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01-33K6-UK.DOC

Preface

The Communicator 33K6 series comprises modems for normal, analogue telephone lines. The modem can be installed by the user. This does not any require specific expertise.

The following layout is used to show commands:

'Configuration screen'	A software concept. These are usually shown on the screen.
<RETURN>	The key on the keyboard which is to be pressed.
[c:\setup]	A command that is to be entered using the keyboard.

Important information is given in the form shown below:

Note: *The diskette should not be formatted.*

Warning: *This may cause a hazard!*

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Contents

1. Introduction

The Communicator 33K6 Internal and External are a range of modems intended for public (analogue) telephone network connections. For modem connections, the maximum data transfer speed is 33,600 bps. This is approximately 3.3 kB per second. Fax messages are sent at a maximum of 14,400 bps. You can also use the Communicator 33K6 as an answering machine. The Communicator 33K6 series complies with V.80 recommendations and is therefore suitable for video conferencing and telecommuting.

The Communicator 33K6 modems cannot be used for ISDN or other telephone systems using digital code.

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2. Safety First

The Communicator 33K6 is designed for standard analogue telephone line connections. Do not connect it to a digital telephone system or to a network. This may cause damage.

Use the modem in dry spaces only.

Do not connect or disconnect any equipment if the computer has not been turned off yet. This may cause damage to the equipment.

The internal Communicator 33K6 model should be built into the computer. Unplug the computer before it is opened. It can be extremely dangerous if the computer is still plugged in. ATX type computers in particular can be spontaneously activated while you are inserting cards into the computer.

External models of the Communicator 33K6 have a power supply. This mains supply is suited for Europe only and should only be installed in dry spaces. Unplug the equipment if you are going on holiday or planning on not using the modem for a long period. Do NOT use any other mains supply than the one provided and do NOT use this mains supply for any other purpose (for a personal stereo, for example). This may cause fire. During installation, please make sure that the cables do not cause any inconvenience or get caught under or behind the leg of a chair, and so forth.

If lightning occurs, you are advised to unplug the mains supply and the telephone connection to avoid damage.

3. How to install your modem

This chapter describes how to connect the modem to your computer.

3.1 Hardware

This chapter is divided into two sections: one for internal models and one for external models. If you have purchased an external modem, such as the Communicator 33K6 ESP, see section 3.1.2. If you want to install an internal modem, then proceed to section 3.1.1.

3.1.1 Internal models

The package should contain the following:

- Modem card;
- Disk containing the control program for Windows 95 and NT 4.0;
- Software and relevant manual;
- Telephone lead with plug;
- Manual.

Contact your supplier if one or more items are missing.

Warning: *Disconnect the computer as well as all associated equipment and unplug the power plugs before removing the outer case of the computer.*

Proceed as follows to install the modem:

1. Switch the computer off and unplug the power cord.

2. Remove the outer case of the computer as described in the relevant manual.

3. Select an available 16-bit ISA slot. ISA slots are usually coloured black.

4. Remove the slot cover and keep the screw to hand.

5. Remove the modem from the packaging and check the setting of the dip switch using the tables in Annex D. The settings for your modem can be found by looking at the relevant modem on the basis of the relevant diagrams. Then consult the settings in the associated tables. If you are using Windows 95, set the modem for Plug & Play if possible. In all other cases set the modem to COM4 by preference.

6. Place the modem in the selected slot. Insert the card in the slot until the modem is securely in place.

7. Fasten it using the screw. Save the cover.

8. Attach the outer case of the computer and connect all cables.

9. Plug the telephone lead into the "LINE" connection at the back of the modem.

10. Connect your telephone to the "PHONE" modem connection.

11. Take the phone off the hook and check whether you can hear the dial tone. This way you can check whether the telephone has been connected properly.

12. If applicable, plug a loudspeaker or set of headphones in the "SPK" modem connection and a microphone in the "MIC" connection.

