AT Commands

In most cases, you will not need to type AT commands manually. However, there might be some occasions when you will need to do so.

This chapter describes AT commands for data mode. Fax and voice commands are taken care of by application software.

The format for entering AT commands is:

ATXn

where **X** is the AT command, and **n** is the specific value for that command. After you type in the command press **Enter**.

Any command issued is acknowledged with a response in either text or numeric values known as result codes.

All commands and command-values accepted by the modem are described in this section; any entry other than those listed results in an error.

+++ Escape sequence

The escape sequence allows the modem to exit data mode and enter on-line command mode. While in on-line command mode, you can communicate directly to your modem using AT commands. Once you finish, you can return to data mode using the ATO command.

A pause, the length of which is set by Escape Guard Time (S12), must be completed after an escape sequence is entered, This pause prevents the modem from interpreting the escape sequence as data.

The value of the escape sequence character may be changed using register S2.

A/ Repeat last command

This command repeats the last command string entered. Do not precede this command with an AT prefix or conclude it by pressing **Enter**.

A Answer command

This command instructs the modem to go off-hook and answer an incoming call.

Refer to table 3-1 for country-specific codes.

Bn Communication standard setting

This command determines the communication standard CCITT or Bell.

B0 Selects CCITT V.22 mode when the modem is at 1200 bps.

B1 Selects Bell 212A when the modem is at 1200 bps (default).

B15 Selects V.21 when the modem is at 300 bps.

B16 Selects Bell 103J when the modem is at 300 bps (default).

Result Codes:

OK n=0,1,15,16

ERROR Otherwise

Dn Dial

This command instructs the modem to dial a telephone number. Enter n (the telephone number and any modifiers) after the ATD command.

Any digit or symbol (0-9, *, #, A, B, C, D) may be dialled as touch-tone digits. Characters such as spaces, hyphens, and parentheses do not count. They are ignored by the modem, but you may want to include them to make the number and modifiers easier to read.

The following may be used as phone number modifiers:

P Pulse dialling.

T Touch-tone dialling (default).

, Pause during dialling. Pause for time specified in Register S8 before processing the next character in the dial string.

W Wait for dial tone. Modem waits for a second dial tone before processing the dial string.

@ Wait for quiet answer. Wait for five seconds of silence after dialling the number. If silence is not detected, the modem sends a NO ANSWER result code back to the caller.

! Hook flash. Causes the modem to go on-hook for 0.5 seconds and then return to off-hook.

; Return to command mode. Causes the modem to return to command mode after dialling a number, without disconnecting the call.

S=n Dial a telephone number previously stored using the &Zn=X command (See &Zn=X command for more information). The range is 0-3.

Refer to table 3-1 for country-specific codes.

En Echo command

This command controls whether or not the characters entered from your computer keyboard are displayed on your monitor (echoed) while the modem is in command mode.

E0 Disables echo to the computer.

E1 Enables echo to the computer (default).

Result Codes:

OK n=0,1

ERROR Otherwise

Hn Hook control

This command instructs the modem to go on-hook to disconnect a call, or off-hook to make the phone line busy.

H0 Modem goes on-hook (default).

H1 Modem goes off-hook.

Result Codes:

OK n=0,1

ERROR Otherwise

In Request ID information

This command displays product information about the modem.

I0 Returns device information.

I1 Calculates ROM checksum and displays it on the DTE.

I2 Performs a ROM check and calculates and verifies the checksum displaying **OK** or **ERROR**.

I3 Same as **I0**.

I4 Returns firmware version for data pump.

I9 Returns country code.

Result Codes:

OK n=0,1,2,3,4,9

ERROR Otherwise

Ln Monitor speaker volume

This command sets speaker volume to low, medium, or high.

L0 Low volume.

L1 Low volume. (Same as **L0**)

L2 Medium volume (default).

L3 High volume.

Result Codes:

OK n=0,1,2,3

ERROR Otherwise

Mn Monitor speaker mode

This command turns the speaker on or off.

M0 The speaker is off.

M1 The speaker is on until the modem detects the carrier signal (default).

M2 The speaker is always on when modem is off-hook.

Result Codes:

OK n=0,1,2

ERROR Otherwise

Nn Modulation handshake

This command controls whether or not the local modem performs a negotiated handshake at connection time with the remote modem when the communication speed of the two modems is different.

N0 When originating or answering, this is for handshake only at the communication standard specified by S37 and the ATB command.

N1 When originating or answering, begin the handshake at the communication standard specified by S37 and the ATB command (default).

During handshake, a lower transmission speed may be selected.

Result Codes:

OK n=0,1

ERROR Otherwise

On Return on-line to data mode

O0 Instructs the modem to exit on-line command mode and return to data mode (see AT escape sequence, +++).

O1 This command issues a retrain before returning to on-line data mode.

O3 This command issues a rate renegotiation before returning to on-line data mode.

