é·TEK®

TD-5612DCII Modem User's Manual

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About Your Modem

Congratulations on the purchase of your TD-5612DCII modem one of é·TEK® premier high-performance products. The TD-5612DCII modem is world renown for its ability to maintain ultra high speeds and clear, quality connections while communicating around the globe.

About This Manual

This manual describes the use of your TD-5612DCII data/fax modem and gives instruction for its installation and operation.

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é·TEK® Modem User's Manual
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Chapter 1 INTRODUCTION

This chapter describes modem introduction and Features.

1. 1 Introduction

é·TEK® modem is a powerful tool which uses a telephone line to link your computer with other computers. Once linked, you can exchange information with databases, bulletin boards, and other computer users.
é·TEK® is proud to be part of your journey through today's global communications network.

1. 2 Modem Features

Compatible with BELL 103, 212A standards and ITU V.92、V.90、V.34、V.32BIS、V.32、V.22BIS、V.22、V.21 、Bell 212，103 recommendations. The é·TEK® TD-5612DCII modem is a high performance universal modem capable of transmission speed up to 56Kbps full-duplex on a 2-wire dial-up line. Universal compatibility covers a broad range of ITU-T and BELL standards.
Various operation modes that can be achieved are as follows:

Table 1-1 é·TEK® TD-5612DCII Data Operation Modes

Standard	Bit Rate [bps]
Bell 103	300
Bell 212	1200 Rx/75 Tx or 75 Rx/1200 Tx
V.21	300
V.22	1200
V.22 bis	2400 or 1200
V.23	1200
V.32	9600 or 4800
V.32bis	14400,12000,9600,7200,or 4800
V.34	33600,32100,28800,26400,24000,21600,19200,16800,14400,12000,9600, 7200,4800, or 2400
V.90	56000,54667,53333,52000,50667,49333,48000,46667,45333,44000,42667, 41333,40000,38667,37333,36000,34667,33333,32000,30667,29333,28000
V.92 upstream	48000,46667,45333,44000,42667,41333,40000,38667,37333,36000,34667, 33333,32000,30667,29333,28000,26667,25333,24000
V.92 downstream	56000,54667,53333,52000,50667,49333,48000,46667,45333,44000,42667, 41333,40000,38667,37333,36000,34667,33333,32000,30667,29333,28000

1、Data Format：Asynchronous

2、DTE Data Rate
Async：115200/57600/38400/19200/9600/4800/2400/1200/600/300bps
Data Bits：8、9、10、11 bits
Parity：Odd、Even、None
Stop Bits：1、2 bit

3、Error Correction：V.42 LAPM and MNP 2 - 4
Data Compression：V.44、 V.42bis and MNP 5

4、Flow Control：
Hardware flow control
Software flow control

5、Command Set
DATA：Hayes AT & é·TEK® Specific AT Compatible
FAX：CLASS 1 & CLASS 1.0

6 Telephone Line connection：2-wire dial-up, 2-wire leased line

7、Output resistance : average 600Ω ± 10%

8、Power Supply：Input 110~240V AC, 50/60Hz
Output 12V 1000mA
Power consumption：< 10 W

9、PC Serial Port Pinouts:

Signal Pin	ITU-TSS Signal Name	Pin/Signal Description	Direction DTE-DCE
1	101	（GND）Protective Ground	—
2	103	（TXD）Transmitted Data	DTE
3	104	（RXD）Received Data	DCE
4	105	（RTS）Request To Send	DTE
5	106	（CTS）Clear To Send	DCE
6	107	（DSR）Data Set Ready	DCE
7	102	（GND）Signal Ground	—
8	109	（DCD）Data Carrier Detect	DCE
15	114	（DCE）Transmitter Clock	DCE
17	115	（RXC）Synchronous Receive Clock.	DCE
18	141	（AL）Local Analog Loop Back Test.	DTE
20	108	（DTR）Data Terminal Ready. Connect DCE to Line	DTE
21	140	（RDL）Remote Digital Loop Test.	DTE
22	125	（RING）Ring Indicator	DCE
24	113	（XTC） Transmit Clock Signal (Source: DTE).	DTE
25	142	（TST）Test Indicator	DCE

Chapter 2 UNPACKING AND INSTALLATION

This chapter describes the procedures for unpacking and Installing é·TEK® Modem, Chapter 2 is designed to have normal PC users on-line quickly.

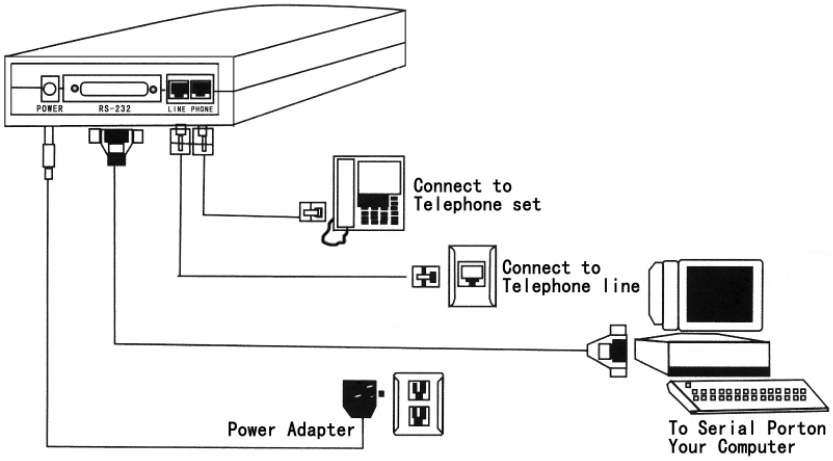
2 . 1 Unpacking the Modem

The complete é·TEK® Modem package includes：

* é·TEK® TD-5612DCIIModem	1 PCS
* RJ-11 to RJ-11 Cable	1 PCS
* RS-232 Cable	1 PCS
* DC 12V Adapter	1 PCS
* User's Manual	1 PCS
* Software	1 PCS

2 . 2 Modem Installation

This chapter describes the panel function and installation procedure for the TD-5612DCII.
A shielded RS-232 cable is required to ensure compliance with FCC Part 15, and it is your responsibility to use a shielded RS-232 cable. Make sure your installation site is clean and well ventilated. The ventilation slot of your é·TEK® modem located on the sides and bottom should not be covered to allow for free movement of air.

