

EXHIBIT 5

User's Manual

User's Manual

DATATRONICS

WE CONNECTING THE WORLDS



Discovery

5614CV

VOICE FAXMODEM
USER GUIDE



 DATATRONICS

 **DATATRONICS**
DATATRONICS TECHNOLOGY, INC.
PART #71-56CV-E000-1

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE 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.

CAUTION:

To assure continued FCC compliance:

- (1) The user must use shielded interface datacable.
- (2) Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

INTRODUCTION

Thank you for buying Discovery Voice/Fax/Modem. You have acquired a very powerful modem, which, at home or with office, allows you to link your computer with other devices around the world to use a telephone line or a leased-line to link with other computers or fax machines surround the world. As a result, you can exchange information with databases, bulletin boards, remote-site computers, worldwide.

This intelligent modem adapts to a vast variety of applications. Which will suit for many different computer systems, software, and (types of lines). However, most users simply use a modem to dial with another modem at a remote site, or to go on-line with a bulletin board service. They use a common personal computer, an off-the-shelf communication software package, and an ordinary telephone line.

As a general PC user, you need to just follow this manual to install your modem. Then, go to your software manual to execute software installation and get on the road line.

Although we have prepared this manual with care, users may sometimes encounter problems during the installation. If so, you should consult your dealer or experienced users or technicians for help.

We welcome you to join the exciting C&C world (Computer and Communications) and sincerely hope you enjoy your new modem.

This manual lists the items that are included in your modem package. Also, it lists the commands, the response codes, and the registers that your modem supports.

List of the Package Contents

The following items shall be included in this modem package:

- A Discovery Modem unit - data/fax/voice modem with built-in V.42bis and MNP5 error-correction and data compression capability
- A power adaptor for your modem
- An RJ-11 telephone cord
- Windows 95 Driver
- This Faxmodem Specification Manual

Checking the above items in the modem package and inspecting the power adaptor for a correct voltage which shall match with your power source, if you anything missing or incorrect, please contact your dealer immediately.

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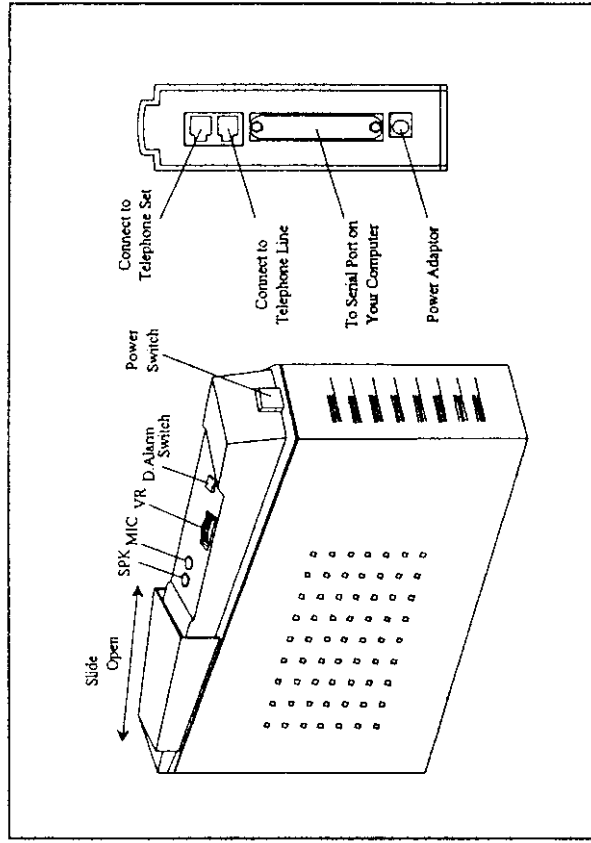
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GETTING STARTED MANUAL

If you will use this modem with a personal computer and a popular off-the-shelf communications software, for a simple modem application such as going on-line with bulletin boards, up-loading or downloading files, and sending fax messages, you may now go to the Getting Started Manual to exercise hardware connection for your modem. Then, you should refer to your software's manual to get on the road. This manual will serve as your guide for modem commands. If you would like to know the modem operations and commands in more depth, the Electronic Manual of Faxmodem diskette is included to serve this purpose.

**1.1 The Power Switch**

The power switch indicators on the front panel By pushing the switch button, you can turn the modem ON or OFF.

1.2 The LED Indicators on the Front Panel

The indicators on the modem's front panel denote the current modem operation characteristics and status. They are:

- MR** Modem Ready: Lights up when the modem is turned on.
- TR** Terminal Ready: Flashes when DTR signal is detected.
- CD** Carrier Detected: Lights up when a carrier from the remote modem is detected.
- SD** Send Data: Flashes when the modem is sending data to the remote modem or when receiving data from the local computer.
- RD** Receive Data: Flashes when the modem is receiving data from the remote modem or when sending data to the local computer.
- AA** Auto-Answer: Lights up when the modem is set for auto-answer. Flashes when an incoming ring is detected.
- OH** Off-Hook: Lights up when the modem is using the telephone line. Off when the modem hangs-up (on-hook).
- HS** High Speed: Lights up when modem speed exceeds 4800 bps. When you turn on your modem, at least the MR indicator shall light up. There may be some other indicators lights depended on the settlement of the modem. Otherwise, you should check the power connected to your modem.

1.3 The Rear Panel and the Connectors

PHONE : Accepts a telephone set connected parallel to your modem.
(if you want to use a telephone on that line when you're not using the modem, plug the telephone is cord into the modem's PHONE jack)

⚠ **Warning:** The PHONE jack only connect to telephone.

