



# **IBM ISA 33.6/56 KBPS Data/FAX Modem for Windows**

*Installation Guide*

**OPTIONS**  
*by IBM*

## **First Edition (January 1997)**

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## ***Safety: Read First***

**ATTENTION:** Read the Safety Information in the Appendix, page 3-1, before installing this product.

**DO NOT** print this page—replace with World Wide 'Read First' translations.

## *About This Book*

This manual contains information on the ISA 33.6/56K Data/Fax Modem for Windows. The manual is divided into the following parts:

**Part 1:** Abbreviated installation instructions in the following languages:

English

French

Spanish

**Part 2:** Product information, installation and usage Information

**Part 3:** Service, warranty, notices and trademarks information

**Note:** The illustrations in this manual might be slightly different from your hardware.

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# Part 1: Quick Installation Guide

This part of the manual covers the installation of your Data/Fax/Voice modem, and is split up into three sections:

## Hardware Installation

### Software Driver Installation for either:

Windows 3.1/Windows 3.11 on page 1-3

Windows 95 on page 1-3

### Application Software Installation on page 1-4

The first section applies to the installation of the hardware, and the second two sections apply to either Windows 3.1/3.11 or Windows 95. In all cases, the hardware installation *must* be followed by the software driver installation. The ISA Modem for Windows requires both the hardware and software be installed properly to work. The last step involved is installation of the application software that will enable the operation of the modem for Data/Voice and DSVD (**D**igital **S**imultaneous **V**oice and **D**ata).

## Hardware Installation

Before getting started, make sure that you have the following items that were included with your package:

- Modem
- Communications Software
- RJ11 Phone Cord
- Support diskette containing drivers
- A headset to be used for accessing the voice capabilities of the modem.
- This Guide

In addition, you will need a Phillips head screwdriver or a 1/4" Hex screwdriver.

Be sure that you have an available 8- or 16-bit expansion slot in your computer.

The ISA Modem for Windows supports "Plug and Play" operation. There are no jumpers or switches on the modem that need to be set before installing the modem into your computer.

## Installing the Modem

1. **Review the safety information provided at the end of this document before beginning the installation.**
2. Turn off and unplug your computer and any peripheral devices, such as a printer.
3. Remove the computer's cover. Refer to the computer manual, if necessary, to see which rear panel screws to remove before sliding the cover off.
4. Unscrew and remove the solid bracket at the back of any available ISA expansion slot.
5. Insert the modem board into the slot you have chosen, with the gold leads on the modem board's edge firmly in the slot's groove.
6. Once the modem is in place, screw the bracket at the back of the modem firmly to the computer's rear panel. This ensures that the modem board is firmly in place.
7. Replace the computer cover and all its screws. Reattach all cables and power cords.
8. If you currently have a phone plugged into the wall jack, disconnect it. Plug one end of the phone cable that came with the modem into the TELCO jack at the rear of the modem. Plug the other end of the cable into the wall jack.
9. If you wish to use the voice capabilities of the modem, install the headset shipped with your modem. Installation instructions for the headset are provided with the headset.

10. This completes the modem hardware installation.

If you are installing for Windows 3.1/3.11 then go to "Installing Drivers for Windows 3.1/3.11" on page 1-3. If you are installing for Windows 95, then go to "Installing Drivers for Windows 95" on page 1-3.



## Installing Drivers for Windows 3.1/3.11

The following steps should be performed in order to install the driver software for the modem:

1. Insert the installation diskette.
2. Select the **File** pulldown menu located at the top left of the **Program Manager**.
3. Select **Run....**
4. Type **a:\install** (if **a:** is your 3.5" diskette drive.)
5. Follow the prompts from the installation program.
6. One of the prompts will ask you to select an available COM port. Select one that is free and press *OK*. You can use the **MSD** application in a DOS window to determine which COM ports are already being used.
7. At the conclusion of the installation, you will find a ISA Modem for Windows group in the Windows Program Manager window.

You are now ready to install the communications software provided with the modem. Please refer to the manual accompanying the software for information concerning installation and operation of that software.

## Installing Drivers for Windows 95

The following steps should be performed in order to install the driver software for the modem:

1. Once the modem has been physically installed in the system, Windows 95 should come up with the "***New Hardware Found***" screen.
2. At this screen select the *Driver from disk provided by hardware manufacturer*.
3. Insert the ISA Modem for Windows diskette into your diskette drive and click the *OK* button.
4. The next screen will confirm that you are installing initialization software for the ISA Modem for Windows. Click *OK*.
5. An Installation screen will pop up telling you that the system is installing the drivers for the ISA Modem for Windows.
6. Wait for the installation of the driver software to complete.
7. The next screen will tell you which communications port the ISA Modem for Windows was assigned.
8. You now have to restart Windows 95 for the installation to complete.

