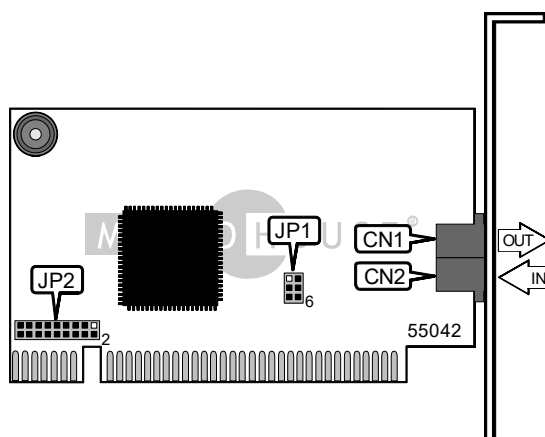


# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

<b>Card Type</b>	Modem, Fax
<b>Chip Set</b>	Unidentified
<b>I/O Options</b>	line in, line out
<b>Maximum Modem Rate</b>	56Kbps
<b>Maximum Fax Rate</b>	14.4Kbps
<b>Data Modulation Protocol</b>	Bell 103/212A
	ITU-T V.90, K56flex, V.21, V.22, V.23
<b>Fax Modulation Protocol</b>	Unidentified
<b>Error Correction/Compression</b>	MNP5, V.42, V.42bis
<b>Fax Class</b>	Unidentified
<b>Data Bus</b>	16-bit ISA
<b>Card Size</b>	Half-length, half-height card



CONNECTIONS			
Function	Label	Function	Label
Line out (RJ-11)	CN1	Line in (RJ-11)	CN2

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

INTERRUPT	
Setting	JP2
3	Pins 1 & 2 closed
4	Pins 3 & 4 closed
5	Pins 5 & 6 closed
7	Pins 7 & 8 closed
9	Pins 9 & 10 closed
10	Pins 11 & 12 closed
11	Pins 13 & 14 closed
12	Pins 15 & 16 closed
15	Pins 17 & 18 closed

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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SUPPORTED COMMAND SET	
Basic AT Commands	
AT, '+++', A/	
A, C, E, H, M, P, Q, T, W, Z	
&C, &G, &V, &Z	
Extended AT Commands	
\A, \B, \J, \K, \T, \X	
S Registers	
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S24, S30, S91, S92	
<b>Note:</b> See MHI Help File for full command documentation.	

## Proprietary AT Command Set

AUTO-MODE DETECTION	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Nn [cmds]
<b>Description:</b>	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	Auto-mode detection disabled
í N1	In originate mode, handshake begins at line speed designated by the S37 register. Modem can shift to a slower speed if necessary. In answer mode, handshake attempted with the following protocols in order - V.FC, V.32bis, V.32, V.22bis, V.22 or Bell 212, V.21, and Bell 103

AUXILIARY RELAY	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Jn [cmds]
<b>Description:</b>	Controls the auxiliary relay function.
Command	Function
&J0	Auxiliary relay never closed

COMMUNICATION PROTOCOLS	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Bn [cmds]
<b>Description:</b>	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 1200bps
B1	Bell 212A at 1200bps
B2	Unselect V.23 reverse channel
B3	Unselect V.23 reverse channel
B15	V.21 at 300bps
B16	Bell 103J at 300bps

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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COMMUNICATIONS MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Mn [cmds]
<b>Description:</b>	Selects communications mode
Command	Mode
í &M0	Asynchronous mode

COMMUNICATIONS MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Qn [cmds]
<b>Description:</b>	Selects communications mode options
Command	Mode
í &Q0	Asynchronous mode, serial port speed follows connect speed.
&Q1	Reserved
&Q2	Reserved
&Q3	Reserved
&Q4	Reserved
&Q5	Buffered error correction mode
&Q6	Buffered asynchronous mode
&Q7	Reserved
&Q8	MNP error control mode
&Q9	V.42 or MNP error control mode

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
í &S1	DSR high only while modem is handshaking or connected

DATA TERMINAL READY (DTR)	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Dn [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

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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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=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^	Disable data calling tone transmission
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\$	Wait for prompt tone detection function enabled. Waits for prompt tone for amount of time specified by the S7 command.
D;	Modem returned to idle state after dialing. The semicolon can only be placed at the end of the dial command.