LINE : Accepts the RJ-11 cable that links your modem to a telephone line or to a 2-wire leased-line.

⚠ **Warning:** The line jack you use must be for an analog phone line. Most office phone are wired through digital lines. Be sure you know what type of line you have. The modem will be damaged if you use a digital phone line.

RS-232 : Accepts the serial cable that is connected between your modem and your computer.

12VAC : Accepts the power adaptor that comes with your modem.

1.4 The Sliding Cover and the Switches

The protective cover of your modem can be freely slid back and forth.

SPK : External Speaker Jack.

MIC : External Microphone Jack

VR : Volume Control

D.Alarm : See 2.10.2 Function Switch D.Alarm.

1.5 The Telephone Lines

Your modem is preset to use an ordinary telephone line with a touch-tone dialing system. If your system has rotary-pulse dialing, refer to the Using Rotary-Pulse Dialing System section in this manual.

Before connecting your modem, be sure to check the quality of the speaker. The line should have a loud and clear connecting tone when you place calls using a telephone set connected with.

1.6 The Serial Port and the RS-232 Cable

To use this modem, it will require an RS-232 serial port on your computer. If your do not have it, you need to have one.

It is better to select a serial port card that uses a high-speed 16550 UART chip. A card with an ordinary UART chip handles transmissions at a maximum speed around 38,400bps. In case the data compression of your modem is active, it may perform at an exceeding speed and an ordinary serial port card may sometimes cause data loss.

You will also require an RS-232 cable to connect your modem with computer. You will be Asked to buy a modem cable if you are a PC user. The modem cable shall, at one end, have a DB25M (male) connector that fits the female connector on the modem, and at the other end a serial port connector that matches your computer.

1.7 Hardware Connection

Your modem works either standing-up or laying-flat. After you have decided where to locate your modem, by following procedures listed below to connect the hardware:

SCP will, one by one, overwrite the corresponding parameter in the working memory previously loaded by the FDP.

Each time you execute the communications software, the Initial-String of the software is sent to the modem. The command parameters defined by the Initial String will, one by one, further overwrite the parameters in the working memory.

Finally, the result parameters in the working memory, which is called the Active Configuration Profile (ACP), determine the characteristics of the modem's operation.

When you issue a command for the modem, actually you are working with the ACP in the working memory. Each command you issue will overwrite the corresponding ACP parameter in the working memory.

Commands in relation to the manipulation of configuration profiles are &V, &W, and &Y.

1.8.7 Controlling the Modem Speaker

In the factory, your modem speaker is preset in to medium volume and turned on when the carrier from the remote modem is detected. You may issue the commands L and M, with an appropriate parameter following it, to control the volume, or turn on the speaker.

1.8.8 Using Rotary-Pulse Dialing System

To instruct your modem to use the rotary-pulse dialing method, you should use command P. Be sure to include this command in the Initial-String field in the communications software, if you are to use rotary-pulse dialing.

Although the rotary-pulse dialing system in a country is generally of an unique standard, the rotary-pulse dialing systems worldwide are of different standards in Make/Break (M/B) ratio, in pulse rate (Pulse per Second, PPS), and in the way it translates the dialing-digit to the number of dialing-pulses. You need to know which system your modem is connected to the modem.

Roughly speaking, the M/B ratio can be classified in two categories; 39/61 and 33/67. In the USA, Canada, and some other countries, the M/B ratio is 39/61. In the UK, Hong Kong, and some other countries, it is 33/67.

In general, rotary-pulse systems in most areas have a 10 PPS dialing rate. However, there are a few areas that use a rate of 20 PPS.

Most countries use a dialing system that translates digit 0 to 10 pulses. However, there are a few countries they translate it in a different way.

If you have a problem finding out what kind of system you are using, call the local telephone company or contact the local dealer for help.

1.8.9 When the RJ-11 Jack is Not Available

In areas where the RJ-11 socket is not available, you will be unable to use a telephone cord with both ends of the RJ-11 plug. In this case, cut off the RJ-11 plug at one end of the cord and directly use the wire leads in it for line connection.

An RJ-11 cable for a modem normally contains four wire leads. To connect to a 2-wire leased-line, you should use the two wire leads in the middle. Be sure to neatly cut off the two outside leads so that they will be away from any contact to prevent a short.

- 1) Make sure that both the modem and computer are turned off.
- 2) Use an RS-232 cable to connect the modem to a serial port on your computer. Secure the connector screw on it.
- 3) Verify the serial port number in which your modem is connected. You must write down the port number as you will need to specify this number during software installation. As a general rule on PC applications, the port COM1 is connected to a mouse, while COM2 is for a modem.
- 4) Use an RJ-11 cable to connect the LINE jack to the wall outlet of the telephone line.
- 5) Connect a telephone set to the PHONE jack. You may leave this jack disconnected if desired.
- 6) Make sure that the power adaptor that comes with your modem is of a correct voltage that complies with your power source. Use the adaptor to connect the power source to the 12VAC jack on the modem.

1.8 Basic Function Test

1.8.1 Test the Power Connection

You can turn on your modem by pushing the power switch button and watch the front panel indicators. Depending on the setting of your modem, the MR and other indicators should light up. If none is lit, check the power connection for the modem.

1.8.2 Test the Telephone Line Connection

Once a telephone set is connected, you may test the line quality and connections by lifting the telephone handset, listening for a clear dial tone, and making several telephone calls. The calls should go through well and the sound loud and clear. Otherwise, the line may be poor or have a faulty connection.

