

User's Manual

FCC ID: NRYNW56

Netronics Inc.

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INTRODUCTION

Congratulations on your purchase of this outstanding Fax/Data Modem. This manual will give you all the information you need to install and operate your new Fax/Data Modem.

After this *Introduction*, we will first take a look at the contents of the package contents in chapter 1: *Unpacking the Fax/Data Modem*. Please check if all necessary accessories have been included.

After that, in the chapter *Hardware Installation*, we will show you the installation procedure of your Fax/Data Modem. The next part, *AT Commands*, is for those who want to know more information about operating Fax/Data Modem.

When encountering any problems during installation or using your Fax/Data Modem, please refer to the *Troubleshooting* section of this manual.

Words in boldface type are command names, commands, or default settings. Carriage returns (Enter) are noted with <CR> or [ENTER]: this does not mean to enter these characters literally, but instead to press the Enter key.

INTRODUCTION

This manual is written to be used for several models of Fax/Data Modems. Some of the information in this manual may not apply to your Fax/Data Modem.

Features:

These Fax/Data Modems combine the features of a 56000 (receive only) / 33600 / 28800 / 14400 / 9600 bps data modem and a 14400 / 9600 bps FAX modem. It means that your new Fax/Data Modem not only can allow your PC to communicate with other PC or terminals but also can be used as a standard FAX machine.

When used as a data modem, your Fax/Data Modem uses the standard AT command set and is fully compatible with ITU-T V.42, V.42bis, V.34 (ANNEX 12), V.32bis, V.32, V.22bis, V.23, V.22, V.21, MNP2-5, Bell 103, 212A, and K56flex (upgradable to ITU-T V.90). When used as a Fax/Data Modem it communicates with all ITU-T Group 3 FAX machines and is compatible with ITU-T V.27ter and V.29, V.17, T.4 and T.30.

INTRODUCTION

Switching between DATA mode operation and FAX mode operation of your Fax/Data Modem is done through its firmware, no hardware settings are required.

If you are new to modem communications, we suggest that you read through this manual first. If you are already familiar with using a modem and the Hayes AT command set, this modem will be easy for you to use. Just read the installation part in this manual, then you can begin operation.

The communication software which should be used depends on the kind of machine that you are going to communicate with. If you want to call a Fax machine, you will need a Fax software. And if you want to communicate with a modem, you must use a data modem communications software.

FCC Part 68 Statement

This equipment complies with Part 68 of the FCC Rules. On the bottom of this equipment is 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 useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to on line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area. If your telephone equipment cause harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice isn't practical, you will be informed of your right to file a complaint with the FCC.

Your telephone company may changes in it's facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to given you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact the following address and phone number for information on obtaining service or repairs. 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 coin service provide by the telephone company. Connection to party lines is subject to state tariffs.

Federal Communications Commission (FCC) 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 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 or more 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.

Warning:

Use only shield signal cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Unpacking the Fax/Data Modem

After unpacking your Fax/Data Modem, please check if the following items were included in the package:

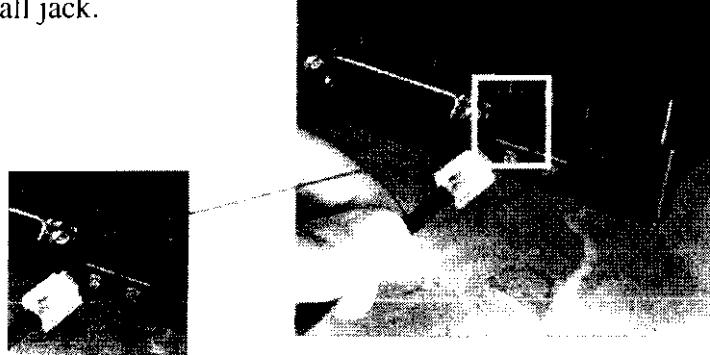
- ✓ External modem
- ✓ Power adapter
- ✓ RJ-11 phone cord
- ✓ User's manual

Hardware Installation

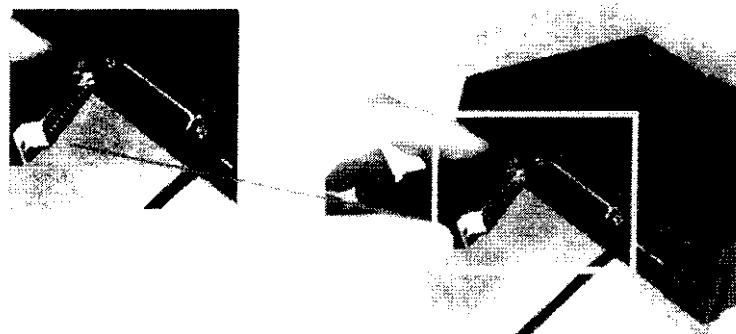
Proceed to install the external Fax/Data Modem as follows:

1. Connect the telephone line.

Plug one end of the telephone cord into the LINE socket on the rear of the Fax/Data Modem, and plug the other end into a wall jack.