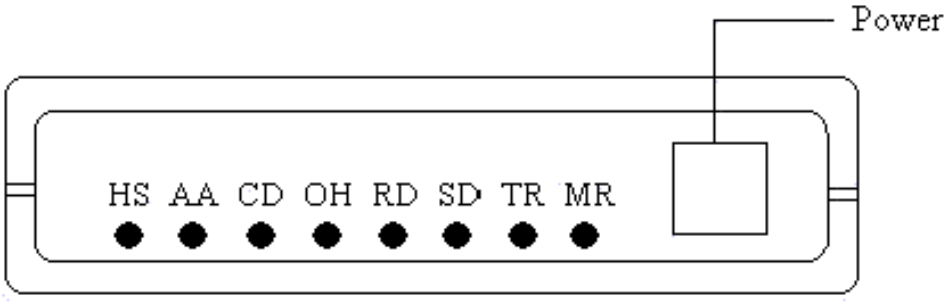


2 . 3 The LED Indicators on the Front Panel

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

LED	Function
MR(Modem Ready)	Lights up when the modem is turned on.
TR(Terminal Ready)	Flashes when DTR signal 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)	Lights up when a carrier from the remote modem is detected.
OH(Off-Hook)	Lights up when the modem is using the telephone line. Off when the modem hangs-up(on-hook).
CD(Carrier Detected)	Lights up when a carrier from the remote modem is detected.
AA(Auto-Answer)	Lights up when the modem is set for auto-answer. Flashes when an incoming ring is detected.
HS(High Speed)	Lights up when modem speed exceeds 4800bps.

When you turn on your modem, at least the MR indicator shall light up. There may be some other indictors lights depended on the settlement of the modem. Otherwise, you should check the power connected to your modem.



2.4 The Rear Panel and the Connectors

PHONE: Accepts a telephone set connected parallel to your modem or to a 2-wire leased line.

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

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

Power: Accepts the power adapter that comes with your modem.

2.5 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.

2.6 Hardware Connection

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.
   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.
3) Use an RJ-11 cable to connect the LINE jack to the wall outlet of the telephone line.
4) Connect a telephone set to the PHONE jack. You may leave this jack disconnected if desired.
5) Make sure that the power adapter that comes with your modem is of a correct voltage that complies with your power source. Use the adapter to connect the power source to the POWER jack one the modem.

2.7 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.

2.8 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.

2.9 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.

2.10 Fax communications Software Packages

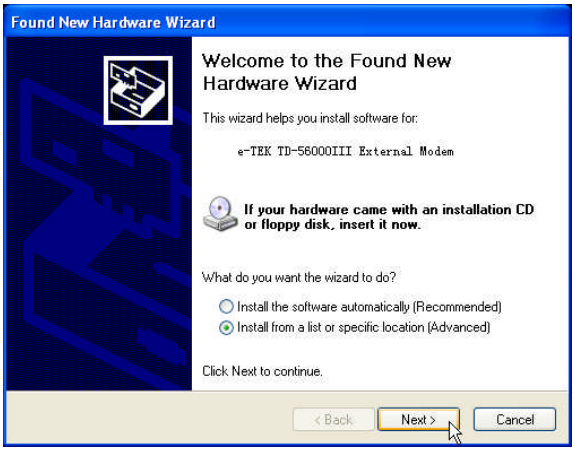
Similar to data communication applications, you interact with the modem through the fax communications software.
Your modem supports Class 1& Class 1.0 command set.

2.11 Error-Correction and Data compression

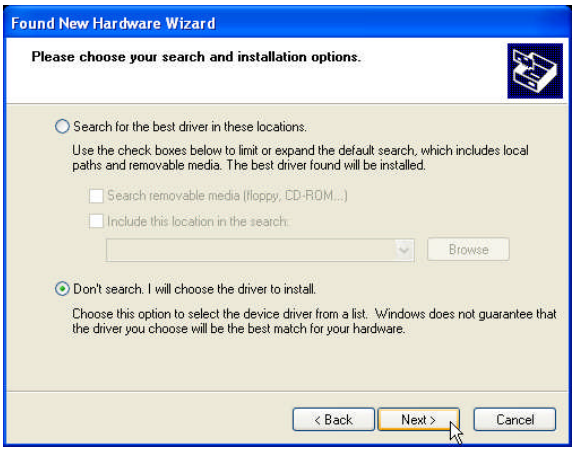
Your modem supports the industrial standards of V.42 LAPM、 MNP 2-4 and V.44、 V.42bis、 MNP 5 for error-correction and data compression (ECDC). Both standards are capable of error-correction as well. The modem will re-transmit a faulty data block when an error is detected while receiving.

2.12 Installation of Modem Driver in WindowsXP

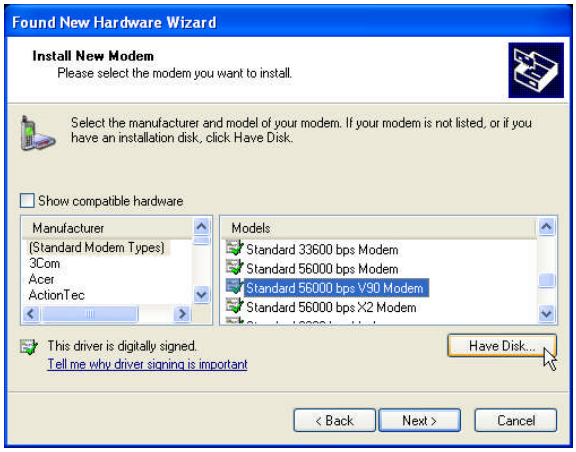
1. Windows XP "Found New Hardware Wizard". Please tick "Install from a list or specific location", and then go to next step.



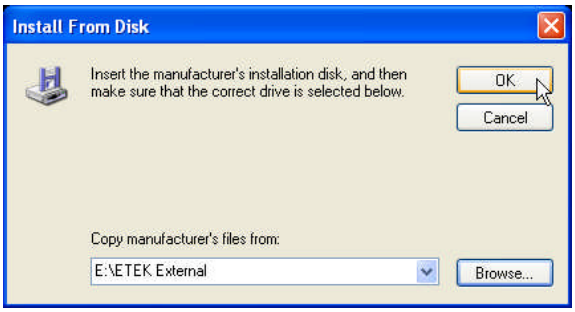
2. In Install New Modem, please tick "Don't search, I will choose the driver to install", and then go to next step.



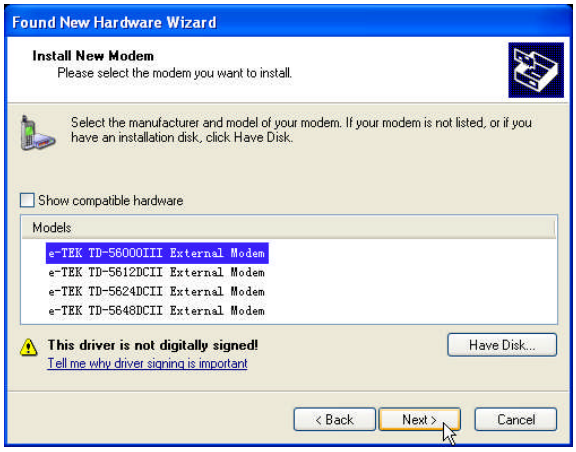
3. Because the modem is not listed, you click "Have Disk" for other modem models.



