Global Village PowerPort v.32

A summary of the command set for the Global Village PowerPort v.32 modem for the Macintosh PowerBook. Factory default settings are shown in boldface.

Command Buffer

The command buffer capacity is 40 characters. If a command line exceeds 40 characters, the modem will not execute the command line and will send a ERROR message after the carriage return. Telephone numbers may be entered with or without punctuation; punctuation in the telephone number takes up space in the command buffer. Note that the AT command characters, the Space character, the Carriage Return control character, and the Line Feed control character are not stored in the command buffer.

Result Codes

Result codes are responses by the modem to commands. Result codes may be English words or numbers 0-26. Result codes may be further modified by using the \Vn command to include information about error correction and data compression. Word codes are preceded and followed by a carriage reurn and line feed sequence. Digit codes are followed by a carriage return.

Digit Code	Word Code	Meaning
0	OK	Command line executed with no errors
1	CONNECT	Connection at 300 bps
2	RING	Ringing signal detected
3	NO CARRIER	Carrier lost or never present
4	ERROR	Invalid command, checksum, error in command line, or command line exceeds 40 characters
5	CONNECT 1200	Connection at 1200 bps
6	NO DIALTONE	No dialtone detected
7	BUSY	Busy signal detected
8	NO ANSWER	No silence detected when dialing a system that doesn't give a dial tone
10	CONNECT 2400	Connection at 2400 bps
11	CONNECT 4800	Connection at 4800 bps
12	CONNECT 9600	Connection at 9600 bps
14	CONNECT 19200	Connection at 19200 bps
20 *	CONNECT/REL	Connectiona t 300 bps, reliable
22 *	CONNECT 1200/REL	Connection at 1200 bps, reliable
23 *	CONNECT 2400/REL	Connection at 2400 bps, reliable
24 *	CONNECT 4800/REL	Connection at 4800 bps, reliable
26 *	CONNECT 9600/REL	Connection at 9600 bps, reliable

**** This result code is enabled by \V1 and ignored with W1***

Negotiation Progress Messages Table (Displayed when W1 is set)

Digit Code	Word Code	Meaning
40	CARRIER 300	Carrier detected at 300 bps
44	CARRIER 1200/75 V.23	Carrier Tx 1200 bps, Rx 75 bps

45	CARRIER 75/1200 V.23	Carrier Tx 75 bps, Rx 1200 bps
46	CARRIER 1200	Carrier detected at 1200 bps
47	CARRIER 2400	Carrier detected at 2400 bps
48	CARRIER 4800	Carrier detected at 4800 bps
50	CARRIER 9600	Carrier detected at 9600 bps
66	COMPRESSION: CLASS5	MNP compression negotiated
67	COMPRESSION: V42BIS	V.42bis compression negotiated
69	COMPRESSION: NONE	No compression negotiated
70	PROTOCOL: NONE	Asynchronous mode
77	PROTOCOL: LAPM	V.42 LAP-M error correction
80	PROTOCOL: ALT	MNP error correction

Basic AT Commands

AT (Attention Code)
The command line prefix that precedes the command line for all commands, except for the +++ (Escape) and A/ (Repeat) commands.

A (Answer Command)
Forces the modem to go off-hook in answer mode without waiting for a ring. This is useful in manually answering a call or establishing a back-to-back connection with another modem in the originate mode.

A/ (Repeat Last Command)
Repeats the previous command, such as redialing a phone number. No carriage return is required. The previously entered command remains in the buffer until AT is entered or power to the modem is turned off. Both actions clear the buffer and make the A/ command invalid since there is no command to repeat.

