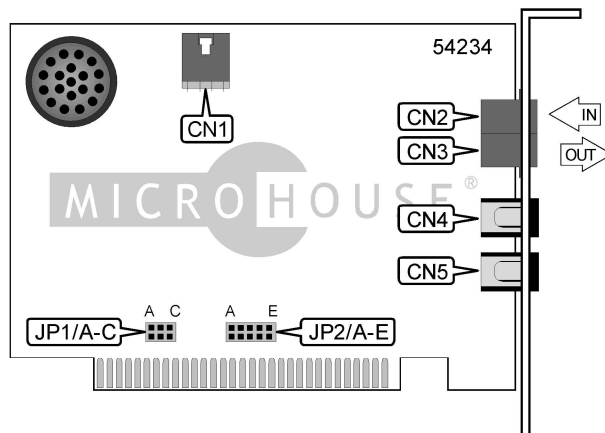


# GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

<b>Card Type</b>	Modem
<b>Chip Set</b>	Unidentified
<b>I/O Options</b>	Soundcard connector, serial ports (2 RJ-11), microphone jack, line in
<b>Maximum Modem Rate</b>	56Kbps
<b>Maximum Fax Rate</b>	14.4Kbps
<b>Data Modulation Protocol</b>	Bell 103A/212A, ITU-T V.21, V.22, V.22bis, V.32, V.32bis, V.34, V.FC
<b>Fax Modulation Protocol</b>	V.17, V.21, CH2, V.27ter, V.29
<b>Error Correction/Compression</b>	MNP5, V.42, V.42bis
<b>Fax Class</b>	Class I & II
<b>Data Bus</b>	8-bit ISA
<b>Card Size</b>	Half-length



CONNECTIONS			
Function	Label	Function	Label
Cable connector to sound card	CN1	Microphone jack	CN4
RJ-11 telephone in	CN2	Line out	CN5
RJ-11 telephone out	CN3		

SERIAL PORT ADDRESS			
Setting	JP1/A	JP1/B	JP1/C
COM1 (3F8h)	Closed	Closed	Closed
i COM2 (2F8h)	Open	Closed	Closed
COM3 (3E8h)	Closed	Open	Closed
COM4 (2E8h)	Open	Open	Closed

INTERRUPT					
Setting	JP2/A	JP2/B	JP2/C	JP2/D	JP2/E
IRQ2	Closed	Open	Open	Open	Open
i IRQ3	Open	Closed	Open	Open	Open
IRQ4	Open	Open	Closed	Open	Open
IRQ5	Open	Open	Open	Closed	Open
IRQ7	Open	Open	Open	Open	Closed

MISCELLANEOUS TECHNICAL NOTES
A compatible sound card is necessary in order for the Speakerphone functions to operate properly.

Continued on next page . . .

# TELEPATH WITH X2 TECHNOLOGY

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SUPPORTED COMMAND SET	
<b>Basic AT Commands</b>	
AT, '+++', 'comma', A/	
A, B, E, F, H, M, O, P, R, T, V, X	
&C, &G, &P, &T,&X, &Z	
S Registers	
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S18, S38	
Special Commands	
#CID	
<b>Note:</b> See MHI Help File for full command documentation.	

## PROPRIETARY AT COMMAND SET

DIAL	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] D<#> [cmds]
<b>Description:</b>	Dials telephone number according to any modifiers included in the string
<b>Note:</b>	Any combination of modifiers can be used to produce the desired dial functions in sequence.
Command	Function
DL	Re-dial last number
DP	Pulse dialing enabled
DR	Answer mode enabled; originate mode disabled following handshake initiation.
DS=n	Dial stored telephone number <i>n</i>
DT	Tone dialing enabled/Pulse dialing disabled
DW	Dialing resumed following dial tone detection
D,	Dialing paused for amount of time specified in S8 register
D!	Flash function initiated. Modem commanded to go off-hook for specified time before returning on-hook.
D@	Wait for Quiet Answer function enabled. Modem waits until a "quiet answer," a ring-back signal followed by silence up to the time specified in S7, is received prior to executing the rest of the dial string.
D\$	Displays a list of dial commands
D;	Modem returned to idle state after dialing. The semicolon can only be placed at the end of the dial command.
D/	Delays for 125 msec before proceeding with dial string
D#	Extended touch tone pad tones
D*	Extended touch tone pad tones

