Card Type Modem (asynchronous)

Chip Set Unidentified
Maximum Modem Rate 33.6Kbps
Maximum Fax Rate 14.4Kbps
Data Modulation Protocol Bell 103/212A

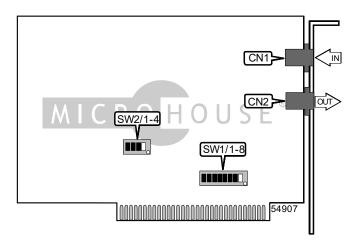
ITU-T V.42, V.32bis, V.32, V.22bis, V.21

Fax Modulation Protocol ITU-T V.21CH2, V.27ter, V.29, V.17

Error Correction/Compression MNP5, V.42/V.42bis

Fax Class I & II
Data Bus Class I & II

Card Size Half-length, full-height card



	CONNE	CTIONS	
Function	Label	Function	Label
Line in	CN1	Line out	CN2

		PLUG & PLAY		
Setting	SW2/1	SW2/2	SW2/3	SW2/4
í Manual	On	On	Off	Off
Plug and Play	Off	Off	On	On

	COM PORT SELECTION	
Setting	SW1/1	SW1/2
COM1	On	On
COM2	On	Off
í COM3	Off	On
COM4	Off	Off

		INTERRUPT		
Setting	SW1/3	SW1/4	SW1/5	SW1/6
IRQ2	On	Off	Off	Off
IRQ3	Off	On	Off	Off
IRQ4	Off	Off	On	Off
í IRQ5	Off	Off	Off	On

			DIAGNOSTIC LED(S)
LED	Color	Status	Condition
AA	Unidentified	On	Auto-answer enabled
AA	Unidentified	Off	Auto-answer disabled
AA	Unidentified	Blinking	Phone is ringing
RD	Unidentified	On	Computer is receiving data from the modem
RD	Unidentified	Off	Computer is not receiving data from the modem
SD	Unidentified	On	Computer is transmitting data to the modem
SD	Unidentified	Off	Computer is not transmitting data to the modem
CD	Unidentified	On	Carrier signal detected
CD	Unidentified	Off	Carrier signal not detected
OH	Unidentified	On	Modem is off-hook
ОН	Unidentified	Off	Modem is on-hook
HS	Unidentified	On	Modem is operating at 16800, 19200, 21600, 28800, or 33600bps
HS	Unidentified	Off	Modem is operating at 4800, 7200, 9600, 12000, 14400bps
TR	Unidentified	On	DTR signal is high
TR	Unidentified	Off	DTR signal is low
MR	Unidentified	On	Power is on
MR	Unidentified	Off	Power is off

SUPPORTED COMMAND SET
Basic AT Commands
AT, '+++', A/
A, E, O, S, V, X, Y, Z
&G, &L, &T, &W, &X, &Y, &Z
Extended AT Commands
\A, \G, \X
S Registers
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S18, S25, S26
Note: See MHI Help File for full command documentation.

Proprietary AT Command Set

	DIAL
Type:	Immediate
Format:	AT [cmds] D<#> [cmds]
Description:	Dials telephone number according to any modifiers included in the string
Note:	Any combination of modifiers can be used to produce the desired dial functions in
	sequence.
Command	Function
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 Quite 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;	Modem returned to idle state after dialing. The semicolon can only be placed at the
	end of the dial command.

