

# **V.3225/V.3225L Manual**

**For Sales or Service Contact:**

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## Appendix A Specifications

Size	Width	7.0 inches (17.78 cm)
	Depth	10.5 inches (26.67 cm)
	Height	2.25 inches (5.72 cm)
	Weight	2 lbs. 13 oz. (1.28 kg)
Environmental Conditions	Front Panel	32 ASCII character LCD
	Temperature:	Operation +32° F to +122° F (0° C to +50° C)
	Storage	-40° F to +158° F (-40° C to +70° C)
Power Requirements	Humidity:	0 to 95% relative humidity; noncondensing
	The unit can be ordered for operation with one of three power input options.	
	Voltage:	115 Vac $\pm 10\%$ ; 50-60 Hz, 230 Vac $\pm 10\%$ ; 50-60 Hz, or 12 to 60 Vdc
Telephone Line	Power consumption: 9 watts	
	Fuse: 1/4 Amp Slow-Blow (115 Vac model)	
	Balanced 600 ohm type 3002 or equivalent 16 dB nominal loss, frequency translation up to $\pm 10$ Hz	
Digital Interface	Conforms to EIA-232D and CCITT V.24	

**A**  
**Specifications**

**Modem Data Rates**

9600 trellis coded,  
9600 and 4800 uncoded as stated in CCITT  
recommendation V.32,  
2400 and 1200 compatible with CCITT  
recommendation V.22 bis,  
300 as stated in Bell specification 103

**Modulation**

9600, 4800, 2400 QAM with suppressed carrier  
(V.32, V.22 bis compliant)  
1200 PSK  
300 FSK

**Transmit Carrier Frequencies**

	Originate	Answer
V.32 bis	1800 Hz	
1200 and 2400	1200 Hz $\pm$ 0.1%	2400 Hz $\pm$ 0.1%
300 bps		
Mark:	1270 Hz $\pm$ 5%	2225 Hz $\pm$ 5%
Space:	1070 Hz $\pm$ 5%	2025 Hz $\pm$ 5%

**Internal Transmit Clock Frequency**

Selected bit rate  $\pm$  0.01%

**External Transmit Clock Frequency**

Selected bit rate  $\pm$  0.01%

**Transmit Output Level**

0 to -15 dBm, selectable;  
PSTN operation is programmable or permissive.

**Operation**

4-wire, full-duplex, leased (private) line;  
2-wire, full-duplex, leased (private) line or PSTN

**Carrier Detect Level**

Dynamic to -43 dBm

**Telco Connection**

8-pin modular jack, dial and private lines

**Testing**

511 PN pattern (per V.52)  
V.54 remote loopback control

**A**  
**Specifications**

**Line Equalization**

Automatic adaptive

**RTS/CTS Delay**

From 0  $\pm$  2 ms to 90  $\pm$  2 ms, user selectable in 10 ms  
increments (The default is 0 ms.)

## Appendix B Phone Jack Descriptions

### DIAL LINE PIN FUNCTIONS

The 8-pin DIAL jack connects to the PSTN dial-up lines. Pin Functions for this jack are:

- Pins 1, 2 - Not used
- Pin 3 MI - Switch hook on exclusion key telephone  
Not used in some systems
- Pin 4 R - Rings side of telephone line
- Pin 5 T - Tip side of telephone line
- Pin 6 MIC - Switch hook on exclusion key telephone
- Pin 7 PR - Data jack program position
- Pin 8 PC - To data jack program resistor

### TELSET/LEASED LINE PIN FUNCTIONS

The 8-pin TELSET / LEASED LINE jack allows a standard telephone set or a leased line to be connected to the modem. The pin functions for this jack are:

- Pins 1, 2 - Transmit pair - 4-wire leased line or Tx and Rx for 2-wire leased line
- Pins 4, 5 - Ring and tip (respectively) of telephone line for TELSET
- Pins 7, 8 - Receive pair - 4-wire leased line

## Appendix C Fault Isolation Procedure

### FAULT ISOLATION PROCEDURE

This diagnostic test procedure and the indicator lights built into the modem allow a rapid check of the terminals, modems, and telephone line interface. This procedure can be used to verify normal system operation and to isolate faulty equipment in case of failure.