Bn (Communications Standards Option)
Sets the modem to either CCITT mode or Bell mode. For Asymmetric V.23 operation, this command specifies the direction of higher speed transfer.
Parameters: n=0 CCITT V.22 mode when at 1200 bps/V.21 at 300 bps
n=1 Bell 212A modem when at 1200 bps/Bell 103 at 300 bps
n=3 CCITT V.23 TX 75 bps/RX 1200 bps
n=4 CCITT V.23 TX 1200 bps/RX 75 bps

Cn (Carrier Control)
Enables the transmit carrier.
Parameters: n=1 Normal transmit carrier

D (Dial Command)
Causes the modem to dial the number that follows the D in the command line.

See the Dial Modifiers section for more information.

Dial Modifiers:	***P***	***Pulse dial***
	T	***Tone dial***
	,	***Pause for number of seconds in Register 8***
	!	***Hook-flash (on-hook for 0.5 seconds)***
	@	***Wait for silence for up to 30 seconds***
	W	***Wait for dial tone for number of seconds in Register 7***
	;	***Return to command mode after dialing***
	S=n	***Dial stored number in Directory entry n***
	R	***Originate in Answer Mode***

En (Off-line Echo Character Option)
Controls command echo to the host.

Parameters:	***n=0***	***Disable modem echo to terminal in command mode***
	n=1	***Enable modem echo to terminal in command mode***

Fn (On-line Echo Character Option)
Controls on-line character echo to the host.

Parameters:	***n=0***	***Modem echoes to terminal in on-line mode***
	n=1	***On-line echo disabled***

Hn (Switch Hook Control)
Controls the on-hook relay.

Parameters:	***n=0***	***Go on-hook (hang up)***
	n=1	***Go off-hook***

In (Identification/Checksum Option)
Interrogates the modem for its product ID code, ROM checksum, or ROM chesksum status.

Parameters:	***n=0***	***Product ID Code***
	n=1	***Return checksum on ROM***
	n=2	***Return OK/ERROR on ROM checksum***

Mn (Speaker Control Option)
Controls speaker on/off operation.

Parameters:	***n=0***	***Speaker off***
	n=1	***Speaker on until carrier detect***
	n=2	***Speaker always on***
	n=3	***Speaker on until carrier detect except during dialing***

On (On-line Command)
Forces the modem to the on-line state from the command state. When the modem is in the on-line state, it returns to the command state upon receipt of the Escape code.

Parameters:	***n=0***	***Return to on-line state from on-line command mode***
	n=1	***Go on-line and initiate retrain (2400 bps)***

Qn (Result Code Display Option)
Enables the modem to send result codes.

Parameters:	***n=0***	***Modem returns result codes (Quiet disabled)***
	n=1	***Modem does not return result codes (Quiet***

enabled)
n=2 Modem returns result codes in Originate only

Sn=x (Write to an S Register)
Sets register "n" to the value of "x". Configuration registers are provided to retain modem configuration parameters. The contents of these registers can be modified with this command.
Range: n=0-27 (register number)
x=0-255 (value)

Sn? (Read an S Register)
Causes the contents stored in register "n" to be returned.
Range: n=0-27 (register number)

Vn (Result Code Form Option)
Determines the type of result code.
Parameters: n=0 Short-form result code (Verbose disabled)
n=1 Full-word result codes (Verbose enabled)

Wn (Negotiating Progress Code Form)
Parameters: n=0 Negotiation Progress Codes disabled. Result code is DTE rate
n=1 Negotiation Progress Codes enabled. \V setting is ignored
n=2 Negotiation Progress Codes disabled. Result code
is DCE rate

Xn (Result Code Set/Call Progress Option)
Selects the Result Code Set given at the start of this appendix and selects dialig functions. The Vn command determines if the result code is sent as words or digits.
Parameters: n=0 Smartmodem 300 compatible; CONNECT result code enabled
n=1 Modem ignores dial tone and busy; CONNECT XXXX
n=2 Modem ignores busy; CONNECT XXXX
n=3 Modem ignores dial tone; CONNECT XXXX
n=4 Modem recognizes dial tone and busy; CONNECT XXXX

Note Even though the PowerPort allows a setting of n=0, do not use it. This will confuse
the auto baud algorithm in the PowerPort and it will not be able to establish a
proper data communication link.

