

Rockwell V.32/V.32bis AT Command Set Reference Revision Date : 27 Dec 95 Basic AT Commands A/ Repeat Last Command A Answer Bn CCITT or Bell Modulation B0 Selects CCITT operation at 300 or 1200 bps B1 Selects BELL operation at 300 or 1200 bps (Default) Dn Dial Punctuation characters may be used for clarity, with parentheses, hyphen, and spaces being ignored 0-9 DTMF digits 0 to 9 \* The "star" digit (tone only) # The "gate" digit (tone only) A-D DTMF digits A, B, C, & D L Re-dial last number P Select pulse dialing T Select tone dialing R Wait 10 seconds after dialing then go into answer mode; must be at end S=n Dial number stored in directory (n = 0 to 19). (See &Z) ! Flash W Wait for dial tone @ Wait for 5 sec silence , Dial pause (see S8) ; Return to command state; must be at end ^ Enable calling tone > Grounding pulse En Command Echo E0 Disables command echo. E1 Enables command echo. (Default) Fn Select Line Modulation F0 Selects auto-detect mode (Default) F1 Selects V.21 or Bell 103 according to the "B" setting F3 Selects V.23 as the only acceptable line modulation for a subsequent connection. Originator is at 75 bps and answerer is at 1200 bps F4 Selects V.22 1200 bps or Bell 212A according to "B" F5 Selects V.22bis as the only acceptable line modulation F6 Select V.32bis 4800 bps or V.32 4800 bps as the only acceptable line modulation F7 Selects V.32bis 7200 bps as only acceptable modulation F8 Selects V.32bis 9600 bps or V.32 9600 bps as the only acceptable line modulation F9 Selects V.32bis 12000 bps as only acceptable modulation F10 Selects V.32bis 14400 bps as only acceptable Hn Disconnect (Hangup) H0 Release line if on-line H1 If on-hook, go off-hook and enter command mode for period of time determined by S7 In Identification I0 Reports product code. I1 Reports ROM checksum I2 Responds OK I3 Reports firmware revision I4 Reports modem identifier Mfr=U. S. Robotics CmdSet=Pilot1 Mod=V.32bis Fax=1, 2 EC/DC=V.42bis, MNP5 I5 Reports Country Code I6 Reports modem data pump model and internal code revision Ln Speaker Volume L0 No real control L1 (the actual default) L2 no matter which of L3 these is selected Mn Speaker Control M0 Speaker is always off. M1 On during call establishment, but off when receiving carrier. (Default) M2 Speaker always on. M3 Speaker off when receiving carrier and during dialing, but on during answering Nn Automode Enable N0 Detection disabled N1 Detection enabled (same as F0) (Default) On Return to OnLine Data Mode O0 Enters without a retrain O1 Enters with a retrain P Set Pulse Dial Default Qn Quiet Results Codes Control Q0 Enables result codes to the DTE. (Default) Q1 Disables result codes Sn Read/Write S Registers: n=v Sets S Register "n" to the value "v" n? Reports the value of S Register "n" T Set Tone Dial (Default) Vn Result Code Form V0 Enables terse result codes. Line feed is not issued V1 Verbose result codes. (Default) Wn Error Correction Message Control W0 Upon connection, the modem reports only the DTE speed (e.g, CONNECT 9600) W1 Upon connection, the modem reports the line speed, the error correction protocol, and the DTE speed, respectively W2 Upon connection, the modem reports the DCE speed (e.g, CONNECT 2400) (Default) Xn Extended Result Codes X0 Disables BUSY, NO DIALTONE, & CONNECT speed X1 Disables BUSY & NO DIALTONE X2 Disables BUSY X3 Disables NO DIALTONE X4 Send all messages (Default) Yn Long Space Disconnect Y0 Disabled (Default) Y1 Enabled Zn Soft Reset & Restore Profile Z0 Soft reset and restore stored profile 0. Z1 Soft reset and restore stored profile 1. AT& COMMANDS: &Cn RLSD (DCD) Option &C0 RLSD remains ON at all times &C1 RLSD follows the state of the carrier (Default) &Dn DTR Option &D0 DTR drop is interpreted according to the current &Q setting as follows &Q0,5,6 DTR is ignored (assumed ON). Allows operation with DTE's which don't provide DTR. &Q1,4 DTR drop causes the modem to hang up. Auto-answer is not affected. &Q2,3 DTR drop causes the modem to hang up. Auto-answer is inhibited. &D1 DTR drop is