ECHOPLEX VALIDITY	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Fn [cmds]
<b>Description:</b>	Selects whether commands sent while in data mode are echoed
Command	Function
F1	Echoplex disabled

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
Command	Function
i &F0	Recall factory setting as active configuration

FLOW CONTROL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Kn [cmds]
<b>Description:</b>	Enables flow control options
Command	Function
&K0	Flow control disabled
i &K3	RTS/CTS flow control enabled
&K4	XON/XOFF flow control enabled

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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LONG SPACE DISCONNECT	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Yn [cmds]
<b>Description:</b>	Commands the modem to disconnect after a 1.6 second break is detected
Command	Function
Y0	Long space disconnect function disabled

ON-LINE	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] On [cmds]
<b>Description:</b>	Controls on-line command (data transmission) state options.
Note: The O command must be placed at the end of the command string.	
Command	Function
O0	On-line command mode with no retraining enabled
O1	On-line command mode with retraining enabled
O3	Issue rate renegotiation before returning to online data mode

PULSE DIALING RATIO	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Pn [cmds]
<b>Description:</b>	Selects pulse dial make/break ratio
Command	Function
i &P0	39/61ms at 10pps (North America)
&P1	33/67ms at 10pps (Europe)
&P2	39/61ms at 20pps

REPORT INFORMATION	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] In [cmds]
<b>Description:</b>	Displays information requested
Command	Function
I0	Reports modem firmware revision number and speed
I1	Reports ROM checksum
I2	Tests and reports ROM checksum
I3	Reports the default speed and the controller firmware version
I4	Reports data pump firmware version
I5	Reports the board ID: software version, hardware version, and country ID
I6	Reports OK
I7	Reports OK
I8	Reports OK
I9	Reports country code
I11	Displays diagnostic information about the last connection

RESTORE PROFILE ON POWER-UP	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Yn [cmds]
<b>Description:</b>	Restores a selected profile into the active profile on power-up (hard reset)

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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RESULT CODE FORMAT	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Vn [cmds]
<b>Description:</b>	Selects word or numeric format for information-text and result codes
Command	Function
V1	Verbose (word) format enabled

SELECT CALL PROGRESS RESULT CODES	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] Xn [cmds]
<b>Description:</b>	Enables selection of tone detection and associated result code format options
Command	Function
X0	Busy and dial tone detection disabled; result codes 0 - 4 enabled.
X1	Busy and dial tone detection disabled; result codes 0 - 5 & 10 enabled.
X2	Busy tone detection disabled, dial tone detection enabled; result codes 0 - 6 & 10 enabled.
X3	Busy tone detection enabled, dial tone detection disabled; result codes 0 - 5, 7 & 10 enabled.
X4	Busy and dial tone detection enabled; result codes 0 - 7 & 10 enabled.
X5	Busy and dial tone detection enabled; result codes 0 - 7 & 10 enabled.
X6	Busy and dial tone detection enabled; result codes 0 - 7 & 10 enabled.
X7	Busy and dial tone detection enabled; result codes 0 - 7 & 10 disabled.

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

STORE ACTIVE PROFILE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Wn [cmds]
<b>Description:</b>	Writes the values for the active profile into the non-volatile RAM

TEST MODES	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] &Tn
<b>Description:</b>	Selects test options
Command	Function
&T0	End current test
&T1	Begin local analog loopback test
&T3	Begin local digital loopback
&T6	Request remote digital loopback

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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V.32 - AUTO-RETRAIN	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &B <i>n</i> [cmds]
<b>Description:</b>	Controls auto-retrain function if poor line quality is detected
Command	Function
&B1	Auto-retrain enabled if line quality is poor

## Extended Result Codes

BLACKLIST	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] %B [cmds]
<b>Description:</b>	View numbers in blacklist

COMPRESSION	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] %C <i>n</i> [cmds]
<b>Description:</b>	Selects data compression
Command	Function
%C0	Data compression disabled
%C1	V.42bis and MNP5 enabled

CONNECT MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \N <i>n</i> [cmds]
<b>Description:</b>	Controls the type of connection the modem will operate in
Command	Function
\N0	Normal mode enabled
\N1	Direct mode enabled
\N2	Reliable mode enabled
\N3	Auto-reliable mode enabled
\N4	V.42 reliable mode enabled
\N5	Auto-reliable mode enabled
\N7	Auto-reliable mode enabled

EXTENDED RESULT CODES	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \V <i>n</i> [cmds]
<b>Description:</b>	Selects extended result codes
Command	Function
\V0	Extended result codes disabled
\V1	Extended result codes enabled
\V2	Extended result codes enabled

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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FLOW CONTROL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Gn [cmds]
<b>Description:</b>	Selects modem port flow control
Note: Command performs no function; included for compatibility only.	

