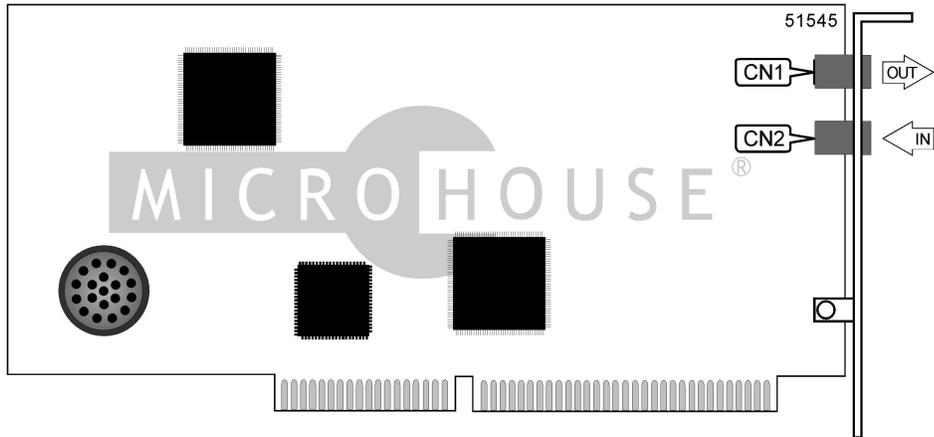


PURE DATA, LTD.  
SATISFAXTION MODEM/400G

<b>Modem Type</b>	Data (synchronous/asynchronous)/Fax
<b>Maximum Data Rate</b>	14.4Kbps
<b>Maximum Fax Rate</b>	14.4Kbps
<b>Data Bus</b>	16-bit ISA
<b>Fax Class</b>	Class I
<b>Data Modulation Protocol</b>	Bell 103A/212A ITU-T V.21, V.22, V.22bis, V.23, V.32, V.32bis
<b>Fax Modulation Protocol</b>	ITU-T V.17, V.21CH2, V.27ter, V.29
<b>Error Correction/Compression</b>	MNP5, V.42, V.42bis



CONNECTIONS			
Purpos	Location	Purpos	Location
Line out	CN1	Line in	CN2

SUPPORTED COMMAND SET
<b>Basic AT Commands</b>
AT, '+++', 'comma', A/
A, B, E, H, L, Q, V, Y, Z
&D, &F, &G, &M, &R, &V, &W, &X, &Y, &Z
<b>Extended AT Commands</b>
\A, \B, \C, \G, \J, \K, \O, \Q, \T, \U, \X, \Y, \Z
%A, %C, %E
<b>S Registers</b>
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S16, S18, S25, S26
<b>Special Commands</b>
"H, "O, -J
<b>Note:</b> See MHI Help File for full command documentation.

Continued on next page . . .

## Proprietary AT Command Set

ACCEPT RELIABLE MODE	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] \U [cmds]
<b>Example:</b>	AT \U B1<CR>
<b>Description:</b>	Accepts remote modem's request for reliable link.

AUTO-RELIABLE FALLBACK CHARACTER	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] %An [cmds]
<b>Example:</b>	AT%A20<CR>
<b>Default:</b>	13
<b>Range:</b>	0-127
<b>Unit:</b>	ASCII
<b>Description:</b>	Sets the character used as the auto-reliable fallback character. %A0 will disable this function.

AUTO-RELIABLE TIME BUFFER CONFIGURATION	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Cn [cmds]
<b>Example:</b>	AT \C1 &W<CR>
<b>Description:</b>	Controls the handling of incoming data during auto-reliable time period.
<b>Command</b>	<b>Function</b>
i \CO	Data is discarded.
\C1	Data is buffered.
\C2	Data is discarded, sets to normal mode and sends auto-reliable character to serial port.

AUTO-RETRAIN	
<b>Type:</b>	Configuration
<b>Format:</b>	AT %En
<b>Example:</b>	AT %E1 <CR>
<b>Description:</b>	Selects auto-retrain mode.
<b>Command</b>	<b>Function</b>
%E0	Auto-retrain disabled.
i %E1	Auto-retrain enabled.
%E2	Auto-retrain enabled (V.32bis compatibility).

