TECHNICAL QUICK REFERENCE

This section includes information about:

Lights (External Modems Only)

Front-of-the-Case Lights (on All Non-Voice Externals and Some Voice Externals)

Symbol	Meaning	Status
AA	Auto Answer	Answer mode: ON when register S0 is set to 1 or higher (Auto Answer), and when answering a call; OFF when modem originates a call. Light flashes when there is an incoming call.
CD	Carrier Detect	ON if modem receives a valid data signal (carrier) from a remote modem, indicating that data transmission is possible. Always ON if CD override is ON (&C0).
RD	Received Data	Flashes when modem sends result codes or passes received data bits from remote.
SD	Send Data	Flashes when computer sends a data bit to modem.
TR	Data Terminal Ready	ON if modem receives a DTR signal from computer. Always ON (modem ignores DTR) if the DTR override is ON (&D0).
CS	Clear to Send	ON until modem lowers CTS when Transmit Data hardware flow control is enabled (&H1, &H3).
ARQ/ FAX	Error Control/ Fax Operations	Data Mode: Automatic Repeat Request. ON if modem is set to &M4 or &M5 and successfully establishes an error control connection. Flashes when modem retransmits data to remote modem. Fax Mode: Flashes to indicate fax mode.

Top-of-the-Case Lights (on Some Voice Externals)

Light	What It Means When Lit
POWER	The modem is turned on.
SEND	The computer is sending a data bit to the modem.
RECEIVE	The modem is sending result codes or passing received data bits from the remote.
ONLINE	The modem is online. (NOTE: This light blinks when the mute feature is being used.)

Typing Commands

- Type commands in either upper or lower case, not a combination. Use the Backspace key to delete errors. (You cannot delete the original AT command since it is stored in the modem buffer.)
- If a command has numeric options and you don't include a number, zero is assumed. For example, if you type **ATB**, the command **ATB0** is assumed.
- Every command except **A/**, **+++**, and **A>** must begin with the AT prefix and be entered by pressing **ENTER**.
- The maximum command length is 58 characters. The modem doesn't count the AT prefix, carriage returns, or spaces.

NOTE: All defaults are based on the &F1—Hardware Flow Control template loaded in NVRAM when the modem is shipped. Defaults are listed in italics.

Basic Data Commands

<control key>S
Stop or restart help screens.

<control key>C
or
<control key>K
Stop help screens.

$ Use in conjunction with *D, S,* or *&* commands (or just AT) to display a basic command list; online help.

A Manual Answer: goes off hook in answer mode. Pressing any key aborts the operations.

A/ Re-executes the last issued command. Used mainly to redial. Does not require the AT prefix or a Carriage Return.

A> Re-executes the last issued command continuously, until the user intervenes or the command is executed. forever. Does not require the AT prefix or a Carriage Return.

Any key Aborts off-hook dial/answer operation and hangs up.

AT Required command prefix, except with A/, +++, and A>. Use alone to test for OK result code.

B*n* **U.S./ITU-T answer sequence.**

B0	*ITU-T answer sequence*
B1	U.S. answer tone

D*n* **Dials the specified phone number. Includes the following:**

0-9	Numeric digits
#, *	Extended touch-tone pad tones
L	Dials the last dialed number.
P	Pulse (rotary) dial
R	Originates call using answer (reverse) frequencies.
Sn	Dials the phone number string stored in NVRAM at position n (n = 0–3). Phone numbers are stored with the &Zn=s command.
T	Tone dial
,	(Comma) Pause, See S8 definition; which it's linked to.
;	(Semicolon) Return to Command mode after dialing.
"	Dials the letters that follow (in an alphabetical phone number).
!	(Exclamation point) Flashes the switch hook.
/	Delays for 125 ms. before proceeding with dial string.
W	Wait for second dial tone (X2 or X4); linked to S6 register.

D*n* *(cont.)*

@ Dials, waits for quiet answer, and continues (X3 or higher).

$ Displays a list of Dial commands.

E*n* **Sets local echo.**

E0 Echo OFF

E1 *Modem displays keyboard commands*

F*n* **Sets online local echo of transmitted data ON/OFF.**

F0 Local echo ON. Modem sends a copy of data it sends to the remote system to your screen.

F1 *Local echo OFF. Receiving system may send a remote echo of data it receives.*

H*n* **Controls ON/OFF hook.**

H0 Hangs up (goes on hook).