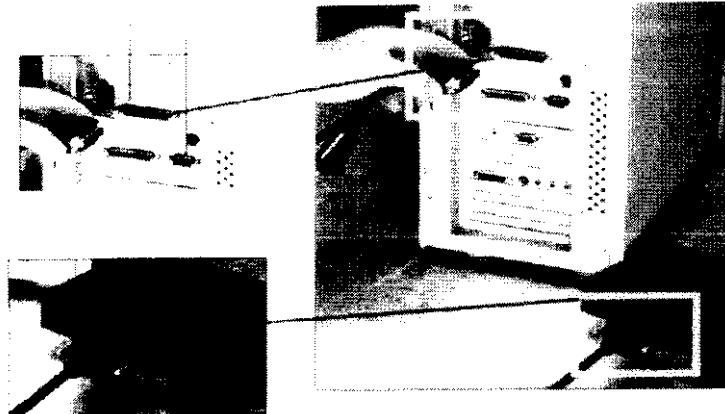
2. Connect the 25-pin serial port cable.



Hardware Installation

3. Connect the Fax/Data Modem to the computer.

Take the cable with a 25-pin/9-pin port at each end. Plug one end into the RS-232 jack and the other into an available 9-pin/25-pin serial port on your computer.



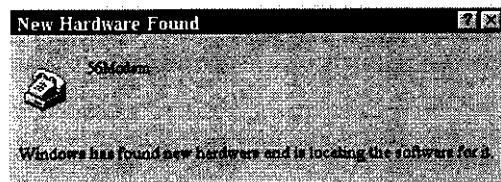
The PC's serial port could have either 9 pins or 25 pins. If necessary, use the 9-25 converter that comes with the package to match the connecting cable with the serial port on the PC.

Driver Installation

Before you can start to use the Data/Fax modem, you must install its driver which can be found in the Driver Disk.

1. Start Windows.

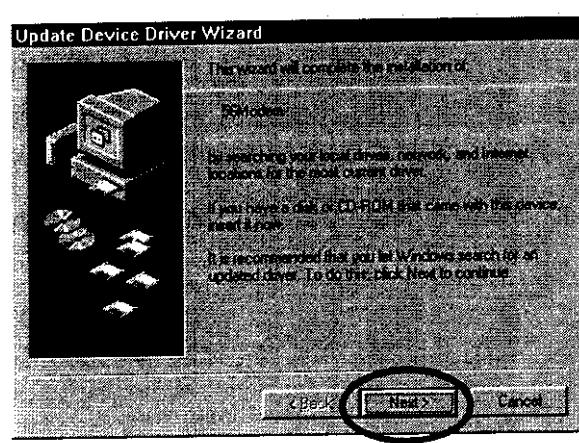
Make sure that your Data/Fax Modem has connected to the computer, and the power is turn on. Start Windows 95, then a dialog box with the title of “New Hardware Found” should appear on the screen.



Driver Installation

2. Insert Driver Disk into drive A.

After auto-detecting the new hardware, Windows will show the following dialog box to ask you to insert Driver Disk. Please put it into Driver A, and then click on “Next” button to continue.

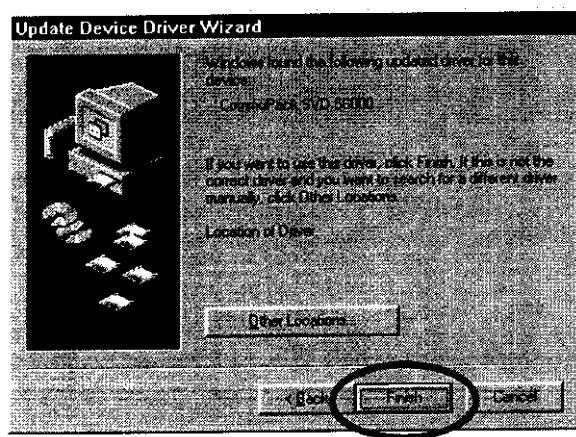


Driver Installation

3. Click on “Finish” button to end off driver installation.

After pressing the “finish” button, the following dialog box will appear on the screen, which tells you that “Windows found the driver of CommuPack SVD 56000.”