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BIT-MAPPED REGISTER S14		
<b>Format</b>	AT [cmds] S14= <i>n</i> [cmds]	
<b>Example:</b>	ATS14=138<CR>	
<b>Default:</b>	138	
<b>Range:</b>	0-174	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Controls echo, result codes, result code display, dial mode, and answer/originate mode.	
Bit	Value	Function
0	0	Not used.
1	0	Command echo disabled.
	1	Command echo enabled.
2	0	Result codes enabled.
	1	Result codes disabled.
3	0	Display result codes in numeric format.
	1	Display result codes in verbose format.
4	0	Not used.
5	0	Tone dial enabled.
	1	Pulse dial enabled.
6	0	Not used.
7	0	Answer mode enabled.
	1	Originate mode enabled.

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BIT-MAPPED REGISTER S21		
<b>Format</b>	AT [cmds] S21= <i>n</i> [cmds]	
<b>Example:</b>	ATS21=48<CR>	
<b>Default:</b>	48	
<b>Range:</b>	0 - 253	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Selects CTS signal, low DTR action, DCD signal, DSR signal, and the Long Space Disconnect function.	
<b>Note:</b>	For bit 1 please see bits 1-3 of S23.	
Bit	Value	Function
0, 5	00	DCD forced high.
	i 01	DCD normal.
	10	DCD Unix compatibility.
1	i 0	Select serial speed option 1 (S23)
	1	Select serial speed option 2 (S23)
2	i 0	CTS follows RTS.
	1	CTS forced high.
4, 3	00	DTR signal ignored.
	01	Modem goes to command mode on low DTR.
	i 10	Modem disconnects on low DTR. Auto-Answer is disabled.
	11	Modem is initialized on low DTR.
6	i 0	DSR forced high.
	1	DSR normal.
7	i 0	Long Space Disconnect function disabled.
	1	Long Space Disconnect function enabled.

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BIT-MAPPED REGISTER S22		
<b>Format</b>	AT [cmds] S22= <i>n</i> [cmds]	
<b>Example:</b>	ATS22=118<CR>	
<b>Default:</b>	118	
<b>Range:</b>	0-255	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Controls speaker volume and controls, and limits results codes.	
Bit	Value	Function
1, 0	00	Very low volume.
	01	Low volume.
	i 10	Medium level volume.
	11	High level volume.
3, 2	00	Speaker off.
	i 01	Speaker off on carrier.
	10	Speaker always on.
	11	Speaker on during handshake.
6, 5, 4	000	Busy and dialtone detection disabled, result codes 0-4 enabled.
	011	Busy and dialtone detection enabled, result codes 0-4, 6, 7 enabled.
	100	Busy and dialtone detection disabled, result codes 0-5, 9-20 enabled.
	101	Busy tone detection disabled, dialtone detection and result codes 0-6, 9-20 enabled.
	110	Busy tone detection and result codes 0-5, 7, 9-20 enabled, dialtone detection disabled.
i 111	Busy and dialtone detection enabled, result codes 0-7, 9-20 enabled.	
7	i 0	Pulse dialing at 39/61ms at 10pps.
	1	Pulse dialing at 33/67ms at 10pps.

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BIT-MAPPED REGISTER S23		
<b>Format</b>	AT [cmds] S23= <i>n</i> [cmds]	
<b>Example:</b>	ATS23=11<CR>	
<b>Default:</b>	11	
<b>Range:</b>	0-255	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Grants/denies remote digital loopback, controls DTE rate and parity, and sets guard tone.	
<b>Note:</b>	Bits 1-3 are set by bit 1 in S21.	
Bit	Value	Function
0	0	Remote digital loopback denied.
	i 1	Remote digital loopback allowed.
3, 2, 1	<b>Option 1</b>	
	000	Sets serial port speed to 0-300bps.
	001	Sets serial port speed to 1200bps.
	010	Sets serial port speed to 2400bps.
	011	Sets serial port speed to 4800bps.
	i 101	Sets serial port speed to 9600bps.
	110	Sets serial port speed to 19200bps.
	111	Sets serial port speed to 38400bps.
<b>Option 2</b>		
		Sets serial port speed to 12Kbps.
		Sets serial port speed to 14.4Kbps.
		Sets serial port speed to 57.6Kbps.
		Sets serial port speed to 76.8Kbps.
		Sets serial port speed to 115.2Kbps.
5,4	i 00	Parity even.
	01	No Parity.
	10	Parity odd.
	11	Mark Parity
7, 6	i 00	Guard tone disabled.
	01	Guard tone 550Hz enabled.
	10	Guard tone 1800Hz enabled.

