

**** USER'S
MANUAL ****

FCC ID : NBUF560IC-001

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 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 the dealer or an experienced radio/TV technician for help.

Warning: A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

Use only shielded 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.

For equipment FCC ID: NBUF560IC-001

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.

56000 BPS
Data/Fax/Voice Modem

User's Guide

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UPDATES

Updates to the products and the manual are obtainable at participating local dealers and distributors, or directly from local outlet.

1. Introduction

Package Contents.....	1
Fax/Modem Series	1
About This Manual	2

2. Installation

The Equipment That You Need	3
Inserting the Internal Modem Board.....	3
Connecting Your Telephone	7
Connecting Other Peripherals.....	7
Testing Your Modem.....	7

3. Install 56,000 Bps Drivers in Windows 95

PNP (Plug & Play) installation procedure.....	9
---	---

4. AT modem commands.....	10
---------------------------	----

5. Status Registers.....	19
--------------------------	----

1 Introduction

Congratulations on choosing our modem for your IBM™ PC or compatible. Whether this is your first modem or you are upgrading to a faster one, this user's guide is very helpful for installation, configuration, operation, and trouble-shooting.

As a data modem, your modem operates at line speeds up to 56,000 bps. Its automatic error correction and data compression maximize data transfer integrity and boost average data throughput up to 115,200 bps.

Your modem also supports Group 3 send and receive rates up to 14400 bps while operating as a fax modem.

Full TAM (telephone answering machine) features, which allow you to record incoming messages and to retrieve recorded messages from remote sites.

Package Contents

Your modem package contains the following items:

- Internal Modem Card
- RJ-11 phone cord
- User's Guide
- Communication Software

If any item is missing, please repack the unit and return the entire package to your dealer for exchange.

Note : Under directory of manual with fall set of install guide in several countries languages.

User's Guide

About This Manual

This user's guide aims to provide all the necessary information for installation, configuration, operation, and troubleshooting. It consists of the following chapters:

1. INTRODUCTION

This chapter provides general information about your modem and the organization of this user's guide.

2. INSTALLATION

This chapter describes the installation of the modem, and explains its configuration.

3. INSTALL 56,000 BPS DRIVERS IN WINDOWS 95

This chapter describes how to configure your modem step by step for proper operation in Windows 95.

4. AT COMMANDS (See CD-ROM)

This chapter lists AT commands that your modem supports.

5. STATUS REGISTERS (See CD-ROM)

This chapter lists status registers that your modem supports.

2 Installation

This chapter describes how to install your modem. It lists the required equipment and guides you through the step-by-step installation procedure. For software installation, please refer to the documentation that comes with your communications and/or fax software.

The Equipment That You Need

Before starting the installation, make sure that the following items are ready:

- IBM PC or compatible with Microsoft™ Windows 95 or higher.
- A telephone outlet with a modular-type connector (RJ-11) jack.
- This outlet with RJ-11 jack is widely used for single-line telephone service in homes and offices. Usually, it is connected to telephones or fax machines through RJ-11 phone cord.

Inserting the Internal Modem Board

Follow these steps to install your internal modem.

1. Turn off your computer and unplug its power cable.
2. Remove the system cover to access the expansion slots.

UŠer's Guide

3. Remove the metal bracket from an empty 32-bit expansion slot (PCI slot). Save the screw to secure the card.

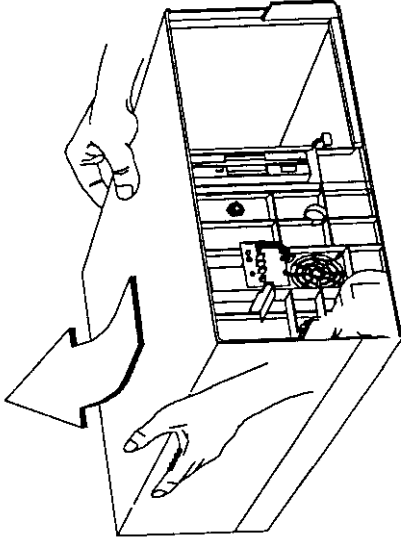


Figure 2-1 Remove the system cover



Touch the metal computer frame with one hand to discharge any static electricity that you may have accumulated.

