

"S" REGISTER SETTINGS (cont'd)

Register	Description	Range/Units	Default
* S21	Bit mapped Options	none	00
* S22	Bit mapped Options	none	118
* S23	Bit mapped Options	none	23
S24	Reserved		
* S25	Detect DTR Change	0-255 1/100th Sec.	05
* S26	RTS to CTS delay	0-255 1/100th Sec.	01
* S27	Bit mapped Options	none	64

* The current contents of these S-Registers are stored into the Q-Modem's nonvolatile memory when the **&W** (Write to nonvolatile memory) command is received. This preserves the contents of these registers so that they are restored when the modem is powered up, or when the **Z** command is received.

RESULT CODES

Result Code	Numeric Code	Description
OK	0	Acknowledges execution of a command.
BUSY	7	Modem has detected a busy signal.
CONNECT	1	Modem has connected at 300 baud.
CONNECT 1200	5	Modem has connected at 1200 baud.
CONNECT 2400	10	Modem has connected at 2400 baud.
ERROR	4	Invalid command or incorrect checksum in response to I command.
NO ANSWER	8	The "Wait for Silence" dial modifier, @, was issued and 5 seconds of silence was not detected.
NO CARRIER	3	Failure to connect or loss of carrier.
NO DIALTONE	6	The W dial modifier was issued and a dialtone was not detected within the period of time specified by S7 . The X2 or X4 options are selected and a dialtone is not detected within 5 seconds of going off-hook.
RING	2	Ring detected.



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Q-Modem 2400

REFERENCE CARD

COMMANDS

Command	Description
AT	Attention code. Precedes all commands except the A/ (repeat last command) and the +++ (escape) codes.
A/	Repeat last command line. (This command is neither preceded by the AT command nor followed with a Carriage Return)
A	Answer phone line. Brings modem off-hook in answer mode.
B	Selects CCITT V.22bis mode when communicating at 1200 baud.
B1	Selects Bell 212A operation when communicating at 1200 baud.
D	Dial the number that follows.
E	Modem does not "echo" commands back to the terminal.
E1	Modem "echoes" commands back to terminal.
H	Modem On Hook (hang up).
H1	Modem Off Hook.
I	Request product Identification Code from modem.
I1	Compute and return checksum of the internal ROM code.
I2	Performs checksum and returns either OK or ERROR.
L,L1	Low speaker volume.
L2	Medium speaker volume.
L3	High speaker volume.
M	Speaker off.
M1	Speaker on until carrier received.
M2	Speaker is always on.
M3	Speaker disabled while dialing and after carrier is received.
O	Returns modem to On-line state.
O1	Returns modem to On-line state and initiates retrain sequence.
Q	Modem returns result codes after commands.
Q1	Modem does not return result codes.
Sr?	Returns the decimal value of register <i>r</i>
Sr= <i>n</i>	Sets register <i>r</i> to value <i>n</i>
V	Selects numeric result codes.
V1	Selects Verbal result codes.
X	Modem blind dials and sends CONNECT once connection is established. This mode is compatible with software written for the Hayes™ Smartmodem 300.
X1	The modem blind dials; sends the CONNECT XXXX result codes when connected; does not detect busy signal.
X2	Modem waits for dial tone before dialing; sends CONNECT XXXX result codes when connected; sends NO DIALTONE code if dialtone not received in 5 seconds; does not detect busy signal.
X3	Modem blind dials; sends CONNECT XXXX result codes when connected; sends BUSY if busy signal is detected.
X4	Modem waits for dialtone before dialing; sends CONNECT XXXX result codes when connected; sends NO DIALTONE code if dialtone not received in 5 seconds; sends BUSY if busy signal detected.