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BIT-MAPPED REGISTER S27		
<b>Format:</b>	AT [cmds] S27= <i>n</i> [cmds]	
<b>Example:</b>	AT S27=9 <CR>	
<b>Default:</b>	64	
<b>Range:</b>	0 - 127	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Selects synchronous/asynchronous mode, line type, V.25 answer tone, internal clock, and ITU-T/Bell modes.	
Bit	Value	Function
1, 0	i 00	Asynchronous mode, serial port speed follows connect speed.
	01	Asynchronous command mode and synchronous connect mode.
	10	Asynchronous command mode and synchronous connect mode, DTR dialing enabled.
	11	Asynchronous command mode on low DTR, synchronous connect mode on high DTR.
7, 2	i 00	Dial up line.
	01	Leased line.
	11	Leased line autoconnect.
3	0	No delay when answering a call, used in US for answering domestic calls.
	1	2 second delay prior to V.25 answer tone, used in US for answering international calls.
5, 4	i 00	Internal DCE transmit clock source.
	01	External DTE transmit clock source.
	10	Remote DCE transmit clock source.
6	0	CCITT mode.
	i 1	Bell mode.

BREAK SEND	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \B <i>n</i> [cmds]
<b>Example:</b>	AT \B3 &W<CR>
<b>Default:</b>	3
<b>Range:</b>	1-9
<b>Unit:</b>	.1 second
<b>Description:</b>	Sends break to modem.

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BREAK TYPE			
<b>Type:</b>		Configuration	
<b>Format:</b>		AT [cmds] \K <i>n</i> [cmds]	
<b>Example:</b>		AT \K1 <CR>	
<b>Description:</b>		Configures action of break signal.	
Command	Break from DTE	Modem receives IB	Break received from remote modem
\K0	Online command mode enabled, send no break to remote modem.	Break sent to remote modem and buffered cleared.	Buffers cleared, break sent to DTE.
\K1	Break sent to remote modem and buffered cleared.	Break sent to remote modem and buffered cleared.	Buffers cleared, break sent to DTE.
\K2	Online command mode enabled, send no break to remote modem.	Send break to remote modem immediately.	Break sent immediately to DTE.
\K3	Send break to remote modem immediately.	Send break to remote modem immediately.	Break sent immediately to DTE.
\K4	Online command mode enabled, send no break to remote modem.	Send break with transmitted data.	Break sent with received data to the DTE.
i \K5	Send break with transmitted data.	Send break with transmitted data.	Break sent with received data to the DTE.

BUFFER SIZE	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S29= <i>n</i> [cmds]
<b>Example:</b>	ATS29=6<CR>
<b>Default:</b>	255
<b>Range:</b>	0-255
<b>Unit:</b>	2 bytes (1 word)
<b>Description:</b>	Selects the size of the send/receive buffer.
<b>Note:</b>	S29=255 sets the buffer size to 1024 bytes.

COMMUNICATIONS MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] &Q <i>n</i> [cmds]
<b>Description:</b>	Selects communications mode options
Command	Mode
i &Q0	Asynchronous mode, serial port speed follows connect speed.
&Q1	Asynchronous off-line command mode and synchronous connect mode.
&Q2	Asynchronous off-line command mode - modem autodial first number in directory, then synchronous connect mode.
&Q3	Asynchronous off-line command mode on low DTR, synchronous connect mode on high DTR.

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COMPRESSION	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] %C <i>n</i> [cmds]
<b>Example:</b>	AT *EC0 %C1 *AP0<CR>
<b>Description:</b>	Selects data compression.
Command	Function
%C0	Data compression disabled.
i %C1	Data compression enabled.

CONNECT MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \N <i>n</i> [cmds]
<b>Example:</b>	AT \N1 DT555-1212<CR>
<b>Description:</b>	Sets connect mode.
Command	Function
\N0	Normal mode enabled.
\N1	Diagnostic mode enabled.
\N2	Reliable mode enabled.
i \N3	Auto-reliable mode enabled.
\N4	LAPM mode enabled.

CONVERT TO RELIABLE MODE	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] \Y [cmds]
<b>Example:</b>	AT \Y<CR>
<b>Description:</b>	Initiates reliable mode link.

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

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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
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.

