AT Command Set & S-Registers
For
PE2469 & PE14.4 Modem Module

Including:
MIU9.6
MIU14.4
MIU/PowerPort9.6
MIU/PowerPort14.4

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AT COMMAND SET and S-REGISTERS

Raymar-Telenetics dial modems are based on Rockwell chipsets. These chipsets contain Rockwell's "AT" command set.

A summary of the Rockwell command set for the **PE2496 and PE14.4** *Pony Express*™ is provided on the following pages.

A *Pony Express*™ Modem Module is at the heart of all Raymar-Telenetics dial modems, including the following …

MIU9.6 ……..PE2496
MIU14.4 ……PE14.4
MIU/PowerPort9.6 ……...PE2496
MIU/PowerPort14.4 …….PE14.4
Myriad MDR/PE9.6 ……...PE2496
Myriad MDR/PR14.4 ……...PE14.4

Contact Raymar-Telenetics for more detailed information on AT Commands and S-Registers.

SUMMARY OF THE ROCKWELL "AT" COMMAND SET

To communicate using the modem, use an asynchronous communication program. The command set for the Raymar-Telenetics modems is compatible with the Hayes command set.

The modem is controlled and configured by the AT (attention command). Each command consists of the following elements (with the exception of the A/ and the +++ command that will be discussed later).

1. The two character sequence AT
2. A command
3. A command parameter
4. A carriage return

A command is not entered until a carriage return <ENTER> is entered. Spaces entered are ignored. For example, to enter the command `Answer', type ATA and <ENTER>.

Some commands do not have parameters. Any missing parameters in a command are assigned the value zero, which may be a valid parameter for the command. The sequence followed by AT command causes the modem to enter a command state. That is, AT without a command serves as a wake up code and an "OK" appears on the screen.

The modem queues commands in a 40-character command line. The command line begins with AT and can have several commands. A separator is not required between the commands.

The command line format is the "AT" prefix, followed by the required commands from the attached list and terminated with a Carriage Return.

When a carriage return is received, the commands are performed in the order in which they are sent to the modem. If more than 40 characters are sent to the modem, an error occurs and all commands must be re-entered.

BASIC AT COMMANDS FOR THE PE2496 & PE14.4 MODEM MODULE

Command	Function
A/	Re-execute command.
A	Go off-hook and attempt to answer a call.
B0	Select V.22 connection at 1200 bps.
B1	Select Bell 212A connection at 1200 bps.
C1	Return OK message.
Dn	Dial modifier.
E0	Turn off command echo.
E1	Turn on command echo.
F0	Select auto-detect mode (equivalent to N1).
F1	Select V.21 or Bell 103.
F2	Reserved.
F3	Select V.23 line modulation.
F4	Select V.22 or Bell 212A 1200 bps line speed.
F5	Select V.22 bis line modulation.
F6	Select V.32 bis or V.32 4800 line modulation.
F7	Select V.32 bis 7200 line modulation.
F8	Select V.32 bis or V.32 9600 line modulation.
F9	Select V.32 bis 1200 line modulation.
F10	Select V.32 bis 14400 line modulation.
H0	Initiate a hang-up sequence.
H1	If on-hook, go off-hook and enter command mode.
I0	Report product code.
I1	Report pre-computed checksum.
I2	Report OK.

I3	Report firmware revision, model, and interface type.
I4	Report response “Telenetics Inc. Rev”
I5	Report the country code parameter.
I6	Report modem data pump model and code revision.
I7	Reports the DAA code.
L0	Set low speaker volume.
L1	Set low speaker volume.
L2	Set medium speaker volume.
L3	Set high speaker volume.
M0	Turn speaker off.
M1	Turn speaker on during handshaking and turn speaker off while receiving carrier.
M2	Turn speaker on during handshaking and while receiving carrier.
M3	Turn speaker off during dialing and receiving carrier and turn speaker on during answering.
N0	Turn off automode detection.
N1	Turn on automode detection.
O0	Go on-line.
O1	Go on-line and initiate a retrain sequence.
P	Force pulse dialing.
Q0	Allow result codes to DTE.
Q1	Inhibit result codes to DTE.
Sn	Select S-Register as default.
Sn?	Return the value of S-Register n.
=v	Set default S-Register to value v.
?	Return the value of default S-Register.
T	Force DTMF dialing.