Ensure the units are turned on and remote loops are enabled at both sites before starting the fault isolation procedure.

*Note: In some cases the observer must distinguish between rapid LED blinking and steady on in tests.*

### TELEPHONE INTERFACE

- ☐ Connect the modem to the dial-up line via the DIAL jack on the back panel.

- If the dial line is installed with a standard permissive data jack, connect a standard telephone to the TELSET/LEASED LINE jack on the back panel of the modem and use the standard telephone procedure.
- If the dial line is installed with an exclusion key telephone wired for data set controls the line, connect an exclusion key telephone to the RJ36X jack and use the exclusion key phone procedure.

## STANDARD PHONE

- ☐ Configure the modem to V.32 IDLE mode by pressing the TALK/DATA button, and then lift the receiver. No dial tone is heard. Press the TALK/DATA button to display V.32 TALK and wait for dial tone.

- ☐ Dial out; the phone should operate normally.

## EXCLUSION KEY TELEPHONE

- ☐ Configure the modem to V.32 IDLE mode, lift the receiver of the exclusion key telephone and place the telephone in talk mode. Wait for the dial tone. Placing the telephone in data mode silences the tone.

- ☐ With the telephone in talk mode, dial out. The telephone should operate normally.

If the telephone interface procedures are successful, the telephone interface is operating properly.

## FALLBACK RATES

Since there is no standard fallback procedure from V.32 rates to V.22 rates, problems may arise when a V.32 optioned for 9600 originates a call to a V.224 modem. If this is a problem, change the originate modem speed to 2400 bps from the front panel or with the AT command AT%B3.

## MODEM AND TELEPHONE LINE CHECK

### Step 1

- ☐ Configure the modem for LOCAL ANALOG LOOP WITH TEST PATTERN. This terminates the local modem telephone lines into 600 ohms and connects the local modem transmit output amplifier back to its own receiver through the AGC. Transmit input data from the terminal is inhibited and is substituted with a V.52 test pattern.

- ☐ This test checks operation of the local modem modulator and demodulator circuitry and should be attempted at both local and remote sites if operators are available.

- When random errors are present, the TEST PATTERN ERRORS display counts receive errors.

- If the circuitry is working properly, the front panel indicators show the following:

QM	CS	RS	CD	RD	TD

- ☐ Configure the modem for LOCAL ANALOG LOOP to switch the transmitter back to its normal data input.

- If the transmit data input is in a mark hold condition, both the TD and RD indicators should remain off.

- If the transmit data input is in a space hold condition, both the TD and RD indicators should come on. All other indicators should remain the same except for CS which should turn on.

- If the indicators are correct, the modem is probably operating correctly.

- If the preceding tests were not successful, call Technical Services.

This step determines the performance of the local and remote modems and the telephone circuits. It also

### Step 2

determines each modem's ability to receive a transmitted signal from the other site, properly equalize and decode the signal and then loop this regenerated signal into the transmitter for transmission back to the other modem. This test applies to both leased line and dial line applications.

- ☐ Configure the local modem for REMOTE DIGITAL LOOP WITH TEST PATTERN. This signals the remote modem to go into digital loop. The remote modem receives and then retransmits the data back to the local mode. If digital bilateral loop is enabled at the remote, the remote DTE is looped back to itself.

An alternative to the above procedure is to request the operator at the remote modem to configure his modem for LOCAL DIGITAL LOOP. Configure the local modem for TEST PATTERN. The remote modem receives and retransmits the data back to the local modem.

The TEST PATTERN ERRORS display will count received errors.

At the local modem, the indicators should be:

QM	CS	RS	CD	RD	TD

*Note: The QM indicator may flash on while no errors are detected. The QM indicator responds to the average noise and distortion in the demodulator and is an indication of receive signal quality.*

- ☐ To further test the modem and communications link, reverse the system loopback. First exit the existing loopback test. Reverse the roles of the local and remote modems and repeat step two.