interpreted according to the current &Q setting as follows: &Q0,1,4,5,6 DTR drop is interpreted by the modem as if the asynchronous escape sequence had been entered. The modem returns to asynchronous command state without disconnecting. &Q2,3 DTR drop causes the modem to hang up. Auto-answer is inhibited. &D2 DTR drop is interpreted according to the current &Q setting as follows: (Default) &Q0..6 DTR drop causes the modem to hang up. Auto-answer is inhibited. &D3 DTR drop is interpreted according to the current &Q setting as follows: &Q0,1,4,5,6 DTR drop causes the modem to perform a soft reset as if the "Z" command were received. The &Y setting determines which profile is loaded. &Q2,3 DTR drop causes the modem to hang up. Auto-answer is inhibited. &Fn Restore Factory Configuration (Profile) &F0 Restore factory configuration 0 &F1 Restore factory configuration 1 &Gn Select Guard Tone &G0 Disables Guard Tone. Default. &G1 Disables Guard Tone. &G2 Selects 1800 Hz guard tone. &Kn Flow Control &K0 Disables flow control. &K3 Enables RTS/CTS flow control. (default for data modem modes) &K4 Enables XON/XOFF flow control. &K5 Enables transparent XON/XOFF flow control. &K6 Enables both RTS/CTS and XON/XOFF flow control. &Mn Asynchronous Mode Selection &M0 Selects direct asynch operation (See &Q) &Qn Sync/Async Mode &Q0 Selects direct asynchronous operation (See &M0) &Q4 Select AutoSync operation. AutoSync operation, when used in conjunction with the Hayes Synchronous Interface (HSI) capability in the DTE, provides synchronous communication capability from an asynchronous terminal Starting AutoSync. Set registers S19, S20, and S25 to the desired values before selecting AutoSync operation with &Q4. After the CONNECT message is issued, the modem waits the period of time specified by S25 before examining DTR. If DTR is on, the modem enters the synchronous operating state; if DTR is off, the modem terminates the line connection and returns to the asynchronous command state. Stopping AutoSync. AutoSync operation is stopped upon loss of carrier or the ON-to-OFF transition of DTR. &Q5 The modem will try to negotiate an error-corrected link. Default &Q6 Selects asynchronous operation in normal mode (speed buffering). &Rn RTS/CTS Option &R0 In sync mode, CTS tracks the state of RTS; the RTS-to-CTS delay is defined by S26. In Async mode, CTS acts according to V.25bis handshake. &R1 In sync mode, CTS is always ON (RTS transitions are ignored). In Async, CTS will drop only if required by flow control. Default. &Sn DSR Override &S0 DSR will remain ON at all times. Default &S1 DSR will become active after answer tone has been detected and inactive after the carrier has been lost. &Tn Test and Diagnostics &V Display Current Configuration and Stored Profiles &Wn Store Current Configuration &W0 Store the current configuration as profile 0. &W1 Store the current configuration as profile 1. &Yn Designate a Default Reset Profile &Y0 The modem will use profile 0. &Y1 The modem will use profile 1. &Zn=x Store Telephone Number &Zn=x (n = 0 to 3, and x = dial string) (requires 256-byte NVRAM) AT% COMMANDS: %C - Enable/Disable Data Compression: %C0 Disables compression. %C1 Enables MNP 5 data compression negotiation. %C2 Enables V.42bis data compression %C3 Enables both V.42bis and MNP 5 data compression. Default %En Enable/Disable Line Quality Monitor & Auto-Retrain Fallback/Fall Forward: %E0 Disable line quality monitor and auto-retrain. Default. %E1 Enable line quality monitor and auto-retrain. %E2 Enable line quality monitor and fallback/fall forward. %E3 Enable line quality monitor and auto-retrain, but hang-up immediately when EQM reaches hang-up threshold. AKA Fast Hangup. %L-Line Signal Level: %Q - Line Signal Quality: %TTn - PTT Testing Utilities: AT\ COMMANDS: \An - Select Maximum MNP Block Size: \A0 64 characters \A1 128 characters Default \A2 192 characters \A3 256 characters \Bn - Transmit