V0	Report short form (terse) result codes.
V1	Report long from (verbose) result codes.
W0	Report DTE speed in EC mode.
W1	Report line speed, EC protocol and DTE speed.
W2	Report DCE speed in EC mode.
&X0	Report basic call progress result codes, i.e., OK, CONNECT, RING, NO CARRIER (also, for busy, if enabled, and dial tone not detected), NO ANSWER and ERROR.
X1	Report basic call progress result codes and connection speeds (OK, CONNECT, RING, NO CARRIER (also, for busy, if enabled, and dial tone not detected), NO ANSWER, CONNECT XXXX, and ERROR.
X2	Report basic call progress result codes and connection speeds, i.e., OK, CONNECT, RING, NO CARRIER (also, for busy, if enabled, and dial tone not detected), NO ANSWER, CONNECT XXXX, and ERROR.
X3	Report basic call progress result codes and connection rate, i.e., OK, CONNECT, RING, NO CARRIER, NO ANSWER, CONNECT XXXX, BUSY and ERROR.
X4	Report all call progress result codes and connection rate, i.e., OK, CONNECT, RING, NO CARRIER, NO ANSWER, CONNECT XXXX, BUSY, NO DIAL TONE and ERROR.
Y0	Disable long space disconnect before on-hook.
Y1	Enable long space disconnect before on-hook.
Z0	Restore stored profile 0 after warm reset.
Z1	Restore stored profile 1 after warm reset.

&C0 Force RLSD active regardless of the carrier state.

&C1 Allow RLSD to follow the carrier state.

&D0 Interpret DTR ON-to-OFF transition per &Qn:

&Q0, &Q5, &Q6 The modem ignores DTR.

&Q1, &Q4 The modem hangs up.

&Q2, &Q3 The modem hangs up.

&D1 Interpret DTR ON-to-OFF transition per &Qn:

&Q0, &Q1, &Q4,

&Q5, &Q6 Asynchronous escape.

&Q2, &Q3 The modem hangs up.

&D2 Interpret DTR ON-to-OFF transition per &Qn:

&Q0 through &Q6 The modem hangs up.

&D3 Interpret DTR ON-to-OFF transition per &Qn:

&Q0, &Q1, &Q4,

&Q5, &Q6 The modem performs soft reset.

&Q2, &Q6 The modem hangs up.

&F0 Restore factory configuration 0.

&F1 Restore factory configuration 1.

&G0 Disable guard tone.

&G1 Disable guard tone.

&G2 Enable 1800 Hz guard tone.

&J0 Set S-Register response only for compatibility.

&J1 Set S-Register response only for compatibility.

&K0 Disable DTE/DCE flow control.

&K3 Enable RTS/CTS DTE/DCE (Hardware) flow control.

&K4 Enable XON/XOFF DTE/DCE (Software) flow control.

&K5 Enable transparent XON/XOFF flow control.

&K6 Enable both RTS/CTS and XON/XOFF flow control.

&L0 Select dial up line operation.
&L1 Select leased line operation.

* Serial interface operation only.

&M0 Select direct asynchronous mode.
&M1 Select sync connect with async off-line command mode. *
&M2 Select sync connect with async off-line command mode and enable DTR dialing of directory zero. *
&M3 Select sync connect with async off-line command mode and enable DTR to act as Talk/Data switch. *

&P0 Set 10 pps pulse dial with 39%/61% make/break.
&P1 Set 10 pps pulse dial with 33%/67% make/break.
&P2 Set 20 pps pulse dial with 39%/61% make/break.
&P3 Set 20 pps pulse dial with 33%/67% make/break.

&Q0 Select direct asynchronous mode.
&Q1 Select sync connect with Async off-line command mode. *
&Q2 Select sync connect with Async off-line command mode and enable DTR dialing of directory zero. *
&Q3 Select sync connect with Async off-line command mode and enable DTR to act as Talk/Data switch. *
&Q4 Select Hayes AutySync mode.
&Q5 Modem negotiates an error-corrected link.
&Q6 Select asynchronous operation in normal mode.

&R0 CTS tracks RTS (Async) or acts per V.25 (sync).
&R1 CTS is always active.

&S0 DSR is always active.
&S1 DSR acts per V.25.

