Modem AT Command Set: S Registers

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TOPIC ---

This article describes the S registers set and retrieved by the modem AT
commands.

NOTE: Refer to the TIL articles titled "Modem AT Command Set: Description Part
1/2" and "Modem AT Command Set: Description Part 2/2" for a complete list of the
AT commands.

DISCUSSION --

The S register descriptions are formatted in the following manner:

```
S register       Function
------------------------
Default   Range   Units
Description
```

```
S0    Auto answer
-----------------
0   0:255   Number of rings
```
The S0 register sets auto-answer. If the parameter value is non-zero,
auto-answer is enabled at the program level. If the number of rings is zero,
auto-answer is disabled at the program level. Auto-answer at the system level is
controlled in the Express Modem control panel. The number of rings is also set
in the Express Modem control panel. For the S0 setting, values from 1 to 255 are
equivalent.

```
S1    Ring counter
------------------
0   0:255   Number of rings
```
The S1 register is cleared if no rings are detected throughout an 8-second
interval. S1 is automatically set by the modem.

```
S2    Escape Character
----------------------
43 <+>   0:127   ASCII Decimal
```
The S2 register determines the ASCII character to be used as the escape
character. The escape sequence is used to force the modem from the online state
to the local command state.

S3   Line-termination character
----
13 <CR>   0:127   ASCII Decimal
The S3 register determines the ASCII character to be used as the
line-termination character. No matter what value S3 is set to, ASCII 13 is
always recognized.

S4   Line-feed character
----
10 <LF>   0:127   ASCII Decimal
The modem returns the ASCII character programmed in the S4 register as the
line-feed character when the modem sends response codes to the computer.

S5   Backspace character
----
8 <BS>   0:127   ASCII Decimal
The S5 register determines the ASCII character to be used as the backspace
character.

S6   Initial blind dialing wait
----
2   2:255   Seconds
The S6 register determines the number of seconds your modem waits between the
time it takes the telephone off-hook and when it actually begins dialing. If the
modem is not blind dialing, this register is ignored.

S7 Carrier wait
----
50   1:255   Seconds
The S7 register determines how many seconds the modem waits for a carrier signal
from a remote modem after the dial command line is executed, or when answering
an incoming call. If your modem does not receive a carrier tone from the remote
modem in the specified amount of time, it hangs up and sends the NO CARRIER
message.

S8 Pause time
----
2   0:255   Seconds
The S8 register determines the delay time for each comma (,) encountered in the
dial command line during the execution of the D (dial) command.

S9   Carrier detect response time
----
6   1:255   1/10 second
The S9 register determines how long the carrier must be present before it is
recognized by the modem.

S10 Disconnect timing
----
14   1:255   1/10 second
The S10 register allows you to specify how long an interruption is necessary
before the modem interprets the disruption as a loss of carrier and hangs up.

If you enter 255, the modem ignores carrier detect status.

S11 Duration and spacing for DTMF dialing
----
95   50:255   Milliseconds
Register S11 is preset and should remain unchanged to ensure correct dialing.

S12 Escape code guard time
----
50   20:255   1/50 second
This value determines the length of time to wait for typing commands before and
after issuing the escape sequence, as well as between the escape characters.

S18 Self-test duration
----
0   0:255   Seconds
The S18 register determines the duration of the AT&T diagnostic self-tests. If a
non-zero value is chosen, the modem automatically halts the test after the time
period specified and returns to command state. You must then issue an AT&T0 to
actually exit the test. If S18 is zero, the self-test continues until it is
ended by issuing the escape sequence to return to command mode followed by
AT&T0.

S36 Negotiation failure treatment
----
5   0/3/4/5   Settings
Specifies action that should be taken when an attempt to connect in
error-control mode fails.
0 Attempts V.42 connection. Hangs up if remote modem does not
   support V.42.
3 Makes asynchronous connection. No error control. Same as AT&Q0.
4 Attempts V.42 connection. If this fails, attempts MNP 2-4
   connection. If this fails, hangs up.
5 Attempts V.42 connection. If this fails, attempts MNP 2-4
   connection. If this fails, attempts asynchronous connection.

S37 Desired DCE connection speed
----
0   0/3/5:11   Settings
This value is used in conjunction with the ATN and ATB values to determine which
modulations are attempted when connecting.
0 Auto-mode Attempts to connect at the highest possible speed.
3 Attempts to connect at 300 bps.
5 Attempts to connect at 1200 bps.
6 Attempts to connect at 2400 bps.
7 Attempts to connect at 4800 bps.
8 Attempts to connect at 7200 bps.
9 Attempts to connect at 9600 bps.
10 Attempts to connect at 12000 bps.
11 Attempts to connect at 14400 bps.

S38 Delay before hang up

```
0   0:254   Seconds
```
Specifies the delay before hanging up when the user issues the ATH command. When
S38 is set to 255, the modem delivers all the data in its buffers before hanging
up.

S46 V.42 bis data compression selection

```
138   136/138   Settings
136   V.42 only
138   V.42 with V.42 bis compression
```

S48 Feature negotiation action

```
7   0/3/7/128   Settings
```
Selects which error control features are allowed when making connections.
```
0    Negotiation disabled: try only V.42.
3    Negotiation enabled without detection phase.
7    Negotiation enabled with detection phase.
128  Negotiation disabled: try MNP only. V.42 disabled.
```

S95 Error control negotiation message option

```
32   4/8/32   Bits
```
A bit map to enable different result codes. Linked to ATW when ATW=1.
```
Bit  Value   Meaning
0-1   1      Not used.
2     4      Enables CARRIER messages only.
3     8      Enables CARRIER+PROTOCOL messages only.
4     16     Not used.
5     32     Enables CARRIER+PROTOCOL+  COMPRESSION messages.
```

S113 Data calling tone

```
0  No data calling tone
1  Enables data calling tone.
```


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