4. Insert the modem into the slot and push it down and make sure that the card is seated firmly into the slot.

Installation

5. Use the screw that you removed earlier to secure the card.

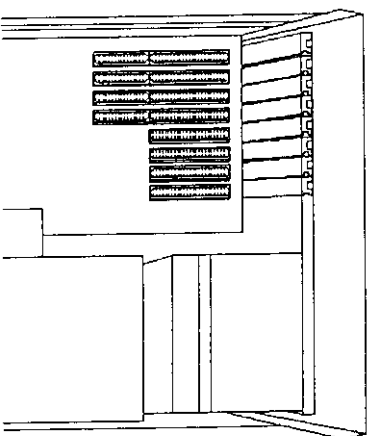


Figure 2-2 Remove the metal bracket from an ISA slot

6. Replace the system cover.

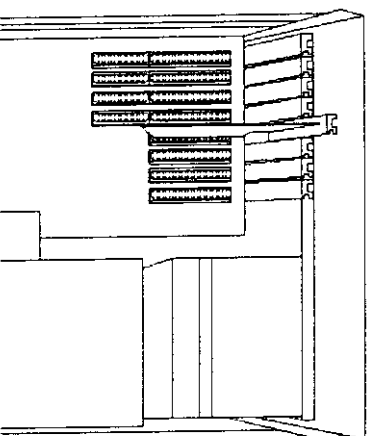
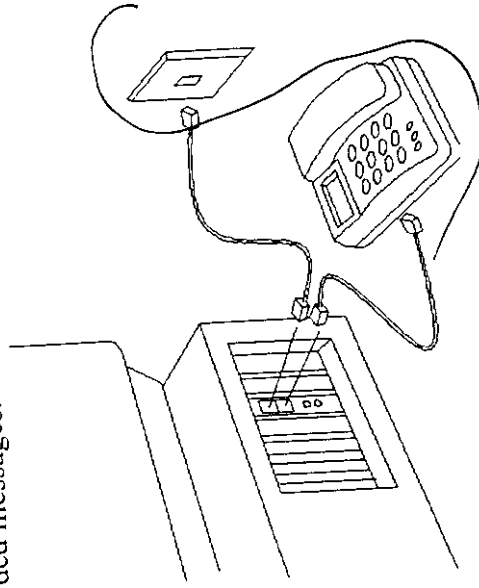


Figure 2-3 Insert the modem into the slot

User's Guide

7. Plug one end of the supplied phone cord into the jack labeled **LINE** on the bracket of your modem and plug the other end into a modular phone wall jack. Please refer to Figure 2-4.
8. Connect your phone to the jack labeled **PHONE** on the bracket of your modem.
9. Plug your microphone into the jack labeled **MIC** on the bracket of your modem.
10. Plug the speaker's plug into the jack labeled **SPK** on the bracket of your modem. You can use your speakers to hear the recorded messages.



11. Hardware installation is now completed.

Connecting Your Telephone

1. Unplug your telephone from the wall jack by pressing the protruding tab toward the plastic connector and removing the connector from the telephone service outlet.
2. Take the supplied telephone cord and plug one end into the modem telephone connector labeled **LINE**, which is a RJ-11 jack on the rear panel of the external modem.
3. Plug the other end of the telephone cord into the telephone

Connecting Other Peripherals

4. The connector labeled **MIC** on the modem is for recording outgoing messages. If you have a microphone, plug your microphone to this **MIC** connector. In addition, the **SPK** jack on the external modem is for connecting external speakers.

Testing Your Modem

Follow the procedures listed below to make sure that your modem is installed properly.

1. Turn on your computer.
2. If your system supports **Plug-and-Play**, Windows 95 will detect your modem hardware automatically, then ask for its device driver.

User's Guide

3. Install your communication software (Bitware or Supervoice). If you need assistance, refer to the manual that comes with the software. If your installation is not successful, please check whether or not your BIOS supports **Plug-and-Play** feature.
4. Use your communication software to set your modem to local terminal or direct connect mode. This mode allows you to communicate directly with your modem.
5. Type
AT  (Use Hyper terminal under Supervoice.)
Your modem should send an **OK** result code to your computer screen.

*If there is no **OK** result code on your screen, please turn off your computer, remove the system cover to make sure your modem is seated firmly on the slot.*
6. Type ATDT <phone number>, where <phone number> is the telephone number to which your modem is connected.
7. Press . Then you should receive a **BUSY** result code.