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# GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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REPORT INFORMATION	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] Ln [cmds]
<b>Description:</b>	Displays information requested
Command	Function
I0	Reports four digit product code
I1	Reports ROM checksum
I2	Reports RAM checksum
I3	Reports product type
I4	Reports current modem settings
I5	Reports nonvolatile memory settings
I6	Reports link diagnostics
I7	Reports product configuration
I11	Reports link diagnostics

SPEAKER VOLUME	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Ln [cmds]
<b>Description:</b>	Controls speaker volume
Command	Function
L0	Low volume setting
L1	Low volume setting
L2	Medium volume setting
L3	Highest volume setting

RESULT CODES	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Qn [cmds]
<b>Description:</b>	Enables modem to send result codes to the DTE
Command	Function
Q0	Result code sending enabled
Q1	Result code sending disabled
Q2	Result code sending enabled only in <i>Originate</i> mode

POWER ON/RESET	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Yn [cmds]
<b>Description:</b>	Selects power on/reset default configuration
Command	Function
Y0	Profile 0 in NVRAM
Y1	Profile 0 in NVRAM
Y2	Generic template (&F0)
Y3	Hardware flow control (&F1)
Y4	Software flow control (&F2)

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TELEPATH WITH X2 TECHNOLOGY

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<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] Zn [cmds]
<b>Description:</b>	Restores modem profiles previously saved in non-volatile RAM using the &W command.
<b>Command</b>	<b>Function</b>
Z0	Restore modem to profile selected by Y command
Z1	Restore NVRAM setting 0
Z2	Restore NVRAM setting 1
Z3	Resets modem to factory default profile 0 (&F0)
Z4	Resets modem to factory default profile 1 (&F1)
Z5	Resets modem to factory default profile 2 (&F2)

CODE SUBSET DISPLAY	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &An [cmds]
<b>Description:</b>	Enable or suppress the display of an additional result code subsets.
<b>Command</b>	<b>Function</b>
&A0	Do not display ARQ result codes
&A1	Display ARQ result codes
&A2	Display modulation indicators
&A3	Display error control

SERIAL PORT RATE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Bn [cmds]
<b>Description:</b>	Sets serial port rate.
&B0	Variable, follows connection rate
&B1	Fixed serial port rate
&B2	Fixed in ARQ mode. Variable in non-ARQ mode

DTR OPERATIONS	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Dn [cmds]
<b>Description:</b>	Controls Data Terminal Ready operations.
&D0	DTR override
&D1	DTR toggle case causes online command mode
&D2	Normal DTR operations

FACTORY DEFAULT PROFILE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &F [cmds]
<b>Description:</b>	Sets values in active profile to values found in the default profile
&F0	Generic template
&F1	Hardware flow control template
&F2	Software flow control template

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## GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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TRANSMIT DATA FLOW CONTROL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &H [cmds]

<b>Description:</b>	Sets transmit data flow
&H0	Flow control disabled
&H1	Hardware flow control, CTS
&H2	Software flow control, XON/XOFF
&H3	Hardware and software flow control

RECEIVE DATA FLOW CONTROL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &I [cmds]
<b>Description:</b>	Sets transmit data flow
&I0	Software flow control disabled
&I1	XON/XOFF signals to your modem and remote system
&I2	XON/XOFF signals to your modem only

DATA COMPRESSION	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Kn [cmds]
<b>Description:</b>	Enables/disables data compression
<b>Command</b>	<b>Function</b>
&K0	Data compression disabled
&K1	Auto enable/disable
&K2	Data compression enabled
&K3	MNP5 compression disabled

ERROR CONTROL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Mn [cmds]
<b>Description:</b>	Selects error control 1200bps and higher
<b>Command</b>	<b>Mode</b>
&M0	Normal mode, error control disabled
&M4	Normal/ARQ
&M5	ARQ mode

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## GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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CONNECTION SPEED UPPER LIMIT	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Nn [cmds]
<b>Description:</b>	Sets required connection speed if &U is set to 0; otherwise, sets fastest allowed connection speed.