*Note: If the bilateral digital loop is enabled at the local modem, the DTE interface is looped to itself and permits the DTE to check the interface circuitry as well as itself.*

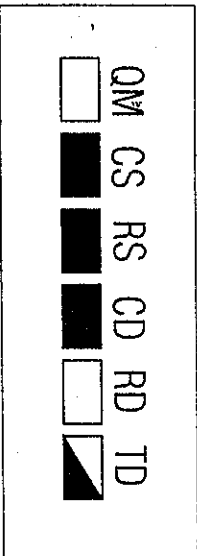
This step determines the performance of the telephone line. This test is valid for 4-wire operation only.

- ☐ Configure the modem for REMOTE ANALOG LOOP WITH TEST PATTERN. This signals the remote to connect its receive pair to its transmit pair through a gain amplifier stage. The test pattern transmitted locally is now looped back to the local modem.

An alternative to the above procedure is to request the operator at the remote modem to place his modem in LOCAL ANALOG LOOP and enable his bilateral analog option. This places the remote modem in local analog loop test. It also connects the transmit phone line to the receive phone line through a gain amplifier stage. At the local modem, configure for TEST PATTERN. The test pattern transmitted by the local modem is looped back through an amplifier stage at the remote modem.

### Step 3

At the local modem, the front panel indicators under ideal conditions should be:



The TEST PATTERN ERRORS display counts received errors.

In this test you are connecting two telephone line links in series, doubling the distortion effects. A telephone link indicated as marginal by this test may be satisfactory as used in normal operation.

- ☐ After determining the quality of the telephone lines, exit the test.
- ☐ If fault remains unidentified, call Technical Services.

**AT COMMAND RECOVERY FOR "L" MODELS**  
For the "L" model of the modem, holding the TALK/DATA button down for 5 seconds reenables AT commands. The TALK LED flashes 3 times to indicate that the command set has been loaded.

## Appendix D Command Index and Defaults

### GENERAL

This reference guide provides asynchronous command characters and their meanings. Pages listed provide initial information on the commands. S-registers are listed as a cross reference.

Command	Page	S-Reg	Description
AT	5-3		Attention code - command prefix
A/	5-5		Repeat last command
++	5-29	S2, S12	Escape sequence (pause, + + +, pause)
A	5-21		Answer
D	5-16		Dial
T	5-17	S14	Tone dial *
P		S14	Pulse dial
.		S8	Long pause (2 sec or S8 value)
W		S7	Wait for 2nd dial tone (S7 value)
!	5-18		Flash switchboard
R			Switch to answer mode after dialing
@			Wait for 5 seconds of silence
S	5-19		Return to command mode after dialing
Sn			Dial number stored at location n

Note: The \* in the command is part of the command; the \* in the description indicates the default.

\* factory default



# **D** **Command Index and Defaults**

Command	Page	S-Reg	Description
E	5-29	S14	Local character echo off
E1			Local character echo on *
H	5-30	S14	Hang up
H2			V.32 clear-down enabled
H3			V.32 clear-down disabled *
I	5-30		Request product code
I1			Request EPROM CRC value
I3			Request product version
L or L1	5-30	S22	Speaker volume low
L2			Speaker volume medium *
L3			Speaker volume high
M	5-31	S22	Speaker off
M1			Speaker off when carrier is present
M2			Speaker always on
M3			Speaker off when dialing and carrier is present
O	5-31		Restore data mode (after escape)
Q	5-12	S14	Response displays on *
Q1			Response displays off
Q2			Response displays on in originate mode only
Sn?	6-4		Read value in register n (decimal)
Sn?			Read value in register n (hexadecimal)
Sn=v			Set v (value) in register n (decimal)
Sn=v			Set v (value) in register n (hexadecimal)
Sn bit #=1 or 0			Set single bit value in register
V	5-11	S14	Response codes
V1			Response messages *
X	5-12	S22	CONNECT (code 1), for all speeds, no dial tone or busy signal detection
X1			Appropriate connect codes for rate, no dial tone detection