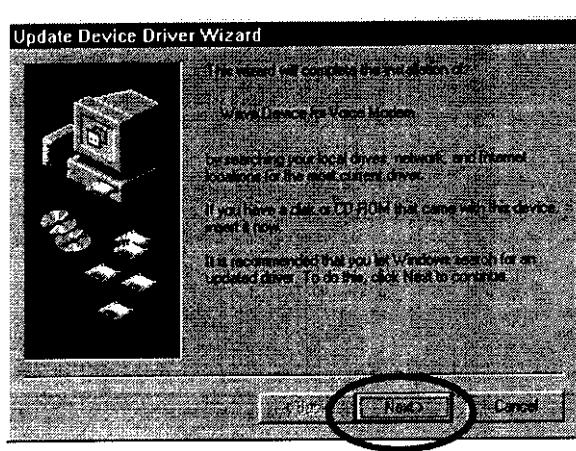
Please click on the “Finish” button to end off driver installation when you see the following dialog box.



Driver Installation

4. Continue installing the driver, "Wave Device for Voice Modem" which is only used in Windows 95 OSR II version.

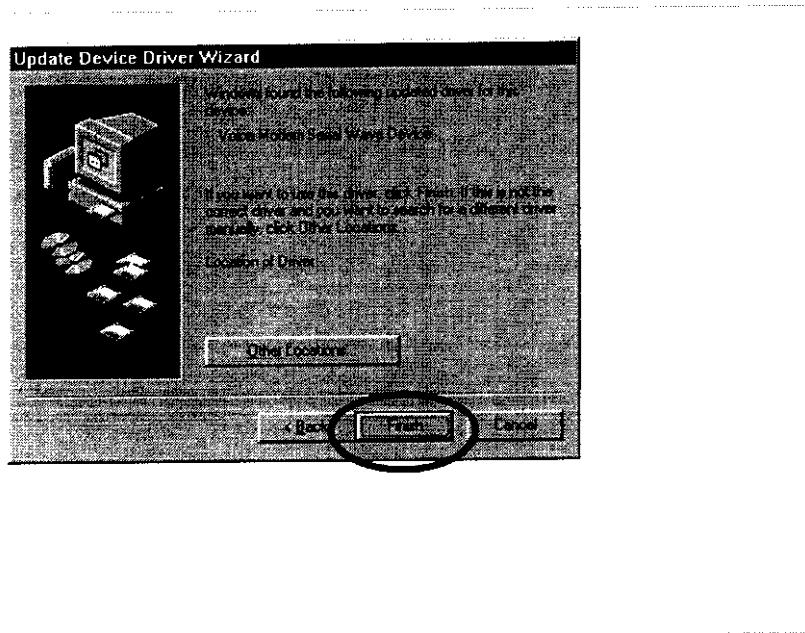
If your Data/Fax Modem has voice function, Windows 95 OSR II version will ask you to install a wave device driver for your Voice Modem. The following dialog box is telling you that your modem needs a wave device driver, so please click on the "Next" button to install the special driver.



Driver Installation

5. Finish driver installation of Data/Fax/Voice Modem.

When the following dialog box appears on the screen, please press the “Finish” button, then the driver of Data/Fax/Voice Modem can be installed successfully.



An **AT** command is a command used to control the modem's behavior and actions. To send an **AT** command from a computer to the modem, make sure that you are running a communication software and the modem is in command state.

■ General Command Information

- ◆ Every Command but **A/** and **+++** must begin with the **AT** prefix and be entered by typing a Carriage Return (Enter key). Without the **AT** prefix, the command line cannot be executed. For example, the **A** command would be entered as: **ATA<CR>**.
- ◆ Be sure to type commands in either upper or lower case, not a combination. For instance, please use **ATA** or **ata**.
- ◆ More than one command can be placed on a single line and, if desired, separated with spaces for readability.
- ◆ The maximum command length is 40 characters. The modem doesn't count the **AT** prefix or spaces.

AT Commands

■ Basic AT Commands

Symbol	Meaning
A	Manual Answer: go on-line in answer mode.
A/	Re-executes the last issued command. This does not require the AT prefix or a <CR>.
Bn	Select Protocol to 300 bps or 1200 bps B0 : Select ITU-T at 300 or 1200 bps communication. B1 : Select Bell 212A at 300 or 1200 bps communication.
Cn	Carrier Transmit Control C1 : Normal transmit carrier switching (preset).
D	Go On-line in Originate Mode. Dials the specified phone number that follows. Digits and modifiers that can be used with the D command: 0-9 , #, *: digits for dialing. L : Dial the last-dialed number. P : Pulse dial. T : Tone dial. S=n : Dial number stored in EEPROM at location n(0-3). W : Wait for a second dial tone. ! : (Exclamation point) Flashes the switch hook @: Wait for a 5-second silence before proceeding, otherwise return NO ANSWER. , : (Comma) Two-second pause; designated by S8. ; : (Semicolon) Return to <i>Command</i> mode after dialing
En	Command echo E0 : Disables command echo. E1 : Enables command echo. (Default)

