3COM CORPORATION
SPORTSTER VOICE 28.8 FAXMODEM (INTERNAL)

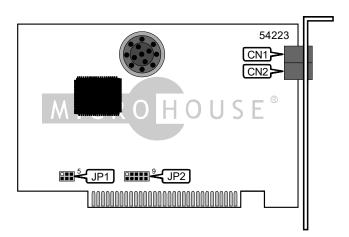|	
Card Type	Modem, Fax
Chip Set	Unidentified
I/O Options	Serial ports (2 RJ-11)
Maximum Modem Rate	28.8Kbps
Maximum Fax Rate	14.4Kbps
Data Modulation Protocol	Bell 103A/212A
	V.21, V.22, V.22bis, V.23, V.32, V.32bis, V.34
Fax Modulation Protocol	Unidentified
Error Correction/Compression	MNP 2-4, MNP5, V.42, V.42bis
Fax Class	Class I & II
Data Bus	8-bit ISA
Card Size	Three-quarter length

CONNECTIONS			
Function	**Label**	**Function**	**Label**
RJ-11 connector	CN1	RJ-11 connector	CN2

SERIAL PORT ADDRESS	
Setting	**JP1**
COM1 (3F8h)	Pins 1 & 2, 3 & 4, 5 & 6 closed
í COM2 (2F8h)	Pins 3 & 4, 5 & 6 closed
COM3 (3E8h)	Pins 1 & 2, 5 & 6 closed
COM4 (2E8h)	Pins 5 & 6 closed
Plug & Play enabled	Open

IRQ INTERRUPT	
IRQ	**JP2**
IRQ2	Pins 1 & 2 closed
í IRQ3	Pins 3 & 4 closed
IRQ4	Pins 5 & 6 closed
IRQ5	Pins 7 & 8 closed
IRQ7	Pins 9 & 10 closed
Plug & Play enabled	Open

SUPPORTED COMMAND SET
Basic AT Commands
AT, '+++', 'comma', A/
A, B E, F, H, M, O, P, S, T, V, X
&C, &D, &G, &T, &W, &Z
S Registers
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S14, S18, S25, S38
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
DL	Re-dial last number
DR	Answer mode enabled; originate mode disabled following handshake initiation.
DP	Pulse dialing enabled
DS=n	Dial stored telephone number *n*
D#, *	Extended touch tone pads
DT	Tone dialing enabled/Pulse dialing disabled
D/	Delays for 125ms before proceeding with dial string
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$	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.

REPORT INFORMATION	
Type:	Immediate
Format:	AT [cmds] I*n* [cmds]
Description:	Displays information requested

Command	Function
I0	Reports modem model and speed
I1	Reports ROM checksum
I2	Tests and reports RAM checksum
I3	Reports product type
I4	Reports current modem settings
I5	Reports nonvolatile memory (NVRAM) settings
I6	Reports link diagnostics
I7	Reports product confirmation
I9	Reports Plug & Play information
I11	Reports call statistics

SPEAKER VOLUME	
Type:	Configuration
Format:	AT [cmds] L*n* [cmds]
Description:	Controls speaker volume

Command	Function
L0	Low volume setting
L1	Low volume setting
í L2	Medium volume setting
L3	Highest volume setting

RESULT CODES	
Type:	Configuration
Format:	AT [cmds] Q*n* [cmds]
Description:	Enables modem to send result codes to the DTE

Command	Function
í Q0	Result code sending enabled
Q1	Result code sending disabled
Q2	Result code sending only in *Originate* mode
Q3	Result code sending only in *Ring* mode

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LONG SPACE DISCONNECT	
Type:	Configuration
Format:	AT [cmds] Y*n* [cmds]
Description:	Commands the modem to disconnect after a 1.6 second break is detected

Command	Function
í Y0	Default is profile 0 setting
Y1	Default is profile 1 setting
Y2	Generic template (&F0)
Y3	Hardware flow control (&F1)
Y4	Software flow control (&F2)

SOFT RESET	
Type:	Immediate
Format:	AT [cmds] Z*n* [cmds]
Description:	Restores modem profiles previously saved in non-volatile RAM using the &W command.