\*factory default

# **D** **Command Index and Defaults**

Command	Page	S-Reg	Description
X2			Wait for dial tone (appropriate connect codes)
X3			Detect busy signal (appropriate connect codes)
X4			Wait for dial tone, detect busy signal * (appropriate connect codes)
Y	5-31	S21	Long space disconnect off
Y1			Long space disconnect on *
Z	5-41		Reset to stored configuration
&C	5-22	S21	DCD always on *
&C1			DCD on while carrier is present
&C2			DCD off 5 seconds after disconnect
&C3			DCD follows remote RTS
&D	5-23	S21	DTR ignored *
&D1			DTR recalls command mode
&D2			DTR disconnects
&D3			DTR disconnects and resets modem to stored configuration
&F or &F1	5-41		Restore factory configuration 1 *
&F2			Restore factory configuration 2
&F3			Restore factory configuration 3
&F4			Restore factory configuration 4
&G	5-32	S23	No guard tone *
&G1			550 Hz guard tone
&G2			1800 Hz guard tone
&L	5-32	S27, S32	Dial line *
&L1			Leased line 2-wire
&L2			Leased line 4-wire
&M	5-32	S27	Asynchronous dial / asynchronous data *
&M1			Asynchronous dial / synchronous data
&M2			Dials stored number when DTR off / on transition is detected / synchronous data
&M3			Manual dial / synchronous data

\*factory default

## Command Index and Defaults

## Command Page S-Reg Description

&M4	S30	V.25 bis autodialer with BISYNC protocol / synchronous data
&M5		V.25 bis autodialer with SDLC protocol / synchronous data
&P	5-33	S22 39/61 pulse make / break ratio *
&P1		33/67 pulse make / break ratio
&R	5-24	S21 CTS normal operating state
&R1		S21 CTS forced on *
&R2		S72 CTS follows DCD
&R9		S72 CTS equals RTS
&S	5-23	S21 DSR always on *
&S1		DSR on when ready to accept data
&S2		DSR off for 5 seconds after disconnect
&S3		DSR follows off hook (OH)
&T	5-26	Terminate any test or exit remote configuration mode
&T1		Initiate analog loopback
&T2		Initiate remote analog loopback
&T3		Initiate digital loopback
&T4	S23	Allow acceptance of remote commanded digital loopback *
&T5	S23	Denies acceptance of remote commanded digital loopback
&T6		Initiate remote digital loopback
&T7		Initiate self test remote digital loopback
&T8		Initiate self test analog loopback
&T9		Initiate self test remote analog loopback
&V	5-41	View configuration profiles
&V1		Display received signal status
&W	5-39	Store current configuration
&X	5-34	S27 Internal clock *
&X1		External clock
&X2		Receive clock

\*factory default

## Command Index and Defaults

## Command Page S-Reg Description

&Zn	5-42	S64 Store dial string n = string to be stored
%A	5-49	S64 Disable auto-reliable fallback character
%An		Set auto-reliable fallback character to n (n=ASCII 1-127)
%B	5-34	S69 Use DTE speed
%B1		300 bps max
%B2		1200 bps max
%B3		2400 bps max
%B4		4800 bps max
%B5		9600 bps max
%B6		9600 bps trellis coded max
%C	5-49	S60 Data compression disabled
%C1		Data compression enabled*
%D	5-35	S62 Disable disconnect buffer delay *
%Dn		Set disconnect buffer delay in seconds n (n=1-255)
%E	5-35	S60 Disable auto retrain
%E1		Enable auto retrain *
%P=	5-44	Sets security code to value entered after equal sign (0-99999999)
%P=D		Disabled
%P?		Displays security code of local modem
%T	5-44	Transmit test pattern
%T=		Followed by a security code, establishes remote configuration
%V	5-35	Display product revision level
\$V		Display product serial number
%Z	5-36	Permissive*
%Z1		Programmable