AT Commands

Hn	Hook on/off H0: Go on-hook. (hangs up) H1: Go off-hook. (ready to dial)
In	Displays the following information. I0: Display the product code. I1: Display the hardware checksum. I2: Display link diagnostic status report. I3: Display the firmware revision. I4: Display the OEM defined identifier string. I5: Display the country code parameter. I6: Display the modem data pump model and internal code revision.
Ln	Control speaker volume L0: OFF or the lowest volume. L1: Low volume. (Default) L2: Medium volume. L3: High volume.
Mn	Speaker control. M0: Speaker always OFF M1: Speaker ON until CONNECT M2: Speaker always ON M3: Speaker ON after dial, until CONNECT
Nn	Automode Enable N0: Automode detection is disabled. N1: Automode detection is enabled.
On	Return to On-Line Data Mode O0: Returns on-line O1: Returns on-line and retrains
P	Set Pulse Dial as Default
Qn	Result codes control. Q0: Displays result codes Q1: Quiet mode; no result codes

AT Commands

Sn	Reading and Writing to S Registers Sn? : Reads the contents of the S register specified by 'n'. Sn=x : Writing to Registers: Writes the value of x to the specified S register.																									
T	Set Tone Dial as Default																									
Vn	Result Code Form. V0 : Displays result codes in digital format. V1 : Displays result codes in verbose format.																									
Wn	Connect Message control W0 : Reports DTE speed in EC mode. W1 : Reports line speed, EC protocol, and DTE speed. W2 : Reports DCE speed in EC mode.																									
Xn	Extended Result Codes This command selects which subset of the result messages will be used by the modem to inform the DTE of the results of commands. Command Dial-tone Busy-tone Connect speed Result code (ie. connect, ok) <table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td>X0 :</td> <td style="text-align: center;">x</td> <td style="text-align: center;">x</td> <td style="text-align: center;">x</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>X1 :</td> <td style="text-align: center;">x</td> <td style="text-align: center;">x</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>X2 :</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">x</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>X3 :</td> <td style="text-align: center;">x</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>X4 :</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> </tr> </table>	X0 :	x	x	x	✓	X1 :	x	x	✓	✓	X2 :	✓	x	✓	✓	X3 :	x	✓	✓	✓	X4 :	✓	✓	✓	✓
X0 :	x	x	x	✓																						
X1 :	x	x	✓	✓																						
X2 :	✓	x	✓	✓																						
X3 :	x	✓	✓	✓																						
X4 :	✓	✓	✓	✓																						
Yn	Long Space Disconnect. Y0 : Disables Long Space Disconnect. Y1 : Enables Long Space Disconnect.																									
Zn	Reset modem Z0 : Reset the modem and loads stored profile 0. Z1 : Reset the modem and loads stored profile 1.																									
+++	Escape to online-command mode. This does not require the AT prefix or a <CR>.																									

AT Commands

&Cn	Select DCD (Data Carrier Detect) Options &C0: Maintains an ON status for the DCD. &C1: Uses the actual state of the carrier from the remote modem for DCD.
&Dn	DTR (Data Terminal Ready) Option &D0: DTR is ignored. Maintains an ON status for the DTR. &D1: DTR drop is interpreted by the modem as if the escape sequence has been entered. The modem returns to the command state without disconnecting. &D2: DTR drop causes the modem to hang up. Auto answer is inhibited. &D3: DTR drop causes the modem to perform a soft reset as if the Z command were received.
&Fn	Restore Factory Profile. &F0: Recall factory profile 0. &F1: Recall factory profile 1.
&Gn	Select Guard Tone &G0: No guard tone. &G1: 550Hz guard tone &G2: 1800Hz guard tone
&Kn	Flow control &K0: Disable DTE/DCE flow control. &K3: Enable RTS/CTS DTE/DCE flow control. &K4: Enable XON/XOFF DTE/DCE flow control. &K5: Enable transparent XON/XOFF DTE/DCE flow control. &K6: Enable RTS/CTS and XON/XOFF DTE/DCE flow control.