*If you did not receive a **BUSY** result code, check if the connection between your modem and the telephone is proper.*

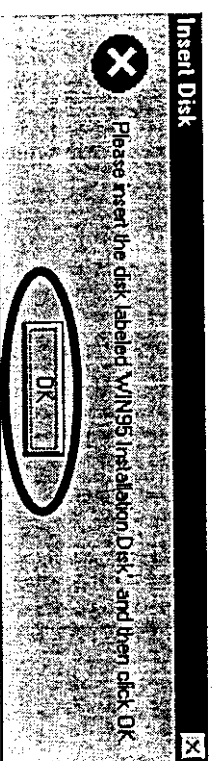
Install Drivers in Windows 95 B

3 Install 56,000 Drivers in Windows 95B

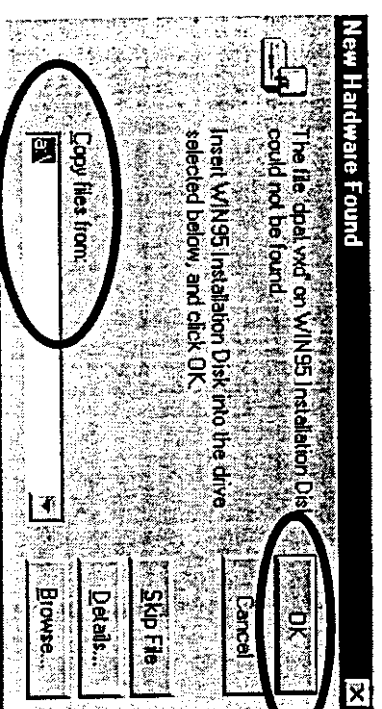
This chapter describes how to configure your modem step by step for proper operation in Windows 95B.

PNP (Plug & Play) installation procedure

1. Turn on your modem and after entering Windows 95B, the system will detect its automatically. When displays this picture, please insert the disk labeled "**WIN95 Installation Disk**" to your floppy disk drive (A:\) or CD-ROM put it in CD-ROM device, and then click "**OK**".

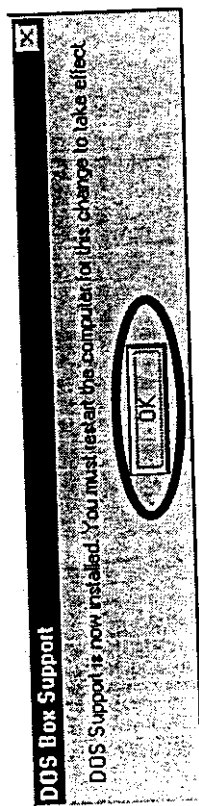
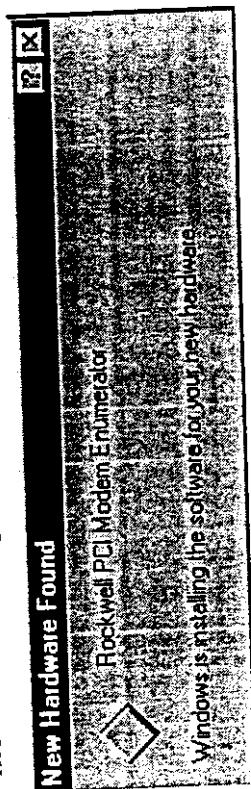


2. Choose "**Drive A:**" and press "**OK**".



User's Guide

3. Please wait for a second, because Windows is installing the software for your new hardware. Finally press "OK" for restarting your computer to finish the procedure of the internal modem's installing



You are now ready to explore the Internet through your modem in a speed of 56000 bps.

4 AT Commands

In general, it may not be necessary to use AT commands to perform modem activities, because your communication software usually does this for you. The AT command set consists of industry-standard commands that instruct your modem to perform various activities, such as dialing, answering calls, and hanging up. More than one instructions can be included on a command line. The following is an example of a typical command:

ATM0Q1DT9,1408555-1111

This command line instructs your fax/modem to

- Turn off its speaker (**M0**).
- Disable result codes (**Q1**).
- Use Touch-tone dialing (**DT**) to dial the number 9 (**9**).
- Pause for two seconds (**,**).
- Dial the telephone number **1408555-1111**.