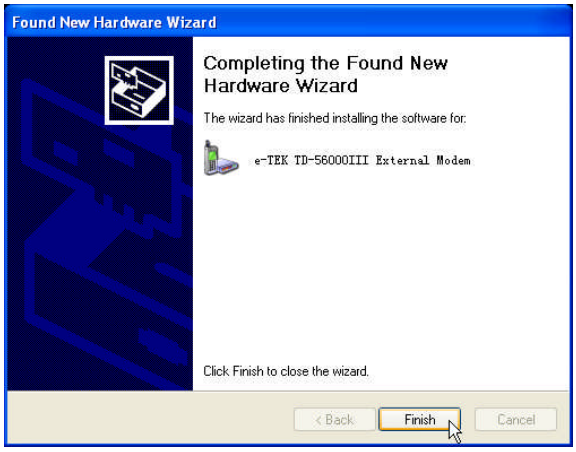
4. Insert the installation disk into the driver selected, click "Browse", select one of the in files, and then click "OK".



5. Click the manufacturer and model of your modem, Please select it and then go to next step.



6. Your modem has been set up successfully. Click "Finish".



Chapter 3 The Modem AT commands

This chapter describes AT command sets in alphabetical order. The default setting, if applicable, is indicated by bold characters. Note that in order to meet local telephone company regulations. Some modem commands might have been removed or set to different default.

3.1 Prefix, Repeat and Escape Commands

AT Attention. Precede all command lines except A/ and +++
A/ Re-execute the last command in command buffer
+++ Escape characters, requires guard time before and after

3.2 Dial Commands and Dial Modifiers

D Originate a call
S=n Dial the number stored in the directory (n=0 to 3).
T Touch tone dialing
P Pulse dialing
R Dial in answer mode
W Wait for second dial tone
L Re-Dial the last valid telephone number
, Pause
! Flash
; Return to command state

3.3 Operation Commands

A Answer incoming call
Bn n=0 Selects CCITT operation at 300 or 1200 bps during Call Establishment and a subsequent connection.
n=1 Selects BELL operation at 300 or 1200 bps during Call Establishment and a subsequent connection.
En n=0 Disable command echo
n=1 Enable echo command characters
Hn n=0 Hang up the connection (on-hook)
n=1 Go off-hook to make a call

In	n=0 Reports product code
	n=1 Calculates the ROM checksum
	n=2 Reports firmware version
Ln	n=0 Low volume
	n=1 Low volume
	n=2 Medium volume
	n=3 High volume
Mn	n=0 Speaker off at all times
	n=1 Speaker on until CD detected
	n=2 Speaker always on
Nn	n=0 Fixed data rate follow *N command
	n=1 Enable adaptive data rate
On	n=0 Return to data-link without retrain
	n=1 Return to data-link with retrain
Qn	n=0 Modem sends response codes
	n=1 Do not send response codes
Sr?	Display the value in register r
Sr=n	Set register r to a value n
Vn	n=0 Display response codes in digit form
	n=1 Display response codes in words
Wn	n=0 Upon connection, the modem reports only theDTE speed
	n=1 Upon connection, the modem reports the modulation, line speed, the error correction protocol, and the DTE speed, respectively. Subsequent responses are disabled.
	n=2 Upon connection, the modem reports the DCE speed
Xn	n=0 Enable basic response codes 0-4
	n=1 Do not detect dial tone and busy signal
	n=2 Include dial tone detection response
	n=3 Include busy detection response
	n=4 Enable all response codes
Yn	n=0 Do not send (and ignore) break signal
	n=1 Send break signal for 4 seconds before disconnect
Zn	n=0 Reset modem with SCP0
	n=1 Reset modem with SCP1
&Cn	n=0 RLSD remains ON at all times.
	n=1 RLSD follows the state of the carrier.

&Dn	n=0	Alone with any of following &Q0, &Q5, &Q6 then, DTR is not functional. Alone with any of following &Q1, &Q4 then DTR drop causes the modem hang up, Auto-answer is not affected. Alone with any of following &Q2, &Q3 then DTR drop causes the modem to hang up, Auto-answer is inhibited.
	n=1	Alone with any of following &Q0, &Q1, &Q4, &Q5, &Q6 then DTR drop is interpreted by the modem as if the asynchronous escape sequence had been entered. The modem return to asynchronous command state without disconnecting. Alone with any of following &Q2, &Q3 DTR drop causes the modem to hang up. Auto-Answer is inhibited.
	n=2	Alone with any of following &Q0 through &Q6 then, DTR drop causes the modem to hang up Auto-Answer is inhibited.
	n=3	Alone with any of following &Q0, &Q1, &Q4, &Q5, &Q6 then, DTR drop causes the modem to perform a soft reset as if the z command were received. The &Y setting determines which profile is loaded. Alone with any of following &Q2, &Q3 then DTR drop causes the modem to hang up Auto-Answer is inhibited
&Fn	n=0	Restore factory default profile FDP0 (as ECDC modem)
	n=1	Restore factory default profile FDP1 (as non-ECDC modem)
&Gn	n=0	Disable guard tone
	n=1	Disable guard tone
	n=2	Enable 1800 HZ guard tone
&Ln	n=0	Dial-Up line Operation
&Kn	n=0	Disable flow control
	n=3	RTS/CTS flow control
	n=4	XON/XOFF flow control
	n=5	Unidirectional XON/XOFF
	n=6	RTS/CTS, XON/XOFF flow control
&Mn	n=0	Set modem for asynchronous operation
	n=1	Enter synchronous modem after asynchronous dialing
	n=2	Synchronous terminal support. Modem dials a stored number and enters synchronous modem when DTR off-to-on
	n=3	Dial manually while DTR off, handshake proceeds when DTR off-to-on.