13. Switch on the computer. Now you are ready to install the software.

Note: *The loudspeaker and headphone connections are optional, and therefore do not feature on all modems.*

Note: *It is not possible to assign a COM port number to the modem if this number is already used on the computer, even if the port is not in use. The modem should usually be set to COM4 since most PCs are provided with two built-in COM ports.*

Note: *The software settings should always comply with the COM or IRQ settings of the modem.*

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3.1.2 External models

This chapter describes how to connect an external modem to your computer. Proceed to 3.1.1 if you have a built-in (card) modem. The package should contain the following:

- Modem;

- Disk containing the control program for Windows 95 and NT 4.0;

- Software and relevant manual;

- Telephone lead with plug;

- Adapter;

- Serial cable;

- Manual.

Contact your supplier if one or more of these items are missing.

Your modem has to be connected to your computer. The relevant leads are provided. Proceed as follows:

1. Switch off the computer.

2. Plug the 25-pin-wide connection of the serial lead into the "RS-232" serial port at the back of the modem.

3. Plug the other end of the serial cable into the serial port of your computer. This is usually COM2. The cable has two connections. Choose the plug that fits.

4. Plug the telephone lead into the "LINE" connection at the back of the modem.

5. Plug in the telephone lead you find in the box. There is a possibility that you have a version for a particular country where the telephone plug is fitted to the cable. If so, continue with step 6.

6. Plug the telephone plug into the telephone contact.

7. Turn OFF the main switch at the front of the modem. Insert the wire of the adapter into the "POWER" connection at the back of the modem.

8. Insert the plug into a socket.

9. Connect your telephone to the "PHONE" connection on the modem.

10. Take the phone off the hook and check that you can hear the dial tone.

11. If applicable, plug a loudspeaker or set of headphones in the "SPK" modem connection and a microphone into the "MIC" connection.

12. Switch on the modem. The modem will test itself, after which the equipment will be ready for use.

13. Switch on the computer. Now you are ready to install the software.

Note: *The loudspeaker and headphone connections are optional, and therefore do not feature on all modems.*

3.2 Software

3.2.1 Control program

3.2.1.1 DOS

DOS programs do not require any special installation procedure. You do, however, need a DOS communication program. This is not provided and should be purchased separately.

You need the following modem information in order to proceed:

- The modem COM port.

- The speed. You can choose up to a maximum of 57k6 bps.

- The transport control. RTS/CTS is usually sufficient. If possible, do not use Xon / Xoff. This may cause problems when establishing connections with certain services.

Proceed as follows to test the modem:

1. Start the communication program.

2. Set the right COM port.

3. Switch on the terminal mode.

4. Enter [at] and then press <RETURN>. Subsequently, the modem should indicate either 'OK' or '0'. Check the settings if the modem does not give any further indications. If any problems occur, consult the 'Troubleshooting' chapter.

3.2.1.2 Windows 3.1x

Follow the instructions for DOS. Set the modem to COM4.

3.2.1.3 Windows 95 with Plug & Play models

Both the external and internal modems are suitable for Plug & Play. The internal modem should, however, be switched to PnP when installing it into the computer.

The modem is automatically recognised by the operating system after you have started Windows 95. Insert the disk containing the control program in drive A and follow the instructions on the screen.

By default, a COM port and a modem are created with the correct settings.

3.2.1.4 Windows 95 with non-Plug & Play models

If you have an external modem, go to the "add modem" section.

If you have an internal modem, which is not suitable for Plug & Play, Windows 95 must first install a control program for the serial port. Proceed as follows:

1. Start Windows 95.

2. Click on 'Start' and select 'Settings'. Then click on 'Control Panel'. A window appears.

3. Look for the new hardware icon and double click. The introduction window appears.

4. Click on 'Next'.

5. Select 'Yes' and click on 'Next'. The 'Yes' setting is the Windows default. A window with a warning appears.

6. Click on 'Next'. Windows will now look for your hardware. This may take a few minutes;

7. Wait until the window with the results appears. Windows should have found the 'communication port' by now. This can be checked by clicking on 'Details'.