1.8.3 Data Communications Software Packages

Your modem follows the industrial standard in the modem command set. As a result, most of the popular communications software packages off-the-shelf will work with it. You should select a software package according to your application requirement.

Most popular communications software are provided with the configuration named Initial-String or Dialing-Prefix. It is wise to check, one by one, the commands in this string as they will be sent to determine the modem characteristics each time prior to dialing.

1.8.4 Fax Communications Software Packages

Similar to data communication applications, you interact with the modem through the fax communications software.

Your modem only supports Class 1 command set.

1.8.5 Error-Correction and Data Compression

Your modem supports the industrial standards of MNP 5 and ITU-T (formerly called CCITT) V.42bis for error-correction and data compression (ECDC). Both standards are capable of error-correction as well. The modem will retransmit a faulty data block when an error is detected while receiving.

The ITU-T V.42bis can perform data compression at a rate up to four times, depending on the format of data. That is, the throughput can be reach as high as 57,600 bits per second when you are on-line at 14,400 bps.

The MNP 5 was popular before V.42bis was born. It can reach a compression rate of two times, that is around half of what V.42bis can do.

To enjoy the effectiveness of ECDC, both modems on-line should exercise the same ECDC standard. You should always set your modem to V.42bis auto-reliable mode by command \N3, which will automatically negotiate with the remote modem for an available ECDC standard.

1.8.6 The Configuration Profiles in Your Modem

Your modem comes with three configuration profiles, one is embedded in the modem firmware and the other two are stored in non-volatile memory (NVRAM). Each profile defines a series of modem command parameters that decides the modem operation characteristics.

The profile in the firmware is called the Factory Default Profile (FDP) which is unchangeable by the user.

The two profiles in the NVRAM are named the Stored Configuration Profiles, SCP0 and SCP1, respectively. You may save frequently used modem configurations to an SCP profile so that it can be recalled for use from time to time. The NVRAM will preserve the profile in it, even when the modem is turned off.

Either of the two SCPs is assigned as the Major SCP that will be restored when the modem is turned on.

When the modem is turned on, the FDP is loaded to a working memory in the modem. Then, the Major SCP is loaded. The parameters defined by the Major

2.6 Voice Commands for Rockwell

The Voice Command

Command	Function
A	Answering in Voice/Audio Mode
D	Dial command in Voice/Audio Mode
H	Hang up in Voice/Audio Mode
Z	Reset from Voice/Audio Mode
#BDR=n	Select band rate (turn off autobaud) (0<n≤48)
#CID=n	Enable Caller ID detection and select reporting format n=0-2
#CLS=n	Select data, fax, or Voice/Audio n=0,1,2,8
#MDL?	Identify model
#MFR?	Identify manufacturer
#REV?	Identify revision level
#TL	Audio output transmit level
#VBQ?	Query buffer size
#VBS=n	Bits per sample (ADPCM or PCM) n=2,4,8
#VBT=n	Beep tone timer n=0-40 (0-4 seconds)
#VCI?	Identify compression method (ADPCM)
#VLS=n	Voice line select (ADPCM or PCM) n=@-9
#VRA	Ringback goes away timer (originate)
#VRN	Ringback never came timer (originate)
#VRX	Voice Receive Mode (ADPCM or PCM)
#VSD	Enable silence deletion (voice receive, ADPCM)
#VSK=n	Buffer skid setting n=255
#VSP	Silence detection period (voice receive, ADPCM)
#VSR	Sampling rate selection (ADPCM or PCM)
#VSS	Silence detection tuner (voice receive, ADPCM)
#VTD	DTMF tone reporting capability
#VTM	Enable timing mark placement
#VTS	Generate tone signals
#VTX	Voice transmit mode (ADPCM or PCM)

2.4 V.42bis and MNP Commands

UN0	MNP block size 64 characters	UN4	V.42 reliable with phase detection
UN1	MNP block size 128 characters	UN5	Connect messages are controlled by the command settings X, W, and S95.
UN2	MNP block size 192 characters	UN6	Connect message displayed in the single line format described below subject to the command settings V (Verbose) and Q(Quiet). In Non-Verbose mode(V0), single line connect messages are disabled and a single numeric result code is generated for CONNECT DTE.
UN3	Send n/10 seconds of line break to the modem (n = 0 ~ 9, default 3)		
UN4	Enter command mode, do not send a break signal to remote (To send a break after use the AB command)		
UN5	Clear data buffer and send a break		
UN6	Same as UN0		
UN7	Immediately send a break		
UN8	Same as UN0		
UN9	Send a break in sequence with any data received from the port		
UN10	Set modem to normal mode		
UN11	Set modem to direct mode		
UN12	Set modem to MNP reliable mode		
UN13	Set to MNP/V.42 auto-reliable mode		

2.5 Fax Class 1 Commands

Command	Function
+FCLASS=	Service Class ID
	Service Class
	Fax Class 1 Commands
+FAE=n	Data/Fax auto Answer
+FTS=n	Stop Transmission and Wait
+FRS=n	Receive Silence
+FTM=n	Transmit Data
+FRM=n	Receive Data
+FTH=n	Transmit Data with HDLC Framing
+FRH=n	Receive Data with HDLC Framing