&Pn	n=0	Selects 39%-61% make/break ratio at 10 pulses per second. (Default.)
	n=1	Selects 33%-67% make/break ratio at 10 pulses per second.
	n=2	Selects 39%-61% make/break ratio at 20 pulses per second.
	n=3	Selects 33%-67% make/break ratio at 20 pulses per second.
&Rn	n=0	Modem turns CTS on when detects RTS from the local computer
	n=1	Ignore RTS. Modem turns CTS on when ready to receive synchronously
&Sn	n=0	Modem forces DSR always on
	n=1	Set DSR to follow RS-232 spec
&Tn	n=0	Terminates test in progress
	n=1	Initiates local analog loop back, V.34 Loop3, Sets S16 bit 0. If a connection exists when this command is issued, the modem hangs up, The connect XXXX message is displayed upon the start of the test.
	n=2	Returns ERROR.
	n=3	Initiates local digital loop back, V.34 Loop2. Sets S16 bit 2. If no connection exists. ERROR is returned. Sets S16 bit 4 when test is in progress.
	n=4	Enables digital loop back acknowledgment for remote request.
	n=5	Disable digital loop back acknowledgment for request.
	n=6	Requests a remote digital loop back, V.34 Loop 2, without self test.
	n=7	Requests a remote digital loop back (RDL), V.34 Loop 2, with self test.
	n=8	Initiates local analog loop back, V.34 Loop3, with self test.
&Vn	n=0	Display modem profiles and numbers
	n=1	Display last connection statistics
&Wn	n=0	Write ACP to SCP0
	n=1	Write ACP to SCP1
&Xn	n=0	Select internal clock
	n=1	Select external clock
	n=2	Select slave clock
&Yn	n=0	Designate SCP0 as the active SCP
	n=1	Designate SCP1 as the active SCP
&Zn=X	n=0-3	Save up to four numbers to NVRAM. "X" to Dial the stored number

Note: &X, &Mn: for Sync mode only.

+IPR Fixed DTE Rate

Specifies the DTE-modem interface operation rate in bits/s. The available rates are: 0, 300, 1200, 2400,
4800, 9600, 19200, 38400, 57600, 115200bits/s

Example: AT+IPR=9600

+MS Modulation Selection

This extended-format compound parameter controls the manner of operation of the modulation capabilities in the modem. It accepts six subparameters.

Syntax:

+MS=[<carrier>[,<automode>[,<min_tx_rate>[,<max_tx_rate>[,<min_rx_rate> [,<max_rx_rate>]]]]]]

Where possible <carrier>, <min_tx_rate>, <max_tx_rate>, <min_rx_rate>, and max_rx_rate>values are listed in Table .

Modulation	<carrier>	Possible (<min_rx_rate>, <min_rx_rate>, (<min_tx_rate>), and <max_tx_rate>) Rates (bps)
Bell 103	B103	300
Bell 212	B212	1200 Rx/75 Tx or 75 Rx/1200 Tx
V.21	V21	300
V.22	V22	1200
V.22 bis	V22B	2400 or 1200
V.23	V23C	1200
V.32	V32	9600 or 4800
V.32bis	V32B	14400,12000,9600,7200,or 4800
V.34	V34	33600,32100,28800,26400,24000,21600,19200,16800,14400, 12000,9600,7200,4800, or 2400
V.90	V90	56000,54667,53333,52000,50667,49333,48000,46667,45333, 44000,42667,41333,40000,38667,37333,36000,34667,33333, 32000,30667,29333,28000
V.92 upstream	V92	48000,46667,45333,44000,42667,41333,40000,38667,37333, 36000,34667,33333,32000,30667,29333,28000,26667,25333, 24000
V.92 downstream	V92	56000,54667,53333,52000,50667,49333,48000,46667,45333, 44000,42667,41333,40000,38667,37333,36000,34667,33333, 32000,30667,29333,28000

<carrier> A string which specifies the preferred modem carrier to use in originating or answering a connection. <carrier> values are strings of up to eight characters, consisting only of numeric digits and upper case letters. <carrier> values for ITU standard modulations take the form:
<letter>< 1-4 digits><other letters as needed>. Defined values are listed in Table.

<automode> A numeric value which enables or disables automatic modulation negotiation (e.g., ITU-T V.32bis Annex A or V.8).
0 = Automode disabled.
1 = Automode enabled. (Default.)

<min_rx_rate> and <max_rx_rate>
Numeric values which specify the lowest (<min_rx_rate>) and highest (<max_rx_rate>) rate at which the modem may establish a receive connection. May be used to condition distinct limits for the receive direction as distinct from the transmit direction. Values for this subparameter are decimal encoded, in units of bit/s. The possible values for each modulation are listed in Table. Actual values will be limited to possible values corresponding to the entered <carrier> and fall-back <carrier> as determined during operation. (Default = lowest (<min_rx_rate>) and highest (<max_rx_rate>) rate supported by the selected carrier.)

<min_tx_rate> and <max_tx_rate>
Numeric values which specify the lowest (<min_tx_rate>) and highest (<max_tx_rate>) rate at which the modem may establish a transmit connection. Non-zero values for this subparameter are decimal encoded, in units of bit/s. The possible values for each modulation are listed in Table . Actual values will be limited to possible values corresponding to the entered <carrier> and fall-back <carrier> as determined during operation. (Default = lowest (<min_tx_rate>) and highest (<max_tx_rate>) rate supported by the selected carrier.)

Example: +MS= V92, 1,300,48000,300,56000

Reporting Current or Selected Values Command: +MS?

Response: +MS :<carrier>,<automode>,<min_tx_rate>, <max_tx_rate>, <min_rx_rate>,<max_rx_rate>

Example:+MS: V92, 1,300,48000,300,56000

Reporting Supported Range of Parameter Values Command: +MS=?

Response:+MS: (< carrier> range),(<automode> range),(<min_tx_rate> range), (<max_tx_rate> range), (<min_rx_rate> range), (<max_rx_rate> range)

Example :+MS:(B103,B212,V21 ,V22,V22B,V23C,V32,V32B,V34, V90, V92), (0,1),(300-33600),(300-48000),(300-56000),(300-56000)

3.4 Error Control/Data Compression Commands

+ES - Error Control and Synchronous Mode Selection

This extended-format command specifies the initial requested mode of operation when the modem is operating as the originator, optionally specifies the acceptable fallback mode of operation when the modem is operating as the originator, and optionally specifies the acceptable fallback mode of operation when the modem is operating as the answerer. It accepts three numeric subparameters:

Syntax

+ES=[<orig_rqst>[,<orig_fbk>[,<ans_fbk>]]]

Defined Values

<orig_rqst> Decimal number which specifies the initial requested mode of operation when the modem is operating as the originator. The options are:

0 Initiate call with Direct Mode.

1 Initiate call with Normal Mode (also referred to as Buffered Mode) only.

2 Initiate V.42 without Detection Phase. If V.8 is in use, disable V.42 Detection Phase.

3 Initiate V.42 with Detection Phase. (Default.)

4 Initiate MNP.

6 Initiate V.80 Synchronous Access Mode when connection is completed, and Data State is entered. (See +ESA and +ITF commands.)

