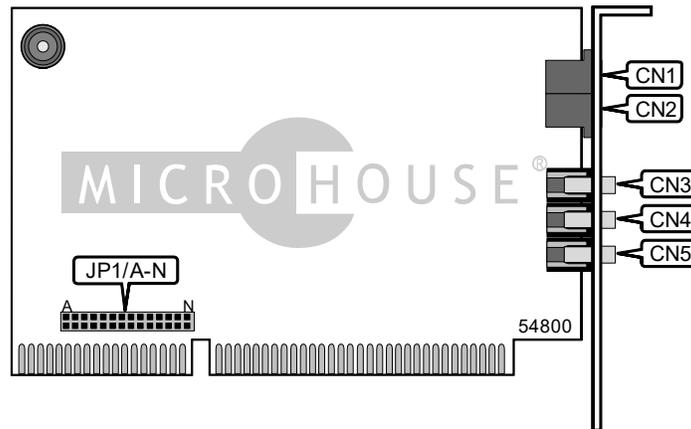


HARMONY MULTIMEDIA

HM 18008-5

Card Type	Modem (asynchronous)
Chip Set	Unidentified
I/O Options	Microphone, headphone, speaker out, line in, line out
Maximum Modem Rate	33.6Kbps
Maximum Fax Rate	14.4Kbps
Data Modulation Protocol	Bell 103/212A
Fax Modulation Protocol	ITU-T V.34+, V.34, V.32bis, V.32, V.22bis, V.22A/B, V.23, V.21, ITU-T V.17, V.29, V.27ter, V.21CH 2
Error Correction/Compression	V.42, V.42bis, MNP5
Fax Class	Class I
Data Bus	16-bit ISA
Card Size	Half-length, full-height card



CONNECTIONS			
Function	Label	Function	Label
Line in	CN1	Headphone	CN4
Line out	CN2	Speaker out	CN5
Microphone	CN3		

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

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INTERRUPT										
Setting	JP1/E	JP1/F	JP1/G	JP1/H	JP1/I	JP1/J	JP1/K	JP1/L	JP1/M	JP1/N
IRQ 3	Closed	Open								
IRQ 4	Open	Closed	Open							
IRQ 5	Open	Open	Closed	Open						
IRQ 7	Open	Open	Open	Closed	Open	Open	Open	Open	Open	Open
IRQ 10	Open	Open	Open	Open	Open	Open	Closed	Open	Open	Open
IRQ 11	Open	Open	Open	Open	Open	Closed	Open	Open	Open	Open
IRQ 12	Open	Open	Open	Open	Closed	Open	Open	Open	Open	Open
PnP	Closed									

SUPPORTED COMMAND SET
Basic AT Commands
AT, A/
A, C, D, E, F, H, M, O, P, Q, T, V, X, Y, Z
&C, &F, &G, &T, &W, &Y, &Z
Extended AT Commands
!A, !B, !C, !G, !J, !K, !O, !U, !X, !Y, !Z
%A,
S Registers
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S16, S18, S24, S25, S26, S29, S38, S39, S46, S48, S82, S86, S90, S91, S92, S95, S99, S108, S109, S110, 201
Special Commands
"H, -J
Note: See MHI Help File for full command documentation.

Proprietary AT Command Set

AUTO-MODE DETECTION	
Type:	Configuration
Format:	AT [cmds] Nn [cmds]
Description:	Selects various options for the automatic detection and negotiation of protocols during the handshake process if the modem is communicating with a remote modem of dissimilar speed.
Command	Function
N0	Handshake only at DTE- to-modem data rate
i N1	Begins handshake DTE-to-modem rate at highest compatible rate

AUXILIARY RELAY	
Type:	Configuration
Format:	AT [cmds] &Jn [cmds]
Description:	Sets the auxiliary relay function
Command	Function
i &J0	Auxiliary relay never operated
&J1	Activates auxiliary relay when modem is off-hook

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COMMUNICATIONS MODE	
Type:	Configuration
Format:	AT [cmds] &Mn [cmds]
Description:	Selects communications mode
Command	Mode
i &M0	Asynchronous mode (modem supports asynchronous mode only)

COMMUNICATIONS MODE	
Type:	Configuration
Format:	AT [cmds] &Qn [cmds]
Description:	Selects communications mode options
Command	Mode
i &Q0	Asynchronous mode (modem supports asynchronous mode only.)