8. Click on 'Finish' to complete. You are now ready to add the modem.

Add modem

The 'Control Panel' is still visible. If you have closed it by accident, open it again. Follow the instructions from the start of this paragraph.

1. Double click on the 'Modems' icon.

2. Click on the 'Add' button.

3. Select the option 'Don't detect my modem, I will select it from a list'.

4. Click on 'Next'. A list of modems appears.

5. Insert the disk containing the control program into drive A.

6. Click on 'Disk'.

7. Enter [a:\] as the location for the control programs.

8. Click on 'OK'. A list of modems will appear.

9. Select your modem from the list by clicking on it.

10. Click on 'Next'. The computer asks which serial port you want to use.

11. Select the right serial port from the list. This it the port to which you connected your external modem (usually COM2) or, with internal models, the serial port that Windows added (usually COM4).

12. Click on 'Next' to close.

Your modem is now ready to use. You can now create a 'Dial-up' connection or use other applications. Consult chapter 3.2.2 on further installation.

Note: *Your modem does not work if the computer has been restarted in the 'DOS prompt only' mode. Start DOS applications in Windows 95.*

Note: *With video conferencing based on the H.324 norm, it is ESSENTIAL that you install the control program provided. The Windows 95 'Standard Modem' control program does not guarantee stable operation for this application.*

3.2.1.5 Windows NT

The control program on the disk supplied for Windows 95 is also suitable for Windows NT 4.0. Follow the instructions in the Windows manual.

Note: *Only install the control program. The applications software is for Windows 3.1x and 95 and will not work. You need a special modem and fax program suitable for Windows NT. Your dealer can advise.*

3.2.2 Sending and receiving fax messages

3.2.2.1 DOS

No software is supplied for DOS. If you do want to fax using DOS, select a fax program that is compatible with Class 1 fax modems.

3.2.2.2 Windows 3.1x

Your modem can send and receive faxes using the Supervoice software provided. Install this software from disk before you can fax. See the Supervoice manual for further details. The installation program creates an extra printer. With this 'printer', you can fax from every Windows application. Supervoice is also needed to use the hands-free telephone function on your modem.

3.2.2.3 Windows 95

You can use the Supervoice program provided for receiving and sending fax messages.

A program is supplied with Windows 95 which you can also use for faxing. This program works better with your applications such as Microsoft Office than the program supplied with the Communicator.

You are therefore advised to use the Microsoft Exchange program for sending and receiving faxes in combination with the Microsoft fax service. You can then share your fax modem on a network with several users. Exchange is also referred to as Windows Messaging and Outlook.

See the Windows 95 manual on how to install and properly set Microsoft Exchange. The Communicator series has been tested using Exchange version 4.0.

Although you can fax with Exchange, Supervoice does have to be installed for you to be able to use the functions for hands-free telephoning and the answering machine.

3.2.2.4 Windows NT 4.0

No software for Windows 4.0 is provided. You need a fax modem program for Windows NT compatible with Class 1. Ask your dealer for advice.

4. How to use your modem

The modem is controlled by application programs. The modem comes with an application program that provides access to all functions. These application programs should first be installed before you can use them. Also refer to the relevant manual for further information.

Redial if your modem does not operate properly or if the connection is very slow. In some areas, the quality of telephone connections may be poor.

4.1 Internal models

This type of modem is fully software-operated. All operations are fully software-controlled. There are therefore no switches.

The internal modem is switched off automatically together with your computer. Any connections that are still active before the computer was switched off will be ended automatically.