7 Initiate Frame Tunneling Mode when connection is complete, and Data Mode is entered.

<orig_fbk> Decimal number which specifies the acceptable fallback mode of operation when the modem is operating as the originator.

0 LAPM, MNP, or Normal Mode error control optional. (Default.)
1 LAPM, MNP, or Direct Mode error control optional.
2 LAPM or MNP error control required; disconnect if error control is not established.
3 LAPM error control required; disconnect if error control is not established.
4 MNP error control required; disconnect if error control is not established.

<ans_fbk> Decimal number which specifies the acceptable fallback mode of operation when the modem is operating as the answerer or specifies V.80 Synchronous Access Mode.

0 Direct Mode.
1 Error control disabled, use Normal Mode.
2 LAPM, MNP, or Normal Mode error control optional. (Default.)
3 LAPM, MNP, or Direct Mode error control optional.
4 LAPM or MNP error control required; disconnect if error control is not established.
5 LAPM error control required; disconnect if error control is not established.
6 MNP error control required; disconnect if error control is not established.
7 Initiate V.80 Synchronous Access Mode when connection is completed, and Data State is entered (see +ESA and +ITF commands).
8 Initiate Frame Tunneling Mode when connection is complete, and Data Mode is entered.

Examples

+ES=6	Enable V.80 Synchronous Access Mode originator.
+ES=6	Enable V.80 Synchronous Access Mode originator.
+ES=,,8	Enable V.80 Synchronous Access Mode answerer.
+ES=6,,8	Enable V.80 Synchronous Access Mode originator and answerer.
+ES=3	Enable V.42 with Detection Phase originator. Disable V.80 Synchronous Access Mode originator.
+ES=,,2	Allow LAPM, MNP, or Normal Mode connection answerer. Disable V.80 Synchronous Access Mode answerer.
+ES=3,,2	Enable V.42 with Detection Phase originator, allow LAPM, MNP, or Normal Mode connection answer. Disable Synchronous Access Mode originator and answerer.

+EB - Break Handling in Error Control Operation

This extended-format compound parameter controls the break handling in V.42 operation. It accepts three numeric subparameters:

Syntax

+EB=[<break_selection>[,<timed>[,<default_length>]]]

Defined Values

<break_selection>	Decimal number 0 specifying that break is to be ignored, i.e., not signaled to remote DCE.
<timed>	Decimal number 0 specifying that any transmitted V.42 L - SIGNAL will not indicate break signal length
<default_length>	Decimal number 0 specifying that break is not delivered to the DTE.

+ESR - Selective Repeat

This extended-format numeric parameter controls the use of the selective repeat (SREJ) option in V.42.

Syntax

+ESR=[<value>]

Decimal number 0 specifying that SREJ is not used.

+EFCS - 32-bit Frame Check Sequence

This extended-format numeric parameter controls the use of the 16-bit or 32-bit frame check sequence (FCS) option in V.42.

Syntax +EFCS=[<value>]

Defined Values

<value>Decimal number 0 specifying the use of the 16-bit FCS specified in V.42.

+ER - Error Control Reporting

This extended-format numeric parameter controls whether or not the extended-format +ER: intermediate result code is transmitted from the modem to the DTE.

S95 bit 3 is reset to 0 for +ER=0 and is set to a 1 for +ER=1. The more recent setting of +ER or S95 bit 3, and the W command setting, determines the actual error control result code reporting (see S95 Parameter and W Command).

Syntax

+ER=[<value>]

Defined Values

<value> A decimal number corresponding to the selected error control option:
0 =Error control reporting disabled (no +ER intermediate result code transmitted).
1 =Error control reporting enabled (+ER intermediate result code transmitted).

+ETBM - Call Termination Buffer Management

This extended-format compound parameter controls the handling of data remaining in modem buffers upon call termination. It accepts three numeric subparameters:

Syntax

+ETBM=[<pending_TD>[,<pending_RD>[,<timer>]]]

Defined Values

<pending_TD> Decimal number 0 specifying that disconnect will occur immediately and all buffered transmit data will be discarded when the local DTE requests call disconnection.

<pending_RD> Decimal number 0 specifying that disconnect will occur immediately and all buffered receive data will be discarded when the local DTE requests call disconnection.

<timer> Decimal number 0 specifying that the modem will not attempt to deliver the buffered data before abandoning the attempt and discarding remaining data.

\B - Transmit Break to Remote

In non-error correction mode, the modem will transmit a break signal to the remote modem with a length in multiples of 100 ms according to parameter specified. If a number in excess of 9 is entered, 9 is used. The command works in conjunction with the \K command.

Syntax

\B<value>

Defined Values

<value>

Decimal number corresponding to the selected option.

1-9Break length in 100 ms units. (Default = 3.) (Non-error corrected mode only.)

\K - Break Control

Controls the response of the modem to a break received from the DTE or the remote modem or the \B command. The parameter value, if valid, is written to S40 bits 3, 4, and 5.

Syntax
\K<value>
Defined Values
<value> Decimal number corresponding to the selected option. The response is different in three separate states.

The first state is where the modem receives a break from the DTE when the modem is operating in data transfer mode:

0 Enter on-line command mode, no break sent to the remote modem.
1 Clear data buffers and send break to remote modem.
2 Same as 0.
3 Send break to remote modem immediately.
4 Same as 0.
5 Send break to remote modem in sequence with transmitted data. (Default.)

The second case is where the modem is in the on-line command state (waiting for AT commands) during a data connection, and the \B is received in order to send a break to the remote modem:

0 Clear data buffers and send break to remote modem.
1 Clear data buffers and send break to remote modem. (Same as 0.)
2 Send break to remote modem immediately.
3 Send break to remote modem immediately. (Same as 2.)
4 Send break to remote modem in sequence with data.
5 Send break to remote modem in sequence with data. (Same as 4.) (Default.)

The third case is where a break is received from a remote modem during a non-error corrected connection:

0 Clears data buffers and sends break to the DTE.
1 Clears data buffers and sends break to the DTE. (Same as 0.)
2 Send a break immediately to DTE.
3 Send a break immediately to DTE. (Same as 2.)
4 Send a break in sequence with received data to DTE.
5 Send a break in sequence with received data to DTE. (Same as 4.) (Default.)

-K - 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.

Syntax
-K<value>
Defined Values

<value>Decimal number corresponding to the selected option.

0 Disables V.42 LAPM to MNP 10 conversion. (Default.)
1 Enables V.42 LAPM to MNP 10 conversion.
2 Enables V.42 LAPM to MNP 10 conversion; inhibits MNP Extended Services initiation during V.42 LAPM answer mode detection phase.