2.7 S-Register Summary

Register	Range	Units	Default	Function
S0	0-255	Rings	0	Rings to Auto-Answer
S1	0-255	Rings	0	Rings Counter
S2	0-255	ASCII	43	Escape character
S3	0-127	ASCII	13	Carriage return character
S4	0-127	ASCII	10	Line Feed Character
S5	0-255	ASCII	8	Backspace character
S6	2-255	s	2	Wait Time for Dial Tone
S7	1-255	s	30	Wait Time for Carrier
S8	0-255	s	2	Pause Time for Dial Delay Modifier
S9	1-255	0.1s	0	Carrier Detect Response Time
S10	1-255	0.1s	14	Carrier Loss Disconnect Time
S11	30-255	0.001s	95	DTRAF Tone Duration
S12	0-255	0.02s	30	Escape Prompt Delay
S13	-	-	-	Reserved
S14	-	-	138(8Ad)	General Bit Mapped Options Status
S15	-	-	-	Reserved
S16	-	-	0	Test Mode Bit Mapped Options Status(CT)
S17	-	-	-	Reserved
S18	0-255	s	0	Test Time
S19	-	-	0	AutoSync Options
S20	0-255	-	0	AutoSync HBL/C Address or BSC Sync Character
S21	-	-	52(34b)	V.24 General Bit Mapped Options Status
S22	-	-	117(75b)	Speaker/Results bit Mapped Options Status
S23	-	-	62(3Db)	General Bit Mapped Options Status
S24	0-255	s	0	Sleep Inactivity Timer
S25	0-255	s or 0.01s	5	Delay to DTR Off
S26	0-255	0.01s	1	RTS-to-CTS Delay
S27	-	-	73(49b)	General Bit Mapped Options Status
S28	-	-	0	General Bit Mapped Options Status
S29	0-255	10ms	70	Flash Dial Modifier Time
S30	0-255	10s	0	Disconnect Inactivity Timer
S31	-	-	194(C2b)	General Bit Mapped Options Status
S32	0-255	ASCII	17(11b)	XON Character
S33	0-255	ASCII	19(13b)	XOFF Character
S34-S35	-	-	-	Reserved
S36	-	-	7	LAPM Failure Control
S37	-	-	0	Line Connection Speed
S38	0-255	s	20	Delay Before Forced Hang-up
S39	-	-	3	Flow Control Bit Mapped Options Status
S40	-	-	104(6sb)	General Bit Mapped Options Status
S41	-	-	195(C3b)	General Bit Mapped Options Status
S42-S45	-	-	-	Reserved
S46	-	-	138	Data Compression Control
S48	-	-	7	V.42 Negotiation Control
S82	-	-	128(40b)	LAPM Break Control
S86	0-255	-	-	Call Failure Reason Code
S91	0-15	dBm	10(country dependent)	PSSTN Transmit Attenuation Level
S92	0-15	dBm	10(country dependent)	Fax Transmit Attenuation Level
S95	-	-	0	Result Code Messages Control

* Register value may be stored in one of two user profiles with the &W command.

2.8 Result Codes

Result Codes

Short Form	Long Form	n Value in ATXn Command					Notes
0	OK	0	1	2	3	4	Note 2
1	Connect	x	x	x	x	x	
2	Ring	x	x	x	x	x	
3	No Carrier	x	x	x	x	x	
4	Error	x	x	x	x	x	
5	Connect 1200	1	x	x	x	x	
6	No dial tone	3	3	3	3	3	
7	Busy	3	3	3	3	3	
8	No Answer	x	x	x	x	x	
9	Connect 600	1	x	x	x	x	
10	Connect 2400	1	x	x	x	x	
11	Connect 4800	1	x	x	x	x	
12	Connect 9600	1	x	x	x	x	
13	Connect 7200	1	x	x	x	x	
14	Connect 12000	1	x	x	x	x	
15	Connect 14400	1	x	x	x	x	
16	Connect 19200	1	x	x	x	x	
17	Connect 38400	1	x	x	x	x	
18	Connect 57600	1	x	x	x	x	
19	Connect 115200	1	x	x	x	x	
20	Connect 230400	x	x	x	x	x	Note 2
22	Connect 75TX/1200RX	1	x	x	x	x	
23	Connect 1200TX/75RX	1	x	x	x	x	
24	Delayed	4	4	4	4	4	
32	Blacklisted	4	4	4	4	4	
33	Fax	x	x	x	x	x	
35	Data	x	x	x	x	x	
40	Carrier 300	x	x	x	x	x	
44	Carrier 1200/75	x	x	x	x	x	
45	Carrier 75/1200	x	x	x	x	x	
46	Carrier 1200	x	x	x	x	x	
47	Carrier 2400	x	x	x	x	x	
48	Carrier 4800	x	x	x	x	x	
49	Carrier 7200	x	x	x	x	x	
50	Carrier 9600	x	x	x	x	x	
51	Carrier 12000	x	x	x	x	x	
52	Carrier 14400	x	x	x	x	x	
53	Carrier 16800	x	x	x	x	x	
54	Carrier 19200	x	x	x	x	x	
55	Carrier 21600	x	x	x	x	x	
56	Carrier 24000	x	x	x	x	x	
57	Carrier 26400	x	x	x	x	x	
58	Carrier 28800	x	x	x	x	x	
59	Connect 16800	1	x	x	x	x	

Note: DSSS mode can be enabled by either AT+SSE=1 or AT+SMS=1, and disabled by either AT+SSE=0 or AT+SMS=0.