AT Commands

&Mn	Communication Mode control &M0: Asynchronous mode, buffered (Default). &M1: Asynchronous command, synchronous data. &M2: Direct asynchronous mode, no buffer. &M3: Synchronous mode.
&Pn	Set Pulse dial make/break ratio &P0: Sets a 39/61 make/break ratio at 10 pps – used in USA. &P1: Sets a 33/67 make/break ratio at 10 pps. &P2: Sets a 39/61 make/break ratio at 20 pps. &P3: Sets a 33/67 make/break ratio at 20 pps.
&Qn	Asynchronous Mode Selection &Q0: Select direct asynchronous operation. &Q6: Select asynchronous operation in normal mode.
&Rn	RTS/CTS Option. &R0: CTS tracks RTS. &R1: CTS is always ON.
&Sn	DSR (Data Set Ready) Option &S0: DSR is always ON. &S1: DSR will become active after answer tone has been detected and inactive after the carrier has been lost.
&Tn	Test and Diagonstics. &T0: Terminate test in progress. &T1: Initiate Analog LoopBack (ALB) test. &T2: Reserved. &T3: Initiate Local Digital Loopback (LDL) test. &T4: Enables Remote Digital Loopback. &T5: Prohibits Remote Digital Loopback. &T6: Initiate Remote Digital Loopback test. &T7: Initiate Remote Digital Loopback with self test. &T8: Initiate Analog Loopback with self test.

AT Commands

&V	View Configuration Profiles &V: Displays all configuration profiles.
&Wn	Store Current Profile. &W0: Store the active profile as profile 0. &W1: Store the active profile as profile 1.
&Xn	Select Synchronous clock source &X0: Select internal timing for the transmit clock. &X1: Select external timing for the transmit clock. &X2: Select slave receive timing for the transmit clock.
&Yn	Select the Default Profile &Y0: Uses profile 0 on power-up. &Y1: Uses profile 1 on power-up.
&Zn=x	Writes phone number strings <i>x</i> of up to 45 digits to NVRAM at position <i>n</i> (<i>n</i> =0-3).
+MS	Select Modulation

■ ECC Commands

Symbol	Meaning
%Cn	Enable / Disable Data Compression. %C0: Disables data compression. %C1: Enables MNP 5 data compression negotiation. %C2: Enables V.42 bis data compression. %C3: Enables both V.42 bis and MNP 5 data compression.
\An	Select Maximum MNP Block Size. \A0: Set maximum block size in MNP to 64. \A1: Set maximum block size in MNP to 128. \A2: Set maximum block size in MNP to 192. \A3: Set maximum block size in MNP to 256.
\Bn	Send break of <i>n</i> x 100 ms.

AT Commands

■ MNP 10 Commands

-Kn	MNP Extended Services. -K0: Disables MNP 10 extended services. -K1: Enable MNP 10 extended services. -K2: Enable MNP 10 extended services detection only.
-SEC=n	MNP 10-EC Control -SEC=0: Disable MNP 10-EC. -SEC=1: Enable MNP 10-EC and set transmit level <tx level> 0 to 30 (0 dBm to -30 dBm).

■ W-CLASS Commands

*B	Display list of permanently blacklisted numbers.
*D	Display list of delayed numbers.
*NCn	Change country to one of eight in NVRAM.

■ CALLER ID Commands

#CID=0	Disable Caller ID.
#CID=1	Enable Caller ID with formatted presentation.
#CID=2	Enable Caller ID with unformatted presentation.

■ FAX CLASS 1

+FCLASS=n	Service class.
+FAE=n	Data/fax auto answer
+FRH=n	Receive data with HDLC framing.
+FRM=n	Receive data.
+FRS=n	Receive silence.
+FTH=n	Transmit data with HDLC framing.
+FTM=n	Transmit data.
+FTS=n	Stop transmission and wait.

■ Voice/Audio Commands

#BDR	Select baud rate (turn off autobaud).
#CLS	Select data, fax, or voice.
#MDL?	Identify model.
#MFR?	Identify manufacturer.
#REV?	Identify revision level.
#SPK=	Speakerphone setting.
#TL	Audio output transmit level.
#VBQ?	Query buffer size.
#VBS	Bits per sample.
#VBT	Beep tone timer.
#VCI?	Identify compression method.
#VGT	Set playback volume in the command state.
#VLS	Voice line select.
#VRA	Ringback goes away timer (originate).
#VRN	Ringback never came timer (originate).

AT Commands

#VRX	Voice receive mode.
#VSD	Enable silence deletion (no function, command response only).
#VSK	Buffer skid setting.
#VSP	Silence detection period (voice receive).
#VSR	Sampling rate selection.
#VSS	Silence detection tuner (voice receive).
#VTD	DTMF/tone reporting.
#VTM	Enable timing mark placement.
#VTS	Generate tone signals.
#VTX	Voice transmit mode.

■ Cellular Commands

^C2	Download cellular phone driver.
^I	Identify cellular phone driver.
^T6	Indicate status of cellular phone.

■ S Register Reference

Your modem has status registers. These registers are memory locations inside your modem which control your modem's operation. You usually do not have to worry about setting any register because the default values work for most applications.