You are now ready to install the communications software provided with the modem. Please refer to the manual accompanying the software for information concerning installation and operation of that software.

## **Installing the Application Software**

The application software that was provided with your modem package allows you to take advantage of voice and data capabilities of the modem. Please refer to the manual accompanying the software for information concerning installation and operation of that software.

This section of the manual is provided as an aid to advanced users who might need to know how to control the modem for specialized applications.

### *Command Reference*

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#### **Introduction**

The Command Reference section includes information about the following:

- Command Summary
- S-Registers

#### **Command Summary**

- Type commands in either upper or lower case, not a combination. Use the Backspace key to delete errors. (You cannot delete the original AT command since it is not stored in the modem buffer.)
- If a command has numeric options and you don't include a number, zero is assumed. For example, if you type ATB, the command ATB0 is assumed.
- Every command but A/, +++ and A> must begin with the AT prefix and be entered by pressing a carriage return (Enter key).

- The maximum command length is 60 characters. The modem doesn't count the AT prefix, carriage returns, or spaces.

**Note:** Defaults are marked with an asterisk (\*).

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## Command Set

<b>\$</b>	Displays a basic command list; online help.
<b>A</b>	Manual Answer: goes off hook in answer mode. Pressing any key aborts the operations.
<b>A/</b>	Re-executes the last issued command. Used mainly to redial. This does not require the AT prefix or a Carriage Return.
<b>A&gt;</b>	Re-executes the last command that was executed until key pressed. Command does not require an AT prefix or carriage return.
<b>Any key</b>	Aborts off-hook dial/answer operation and hangs up.
<b>AT</b>	Required command prefix, except with A/, +++ and A>. Use alone to test for OK result code.
<b>Bn</b>	U.S./ITU-T answer sequence.
<b>B0</b>	ITU-T V.25 answer sequence *
<b>B1</b>	U.S. answer tone

## Dn

Dials the specified phone number. Includes the following:

<b>P</b>	Pulse (rotary) dial
<b>T</b>	Tone dial *
<b>,</b>	(Comma) Two-second pause; linked to S8 register
<b>;</b>	(Semicolon) Return to Command mode after dialing
<b>!</b>	(Exclamation point) Flashes the switch hook
<b>/</b>	Delays for 125 msec. before proceeding with dial string
<b>W</b>	Wait for second dial tone (X2 or X4); linked to S6 register
<b>@</b>	Dials, waits for quiet answer, and continues (X2 or X4)
<b>R</b>	Originates call using answer (reverse) frequencies
<b>#,*</b>	Extended touch tone pad tones

## DL

Dials the last-dialed number.

## DSn

Dials the phone number string stored in NVRAM at position n (n = 0-3). Phone numbers are stored with the &Zn=s command.

## D\$

Displays a list of Dial commands.

## En

Sets local echo.

**E0** Echo OFF

**E1** Modem displays keyboard commands \*

<b>Fn</b>	Sets online local echo of transmitted data ON/OFF.	<b>Mn</b>	Operates speaker.
<b>F0</b>	Local echo ON. Modem sends a copy of data it sends to the remote system to your screen.	<b>M0</b>	Speaker always OFF
<b>F1</b>	Local echo OFF. Receiving system may send a remote echo of data it receives.*	<b>M1</b>	Speaker ON until CONNECT *
		<b>M2</b>	Speaker always ON
		<b>M3</b>	Speaker ON after dial, until CONNECT
<b>Hn</b>	Controls ON/OFF hook.	<b>On</b>	Returns online.
<b>H0</b>	Hangs up (goes on hook)	<b>O0</b>	Returns online
<b>H1</b>	Goes off hook	<b>O1</b>	Returns online and retrains
<b>In</b>	Displays the following information.	<b>P</b>	Sets pulse dial (for phone lines that don't support touch-tone dialing).
<b>I0</b>	Four-digit product code	<b>Qn</b>	Displays/suppresses result codes.
<b>I1</b>	Results of ROM checksum	<b>Q0</b>	Displays result codes *
<b>I2</b>	Results of RAM self test	<b>Q1</b>	Quiet mode; no result codes
<b>I3</b>	Product type	<b>Q2</b>	Displays result codes only in Originate mode
<b>I4</b>	Current modem settings		
<b>I5</b>	Nonvolatile memory (NVRAM) settings	<b>Sr.b=n</b>	Sets bit .b of register r to n (0/OFF or 1/ON).
<b>I6</b>	Link diagnostics	<b>Sr=n</b>	Sets register r to n.
<b>I7</b>	Product configuration	<b>Sn?</b>	Displays contents of S-Register n.
<b>Ln</b>	Controls speaker volume.	<b>S\$</b>	Displays a list of the S-Registers.
<b>L0</b>	Low	<b>T</b>	Sets tone dial.
<b>L1</b>	Low		
<b>L2</b>	Medium *		
<b>L3</b>	High		