&T0	Terminate any test in progress.
&T1	Initiate local analog loopback.
&T2	Returns ERROR result code.
&T3	Initiate local digital loopback.
&T4	Allow remote digital loopback.
&T5	Disallow remote digital loopback request.
&T6	Request an RDL without self-test.
&T7	Request an RDL with self-test.
&T8	Initiate local analog loop with self-test.
&V	Display current configurations.
&W0	Store the active profile in NVRAM profile 0.
&W1	Store the active profile in NVRAM profile 1.
&X0	Select internal timing for the transmit clock.
&X1	Select external timing for the transmit clock.
&X2	Select slave receive timing for the transmit clock.
&Y0	Recall stored profile 0 upon power up.
&Y1	Recall stored profile 1 upon power up.
&Zn=x	Store dial string x (to 35) to location n (0 to 3 depending upon modem model).
%E0	Disable line quality monitor and auto retrain.
%E1	Enable line quality monitor and auto retrain.
%E2	Enable line quality monitor and fallback/fall forward.
%L	Return received line signal level.
%Q	Report the line signal quality.
\D1	Enable Auto Dial via DTR off to on sequence *PE14400 only.
\D0	Disable Auto Dial (default) * PE14400 only.

\G0	Disable modem to modem flow control.
\G1	Enable modem to modem flow control.
\H0	Command Mode default.
\H1	Lease Line Mode
\Kn	Controls break handling during three states:
	When modem receives a break from the DTE:
\K0,2,4	Enter on-line command mode, no break sent to the remote modem.
\K1	Clear buffers and send break to remote modem.
\K3	Send break to remote modem immediately.
\K5	Send break to remote modem in sequence with transmitted data.
	When modem receives \B in on-line command state:
\K0,1	Clear buffers and send break to remote modem.
\K2,3	Send break to remote modem immediately.
\K4,5	Send a break with received data to the DTE.
\M0	Select Answer Mode (Lease Line) with \H1 active
\M1	Select Originate Mode (Lease Line) with \H1 active
\N0	Select normal speed buffered mode.
\N1	Select direct mode.
\N2	Select reliable link mode.
\N3	Select auto reliable mode.
\N4	Force LAPM mode.
\N5	Force MNP mode.
\S0	Unlock command mode (normal mode) *PE14400 only
\S1	Lock (out) command mode (security mode) *PE14400 only

ECC COMMANDS

%C0	Disable data compression.
%C1	Enable MNP 5 data compression.
%C2	Enable V.42bis data compression.
%C3	Enable both V.42bis and MNP 5 compression.
\A0	Set maximum block size in MNP to 64.
\A1	Set maximum block size in MNP to 128.
\A2	Set maximum block size in MNP to 192.
\A3	Set maximum block size in MNP to 256.
\Bn	Send break of n x 100 ms.

S-REGISTERS

S-Register Summary

	Function	Range	Units	Save	Default **
S0	Rings to Auto-Answer	0-255	Rings	*	0
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	S	*	2
S7	Wait time for Carrier	1-255	s	*	50
S8	Pause Time for Dial Delay Modifier	0-255	s	*	2
S9	Carrier Detect Response Time	1-255	0.1 s	*	6
S10	Carrier Loss Disconnect Time	1-255	0.1 s	*	14
S11	DTMF Tone Duration	50-255	0.01 s	*	95
S12	Escape Code Guard Time	0-255	0.02 s	*	50
S13	Reserved	-	-	-	-
S14	General Bit Mapped	-	-	*	138 (8Ah)

	Function	Range	Units	Save	Default **
S15	Reserved	_	-	-	-
S16	Test Mode Bit Mapped option (&T)	-	-	-	0
S17	Reserved	-	-	-	-
S18	Test Timer	0-255	s	*	0
S19-S20	Reserved	-	-	-	-
S21	V.24/General Bits Opt.	-	-	*	4 (04h)
S22	Speaker/Results	-	-	*	117
S23	General Bit Mapped Options	-	-	*	55 (35h)
S24	Sleep Inactivity Timer	0-255	s	*	0
S25	Delay to DTR Off	0-255	s or 0.01 s	*	0
S26	RTS to CTS Delay	0-255	0.01 s		1
S27	General Bit-Mapped Options	-	-	*	73 (49h)
S28	General Bit-Mapped Options	-	-	*	0
S29	Flash Dial Modifier Time	0-255	10ms		0
S30	Disconnect Inactivity Time	0-255	10s		0
S31	General Bit-Mapped Options	-	-	*	2
S32	XON Character	0-255	ASCII		17 (11h)
S33	XOFF Character	0-255	ASCII		19 (13h)