Command	Function
Z0	Restore setting selected by Y command
Z1	Restore setting 0
Z2	Restore setting 1
Z3	Restore to factory default profile 0 (&F0)
Z4	Restore to factory default profile 1 (&F1)
Z5	Restore to factory default profile 2 (&F2)

AUTO-ANSWER - ORIGINATE/ANSWER	
Type:	Configuration
Format:	AT [cmds] &A*n* [cmds]
Description:	Selects originate or answer mode when in Auto-Answer mode

Command	Function
&A0	ARQ result codes disabled
&A1	ARQ result codes enabled
&A2	V-modulation indicator added
&A3	Protocol indicators added

SERIAL PORT RATE	
Type:	Configuration
Format:	AT [cmds] &B*n* [cmds]
Description:	Selects fixed or variable serial port rate

Command	Function
&B0	Variable , follows connection rate
í &B1	Fixed serial port rate
&B2	Fixed in ARQ mode, variable in non-ARQ mode

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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**
&F0	Generic template
&F1	Hardware flow control template
&F2	Software flow control template

TRANSMIT DATA FLOW CONTROL	
Type:	Configuration
Format:	AT [cmds] &H [cmds]
Description:	Sets transmit data flow control
Command	**Function**
&H0	Generic template
í &H1	Hardware flow control template
&H2	Software flow control template
&H3	Hardware and software flow control templates

RECEIVE DATA SOFWARE FLOW CONTROL	
Type:	Configuration
Format:	AT [cmds] &I [cmds]
Description:	Sets transmit data flow control
Command	**Function**
í &I0	Software flow control
&I1	XON/XOFF signals to your modem and remote system
&I2	XON/XOFF signals to your modem only

FLOW CONTROL	
Type:	Configuration
Format:	AT [cmds] &K*n* [cmds]
Description:	Enables flow control options
Command	**Function**
&K0	Flow control disabled
í &K1	Auto enable/disable
&K2	XON/XOFF flow control enabled
&K3	MNP5 compression disabled

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COMMUNICATIONS MODE	
Type:	Configuration

Format:	AT [cmds] &M*n* [cmds]	
Description:	Selects communications mode	
Command	**Mode**	
&M0	Normal mode, error control disabled	
&M1	Reserved	
&M2	Reserved	
&M3	Reserved	
í &M4	Normal/ARQ	
&M5	ARQ mode	

CONNECTION SPEED UPPER LIMIT	
Type:	Configuration
Format:	AT [cmds] &N*n* [cmds]
Description:	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.

PULSE DIALING RATIO	
Type:	Configuration
Format:	AT [cmds] &P*n* [cmds]
Description:	Selects pulse dial make/break ratio

Command	**Function**
í &P0	39/61ms at 10pps (North America)
&P1	33/67ms at 10pps (Europe)

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RTS/CTS	
Type:	Configuration
Format:	AT [cmds] &R*n* [cmds]
Description:	Selects RTS/CTS options

Command	Function
&R0	Reserved
&R1	Modem ignores RTS.
&R2	Received Data on computer only on RTS

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

CONNECTION SPEED LOWER LIMIT	
Type:	Configuration
Format:	AT [cmds] &U*n* [cmds]
Description:	Sets slowest allowed connection speed if &N is set to 1 or higher.
Command	**Function**
í&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 maximum connect speed to 33.6Kbps.

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RESTORE PROFILE ON POWER-UP	
Type:	Configuration
Format:	AT [cmds] &Y*n* [cmds]
Description:	Restores a selected profile into the active profile on power-up (hard reset)
Command	**Function**
&Y0	Destructive, doesn't send break
&Y1	Destructive, expedited

&Y2	Nondestructive, expedited
&Y3	Reserved

S(STATUS) -REGISTERS

BIT-MAPPED REGISTER S13		
Format:	AT [cmds] S13=*n* [cmds]	
Range:	0-174	
Unit:	Bit-mapped	
Description:	Controls reset, dial mode	
Bit	Value	Function
0	0	Unidentified
	1	Resets when DTR drops
1	0	Unidentified
	í 1	Resets non-MNP transmit buffer from 1.5K to 128bytes
2	0	Unidentified
	1	Sets backspace key to delete
3	0	Unidentified
	1	On DTR signal, auto dials number stared at NVRAM position 0
4	0	Unidentified
	1	At power on/reset, auto dials number stared at NVRAM position 0
5	0	Reserved
6	0	Reserved
7	0	Unidentified
	1	Disconnect on escape code

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BIT-MAPPED REGISTER S15		
Format:	AT [cmds] S15=*n* [cmds]	
Unit:	Bit-mapped	
Description:	Disable/Enable MNP	
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	Enable ARQ/MNP for V.32/V.32bis/V.32terbo
	1	Enable ARQ/MNP for V.32/V.32bis/V.32terbo

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	MNP compatibility
	1	MNP incompatibility
7	0	Enable V.42 operation
	1	Disable V.42 operation

TEST MODES		
Type:	Register	
Format:	AT [cmds] S16=*n* [cmds]	
Unit:	Bit-mapped	
Description:	Controls touch tone dialing test.	
Bit	**Value**	**Function**
0	0	Reserved
1	0	Touch tone dialing test not in progress
	1	Touch tone dialing test in progress
2-7	0	Reserved

INACTIVITY TIMER	
Type:	Register
Format	AT [cmds] S19=*n* [cmds]
Range:	0-255
Unit:	1 minute
Description:	Maximum duration of DTE and DCE inactivity allowed prior to initiating hang-up process.
Note: **S19=0 disables the timer and allows indefinite inactivity.**	

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BREAK LENGTH	
Type:	Register
Format	AT [cmds] S21=*n* [cmds]
Unit:	10ms
Description:	Sets duration of breaks sent from the modem to the computer
Note: Applies to MNP or V.42 mode only.	