Command	Function
&N0	No maximum connect speed.
&N1	Set maximum connect speed to 300bps.
&N2	Set maximum connect speed to 1200bps.
&N3	Set maximum connect speed to 2400bps.
&N4	Set maximum connect speed to 4800bps.
&N5	Set maximum connect speed to 7200bps.
&N6	Set maximum connect speed to 9600bps.
&N7	Set maximum connect speed to 12Kbps.
&N8	Set maximum connect speed to 14.4Kbps.
&N9	Set maximum connect speed to 16.8Kbps.
&N10	Set maximum connect speed to 19.2Kbps.
&N11	Set maximum connect speed to 21.6Kbps.
&N12	Set maximum connect speed to 24Kbps.
&N13	Set maximum connect speed to 26.4Kbps.
&N14	Set maximum connect speed to 28.8Kbps.
&N15	Set maximum connect speed to 31.2Kbps.
&N16	Set maximum connect speed to 33.6Kbps.
&N17	Set maximum connect speed to 33.3Kbps.
&N18	Set maximum connect speed to 37.3Kbps.
&N19	Set maximum connect speed to 41.3Kbps.
&N20	Set maximum connect speed to 42.6Kbps.
&N21	Set maximum connect speed to 44Kbps.
&N22	Set maximum connect speed to 45.3Kbps.
&N23	Set maximum connect speed to 46.6Kbps.
&N24	Set maximum connect speed to 48Kbps.
&N25	Set maximum connect speed to 49.3Kbps.
&N26	Set maximum connect speed to 50.6Kbps.
&N27	Set maximum connect speed to 52Kbps.
&N28	Set maximum connect speed to 53.3Kbps.
&N29	Set maximum connect speed to 56Kbps.
&N30	Set maximum connect speed to 57.3Kbps.

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## GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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RTS/CTS	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Rn [cmds]
<b>Description:</b>	Selects RTS/CTS options
Command	Function
&R0	Reserved
&R1	RTS is ignored by modem.

&R2	Received data only on RTS. Controls DSR operations
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CONNECTION SPEED LOWER LIMIT	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Un [cmds]
<b>Description:</b>	Sets slowest allowed connection speed if &N is set to 1 or higher.
Command	Function
i &U0	No minimum connect speed.
&U1	Set minimum connect speed to 300bps.
&U2	Set minimum connect speed to 1200bps.
&U3	Set minimum connect speed to 2400bps.
&U4	Set minimum connect speed to 4800bps.
&U5	Set minimum connect speed to 7200bps.
&U6	Set minimum connect speed to 9600bps.
&U7	Set minimum connect speed to 12Kbps.
&U8	Set minimum connect speed to 14.4Kbps.
&U9	Set minimum connect speed to 16.8Kbps.
&U10	Set minimum connect speed to 19.2Kbps.
&U11	Set minimum connect speed to 21.6Kbps.
&U12	Set minimum connect speed to 24Kbps.
&U13	Set minimum connect speed to 26.4Kbps.
&U14	Set minimum connect speed to 28.8Kbps.
&U15	Set minimum connect speed to 31.2Kbps.
&U16	Set minimum connect speed to 33.6Kbps.
&U17	Set minimum connect speed to 33.3Kbps.
&U18	Set minimum connect speed to 37.3Kbps.
&U19	Set minimum connect speed to 41.3Kbps.
&U20	Set minimum connect speed to 42.6Kbps.
&U21	Set minimum connect speed to 44Kbps.
&U22	Set minimum connect speed to 45.3Kbps.
&U23	Set minimum connect speed to 46.6Kbps.
&U24	Set minimum connect speed to 48Kbps.
&U25	Set minimum connect speed to 49.3Kbps.
&U26	Set minimum connect speed to 50.6Kbps.
&U27	Set minimum connect speed to 52Kbps.
&U28	Set minimum connect speed to 53.3Kbps.
&U29	Set minimum connect speed to 54.6Kbps.
&U30	Set minimum connect speed to 56Kbps.
&U31	Set minimum connect speed to 57.3Kbps.