2.9.3 Select Modulation (for Rockwell only)

+MS= Select modulation

the command format is:

```
+MS=<Mod>, <min_rate>, <max_rate><x_law>, <rb_signaling>
```

<mod>	Modulation	Possible Rates (bps)
0	V.21	300
1	V.22	1200
2	V.22bis	2400, 1200
3	V.23	1200
9	V.32	9600, 4800
10	V.32bis	14400, 12000, 9600, 7200, 4800
11	V.34	33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, 2400
56	K56flex	56000, 54000, 52000, 50000, 48000, 46000, 44000, 42000, 40000, 38000, 36000, 34000, 32000
64	Bell 103	300
69	Bell 212	1200

<automode>	Option Select
0	Automode disabled
1	Automode enabled using V.8bis/V.8 or V.32 Annex A

min_rate: is an optional number which specifies the lowest rate at which the modem may establish a connection. The value is decimal coded, in units of bps, e.g., 2400 specifies the lowest rate to 2400 bps. The default is 300 for 300 bps.

max_rate: is an optional number which specifies the highest rate at which the modem may establish a connection. the value is decimal coded. in units of bps, e.g., 14400 specifies the highest rate to be 14400 bps. The default is 28800 for 28800 bps.

x_low: is an optional number which specifies the codes type. The option are:
(for 56K only)

$$Q = u \cdot L_{aw}$$

I=A-Law

Note that ATZ will reset the `<x_low>` selection to 0 (μ -Law).

rb_signaling: is an optional number which enables or disables robbed bit signaling generation in a server modem or enables or disables robbed bit signaling detection in a client modem. The options are: (for 56K only)

0= Robbed bit signaling generation (server modem) or detection (client modem) disabled (default)

1 = Robbed bit signaling generation (server modem) or detection (client modem) enabled

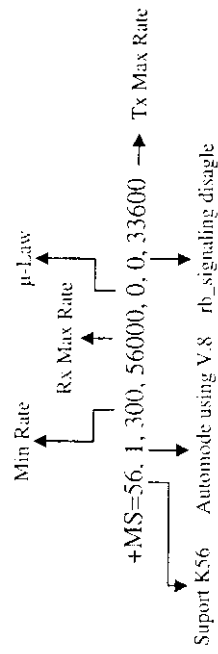
Note that ATZ will reset the `<rb_signaling>` selection to 0 (disabled).

Result Codes:

OK Valid subparameter string

ERROR Otherwise.

For example:



2.10 Specialty Function

2.10.1 Swap-Dialing:

Inserting command N between telephone numbers in a dial command line causes the modem to swap-dial the second specified number if the first one is busy.

Command

[illegible]

For example:

ATDT7822456N7822457 N7822458NS=0NS=1

Short Form	Long Form	n Value in ATXn Command					Notes
		0	1	2	3	4	
61	Connect 21600	1	x	x	x	x	
62	Connect 24000	1	x	x	x	x	
63	Connect 26400	1	x	x	x	x	
64	Connect 28800	1	x	x	x	x	
66	Compression: Class 5	x	x	x	x	x	
67	Compression: V.42bis	x	x	x	x	x	
69	Compression: None	x	x	x	x	x	
70	Protocol: None	x	x	x	x	x	
77	Protocol: LAPM	x	x	x	x	x	
78	Carrier 31200	x	x	x	x	x	
79	Carrier 33600	x	x	x	x	x	
80	Protocol: ATJ	x	x	x	x	x	
81	Protocol: ATJ Cellular	x	x	x	x	x	
84	Connect 33600	1	x	x	x	x	
91	Connect 31200	1	x	x	x	x	
150	Carrier 32000	x	x	x	x	x	Note 2
151	Carrier 34000	x	x	x	x	x	Note 2
152	Carrier 36000	x	x	x	x	x	Note 2
153	Carrier 38000	x	x	x	x	x	Note 2
154	Carrier 40000	x	x	x	x	x	Note 2
155	Carrier 42000	x	x	x	x	x	Note 2
156	Carrier 44000	x	x	x	x	x	Note 2
157	Carrier 46000	x	x	x	x	x	Note 2
158	Carrier 48000	x	x	x	x	x	Note 2
159	Carrier 50000	x	x	x	x	x	Note 2
160	Carrier 52000	x	x	x	x	x	Note 2
161	Carrier 52000	x	x	x	x	x	Note 2
162	Carrier 56000	x	x	x	x	x	Note 2
165	Connect 32000	x	x	x	x	x	Note 2
166	Connect 34000	x	x	x	x	x	Note 2
167	Connect 36000	x	x	x	x	x	Note 2
168	Connect 38000	x	x	x	x	x	Note 2
169	Connect 40000	x	x	x	x	x	Note 2
170	Connect 42000	x	x	x	x	x	Note 2
171	Connect 44000	x	x	x	x	x	Note 2
172	Connect 46000	x	x	x	x	x	Note 2
173	Connect 48000	x	x	x	x	x	Note 2
174	Connect 50000	x	x	x	x	x	Note 2
175	Connect 52000	x	x	x	x	x	Note 2
176	Connect 54000	x	x	x	x	x	Note 2
177	Connect 56000	x	x	x	x	x	Note 2
+F4	+FCERROR	x	x	x	x	x	

Notes: 1. An "x" in a column indicates that the message (either the long form if verbose, or the value only for short form) will be generated when that particular value of "n" (shown at the top of the column) has been selected by the use of ATXn. If the (verbose or short form) will be output for that X option.

2. 5614XV modem.

2.9 Audio Span Commands

2.9.1 ASVD Commands:

1. Audio Span operates:

The DTE rate must be equal or greater than the anticipated DCE connection speed. In general, DTE speed of 38400bps or higher should be used.