\*factory default

## Command Index and Defaults

Command	Page	S-Reg	Description
VA	5-52	S63	Maximum MNP block size of 64 characters
VA1			Maximum MNP block size of 128 characters
VA2			Maximum MNP block size of 192 characters
VA3			Maximum MNP block size of 256 characters *
VB	5-53	S79	Transmit a break signal
VBn			Set break length in 20 ms increments, n=1-255, default is 35 (700 ms)
VC	5-53	S60	Disable auto-reliable buffer *
VC1			Buffer data for 4 seconds or 200 characters
VG	5-46	S54	Disable modem port flow control *
VG1			Enable modem port XON/XOFF flow control
V	5-46	S72	Disable slaved DTE/DCE speed *
V1			(constant speed DTE on)
			Enable slaved DTE/DCE speed (constant speed DTE off)
VKn	5-50	S59	Determines action taken when a break is encountered
VK			MNP Break option 0
VK1			MNP Break option 1
VK2			MNP Break option 2
VK3			MNP Break option 3
VK4			MNP Break option 4
VK5			MNP Break option 5 *
VN	5-45	S70	Normal mode
VN1			Direct mode
VN2			Reliable only
VN3			Auto reliable mode *
VO	5-54	S60	Originate an reliable link

\*factory default

Command	Page	S-Reg	Description
VO	5-47	S54	Disable DTE flow control
VO1			Enable DTE XON/XOFF flow control *
VO2			Enable DTE CTS flow control
VO3			Enables bilateral CTS/RTS flow control
VR	5-24	S60	RL, blinks for ring and remains on for duration of call
VR1			RL, blinks for ring and turns off when call is answered *
VT	5-52	S58	Disable inactivity timer *
VTn			Set inactivity timer to n (n=1-255 minutes)
VU	5-54	S60	Accept an MNP link
IV	5-52	S60	Disable protocol result codes *
IV1			Enable protocol result codes
VX	5-48	S54	No XON/XOFF characters to remote DCE *
VX1			Pass XON/XOFF characters to remote DCE
IV	5-54	S60	Switch to MNP from normal mode
VZ	5-55	S60	Switch to normal from MNP mode
*AN	5-27	S34	Disables bilateral analog loop *
*AN1			Enables bilateral analog loop
*AU	5-19		Dial number stored at location n upon transition of DTR in command mode (n=1-9) or number used in autodial backup sequence
*CNx,n	5-42		Store phone number n in location x (x=1-9)
*DA	5-36		Switches modem to talk mode
*DA1			Switches modem to data mode

\*factory default

*Command Index and Defaults*

Command	Page	S-Reg	Description
*DB	5-25		Manual dial backup operation *
*DB1			Automatic dial backup operation
*DG	5-27	S34	Disables bilateral digital loop *
*DG1			Enables bilateral digital loop
*FB	5-25	S29	Ignore pin 23 *
*FB1			Pin 23 transition causes DTE speed fallback
*FT	5-37	S29	Disable fast train *
*FT1			Enable fast train
*LA	5-28	S34	Ignore pin 18 *
*LA1			DTE commanded LAL enabled
*LB	5-27		Wait for dial backup call
*LC	5-27	S32	Line current disconnect disabled
*LC1			Short (8 ms) line current disconnect
*LC2			Long (90 ms) line current disconnect *
*LD	5-27		Dial autodial number
*ND	5-42		Displays the nine stored numbers
*NT	5-38	S29	AT command set disabled
*OR	5-38	S14	Originate *
*OR1			Forced answer
*RC	5-14	S57	15 - 4800 bps, 18 - 9600 bps *
*RC1			11 - 4800 bps, 12 - 9600 bps
*RD	5-27	S34	Ignore pin 21 *
*RD1			DTE commanded RDL enabled
*RO	5-43	S29	Retain options at disconnect
*RO1			Restore options at disconnect
*TLn	5-38	S52	Sets leased line Tx level to n where n is a number between 0 and 15 corresponding to 0 to -15 dB