+DS - Data Compression

This extended-format compound parameter controls the V.42bis data compression function if provided in the modem. It accepts four numeric subparameters:

Syntax

+DS=[<direction>[,<compr_neg>[,<max_dict>[,<max_string>]]]] Defined Values

<direction> Specifies the desired direction(s) of operation of the data compression function; from the DTE point of view.
0 Negotiated; no compression (V.42bis P0=0).
3 both directions, accept any direction (V.42bis P0=11). (Default.)

<compr_neg> Specifies whether or not the modem should continue to operate if the desired result is not obtained.
0 Do not disconnect if V.42bis is not negotiated by the remote modem as specified in <direction>.

<max_dict> Specifies the maximum number of dictionary entries (2048 entries) which should be negotiated (may be used by the DTE to limit the codeword size transmitted, based on its knowledge of the nature of the data to be transmitted).

<max_string> Specifies the maximum string length (32 bytes) to be negotiated (V.42bis P2).

+DS44 - V.44 Compression Select

This extended-format compound parameter controls the V.44 data compression function.

Syntax

+DS44=[<direction>[,< compress_negotiation >[,<capability>[,<max_codewords_tx> [,<max_codewords_rx>[,<max_string_tx>[,<max_string_rx>[,<max_history_tx> [,<max_history_rx>]]]]]]]]

Defined Values

<direction> Decimal number that specifies the desired direction(s) of operation of the data compression function; from the DTE point of view.

0 Negotiated, no compression.
1 Transmit only.
2 Receive only.
3 Both directions, accept any direction. (Default.)

<compress_negotiation> Decimal number that specifies whether or not the modem should continue to operate if the desired result is not obtained.

0 Do not disconnect if V.44 is not negotiated by the remote DCE as specified in <direction>. (Default.)
1 Disconnect if V.44 is not negotiated by the remote DCE as specified in <direction>.

<capability>Decimal number that specifies the use of stream method, packet method, multi-packet method.

0 Stream method. (Default.)
1 Packet method.
2 Multi-packet method.

<max_codewords_tx> Decimal number from 256 to 2048 that specifies the maximum number of codewords which should be negotiated in the transmit direction. (Default = 2048.)

<max_codewords_rx> Decimal number from 256 to 2048 that specifies the maximum number of codewords which should be negotiated in the receive direction. (Default = 2048.)

<max_string_tx> Decimal number from 32 to 255 that specifies the maximum string length to be negotiated in the transmit direction. (Default=32.)

<max_string_rx> Decimal number from 32 to 255 that specifies the maximum string length to be negotiated in the receive direction. (Default=32.)

<max_history_tx> Decimal number from 2048 to 4096 that specifies the maximum size of the history buffer to be negotiated in the transmit direction. (Default = 4096.)

<max_history_rx> Decimal number from 2048 to 4096 that specifies the maximum size of the history buffer to be negotiated in the receive direction. (Default = 4096.)

+DR - Data Compression Reporting

This extended-format numeric parameter controls whether or not the extended-format +DR: intermediate result code is transmitted from the modem to the DTE.

S95 bit 5 is reset to 0 for +DR=0 and is set to a 1 for +DR=1. The more recent setting of +DR or S95 bit 5, and the W command setting, determines the actual data compression result code reporting (see S95 Parameter and W Command).

Syntax

+DR=[<value>]

Defined Values

<value> decimal number corresponding to the selected option:

0 Data compression reporting disabled (no +DR result code transmitted).

1 Data compression reporting enabled (+DR result code transmitted). (Default.)

%C - Enable/Disable Data Compression

Enables or disables data compression negotiation. The modem can only perform data compression on an error corrected link. The parameter value, if valid, is written to S41 bits 0 and 1.

Syntax

%C<value>

Defined Values

<value> Decimal number corresponding to the selected option.

0 Disables data compression. Resets S46 bit 1.

1 Enables MNP 5 data compression negotiation. Resets S46 bit 1.

2 Enables V.42 bis data compression. Sets S46 bit 1.

3 Enables both V.42 bis and MNP 5 data compression. Sets S46 bit 1. (Default.)

3.5 S-Register Summary

Register	Function	Range	Units	Default**
S0	Rings to Auto-Answer	0-255	rings	0
S1	Ring Counter	0-255	rings	0
S2	Escape Character	0-255	ASCII	43
S3	Carriage Return Character	0-127	ASCII	13
S4	Line Feed Character	0-127	ASCII	10
S5	Backspace Character	0-255	ASCII	8
S6	Wait Time before Blind Dialing or for Dial Tone	2-255	s	2
S7	Wait Time for Carrier, Silence, or Dial Tone	1-255	s	50
S8	Pause Time for Dial Delay Modifier	2-255	s	2
S9	Carrier Detect Response Time	1-255	0.1 s	6
S10	Lost Carrier To Hang Up Delay	1-255	0.1 s	14
S11	DTMF Tone Duration	50-255	0.001 s	95
S12	Escape Prompt Delay (EPD)	0-255	0.02 s	50
S14	General Bit Mapped Options Status	-	-	138 (8Ah)
S16	Test Mode Bit Mapped Options Status	-	-	0
S21	V.24/General Bit Mapped Options Status	-	-	52 (34h)
S22	Speaker/Results Bit Mapped Options Status	-	-	117 (75h)
S23	General Bit Mapped Options Status		-	0
S24	Sleep Inactivity Timer	0-255	s	0
S25	Delay to DTR Off	0-255	s or 0.01 s	5
S26	RTS-to-CTS Delay	0-255	0.01 s	1
S27	General Bit Mapped Options Status	-	-	73 (49h)
S28	General Bit-Mapped Options Status	-	-	0
S29	Flash Dial Modifier Time	0-255	10 ms	70
S30	Disconnect Inactivity Timer	0-255	10 s	0
S31	General Bit-Mapped Options Status	-	-	192 (C0h)
S36	LAPM Failure Control	-	-	7
S37	Line Connection Speed n=0~12 0 Auto mode connection（F0） 1-3 300（F1） 4 Reserved 5 1200（F4） 6 2400（F5） 7 300/ 1200V.23（F3） 8 4800（F6） 9 9600（F8） 10 12000（F9） 11 14400（F10） 12 7200（F7）	-	-	0
S38	Delay Before Forced Hangup	0-255	s	20
S39	Flow Control Bit Mapped Options Status	-	-	3
S40	General Bit-Mapped Options Status	-	-	104 (68h)
S41	General Bit-Mapped Options Status	-	-	195 (C3h)
S46	Data Compression Control	-	-	138
S48	V.42 Negotiation Control	-	-	7
S86	Call Failure Indication	0-26	-	21
S91	PSTN Transmit Attenuation Level	0-15	dBm	10
S92	Fax Transmit Attenuation Level	0-15	dBm	10
S95	Extended Result Codes Control	-	-	1
S210	V.34 Symbol Rate	0-255	-	13 (0Dh)