FLOW CONTROL TYPE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Qn [cmds]
<b>Description:</b>	Sets type of flow control used by modem
Command	Function
\Q0	Flow control disabled
\Q1	Bidirectional XON/XOFF flow control enabled
\Q3	Bidirectional RTS/CTS flow control enabled

RING INDICATOR	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Rn [cmds]
<b>Description:</b>	Controls the ring indicator signal
Command	Function
\R0	Ring indicator signal is off after the telephone call is answered

## Special Commands

DATA CALLING TONE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] -Cn [cmds]
<b>Description:</b>	Controls the data calling tone
Command	Function
-C0	Disable data calling tone
-C1	Enable data calling tone

LINE-TO-LINE LOOPBACK	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &&Ln [cmds]
<b>Description:</b>	Provides a loopback for line-to-line

WRITE TO/READ FROM REGISTER	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &&Cn [cmds]
<b>Description:</b>	Controls the write to/read from character

WRITE TO/READ FROMD DSP RAM LOCATION	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &&Rn [cmds]
<b>Description:</b>	Sets the write to/read from DSP RAM location

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### S(status) -REGISTERS

56K DIAL LINE RATE	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S38= <i>n</i> [cmds]
<b>Description:</b>	Sets the maximum allowable data exchange rate attempted during handshake process.
Command	Function
f S38=0	V.90 disabled
S38=1	Autorate
S38=2	29333bps
S38=3	30666bps
S38=4	32000bps
S38=5	33333bps
S38=6	34666bps
S38=7	36000bps
S38=8	37333bps
S38=9	38666bps
S38=10	40000bps
S38=11	41333bps
S38=12	42666bps
S38=13	44000bps
S38=14	45333bps
S38=15	46666bps
S38=16	48000bps
S38=17	49333bps
S38=18	50666bps
S38=19	52000bps
S38=20	53333bps

AUTO RATE	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S42= <i>n</i> [cmds]
<b>Description:</b>	Controls the auto rate
Command	Function
S42=0	Disabled
S42=1	Enabled

AUTOMODE	
<b>Format</b>	AT [cmds] S43= <i>n</i> [cmds]
<b>Default:</b>	1
<b>Range:</b>	0-1
<b>Description:</b>	This command used for testing and debugging only
Command	Function
S43=0	Automode disabled
S43=1	Automode enabled

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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BIT-MAPPED REGISTER S14		
<b>Format:</b>	AT [cmds] S14= <i>n</i> [cmds]	
<b>Default:</b>	8	
<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
3	0	Display result codes in numeric format
	1	Display result codes in verbose format
6	0	10 PPS
	1	20 PPS

BIT-MAPPED REGISTER S21		
<b>Format</b>	AT [cmds] S21= <i>n</i> [cmds]	
<b>Default:</b>	48	
<b>Range:</b>	Unidentified	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Indicates the status of command options	
Bit	Value	Function
4, 3	0	Modem does not respond to DTR
	1	Modem goes to command mode after DTR goes is off
	2	Modem goes to command mode and disconnects (hangs up) after DTR goes off; Auto-Answer is disabled.
	3	Modem is initialized after DTR goes off
5	0	Data compression disabled
	1	V.42bis and MNP5 enabled

BIT-MAPPED REGISTER S22		
<b>Format</b>	AT [cmds] S22= <i>n</i> [cmds]	
<b>Default:</b>	Unidentified	
<b>Range:</b>	0-255	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Indicates the status of command options	
Bit	Value	Function
6 - 4	0	Busy and dial tone detection disabled; result codes 0 - 4 enabled.
	4	Busy and dial tone detection disabled; result codes 0 - 5 & 10 enabled.
	5	Busy tone detection disabled, dial tone detection enabled; result codes 0 - 6 & 10 enabled
	6	Busy tone detection enabled, dial tone detection disabled; result codes 0 - 5, 7 & 10 enabled.
	7	Busy and dial tone detection enabled; result codes 0 - 7 & 10 enabled.
7	0	39/61ms at 10pps (North America)
	1	33/67ms at 10pps (Europe)