\*factory default

*Command Index and Defaults*

Command	Page	S-Reg	Description
\$S=x	4-10		Sets an empty password location to x
\$C=x,y	4-10		Changes either password where x represents the old password and y is the new one
\$C=x,-	4-10		Deletes password x from memory
\$E=x	4-10		Enables security where x is either password
\$E?	4-10		Displays the current security status
\$D=x	4-10		Disables security where x is either password
\$DR	4-10		Reset security
\$D?	4-10		Displays the current status of security

## Command Index and Defaults

## STATUS REGISTERS

S-Reg	RO/RW	Page	Function	Factory Default Option Set #1
S0	RW	6-6	Ring to answer	(0 = auto answer off)
S1	RO	6-6	Ring count	43 (+)
S2	RW	6-6	Escape sequence character	13 (CR)
S3	RW	6-6	End-of-line character	10 (LF)
S4	RW	6-6	Line feed character	8 (BS)
S5	RW	6-6	Backspace character	2 (2 sec)
S6	RW	6-7	Pause before blind dialing	30 (30 sec)
S7	RW	6-7	Pause for carrier	2 (2 sec)
S8	RW	6-7	Pause for comma	6 (0.6 sec)
S9	RW	6-7	Carrier validation	14 (1.4 sec)
S10	RW	6-7	Loss-of-carrier disconnect delay	80 (80 ms)
S11	RO	6-8	DTMF tone length	50 (1 sec)
S12	RW	6-8	Escape sequence pause	0
S14	RW	6-9	Bit mapped	0
S16	RW	6-10	System tests	0
S18	RW	6-10	Test timer	0
S21	RW	6-11	Bit mapped	0
S22	RW	6-12	Bit mapped	0
S23	RW	6-12	Bit mapped	0
S25	RW	6-13	DTR recognition time	5 (0.5 sec)
S26	RW	6-13	RTS/CTS delay	0
S27	RW	6-13	Bit mapped	0
S28	RW	6-13	Lookback timer	15 min
S29	RW	6-14	Bit mapped	0
S30	RW	6-14	Bit mapped	0
S32	RW	6-15	Bit mapped	0
S34	RW	6-15	Bit mapped	0
S39	RW	6-16	Bit mapped	0
S52	RW	6-16	Bit mapped	0
S53	RW	6-16	801 V.32 timeout	0 (long)
S54	RW	6-17	Flow control DTE	0
S57	RW	6-17	Number code application	0

RO=Read only

RW=Read or write

D-10

V.3225 / V.3225L

## Command Index and Defaults

## STATUS REGISTERS

S-Reg	RO/RW	Page	Function	Factory Default Option Set #1
S58	RW	6-18	Disable MNP Inactivity timer,	0
S59	RW	6-18	timer value in minutes	5
S60	RW	6-19	MNP break control	0
S61	RO	6-19	Bit mapped	0
S62	RW	6-20	Indicates DTE speed, character size, parity	0
S63	RW	6-20	Disconnect buffer delay	0
S64	RW	6-20	Maximum MNP block size	255
S67	RO	6-20	Auto-reliable fallback character	0
S69	RW	6-21	Link speed status	0
S70	RW	6-21	DCE speed	1
S71	RO	6-22	Operating mode	0
S72	RW	6-22	Operating mode status	0
S78	RW	6-23	Bit mapped	0
S79	RW	6-23	Autocallback timer	30
S84	RW	6-23	Break length	35
		6-23	Bit mapped	0

RO=Read only

RW=Read or write

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D-11

V.25 bis DIALER  
COMMANDS

Synchronous Command	Page	Description
CIC	7-9	Connect incoming call command
CRN <i>mn...n</i>	7-5	Dial command ( <i>mn...n</i> = number to be dialed) 0-9 DTMF and pulse digit * # DTMF digit : Wait for dial tone W Wait for second type of dial tone > Pause for 1 second = Pause for 3 seconds < Pause for programmed delay time P Pulse dial T Tone dial & Flash (go on hook) for 1/2 second : Parameter separator Space Clarity characters dash parenthesis period
CRR <i>n</i>	7-9	Redial the last number a maximum of <i>n</i> times
CRS <i>a</i>	7-7	Dial stored number command ( <i>a</i> = address)
DIC	7-8	Disregard incoming call command
PRK	7-15	Save current option settings
PRL <i>a,b</i>	7-10	Link number at address <i>a</i> with number at address <i>b</i>
PRN <i>a; mn...n</i>	7-6	Program number command ( <i>mn...n</i> = number to be dialed, <i>a</i> = address)