The factory default values are stored in ROM and are loaded into the active configuration at power-up or by the **Zn** command. In addition, the designated default profile is subsequently loaded, and may change some of the factory default values. The designated default profile can be changed by entering the **&Yn** command, where 'n' is one of the two possible user profiles. The factory defaults can be loaded at any time by entering the **&F** command.

The following chart summarizes your modem's registers:

Reg.#	Function	Range	Units	Default Dec
S0	Rings to Auto-Answer	0 - 255	Rings	0
S1	Ring Counter	0 - 255	Rings	0
S2	Escape Character	0 - 255	ASCII	43
S3	Carriage Return Character	0 - 127	ASCII	13

AT Commands

S4	Line Feed Character	0 – 127	ASCII	10
S5	Backspace Character	0 – 255	ASCII	8
S6	Wait Time for Dial Tone	2 – 255	Seconds	2
S7	Wait Time for Carrier	1 – 255	Seconds	50*
S8	Pause Time for Dial Delay Modifier	0 – 255	Seconds	2*
S9	Carrier Detect Response Time	1 – 255	1/10 sec.	6*
S10	Carrier Lost Disconnect Time	1 – 255	1/10 sec.	14*
S11	DTMF Tone Duration.	50 – 255	1/1000 sec.	95
S12	Escape Prompt Delay	0 – 255	1/50 sec.	50*
S13	Reserved	-	-	-
S14	General Bit Mapped Options Status	-	-	138
S15	Reserved	-	-	-
S16	Test Mode Bit Mapped Options Status (&T)	-	-	0
S17	Reserved	-	-	-
S18	Test Timer.	0 – 255	Seconds	0*
S19	AutoSync Options	-	-	0
S20	AutoSync HDLC Address or BSC Sync Character	0 – 255	-	0
S21	V.24/General Bit Mapped Options Status	-	-	52

AT Commands

S22	Speaker/Results Bit Mapped Options Status	-	-	117*
S23	General Bit Mapped Options Status	-	-	62
S24	Sleep Inactivity Timer.	0 – 255	Seconds	0
S25	Delay to DTR Off	0 – 255	Seconds	5*
S26	RTS to CTS Delay	0 – 255	1/100 sec.	1*
S27	General Bit Mapped Options Status	-	-	73
S28	General Bit Mapped Options Status	-	-	0*
S29	Flash Dial Modifier Time	0 – 255	10 ms	70
S30	Disconnect Inactivity Timer	0 – 255	10 s	0*
S31	General Bit Mapped Options Status	-	-	194
S32	XON Character.	0 – 255	ASCII	17
S33	XOFF Character.	0 – 255	ASCII	19
S34	Reserved	-	-	-
S35	Reserved	-	-	-
S36	LAPM Failure Control	-	-	7*
S37	Line Connection Speed	-	-	0*
S38	Delay Before Forced Hangup	0 – 255	Seconds	20*

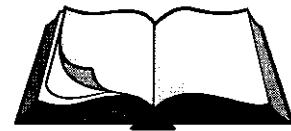
AT Commands

S39	Flow Control Bit Mapped Options Status	-	-	3
S40	General Bit Mapped Options Status	-	-	104
S41	General Bit Mapped Options Status	-	-	195
S46	Data Compression Control	-	-	138*
S48	V.42 Negotiation Control	-	-	7*
S82	LAPM Break Control	-	-	128*
S86	Call Failure Reason Code	0 – 255	-	-
S91	PSTN Transmit Attenuation Level.	0 – 15	dBm	10
S92	Fax Transmit Attenuation Level	0 – 15	dBm	10
S95	Result Code Messages Control	-	-	0*