2. -SMS=n Select Audio Span mode.

n=0,2,3

0= Data mode

2= Audio Span mode

3= Automatic mode select (Audio Span/Data)

3. #VLS=n Voice Line Select

0= Telephone handset (Default)

5= Headset

6= Speaker phone

Modem Application Demo:

Originate	Answer Modem	Comments
DTE DCE	DTE DCE	Reset modem.
AT&F	AT&F	Enable Audio Span With default settings.
AT+SMS=2	AT+SMS=2	Originate modem dials remote modem.
ATDTxxxx	RING	Answer DTE responds to RING by answering.
	ATA	AudioSpan is established and users can pick up handsets to converse. The connect message represents the DTE speed on each side.
CONNECT 57600	CONNECT 57600	Modems exchange data.
<data>	<data>	Users hang up handsets to terminate audio link.
+++		Originate modem enters command mode to prepare for disconnect.
ATH	NO Carrier	Modems disconnect.

2.9.2 DSVD Commands:

AT+SSE=n

n= 0: DSVD Disable

1: DSVD Enable.

2.10.2 Functional Switch - D. Alarm:

You can find this switch on the top of modem right beside the volume control. This switch has two functions. You can easily have your required function by taking the following two steps.

1. This switch will have power on leased line function after you make AT command (AT&L1&W) to have your modem equipped with leased line functional.
2. Disconnecting alarm will be on once you pressed the switch button while your modem is with dial up function only.

If it was disconnects due from abnormal situation after a connection and this setting is enable also, the modem speaker will alarm Do.Do.Do...

\$DTXD=0	Disable Abnormal Disconnect Alarm
\$DTXD=1	Enable Abnormal Disconnect Alarm. It will alarm last 45secs.
\$DTXD=2	Enable Abnormal Disconnect Alarm. It will alarm last 3secs.
\$DTXD?	Query the Abnormal disconnect Alarm Setting the modem answer 0: 0= means Disable 1= means Enable

2.10.3 Download to Flash memory :

The linear flash memory downloader in the modem firmware allows flash memory connected to the modem external memory bus to be upgraded with revised modem firmware. This process transfers (uploads) the upgraded modem firmware (data) from the host computer to the modem which transfers (downloads) the data to the flash memory device. Note that this downloader function must be provided in modem MCU firmware initially installed in external flash memory, i.e., the downloader does not support the programming of blank flash memory.

Programming the flash memory device is a two-step process.

1. When the AT** command is issued, the modem firmware boot loader is invoked and the user will first load a flash load module (FLM) into the modem's RAM. The FLM contains the programming algorithm for the flash memory device being programmed and any messages that may be sent during the load process.

2. The user will then load the new modem firmware which the FLM will then program into the flash memory device.

Procedure:

1. Install in the modem a flash memory programmed with the modem firmware; ensure that the flash memory device is programmed with the sector secure mode set to UNSECURE (AMD only), otherwise the device cannot be reprogrammed in the mode.
2. Put the FLM file and the new modem firmware file (e.g., V34ACFPx.S37) in an appropriate directory on the computer's hard disk.
3. Configure the communications application program for a DTE rate of between 9600bps and 57600bps (57600bps is faster) and RTS/CTS flow control. A load at 57600bps will take approximately 2 minutes; a load at 19200bps will take approximately 6 minutes.

4. Check the modem for response by typing AT.

5. Initiate the download process using the AT**n command, where:

AT** or AT**0 Download speed is the last sensed speed (recommended command)

AT**1 Download speed is 38.4K bps.

AT**2 Download speed is 57.6K bps.

The "Download Initiated" message appears upon issuing the AT**n command.

6. Perform an ASCII upload of the FLM file (e.g., BPFL.Vxx.S37) from the host computer to the modem RAM using an industry standard communications software or an equivalent process (ensure that all ASCII translation or pacing is turned off).

To abort the load at this point, wait for the FLM download process to time-out, send a bad S37 record, or reset (POR) the modem. If the load process times-out, the modem must be reset (ATZ) before the FLM can be loaded again.

7. After the FLM has been loaded, perform an ASCII upload of the new modem firmware hex file (e.g., V34ACFPx.S37) from the host computer to the modem RAM using an industry standard communications software or an equivalent process. There will be a 3-second pause after the first record of the RC288AXX.S37 file is sent, which is the FLASH erase cycle. **There is no turning back at this point.**

If the flash download fails (because of a bad .S37 record for example) or the upload is aborted, as long as the modem is not turned off or reset, it will remain in the flash load cycle and the upload can be re-attempted at step 7. A "Wrong Device" message is displayed if an incorrect FLM is used. In this case, restart at step 5 and upload the correct FLM file.

A "Wrong Hex file or flow control" message is displayed if an incompatible hex file format is used (non-Motorola S3 format) or if the DTE ignores flow control (the flash download uses both Xon/Xoff and RTS/CTS flow control). If the wrong format was used, reinitiate the upload at the completion of a successful download and the modem will do a cold start.

8. A "Device successfully programmed" message is displayed by the FLM at the completion of a successful download and the modem will do a cold start.

2.10.4 Sleep Inactivity timer S24:

Sets the length of time, in seconds, that the modem will operate in normal mode with no detected telephone line or DTE line activity before entering low-power sleep mode. The timer is reset upon any DTE line or telephone line activity. If the S24 value is zero, neither DTE line nor telephone inactivity will cause the modem to enter the sleep mode.

Range: 0-255 seconds
Default: 0

2.10.5 Caller ID

#CIDn-Caller ID _____ Option
Enables or disables Caller ID.