Synchronous Command	Page	Description
PRO <i>xxx,yy;0;0...</i>	7-13	Program options command ( <i>xxx</i> = register address, <i>yy</i> = option count)
PRP <i>n</i>	7-16	Restores current option settings to the factory defaults in default bank <i>n</i> (1-9)
RLL	7-11	Request list of linked numbers command
RLN	7-7	Request list of stored numbers command
RLO <i>xxx,yy</i>	7-17	Request list of stored options command ( <i>xxx</i> = register address, <i>yy</i> = option count)
RLV	7-12	Request list of version information command
Response Message	Meaning	
CFIDT	Call failure - no dial tone	
CFIET	Call failure - reorder or busy	
CFINS	Call failure - number not stored	
CFIRT	Call failure - timeout occurred	
INC	Incoming ring detected	
INVCU	Invalid command - command unknown	
INVMS	Invalid command - message syntax error	
INVPs	Invalid command - parameter syntax error	
INVPV	Invalid command - parameter value error	
VAL	Valid command received	

**FACTORY OPTION SETS****FACTORY OPTION SET #1 (ASYNCHRONOUS DIAL-UP WITH MNP)****• MODEM OPTIONS**

DCE rate - 9600  
 Normal originate  
 Fast train disabled  
 Auto retrain enabled  
 Transmit clock internal  
 Dial line  
 Jack type RJ11 (permissive)  
 Line current disconnect long enabled  
 Long space disconnect enabled  
 V.22 guard tone disabled

**• TEST OPTIONS**

Bilateral analog loop disabled  
 Bilateral digital loop disabled  
 DTE local test disabled  
 DTE remote test disabled  
 Remote commanded test enabled  
 Test timeout off

**• MNP OPTIONS**

MNP protocol enabled  
 Auto fallback enabled  
 XON/XOFF pass through disabled  
 Data compression enabled  
 MNP activity timer off  
 MNP break control 5

**• DIAL LINE OPTIONS**

Tone dial  
 Auto dial #1  
 Wait for dial tone  
 Wait delay 2 seconds  
 Pause delay 2 seconds  
 Call timeout 30 seconds  
 Answer on 1 ring  
 801 V.32 timeout long  
 Autocallback disabled

**• DTE OPTIONS**

Async data  
 DTE rate - 9600  
 8 bit

**• SPEAKER OPTIONS**

Volume medium  
 On until carrier detect

No parity  
 Async controlled dialer  
 AT command set enabled  
 Ignores DTR  
 DSR forced high  
 DCD forced high  
 CTS forced high  
 DTE fallback disabled  
 Options retained at disconnect

**FACTORY OPTION SET #2 (ASYNCHRONOUS DIAL-UP WITHOUT MNP)****• MODEM OPTIONS**

DCE rate = DTE rate\*  
 Normal originate  
 Fast train disabled  
 Auto retrain enabled  
 Transmit clock internal  
 Dial line  
 Jack type RJ11 (permissive)  
 Line current disconnect long enabled  
 Long space disconnect enabled  
 V.22 guard tone disabled

**• TEST OPTIONS**

Bilateral analog loop disabled  
 Bilateral digital loop disabled  
 DTE local test disabled  
 DTE remote test disabled  
 Remote commanded test enabled  
 Test timeout off

**• MNP OPTIONS**

MNP protocol disabled\*  
 DTE speed = DCE speed\*  
 Flow control disabled\*  
 XON/XOFF pass through disabled  
 Data compression enabled  
 MNP activity timer off  
 MNP break control 0\*