4.2 External models

This type of modem has various indicators. These indicators show whether the modem has established a connection. Also refer to figure 1. The indicators notify you about the following points:

TD	Send Data	Is on when the modem is sending data to another modem
RD	Receive Data	Is on when the modem is receiving data from another modem
DTR	Terminal Ready	Is on when the DTR signal is active
CTS	Clear to Send	Is on when the CTS signal is active
DCD	Carrier Detect	Lights up when connected.
OH	Off Hook	Modem uses the telephone line.
AA	Auto Answer	Someone is calling the modem.
PWR	Power	Is on when the modem is ON
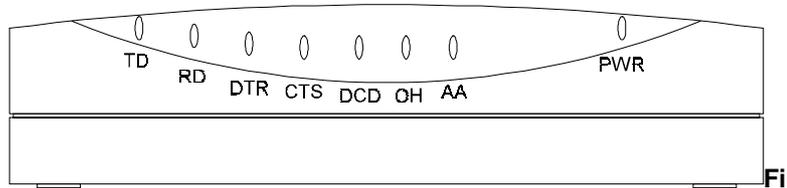
Figure 1: The indicators on the front of the modem

You can turn the modem on and off using the Power switch. The connection will be ended immediately if the modem is switched off when a connection is still active. It is advisable not to end a connection in this way.

5. Maintenance

The Communicator does not need any special maintenance. Clean the Communicator ESP using a soft, damp cloth.

Do not use alcohol or any other aggressive cleaning agents on the plastic exterior, as these may cause damage.

The Communicator ISP (internal) does not normally require cleaning. Any accumulated dust can be removed using a vacuum.

When transferring the modem to another computer, you are advised to clean the gold contacts with alcohol. Do not use a contact spray or anything similar. This will leave grease behind to which dust and dirt may adhere.

Never immerse the modem or the adapter in water or any other fluid. This is dangerous and may cause irreparable damage.

6. Troubleshooting

This chapter tells you how to resolve any problems. Contact your dealer if you do not find the required solution in this chapter.

6.1 All models

Complaint	Possible cause	Solution
Modem does not respond.	Modem COM port setting differs from software settings.	Check that the communication software is set to the right COM port and IRQ settings
	Initialisation string incorrect.	Check that the modem is correctly set by the communication software. You may be asked to enter an 'initialisation' string. Then enter [AT&F] or call the help desk of the service you are trying to use.
Modem does establish a connection, but there is no data on screen.	Communication parameter settings incorrect.	Check that all communication settings (baud rate, data, stop and parity bits) are correct and are the same on both sides. Check that the hardware flow control (RTS/CTS default settings) is activated on both the modem and in the software.
	The system waits.	Press <ENTER> a number of times. The system may be waiting to receive data from you before sending its own data.

Complaint	Possible cause	Solution
	Terminal emulation incorrect.	Check that the correct terminal has been set in the software. Consult your software manual for this.
The modem is ringing, but there is no connection.	Poor telephone line.	Redial.
	Poor private branch exchange.	Try a direct external line.
	Wrong number.	Check the number. With an internal exchange, make sure you dial the number for the external line.
	Communication parameter settings incorrect.	Contact the service for the correct communication settings.
Modem has errors when establishing a connection with another modem.	Connection interrupted by message.	Make sure that the "Call Waiting" mode is turned off.
	Dataflow control incorrect.	Make sure that the RTS/CTS hardware flow control is active.
Modem voice performance poor.	Incorrect modem type selected in the software.	Check that the correct modem type has been selected in the voice/fax software.
	Computer too slow.	Check that your computer is fast enough to cope with voice modes (38.4 kbps). Voice modes use the CPU intensively and therefore require a minimum of 486 CPU.
Error message 'No Dial Tone'	Telephone line in use.	Wait until it is free.

Complaint	Possible cause	Solution
	'Phone'-and 'Line'-connections swapped.	Connect telephone line to 'Line' port and not to the 'Phone' port.
	Telephone line doesn't work.	Test with normal telephone and reset.
	Non-compatible dial tone from home switch board.	Use direct outside line or include the command 'X0' in the full ring command to switch off dial tone detection e.g: ATX0DT<telno>

6.2 Internal models

Internal modems have a serial port on their card. This port may conflict with the existing serial port in the computer.