	HOOK CONTROL
Type:	Immediate
Format:	AT [cmds] Hn [cmds]
Description:	Selects whether the modem is on-hook or off-hook
Command	Function
í H0	Modem commanded to go on-hook (hang-up)
H1	Modem commanded to go off-hook (pick-up)
H2	Set H command to allow cleardown
H3	Set H command to disallow cleardown

	REPORT INFORMATION
Type:	Immediate
Format:	AT [cmds] In [cmds]
Description:	Displays information requested
Command	Function
10	Reports product code
l1	Reports EPROM CRC value
13	Reports product version
14	Reports capability code
15	Reports disconnect reason

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

	SPEAKER MODE
Type:	Configuration
Format:	AT [cmds] Mn [cmds]
Description:	Selects various speaker options
0	
Command	Function
M0	Function Speaker disabled

	RESULT CODES
Type:	Configuration
Format:	AT [cmds] Qn [cmds]
Description:	Enables modem to send result codes to the DTE
Command	Function
Command í Q0	Function Result code sending enabled
	-

	DATA CARRIER DETECT (DCD)
Type:	Configuration
Format:	AT [cmds] &Cn [cmds]
Description:	Selects whether the DCD option is enabled or disabled
0	Format Carr
Command	Function
í &C0	DCD enabled
í &C0	DCD enabled

	DATA TERMINAL READY (DTR)
Type:	Configuration
Format:	AT [cmds] &Dn [cmds]
Description:	Selects modem response to DTR
Note: The action ea	ch variant of &D causes depends on the setting of &Q
Command	Function
í &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
&D9	DTR dials/disconnects

	FACTORY DEFAULT PROFILE
Type:	Configuration
Format:	AT [cmds] &F [cmds]
Description:	Sets values in active profile to values found in the default profile
Command	Function
í &F0	Restore factory default 0
&F1	Restore factory default 1

	COMMUNICATIONS MODE
Type:	Configuration
Format:	AT [cmds] &Mn [cmds]
Description:	Selects communications mode
Command	Mode
í &M0	Asynchronous dial/asynchronous data
&M1	Asynchronous dial/synchronous data
&M2	Dial stored number when DTR off/on transition is detected/sync data
&M3	Manual dial/sync data
&M4	V.25bis dialer/BISYNC protocol/sync data (EBCDIC)
&M5	V.25bis dialer/SDLC protocol/sync data (NRZ)
&M6	V.25bis async dial/sync data
&M7	V.25bis async dial/async data
&M8	V.25bis dialer w/BISYNC protocol/sync data (EBCDIC)
&M9	V.25bis dialer w/SDLC protocol/sync data (EBCDIC) (NRZ)
&M10	V.25bis dialer w/SDLC protocol/sync data (ASCII) (NRZI)
&M11	V.25bis dialer w/SDLC protocol/sync data (EBCID) (NRZI)

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

	RTS/CTS
Type:	Configuration
Format:	AT [cmds] &Rn [cmds]
Description:	Selects RTS/CTS options
Command	Function
í &R0	CTS follows RTS in data mode; RTS is ignored in command mode.
&R1	CTS forced high, RTS is ignored.
&R2	CTS follows DCD
&R9	CTS equals RTS

	DATA SET READY (DSR)
Type:	Configuration
Format:	AT [cmds] &Sn [cmds]
Description:	Selects DSR options
Command	Function
&S0	DSR forced high
í &S1	DSR high when ready to accept data
&S2	DSR off for 5 seconds after disconnect
&S3	DSR follows off hook

	CONFIGURATION PROFILES
Type:	Immediate
Format:	AT [cmds] &V [cmds]
Description:	Displays active and stored configuration profiles
Command	Function
Command &V0	Function View configuration profiles

Extended AT Commands

	BREAK SEND
Type:	Configuration
Format:	AT [cmds] \Bn [cmds]
Default:	35
Range:	1-255
Unit:	20ms
Description:	Sends break to modem
Command	Function
\B0	Transmit break signal
\B1	Set break length in 20ms increments

Continued on next page . . .