Result Codes:

OK n=0,1,3

ERROR Otherwise

P Select pulse dialling

This command configures the modem for pulse (non touch-tone) dialling. Dialled digits are pulsed until a T command or dial modifier is received. Tone dial is the default setting.

Refer to table 3-1 for country-specific codes.

Qn Result code control

Result codes are informational messages sent from the modem and displayed on your monitor. Basic result codes are **OK**, **CONNECT**, **RING**, **NO CARRIER**, and **ERROR**. The ATQ command allows the user to turn result codes on or off.

Q0 Enables modem to send result codes to the computer (default).

Q1 Disables modem from sending result codes to the computer.

Result Codes:

OK n=0,1

ERROR Otherwise

T Select tone dialling

This command instructs the modem to send DTMF tones while dialling. Dialled digits are tone dialled until a P command or dial modifier is received. This is the default setting.

Vn DCE response format

This command controls whether result codes (including call progress and negotiation progress messages) are displayed as words or their numeric equivalents.

V0 Displays result codes as digits.

V1 Displays result codes as text (default).

Result Codes:

OK n=0,1

ERROR Otherwise

Xn Result code selection, call progress monitoring

This command sets detection options for dial tones and busy signals, which is its primary function. It also, however, enables or disables extended result codes.

Refer to table 3-1 for country-specific codes.

Command	Extended result code	Dial tone detect	Busy signal detect
X0	Disable	Disable	Disable
X1	Enable	Disable	Disable
X2	Enable	Enable	Disable
X3	Enable	Disable	Enable
X4 (default)	Enable	Enable	Enable
X5	Enable	Enable	Enable
X6	Enable	Enable	Enable
X7	Disable	Enable	Enable

Extended result codes

Disabled: Displays only the basic result codes **OK**, **CONNECT**, **RING**, **NO CARRIER**, and **ERROR**.

Enabled: Displays basic result codes, along with the connect message and the modem's data rate, and an indication of the modem's error correction and data compression operation.

Dial tone detect

Disabled: The modem dials a call regardless of whether it detects a dial tone. The period of time the modem waits before dialling is specified in register S6.

Enabled: The modem dials only upon detection of a dial tone, and disconnects the call if the dial tone is not detected within 10 seconds.

Busy tone detect

Disabled: The modem ignores any busy tones it receives.

Enabled: The modem monitors for busy tones.

Result Codes:

OK n=0,1,2,3,4,5,6,7

ERROR Otherwise

Zn Recall stored profile

The modem performs a soft reset and restores (recalls) the configuration profile according to the parameter supplied. If no parameter is specified, zero is assumed. Either Z0 or Z1 restores the profile.

Result Codes:

OK n=0,1

ERROR Otherwise

&Cn Data Carrier Detect (DCD) control

Data Carrier Detect is a signal from the modem to the computer indicating that a carrier signal is being received from a remote modem. DCD normally turns off when the modem no longer detects the carrier signal.

&C0 The state of the carrier from the remote modem is ignored. DCD circuit is always on.

&C1 DCD turns on when the remote modem's carrier signal is detected, and off when the carrier signal is not detected (default).

Result Codes:

OK n=0,1

ERROR Otherwise

&Dn DTR control

This command interprets how the modem responds to the state of the DTR signal and changes to the DTR signal.

&D0 Ignore. The modem ignores the true status of DTR and treats it as always on. This should only be used if your communication software does not provide DTR to the modem

&D1 If the DTR signal is not detected while in on-line data mode, the modem enters command mode, issues an **OK** result code, and remains connected.

&D2 If the DTR signal is not detected while in on-line data mode, the modem disconnects (default).

&D3 Reset on the on-to-off DTR transition.

Result Codes:

OK n=0,1,2,3

ERROR Otherwise

&F Load factory settings

This command loads the configuration stored and programmed at the factory. This operation replaces all of the command options and the S-register settings in the active configuration with factory values.

&F Recall factory setting as active configuration.

&Gn V.22bis guard tone control

This command determines which guard tone, if any, to transmit while transmitting in the high band (answer mode). This command is only used in V.22 and V.22bis mode. This option is not used in North America and is for international use only.

&G0 Guard tone disabled (default).

&G1 Sets guard tone to 550 Hz.

&G2 Sets guard tone to 1800 Hz.

Result Codes:

OK n=0,1,2

ERROR Otherwise

&Kn Local flow control selection

&K0 Disable flow control.

&K3 Enable CTS/RTS flow control (default).

&K4 Enable XON/XOFF flow control.

Result Codes:

OK n=0,3,4

ERROR Otherwise

&Pn Select Pulse Dial Make/Break Ratio (WW)

&P0 Selects 39% - 61% make/break ratio at 10 pulses per second.

&P1 Selects 33% - 67% make/break ratio at 10 pulses per second.

&P2 Selects 39% - 61% make/break ratio at 20 pulses per second.

Result Codes:

OK n=0 to 2

ERROR Otherwise

&Tn Self-test commands

These tests can help to isolate problems if you experience periodic data loss or random errors.

&T0 Abort. Stops any test in progress.