COMMUNICATION PROTOCOLS	
Type:	Configuration
Format:	AT [cmds] Bn [cmds]
Description:	Selects the communication protocol for data calls
Note: The B command allows the simultaneous selection of more than one suffix, enabling multiple protocols.	
Command	Protocol
B0	ITU-T V.22 at 300 or 1200bps
B1	Bell 212A at 300 or 1200bps
B2	ITU-T V.23 at 75 or 1200bps
B3	ITU-T V.22 at 1200 or 75bps

CONFIGURATION PROFILES	
Type:	Immediate
Format:	AT [cmds] &V [cmds]
Description:	Displays active and stored configuration profiles
Command	Function
i &V0	View stored profile 0
&V1	View stored profile 1
&V2	View relay and general-purpose I/O status

DATA SET READY (DSR)	
Type:	Configuration
Format:	AT [cmds] &Sn [cmds]
Description:	Selects DSR options
Command	Function
&S0	DSR forced high
i &S1	DSR high only while modem is handshaking or connected

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DATA TERMINAL READY (DTR)	
Type:	Configuration
Format:	AT [cmds] &Dn [cmds]
Description:	Selects modem response to DTR
Note: The action each variant of &D causes depends on the setting of &Q	
Command	Function
i &D0	Modem does not respond to DTR
&D1	Modem goes to command mode after DTR goes is off
&D2	Modem goes to command mode and disconnects (hangs up) after DTR goes off; Auto-Answer is disabled.
&D3	Modem is initialized after DTR goes off

EXTENDED RESULT CODES	
Type:	Configuration
Format:	AT [cmds] Wn [cmds]
Description:	Enables selection of additional result codes when S95=0; otherwise, S95 takes precedence.
Command	Function
i W0	DTE speed response codes
W1	DTE speed response codes
W2	DCE speed response codes
W3	DTE speed response codes with error correct and data compression
W4	Reports protocol , data compression, and DTE data rate

FLOW CONTROL	
Type:	Configuration
Format:	AT [cmds] &Kn [cmds]
Description:	Enables flow control options
Command	Function
&K0	Flow control disabled
i &K3	Bi-directional hardware flow control
&K4	XON/XOFF flow control enabled

PULSE DIALING RATIO	
Type:	Configuration
Format:	AT [cmds] &Pn [cmds]
Description:	Selects pulse dial make/break ratio
Command	Function
i &P0	39/61ms at 10pps (North America)
&P1	33/67ms at 10pps (Europe)

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REPORT INFORMATION	
Type:	Immediate
Format:	AT [cmds] In [cmds]
Description:	Displays information requested
Command	Function
I0	Reports product code
I1	Reports modem chip firmware version
I2	Tests and reports ROM checksum
I3	Reports chipset name
I4	Reserved
I5	Reserved for modem chip hardware configuration
I6	Reports country code
I7	Reports version of board manufacturer firmware
I8	Reports features of modem firmware
I10	Reports modem board configuration-bits set by board manufacturer
I11	Reports modem board configuration-bits set by board manufacturer
I14	Reports SAFE device
I20	Reports chip manufacturer's silicon version
I21	Reports chip manufacturer's firmware version
I22	Reports chip manufacturer's name
I23	Reports chip manufacturer's product model

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

TRELLIS CODING	
Type:	Immediate
Format:	AT [cmds] &u [cmds]
Description:	Controls Trellis coding
Command	Function
i &U0	Enable Trellis coding with QAM as fallback
&U1	QAM modulation only

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Extended AT Command Set

AUTO-FALLBACK/FALL-FORWARD	
Type:	Configuration
Format:	AT [cmds] %Gn [cmds]
Description:	Selects auto-fallback/fall-forward
Command	Function
%G0	Auto-fallback/fall-forward disabled
%G1	Generate data modem calling tone

AUTO-RETRAIN	
Type:	Configuration
Format:	AT [cmds] %En [cmds]
Description:	Controls auto-retrain mode
Command	Function
%E0	Auto-retrain disabled
%E1	Auto-retrain enabled

COMPRESSION	
Type:	Configuration
Format:	AT [cmds] %Cn [cmds]
Description:	Selects data compression
Command	Function
%C0	Data compression disabled
%C1	MNP5 enabled

CONNECT MODE	
Type:	Configuration
Format:	AT [cmds] \Nn [cmds]
Description:	Controls the type of connection the modem will operate in
Command	Function
\N0	Normal mode enabled
\N1	Normal mode enabled
\N2	Reliable mode enabled
\N3	Auto-reliable mode enabled
\N4	V.42 reliable mode enabled

DATA MODEM CALLING TONE	
Type:	Configuration
Format:	AT [cmds] -Cn [cmds]
Description:	Sets the data modem calling tone
Command	Function
-C0	Calling tone disabled
-C1	1300-Hz calling tone enabled
-C2	V.8 calling tone and 1300-Hz calling tone

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FLOW CONTROL TYPE	
Type:	Configuration
Format:	AT [cmds] \Qn [cmds]
Description:	Sets type of flow control used by modem
Command	Function
\Q0	Flow control disabled
\Q1	XON/XOFF flow control enabled
\Q2	Uni-directional hardware flow control enabled
\Q3	Bidirectional hardware flow control enabled

INACTIVITY TIMER	
Type:	Configuration
Format:	AT [cmds] \Tn [cmds]
Default:	0
Range:	0-90
Unit:	1 second
Description:	Sets the length of time that the modem does not receive information before it disconnects.