	AUTO-RELIABLE TIME BUFFER CONFIGURATION
Type:	Configuration
Format:	AT [cmds] \Cn [cmds]
Description:	Controls the handling of incoming data during auto-reliable time period
Command	Function
/C0	Data is discarded
\C1	Data is buffered

	LOCK SERIAL PORT
Type:	Configuration
Format:	AT [cmds] \Jn [cmds]
Description:	Sets operation of serial port speed
Command	Function
\J0	Serial speed locked
\J1	Serial speed follows connect speed
\J2	Enable 230.4Kbps serial speed
\J3	Disable 230.4Kbps serial speed

	BREAK TYPE
Type:	Configuration
Format:	AT [cmds] \Kn [cmds]
Description:	Configures action of break signal
Command	Function
Oommana	FullCuoli
\K1	Break signals empty data buffers

	V.42 FAST DETECT
Type:	Configuration
Format:	AT [cmds] \Mn [cmds]
Description:	Controls the V.42 fast detect data sequence
Command	Function
\M0	V.42 fast detect data sequence disabled
\M1	V.42 fast detect data sequence 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	Direct mode enabled
\N2	MNP mode
\N3	MNP with normal fallback
\N4	LAPM only
\N5	LAPM with normal fallback
\N6	LAPM with MNP fallback
\N7	LAPM with MNP and normal fallback

	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	Bidirectional XON/XOFF flow control enabled
\Q2	CTS flow control by DCE enabled
\Q3	Bidirectional RTS/CTS flow control enabled

	RING INDICATE
Type:	Configuration
Format:	AT [cmds] \Rn [cmds]
Description:	Controls the ring indicator
Command	Function
\R0	LED AA blinks for ring and remains on during the call
\R1	LED AA blinks for ring and turns off when call is answered

	INACTIVITY TIMER
Type:	Configuration
Format:	AT [cmds] \Tn [cmds]
Range:	1-255
Unit:	1 second
Description:	Sets the length of time that the modem does not receive information before it
	disconnects.

	EXTENDED RESULT CODES
Type:	Configuration
Format:	AT [cmds] \Vn [cmds]
Description:	Selects extended result codes
Command	Function
\V0	Connect message shows computer speed
\V1	Connect message shows computer speed/protocol
\V2	Connect message shows modem speed
\V3	Connect message shows speed/protocol
\V4	Connect message shows modem speed/modulation/protocol

	SPEED SELECTION
Type:	Configuration
Format:	AT [cmds] %Bn [cmds]
Description:	Selects the maximum connect speed
Command	Function
%B0	Use computer speed
%B1	300bps
%B2	1200bps
%B3	2400bps
%B4	4800bps
%B5	9600bps uncoded
%B6	9600bps
%B7	7200bps
%B8	12000bps
%B9	14400bps
%B10	600bps
%B11	16800bps
%B12	19200bps
%B13	21600bps
%B14	24000bps
%B15	26400bps
%B16	28800bps
%B17	31200bps
%B18	33600bps

	COMPRESSION
Type:	Configuration
Format:	AT [cmds] %Cn [cmds]
Description:	Selects data compression
Command	Function
%C0	Compression disabled
%C1	Compression enabled on transmit and receive data

	DISCONNECT BUFFER DELAY
Type:	Configuration
Format:	AT [cmds] %D <i>n</i> [cmds]
Description:	Controls the disconnect buffer delay
Command	Function
%D0	Disable disconnect buffer delay
%D1	Set disconnect buffer delay in seconds <i>n</i> (<i>n</i> = 1 - 255)

	MINIMUM SPEED SELECTION
Type:	Immediate
Format:	AT [cmds] %L [cmds]
Description:	Sets the minimum speed level
Command	Function
%L0	300bps
%L1	300bps
%L2	1200bps
%L3	2400bps
%L4	4800bps
%L5	9600bps uncoded
%L6	9600bps
%L7	7200bps
%L8	12000bps
%L9	14400bps
%L10	600bps
%L11	16800bps
%L12	19200bps
%L13	21600bps
%L14	24000bps
%L15	26400bps
%L16	28800bps
%L17	31200bps
%L18	33600bps

	REMOTE CONFIGURATION
Type:	Immediate
Format:	AT [cmds] %P [cmds]
Description:	Displays the remote configuration code