The computer will not function if the modem is set to a serial (COM) port that is already in the computer. Proceed in one of the following three ways to avoid this problem:

1. Use Windows 95 and switch the modem to Plug & Play. Subsequently, Windows 95 will automatically adopt the right settings.

2. On older computers, the two built-in serial ports are set to COM1 and COM2. Set the modem to COM4. Do not use COM3 if your mouse has been connected to COM1. This is the method to be used for DOS, Windows 3.1x and OS/2 if (3) is not possible.

3. On new computers you can use the BIOS set-up to determine on which COM settings the internal serial ports of your computer operate. Consult the computer manual to check whether this is possible with your computer. Then set the internal ports to COM1 and COM4 and the modem to COM2. This the best method for DOS, Windows 3.1x, OS/2, and so forth.

Complaint	Possible cause	Solution
Modem does not respond.	IRQ or I/O conflict.	Try other IRQ or COM port settings. This problem is rare in Windows 95.
	Double use of IRQ.	Windows 95 will assign an IRQ to the modem which is already in use. This will occur at the point where there are no more free IRQ lines because there too many cards in the computer. Check the 'System' section of the 'Control Panel' to see which IRQ the modem is using and that it is not being used elsewhere. Modify the settings manually and remove cards from the computer.
	Windows 95 is used on a non-Plug-&-Play computer.	Install the control programs by adding a modem in Windows, see manual.
	Control programs not properly installed in Windows 95.	Remove the control programs and reinstall.
	Dataflow control incorrect.	Make sure that the RTS/CTS hardware flow control is active.

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6.3 External models

Complaint	Possible cause	Solution
Modem does not respond.	Modem is not connected to the mains; all indicators are off.	Check that modem has been turned on. Check that adapter plug is plugged in properly.
	Wrong serial port setting in the software.	Check the communication program settings. External modems are usually connected to a COM2.
	Serial cable not connected.	Check the cable or replug it. If the cable is not correctly connected and you use Windows 95, then restart the computer to set the control program.
Modem reports errors during data transmission.	Speed of the port has been set too high.	Under DOS and Windows 3.x, most computers can cope with speeds up to 57k6 bps. You need a 16c550 serial port for higher speeds.

Appendix A: AT commands

Normally, you do not need to read this chapter. The codes in this chapter are automatically sent by your communication program. The following is a list of the codes used most frequently which enable you to set the modem directly with special applications.

You need a computer with communication software to send commands to the modem.

All commands should be introduced by entering [AT] followed by the command letter(s) and pressing <ENTER>. The commands can be entered either in lower or upper case letters; not both. A command that is entered without parameters is comparable to a command with the '0' parameter.

Example: [ATL] + <ENTER>

With this command you can reduce the loudspeaker volume of the modem.

Command	Description	
A	Answer incoming call.	
A/	Repeat last command. Do not precede A/ by AT or followed by ENTER.	
B0	CCITT mode @ 1200 bps	
B1	Bell mode @ 300/1200 bps	
D_	0-9, A-D, # and *	
	L	Redial last number
	P	Use pulse dial.
	T	Use tone dial.
	W	Wait for second dial tone.
	,	pause
	@	Wait for five seconds.
	!	Quiet
	;	Return to command mode after dialling number.