**Vn** Displays verbal/numeric result codes.

**V0** Numeric codes

**V1** Verbal codes

**Xn** Sets result code displayed. Default is X4.

**Xn Setting**

<b>Result Codes</b>	<b>X0</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>
0/OK	●	●	●	●	●
1/CONNECT	●	●	●	●	●
2/RING	●	●	●	●	
3/NO CARRIER	●	●	●	●	●
4/ERROR	●	●	●	●	●
5/CONNECT 1200		●	●	●	●
6/NO DIAL TONE			●		●
7/BUSY				●	●
8/NO ANSWER ◆				●	●
10/CONNECT 2400		●	●	●	●
13/CONNECT 9600		●	●	●	●
18/CONNECT 4800		●	●	●	●
20/CONNECT 7200		●	●	●	●
21/CONNECT 12000		●	●	●	●
25/CONNECT 14400		●	●	●	●
43/CONNECT 16800			●	●	●
85/CONNECT 19200			●	●	●
91/CONNECT 21600			●	●	●

Result Codes	X0	X1	X2	X3	X4	Zn
99/CONNECT 24000			•	•	•	
103/CONNECT 26400			•	•	•	
107/CONNECT 28800			•	•	•	
151/CONNECT 31200			•	•	•	
155/CONNECT 33600			•	•	•	

◆Requires @ in dial string; replaces NO CARRIER

### Functions

Result Codes	X0	X1	X2	X3	X4	&\$	&An
Adaptive Dialing			•	•	•		
Wait for 2nd Dial Tone (W)			•		•		
Wait for Answer (@)				•	•		
Fast Dial			•		•		

**Yn** Selects power-on/reset default configuration.

**Y0** Default is profile 0 setting in NVRAM

**Y1** Default is profile 1 setting in NVRAM

Resets modem.

**Z0** Resets modem to NVRAM profile selected by Y command

**Z1** Resets modem to NVRAM profile 0

**Z2** Resets modem to NVRAM profile 1

**Z3** Resets modem to factory default profile 0 (&F0)

**Z4** Resets modem to factory default profile 1 (&F1)

**Z5** Resets modem to factory default profile 2 (&F2)

**&\$** Displays a list of ampersand (&) commands.

**&An** Enables/disables ARQ codes.

**&A0** ARQ result codes disabled

**&A1** ARQ result codes enabled

**&A2** V- modulation indicator added

**&A3** Protocol indicators added LAPM/MNP/NONE (error control) and V42bis/MNP5 (data compression) \*

**&Bn** Sets modem's serial port rate.

**&B0** Variable, follows connection rate

**&B1** Fixed serial port rate \*

**&B2** Fixed in ARQ mode, variable in non-ARQ mode

<b>&amp;Cn</b>	Controls Carrier Detect (CD) signal.	<b>&amp;In</b>	Sets Receive Data (RD) software flow control (see also &Rn).
	<b>&amp;C0</b> CD override		<b>&amp;I0</b> Software flow control disabled *
	<b>&amp;C1</b> Normal CD operations *		<b>&amp;I1</b> XON/XOFF signals to your modem and remote system
<b>&amp;Dn</b>	Controls Data Terminal Ready (DTR) operations.		<b>&amp;I2</b> XON/XOFF signals to your modem only
	<b>&amp;D0</b> DTR override	<b>&amp;Kn</b>	Enables/disables data compression.
	<b>&amp;D1</b> Reserved		<b>&amp;K0</b> Data compression disabled
	<b>&amp;D2</b> Normal DTR operations *		<b>&amp;K1</b> Auto enable/disable *
	<b>&amp;D3</b> Resets on receipt of DTR		<b>&amp;K2</b> Data compression enabled
<b>&amp;Fn</b>	Loads a read-only (non-programmable) factory configuration.		<b>&amp;K3</b> MNP5 compression disabled
	<b>&amp;F0</b> Generic template	<b>&amp;Mn</b>	Sets Error Control (ARQ) 1200 bps and higher.
	<b>&amp;F1</b> Hardware flow control template		<b>&amp;M0</b> Normal mode, error control disabled
	<b>&amp;F2</b> Software flow control template		<b>&amp;M1</b> Reserved
<b>&amp;Gn</b>	Sets Guard Tone.		<b>&amp;M2</b> Reserved
	<b>&amp;G0</b> No guard tone, U.S. and Canada *		<b>&amp;M3</b> Reserved
	<b>&amp;G1</b> 550 Hz guard tone, some European countries, requires B0 setting.		<b>&amp;M4</b> Normal/ARQ *
	<b>&amp;G2</b> 1800 Hz guard tone, U.K., requires B0 setting		<b>&amp;M5</b> ARQ mode
<b>&amp;Hn</b>	Sets Transmit Data(TD) flow control (also see &Rn)		
	<b>&amp;H0</b> Flow control disabled		
	<b>&amp;H1</b> Hardware flow control, Clear to Send (CTS) *		
	<b>&amp;H2</b> Software flow control, XON/XOFF		
	<b>&amp;H3</b> Hardware and software flow control		