	AUTOMATIC RATE ADAPTION
Type:	Immediate
Format:	AT [cmds] %R <i>n</i> [cmds]
Description:	Send PTT test signals for a line tests
Command	Function
%R0	Disable automatic rate adaption
%R1	Enable automatic rate adaption low BER
%R2	Enable automatic rate adaption medium BER

	TEST PATTERN
Type:	Immediate
Format:	AT [cmds] %Tn [cmds]
Description:	Transmit test pattern

	PRODUCT REVISION
Type:	Immediate
Format:	AT [cmds] %Vn [cmds]
Description:	Display product revision level

	V.34 ASYMMETRIC RATE
Type:	Immediate
Format:	AT [cmds] *ASn [cmds]
Description:	Sets the asymmetric bit rate
Command	Function
*AS0	Disable V.34 asymmetric bit rate
*AS1	Enable V.34 asymmetric bit rate

	BILTERAL DIGITAL LOOP
Type:	Immediate
Format:	AT [cmds] *DGn [cmds]
Description:	Controls the bilateral digital loop
Command	Function
*DG0	Disables the bilateral digital loop
*DG1	Enables the digital bilateral loop

	TEST MODE - PTT
Type:	Immediate
Format:	AT [cmds] *DNn [cmds]
Description:	Send PTT test signals for a line tests
Command	Function
*DN0	Allow redial with A/
*DN1	Disallow redial with A/

	DISTINCTIVE RING DETECTION
Type:	Immediate
Format:	AT [cmds] *DRn [cmds]
Description:	Controls the distinctive ring detection
Command	Function
*DR0	Disable distinctive ring detection
*DR1	Enable distinctive ring detection

	FAST TRAIN
Type:	Immediate
Format:	AT [cmds] *FTn [cmds]
Description:	Controls the fast train
Command	Function
*FT0	Disables the fast train
*FT1	Enables the fast train

	CALLER ID
Type:	Immediate
Format:	AT [cmds] *IDn [cmds]
Description:	Controls the caller ID function
Command	Function
*ID0	Disable caller ID
*ID1	Enable caller ID

	MODULATION
Type:	Immediate
Format:	AT [cmds] *MMn [cmds]
Description:	Sets the modulation
Command	Function
*MM0	Automode
*MM1	V.21
*MM2	Bell 103J
*MM3	V.23
*MM4	Bell 212A
*MM5	V.22bis
*MM11	V.32bis
*MM12	V.34

	STORED NUMBERS
Type:	Immediate
Format:	AT [cmds] *ND [cmds]
Description:	Displays the nine stored numbers

	AT COMMANDSET
Type:	Immediate
Format:	AT [cmds] *NTn [cmds]
Description:	Controls the AT command set
Command	Function
*NT0	AT command set disabled
*NT1	AT command set enabled

	MODE SELECTION
Type:	Immediate
Format:	AT [cmds] *ORn [cmds]
Description:	Controls the originate or answer mode
Command	Function
*OR0	Originate mode active
*OR1	Answer mode active

	RATE NEGOTIATION SELECTION
Type:	Immediate
Format:	AT [cmds] *RRn [cmds]
Description:	Sets the rate negotiation
Command	Function
*RR0	Rate negotiation to 2400
*RR1	Rate negotiation to 4800
*RR2	Rate negotiation to 7200
*RR3	Rate negotiation to 9600
*RR4	Rate negotiation to 12000
*RR5	Rate negotiation to 14400
*RR6	Rate negotiation to 16800
*RR7	Rate negotiation to 19200
*RR8	Rate negotiation to 21600
*RR9	Rate negotiation to 24000
*RR10	Rate negotiation to 26400
*RR11	Rate negotiation to 28800
*RR12	Rate negotiation to 31200
*RR13	Rate negotiation to 33600

RATE ADAPTION	
Type:	Immediate
Format:	AT [cmds] *RU <i>n</i> [cmds]
Description:	Controls the rate adaption
Command	Function
*RU0	Disable auto rate adaption above initial rate
*RU1	Enable auto rate adaption above initial rate

