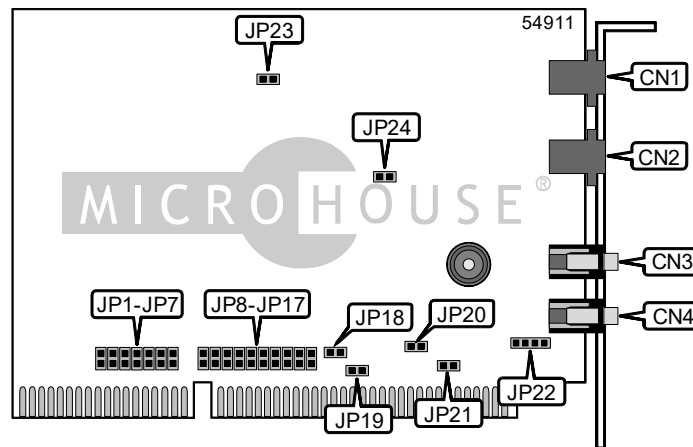


# MOTOROLA, INC.

## MODEMSURFR 33600 INTERNAL

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



CONNECTIONS			
Function	Label	Function	Label
Line in (RJ-11)	CN1	Speaker out	CN3
Line out (RJ-11)	CN2	Microphone	CN4

USER CONFIGURABLE SETTINGS		
Function	Label	Position
í Factory configured - do not alter	JP1	Unidentified
í Factory configured - do not alter	JP2	Unidentified
í Factory configured - do not alter	JP3	Unidentified
í Factory configured - do not alter	JP4	Unidentified
í Factory configured - do not alter	JP5	Unidentified
í Factory configured - do not alter	JP6	Unidentified
í Factory configured - do not alter	JP7	Unidentified
í Factory configured - do not alter	JP18	Unidentified
í Factory configured - do not alter	JP19	Unidentified
í Factory configured - do not alter	JP20	Unidentified
í Factory configured - do not alter	JP21	Unidentified
í Factory configured - do not alter	JP22	Unidentified
í Factory configured - do not alter	JP23	Unidentified
í Factory configured - do not alter	JP24	Unidentified

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SERIAL PORT ADDRESS		
Setting	JP16	JP17
COM1 (3F8h)	Open	Open
COM2 (2F8h)	Open	Closed
COM3 (3E8h)	Closed	Open
COM4 (2E8h)	Closed	Closed

INTERRUPT								
Setting	JP8	JP9	JP10	JP11	JP12	JP13	JP14	JP15
IRQ 2	Open	Open	Open	Open	Open	Open	Open	Closed
IRQ 3	Open	Open	Open	Open	Open	Open	Closed	Open
IRQ 4	Open	Open	Open	Open	Open	Closed	Open	Open
í IRQ 5	Open	Open	Open	Open	Closed	Open	Open	Open
IRQ 7	Open	Open	Open	Closed	Open	Open	Open	Open

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SUPPORTED COMMAND SET	
Basic AT Commands	
AT, '+++', A/	
A, E, H, M, O, S, V, X, Z	
&F, &V, &W, &Y, &Z	
Extended AT Commands	
\K, \Q	
%A	
S Registers	
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S25, S26, S38	
<b>Note:</b> See MHI Help File for full command documentation.	

## Proprietary AT Command Set

AUTO FALLFORWARD/FALLBACK	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &An [cmds]
<b>Description:</b>	Controls auto fallforward/fallback
Command	Function
í &A0	Auto fallforward/fallback disabled
&A1	Auto fallforward/fallback enabled

DATA CARRIER DETECT (DCD)	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Cn [cmds]
<b>Description:</b>	Selects whether the DCD option is enabled or disabled
Command	Function
í &C0	DCD enabled
&C1	DCD enabled after carrier signal detected
&C2	Force DCD on and toggle DCD on disconnect

DATA SET READY (DSR)	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Sn [cmds]
<b>Description:</b>	Selects DSR options
Command	Function
&S0	DSR forced high, off at disconnect
í &S1	DSR forced high in data or online mode, off in command or idle mode
&S2	DSR follows carrier detect
&S3	DSR is forced high in all modes

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DATA TERMINAL READY (DTR)	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &D <i>n</i> [cmds]
<b>Description:</b>	Selects modem response to DTR
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

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
DS= <i>n</i>	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.