**&Nn** Sets connect speed. If connection cannot be established at this speed, the modem will hang up.

**&N0** Variable rate \*  
**&N1** 300 bps  
**&N2** 1200 bps  
**&N3** 2400 bps  
**&N4** 4800 bps  
**&N5** 7200 bps  
**&N6** 9600 bps  
**&N7** 12,000 bps  
**&N8** 14,400 bps  
**&N9** 16,800 bps  
**&N10** 19,200 bps  
**&N11** 21,600 bps  
**&N12** 24,000 bps  
**&N13** 26,400 bps  
**&N14** 28,800 bps  
**&N15** 31,200 bps  
**&N16** 33,600 bps

**Note:** When &N is used in conjunction with &U, &N sets the highest speed at which your modem will connect, and &U sets the lowest speed at which the modems will connect. The factory default settings for these values should be sufficient for most users.

**&Pn** Sets pulse (rotary) dial make/break ratio.

**&P0** U.S./Canada ratio, 39%/61% \*  
**&P1** U.K. ratio, 33%/67%

**&Rn** Sets Receive Data (RD) hardware flow control, Request to Send (RTS) (see also &In and &Hn).

**&R1** Modem ignores RTS  
**&R2** Received Data to computer only on RTS \*

**&Sn** Controls Data Set Ready (DSR) operations.

**&S0** DSR override; always ON \*  
**&S1** Modem controls DSR

**&Tn** Begins test modes.

**&T0** Ends testing  
**&T1** Initiates Analog Loopback  
**&T2** Reserved  
**&T3** Initiates Local Digital Loopback  
**&T4** Enables Remote Digital Loopback  
**&T5** Prohibits Remote Digital Loopback \*  
**&T6** Initiates Remote Digital Loopback  
**&T7** Initiates Remote Digital with self-test and error detector  
**&T8** Initiates Analog Loopback with self-test and error detector

<b>&amp;Un</b>	Sets floor connect speed when &Un is set greater than 0. &Nn is the ceiling connect speed. See &Nn.	<b>&amp;Zn=s</b>	Writes phone number string s to NVRAM at position n (n = 0-3).
<b>&amp;U0</b>	Disabled	<b>&amp;Zn=L</b>	Writes last executed dial string to NVRAM at position n (n = 0-3).
<b>&amp;U1</b>	300 bps	<b>&amp;Zn?</b>	Displays the phone number stored at position n (n = 0-3).
<b>&amp;U2</b>	1200 bps	<b>&lt;Ctrl&gt;C</b>	Cancels the display of the help screens.
<b>&amp;U3</b>	2400 bps	<b>&lt;Ctrl&gt;K</b>	Cancels the display of the help screens.
<b>&amp;U4</b>	4800 bps	<b>&lt;Ctrl&gt;S</b>	Pauses help screens.
<b>&amp;U5</b>	7200 bps	<b>+++</b>	Escapes to online-command mode.
<b>&amp;U6</b>	9600 bps	<b>#CIDn</b>	Enables and disables caller identification selection and Select Reporting Format. (Note: Caller identification is not available in all areas and some modem control applications do not support this feature.)
<b>&amp;U7</b>	12,000 bps	<b>#CID0</b>	Disables Caller ID *
<b>&amp;U8</b>	14,400 bps	<b>#CID1</b>	Enables formatted Caller ID reporting
<b>&amp;U9</b>	16,800 bps	<b>#CID2</b>	Enables unformatted Caller ID reporting
<b>&amp;U10</b>	19,200 bps		
<b>&amp;U11</b>	21,600 bps		
<b>&amp;U12</b>	24,000 bps		
<b>&amp;U13</b>	26,400 bps		
<b>&amp;U14</b>	28,800 bps		
<b>&amp;U15</b>	31,200 bps		
<b>&amp;U16</b>	33,600 bps		
<b>&amp;Wn</b>	Writes current configuration to NVRAM templates.		
<b>&amp;W0</b>	Modifies the NVRAM 0 template (Y0)		
<b>&amp;W1</b>	Modifies the NVRAM 1 template (Y1)		
<b>&amp;Yn</b>	Sets break handling.		
<b>&amp;Y0</b>	Destructive, but doesn't send break		
<b>&amp;Y1</b>	Destructive, expedited *		
<b>&amp;Y2</b>	Nondestructive, expedited		
<b>&amp;Y3</b>	Reserved		

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## S-Registers

To change a setting, use the ATSr=n command, where r is the register and n is a decimal value from 0-255 (unless otherwise indicated).