Yn (Long Space Disconnect Option)
Yn selects long space disconnect operation. When enabled, the PowerPort will terminate the connection if it receives a break 1.6 seconds in length; (PowerPort will send a break four seconds in length prior to any controlled disconnect).
Parameters: n=0 Disable long-space disconnect
n=1 Enable long-space disconnect

Zn (Recall Stored Profile Option)
Zn causes the modem to fetch the stored configuration from non-volatile memory and store it in the active configuration area. An OK result code is returned. Any commands remaining in the original command line after the Zn command will not be executed since the initialization clears the command line buffer. See &Wn for modem parameters to set up a stored parameter.
Parameters: n=0 Reset and recall User Profile 0
n=1 Reset and recall User Profile 1

Dial Modifiers

The following modifiers are used with the ATD command.

P (Pulse Dial)
P instructs the modem to use pulse dialing when dialing a number. P may be used between digits of a telephone number to pulse dial the digits following the command.

The number of momentary breaks is equal to the digit dialed except for the "0", which is equal to 10 breaks. AT&P0 selects a default make/break ratio of 39% make to 61% break. AT&P1 selects an alternate ratio of 33% make to 67% break, (which is required in some countries, such as the United Kingdom and Hong Kong). The pulse rate limits are 8 pulses per second minimum and 11 pulses per second maximum.

R (Originate Call In Answer Mode)
R places the modem in answer mode from the originate mode after the telephone number has been dialed. The R is usually entered at the end of the telephone number. This command is used to dial originate-only modems.

S=n (Dial Stored Telephone Number)
S=n causes the modem to dial one of four telephone numbers previously stored in NVRAM with the &Zn command.
Parameters: S=n<CR> where n=0-
A <CR><LF> sequence is first sent to the DTE. If there is no delimiter (=), the string stored in location 0 is sent to the DTE. If the delimiter is present, the character after it (which must be in the range 0-3), specifies which stored string to use. If there is no character after the delimiter, the string in location 0 is sent to the DTE. After the string is sent, it is executed.

T (Touch Tone Dial)
T instructs the modem to use DTMF tones to dial the characters following the T. The DTMF duration and inter-digit duration is specified in milliseconds by the S11 register.

W (Wait for Dial Tone)
W causes the modem to wait up to a specified time for the dial tone to occur. The telephone number is idaled immediately upon dial tone detection. The S7 register value determines the maximum wait time. If a busy signal is detected instead of a dial tone, the modem returns a BUSY result code and goes on-hook, abandoning subsequent instructions on the command line.

; (Return to Idle State)

; (semicolon) forces the modem to remain in the command state after dialing a number without disconnecting. The semicolon must be placed at the end of the dial command.

@ (Wait for Quiet Answer Command)
@ (ampersand) causes the modem to look for rings followed by 5 seconds of silence before processing the next symbol in the dialing string. The S7 register value determines the maximum wait time. If quiet answer is detected, the dial modifiers following the command are executed. If busy is detected, the modem returns a BUSY result code and goes to the hang-up process, aborting further execution of commands.

! (Flash Hook Command)
! (exclamation point) causes the modem to go on-hook for 0.5 seconds.

, (Pause Command)
, (comma) causes the modem to pause for a specified time during dialing. The S8 register value determines the pause time. Use multiple commas to increase the pause time.