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JACK TYPE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Hn [cmds]
<b>Description:</b>	Selects maximum connect speed
Command	Jack Type
í &H0	Auto-detect
&H1	V.34
&H2	V.32bis automatic
&H3	V.32bis only
&H4	V.32 automatic
&H5	V.32 only
&H6	V.22 only (2400-1200bps)
&H7	V.22 only (1200bps)
&H8	Bell 212 only
&H9	Bell 103 only
&H10	V.21 only

MODEM TO MODEM SPEED	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Gn [cmds]
<b>Description:</b>	Sets the modem to modem speed
Command	Function
&G5	4.8Kbps
&G6	7.2Kbps
&G7	9.6Kbps
&G8	12.0Kbps
&G9	14.4Kbps
&G10	16.8Kbps
&G11	19.2Kbps
&G12	21.6Kbps
&G13	24.0Kbps
&G14	26.4Kbps
&G15	28.8Kbps
&G16	31.2Kbps
í &G17	33.6Kbps

REPORT INFORMATION	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] ln [cmds]
<b>Description:</b>	Displays information requested
Command	Function
I0	Reports product code
I1	Reports 000
I2	Returns OK or ERROR
I3	Report firmware revision number
I4	Report configuration settings

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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
í Q0	Result code sending enabled
Q1	Result code sending disabled
Q2	Call progress messages on originate

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
í L2	Medium volume setting
L3	Highest volume setting

TRELLIS CODING	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] &Un
<b>Description:</b>	Controls trellis coding
Command	Function
&U0	Trellis coding enabled
&U1	Trellis coding disabled

## Extended AT Commands

ANSWER MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] %On [cmds]
<b>Description:</b>	Sets the answer mode
Command	Function
%O0	Answer mode if ringing
%O1	Force to answer mode
%O2	Automatic answer in originate mode

CHARACTER ABORT DELAY	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] %Kn [cmds]
<b>Description:</b>	Sets the delay before character abort
Command	Function
%K0	Enable 2 second delay
%K1	Disable delay

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CHARACTER LENGTH	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Bn [cmds]
<b>Description:</b>	Sets the character length
Command	Function
\B0	6 data bits, no parity, 1 stop bit
\B1	7N1
\B2	7P1
\B3	8N1
\B4	7P2
\B5	8P1

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

CONNECT AND PROTOCOL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Vn [cmds]
<b>Description:</b>	Sets the connect and protocol message functions
Command	Function
\V0	Connect and protocol message reports modem to modem speed
\V1	Connect and protocol message reports computer to modem speed
\V2	Connect message reports computer to modem speed/V.42 error correction
\V3	Connect message reports computer to modem speed

CONNECT MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Nn [cmds]
<b>Description:</b>	Controls the type of connection the modem will operate in
Command	Function
\N0	Normal operation
\N1	Direct operation
\N2	MNP connection only
\N3	V.42 LAPM, MNP or normal mode
\N4	V.42 LAPM connection only
\N5	V.42 LAPM or MNP mode
\N6	Simulated controlled carrier

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DTR	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] %Zn [cmds]
<b>Description:</b>	Controls the DRT function
Command	Function
i %Z0	Ignore DTR signal toggle
%Z1	Dial stored phone number (0-3) on DTR toggle
%Z2	Attempt to connect on DTR toggle

FLOW CONTROL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Gn [cmds]
<b>Description:</b>	Selects modem port flow control
Command	Function
\G0	Flow control disabled
\G1	XON/XOFF flow control
\G2	XON/XOFF flow control only for transmitting data
\G3	XON/XOFF flow control with pass-through

PARITY	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Pn [cmds]
<b>Description:</b>	Sets parity
Command	Function
\P0	Even
\P1	Space
\P2	Odd
\P3	Mark
\P4	Automatic

RETRAIN	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] %Q [cmds]
<b>Description:</b>	Controls the retrain
Command	Function
%Q0	Disable retrain
%Q1	Attempt up to 3 retrains and disconnect if unsuccessful
i %Q2	Retrain until signal quality is good

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SPEED	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Tn [cmds]
<b>Description:</b>	Sets the computer to modem speed
Command	Function
\T0	Autobaud
\T1	Set to last AT command entry
\T2	300bps
\T3	1200bps
\T4	2400bps
\T5	4800bps
\T6	7200bps
\T7	9600bps
\T8	12.0Kbps
\T9	14.4Kbps
\T10	16.8Kbps
\T11	19.2Kbps
\T12	21.6Kbps
\T13	24.0Kbps
\T14	26.4Kbps
\T15	28.8Kbps
\T16	31.2Kbps
\T17	33.6Kbps
\T18	38.4Kbps
\T19	57.6Kbps
\T20	76.8Kbps
\T21	115.2Kbps

TIMEOUT	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Cn [cmds]
<b>Description:</b>	Sets timeout, fallback, data buffer
Command	Function
\C0	Timeout and fallback, speed buffer, no data buffer
\C1	Timeout and fallback, speed buffer, buffer receive data
\C2	Auto reliable, fallback with fallback character, speed buffer, no receive data buffer
\C3	Timeout and fallback, ITU-T V.14, buffer receive data
\C4	Timeout and fallback with fallback character, ITU-T V.14, no data buffer

### S(status) -REGISTERS

RETRANSMISSION COUNTER	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S70=n [cmds]
<b>Default:</b>	100
<b>Range:</b>	0-255
<b>Description:</b>	Sets the number of retransmission tries