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BREAK HANDLING	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Yn [cmds]
<b>Description:</b>	Sets break handling
Command	Function
&Y0	Destructive, but doesn't sent break
&Y1	Destructive, expedited
&Y2	Nondestructive, expedited
&Y3	Reserved

## S(STATUS) -REGISTERS

BIT-MAPPED REGISTER S13		
<b>Format:</b>	AT [cmds] S13= <i>n</i> [cmds]	
<b>Range:</b>	0-174	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Controls echo, result codes and display, dial mode, and answer/originate mode.	
Bit	Value	Function
0	0	Unidentified
	1	Reset when DTR drops
1	0	Unidentified
	1	Resets non-MNP transmit buffer from 1.5K to 128bytes
2	0	Unidentified
	1	Set backspace key to delete
3	0	Unidentified
	1	DTR signals auto dial stored in NVRAM at position 0
4	0	Unidentified
	1	Power on auto dial stored in NVRAM at position 0
5	0	Not used
	1	Not used
6	0	Not used
	1	Not used
7	0	Unidentified
	1	Disconnect on escape code

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## GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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BIT-MAPPED REGISTER S15		
<b>Format:</b>	AT [cmds] S15= <i>n</i> [cmds]	
<b>Range:</b>	0-174	
<b>Description:</b>	Bitmapped register setup.	
Bit	Value	Function
0	0	Enable ARQ/MNP for V.22
	1	Disable ARQ/MNP for V.22
1	0	Enable ARQ/MNP for V.22bis
	1	Disable ARQ/MNP for V.22bis
2	0	Disable ARQ/MNP for V32/V.32bis
	1	Disable ARQ/MNP for V32/V.32bis
3	0	Enable MNP handshake
	1	Disable MNP handshake



4	0	Enable MNP level 4
	1	Disable MNP level 4
5	0	Enable MNP level 3
	1	Disable MNP level 3
6	0	Special MNP compatibility
	1	Special MNP incompatibility
7	0	Enable V.42 detection phase
	1	Disable V.42 detection phase

TOUCH TONE DIALING TEST		
<b>Format:</b>	AT [cmds] S16= <i>n</i> [cmds]	
<b>Range:</b>	0-128	
<b>Unit:</b>	Bit-mapped register setup	
<b>Description:</b>	Bitmapped register setup.	
Bit	Value	Function
1	0	Touch tone dialing test disabled
	1	Touch tone dialing test enabled
2	0	Internal test pattern disabled
	1	Internal test pattern enabled
3-6	0	Not used
	1	Not used
7	0	Watchdog reset disabled
	1	Watchdog reset enabled

INACTIVITY TIMER	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S19= <i>n</i> [cmds]
<b>Default:</b>	0
<b>Unit:</b>	1 minute
<b>Description:</b>	Activates when there is no activity on the phone line. Modem hangs up at time-out
<b>Note: S19=0 disables the timer and allows an indefinite duration.</b>	

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## GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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MNP OR V.42 MODE DELAY	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S21= <i>n</i> [cmds]
<b>Range:</b>	Unidentified
<b>Unit:</b>	10ms
<b>Description:</b>	Sets the length of breaks sent from modem to computer.

FLOW CONTROL CHARACTER - XON	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S22= <i>n</i> [cmds]
<b>Range:</b>	Unidentified
<b>Unit:</b>	ASCII
<b>Description:</b>	Sets the character used to represent XON

FLOW CONTROL CHARACTER - XOFF	
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<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S23= <i>n</i> [cmds]
<b>Range:</b>	Unidentified
<b>Unit:</b>	ASCII
<b>Description:</b>	Sets the character used to represent XOFF

DTR DELAY	
<b>Format</b>	AT [cmds] S25= <i>n</i> [cmds]
<b>Unit:</b>	.01 second
<b>Description:</b>	Selects the duration that DTR must be dropped so that the modem doesn't interpret a random glitch as a DTR loss.

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## GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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BIT-MAPPED REGISTER S27		
<b>Format</b>		AT [cmds] S27= <i>n</i> [cmds]
<b>Unit:</b>		Bit-mapped
<b>Description:</b>		Selects line modulation
Bit	Value	Function
0	0	Disables ITU-T modulation at 300bps for overseas calls; in V.21 mode, the modem answers both overseas and domestic calls but only originates V.21 calls.
	1	Enables ITU-T modulation at 300bps for overseas calls; in V.21 mode, the modem answers both overseas and domestic calls but only originates V.21 calls.
1	0	Disables unencoded modulation in V.32bis mode.
	1	Enables unencoded modulation in V.32bis mode
2	0	Enables V.32 modulation
	1	Disables V.32 modulation
3	0	Enables 2100Hz answer tone to allow two V.42 modems to attach more quickly
	1	Disables 2100Hz answer tone to allow two V.42 modems to attach more quickly
4	0	Disables V.23 fallback mode
	1	Enables V.23 fallback mode