**• DIAL LINE OPTIONS**

Tone dial  
 Auto dial #1  
 Wait for dial tone  
 Wait delay 2 seconds  
 Pause delay 2 seconds  
 Call timeout 30 seconds  
 Answer on 1 ring  
 801 V.32 timeout long  
 Autocallback disabled

**• DTE OPTIONS**

Async data  
 DTE rate = 9600  
 8 bit

**• SPEAKER OPTIONS**

Volume medium  
 On until carrier detect

No parity  
 Async controlled dialer  
 AT command set enabled  
 Ignores DTR  
 DSR forced high  
 DCD forced high  
 CTS forced high  
 DTE fallback disabled  
 Options retained at disconnect

\* Indicates variation from factory option set #1

*Command Index and Defaults*

## FACTORY OPTION SET #3 (SYNCHRONOUS DIAL-UP WITHOUT MNP)

## • MODEM OPTIONS

DCE rate - 9600 trellis  
Normal originate  
Fast train disabled  
Auto retrain enabled  
Transmit clock internal  
Dial line  
Jack type RJ11 (permissive)  
Line current disconnect long enabled  
Long space disconnect disabled\*  
V.22 guard tone disabled

## • TEST OPTIONS

Bilateral analog loop disabled  
Bilateral digital loop disabled  
DTE local test disabled  
DTE remote test disabled  
Remote commanded test enabled  
Test timeout off

## • PROTOCOL OPTIONS

MNP protocol disabled\*  
DTE speed = DCE speed\*  
Flow control disabled\*  
XON/XOFF pass through disabled  
Data compression enabled  
MNP activity timer off  
MNP break control 0\*

## • DIAL LINE OPTIONS

Tone dial  
Auto dial #1  
Wait for dial tone  
Wait delay 2 seconds  
Pause delay 2 seconds  
Call timeout 30 seconds  
Answer on 1 ring  
801 V.32 timeout long  
Autocallback disabled

## • DTE OPTIONS

Sync data \*  
Dial method manual \*  
AT command set disabled \*  
Responds to DTR\*  
DSR normal \*  
DCD normal \*  
CTS follows RTS \*  
RTS/CTS delay 0 ms \*  
DTE fallback disabled  
Options retained at disconnect

## • SPEAKER OPTIONS

Volume medium  
On until carrier detect

\* Indicates variation from factory option set #1

*Command Index and Defaults*

## FACTORY OPTION SET #4 (SYNCHRONOUS 4-WIRE LEASED LINE WITHOUT MNP)

## • MODEM OPTIONS

DCE rate - 9600 trellis  
Normal originate  
Fast train disabled  
Auto retrain enabled  
Transmit clock internal  
Leased line \*  
4-wire \*  
Tx level - 0 dbm \*Dial backup manual \*Lookback timer - 15 min \*Jack type RJ11 (permissive)  
Line current disconnect long enabled  
Long space disconnect enabled  
V.22 guard tone disabled

## • TEST OPTIONS

Bilateral analog loop enabled \*  
Bilateral digital loop enabled \*  
DTE local test disabled  
DTE remote test disabled  
Remote commanded test enabled  
Test timeout off

## • MNP OPTIONS

MNP protocol disabled\*  
DTE speed = DCE speed\*  
Flow control disabled\*  
XON/XOFF pass through disabled  
Data compression enabled  
MNP activity timer off  
MNP break control 0\*

## • DIAL LINE OPTIONS

Tone dial  
Auto dial #1  
Wait for dial tone  
Wait delay 2 seconds  
Pause delay 2 seconds  
Call timeout 60 seconds \*  
Answer on 1 ring  
801 V.32 timeout long  
Autocallback disabled

## • DTE OPTIONS

Sync data \*  
AT command set disabled \*  
Ignores DTR  
DSR normal \*  
DCD normal \*  
CTS follows RTS \*  
RTS/CTS delay 0 ms \*  
DTE fallback disabled  
Options retained at disconnect

## • SPEAKER OPTIONS

Volume medium  
On until carrier detect

\* Indicates variation from factory option set #1