COMMANDS (cont'd)

Command	Description
Y	Disable long space disconnect.
Y1	Enable long space disconnect.
Z	Reset modem to stored, or default, configuration.
+++	Escape code to return the modem to the command state (you must have a 1 second delay before and after this code).
&C	DCD signal always ON.
&C1	DCD ON indicates data carrier from remote modem.
&D	Modem ignores DTR signal.
&D1	Modem switches from data mode to the command state upon ON-to-OFF transition of DTR.
&D2	Modem hangs up, disables autoanswer, and goes to command state upon ON-to-OFF transition of DTR.
&D3	Modem initializes upon ON-to-OFF transition of DTR.
&F	Re-configures modem to the factory defaults.
&G	No guard tone.
&G1	550 Hz guard tone.
&G2	1800 Hz guard tone.
&J	RJ-11 / RJ-41 / RF-45S telco jack type (standard line).
&J1	RJ-12 / RJ-13 telco jack type (Six wire line). This option is not supported in the Q-Modem 2400 hardware.
&L	Dial-up line.
&L1	Leased line.
&M	Asynchronous mode.
&M1 - &M3	Synchronous modes. Not currently available in Q-Modem 2400.
&P	39/61 make/break ratio for pulse dial (USA/Canada).
&P1	33/67 make/break ratio for pulse dial (UK/Hong Kong).
&R	CTS signal responds to transition of RTS signal.
&R1	Modem ignores RTS; CTS always ON.
&S	DSR always ON.
&S1	DSR operates as described in the EIA specification.
&T	Terminates any test currently in progress.
&T1	Initiates Local Analog Loopback test.
&T3	Initiates Local Digital Loopback.
&T4	Allows modem to grant a request from the remote modem for Remote Digital Loopback.
&T5	Prohibits modem from granting request from a remote modem for Remote Digital Loopback.
&T6	Initiates Remote Digital Loopback test.
&T7	Initiates Remote Digital Loopback with Self-test.
&T8	Initiates Local Analog Loopback with Self-test.
&W	Write current configuration to nonvolatile memory.
&X	Modem generates transmit clock for synchronous modes.
&X1	Data terminal generates transmit clock for synchronous modes.
&X2	Modem derives transmit clock for synchronous operation from receive carrier while in slave operation.
&Z	Store telephone number in nonvolatile memory.

* Default conditions are in **bold**.

DIALING COMMANDS

Command	Description
P	Pulse dial.
R	Originate call in answer mode.
S	Dial stored number.
T	Tone dial.
W	Wait for second dial tone.
,	Pause.
;	Returns modem to command state after dialing.
!	Flash (Modem goes On-hook for 1/2 second).
@	Wait for silence, then continue.

RS-232C PIN-OUT

PIN	Source	Description
1	N/A	Protective Ground
2	Terminal	Transmit Data
3	Modem	Receive Data
4	Terminal	Request to Send
5	Modem	Clear to Send
6	Modem	Data Set Ready
7	N/A	Signal Ground
8	Modem	Data Carrier Detect
12	Modem	Select Alternate Rate
15	Modem	Transmit Clock (sync)
17	Modem	Receive Clock (sync)
20	Terminal	Data Terminal Ready
22	Modem	Ring Indicator
23	Modem	Select Alternate Rate
24	Terminal	Transmit Clock (DTE source)

"S" REGISTER SETTINGS

Register	Description	Range/Units	Default
* S0	Ring to Answer On	0-255 Rings	00
S1	Ring Count	0-255 Rings	00
S2	Escape Character Code	0-127 ASCII	43
S3	Carriage Return Character	0-127 ASCII	13
S4	Line Feed Character	0-127 ASCII	10
S5	Back Space Character	0-127 ASCII	08
S6	Wait for dial tone	0-255 Sec.	02
S7	Wait for Data Carrier	1-30 Sec.	30
S8	Comma Pause Time	0-255 Sec.	02
S9	Carrier Detect Response Time	1-255 10ths Sec.	06
S10	Delay from Lost Carrier to Hang-up	1-255 10ths Sec.	14
S11	Reserved		
S12	Escape code guard time	0-255 50ths Sec.	50
S13	Reserved		
* S14	Bit mapped Options	none	170
S15	Reserved		
S16	Modem Test Options	none	00
S17	Reserved		
* S18	Test Timer	0-255 Sec.	00
S19	Reserved		
S20	Reserved		