AT modem commands

The following table lists the available AT commands. Note that the bold commands shown in the Description column indicate the default settings.

Command	Description
+++	Escape sequence. Pause one second before typing
A	Manually answer incoming calls
AT	Repeat the last command

User's Guide

AT	Attention code - command prefix to any AT command
Bn	B0 = ITU-T; B1 = Bell 212A
Cn	Control the transmission carrier
	C0 = Not permitted; return ERROR result code
	C1 = Normal transmission carrier switching
Dn	Dial telephone numbers. The following dial modifiers are included:
	n 0 ~ 9
	# and * Valid for tone dialing only
	P Pulse dialing
	T Tone dialing
	W Wait for second dial tone
	@ Wait for 5 seconds of silence
	, Pause
	! Flash.

Command	Description
DS=n	Dial stored command line (n = 0~3)
En	E0 Echo off
	E1 Echo on
Hn	H0 Hang up
	H1 Off hook

AT Commands

In	I0	Display product code
	I1	Display the ROM checksum
	I2	Request ROM check - verifies ERROR or OK
Ln	I3	Firmware version 1
	I4	Firmware version 2
	I5	Report the country code
	L0	Speaker volume lowest
	L1	Speaker volume low
Mn	L2	Speaker volume medium
	L3	Speaker volume high
	M0	Speaker off
	M1	Speaker off when carrier is detected
	M2	Speaker is always on
Nn	M3	Speaker is on during handshaking
	N0	Auto-mode detection is disabled
	N1	Auto-mode detection is enabled
On	O0	Return to data mode
	O1	Perform a retrain sequence, then return to data mode

User's Guide

Command	Description
Qn	Q0 Response messages on Q1 Response messages off
Sn?	Read value in S-register n
Sn=v	Change value in S-register n to v
Vn	V0 Enable short-form result code V1 Enable long-form result code
Wn	W0 Error correction call progress not reported W1 Error correction call progress reported W2 Error correction call progress not reported
Xn	X0 No detection of busy tones; send only OK, CONNECT, RING, NO CARRIER, ERROR, NO ANSWER. X1 No detection of busy tones; send only OK, CONNECT, RING, NO CARRIER, ERROR, NO ANSWER, CONNECTXXXX X2 No detection of busy tones; send only OK, CONNECT, RING, NO CARRIER, ERROR, NO ANSWER, NO DIAL TONE, CONNECTXXXX X3 Enables monitoring of busy tones; send only OK, CONNECT, RING, NO CARRIER, ERROR, NO ANSWER, CONNECTXXXX X4 Enables monitoring of busy tones, send all messages.

AT Commands

Command	Description
Yn	Y0 Disabled long space disconnect
Y1	Enabled long space disconnect
Zn	Z0 Reset and use configuration Profile 0
Z1	Reset and use configuration Profile 1
&Cn	&C0 Keep carrier detect signal always ON
&C1	Turn on carrier detect signal while carrier is present
&Dn	&D0 DTR (Data Carrier Detect) is ignored
&D1	DTR recalls command mode
&D2	DTR disconnect
&D3	DTR disconnect/reset modem
&F	&F0 Restores factory configuration 0
&F1	Restores factory configuration 1
&Gn	&G0 Guard tone disable
&G1	Guard tone disable
&G2	1800 Hz Guard tone
&Jn	&J0 use RJ11, RJ41S or RJ45S jack
&J1	use an RJ12 or RJ13 jack

User's Guide

Command	Description
&Kn	&K0 Disable flow control
	&K3 Enable RTS/CTS flow control
	&K4 Enable XON/XOFF flow control
	&K5 Enable transparent XON/XOFF flow control
&Ln &Pn	&K6 Enable both RTS/CTS and XON/XOFF flow control
	&L0 configured for dial-up line operation
	&P0 39/61 make/break ratio
	&P1 33/67 make/break ratio
&Sn	&S0 DSR always on
	&S1 DSR on/off depending on RS-232 specification
&Tn	&T0 End test in progress
	&T1 Perform analog loopback test
	&T2 Return the error
	&T3 Perform digital loopback test
	&T4 Grant remote commanded digital loopback test
&V	&T5 Ignore remote commanded digital loopback test
	&T6 Perform remote digital loopback test
	&T7 Perform digital loopback test with self test
	&T8 Perform analog loopback test with self test
	Display active configuration profile

