

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

FCC ID : NBUF560IC-001



Federal Communications Commission (FCC) Statement

For equipment FCC ID: NBUF560IC-001

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.

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.

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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.

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

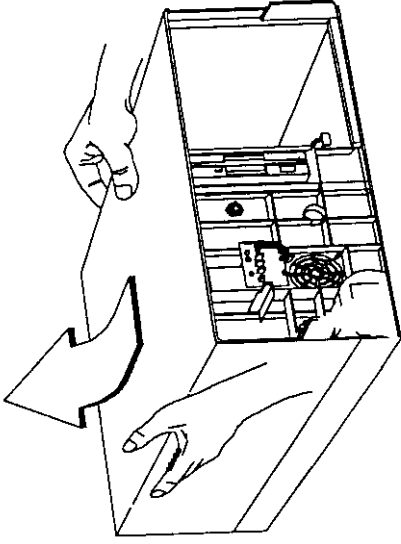


Figure 2-1 Remove the system cover



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.

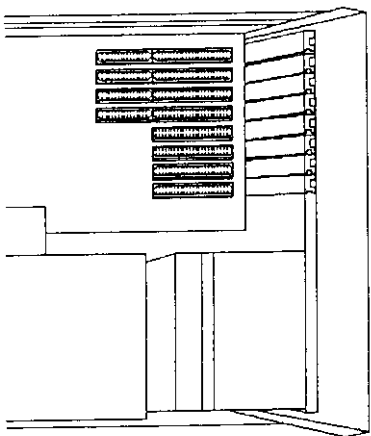


Figure 2-2 Remove the metal bracket from an ISA slot

6. Replace the system cover.

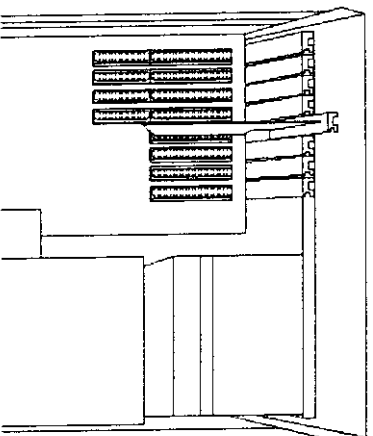
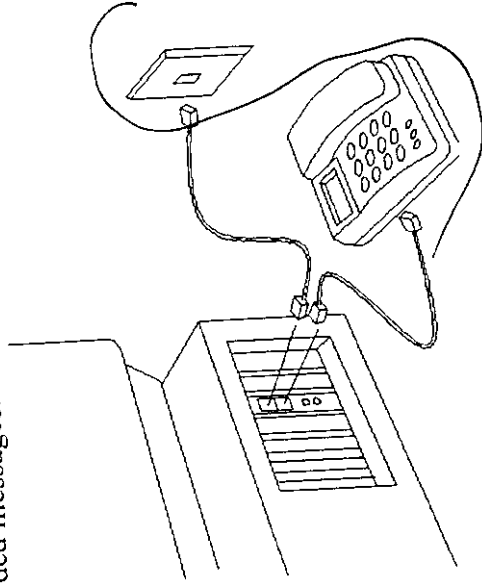


Figure 2-3 Insert the modem into the slot

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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.

Installation

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.

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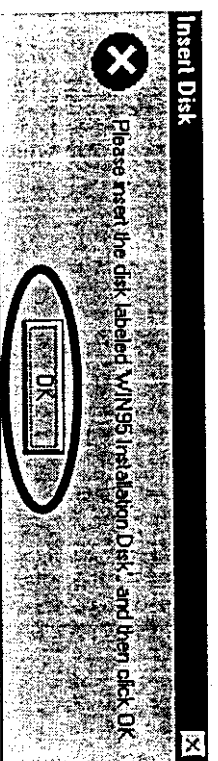
3. Install your communication software (Bitware or Supervoice). If you need assistance, refer to the manual that comes with the software. If your installation is not successful, please check whether or not your BIOS supports **Plug-and-Play** feature.
4. Use your communication software to set your modem 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 `[Enter]`. 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.*

3 Install 56,000 Drivers in Windows 95B

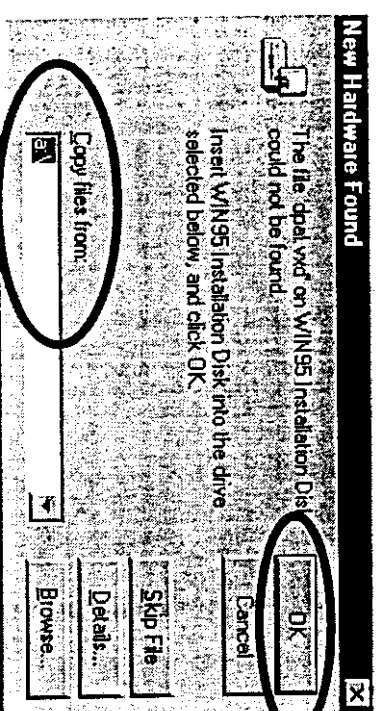
This chapter describes how to configure your modem step by step for proper operation in Windows 95B.

