.

MODEM DIALS BUT DOES NOT CONNECT

- 1) Make sure the communications software is configured to the same COM Port and IRQ setting as the modem.
- 2) Be sure the phone line is working properly. Replace the modem with a regular phone and dial the number. If the line sounds noisy, you may have difficulty connecting to the remote device.

MODEM EXPERIENCES ERRORS OR DISCONNECTS

- 1) Make sure the phone line does not exhibit excess noise.
- 2) Make sure RTS/CTS hardware flow control is enabled and XON/XOFF software flow control is disabled in the communications software.

Appendix A - Specifications

Interface Standards

RS-232C (9 pin & 25 pin)

Operating System Compatibility

DOS, Windows,. Windows 95, Windows NT

Fax Compatibility

ITU-T; V.17, V.29, V.27ter, V.21 ch2 –Speeds: 14,400, 12,000, 9600, 7200, 4800, 2400, 1200, and 300bps.

Group 3 fax support, Class 1

Data Transmission (bps)

K56Flex_; ITU-T: V.34+, V.34, V.bis, V.32, V.23, V.22 bis, V.22 AND V.21 –Bell: 212A AND 103

Speeds up to 56,000 bps

Industry-standard AT command set

Voice Operation

Answering machine function –Record and playback message capabilities.

Error Correction / Data Compression

MNP 2-4, V42, LAPM –MNP5, V.42bis

DTE Speeds (max.)

115,200 bps

Operating Modes

Auto dial/answer; auto feature negotiation – Full-Duplex

Dialing Modes

Tone and Pulse

Test Modes

CCITT V.54 – Analog loop, Digital loop, Remote Digital loop and pattern test

Command Set

Extended AT Commands; EIA Class 1

Note: K56Flex_ performance available only with 56K External Fax Modem Model.

Appendix B - Communication Regulations

FCC REGULATIONS

The following statements are provided in accordance with the Federal Communications Commission (FCC) regulations. Please read these statements carefully before installing your modem.

FCC PART 68 REQUIREMENTS

This equipment complies with Part 68 of the FCC Rules. On the bottom of this equipment is a label that contains, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be given to the telephone company.

The REN is used to determine the maximum number of devices connected to your telephone line that will ring in response to an incoming call. In most, but not all, areas, the total REN of devices connected to a line should not exceed five (5.0). To find out the total permitted in your area, contact your local telephone company.

If your telephone equipment causes harm to the telephone network, the telephone company can discontinue your service temporarily. If possible, the company will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company can make changes in its facilities, equipment, operations, or procedures that could affect the operation of your equipment. If so, you will be notified in advance so you can make the changes needed to maintain uninterrupted service.

If you experience trouble with this equipment, please contact the manufacturer at the address given in this manual. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on public coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

FCC WARNING 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 and television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient 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.

<p>CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.</p>
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CANADIAN DEPARTMENT OF COMMUNICATIONS (CDOC):

Requirements for End Users:

Notice: The Canadian Department of Communications label identifies certified equipment. This certification means the equipment meets certain telecommunications network requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment users should ensure that connection to the line is allowed by the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a telephone extension cord. Compliance with the above conditions may not prevent degradation of service in certain situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

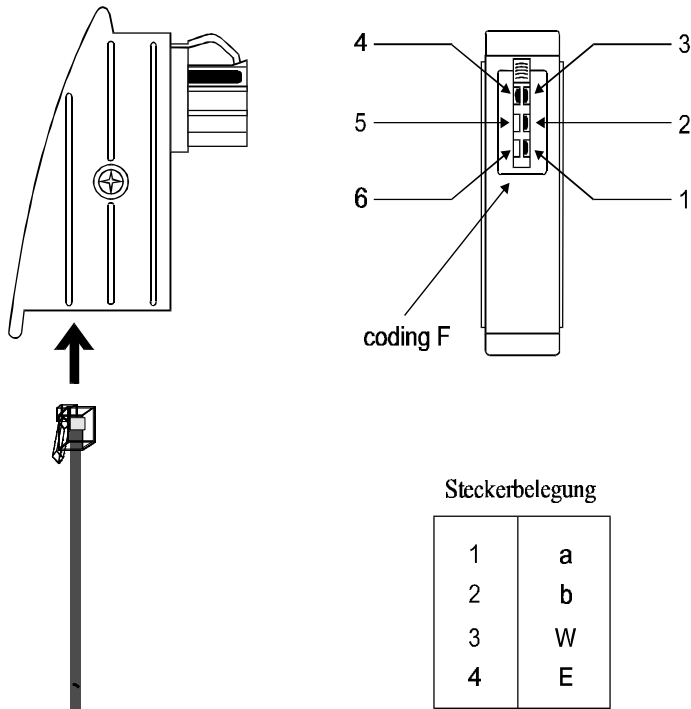
User's Advisory for the United Kingdom

Although this equipment can use either loop disconnect or DTMF signaling, only the performance of the DTMF signaling is subject to regulatory requirements for correct operation. It is therefore strongly recommended that the equipment is set to use DTMF signaling for access to public or private emergency services. DTMF signaling also provides faster call set up.
(NTR3, 9.1)

The analogue telecommunications interface is intended to be connected to telecommunications network voltage (TNV) circuits which may carry dangerous voltages. The telephone cord must remain disconnected from the telecommunications system until the card has been installed within a host which provides the necessary protection for the operator. If it is subsequently desired to open the host equipment for any reason, the telephone cord must be disconnected prior to effecting access to any internal parts which may carry telecommunications network voltages. (Ap. Note 48, 8.1)

Telephone Network Connection for Germany

4-pole TAE connector for four-wire connecting cord (TAE S 4 F)



Das Great Kann nur als einziges Endgerät an die TAE angeschlossen werden