EXTENDED RESULT CODES	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Vn [cmds]
<b>Description:</b>	Selects modem port flow control.
Command	Function
\V0	Extended result codes disabled.
\V1	Extended result codes enabled.

FLOW CONTROL TYPE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Qn [cmds]
<b>Example:</b>	AT \Q0 A <CR>
<b>Description:</b>	Sets type of flow control used by modem.
Command	Function
\Q0	Flow control disabled.
\Q1	XON/XOFF flow control enabled.
\Q2	CTS flow control to DTE enabled.
¡\Q3	RTS/CTS flow control enabled.

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HANDSHAKE TIMING	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] "Sn [cmds]
<b>Example:</b>	AT "S0 &W<CR>
<b>Description:</b>	Controls the time the modem waits before handshake-responding to remote modem.
Command	Function
i "S0	Modem waits 3 seconds after receiving handshake tone then responds to remote modem.
"S1	Modem waits 1.6 seconds after receiving handshake tone then responds to remote modem.
"S2	Same as "S0, then performs fast handshaking with V.32/32bis modems.
"S3	Same as "S1, then performs fast handshaking with V.32/32bis modems.

INACTIVITY TIMER	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] \Tn [cmds]
<b>Example:</b>	ATIT20<CR>
<b>Default:</b>	0
<b>Range:</b>	0-90
<b>Unit:</b>	1 minute
<b>Description:</b>	Sets the length of time that the modem does not receive information before it disconnects.

LOCK SERIAL PORT	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Jn [cmds]
<b>Example:</b>	AT %L3 %B14 \J0<CR>
<b>Description:</b>	Sets operation of serial port speed.
Command	Function
i \J0	Serial speed locked.
\J1	Serial speed follows connect speed.

MAXIMUM BLOCK SIZE FOR TRANSMISSION	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \An [cmds]
<b>Example:</b>	AT \A3 &MB28800<CR>
<b>Description:</b>	Sets the maximum transmittable block size.
Command	Function
\A0	Maximum MNP block size is 64 characters.
\A1	Maximum MNP block size is 128 characters.
\A2	Maximum MNP block size is 192 characters.
i \A3	Maximum MNP block size is 256 characters.

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ON-LINE	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] On [cmds]
<b>Description:</b>	Controls on-line command (data transmission) state options.
<b>Note:</b>	The O command must be placed at the end of the command string.
Command	Function
O0	Return to on-line command mode.
O1	Return to on-line command mode with retraining enabled.
O2	Fall back, return to online command mode.
O3	Fall forward, return to online command mode.

ON-LINE IN RELIABLE MODE	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] \O
<b>Example:</b>	AT \O <CR>
<b>Description:</b>	Returns to on-line and requests reliable mode connection.

PROTOCOL/SPEED	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S31= <i>n</i> [cmds]
<b>Example:</b>	AT S31=10 <CR>
<b>Description:</b>	Selects the current DCE speed.
Command	Function
i S37=0	Select last ATspeed.
S37=3	Select 300bps speed.
S37=5	Select 1200bps speed.
S37=6	Select 2400bps speed.
S37=7	Select 4800bps speed.
S37=8	Select 7200bps speed.
S37=9	Select 9600bps speed.
S37=10	Select 12Kbps speed.
S37=11	Select 14.4Kbps speed.

REPORT INFORMATION	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] In [cmds]
<b>Description:</b>	Displays information requested
Command	Function
I0	Reports modem model and speed
I1	Reports ROM checksum
I2	Tests and reports ROM checksum
I3	Reports manufacturer and model information
I4	Reports data connection information

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RETRAIN COUNTER	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S30= <i>n</i> [cmds]
<b>Example:</b>	ATS30=6<CR>
<b>Default:</b>	0
<b>Range:</b>	0-255
<b>Unit:</b>	1 retrain
<b>Description:</b>	Counts the number of times the modem attempted to retrain since power-up.

SELECT CALL PROGRESS RESULT CODES	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] X <i>n</i> [cmds]
<b>Description:</b>	Enables selection of tone detection and associated result code format options
<b>Command</b>	<b>Function</b>
X0	Busy and dial tone detection disabled; result codes 0 - 4 enabled.
X1	Busy and dial tone detection disabled; result codes 0 - 5 & 9 - 20 enabled.
X2	Busy tone detection disabled, dial tone detection enabled; result codes 0 - 6 & 9 - 20 enabled.
X3	Busy tone detection enabled, dial tone detection disabled; result codes 0 - 5, 7 & 9 - 20 enabled.
i X4	Busy and dial tone detection enabled; result codes 0 - 7 & 9 - 20 enabled.
X5	Busy and dial tone detection enabled; result codes 0, 4, 6 & 7 enabled.