Ampersand (AT&) Commands

&Cn (Data Carrier Detect Option)
Controls the data carrier detect option.
Parameters: n=0 Carrier detect always ON
n=1 Carrier detect follows data carrier

&Dn (Data Terminal Ready Option)
Controls the data terminal ready option.
Parameters: n=0 Modem ignores DTR
n=1 Go To Command Mode on ON to OFF DTR transition
n=2 Hang up and go to Command Mode ON to OFF DTR
n=3 Reset on ON to OFF DTR transition
n=4 Deliver all buffered data before disconnecting on ON to OFF DTR

&Fn (Load Factory Settings)
Resets the S registers and commands to the factory defaults.
Parameters: n=0 Recall factory settings as active configuration
n=1 Recall second factory settings as active: \N3, \V1, \Q1, \C2, \G1, %C1

&Gn (Guard Tone Option)
Controls the guard tone generation.
Parameters: n=0 No guard tone
n=1 550 Hz guard tone
n=2 1800 Hz guard tone

&Ln (Dial Up/Leased Line Option)
Controls the dial up/leased line option. The leased line option is not supported,

however.

Parameters: n=0 Dial up line
n=1 Leased line (not supported)

&M0 (Asynchronous Mode)

&Pn (Pulse Dial Make-Break Option)
Selects the make-break ratio used for pulse dialing.
Parameters: n=0 Pulse dial make-break 39%/61%
n=1 Pulse dial make-break 33%/67%

&Qn (Communications Mode Option)
Selects either Asynchronous or Autosync as the communications mode.
Parameters: n=0 Asynchronous mode (same as &M0)
n=4 Autosync mode

&Rn (RTS/CTS Option)
Controls the RTS/CTS option.
Parameters: n=0 CTS follows RTS (no-protocol mode only)
n=1 CTS always true

&Sn (DataSet Ready Option)
Controls the DataSet (DSR) option.
Parameters: n=0 Interface DSR always true
n=1 Interface DSR follows CCITT V.24 specification

&Tn (Self Test Commands)
Selects one of nine test commands.
Parameters: n=0 Terminate test
n=1 Initiate local analog loopback test (low channel)
n=2 Initiate local analog loopback test (high channel)
n=3 Initiate local activated remote digital loopback
n=4 Grant request from remote for RDL
n=5 Deny request from remote for RDL test
n=6 Initiate Remote Digital Loopback test
n=7 Initiate Remote Digital Loopback with self test
n=8 Initiate Remote Analog Loopback with self test

&Vn (View Active Configuration and Stored Profile)
Displays the active and stored profiles (commands and S register settings) along with the stored telephone numbers. Inputs from the DTE are ignored while the view information is being sent to the DTE.
Parameters: n=0 View stored profile 0
n=1 View stored profile 1

&Wn (Store Active Profile)
Writes the storable parameters of the active configuration to one of two profiles in NVRAM. The current values of the following commands and registers are stored:

Commands: ***Bn, En, Ln, Mn, Qn, Vn, Wn, Xn, Yn***
&Cn, &Dn, &Gn, &Jn, &Ln, &Mn, &Qn, &Rn
\An, \Cn, \Gn, \Hn, \Jn, \Kn, \Qn, \Nn, \Tn, \Vn, \Xn
%An, %Bn, %Cn, %En, %Mn
Registers: ***S0, S14, S18, S21, S22, S23, S25, S27***
The stored values will be used upon a power up or hard reset.

Parameters: ***n=0 Save active configuration as User Profile 0***
n=1 Save active configuration as User Profile 1

&Yn (Select Stored Profile on Power Up Option)
Determines which stored profile is established upon modem power up or a hard reset. See the &Wn command for the particular commands and S register contents that are stored.
Parameters: ***n=0 Recall User Profile 0 on power-up***
n=1 Recall User Profile 1 on power-up

&Zn=x (Store Telephone Number)
Stores up to four dialing strings into NVRAM for later recall by the DS dial stored number command.
Parameters: ***&Zn=<up to 32 characters><CR> where n=0-3***

If the delimiter (=) is not present, the characters after &Z are treated as phone numbers and/or modifiers and are stored in location 0. If the delimiter is present, the characters following it are stored in the location specified by the character preceding the delimiter (which must be in the range 0-3). If there is no character preceding the delimiter, storage occurs in location 0.