Break to Remote: \B1-\B9 Break length in 100 mS units. (default = 3) (Non-error corrected mode only) \Ln - MNP Block/Stream Mode Select: \L0 Use stream mode for MNP connection. Default \L1 Use interactive block mode for MNP connection. This command will accept block mode but implement stream mode. \Gn - Modem-to-Modem Flow Control (XON/XOFF): \G0 Disables modem-to-modem XON/XOFF flow control. Default \G1 Enables modem-to-modem XON/XOFF flow control. \Kn - Break Control: \Nn - Operating Mode: \N0 Selects normal speed buffered mode (disables error-correction mode) (Forces &Q6) \N1 Serial interface selected - selects direct mode and is equivalent to &M0, &Q0 mode of operation. (forces &Q0) Parallel interface selected - Same as \N0. \N2 Selects reliable (error-correction) mode. The modem will first attempt an LAPM connection and then an MNP connection. Failure to make a reliable connection results in the modem hanging up. \N3 Selects auto reliable mode. This operates the same as \N2 except failure results in the modem falling back to the speed buffered normal mode. Default \N4 Selects LAPM error-correction mode. Failure to make a LAPM error-correction connection results in hanging up. \N5 Selects MNP error-correction mode. Failure to make an MNP error-correction connection results in hanging up. \S - Report Active Configuration (Not supported on all modems) S REGISTER SUMMARY: Register Function Range Units Default

Register	Function	Range	Units	Default
S0	Rings to Auto-Answer	0-255		
S1	Ring Counter	0-255	Rings	0
S2	Escape Character	0-255	ASCII	43
S3	Carriage Return Character	0-127	ASCII	13
S4	Line Feed Character	0-127	ASCII	10
S5	Backspace Character	0-255	ASCII	8
S6	Wait Time for Dial Tone	2-255	seconds	2
S7	Wait for Carrier	1-255	seconds	50
S8	Pause Time for (,) Comma	0-255	seconds	2
S9	Carrier Detect Response Time	1-255	1/10 sec	6
S10	Carrier Loss Disconnect Time	1-255	1/10 sec	14
S11	Touch Tone (DTMF) Duration	50-255	1/1000 sec	95
S12	Escape Code Guard Time	0-255	2/100sec	50
S14	General Bit Mapped Options	138	(8ah)	
S16	Test Mode Bit Mapped Options (&T)	0		
S18	Test Timer	0-255	seconds	0
S21	V.24/General Bit Mapped Options--	52		
S22	Speaker/Results Bit Mapped Options--	117	(75h)	
S23	General Bit Mapped Options--	54		
S24	Sleep Inactivity Timer	0-255	seconds	0
S25	Delay to DTR off	0-255	1/100 sec	5
S26	RTS-to-CTS Delay	0-255	1/100 sec	1
S27	General Bit Mapped Options--	73	(49h)	
S28	General Bit Mapped Options--	0		
S29	Flash Dial Modifier Time	0-255	10 ms	70
S30	Disconnect Activity Timer	0-255	10 sec	0
S31	General Bit Mapped Options--	202		
S32	XON Character	0-255	ASCII	17 (11h)
S33	XOFF Character	0-255	ASCII	19 (13h)
S36	LAPM Failure Control--	7		
S37	Line Connection Speed--	0		
S38	Delay Before Forced Hangup	0-255	seconds	20
S39	Flow Control--	3		
S40	General Bit Mapped Options--	104		
S41	General Bit Mapped Options--	195		
S46	Data Compression Control--	138		
S48	V.42 Negotiation Control--	7		
S82	LAPM Break Control--	128	(40h)	
S86	Call Failure Reason Code	0-255		
S86=0 Normal disconnect, no error occurred. S86=4 Loss of carrier. S86=5 V.42 negotiation failed to detect an error-correction modem at the other end. S86=6 No response to feature negotiation. S86=7 This modem is asynchronous only; the other modem is synchronous only. S86=8 No framing technique in common. S86=9 The modems could not find a common protocol. S86=10 Bad response to feature negotiation. S86=11 No sync information from remote modem. S86=12 Normal disconnect initiated by the remote modem. S86=13 Remote modem does not respond after 10 re-transmissions of the same message. S86=14 Protocol violation. S91 PSTN Transmit Attenuation Level 10-15 dBm 9 S92 Fax Transmit Attenuation Level 10-15 dBm 10 S95 Result Code Messages Control-- 0 S201 Cellular Transmit Level 10-63 50 S202 Remote Access Escape Character 0-255 ASCII 0				

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United States and/or in other countries. Items in bold typeface represent changes from the original US Robotics rck-v32.txt file to reflect the actual factory defaults of the Pilot Modem. Other changes were intended to be simple abridgments for brevity or deletions due to non-applicability.