&T1 Local analog loop. This test verifies modem operation, as well as the connection between the modem and computer. Any data entered at the local DTE is modulated, then demodulated, and returned to the local DTE. To work properly, the modem must be off-line.

Result Codes:

OK n=0

CONNECT n=1

ERROR Otherwise

&V View active configuration and stored profile

This command is used to display the active profiles on your computer's monitor.

&V View active file

For example:

Option	Selection	AT Command
Comm Standard Bell	B	
Command Char Echo	Enable	E
Speaker Volume	Medium	L
Speaker Control	OnUntilCarr	M
Result Codes	Enable	Q
Dialler Type	Tone	T/P
Result Code Form	Text	V
Extend Result Code	Enable	X
Dial Tone Detect	Enable	X
Busy Tone Detect	Enable	X
LSD Action	Standard RS-232C	&C
DTR Action	Ignore	&D
V.22b Guard Tone	Disable	&G

Flow Control	Hardware	&K
Error Control Mode	V.42, MNP, Buffer	\N
Data Compression	Enable	%C
Auto Answer Ring#	0	S0
AT Escape Char	43	S2
Carriage Rtn Char	13	S3
Linefeed Char	10	S4
Backspace Char	8	S5
Blind Dial Pause	2 sec.	S6
No Answer Time-out	50 sec.	S7
"," Pause Time	4 sec.	S8
No Carrier Disc	2000 msec.	S10
DTMF Dial Speed	95 msec.	S11
Escape Guard Time	1000 msec.	S12
Data Calling Tone	Disabled	S35
Line Rate	33600	S37
DSVD mode	Disabled	-SSE

Press any key to continue: **Esc** to quit.

Stored phone numbers

&Z0=

&Z1=

&Z2=

&Z3=

OK

&W Store current configuration

Saves the current (active) configuration (profile), including S-Registers.

The current configuration comprises a list of storable parameters illustrated in the **&V** command. These settings are restored to the active configuration upon receiving a **Zn** command or at power up. Refer to the &V command.

&W Stores the current configuration.

&Zn=x Store telephone number

This command is used to store up to four dialling strings in the modem's nonvolatile memory for later dialling. The format for the command is **&Zn**="stored number" where n is the location 0-3 to which the number should be written. The dial string may contain up to 40 characters. The ATDS=n command dials using the string stored in location n.

Result codes:

OK n=0, 1, 2, 3

ERROR Otherwise

\Nn Error control mode selection

This command determines the type of error control used by the modem when sending or receiving data.

\N0 Buffer mode. No error control.

\N1 Same as **\N0**.

\N2 MNP or disconnect mode. The modem attempts to connect using MNP2-4 error control procedures. If this fails, the modem disconnects.

This is also known as MNP reliable mode.

\N3 V.42, MNP, or buffer (default).

The modem attempts to connect in V.42 error control mode. If this fails, the modem attempts to connect in MNP mode. If this fails, the modem connects in buffer mode and continues operation. This is also known as V.42/MNP auto reliable mode.

\N4 V.42 or disconnect. The modem attempts to connect in V.42 error control mode. If this fails, the call will be disconnected.

\N5 V.42. MNP or Buffer (same as **\N3**).

\N7 V.42. MNP or Buffer (same as **\N3**).

Result Codes:

OK n=0,1,2,3,4,5,7

ERROR Otherwise

\Qn Local flow control selection

\Q0 Disable flow control.

\Q1 XON/XOFF software flow control.

\Q3 CTS/RTS to DTE (default).

Result Codes:

OK n=0,1,3

ERROR Otherwise

\Vn Protocol result code

\V0 Disable protocol result code appended to DCE speed.

\V1 Enable protocol result code appended to DCE speed (default).

Result Codes:

OK n=0,1

ERROR Otherwise

-V90=* V.90 Dial Line Rate

-V90 sets the maximum V.90 downstream rate that the modem attempts to connect. The asterisk represents one of the line rates listed below.

0 V.90 disabled1 V.90 enabled: automatic speed selection - maximum modem speed (default)2 28000 bps3 29333 bps4 30666 bps5 32000 bps6 33333 bps7 34666 bps8 36000 bps9 37333 bps10 38666 bps11 40000 bps12 41333 bps13 42666 bps14 44000 bps15 45333 bps16 46666 bps17 48000 bps18 49333 bps19 50666 bps20 52000 bps21 53333 bps

%B View numbers in blacklist

This command displays the phone numbers for which connections have failed. If you are using the modem in a country that does not require blacklisting, an error code results when you execute this command.

Refer to table 3-1 for country-specific codes.

%Cn Data compression control

This command determines the operation of V.42bis and MNP class 5 data compression. On-line changes do not take effect until a disconnect occurs first.

%C0 V.42bis/MNP 5 disabled. No data compression.

%C1 V.42bis/MNP 5 enabled. Data compression enabled (default).

Result Codes:

OK n=0,1

ERROR Otherwise

Table 3-1 AT commands that vary according to country regulations