Allowable arguments:
Storable: 0 1 2 3 4 5 6 7 8 9 A B C D # * T P R W @ , ! ;
Delimiter: =
Characters not listed as storable are ignored and not stored.

Percent (AT%) Commands

%An (Autoreliable Fallback Character Settings)
Ssets the autoreliable fallback character.
Parameters: ***n= an ASCII character code from 0 to 127***
n=0 Factory default

%Bn (Maximum Modem Port Rate)
Sets the maximum modem port rate.
Parameters: ***n=300, 1200, 2400, 4800, 9600***

%Cn (Data Compression)
Enables and disables data compression.
Parameters: ***n=0 No compression***
n=1 Enable data compression (V.42bis in LAPM, MNP5 in MNP)

%En (Auto Retrain)

Enables and disables auto retrain.
Parameters: n=0 Disable auto retrain
n=1 Enable auto retrain

%Mn (Minimum Modem Port Rate)
Ssets the minimum modem port rate.
Parameters: n=300, 1200, 2400, 4800, 9600

%V (Display Firmware Revision)
Displays the firmware revision.

Backslash (AT\) Commands

\An (MNP Block Size)
Sets the MNP block size.
Parameters: n=0 Set the maximum MNP block size = 64 characters
n=1 Set the maximum MNP block size = 128 characters
n=2 Set the maximum MNP block size = 192 characters
n=3 Set the maximum MNP block size = 256 characters

\Bn (Transmit Break)
Sends a BREAK of n*100 milliseconds to remote.

\Cn (Set Autoreliable Buffer)
Controls the autoreliable buffer option.
Parameters: n=0 Does not buffer during link negotiation
n=1 Buffers data on answering modem until either 200 non-SYN characters are received or a SYN char is received within 3 seconds
n=2 Does not buffer data on answering the modem

\Gn (Set Modem Port Flow Control)
Sets the modem port flow control option.
Parameters: n=0 Disable port flow control
n=1 Enable port XON/XOFF flow control

\Hn (HP ENQ/ACK Protocol)
Controls the HP ENQ/ACK protocol.
Parameters: n=0 Disable HP ENQ/ACK protocol
n=1 Enable HP ENQ/ACK emulating terminal
n=2 Enable HP ENQ/ACK emulating host

\Jn (Bps Rate Adjust)
Sets the bps rate adjust option.
Parameters: n=0 Disable port rate adjust. Serial port is independent of the connection.
n=1 Enable port rate adjust. After a connection is

made,
the serial port adjusts to the rate of connection.

\Kn (Set BREAK Control)
Sets the BREAK control option.
Parameters: n=0 Break from port = enter command mode, do not TX break;
Break command = purge buffers and TX Break;
Break from remote = purge buffers, relay break to port.
n=1 Break from port = purge buffers;
Break command = purge buffers and TX Break;
Break from remote = purge buffers, relay break to port.
n=2 Break from port = enter command mode, do not TX Break;
Break command = TX Break immediately;
Break from remote = relay break to port now.
n=3 Break from port = TX Break immediately;
Break command = TX Break immediately;
Break from remote = relay break to port immediately.
n=4 Break from port = enter command mode, do not TX break;
Break command = TX Break in sequence with data;
Break from remote = relay break in sequence with data.
n=5 Break from port = TX Break in sequence with data;
Break command = TX Break in sequence with data;
Break from remote = relay break in sequence with data.

\Nn (Set Operating Mode)
Sets the operating mode option.
Parameters: n=0 Set normal mode; no error correction
n=1 Normal mode
n=2 Reliable mode (MNP)
n=3 Auto-reliable mode (MNP with fallback to normal)
n=4 Reliable mode (V.42 LAPM only)
n=5 Auto-reliable mode (V.42 LAPM with fallback to normal)
n=6 Reliable mode (V.42 LAPM with fallback to MNP)
n=7 Auto-reliable mode (LAPM with fallback to MNP and normal)

Note: The \N4 (V.42) through \N7 configuration selections are not saved in non-

volatile RAM. \N3 (MNP) saves properly.