	TRANSMIT LEVEL
Type:	Immediate
Format:	AT [cmds] *TDn [cmds]
Description:	Set dial transmit level from -9 to -30dBm

	RATE SELECTION THRESHOLD
Type:	Immediate
Format:	AT [cmds] *THn [cmds]
Description:	Sets the rate selection threshold
Command	Function
Command *TH0	Function Low V.34 rate selection threshold

	LEASED LINE TRANSMIT LEVEL
Type:	Immediate
Format:	AT [cmds] *TLn [cmds]
Description:	Sets the leased line transmit level (0 - 30)

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	ONLINE HELP
Type:	Immediate
Format:	AT [cmds] \$Hn [cmds]
Description:	Online help
Command	Function
\$H=string	Online help

	PRODUCT SERIAL NUMBER
Type:	Immediate
Format:	AT [cmds] \$Vn [cmds]
Description:	Displays the product serial number

Security Commands

	USER CALLBACK NUMBER
Type:	Immediate
Format:	AT [cmds] \$C <i>n=m</i> [cmds]
Description:	Sets the user callback number (<i>n</i> = user number and <i>m</i> = the callback number

	SECURITY DISABLED
Type:	Immediate
Format:	AT [cmds] \$D [cmds]
Description:	Disables security

	SECURITY STATUS
Type:	Immediate
Format:	AT [cmds] \$D? [cmds]
Description:	Reports the security status

	SECURITY ENABLE
Type:	Immediate
Format:	AT [cmds] \$EH=pw [cmds]
Description:	Enables security (<i>pw</i> =superuser password)

	REINITIALIZE SECURITY
Type:	Immediate
Format:	AT [cmds] \$F=pw\$pw [cmds]
Description:	Reinitializes security (pw=superuser password)

USER INFORMATION	
Type:	Immediate
Format:	AT [cmds] \$I [cmds]
Description:	Reports all secure user information

	SECURITY LEVEL
Type:	Immediate
Format:	AT [cmds] \$L <i>n=m</i> [cmds]
Description:	Set security level for the user specified by <i>n</i>

	ILLEGAL ATTEMPTS INFORMATION
Type:	Immediate
Format:	AT [cmds] \$M [cmds]
Description:	Reports illegal attempts information

	RESET ALL ILLEGAL ATTEMPTS
Type:	Immediate
Format:	AT [cmds] \$M* [cmds]
Description:	Reset all illegal attempts registers/restore suspended users to normal status

	RESET ILLEGAL ATTEMPTS
Type:	Immediate
Format:	AT [cmds] \$Mn [cmds]
Description:	Reset illegal attempts registers/restore suspended users to normal status

	LOCAL LOGON
Type:	Immediate
Format:	AT [cmds] \$n=pw [cmds]
Description:	Local logon (n = user number, pw = password)

SET PASSWORD	
Type:	Immediate
Format:	AT [cmds] \$P <i>n=pw\$pw</i> [cmds]
Description:	Set user password (n = user number, pw = new password, n = 0 for superuser password)

	REMOVE USER
Type:	Immediate
Format:	AT [cmds] \$R <i>n</i> [cmds]
Description:	Removes a user

	SUPERUSER STATUS
Type:	Immediate
Format:	AT [cmds] \$S=pw [cmds]
Description:	Request superuser status (pw = password)

	CURRENT USER STATUS
Type:	Immediate
Format:	AT [cmds] \$S? [cmds]
Description:	Reports current user status

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	LOCAL LOGON
Type:	Immediate
Format:	AT [cmds] \$ <i>n=m</i> [cmds]
Description:	Local logon (n = user number and m = password)

Remote Configuration Commands

	REMOTE CONFIGURATION SECURITY
Type:	Immediate
Format:	AT [cmds] %P=n [cmds]
Description:	Set the remote configuration security code to value <i>n</i>