Register	Default	Function
S0	0	Sets the number of rings on which to answer in Auto Answer Mode. When set to 0, Auto Answer is disabled.
S1	0	Counts and stores the number of rings from an incoming call (read only).
S2	43	Stores the ASCII decimal code for the escape code character. Default character is "+."
S3	13	Stores the ASCII code for the Carriage Return character <CR>.
S4	10	Stores the ASCII decimal code for the Line Feed character <LF>.
S5	8	Stores the ASCII decimal code for the Backspace character <BS>.
S6	2	Sets the number of seconds the modem waits for dial tone before dialing.
S7	60	Sets the number of seconds the modem waits for a carrier or answers before returning on-hook and sending a No Carrier result code.
S8	2	Sets the duration, in seconds, for the pause (,) option in the Dial command.

Register	Default	Function
S9	6	Sets the required duration, in tenths of a second, of the remote modem's carrier signal before recognition by your modem.
S10	7	Sets the duration, in tenths of a second, that the modem waits after loss of carrier before hanging up. This guard time allows the modem to distinguish between a line hit, or other disturbances that momentarily break the connection, from a true disconnect (hang up) by the remote modem. While we don't recommend connecting the modem to a line with call waiting, if you have it, you may wish to adjust this setting upward to prevent the modem from misinterpreting the second call signal as a disconnect by the remote modem. A better alternative is to ask your phone company how to temporarily disable call waiting (usually *70). For example: ATDT *70 phone number. <b>Note:</b> If you set S10 = 255, the modem will not hang up when carrier is lost. Dropping DTR hangs up the modem.
S11	70	Sets the duration and spacing, in milliseconds, for tone dialing.
S12	50	Sets the duration, in fiftieths of a second, of the guard time for the escape code sequence.

Register	Default	Function																											
S13	0	Bit-mapped register. Select the bit(s) you want on and set S13 to the total of the values in the Value column. For example, ATS13 = 17 enables bit 0 (value is 1) and bit 4 (value is 16).																											
		<table border="1"> <thead> <tr> <th>Bit</th> <th>Value</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>Reset when DTR drops.</td> </tr> <tr> <td>1</td> <td>2 *</td> <td>Reset non-MNP transmit buffer from 1.5K to 128 bytes.</td> </tr> <tr> <td>2</td> <td>4</td> <td>Set backspace key to delete.</td> </tr> <tr> <td>3</td> <td>8</td> <td>On DTR signal, auto dial the number stored in NVRAM at position 0.</td> </tr> <tr> <td>4</td> <td>16</td> <td>At power on/reset, Auto Dial the number stored in NVRAM at position 0.</td> </tr> <tr> <td>5</td> <td>32</td> <td>Reserved.</td> </tr> <tr> <td>6</td> <td>64</td> <td>Reserved.</td> </tr> <tr> <td>7</td> <td>128</td> <td>Disconnect on escape code.</td> </tr> </tbody> </table> <p>* The 1.5K-byte non-ARQ buffer allows data transfer with Xmodem- and Ymodem-type file transfer protocols without using flow control. The 128-byte option lets remote users with slower modems keep data you're sending from scrolling off their screens. When remote users send your computer an XOFF (Ctrl-S) and you stop transmitting, the data in transit from your modem's buffer doesn't exceed the size of their screen. This is also very helpful in situations when a remote modem/printer application is losing characters.</p>	Bit	Value	Result	0	1	Reset when DTR drops.	1	2 *	Reset non-MNP transmit buffer from 1.5K to 128 bytes.	2	4	Set backspace key to delete.	3	8	On DTR signal, auto dial the number stored in NVRAM at position 0.	4	16	At power on/reset, Auto Dial the number stored in NVRAM at position 0.	5	32	Reserved.	6	64	Reserved.	7	128	Disconnect on escape code.
Bit	Value	Result																											
0	1	Reset when DTR drops.																											
1	2 *	Reset non-MNP transmit buffer from 1.5K to 128 bytes.																											
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6	64	Reserved.																											
7	128	Disconnect on escape code.																											
S14	0	Reserved.																											

