

AT FAX COMMANDS

This faxmodem implements the following commands and functions associated with its fax capability. Class 1 fax commands are listed first, followed by Class 2 fax commands.

The information in the rest of this chapter is very technical, but you will never need to use these commands; your fax software takes care of all of this. These technical details are presented here for those who may be interested.

For those interested in fax software development, more detailed descriptions of the commands shown in the following section and other important information relating to control of the fax hardware can be obtained from the Telecommunications Industry Association, located at 1722 I Street N.W., Suite 440, Washington, D.C. 20006.

For information about Class 1 fax standards, ask about EIA-578. For Class 2, ask for "Electronic Industries Association and Telecommunications Industry Association TIA Project Number 2388, Asynchronous Facsimile DCE Control Standard, Service Class 2, TR-29.2 Committee Letter Ballot."

TABLE 9-1 CLASS 1 AT FAX COMMANDS (All default values are listed with *.)

COMMAND	FUNCTION
+FAEn	Data/fax auto-answer. Allow DTE to either restrict answering to Class 1, or auto-detect whether the caller is a Class 1 fax or a modem, and answer accordingly * n=0 Disable data/fax auto-answer. Faxmodem answers as a fax. n=1 Enable data/fax auto-answer mode.
+FCLASS=n	Select service class. * n=0 Data mode n=1 Fax class 1 n=2 Fax class 2
+FRH=n	Receive data with HDLC framing and the modulation defined below. Off-hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FRM=n	Receive data using the modulation defined below. Off-

	hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FRS=n	Receive silence. Off-hook use only. Causes faxmodem to respond with OK after n 10 ms intervals of silence have been detected on the line.
+FTH=n	Transmit data with HDLC framing and the modulation defined below. Off-hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FTM=n	Transmit data using the modulation defined below. Off-hook use only. n=3 V.21 Channel 2 300 bps n=24 V.27ter 2400 bps n=48 V.27ter 4800 bps n=72 V.29 7200 bps n=73 V.17 7200 bbs long n=74 V.17 7200 bbs short n=96 V.29 9600 bps n=97 V.17 9600 bps long n=98 V.17 9600 bps short n=121 V.17 12000 bps long n=122 V.17 12000 bps short n=145 V.17 14400 bps long n=146 V.17 14400 bps short
+FTS=n	Stop transmission and wait. Off-hook use only. After n 10 ms intervals, modem responds with OK.
+F<command>=?	Report operating capabilities for a given command. Typical responses are: +FAE? 0,1

	+FCLASS 0,1,2
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TABLE 9-2 CLASS 2 AT FAX COMMANDS (All default values are listed with *.)

COMMAND	FUNCTION
A	Answer a call.
D	Originate a call.
+FCLASS=n	Select service class. * n=0 Data mode n=1 Fax class 1 n=2 Fax class 2
+FDR=	Begin or continue Phase C receive data.
+FDT	Transmit Phase C data.
+FET=n	Transmit page punctuation.
+FK	Terminate session.

When operating as a Class 2 fax, the faxmodem sends responses to the DTE.

TABLE 9-3 CLASS 2 FAX RESPONSES

COMMAND	FUNCTION
+FCFR +FCON +FCSI +FDCS +FDIS	Indicate confirmation to receive Facsimile connection response Report the called station ID Report current session Report remote identification
+FET +FHNG +FPTS +FTSI +FMFR?	Post page message response Call termination with status Page transfer status Reports the transmit station ID Identify manufacturer
+FMDL? +FREV? +FDCC= +FDIS= +FDCS=	Identify model Identify revision DCE capabilities parameters Current sessions parameters Current session results
+FLID +FCR +FPTS= +FCR= +FAA	Local ID string Capability to receive Page transfer status Capability to receive Adaptive answer
+FBUF? +PHOTO +FAXERR	Buffer size (read only) Phase C time out Fax error value

+FBOR	Phase C data bit order
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TABLE 9-5 CLASS 2 FAX T.30 SESSION SUBPARAMETER CODES

LABEL	FUNCTION	VALUE	DESCRIPTION	
VR	Vertical Resolution	0	Normal, 98 dpi	
		1	Fine, 196 dpi	
BR	Bit rate*	0	2400 bps, V.27ter	
		1	4800 bps, V.27ter	
		2	7200 bps, V.29 or V.17	
		3	9600 bps, V.29 or V.17	
		**4	12000 bps, V.33 or V.17	
		**5	14400 bps, V.33 or V.17	
WD	Page width	0	1728 pixels in 215 mm	
		1	2048 pixels in 255 mm	
		2	2432 pixels in 303 mm	
LN	Page length	0	A4, 297 mm	
DF	Data Compression format	1	1--D modified Huffman	
		2	2--D modified Read	
EC	Error correction (Annex A/T.30)	0	Disable ECM	
BF	Binary file transfer	0	Disable BFT	
ST	Scan time/line		VR=normal	VR=fine
		0	0 ms	0 ms
		1	5 ms	5 ms
		2	10 ms	10 ms
		3	10 ms	10 ms
		4	20 ms	20 ms
		5	20 ms	20 ms
		6	40 ms	40 ms
		7	40 ms	40 ms

* CCITT T.30 does not provide for the answering station to specify all speeds exactly using the DIS frame. Implementation of some BR codes (e.g., code 2) by an answering DCE is manufacturer-specific.

** V.32bis modem only.

TABLE 9-6 CLASS 2 FAX HANGUP STATUS CODES

CODE	CAUSE DESCRIPTION
0-9	CALL PLACEMENT AND TERMINATION
0	Normal and proper end of connection
1	Ring detect without successful handshake
2	Call aborted, from +FK or AN
3	No loop current

10-19	TRANSMIT PHASE A AND MISCELLANEOUS ERRORS
10	Unspecified Phases A error
11	No answer (T.30 T1 timeout)
20-39	TRANSMIT PHASE B HANGUP CODES
20	Unspecified transmit Phase B error
21	Remote cannot receive or send
22	COMREC error in transmit Phase B
23	COMREC invalid command received
24	RSPEC error
25	DCS sent three times without response
26	DES/DTC received three times; DCS not recognized
27	Failure to train
28	RSPREC invalid response received
40-49	TRANSMIT PHASE C HANGUP CODES
40	Unspecified transmit Phase C error
43	DTE to DCE data underflow
50-69	TRANSMIT PHASE D HANGUP CODES
50	Unspecified transmit Phase D error
51	RSPREC error
52	No response to MPS repeated three times
53	Invalid response to MPS
54	No response to EOP repeated three times
55	Invalid response to EOP
56	No response to EOM repeated three times
57	Invalid response to EOM
58	Unable to continue after PIN or PIP
70-89	RECEIVE PHASE B HANGUP CODES
70	Unspecified receive Phase B error
71	RSPREC error
72	COMREC error
73	T.30 T2 timeout, expected page not received
74	T.30 T1 timeout after EOM received
90-99	RECEIVE PHASE C HANGUP CODES
90	Unspecified receive Phase C error
91	Missing EOL after five seconds
92	Unused code
93	DCE to DTE buffer overflow
94	Bad CRC or frame (ECM or BFT modes)
110-119	RECEIVE PHASE D HANGUP CODES
100	Unspecified receive Phase D errors
101	RSPREC invalid response received
102	COMREC invalid response received
103	Unable to continue after PIN or PIP
120-255	RESERVED CODES

(dtc-07/30/93)