AT Commands

Command	Description
&Wn	&W0 Store configuration as Profile 0 &W1 Store configuration as Profile 1
&Yn	&Y0 Power up with profile 0 &Y1 Power up with profile 1
&Zn=x	Store telephone number n in directory x (x = 0~2)
%L	Line signal level: 009 = -9dbm, 043 = -43dbm
%N	%N0 Standard DTE speed %N1 non-standard DTE speed for 8/10 MHz NEC PC
\An	%N2 5/10/12/20/25 MHz PC98 \A0 64-character maximum MNP block \A1 128-character maximum MNP block \A2 192-character maximum MNP block \A3 256-character maximum MNP block
\Nn	\N0 Normal data link \N1 Direct data link \N2 MNP reliable link \N3 MNP auto-reliable link \N4 LAPM error-correction mode \N5 MNP error-correction mode
#CID	#CID=0 Disabled Called ID #CID=1 Enable Called ID with formatted presentation to DTE #CID=2 Enable Called ID with unformatted presentation to DTE

Usèr's Guide

Command	Description
#BDR	Select baud rate (turn off autobaud)
#CLS	Select data, fax, or voice/audio
#TL	Audio output transmit level
#SPK=	Speakerphone setting
#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)
#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

AT Commands

Command	Description
SMS	x (SVD Mode Select) x= 0-Data only (Default) 1-DSVD 2-Media Link 3-Auto Mode select
#VLS	x (Voice Line Select, used to select interface for DSVD audio) x= 0-Telephone handset (Default) 5-Headset 6-Speakerphone
SSE	x (DSVD control) x= 0-Disable DSVD (Default) 1-Enable DSVD DSVD mode can be enable by either AT-SSE=1 or AT-SMS=1, and disable by either AT-SSE=0 or AT-SMS=0

5. Status Registers

S Reg.	Range	Default	Description
S0	0~255	0	Auto answer ring
S1	0~255	0	Incoming ring count
S2	0~127	43	ASCII value of the escape character
S3	0~127	13	ASCII value of the carriage return character
S9	1~255	6	Carrier detect response time
S10	1~255	14	Carrier loss time
S11	50~255	95	DTMF touch-tone dialer speed
S12	0~255	50	Escape guard time
S18	0~255	0	Duration of modem tests
S24	0~255	0	Inactivity timer delay
S25	0~255	5	Data terminal ready delay
S29	0~255	70	Flash dial modifier time
S30	0~255	0	Disconnect inactivity timer
S32	0~255	17	ASCII value of the XON character
S33	0~255	19	ASCII value of the XOFF character
S38	0~255	20	Delay before hang-up
S91	0~15	10	PSTN transmit attenuation level
S92	0~15	10	Fax transmit attenuation level

Status Registers

Register S22 : Bit-mapped Register (default = 117)

Bit	Description
1,0=	00 Speaker volume off
	01 Speaker volume low
	10 Speaker volume medium
	11 Speaker volume loud
3,2=	00 Speaker off
	01 Speaker on until carrier detected
	10 Speaker always on
	11 Speaker on until carrier detected but off during dialing
6,5,4=	000 Hays compatibility (X0)
	100 (X1)
	101 (X2)
	110 (X3)
	111 (X4)
7=	0 Undefined.

User's Guide

Register S23 : Bit-mapped Register (default = 62)

Bit	Description
0=	0 Remote modem request for digital loopback test not recognized
	1 Remote modem request for digital loopback test recognized
1,2,3=	000 600bps data rate 001 0-300bps data rate 010 1200bps data rate 011 2400bps data rate 100 4800bps data rate 101 9600bps data rate 110 19200bps data rate 111 38400bps or upper data rate
4,5=	00 Even parity 01 Undefined 10 Odd parity 11 No parity
6,7=	00 Disable guard tone 01 Disable guard tone 10 Use 1800 HZ guard tone

Status Registers

Register S27 : Bit-mapped Register (default = 9)

Bit	Description
3,1,0=	000 &M0 or &Q0
	001 &M1 or &Q1
	010 &M2 or &Q2
	011 &M3 or &Q3
	100 &Q4
	101 &Q5
	110 &Q6
2=	0 Dial-up line
	1 2W leased line
5,4=	00 Internal clock (&X0)
	01 External clock (&X1)
	10 Slave mode (&X2)
	11 Not used
6=	0 ITU-T compatible mode
	1 Bell mode
7=	Undefined

