

This section documents commands for the advanced modem user:

Some of the commands have parameters. The parameter value, usually 0, 1, or 2, follows the command. When you do not select a command parameter, the modem assumes a value of 0.

Command Summary

Command	Parameters	Function
A	None	Immediately answer the phone.
B	0	Selects CCITT V.22 operation when communicating at 1200 bps.
	1 (Default)	Selects BELL 212A operation when communicating at 1200 bps.
%C	0	Data Compression disabled.
	1	MNP-5 data compression enabled.
	2	V.42bis data compression enabled.
	3 (Default)	Both V.42bis and MNP-5 data compression enabled.
&C	0 (Default)	DCD (Data Carrier Detect) always on.
	1	DCD on indicates presence of carrier.
&D	0 (Default)	Modem ignores DTR (Data Terminal Ready).
	1	Modem assumes command mode when on-to-off transition is detected on DTR.
	2	When on-line with a host system, modem goes on-hook and enters command mode upon detecting an on-to-off transition on DTR.
	3	Modem initializes upon detecting an on-to-off transition on DTR.
E	0	Commands are not echoed.
	1 (Default)	Commands are echoed.
&F	None	Recalls the factory default settings.

&G	0 (Default)	Modem does not sound guard tones.
	1	Modem sounds a 550 Hz guard tone.
	2	Modem sounds a 1800 Hz guard tone.
\G	0 (Default)	Modem port flow control disabled.
	1	Modem port flow control enabled.
H	0 (Default)	On hook (hang up).
	1	Go off hook.
I	0	Requests product identification code.
	1	Checks ROM; returns checksum.
	2	Checks ROM; returns OK or ERROR.
	3	Returns the ROM version number.
&K	0	Flow control is disabled.
	3 (Default)	RTS/CTS flow control is enabled.
	4	Xon/Xoff flow control is enabled.
	5	Xon/Xoff passthrough flow control is enabled.
L	0	Low speaker level.
	1	Low speaker level.
	2 (Default)	Medium speaker level.
	3	High speaker level.
&L	0 (Default)	Normal dial-up operation.
	1	Leased-line operation.
M	0	Speaker off.
	1 (Default)	Speaker on until carrier detected.
	2	Speaker always on.
	3	Speaker on until carrier detected, except during dialing.
N	0	Communications rate set by Register S37. If S37=0, rate set

		by communications software speed.
	1 (Default)	Communications rate can be any speed supported by both modems.
O	0	Return to on-line state.
	1	Return to on-line state and initiate a retrain sequence to handshake again with the remote modem.
&P	0	Pulse dial make:break ratio 39:61 (USA).
	1	Pulse dial make:break ratio 33:67 @ 10pps (Japan/UK/HK).
	2	Pulse dial make:break ratio 33:67 @ 20pps (Japan/UK/HK).
Q	0 (Default)	Modem returns result codes.
	1	Modem does not return result codes.
	2	Modem does not return result codes when in answer mode.
&Q	0	Direct mode-modem speed and communications software speed setting must be the same. No error correction attempted.
	5 (Default)	Modem tries to establish an error-corrected link. Modem speed and communications software speed setting can be different.
	6	Modem speed and communications software speed can be different. No error correction attempted
&S	0 (Default)	DSR (Data Set Ready) always on.
	1	DSR operates in accordance with EIA.
\T	0 (Default)	Sets the time (in 1 minute intervals) the modem waits to disconnect if no data is transmitted or received. (Valid values are 0-42, 0=disabled.)
V	0	Numeric result codes.