	DISPLAY SECURITY CODE
Type:	Immediate
Format:	AT [cmds] %P? [cmds]
Description:	Displays the remote configuration security code

	CLEAR SECURITY CODE
Type:	Immediate
Format:	AT [cmds] %P = (blank) [cmds]
Description:	Clears the security code

	COMPUTER SPEED
Type:	Immediate
Format:	AT [cmds] *RBn [cmds]
Description:	Sets the remote configuration computer speed
Command	Function
*RB0	300bps
*RB1	600bps
*RB2	1200bps
*RB3	2400bps
*RB4	4800bps
*RB5	7200bps
*RB6	9600bps
*RB7	12000bps
*RB8	14400bps
*RB9	16800bps
*RB10	19200bps
*RB11	21600bps
*RB12	24000bps
*RB13	26400bps
*RB14	28800bps
*RB15	28400bps
*RB16	57600bps
*RB17	115200bps

	FORMAT SETTINGS
Type:	Immediate
Format:	AT [cmds] *RFn [cmds]
Description:	Sets the remote configuration format settings
Command	Function
*RF0	7 data bits, mark parity, 1 stop bit
*RF1	7 data bits, no parity, 2 stop bit
*RF2	7 data bits, odd parity, 1 stop bit
*RF3	7 data bits, even parity, 1 stop bit
*RF4	8 data bits, mark parity, 1 stop bit
*RF5	8 data bits, no parity, 1 stop bit
*RF6	8 data bits, odd parity, 1 stop bit
*RF7	8 data bits, even parity, 1 stop bit

	SAVE REMOTE CONFIGURATION
Type:	Immediate
Format:	AT [cmds] *RQ <i>n</i> [cmds]
Description:	Exit remote configuration and saves or discards the new configuration
Command	Function
*RQ0	Save new configuration
*RQ1	Discard new configuration

S(status) -REGISTERS

	REMOTE ESCAPE CHARACTER
Format	AT [cmds] S41=n [cmds]
Default:	61
Range:	1-255
Unit:	20ms
Description:	Sets the remote escape character

	REMOTE GUARD TIME
Format	AT [cmds] S42= <i>n</i> [cmds]
Default:	50
Range:	0-255
Unit:	ASCII
Description:	Sets the remote guard time

	COMPUTER CONTROL CHARACTER - XON
Format	AT [cmds] S44=n [cmds]
Default:	17
Range:	0-127
Unit:	ASCII
Description:	Sets the character used to represent XON for the computer

	COMPUTER CONTROL CHARACTER - XOFF
Format	AT [cmds] S45= <i>n</i> [cmds]
Default:	19
Range:	0-127
Unit:	ASCII
Description:	Sets the character used to represent XOFF for the computer

	MODEM CONTROL CHARACTER - XON
Format	AT [cmds] S49=n [cmds]
Default:	17
Range:	0-127
Description:	Sets the character used to represent XON for the modem

	MODEM CONTROL CHARACTER - XOFF
Format	AT [cmds] S50= <i>n</i> [cmds]
Default:	19
Range:	0-127
Unit:	ASCII
Description:	Sets the character used to represent XOFF for the modem

	PASSWORD TIMEOUT SECURITY
Format	AT [cmds] S73=n [cmds]
Default:	0
Range:	0-255
Description:	Sets the password timeout security

	CALLBACK DELAY
Format	AT [cmds] S74=n [cmds]
Default:	15
Range:	0-255
Description:	Sets the callback delay

	CALLBACK RETRY
Format	AT [cmds] S75=n [cmds]
Default:	0
Range:	0-255
Description:	Sets the callback retry

	CALLBACK RETRY DELAY
Format	AT [cmds] 76= <i>n</i> [cmds]
Default:	15
Range:	1-255
Description:	Sets the callback retry delay

	LOCKOUT THRESHOLD
Format	AT [cmds] S77=n [cmds]
Default:	0
Range:	0-255
Description:	Sets the lockout threshold