Command	Description
	& Wait for AT&T "bong" tone.
DS=*n*	Dial tone of the four telephone numbers stored (n=0-3) in the non-volatile memory of the modem.
E0	Command echo switched off.
E1	Command echo switched on.
+++	Escape characters - switch from data mode to command mode.
H0	Modem on hook (hang up).
H1	Modem off hook (switch on).
L0	No sound level for the loudspeaker.
L1	Low sound level for the loudspeaker.
L2	Average sound level for the loudspeaker.
L3	High sound level for the load speaker.
M0	Loudspeaker always switched off.
M1	Loudspeaker switched on until carrier detected.
M2	Loud speaker always on.
M3	Loudspeaker off while dialling, until carrier detected.
N0	Only connect at DTE speed.
N1	Automatic speed setting.
O0	Return to data mode.
O1	Start by resetting equalizer and return to data mode.
P	Select pulse dial.
Q0	Result codes switched on.
Q1	Result codes switched off.
S*r*?	Read S-register r, where r=0-95.
S*r*=*n*	Set S-register *r* to value *n* (r=0-95; n=0-255).

Command	Description
T	Select tone dial.
V0	Numeric responses.
V1	Text responses.
W0	Notify DTE speed only.
W1	Notify lines speed, error correction protocol and DTE speed.
W2	Notify DCE speed only.
X0	Responses/blind dial compatible with Hayes SmartModem 300
X1	Same as X0 plus all CONNECT responses/blind dial.
X2	Same as X1 plus detection dial tone
X3	Same as X1plus detection engage tone /blind dial.
X4	Detection of all responses, dial tones and busy tones.
Y0	Lengthy contact interruptions switched off.
Y1	Lengthy contact interruptions switched on.
Z0	Reset user profile 0 and dial.
Z1	Reset user profile 1 and dial.

Appendix B: Technical specifications

Modulation norms	V.34, V.32bis, V.32, V.29, V.27ter, V.23, V.22bis, V.22, V.21 ch2, V.17, Bell212/103
Synchronous protocol	V.80 for video conferencing H.324 norm
Compression	V.42bis, MNP Class 5
Error correction	V.42, MNP Classes 2-4
Host interface	ISA 16-bit bus for internal and RS 232 port for the external model
FAX group	Group III
FAX command	Class 1
Send levels	-10 dBm +/- 1 dB
Sensitivity	-43 dBm
Capacity	3 W max.

Temperature in operation: 0°C
in storage : -20° to 80°C

Appendix C: Conditions for 56K connection

Under certain circumstances, your Communicator 56K can receive data at a speed of a maximum of 56,000 bits per second. If a connection is not possible at 56,000 bps the modem will automatically drop to a lower speed.
A speed of 56,000 bps is only possible *for receiving data* under the following conditions:
You are connected to the Internet;
Your Internet service provider has a 56,000 bps compatible connection station on the number you are calling;
You are connected to the Internet supplier by a modern (digital) telephone switchboard. Check with your telephone company if necessary.
You are using a direct analogue external line and not a

connection via an in-house switch board or ISDN.
Under all other circumstances and *for sending data,* the
maximum speed is 33,600 bps.
Note: Speed depends upon the quality of the telephone
line. The communicator 56K will drop the speed if the
connection is poor.

Appendix D: Settings for internal models
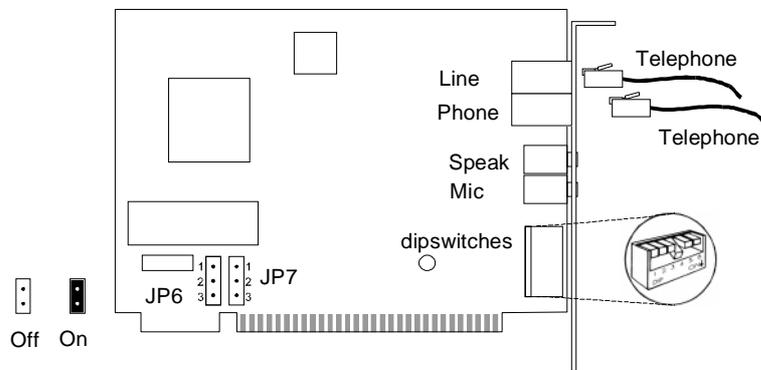
Figure 2:   **Modem type A**