PNP (Plug & Play) installation procedure

1. Turn on your modem and after entering Windows 95B, the system will detect it 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**”.

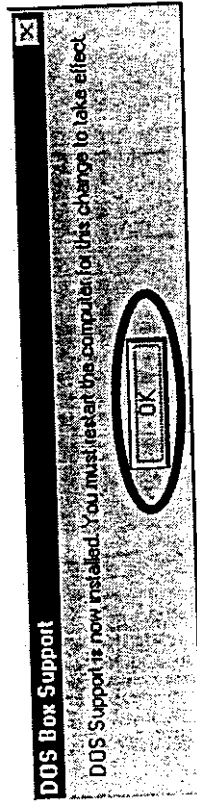
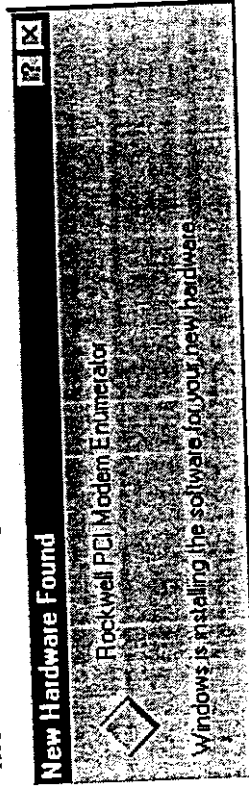


2. Choose “Drive A:\ “ and press “OK”.



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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 |
| A/ | Repeat the last command |

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| | |
|-----------|--|
| 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 |
| | I3 | Firmware version 1 |
| | I4 | Firmware version 2 |
| | I5 | Report the country code |
| Ln | L0 | Speaker volume lowest |
| | L1 | Speaker volume low |
| | L2 | Speaker volume medium |
| | L3 | Speaker volume high |
| Mn | M0 | Speaker off |
| | M1 | Speaker off when carrier is detected |
| | M2 | Speaker is always on |
| | M3 | Speaker is on during handshaking |
| Nn | 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 |

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| Command | Description |
|---------|---|
| Qn | 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 | Enable short-form result code |
| V1 | Enable long-form result code |
| W0 | Error correction call progress not reported |
| W1 | Error correction call progress reported |
| W2 | Error correction call progress not reported |
| 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 |
|----------------|---|
| Y0 | Disabled long space disconnect |
| Y1 | Enabled long space disconnect |
| Z0 | Reset and use configuration Profile 0 |
| Z1 | Reset and use configuration Profile 1 |
| &Cn | Keep carrier detect signal always ON |
| &C1 | Turn on carrier detect signal while carrier is present |
| &Dn | DTR (Data Carrier Detect) is ignored |
| &D1 | DTR recalls command mode |
| &D2 | DTR disconnect |
| &D3 | DTR disconnect/reset modem |
| &F | Restores factory configuration 0 |
| &F0 | Restores factory configuration 0 |
| &F1 | Restores factory configuration 1 |
| &Gn | Guard tone disable |
| &G1 | Guard tone disable |
| &G2 | 1800 Hz Guard tone |
| &Jn | use RJ11, RJ41S or RJ45S jack |
| &J1 | use an RJ12 or RJ13 jack |

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| 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 &K6 Enable both RTS/CTS and XON/XOFF flow control |
| &Ln | configured for dial-up line operation |
| &Pn | 39/61 make/break ratio &P1 33/67 make/break ratio &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 &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 |
| &V | Display active configuration profile |

AT Commands

| Command | Description |
|---------|---|
| &W0 | Store configuration as Profile 0 |
| &W1 | Store configuration as Profile 1 |
| &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 |
| %N0 | Standard DTE speed |
| %N1 | non-standard DTE speed for 8/10 MHz NEC PC |
| %N2 | 5/10/12/20/25 MHz PC98 |
| VA0 | 64-character maximum MNP block |
| VA1 | 128-character maximum MNP block |
| VA2 | 192-character maximum MNP block |
| VA3 | 256-character maximum MNP block |
| VN0 | Normal data link |
| VN1 | Direct data link |
| VN2 | MNP reliable link |
| VN3 | MNP auto-reliable link |
| VN4 | LAPM error-correction mode |
| VN5 | MNP error-correction mode |
| #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 |

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| 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 (SVSD Mode Select) x= 0-Data only (Default) 1-DSVSD 2-Media Link 3-Auto Mode select |
| #VLS | x (Voice Line Select, used to select interface for DSVSD audio) x= 0-Telephone handset (Default) 5-Headset 6-Speakerphone |
| SSE | x (DSVSD control) x= 0-Disable DSVSD (Default) 1-Enable DSVSD DSVSD 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. |

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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 |

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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 Message controlled by S95, Wn & Vn (V0) |
| 1= | 0 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 |
| 100 | 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 |
| 7-3= | 110 | Undefined |
| | 111 | An MNP connection is attempted and a normal mode connection will be established if it fails |
| | | Undefined |

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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 |
| | 10 Enable extended services |
| 2= | 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) |

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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-corrected 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. |