	1 (Default)	Word result codes.
&V	None	Returns the current active and stored modem settings.
W	0 (Default)	Error correction call progress not reported. Connect message indicates the speed the modem communicates with your computer.
	1	Error correction call progress is reported.
	2	Error correction call progress is not reported. Connect message indicates the speed the modem communicates across the telephone line.
&W	0	Store current configuration as User Profile 0.
	1	Store current configuration as User Profile 1.
X	0	Result code Set 0.
	1	Result code Set 1.
	2	Result code Set 2.
	3	Result Code Set 3.
	4 (Default)	Result code Set 4.
Y	0 (Default)	Long space disconnect disabled.
	1	Long space disconnect enabled.
&Y	0 (Default)	Select stored User Profile 0 on power-up or reset.
	1	Select stored User Profile 1 on power-up or reset.
Z	0	Recall stored profile 0.
	1	Recall stored profile 1
&Z	0	Store dialing string in memory 0.
	1	Store dialing string in memory 1.
	2	Store dialing string in memory

	2.
3	Store dialing string in memory 3.

Command Explanations

A Answer immediately

The modem goes off hook and produces a carrier tone.

Bn BELL/CCITT mode select

- B0 CCITT V.22 operation at 1200 bps
- B1 BELL 212A operation at 1200 bps (default)

Most 1200 bps modems in the United States operate using the BELL 212A specification. To communicate with a 1200 bps modem conforming to the international CCITT V.22 standard, enter B0 before dialing.

%C Data Compression Selection

- %C0 Data compression disabled
- %C1 MNP-5 data compression enabled
- %C2 V.42bis data compression enabled
- %C3 Both V.42bis and MNP-5 data compression enabled.

This command determines whether the modem tries to use data compression during a connection. You can use this command to enable only one of the data compression methods available. If you select %C3, the modem tries to use V.42bis. If the other modem does not support V.42bis, the modem tries to use MNP-5. If the other modem does not support any data compression, the modem uses no data compression.

Note: The modem must establish an error-corrected connection before it attempts to use data compression.

&Cn Data Carrier Detect (DCD) control

- &C0 DCC always on (default)
- &C1 DCD follows state of data carrier

When n = 0, the modem ignores the hardware signal, and operates as though a carrier is always present.

When n = 1 the modem operates according to the actual hardware DCD signal.

&Dn Data Terminal Ready (DTR) control

- &D0 The modem ignores DTR (default).
- &D1 The modem goes into command mode if an on-to-off transition is detected on DTR.
- &D2 When online with a host system, the modem goes on hook and assumes command mode upon detecting on on-to-off DTR transition. Auto answer does not function with DTR low.
- &D3 An on-to-off transition on DTR causes the modem to go through an initialization sequence. Default values for all commands and registers are reinstated.

The modem ignores any DTR transition that lasts for less than the value contained in Register S25. The factory setting is 5/100 of a second.

En Echo characters in command mode

- E0 No characters echoed to the computer in command mode.
- E1 Echoes back characters to the computer typed in command mode (default).

This command controls the echoing back of commands to your computer. In most personal computer applications, the default E1 is used so you can see what you just typed. When running in half-duplex mode, you should use the E0 command to avoid having two copies of each character displayed on the screen.

&F Restore default configuration

The &F command restores the factory default values to all registers and commands.

\Gn Modem port flow control option

- \G0 Modem port flow control disabled (default).
- \G1 Modem port flow control enabled.

This command enables or disables hardware (RTS/CTS) or software (XON/XOFF) flow control during a normal (non error-corrected) connection.

Hn Activate switch-hook

- H0 Go on hook (hang up) (default).
- H1 Go off hook (pick up the phone).

This command makes the modem pick up or hang up the phone in

the same way as a telephone handset is picked up to answer a call or placed back on the switch hook to terminate a call.

You can use H0 from the command mode to terminate a call.

You generally do not need to use the H1 command, since the modem automatically answers an incoming call if you have not set the S0 register to 0.

In Request product code and ROM checksum
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- 10 Display product code.
- 11 Display ROM checksum.
- 12 Display ROM checksum as OK or ERROR.
- 13 Display the ROM version number.

You use this command as a diagnostic tool when reporting trouble with the modem to a service technician.