3.6 Result Codes

Short Form	Long Formn	n Value in ATXn Command					Notes
		0	1	2	3	4	
+F4	+FCERROR	x	x	x	x	x	
0	OK	x	x	x	x	x	
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	x	x	x	
7	BUSY	3	3	3	x	x	
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	
22	CONNECT 75TX/1200RX	1	x	x	x	x	
23	CONNECT 1200TX/75RX	1	x	x	x	x	
24	DELAYED	4	4	4	4	x	
25	MESSAGE-WAITING						
32	BLACKLISTED	4	4	4	4	x	
33	FAX	x	x	x	x	x	
35	DATA	x	x	x	x	x	
39	+MRR: 75	X	X	X	X	X	
40	+MRR: 300	x	x	x	x	x	
42	+MRR: 600	X	X	X	X	X	
44	+MRR: 1200/75	x	x	x	x	x	
45	+MRR: 75/1 200	x	x	x	x	x	
46	+MRR: 1200	x	x	x	x	x	
47	+MRR: 2400	x	x	x	x	x	
48	+MRR: 4800	x	x	x	x	x	
49	+MRR: 7200	x	x	x	x	x	
50	+MRR: 9600	x	x	x	x	x	
51	+MRR: 12000	x	x	x	x	x	
52	+MRR: 14400	x	x	x	x	x	
53	+MRR: 16800	x	x	x	x	x	
54	+MRR: 19200	x	x	x	x	x	Note 3
55	+MRR: 21600	x	x	x	x	x	Note 3
56	+MRR: 24000	x	x	x	x	x	Note 3
57	+MRR: 26400	x	x	x	x	x	Note 3
58	+MRR: 28800	x	x	x	x	x	Note 3
59	CONNECT 16800	1	x	x	x	x	Note 3
61	CONNECT 21600	1	x	x	x	x	Note 3
62	CONNECT 24000	1	x	x	x	x	Note 3

Short Form	Long Formn	n Value in ATXn Command					Notes
		0	1	2	3	4	
63	CONNECT 26400	1	x	x	x	x	Note 2
64	CONNECT 28800	1	x	x	x	x	Note 2
66	+DR: ALT	x	x	x	x	x	
67	+DR: V42B	x	x	x	x	x	
68	+DR: V44	X	X	X	X	X	
69	+DR: NONE	x	x	x	x	x	
70	+ER: NONE	x	x	x	x	x	
77	+ER: LAPM	x	x	x	x	x	
78	+MRR: 31200	x	x	x	x	x	Note 2
79	+MRR: 33600	x	x	x	x	x	Note 2
80	+ER: ALT	x	x	x	x	x	
81	+ER: ALT-CELLULAR	x	x	x	x	x	
81	+ER: ALT - CELLULAR	X	X	X	X	X	
83	LINE IN USE	X	X	X	X	X	
84	CONNECT 33600	1	x	x	x	x	Note 2
85	OFF-HOOK INTRUSION	X	X	X	X	X	
86	LINE REVERSAL DETECTED	X	X	X	X	X	
87	NO LINE	X	X	X	X	X	
91	CONNECT 31200	1	x	x	x	x	Note 2
130	+ILRR						
134	+MCR: B103	x	x	x	x	x	
135	+MCR: B212	x	x	x	x	x	
136	+MCR: V21	x	x	x	x	x	
137	+MCR: V22	x	x	x	x	x	
138	+MCR: V22B	x	x	x	x	x	
139	+MCR: V23	x	x	x	x	x	
139	+MCR: V23C	X	X	X	X	X	
140	+MCR: V32	x	x	x	x	x	
141	+MCR: V32B	x	x	x	x	x	
142	+MCR: V34	x	x	x	x	x	Note 3
145	+MCR: V90	x	x	x	x	x	Note 3
145	+MCR: V90	X	X	X	X	X	
146	+MCR: V92	X	X	X	X	X	
147	+MCR: V29	X	X	X	X	X	
150	+MRR: 32000	x	x	x	x	x	Note 3
151	+MRR: 34000	x	x	x	x	x	Note 3
152	+MRR: 36000	x	x	x	x	x	Note 3
153	+MRR: 38000	x	x	x	x	x	Note 3
154	+MRR: 40000	x	x	x	x	x	Note 3
155	+MRR: 42000	x	x	x	x	x	Note 3
156	+MRR: 44000	x	x	x	x	x	Note 3
157	+MRR: 46000	x	x	x	x	x	Note 3
158	+MRR: 48000	x	x	x	x	x	Note 3
159	+MRR: 50000	x	x	x	x	x	Note 3
160	+MRR: 52000	x	x	x	x	x	Note 3
161	+MRR: 54000	x	x	x	x	x	Note 3
162	+MRR: 56000	x	x	x	x	x	Note 3
165	CONNECT 32000	x	x	x	x	x	Note 3
166	CONNECT 34000	x	x	x	x	x	Note 3
167	CONNECT 36000	x	x	x	x	x	Note 3
168	CONNECT 38000	x	x	x	x	x	Note 3
169	CONNECT 40000	x	x	x	x	x	Note 3
170	CONNECT 42000	x	x	x	x	x	Note 3