Register	Default	Function																											
S15	0	Bit-mapped register setup. To set the register, see instructions for S13.																											
		<table border="1"> <thead> <tr> <th>Bit</th> <th>Value</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>Disable ARQ/MNP for V.22.</td> </tr> <tr> <td>1</td> <td>2</td> <td>Disable ARQ/MNP for .22bis.</td> </tr> <tr> <td>2</td> <td>4</td> <td>Disable ARQ/MNP for V.32/V.32bis.</td> </tr> <tr> <td>3</td> <td>8</td> <td>Disable MNP handshake.</td> </tr> <tr> <td>4</td> <td>16</td> <td>Disable MNP level 4.</td> </tr> <tr> <td>5</td> <td>32</td> <td>Disable MNP level 3.</td> </tr> <tr> <td>6</td> <td>64</td> <td>MNP incompatibility.</td> </tr> <tr> <td>7</td> <td>128</td> <td>Disable V.42 operation.</td> </tr> </tbody> </table>	Bit	Value	Result	0	1	Disable ARQ/MNP for V.22.	1	2	Disable ARQ/MNP for .22bis.	2	4	Disable ARQ/MNP for V.32/V.32bis.	3	8	Disable MNP handshake.	4	16	Disable MNP level 4.	5	32	Disable MNP level 3.	6	64	MNP incompatibility.	7	128	Disable V.42 operation.
Bit	Value	Result																											
0	1	Disable ARQ/MNP for V.22.																											
1	2	Disable ARQ/MNP for .22bis.																											
2	4	Disable ARQ/MNP for V.32/V.32bis.																											
3	8	Disable MNP handshake.																											
4	16	Disable MNP level 4.																											
5	32	Disable MNP level 3.																											
6	64	MNP incompatibility.																											
7	128	Disable V.42 operation.																											
S16	0	Bit-mapped register setup. To set the register, see instructions for S13.																											
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Bit	Value	Result																											
0	1	Reserved.																											
1	2	Touch tone dialing test.																											
2-7	4-128	Reserved.																											
S17	0	Reserved																											
S18	0	Test timer for &T loopback testing. Sets the time in seconds of testing before the modem automatically times out and terminates the test. When set to 0, the timer is disabled. Valid range is 1-255.																											
S19	0	Sets the duration, in minutes, for the inactivity timer. The timer activates when there is no data activity on the phone line; at time-out the modem hangs up. S19 = 0 disables the timer.																											
S20	0	Reserved																											

Register	Default	Function
S21	10	Sets the length, in 10-millisecond units, of breaks sent from the modem to the computer; applies to MNP or V.42 mode only.
S22	17	Stores the ASCII decimal code for the XON character.
S23	19	Stores the ASCII decimal code for the XOFF character.
S24	0	Reserved
S25	20	Sets the duration, in hundredths of a second, that DTR must be dropped so that the modem doesn't interpret a random glitch as a DTR loss. (Most users will want to use the default; this register is useful for setting compatibility with older systems running under older operating software.)
S26	0	Reserved

Register	Default	Function
S27	0	Bit-mapped register setup. To set the register, see instructions for S13.
		<b>Bit Value</b> Result
		<b>0 1</b> Enables ITU-T V.21 modulation at 300 bps for overseas calls; in V.21 mode, the modem answers both overseas and domestic (U.S. and Canada) calls, but only originates V.21 calls. (Default Bell 103)
		<b>1 2</b> Enables unencoded (non-trellis coded) modulation in V.32 mode; rarely used part of ITU-T Recommendation V.32.
		<b>2 4</b> Disables V.32 modulation.
		<b>3 8</b> Disables 2100 Hz answer tone to allow two V.42 modems to connect more quickly.
		<b>4 16</b> Enables V.23 fallback mode.
		<b>5 32</b> Disables V.32bis mode.
		<b>6 64</b> Reserved.
		<b>7 128</b> Software compatibility mode. This setting disables the codes and displays the 9600 code instead. The actual rate of the call can be viewed on the ATI6 screen. Used for unusual software incompatibilities. Some software may not accept 7200, 12000 and 14400 bps or greater result codes.
S28	0	Eliminates the V.32 answer tones for a faster connection.
		<b>8</b> Default item, all times are in tenths of seconds.
		<b>255</b> Disables all connections except V.32 at 9600 bps.