H1 Goes off hook.

I*n* **Displays the following information.**

I0 Four-digit product code

I1 Results of ROM checksum

I2 Results of RAM checksum

I3 Product type

I4 Current modem settings

I5 Nonvolatile memory (NVRAM) settings

I6 Link diagnostics

I7 Product configuration

I9 Plug and Play information

I11 Extended link diagnostics

L*n* **Controls speaker volume (internals only).**

- L0 Low volume
- L1 Low volume
- *L2 Medium volume*
- L3 High volume

M*n* **Operates speaker.**

- M0 Speaker always OFF.
- *M1 Speaker ON until CONNECT.*
- M2 Speaker always ON.
- M3 Speaker ON after dial, until CONNECT.

O*n* **Returns online.**

- O0 Returns online.
- O1 Returns online and retrains.

P **Sets pulse dial (for phone lines that don't support touch-tone dialing).**

Q*n* **Displays/suppresses result codes.**

- *Q0 Displays result codes.*
- Q1 Quiet mode; no result codes.
- Q2 Displays result codes only in Originate mode.

S*r*.*b*=*n* **Sets bit .*b* of register *r* to *n* (0/OFF or 1/ON).**

S*r*=*n* **Sets register *r* to *n*.**

S*r*? **Displays contents of S-Register *r*.**

S$ **Displays a list of the S-Registers.**

T **Sets tone dial.**

V*n* **Displays verbal/numeric result codes.**

V0 Numeric codes
V1 *Verbal codes*

X*n* Sets result code displayed. Default is X4.

Result Codes	X0	X1	X2	X3	X4
0/OK	•	•	•	•	•
1/CONNECT	•	•	•	•	•
2/RING	•	•	•	•	•
3/NO CARRIER	•	•	•	•	•
4/ERROR	•	•	•	•	•
5/CONNECT 1200		•	•	•	•
6/NO DIAL TONE			•		•
7/BUSY				•	•
8/NO ANSWER*				•	•
9/Reserved					
10/CONNECT 2400		•	•	•	•
11/RINGING					•
13/CONNECT 9600		•	•	•	•
18/CONNECT 4800		•	•	•	•
20/CONNECT 7200		•	•	•	•
21/CONNECT 12000		•	•	•	•
25/CONNECT 14400		•	•	•	•
43/CONNECT 16800		•	•	•	•
85/CONNECT 19200		•	•	•	•
91/CONNECT 21600		•	•	•	•
99/CONNECT 24000		•	•	•	•
103/CONNECT 26400		•	•	•	•
107/CONNECT 28800		•	•	•	•
151/CONNECT 31200		•	•	•	•
155/CONNECT 33600		•	•	•	•

Xn	Result Codes (cont.)	X0	X1	X2	X3	X4
	256/CONNECT 28000		•	•	•	•
	260/CONNECT 29333		•	•	•	•
	264/CONNECT 30666		•	•	•	•
	268/CONNECT 32000		•	•	•	•
	180/CONNECT 33333		•	•	•	•
	272/CONNECT 34666		•	•	•	•
	276/CONNECT 36000		•	•	•	•
	184/CONNECT 37333		•	•	•	•
	280/CONNECT 38666		•	•	•	•
	284/CONNECT 40000		•	•	•	•
	188/CONNECT 41333		•	•	•	•
	192/CONNECT 42666		•	•	•	•
	196/CONNECT 44000		•	•	•	•
	200/CONNECT 45333		•	•	•	•
	204/CONNECT 46666		•	•	•	•
	208/CONNECT 48000		•	•	•	•
	212/CONNECT 49333		•	•	•	•
	216/CONNECT 50666		•	•	•	•
	220/CONNECT 52000		•	•	•	•
	224/CONNECT 53333		•	•	•	•
	228/CONNECT 54666		•	•	•	•
	232/CONNECT 56000		•	•	•	•
	236/CONNECT 57333		•	•	•	•
	Adaptive Dialing			•	•	•
	Wait for 2nd Dial Tone (W)			•		•
	Wait for Answer (@)				•	•
	Fast Dial			•		•

*Requires @ in dial string; replaces NO CARRIER

Y*n* **Selects power-on/reset default configuration.**

Y0 *Use profile 0 setting in NVRAM*

Y1 Use profile 1 setting in NVRAM

Y2 Use factory configuration 0.