Short Form	Long Formn	n Value in ATXn Command					Notes
		0	1	2	3	4	
171	CONNECT 44000	x	x	x	x	x	Note 3
172	CONNECT 46000	x	x	x	x	x	Note 3
173	CONNECT 48000	x	x	x	x	x	Note 3
174	CONNECT 50000	x	x	x	x	x	Note 3
175	CONNECT 52000	x	x	x	x	x	Note 3
176	CONNECT 54000	x	x	x	x	x	Note 3
180	CONNECT 28000	x	x	x	x	x	Note 3
181	CONNECT 29333	x	x	x	x	x	Note 3
182	CONNECT 30667	x	x	x	x	x	Note 3
183	CONNECT 33333	x	x	x	x	x	Note 3
184	CONNECT 34667	x	x	x	x	x	Note 3
185	CONNECT 37333	x	x	x	x	x	Note 3
186	CONNECT 38667	x	x	x	x	x	Note 3
187	CONNECT 41333	x	x	x	x	x	Note 3
188	CONNECT 42667	x	x	x	x	x	Note 3
189	CONNECT 45333	x	x	x	x	x	Note 3
190	CONNECT 46667	x	x	x	x	x	Note 3
191	CONNECT 49333	x	x	x	x	x	Note 3
192	CONNECT 50667	x	x	x	x	x	Note 3
193	CONNECT 53333	x	x	x	x	x	Note 3
194	CONNECT 54667	x	x	x	x	x	Note 3
195	+MRR: 28000	x	x	x	x	x	Note 3
196	+MRR: 29333	x	x	x	x	x	Note 3
197	+MRR: 30667	x	x	x	x	x	Note 3
198	+MRR: 33333	x	x	x	x	x	Note 3
199	+MRR: 34667	x	x	x	x	x	Note 3
200	+MRR: 37333	x	x	x	x	x	Note 3
201	+MRR: 38667	x	x	x	x	x	Note 3
202	+MRR: 41333	x	x	x	x	x	Note 3
203	+MRR: 42667	x	x	x	x	x	Note 3
204	+MRR: 45333	x	x	x	x	x	Note 3
205	+MRR: 46667	x	x	x	x	x	Note 3
206	+MRR: 49333	x	x	x	x	x	Note 3
207	+MRR: 50667	x	x	x	x	x	Note 3
208	+MRR: 53333	x	x	x	x	x	Note 3
209	+MRR: 54667	x	x	x	x	x	Note 3
210	+MRR: 25333	X	X	X	X	X	
211	+MRR: 26667	X	X	X	X	X	
212	+MRR: 25333	X	X	X	X	X	
213	+MRR: 22666	X	X	X	X	X	
214	DIGITAL LINE DETECTED	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 column is blank, then no message will be generated for that x option. A numeral indicates which less explicit message (verbose or short form) will be output for that X option. (Also, see Section 3.3).
2. V.34, V.90, and V.92 models only.
3. V.90 and V.92 models only.

Chapter 4 Troubleshooting

Your modem is designed to provide years of ultra high speed satisfaction. In the unlikely event of you encountering problems using your modem, the tips in this section will help you to identify and resolve them. Most modem problems are a result of incorrect cabling or settings within your communications or fax software. This section provides a list of more common problems that you may encounter, followed by likely solutions.

4.1 AT Command Set Problems

Problem

Your modem does not respond to AT commands.

Solutions

1. Make sure the DTR LED is ON. If it is OFF, make sure your communications software is using the same COM port as your modem.
2. Check to see that your modem's COM port is not already assigned to another installed serial device, such as a mouse or laser printer.

Problem

Your modem fails to execute AT commands.

Solutions

1. Make sure the DTR LED is ON. If it is OFF, make sure your communications software is using the same COM port as your modem.
2. You may have omitted the characters AT from the beginning of the command line. These characters must appear at the beginning of each command line.
3. You may have typed the commands when your modem was in data state instead of the command state. To switch from data state to command state, type the escape sequence code +++. To return to the data state, type ATO and press Enter.

Problem

You typed an AT command, but did not receive an OK or 0 result code.

Solutions

1. Your communications software may be using a different COM port than your modem. Be sure both the software and your modem are addressing the same COM port.

2. The E0 and Q1 commands may be in effect, disabling echo and result codes. To verify this in terminal mode, type AT&V0 and press Enter with the modem in command state to view the currently active settings. To enable echo and result codes, type AT E1 Q0 and press Enter.
3. You may have typed the commands when your modem was in the data state instead of the command state. To switch from data state to command state, type the escape sequence code +++. To return to data state, type ATO and press Enter.

Problem

You receive the ERROR result code after typing an AT command.

Solution

You may have typed a command that is not recognized by your modem or communications software.

4.2 Command Echo Problems

Problem

You do not see any typed characters on your computer screen.

Solutions

1. Make sure the DTR LED is ON. If it is OFF, make sure your communications software is using the same COM port as your modem.
2. Neither your modem nor your communications software is configured to echo characters. Use the E1 command to enable modem echo, or turn on your software program's Echo (or duplex) feature.

Problem

Each character you type appears twice on your computer screen.

Solution

Both your modem and your communications software are echoing characters to your screen. Use the E0 command to disable modem echo, or turn off your software program's echo (or duplex) feature.

4.3 Auto-Answer Problems

Problem

Your modem does not auto-answer incoming calls.

Solutions

1. Make sure the supplied telephone cable is connected to your modem's LINE jack and not the PHONE jack.
2. Your modem may not be set up for auto-answer. With the modem in command state, type ATS0=1 and press Enter to have the modem answer on the first incoming ring To auto-answer after a specific number of rings, replace 1 with a value up to 255. Do not assign a value of 0, which turns off auto-answer, unless your software can respond to the modem's RING result codes.
3. Check that the DTR LED is ON, and that the AA LED flickers with each incoming ring. If the LEDs do not respond in this way, refer to you é·TEK® User's Manual.
4. Set &D0 and auto answer, if your modem is not connected to RS232 or DTR is not ready.

Problem

When you receive a phone call, your modem immediately seizes control of the telephone line.

Solution

Your modem may be configured for auto-answering. To disable auto-answer, type ATS0=0 and press Enter with the modem in command state.

4.4 Dialing Problems

Problem

Your modem does not dial calls.

Solutions

1. Make sure the supplied telephone cable is connected to your modem's LINE jack and not the PHONE jack.
2. You are using touchtone dialing on a line that requires pulse dialing. Change your communications software to use pulse dialing.
3. Unplug the telephone line cable from the computer and connect it directly to a telephone handset. Check for dial tone. If there is none, the problem is in the telephone line. Call the service provider.

4.5 Data Transfer Problems

Problem

You can make a data connection with a remote modem, but encounter frequent errors during data transfers.

Solutions

1. Re-dial the call. (The telephone connection may be poor.)
2. Your modem and communications software may be configured for different flow control methods. Be sure your modem and software are both using hardware (RTS/CTS) flow control or software (XON/XOFF) flow control.
3. To verify that your modem and communications software are using the same flow control method, type AT&T8 and press the Enter key with your modem in the command state. You should see a smooth "stair-stepping" ASCII test pattern flowing diagonally across your screen.

4.6 Connection Problems

Problem

Your modem disconnects while communicating with a remote system.

Solutions

1. The remote system may have hung up. Type ATI2 and press Enter to view the link status report, which will include the reason for the disconnect. For information on understanding this report, refer to your é·TEK® User's Manual.

You may have subscribed to Call Waiting and received an incoming call that interrupted your data connection. See your telephone directory for information on disabling Call Waiting.

FCC STATEMENT

1. **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.
2. **Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital, pursuant to Part 15 or 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 casue harmful interference to radio communications, However, there is no guarantee that interference will not occur in a particular installation. If the 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.