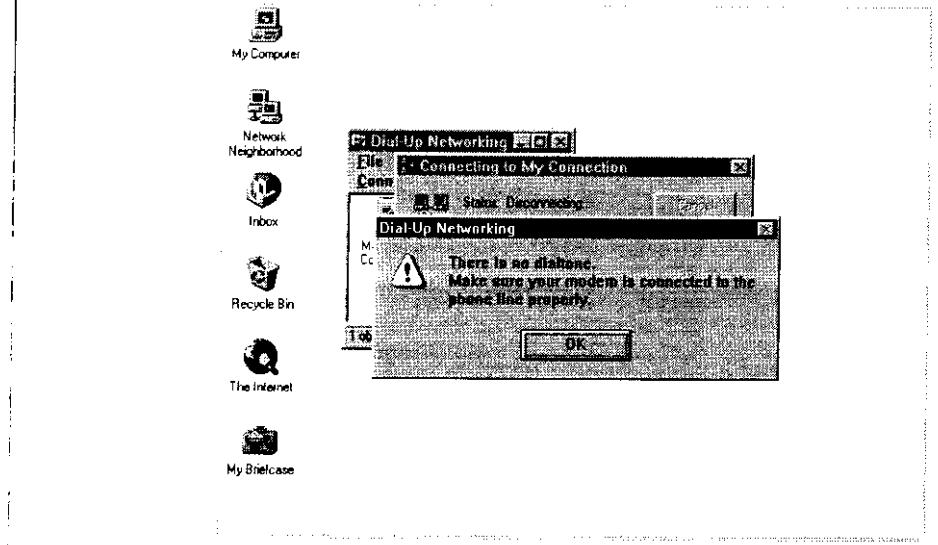
Troubleshooting Guide

This chapter provides information to help you to work out problems in the installation, configuration and regular usage of your Fax/Data Modem. To test the Data/Fax Modem, make sure that the communications software package you will use allows you to operate your modem directly through its internal commands.

Follow the procedures to resolve problems.



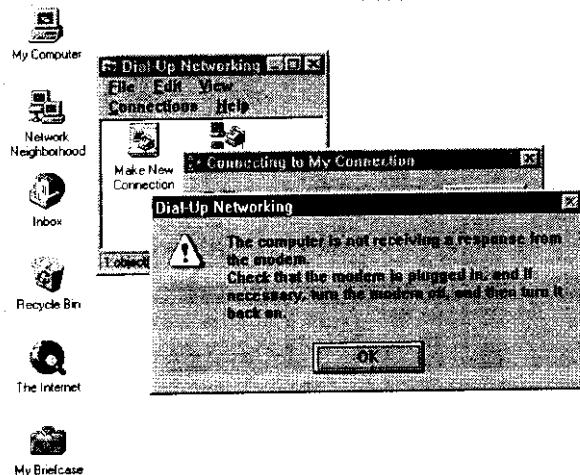
Troubleshooting Guide



SOLUTION

- ◆ Make sure the phone cord is connected to the jack labeled *line* on the modem, and to a phone wall jack.
- ◆ Make sure the phone line you use is analog, not digital one.
- ◆ Disable the function of "Wait for dial tone before dialing."
 1. Open **My Computer** on the desktop.
 2. Open **Dial-UP Networking**.
 3. Select one dial-up connection, such as "My Connection."
 4. Right-click the icon, and choose **Properties**.
 5. Click on **Configure** button, and press the tag named **Connection**. Please disable the function of **Wait for dial tone before dialing**.

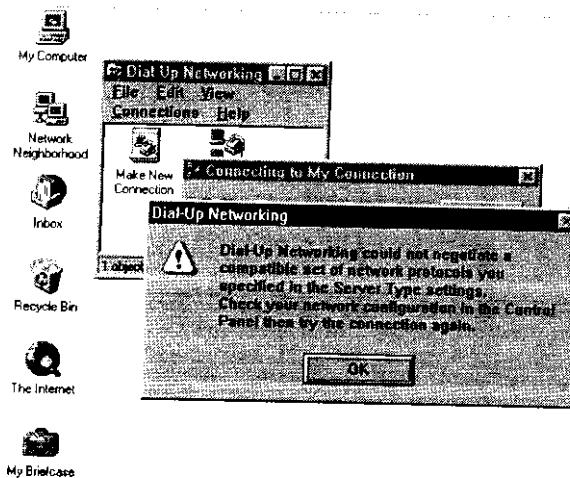
Troubleshooting Guide



SOLUTION

- Make sure that your modem is ON.
- Lower the baud rate to 38,400 or 19,200.
 1. Open **My Computer** on the desktop.
 2. Open **Dial-UP Networking**.
 3. Select one dial-up connection, such as "My Connection."
 4. Right-click the icon, and choose **Properties**.
 5. Click on **Configure** button, then lower the **Maximum speed** to 38,400 or 19,200
- Remove the driver of your modem, and reinstall it.
 1. Click on **Start** and point to **Settings**.
 2. Select **Control Panel**, then double click on **Modems**. Remove the driver, and re-start Windows 95
 3. Reinstall the driver of your modem.

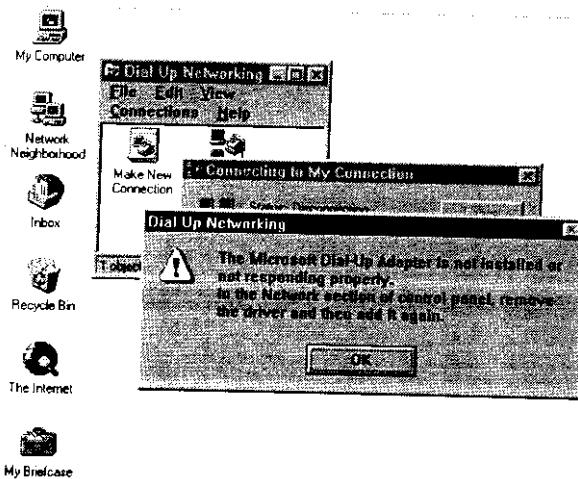
Troubleshooting Guide



SOLUTION

- ♦ Please install or reinstall "TCP/IP ".
 1. Click on **Start** and point to **Settings**.
 2. Select **Control Panel**, then double click on **Network**.
 3. Click on **Add**, then select **Protocol**.
 4. Click on **Add**, then Choose **TCP/IP** made by **Microsoft**.
 5. Re-start Windows 95.
- ♦ Lower the baud rate to 38,400 or 19,200. (Please refer to page 25.)