User's Guide

Register S28 : Bit-mapped Option Status (default = 0)

Bit	Description
1,0=	Undefined
2=	Undefined
4,3=	00 39/61 make/break ratio at 10 pulses/second
	01 33/67 make/break ratio at 10 pulses/second
	10 39/61 make/break ratio at 20 pulses/second
	11 33/67 make/break ratio at 20 pulses/second
7,6,5=	Undefined

Register S31 : Bit-mapped Option Status (default = 194)

Bit	Description
0=	Single line connect message enable/disable
	0 Message controlled by S95, Wn & Vn (\V0)
	1 Single in connect message (\V1)
1=	Auto line speed detection
	0 Disable
	1 Enable
3,2=	Error correction progress messages (Wn)
	00 DTE speed only (W0)
	01 Full reporting (W1)
	10 DCE speed only (W2)
	11 Undefined

Status Registers

5,4=	00	Caller ID disabled (#CID=0)
	01	Short Called ID enabled (#CID=1)
	10	Long Called ID enabled (#CID=2)
7,6=	11	Undefined
		Undefined

Register S36 : LAPM Failure Control (default = 7)

Bit	Description
2,1,0=	000 Modem disconnected
	001 Modem stays on line and a direct mode connection is established
010	Undefined
	011 Modem stays on line and a normal mode connection is established
100	An MNP connection is attempted and will be disconnected if it fails
	101 An MNP connection is attempted and a direct mode connection will be established if it fails
110	Undefined
	111 An MNP connection is attempted and a normal mode connection will be established if it fails
7-3=	Undefined

User's Guide

Register S37 : Desired Line Connection Speed (default =0)

Bit	Description
4-0=	
0000	Attempt auto mode connection
0001	attempt to connect 300bps
0010	attempt to connect 300bps
0011	attempt to connect 300bps
0100	Undefined
0101	Attempt to connect at V.22 1200 bps
0110	Attempt to connect at V.22bis 2400 bps
0111	Attempt to connect at V.23
1000	Attempt to connect at V.32 bis/V.32 4800bps
1001	Attempt to connect at V.32 bis/V.32 9600bps
1010	Attempt to connect at V.32 bis 12000 bps
1011	Attempt to connect at V.32 bis 14400 bps
1100	Attempt to connect at V.32 bis 7200 bps
7-5=	Undefined.

Register S39 : Flow Control Bit-mapped Option Status (default = 3)

Bit	Description
2-0=	
000	No flow control
011	RTS/CTS (&K3)
100	XON/XOFF (&K4)
101	Transparent XON (&K5)
110	Both methods (&K6).
7-3=	Undefined.

Status Registers

Register S40 : General Bit Mapped Option Status (default =104)

Bit	Description
1,0=	00 Disable extended services
	01 Enable extended services
2=	10 Enable extended services
	Undefined.
5-3=	000 \K0
	001 \K1
	010 \K2
	011 \K3
	100 \K4
	101 \K5
7,6=	00 64 (\A0)
	01 128 (\A1)
	10 192 (\A2)
	11 256 (\A3)

User's Guide

Register S41 : General Bit-mapped Option Status (default = 195)

Bit	Description
1,0=	00 Disabled (%C0) 01 MNP% (%C1) 10 V.42bis (%C2) 11 MNP5 and V.42bis (%C3)
6,2=	00 Retrain and fallback disabled (%E0). 01 Retrain enabled (%E1). 10 Fallback enabled (%E2)
3=	Undefined.
4,5=	Undefined.
7=	Undefined

Register S46 : Protocol Selection (default = 138)

Value	Description
136	Execute error correction protocol without compression.
138	Execute error correction protocol with compression

Status Registers

Register S48 : V.42 Negotiation Action (default = 7)

Value	Description
0	Disable negotiation.
7	Enable negotiation
128	Disable negotiation.

Register S86 : Call Failure Reason Code

Value	Description
0	Normal disconnection without error occurred.
4	Loss of carrier
5	V.42 negotiation failed to detect an error-correction modem at the other end.
9	a common protocol not found
12	Normal disconnection initiated by remote modems
13	Remote modems do not respond after 10 times transmissions
14	Protocol violation.