#CID=0 Disables Caller ID. (Default.)

#CID=1 Enables Caller ID with formatted presentation to the DTE. The modem will present the data items in a <Tag><Value> pair format. The expected pairs are data, time, caller code (telephone number), and name.

#CID=2 Enables Caller ID with unformatted presentation to the DTE. The modem will present the entire packet of information, excluding the leading U's, in ASCII printable hex numbers.

Result Codes:

OK n=0 or 2
ERROR Otherwise.

Inquiries

#CID? Retrieves the current Caller ID from the modem.
#CID=? Returns the mode capabilities of the modem in a list with each element separated by commas.

Formatted Form Reporting

The modem presents the data in the <tag>=<value>pair format as described in the table below. Spaces are present on both sides of the equal sign.

Tag	Description
DATE	DATE = MMDD where MM is the month number (01 to 12) and DD is the day number (01..31)
TIME	TIME = HHMM where HH is the hour number (00 to 23) and MM is the minute number (00 to 59).
NMBR	NMBR = <number> or P or O where <number> is the telephone number of the caller, where P indicates that the calling number information is not available since the originating caller has requested private service, and where O indicates that the calling number information is not available or out of service at the calling location.

NAME NAME = <listing name> where <listing name> is the subscription name.

MSG MSG = <data tag> <length of message> <data> <checksum> in printable ASCII hex number This tag indicates a data item not listed above. The message is only possible for Multiple Message Format.

Notes:

1. The modem does not present any Caller ID information if the DCE detects a checksum error in the Caller ID packet.
2. In the event of an unrecognized data tag, the modem will present the data in ASCII hex numbers following the MSG tag.

Example of Formatted Form Reporting

1. The following example illustrates the standard Caller ID message packet.

```

RING
DATE      = 0324
TIME      = 1405
NMBR      = 5045551234
NAME      = A N OTHER
RING
RING

```

2. The following example illustrates the case where the tag of the packet is not recognized by the modem.

```

RING
MSG      = 060342424231
RING
RING

```

Unformatted Form Reporting

The modem presents all information and packet control information found in the message. The modem, however, excludes the leading U's (channel seizure information) from the presentation. The packet is presented in ASCII printable hex numbers, the modem does not insert spaces, or line feeds, for formatting between bytes or words of the packet.

The modem does not detect the checksum of the packet.

Example of unformatted Form Reporting

```

RING
0412303332323234303539313334353531323333435
RING
RING

```

2.10.6 MNP 10 Option

AT) Commands

)Mn-Enable Cellular Power Level Adjustment

This command is included only for compatibility and performs no function.

Result Codes:

```

OK          n=0 to 2.
ERROR       Otherwise.

```

*Hn-Link Negotiation Speed

This command is included only for compatibility and performs no function.

Result Codes:

```

OK          n=0 to 2.
ERROR       Otherwise.

```

-Kn-MNP Extended Services

Enables or disables conversion of a V.42 LAPM connection to an MNP 10 connection. The parameter value, if valid, is written to S40 bits 0 and 1.

```

-K0         Disables V.42 LAPM to MNP 10 conversion. (Default.)
-K1         Enables V.42 LAMP to MNP 10 conversion.
-K2         Enables V.42 LAPM to MNP 10 conversion; inhibits
            MNP Extended Services initiation during V.42 LAPM
            answer mode detection phase.

```

Result Codes:

```

OK          n=0 to 2.
ERROR       Otherwise.

```

-Qn-Enable Fallback to V.22bis/V.22

This command is included only for compatibility and performs no function.

Result Codes:

```

OK          n=0 to 1.
ERROR       Otherwise.

```

-SEC=n-Enable/Disable MNP10-EC

Enables or disables MNP10-EC operation. The command format is:

```

-SEC=n,<tx level>]  where <tx level> is the optional transmit level
                    sub parameter.

```

```

-SEC=0         Disable MNP10-EC; the transmit level is that
                defined in S91.

```

-SEC=1,[<tx level>]

Enable MNP10-EC; the transmit level will be defined by the sub parameter <tx level> range 0 to 30 (0 dBm to -30 dBm), the default <tx level> <tx level> not specified) is the S91 value.

Result Codes:

OK n=0,1 or 1 and <tx level>=0 to 30.

ERROR Otherwise.

Example: AT-SEC=1,18 enables MNP10-EC and sets the transmit level to -18 dBm.

Note: If AT-SEC=0, the modem will automatically set AT-SEC=1 if the remote modem indicates Cellular in the V.8 bis/V.8 phase or if a Cellular Driver is loaded and the Cell Phone is attached.

Inquiries

AT-SEC? Retrieves the current -SEC command settings, e.g., 1,18.

@Mn-Initial Cellular Power Level Setting

This command is included only for compatibility and performs no function.

Result Codes:

OK n=0 to 30.

ERROR Otherwise.

:E-Compromise Equalizer Enable Command

This command is included only for compatibility and performs no function.

Result Codes:

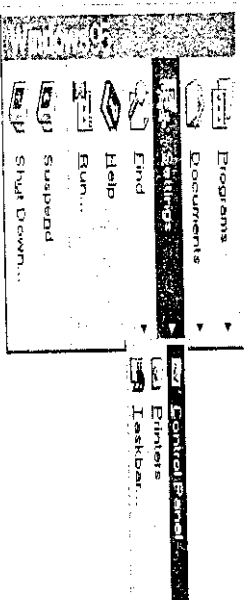
OK n=0 to 2.

ERROR Otherwise.