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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BIT-MAPPED REGISTER S28	
<b>Format</b>	AT [cmds] S28= <i>n</i> [cmds]
<b>Default:</b>	unidentified
<b>Range:</b>	0-31
<b>Unit:</b>	Bit-mapped
<b>Description:</b>	Controls V.23 split speed, transmit/receive speed, half duplex; and pulse dialing.
Value	Function
0	Disable
1-255	Enable

BIT-MAPPED REGISTER S40	
<b>Format</b>	AT [cmds] S40= <i>n</i> [cmds]
<b>Default:</b>	0
<b>Range:</b>	0-2
<b>Unit:</b>	Bit-mapped
<b>Description:</b>	Controls ETC startup autorating
Command	Function
f S40=0	Startup with normal autorating
S40=1	Startup with initial rate of 4800 or below
S40=2	Startup with initial rate of 9600 or below

DATA CALLING TONE	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S35 <i>n</i> [cmds]
<b>Description:</b>	Controls the data calling tone
Command	Function
S35=0	Disabled
S35=1	Enabled

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# ACTIONTEC ELECTRONICS, INC.

## DESKVOICE V.90

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DCE LINE SPEED	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S37= <i>n</i> [cmds]
<b>Description:</b>	Sets the maximum allowable data exchange rate attempted during handshake process.
Command	Function
í S37=0	Maximum modem
S37=1	Reserved
S37=2	1200/75bps
S37=3	300bps
S37=4	Reserved
S37=5	1200bps
S37=6	2400bps
S37=7	4800bps
S37=8	7200bps
S37=9	9600bps
S37=10	12000bps
S37=11	14400bps
S37=12	16800bps
S37=13	19200bps
S37=14	21600bps
S37=15	24000bps
S37=16	26400bps
S37=17	28800bps
S37=18	31200bps
S37=19	33600bps

FEATURE NEGOTIATION OPTIONS	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S48= <i>n</i> [cmds]
<b>Description:</b>	Selects active error correction and compression protocols
Command	Function
í S48=7	Detection negotiation and XID negotiation enabled
S48=128	Fall-back to options set in S36

K56FLEX AND V.90 SELECTION	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S109= <i>n</i> [cmds]
<b>Description:</b>	Controls the K56flex/V.90 protocols
Command	Function
S109=0	Disable all 56K connection
í S109=1	K56flex first, then V.90
S109=2	V.90 only. K56flex disabled

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## DESKVOICE V.90

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LOCAL PHONE STATUS	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S90= <i>n</i> [cmds]
<b>Description:</b>	Sets the status of the local phone
Command	Function
i S90=0	Local phone on-hook
S90=1	Local phone off-hook

NEGOTIATION FALLBACK	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S36= <i>n</i> [cmds]
<b>Description:</b>	Controls the negotiation fallback
Command	Function
S36=0, 2	Hang up
S36=1, 3	Attempt a direct connection
S36=4, 6	Attempt a connection at MNP2-4; if that fails, hang up.
S36=5, 7	Attempt a connection at MNP2-4; if that fails, attempt a direct connection.

SLEEP MODE	
<b>Type:</b>	Register
<b>Format</b>	AT [cmds] S89 <i>n</i> [cmds]
<b>Default:</b>	10
<b>Range:</b>	0, 5-255
<b>Description:</b>	Controls the sleep mode timer

SYNTHETIC RING FREQUENCY	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S33= <i>n</i> [cmds]
<b>Default:</b>	0
<b>Range:</b>	0-5
<b>Unit:</b>	Unidentified
<b>Description:</b>	Specifies a synthetic ring frequency

SYNTHETIC RING VOLUME	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S32= <i>n</i> [cmds]
<b>Default:</b>	16
<b>Range:</b>	Unidentified
<b>Unit:</b>	dB
<b>Description:</b>	Specifies a synthetic ring volume with implied minus sign