&Kn Modem port flow control options

- &K0 Flow control is disabled.
- &K3 RTS/CTS (hardware) flow control is enabled (default).
- &K4 XON/XOFF (software) flow control is enabled.
- &K5 XON/XOFF pass through flow control is enabled.

This option determines how the modem handles flow control between the modem and the computer. &K0 disables all flow control. When you select &K3, the modem uses the RTS/CTS hardware signals to control the flow of data. When you select &K4, the modem uses XON/XOFF characters (DC3 and DC4) to control flow; the characters are not passed to the remote modem. When you select &K5, the modem uses XON/XOFF to control the flow; the characters are also sent to the remote modem.

Ln Speaker level control

- L0 Low Speaker volume.
- L1 Low speaker volume.
- L2 Medium speaker volume (default).
- L3 High speaker volume.

This command controls the sound level when the speaker is turned on (see the M command).

&Ln Leased line option

- &L0 Normal dial-up operation (default).
- &L1 Leased line operation.

Set this option to the type of phone line service you have

connected the modem to.

Mn Speaker on/off commands

- M0 Speaker always off.
- M1 Speaker on until carrier detected (default).
- M2 Speaker always on.
- M3 Disables speaker while dialing and when receiving carrier.

You use the M commands to control the speaker in your computer when you use the modem. M0 turns the speaker off at all times. M1 lets you hear dial, ring, and connection. The M2 command turns on the speaker at all times, which might be useful in debugging transmission problems. M3 lets you monitor just the ring and connection process.

Nn Speed adjust option

- N0 Speed of the connection must be at the speed set by the value in register S37. If S37=0, the speed of the connection must match that of the last AT command.
- N1 Speed of the connection can be any speed supported by both modems (default).

You use this command to assure the connection is made only at a specified speed. If you have enabled the leased-line option (&L1) the modem ignores this command and always operates as though you have selected N0.

O Place modem in the on-line data mode

When connected to another modem, you might need to go back into command mode (using +++) to give the modem a command. After you complete the commands, an ATO command returns the modem to the on-line condition.

&Pn Pulse dial make/break ratio select

- &P0 U.S. setting, 39% make/61% break (default).
- &P1 U.K./Hong Kong/Japan setting, 33% make/67% break, 10 pps.
- &P2 U.K./ Hong Kong /Japan setting, 33% /67% break, 20 pps.

This command determines the ratio of off hook (make) to on hook (break) intervals when pulse dialing.

Qn Enable/disable result codes

- Q0 Result codes sent (default).

- Q1 No result codes sent.
- Q2 Result codes sent only when the modem is set to the originate mode.

You use the Q commands to enable or disable result codes (such as OK, CONNECT 2400, ERROR, and so on). In Q0 mode the modem returns result codes. In Q1 mode, the modem does not send result codes. In Q2 mode, the modem sends result codes only if set to originate.

&Qn	Error correction/split speed control
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- &Q0 No error correction/split speed not allowed.
- &Q5 Error correction mode enabled/split speed is allowed (default).
- &Q6 No error correction/split speed is allowed.

If you select either &Q5 or &Q6, the modem can communicate with the computer at one rate (the rate you set using your communications software) but communicate across the phone lines at a different rate (the rate negotiated between the two modems). When you select either &Q5 or &Q6, you should enable hardware flow control (&K3) to ensure that all data is correctly buffered between the computer and the modem. In most cases the default setting of &Q5 should work with no problem, even when you communicate with non error-correcting modems. Some systems, however, might disconnect when your modem sends the error correction negotiation codes. If this happens, select &Q0 or &Q6.

&Sn	Data Set Ready (DSR) control
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- &S0 SR always on (default).
- &S1 DSR operates in accordance with EIA RS-232C specifications.

As soon as your modem detects a carrier signal from the other modem, DSR is asserted. As soon as the carrier is confirmed as valid, DCD (carrier detect) is asserted (high). Both are de-asserted (low) at the same time when the connection is broken.

Note: It is possible to assert DSR without establishing DCD, resulting in a failed connection.