	Function	Range	Units	Save	Default **
S34-S35	Reserved	-	-		-
S36	LAPM Failure Control	-	-	*	7
S37	Line Connection Speed	-	-	*	0
S38	Delay before Forced Hangup	0-255	s		20
S39	Flow Control	-	-	*	3
S40	General Bit-Mapped Options	-	-	*	105 (69)
S41	General Bit-Mapped Options	-	-	*	3
S42-S45	Reserved	-	-		-
S46	Data Compression Control	-	-	*	138
S48	V.42 Negotiation Control	-	-	*	7
S80	Soft-Switch Functions	-	-		0
S82	LAPM Break Control	-	-		128 (40h)
S86	Call Failure Reason Code	0-255	-		-
S91	PSTN Transmit Attenuation Level	0-15	dBm		10
S95	Result Code Messages Control	-	-	*	0

Raymar Information Technology, Inc.
Limited Warranty

One Year Limited Hardware Warranty
Raymar Information Technology, Inc., dba Raymar-Telenetics, warrants their products against defects in hardware, material and workmanship under normal use for one (1) year from the date of purchase. Raymar will, at no charge, either repair the product (with new or reconditioned parts), or replace it (with a new or reconditioned product). Repaired replacement products are warranted for either 90 days or the remainder of the original warranty period, whichever is longer. This warranty extends to the original end-user only.

What This Warranty Does Not Cover
This warranty does not cover: (a) software; (b) installation or service of the product; (c) conditions resulting from consumer damage such as improper maintenance or misuse, abuse, accident or alteration; (d) all plastic surfaces (including display screens) and all other exposed parts that are scratched or damaged due to normal use; (e) operation of our products with equipment not supplied by Raymar (f) products which have had the serial number removed or made illegible; or (g) products rented to others. This warranty applies only to hardware products manufactured by or for Raymar Information Technology, Inc. and identified by the Raymar-Telenetics trademark, trade name or product identification logo affixed to them. Refer to the Service and Support section of the User's Guide for service after the warranty expires. No warranty is made as to coverage availability or grade of service provided by the carrier.

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How To Use Raymar's Limited Warranty Service
To take advantage of this warranty, you must do the following:

- If you are having trouble with your product, contact Raymar service using the appropriate number from the Service and Support section of the User's Guide. If it is determined that your product requires service, you will be issued a Return Materials Authorization (RMA) form.
- Pack the defective product securely for shipping. Include only the units pre-approved by service on your RMA form.
- This warranty is void if the product is damaged in transit, you must insure your shipment.
- Ship the defective product, proof of date of purchase, and the RMA form to the address specified.
- Display your RMA number prominently on the outside of the shipping box. Customer is responsible for freight in, door to door. Raymar is responsible for return shipping costs.
- To ensure prompt service, please write on the RMA form a brief description of the problem you are experiencing with the product.

Raymar Information Technology, Inc.
7325 Roseville Road
Sacramento, CA 95842
Service Hotline (800) 747-1522
http://support.telenetics.com or e-mail to techsupport@raymarinc.com

Raymar Information Technology, Inc.
Return Merchandise Authorization (RMA) Procedure

Before returning any Raymar-Telenetics product, an RMA number must be obtained.

The most convenient way to obtain an RMA number for a product purchased from Raymar-Telenetics is to call **1-800-747-1522 (+1-916-783-1951)**. When doing so, please have the following information ready:

- Company name
- Full billing address, as well as the address for the location where the product should be returned once repaired or replaced
- Telephone & Fax numbers
- Email address
- Product model number and serial number

For each item being returned, please include the product model number, the serial number, a description of the problem being encountered, and the cause of the problem (if known).

Please note that prior to authorizing a return, a product support specialist may call to verify that the product is properly installed or may ask you to perform tests to insure that the product has actually failed.

The product must be properly packed and returned to:

Raymar-Telenetics
7325 Roseville Road
Sacramento, CA 95842

The RMA number must be legibly displayed on the shipping carton. Raymar-Telenetics will not be responsible for any product returned without an RMA number.

If the product is out of warranty, estimates for repair rates and any applicable shipping costs will be communicated by a customer service representative. Currently, Raymar-Telenetics accepts purchase orders or credit cards as payment methods.

Repairs currently require 5 – 10 business days and are returned via UPS Ground.