COM port	IRQ	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	JP6	JP7
1	4	ON	ON	OFF	OFF	ON	OFF		
2	3	OFF	ON	OFF	ON	OFF	OFF		
3	5	ON	OFF	OFF	OFF	OFF	ON	2-3 on	2-3 on
	4	ON	OFF	OFF	OFF	ON	OFF		
4	2	OFF	OFF	ON	OFF	OFF	OFF		
	3	OFF	OFF	OFF	ON	OFF	OFF		
Automatic Windows 95	PnP	OFF	OFF	OFF	OFF	OFF	OFF	1-2 on	1-2 on

Table 1:   **Settings for modem type A**
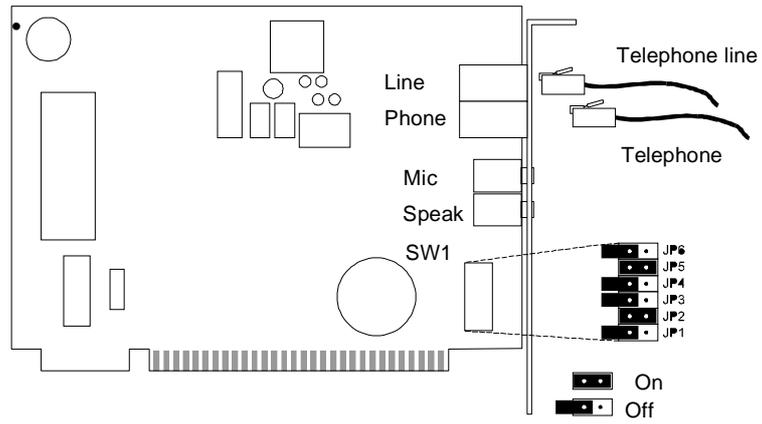
Figure 3:   Modem type B

Port	Address	S1-1	S1-2	S1-3	S1-4	S1-5	S1-6
COM 1	03F8	ON	ON	OFF	OFF	ON	OFF
COM 2	02F8	OFF	ON	OFF	ON	OFF	OFF
COM 3	03E8	ON	OFF	OFF	OFF	ON	OFF
COM 4	02E8	OFF	OFF	OFF	ON	OFF	OFF

Table 2:   Settings for modem type B. This type of modem does not support Plug & Play.
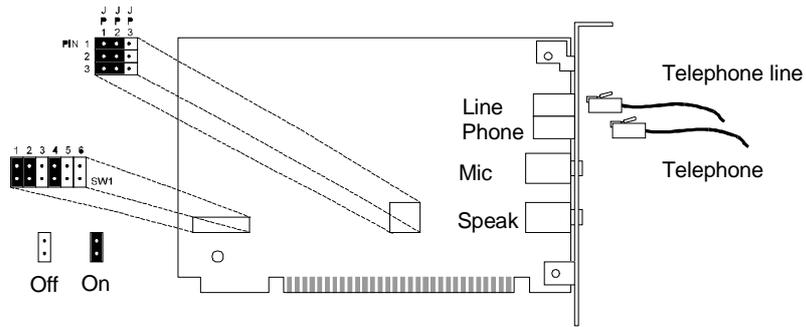
Figure 4:   **Type C modem.**

Port	Address	S1-1	S1-2	S1-3	S1-4	S1-5	S1-6
COM 1	03F8	ON	ON	OFF	ON	OFF	OFF
COM 2	02F8	OFF	ON	ON	OFF	OFF	OFF
COM 3	03E8	ON	OFF	OFF	ON	OFF	OFF
COM 4	02E8	OFF	OFF	ON	OFF	OFF	OFF
PnP	Auto	OFF	OFF	OFF	OFF	OFF	OFF

Table 3:   **Settings for modem type C.**

PnP	Connect the entire JP2 and JP3 columns together (1,2,3, horizontally left)
None PnP	Connect the entire JP1 and JP2 columns together (1,2,3,horizontal right)

Table 4:   **Switch between Plug & Play for Windows 95 and normal operating systems with modem type C.**

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