FLOW CONTROL CHARACTER - XON	
Type:	Register
Format:	AT [cmds] S22=*n* [cmds]
Range:	0-255
Unit:	ASCII
Description:	Sets the character used to represent XON

FLOW CONTROL CHARACTER - XOFF	
Type:	Register
Format:	AT [cmds] S23=*n* [cmds]
Range:	0-255
Unit:	ASCII
Description:	Sets the character used to represent XOFF

BIT-MAPPED REGISTER S27		
Format	AT [cmds] S27=*n* [cmds]	
Range:	0-255	
Unit:	Bit-mapped	
Description:	Enables/disables modulation protocols	

Bit	Value	Function
0	0	Disable 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	Enable 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	Disable unencoded modulation in V.32 mode
	1	Enable unencoded modulation in V.32 mode
2	0	Enable V.32 modulation
	1	Disable V.32 modulation
3	0	Enable 2100Hz answer tone
	1	Disable 2100Hz answer tone
4	0	Disable V.23 fallback mode
	1	Enable V.23 fallback mode
5	0	Enable V.32bis mode
	1	Disable V.32bis mode
6	0	Enable V.42 selective reject
	1	Disable V.42 selective reject
7	0	Enable codes
	1	Disable codes and displays 900 code instead

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CONNECTION TIME	
Type:	Register
Format	AT [cmds] S28=*n* [cmds]
Range:	0-255
Unit:	.01 second
Description:	Sets V.32 duration

Command	Function
S28=0	Eliminates the V.32 answer tone for a faster connection
S28=8	Times are in .1 second
S328=255	Disable connections except V.32 at 9600bps

FALLBACK TIMER	
Type:	Register
Format	AT [cmds] S29=*n* [cmds]
Range:	0-255

Unit:	.01 second
Description:	Sets the duration of the V.21 answer mode fallback timer

VOLUME CONTROL	
Type:	Register
Format	AT [cmds] S31=n [cmds]
Range:	0-255
Description:	Sets volume control for speakerphone

BIT-MAPPED REGISTER S32		
Format:	AT [cmds] S32=n [cmds]	
Range:	0-255	
Description:	Select setup for 28.8 and higher speed modems	
Bit	Value	Function
0	0	Disable V.8 call indicate
	1	Enable V.8 call indicate
1	0	Disable V.8 mode
	1	Enable V.8 mode
2	0	Enable V.FC modulation
	1	Disable V.FC modulation
3	0	Enable V.34 modulation
	1	Disable V.34 modulation
4	0	Enable 33.6kbps modulation
	1	Disable 33.6kbps modulation
5-6	0	Reserved
	1	

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BIT-MAPPED REGISTER S33		
Format:	AT [cmds] S33=n [cmds]	
Range:	0-255	
Description:	Disable/enable data rates	
Bit	Value	Function
0	0	Enable 2400 symbol rate
	1	Disable 2400 symbol rate
1	0	Enable 2743 symbol rate
	1	Disable 2743 symbol rate
2	0	Enable 2800 symbol rate
		Disable 2800 symbol rate
3	0	Enable 3000 symbol rate
	1	Disable 3000 symbol rate
4	0	Enable 3200 symbol rate
	1	Disable 3200 symbol rate
5	0	Enable 3429 symbol rate
	1	Disable 3429 symbol rate
6	0	Reserved

| 7 | 0 | Enable shaping |
| | 1 | Disable shaping |

BIT-MAPPED REGISTER S34		
Format:	AT [cmds] S34=*n* [cmds]	
Range:	0-255	
Description:	Disable/enable trellis encoding	
Bit	**Value**	**Function**
0	0	Enable 8S-2D trellis encoding
	1	Disable 8S-2D trellis encoding
1	0	Enable 16S-4D trellis encoding
	1	Disable 16S-4D trellis encoding
2	0	Enable 32S-2D trellis encoding
	1	Disable 32S-2D trellis encoding
3	0	Enable 64S-4D trellis encoding
	1	Disable 64S-4D trellis encoding
4	0	Enable non-linear coding
	1	Disable non-linear coding
5	0	Enable TX level deviation
	1	Disable TX level deviation
6	0	Enable pre-emphasis
	1	Disable pre-emphasis
7	0	Enable pre-coding
	1	Disable pre-coding