SPEAKER MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] M <i>n</i> [cmds]
<b>Description:</b>	Selects various speaker options
<b>Command</b>	<b>Function</b>
M0	Speaker disabled
i M1	Speaker enabled until carrier signal detected
M2	Speaker enabled
M3	Speaker enabled following dialing, then disabled after carrier signal detected.
M4	Speaker enabled until carrier signal detected, on during retrain.
M5	Speaker enabled following dialing, then disabled after carrier signal detected, on during retrain.

SWITCH TO MNP MODE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Z [cmds]
<b>Example:</b>	AT \Z &W<CR>
<b>Description:</b>	Switches to normal mode from MNP mode.

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TEST MODES		
<b>Format:</b>	AT [cmds] S16= <i>n</i> [cmds]	
<b>Example:</b>	ATS16=40<CR>	
<b>Default:</b>	0	
<b>Range:</b>	0-125	
<b>Unit:</b>	Bit-mapped	
<b>Description:</b>	Controls loopback tests, analog, digital, remote digital, and self tests.	
Bit	Value	Function
0	i 0	Local analog loopback not in progress.
	1	Local analog loopback in progress.
1	0	Not used.
2	i 0	Local digital loopback not in progress.
	1	Local digital loopback in progress.
3	i 0	Modem not in remote digital loopback.
	1	Remote digital loopback in progress.
4	i 0	Remote digital loopback not requested.
	1	Remote digital loopback requested.
5	i 0	Remote digital loopback w/ self-test not in progress.
	1	Remote digital loopback w/ self-test in progress.
6	i 0	Local analog loopback w/ self-test not in progress.
	1	Local analog loopback w/ self-test in progress.

TEST MODES		
<b>Type:</b>	Immediate	
<b>Format:</b>	AT [cmds] &T <i>n</i>	
<b>Description:</b>	Selects test options	
Command	Function	
&T0	End current test	
&T1	End current test	
&T8	Begin local analog loopback and self-test	

TIMED MNP RELIABLE CONNECTION	
<b>Type:</b>	Register
<b>Format:</b>	AT [cmds] S28= <i>n</i> [cmds]
<b>Example:</b>	ATS28=8<CR>
<b>Default:</b>	8
<b>Range:</b>	0-255
<b>Unit:</b>	1 second
<b>Description:</b>	Controls the time the modem takes to make a MNP reliable connection, if the threshold is exceeded the modem falls back to a normal connection.
<b>Note:</b>	S28=0 sets the factory default, 8 seconds. S28=(1-4) causes the modem to make a normal connection.

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V.42 DETECTION PHASE	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] -Jn [cmds]
<b>Example:</b>	AT -J1 &W<CR>
<b>Description:</b>	Controls V.42 detection.
Command	Function
-J0	V.42 detection disabled.
i -J1	V.42 detection enabled.

V.42bis COMPRESSION CONTROL	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] "Hn [cmds]
<b>Example:</b>	AT "H3 &W<CR>
<b>Description:</b>	Controls V.42bis data compression
Command	Function
"H0	V.42bis disabled.
"H1	V.42bis when transmitting enabled.
"H2	V.42bis when receiving enabled.
i "H3	V.42bis when transmitting/receiving enabled.

V.42bis MAXIMUM STRING LENGTH	
<b>Type:</b>	Immediate
<b>Format:</b>	AT [cmds] "O=n [cmds]
<b>Example:</b>	AT "O=32 <CR>
<b>Default:</b>	250
<b>Range:</b>	6 - 250
<b>Unit:</b>	Unidentified
<b>Description:</b>	Selects string size for V.42bis compression.

XON/XOFF PASS-THROUGH	
<b>Type:</b>	Configuration
<b>Format:</b>	AT [cmds] \Xn [cmds]
<b>Example:</b>	AT \X0<CR>
<b>Description:</b>	Selects whether XON/XOFF signals are sent to remote modem.
Command	Function
i \X0	XON/XOFF signals trapped by local modem.
\X1	XON/XOFF passed through local modem.