5	0	Enables V.32bis mode
	1	Disables V.32bis mode
6	0	Not used
	1	Not used
7	0	Software compatibility mode disabled
	1	Software compatibility mode enabled

ANSWER TONE DISABLE		
<b>Type:</b>	Register	
<b>Format:</b>	AT [cmds] S28= <i>n</i> [cmds]	
<b>Range:</b>	0-255	
<b>Unit:</b>	.10 second	
<b>Description:</b>	Eliminates the V.32 answer tones for faster dialing = "0"	

ANSWER MODE FALLBACK TIMER		
<b>Type:</b>	Register	
<b>Format:</b>	AT [cmds] S29= <i>n</i> [cmds]	
<b>Range:</b>	Unidentified	
<b>Unit:</b>	.10 seconds	
<b>Description:</b>	Maximum duration of V.21/V.23 answer mode fallback timer.	

VOICE PLAYBACK AUDIO LEVEL		
<b>Type:</b>	Register	
<b>Format:</b>	AT [cmds] S31= <i>n</i> [cmds]	
<b>Range:</b>	0-255	
<b>Description:</b>	Sets voice playback audio level.	

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BIT-MAPPED REGISTER S32		
<b>Format:</b>	AT [cmds] S32= <i>n</i> [cmds]	
<b>Range:</b>	Unidentified	
<b>Description:</b>	Register setup for 33.6 speed modems	
<b>Bit</b>	<b>Value</b>	<b>Function</b>
0	0	V.8 call indicate disabled
	1	V.8 call indicate enabled
1	0	Disables V.8 mode
	1	Enables V.8 mode
2	0	Enables V.FC modulation
	1	Disables V.FC modulation
3	0	Enables V.34 modulation
	1	Disables V.34 modulation
4	0	Enables 33.6kbps support
	1	Disables 33.6kbps support
5	0	Enables X2 support
	1	Disables X2 support

BIT-MAPPED REGISTER S33		
<b>Format:</b>	AT [cmds] S33= <i>n</i> [cmds]	
<b>Description:</b>	Register setup for 33.6 speed modems	
Bit	Value	Function
0	0	Enables 2400 symbol rate
	1	Disables 2400 symbol rate
1	0	Enables 2743 symbol rate
	1	Disables 2743 symbol rate
2	0	Enables 2800 symbol rate
	1	Disables 2800 symbol rate
3	0	Enables 3000 symbol rate
	1	Disables 3000 symbol rate
4	0	Enables 3200 symbol rate
	1	Disables 3200 symbol rate
5	0	Enables 3429 symbol rate
	1	Disables 3429 symbol rate
6	0	Not used
	1	Not used
7	0	Enables shaping
	1	Disables shaping

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## GATEWAY 2000 TELEPATH WITH X2 TECHNOLOGY

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BIT-MAPPED REGISTER S41		
<b>Format</b>	AT [cmds] S41= <i>n</i> [cmds]	
<b>Range:</b>	Unidentified	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Selects ringing and speakerphone mode.	
Bit	Value	Function
0	0	Distinctive ringing disabled
	1	Distinctive ringing enabled
2,1	00	Full Duplex speakerphone
	11	Half Duplex speakerphone mode

## VOICE COMMAND SET

MODE SELECTION	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] #CLS= <i>n</i> [cmds]
<b>Description:</b>	Selects which mode the modem will operate in.
Command	Function
#CLS=0	Modem will operate in data mode.
#CLS=1	Modem will operate in fax class I mode.

#CLS=2	Modem will operate in fax class II mode.
#CLS=8	Modem will operate in voice mode.

VOICE DEVICE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] #VLS= <i>n</i> [cmds]
<b>Description:</b>	Selects the I/O device for the DSP chip.
<b>Note:</b>	This modem may not support all options listed below. The #VLS? command will display the available options.
<b>Command</b>	<b>Function</b>
í #VLS=0	Telephone line and handset used for voice I/O.
#VLS=1	Telephone handset used for voice I/O.
#VLS=2	Internal speaker only used for voice I/O.
#VLS=3	External microphone only used for voice I/O.
#VLS=4	Telephone line and handset used for voice I/O; internal speaker enabled.