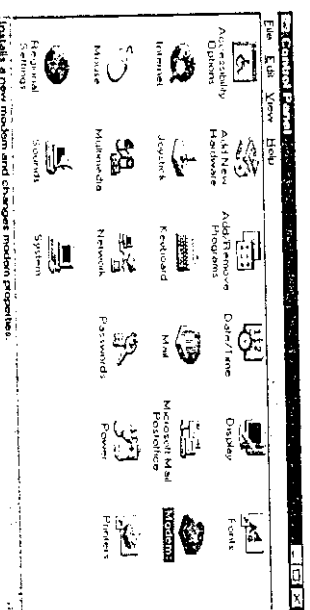
Installation of Modem Driver in Windows 95

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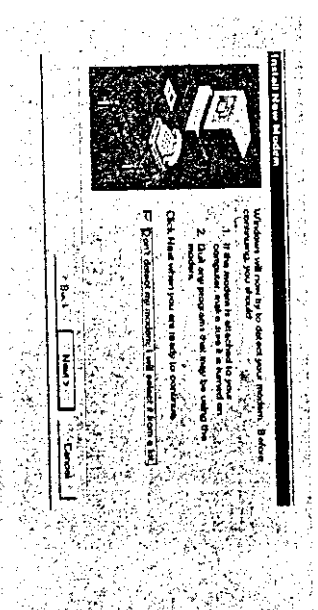
- (1) Turn on computer. Move mouse to "Start" at left hand side, enter "Settings" and select "Control panel".



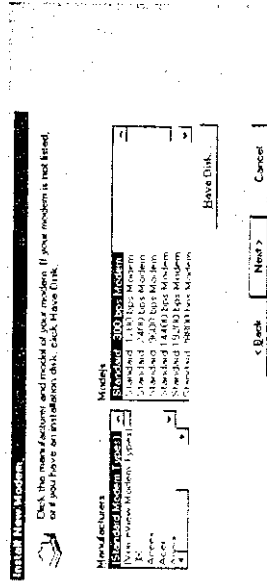
- (2) Under "Control Panel" select "Modems". (or Move mouse to "My computer" at right hand side, enter "Control panel and Modems")



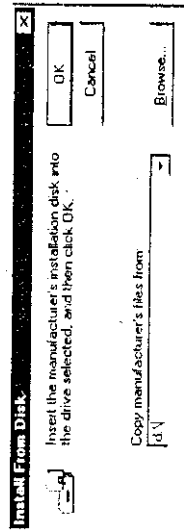
- (3) In Install New Modem, please tick "Don't detect my modem; I will select it from list", and then go to next step.



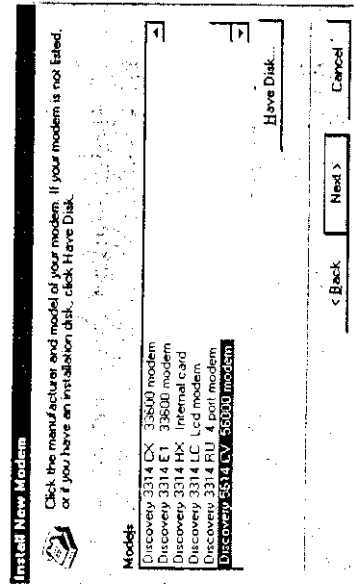
(4) Because the modem is not listed, you click "Have Disk" for other modem models.



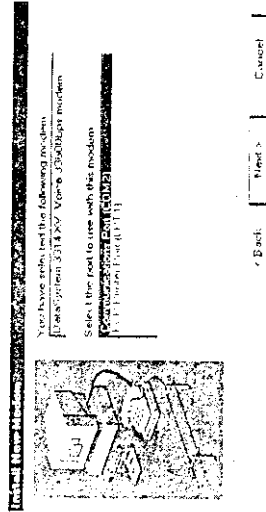
(5) Insert the installation disk into the driver selected, click "Browse", select one of the inf files (Dixmodem.inf for discovery products; Logmodem.inf for DataSystem products), and then click "OK".



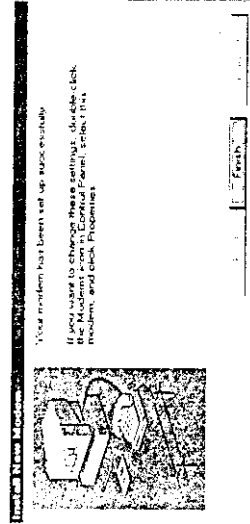
(6) Click the manufacturer and model of your modem, and then go to next step.



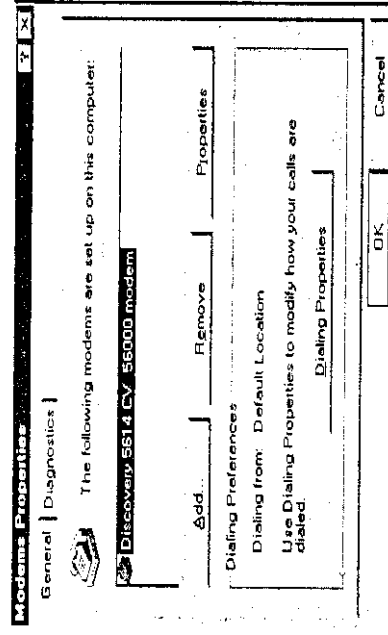
(7) Select the port to use with this modem, for example COM2, and then click "Next".



(8) Your modem has been set up successfully. Click "Finish".



(9) Select the modem you have, and then click "Close".



[illegible]