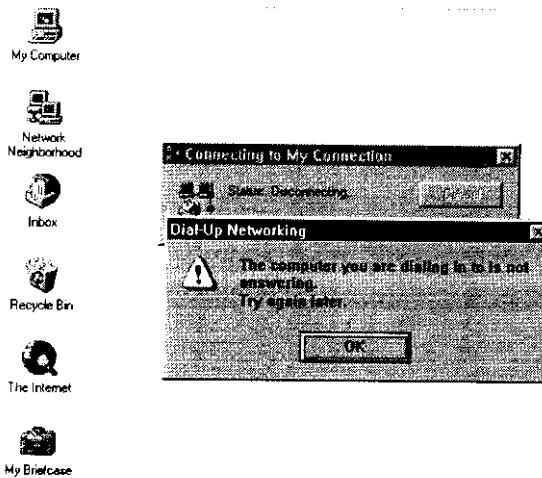
Troubleshooting Guide



SOLUTION

- ♦ Please install or reinstall the “Dial-Up Adapter”.
 1. Click on **Start** and point to **Settings**.
 2. Select **Control Panel**, then double click on **Network**.
 3. Click on **Add**, then select **Adapter**.
 4. Click on **Add**, then Choose **Dial-Up Adapter** made by **Microsoft**.
 5. Re-start Windows 95.

Troubleshooting Guide



SOLUTION

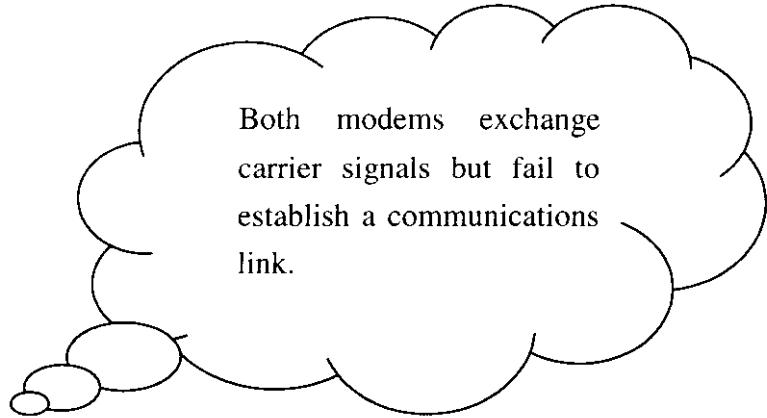
- ♦ Please disable the function of “Only connect at this speed.”
 1. Open **My Computer** on the desktop.
 2. Open **Dial-UP Networking**.
 3. Select one dial-up connection, such as “My Connection.”
 4. Right-click the icon, and choose **Properties**.
 5. Click on **Configure** button, then disable the function of **Only connect at this speed**.

You try issuing AT commands to the modem through the communications software, but nothing seems to work.
No response from your modem.



SOLUTION

- ◆ Make sure that your modem is ON.
- ◆ Type in all upper (AT) or lower case (at).
- ◆ Make sure that the computer is in *Terminal* mode.
- ◆ Make sure that you selected the correct serial port and IRQ in your communications software, and/or in your Windows Control Panel.

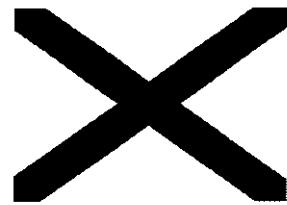


Both modems exchange carrier signals but fail to establish a communications link.

SOLUTION

- ◆ Place the call again. The telephone company routes even local calls differently each time you call.
- ◆ Call a different modem to see if the problem persists. The problem may be with the modem you first tried to call.

During data transfer, your screen displays random or garbage characters.



SOLUTION

- Set your software to the same word length, parity, and Stop bits as the remote modem.
- Make sure that your software and modem are set to the same flow control setting, and to either a fixed or variable serial port rate.
- Type the following command to load the template that enables hardware flow control as well as other optimal settings.
AT&F1 <CR>
- Disable any Terminate and Stay Resident (TSR) programs running in the background.

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During data transfer, your screen displays random or garbage characters.