Register	Default	Function																											
S29	20	Sets the duration, in tenths of a second, of the V.21 answer mode fallback timer.																											
S30	20	Reserved																											
S31	128	Volume control for speakerphone.																											
S32	2	Bit mapped register setup. To set the register, see the instructions for S13.																											
		<table border="1"> <thead> <tr> <th>Bit</th> <th>Value</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>V.8 Call Indicate enabled</td> </tr> <tr> <td>1</td> <td>2</td> <td>Enables V.8 mode</td> </tr> <tr> <td>2</td> <td>4</td> <td>Disable V.FC modulation</td> </tr> <tr> <td>3</td> <td>8</td> <td>Disable V.34 modulation</td> </tr> <tr> <td>4</td> <td>16</td> <td>Disable 33.6 kbps support</td> </tr> <tr> <td>5</td> <td>32</td> <td>Reserved</td> </tr> <tr> <td>6</td> <td>64</td> <td>Reserved</td> </tr> <tr> <td>7</td> <td>128</td> <td>Reserved</td> </tr> </tbody> </table>	Bit	Value	Result	0	1	V.8 Call Indicate enabled	1	2	Enables V.8 mode	2	4	Disable V.FC modulation	3	8	Disable V.34 modulation	4	16	Disable 33.6 kbps support	5	32	Reserved	6	64	Reserved	7	128	Reserved
Bit	Value	Result																											
0	1	V.8 Call Indicate enabled																											
1	2	Enables V.8 mode																											
2	4	Disable V.FC modulation																											
3	8	Disable V.34 modulation																											
4	16	Disable 33.6 kbps support																											
5	32	Reserved																											
6	64	Reserved																											
7	128	Reserved																											
S33	0	Bit mapped register setup. To set the register, see the instructions for S13.																											
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Bit	Value	Result																											
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4	16	Disable 3200 symbol rate.																											
5	32	Disable 3429 rate.																											
6	64	Reserved.																											
7	128	Disable shaping.																											

Register	Default	Function																											
S34	0	Bit mapped register setup. To set registers, see instructions for S13.																											
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Bit	Value	Result																											
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5	32	Disable TX level deviation.																											
6	64	Disable Pre-emphasis.																											
7	128	Disable Pre-coding.																											
S35-S37	Reserved																												
S38	0	<p>Sets an optional delay, in seconds, before a forced hang-up and clearing of the Transmit buffer when DTR drops during an ARQ call. This allows time for a remote modem to acknowledge receipt of all transmitted data before it is disconnected. The modem immediately hangs up when DTR drops.</p> <p>This option only applies to connections terminated by dropping DTR. If the modem receives the ATH command, it ignores S38 and immediately hangs up.</p>																											

## ***Appendix B.*** ***Help and Service Information***

Before calling, please prepare for your call by following these steps.

---

### **Step 1: Troubleshooting**

You might be able to solve the problem yourself. If you observe one of the following problems, one of the associated responses might fix the problem.

1. Make sure that your telephone cord is plugged correctly from the modem to the telephone jack.
2. Make sure that you have followed the instructions in this manual for installation of drivers.
3. If you are using a headset with the modem, and are also using a sound board, make sure that the cabling between the modem and sound board is correct.

---

### **Step 2: Preparing for the Call**

To assist the technical support representative, have available as much of the following information as possible:

1. Computer manufacturer and computer model
2. Option name: ISA 33.6/56K Data/Fax Modem for Windows
3. Proof of purchase
4. Exact wording of the error message (if any)
5. Description of the problem
6. Hardware and software configuration information for your system

If possible, be at your computer. Your technical support representative might want to walk you through the problem during the call.

---

### **Step 3: Placing the Call to IBM**

Technical support is available during the warranty period to answer any questions about your new IBM option. Support response time will vary depending on the number and nature of calls received.

For the support telephone number and support hours by country, refer to the following table or to the enclosed technical support insert. If the number is not provided in the table or insert, contact your IBM reseller or IBM marketing representative.

<i>Support 24 hours a day, 7 days a week</i>	
Canada	1-800-565-3344
Puerto Rico	1-800-772-2227
United States	1-800-772-2227

# Appendix C.

## Product Warranty

The following warranty information applies to products purchased in the United States, Canada, and Puerto Rico. For warranty terms and conditions for products purchased in other countries, see the enclosed Warranty insert, or contact your IBM reseller or IBM marketing representative.

International Business Machines Corporation

Armonk, New York, 10504

### Statement of Limited Warranty

*The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you originally purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. If you have any questions, contact IBM or your reseller.*

**Machine:** ISA 33.6/56K Modem for Windows

**Warranty Period\*:** Five Years

*\*Contact your place of purchase for warranty service information.*

### Production Status

Each Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's warranty terms apply.