V.42bis - MAXIMUM STRING LENGTH	
Type:	Immediate
Format:	AT [cmds] "On [cmds]
Default:	32
Range:	6-250
Unit:	Characters
Description:	Selects string size for V.42bis compression

AT# VOICE COMMAND SET

BEEP TONE	
Format:	AT [cmds] +VTD=n [cmds]
Default:	100
Range:	5-255
Description:	Sets the beep tone duration timer

BUFFER THRESHOLD	
Type:	Immediate
Format:	AT [cmds] +VBT=n [cmds]
Default:	192, 320
Range:	192, 320
Description:	Sets the buffer threshold

CALLER ID	
Format:	AT [cmds] +VCID=n [cmds]
Default:	0
Range:	0-2
Description:	Sets the caller ID

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COMPRESSION METHOD	
Format:	AT [cmds] +VSM= <i>n</i> [cmds]
Default:	140 (8-bit cirrus A-law) 8000 (used by some BBS) 0 (transmission disabled) 0 (DCE disabled)
Description:	Sets the compression method

FLOW CONTROL SELECT	
Type:	Immediate
Format:	AT [cmds] +FLO= <i>n</i> [cmds]
Default:	1
Range:	0-2
Description:	Selects the flow control

HANG-UP CONTROL	
Format:	AT [cmds] +VNH= <i>n</i> [cmds]
Default:	0
Range:	0-2
Description:	Controls the automatic hang-up

INACTIVITY TIMER	
Format:	AT [cmds] +VIT= <i>n</i> [cmds]
Default:	0
Range:	0-255
Description:	Sets the DTE/DEC inactivity timer

INITIALIZE PARAMETER	
Format:	AT [cmds] +VIP [cmds]
Description:	Initialize parameter

SILENCE DETECTION	
Format:	AT [cmds] +VCSD= <i>n</i> [cmds]
Default:	0
Range:	0, 1
Description:	Sets the voice command mode silence detection

DISTINCTIVE RING	
Format:	AT [cmds] +VDR= <i>n</i> [cmds]
Default:	0, 0
Range:	0-255, 0-255
Description:	Sets the distinctive ring

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MICROPHONE GAIN	
Format:	AT [cmds] +VGM= <i>n</i> [cmds]
Default:	128
Range:	121-131
Description:	Sets the microphone gain

PLAY MODE	
Format:	AT [cmds] +VTX [cmds]
Description:	Sets the play mode

RECEIVE GAIN	
Format:	AT [cmds] +VGR= <i>n</i> [cmds]
Default:	128
Range:	121-131
Description:	Sets the receive gain

RECORD MODE	
Format:	AT [cmds] +VRX [cmds]
Description:	Sets the record mode

RELAY/SPEAKER CONTROL	
Format:	AT [cmds] +VGS= <i>n</i> [cmds]
Default:	0
Range:	0-16
Description:	Stes the relay/speaker control

REPORTING AND MASKING	
Format:	AT [cmds] +VEM= <i>n</i> [cmds]
Default:	'C', BB860980, BFE63883, BB863EE0
Description:	Controls the event reporting and masking

RINGBACK TIMER	
Format:	AT [cmds] +VRA= <i>n</i> [cmds]
Default:	50
Range:	0-50
Description:	Sets the ringback-goes-away timer

RINGBACK TIMER	
Format:	AT [cmds] +VRN= <i>n</i> [cmds]
Default:	10
Range:	0-255
Description:	Sets the ringback-never-appeared timer

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SILENCE DETECTION	
Format:	AT [cmds] +VSD= <i>n</i> [cmds]
Default:	128 (nominal) 50 (silence detection enabled)
Description:	Sets silence detection

VOICE MODE SELECTION	
Type:	Immediate
Format:	AT [cmds] +FCLASS= <i>n</i> [cmds]
Default:	0
Range:	0, 1, 8, 80
Description:	Sets the voice mode

VOLUME SELECTION	
Format:	AT [cmds] +VGT= <i>n</i> [cmds]
Default:	128
Range:	121-131
Description:	Selects the volume

SPEAKERPHONE SELECTION	
Format:	AT [cmds] +VSP= <i>n</i> [cmds]
Default:	0
Range:	0, 1
Description:	Controls the speakerphone

SPEAKER PHONE TYPE	
Format:	AT [cmds] #VSPS= <i>n</i> [cmds]
Default:	0
Range:	0, 1
Description:	Sets the speakerphone type

TONE GENERATION	
Format:	AT [cmds] +VTS= <i>n</i> [cmds]
Description:	Sets the DTMF and tone generation