\OFF (Power Down Mode)

\Qn (Set Serial Port Flow Control)
Sets the serial port flow control option.
Parameters: n=0 Disable flow control
n=1 Enable bidirectional XON/XOFF flow control
n=2 Enable unidirectional hardware flow control
n=3 Enable bidirectional hardware flow control
n=4 Enable unidirectional XON/XOFF flow control
n=5 Keep CTS off until CONNECT for unidirectional hardware flow
n=6 Keep CTS off until CONNECT for bidirectional hardware flow

\Tn (Set Inactivity Timer)
Sets the inactivity timer option. When enabled, this option defines the length of time the modem will wait before disconnecting when no data is received or sent.
Parameters: n=0 to 90 minutes
n=0 Disable timer

\Vn (Modify Result Form)
Adds optional error correction status to the connect code.
Parameters: n=0 Disable /REL MNP connect codes (ignored if W1 set)
n=1 Enable /REL MNP connect codes (ignored if W1 set)
n=2 LAPM and MNP added to /REL connect codes

\Xn (Set the XON/XOFF Pass-Through)
Sets the XON/XOFF pass-through option.
Parameters: n=0 Disable XON/XOFF pass-through (ignored if \Q1 is not set)
n=1 Enable XON/XOFF pass-through (ignored if \Q1 is not set)

\Z (Switch to Normal Mode from Reliable Mode)
Sets the XON/XOFF pass through option. This option functions only when MNP error-correction is used.

S Registers

The factory default values are used whenever the &F command is received or a parity error is detected in the NVRAM upon modem power turn-on. The user-defined S register default values are used at modem power turn-on or when a modem reset is received.

Reading an S Register
The command Sn? reads the current value of an S register, where “n” is the number of the register.

Changing an S Register Parameter

The command Sr=n sets or changes an S register parameter, where "r" is the number of the register and "n" is a value between 0 and 255 (the range of values that can be assigned).

Register Summary

Register	Default	Description
S0	0	Ring to answer on
S1	0	Ring counter
S2	43	Escape character (+)(disabled above 127)
S3	13	Carriage Return <CR> character code (decimal)
S4	10	Line Feed <LF> character code
S5	08	Back Space <BS> character code
S6	02	Seconds to wait before blind dialing
S7	30	Seconds to wait for carrier or dial tone
S8	02	Seconds to delay for command (,) dial modifier
S9	06	Tenths of a second to determine if CD is true
S10	14	Tenths of a second to detect lost carrier
S11	95	Milliseconds duration and spacing of DTMF tones
S12	50	.02 second escape sequence guard time (not used)
S14	10	R0 bit mapped register:
		1 - cmd echo
		2 - result codes
		3 - verbose
		4 - dumb
		5 - pulse dial
		7 - originate mode
S16	00	Bit mapped test register0 - local analog loop
		2 - local digital loop
		3 - local modem in RDL
		4 - RDL initiated
		5 - RDL with ST initiated
		6 - Local analog loop with ST initiated
S18	00	Modem test timer (seconds)
S19	16	Autosync protocol support mode
S20	32	Autosync sync/address character
S21	00	R0 bit mapped options
		0 - Telco jack
		2 - &R
		3,4 - &D
		5 - &C
		6 - &S
		7 - Y
S22	118	R0 bit mapped options
		0,1 - L
		2,3 - M
		4-6 - X (0=X0, 4=X1, 5=X2, 6=X3, 7=X4)
		7 - &P

S23	***21***	***R0 bit mapped options*** ***0 - obey RDL*** ***1-3 - rate (0=300, 1=600, 2=1200, 3=2400, 4=4800, 5=9600, 6=19200, 7=38400)*** ***4-5 - parity (0=even, 1=space, 2=odd, 3=mark)***