**3-12** ISA 33.6/56K Data/Fax Modem for Windows

### The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if authorized by IBM, will provide warranty service under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

For IBM or your reseller to provide warranty service for a feature, conversion, or upgrade, IBM or your reseller may require that the Machine on which it is installed be 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Many of these transactions involve the removal of parts and their return to IBM. You represent that all removed parts are genuine and unaltered. A part that replaces a removed part will assume the warranty service status of the replaced part.

If a Machine does not function as warranted during the warranty period, IBM or your reseller will repair it or replace it with one that is at least functionally equivalent, without charge. The replacement may not be new, but will be in good working order. If IBM or your reseller is unable to repair or replace the Machine, you may return it to your place of purchase and your money will be refunded.

If you transfer a Machine to another user, warranty service is available to that user for the remainder of the warranty period. You should give your proof of purchase and this Statement to that user. However, for Machines which have a life-time warranty, this warranty is not transferable.

### Warranty Service



To obtain warranty service for the Machine, you should contact your reseller or call IBM. In the United States, call IBM at **1-800-426-7299**. In Canada, call IBM at **1-800-565-3344**. You may be required to present proof of purchase.

IBM or your reseller will provide certain types of repair and exchange service, either at your location or at IBM's or your reseller's service center, to restore a Machine to good working order.

When a type of service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item. Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service. You also agree to ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange.

You agree to:

1. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
2. where applicable, before service is provided —
  - a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provide,
  - b. secure all programs, data, and funds contained in a Machine, and
  - c. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

### **Extent of Warranty**

IBM does not warrant uninterrupted or error-free operation of a Machine.

The warranties may be voided by misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, removal or alteration of Machine or parts identification labels, or failure caused by a product for which IBM is not responsible.

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Circumstances may arise where, because of a default on IBM's part or other liability you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), IBM is liable only for:

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and
2. the amount of any other actual direct damages or loss, up to the greater of U.S. \$100,000 or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR LOSSES OR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.

## ***Appendix D.*** ***Notices***

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Windows,  
Windows95

Other company, product, and service names, which may be denoted by a double asterisk (\*\*), may be trademarks or service marks of others.

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## Electronic Emission Notices

### Federal Communications Commission (FCC) Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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 an IBM authorized dealer or service representative for help.

IBM is not responsible for any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

*Industry Canada Class B Emission Compliance Statement:* This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

*Avis de conformité à la réglementation d'Industrie Canada:* Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### Federal Communications Commission (FCC) and Telephone Company Requirements

1. This adapter complies with Part 68 of the FCC rules. A label is affixed to the adapter that contains, among other things, the FCC registration number, USOC, and Ringer Equivalency Number (REN) for this equipment. If these numbers are requested, provide this information to your telephone company.
2. The REN is useful to determine the quantity of devices you may connect to your telephone line and still have those devices ring when your number is called. In most, but not all areas, the sum of the RENs of all devices should not exceed five (5). To be certain of the number of devices you may connect to your line, as determined by the REN, you should call your local telephone company to determine the maximum REN for your calling area.
3. If the adapter causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance; if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.
4. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your

equipment. If they do, you will be given advance notice to give you an opportunity to maintain uninterrupted service.

5. If you experience trouble with this product, contact your authorized reseller, or call IBM. In the United States, call IBM at **1-800-772-2227**. In Canada, call IBM at **1-800-565-3344**. You may be required to present proof of purchase.

The telephone company may ask you to disconnect the adapter from the network until the problem has been corrected, or until you are sure the adapter is not malfunctioning.

6. No customer repairs are possible to the adapter. If you experience trouble with the adapter, contact your Authorized Reseller or see the Diagnostics section of this manual for information.
7. This adapter may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.
8. When ordering network interface (NI) service from the local Exchange Carrier, specify service arrangement USOC RJ11C.

## Canadian Department of Communications Certification Label

**NOTICE:** The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of 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 certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some 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.

**NOTICE:** The LOAD NUMBER (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop

may consist of any combination of devices subject only to the requirement that the sum of the LOAD NUMBERS of all the devices does not exceed 100.

## Étiquette d'homologation du ministère des Communications du Canada

**AVIS :** L'étiquette du ministère des Communications du Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunications. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause d'un mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

**Avertissement :** l'utilisateur ne doit pas tenter de faire ces raccordements lui-même, il doit avoir recours à un service d'inspection des installations électriques ou à un électricien, selon le cas.

**AVIS :** L'INDICE DE CHARGE (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut

être raccordé à un circuit téléphonique bouclé utilisé par ce dispositif.  
L'extrémité du circuit bouclé peut consister en n'importe quelle combinaison de dispositifs pourvu que la somme des INDICES DE CHARGE de l'ensemble des dispositifs ne dépasse pas 100.



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