\TN	Inactivity timer control
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This command sets how long the modem waits before it disconnects when it is set to either &Q5 or &Q6 (error-corrected, split speed modes). This helps reduce phone usage if a problem occurs when the modem is not attended and you are transferring files. Valid parameters are 0-42. The inactivity timer is disabled when you select \T0 (default) or when you are using direct mode (&Q0).

Vn Sets result code format

V0 Selects numeric result codes.
V1 Selects verbal result codes (default).

See "Command Results" for a list of command result codes.

&V Display current settings

This command displays the current settings of all commands and displays the contents of all registers. It also shows the contents of both user profiles.

Wn Extended result messages

W0 Error correction call progress not reported;
connect message indicates DTE speed (default).
W1 Error correction call progress is reported.
W2 Error correction call progress not reported,;
connect message indicates DCE speed.

This command controls the extended result messages for error-corrected and data-compressed links. Neither W0 nor W2 return the extended result messages. W0 reports the connect speed as the speed between the Modem and the computer - W2 reports the connect speed as the speed between the modem and the remote modem. If you have selected &Q5 or &Q6, the speeds can be different. When you select W1, the modem reports the connect speed as the speed between the computer and the modem, the carrier speed as the speed between the modem and the remote modem, and also reports the result of error-correction and data compression negotiation.

&Wn Store user profiles

&W0 Store current configuration as user profile 0
&W1 Store current configuration as user profile 1

This command saves the current configuration into one of the two user profiles. You can recall either of the stored profiles using the Z command, and you can change the power-on default to be one of the stored profiles using the &Y command.

Xn Select extended result code set

By using the X commands, you can enable and disable the following modem functions: no dialtone detect, busy detect, blind dial capability, and send only the CONNECT message. Refer to the table below.

Function	X0	X1	X2	X3	X4
Busy detected	No	No	No	Yes	Yes
Dial tone detected	No	No	Yes	No	Yes
Connect message only	Yes	No	No	No	No
Blind dial enabled	Yes	Yes	No	Yes	No

Sending only the CONNECT message complies with Hayes Smart-Modem 300 compatibility. When you select X1 through X4, the modem returns the full range of connect messages.

When blind dialing, the modem dials regardless of the presence or absence of a dial tone. The modem waits the number of seconds determined by Register S6, which has a default of 2 seconds.

When you enable X2 or X4, the modem monitors the line for a dial tone instead of blind dialing. The dial tone must last at least 2 seconds. If the modem does not detect a dial tone (or not enough dial tone time) within 5 seconds, it cancels the call and returns the NO DIALTONE result code.

Note: See the W command to enable extended result messages and also to select whether the connect messages reports DCE speed or DTE speed.

Yn Long space disconnect option

Y0 Long space disconnect disabled (default).
Y1 Long space disconnect enabled.

This option affects how your modem treats breaks in the carrier. If you enable this option, your modem disconnects whenever it loses carrier.

&Yn Restore stored user profile on power up

&Y0 Selects user profile 0 on power up or reset.
&Y1 Selects user profile 1 on power up or reset.

This command determines which stored profile is restored on power up or reset.

Zn Recall stored profile

Z0 Recall stored profile 0.
Z1 Recall stored profile 1.

Load modem settings you stored using &W0. You must wait 2 seconds after you send this command before you send another command. The modem ignores commands you place after the Zn on the command line.

&Zn= Store dialing string in memory 0.
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&Z0= Store dialing string in memory 0.
&Z1= Store dialing string in memory 1.
&Z2= Store dialing string in memory 2.
&Z3= Store dialing string in memory 3.

This command lets you store up to four complete dialing strings in the modem's non-volatile memory. The modem can store up to 36 digits and dialing modifiers in each memory.

Note: You do not store the D command in the dialing string.

Example:

AT &Z1=T9, 1(817)555-7632 ENTER

Then, to dial the above:

AT D S=1 [ENTER]

(smc-09/14/93)

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