Y3 Use factory configuration 1.

Y4 Use factory configuration 2

Z **Resets modem.**

Z0 Resets modem to NVRAM profile selected by Y command or dip 7.

Z1 Resets modem to NVRAM profile 0

Z2 Resets modem to NVRAM profile 1

Z3 Resets modem to factory default profile 0 (&F0)

Z4 Resets modem to factory default profile 1 (&F1)

Z5 Resets modem to factory default profile 2 (&F2)

Extended Data Commands

&$ Displays a list of ampersand (&) commands.

&A*n* Enables/disables additional result code subsets (see X*n*).

- &A0 ARQ result codes disabled
- &A1 ARQ result codes enabled
- &A2 V.32 modulation indicator added
- *&A3 Protocol indicators added ¾ LAPM/MNP/NONE (error control) and V42*bis*/MNP5 (data compression)*

&B*n* Manages modem's serial port rate.

- &B0 Variable, follows connection rate
- *&B1 Fixed serial port rate*
- &B2 Fixed in ARQ mode, variable in non-ARQ mode

&C*n* Controls Carrier Detect (CD) signal.

- &C0 CD override
- *&C1 Normal CD operations*

&D*n* Controls Data Terminal Ready (DTR) operations.

- &D0 DTR override
- &D1 DTR toggle causes online Command mode
- *&D2 Normal DTR operations*
- &D3 Resets on receipt of DTR

&F*n* Loads a read-only (non-programmable) factory configuration.

- &F0 Generic template
- &F1 Hardware flow control template
- &F2 Software flow control template

&G*n* Sets Guard Tone.

&G0 *No guard tone, U.S. and Canada*
&G1 550 Hz guard tone, some European countries, requires B0 setting.
&G2 1800 Hz guard tone, U.K., requires B0 setting.

&H*n* Sets Transmit Data (TD) flow control (see also &R*n*).

&H0 Flow control disabled
&H1 *Hardware flow control, Clear to Send (CTS)*
&H2 Software flow control, XON/XOFF
&H3 Hardware and software flow control

&I*n* Sets Receive Data (RD) software flow control (see also &R*n*).

&I0 *Software flow control disabled*
&I1 XON/XOFF signals to your modem and remote system
&I2 XON/XOFF signals to your modem only

&K*n* Enables/disables data compression.

&K0 Data compression disabled
&K1 *Auto enable/disable*
&K2 Data compression enabled
&K3 MNP5 compression disabled

&M*n* **Sets Error Control (ARQ) for connections at 1200 bps and higher.**

&M0	Normal mode, error control disabled
&M1	Reserved
&M2	Reserved
&M3	Reserved
&M4	*Normal/ARQ*
&M5	ARQ mode

&N*n* **Sets connect speed. If connection cannot be made at this speed, the modem will hang up. When used in conjunction with &U*n* and &U*n* is greater than 0, &N*n* sets the ceiling connect speed. &U*n* sets the floor connect speed (See also the table in the &U*n* section.)**

&N0	*Connection speed is determined by the remote modem.*
&N1	300 bps
&N2	1200 bps
&N3	2400 bps
&N4	4800 bps
&N5	7200 bps
&N6	9600 bps
&N7	12,000 bps
&N8	14,400 bps
&N9	16,800 bps
&N10	19,200 bps
&N11	21,600 bps
&N12	24,000 bps
&N13	26,400 bps
&N14	28,800 bps
&N15	31,200 bps
&N16	33,600 bps
&N17	28,000 bps
&N18	29,333 bps
&N19	30,666 bps

&N20 32,000 bps
&N21 33,333 bps
&N22 34,666 bps
&N23 36,000 bps
&N24 37,333 bps
&N25 38,666 bps
&N26 40,000 bps
&N27 41,333 bps
&N28 42,666 bps
&N29 44,000 bps
&N30 45,333 bps
&N31 46,666 bps
&N32 48,000 bps
&N33 49,333 bps
&N34 50,666 bps
&N35 52,000 bps
&N36 53,333 bps
&N37 54,666 bps
&N38 56,000 bps
&N39 57,333 bps

&P*n* **Sets pulse (rotary) dial make/break ratio.**

&P0 *U.S./Canada ratio, 39%/61%*
&P1 U.K. ratio, 33%/67%

&R*n* **Sets Receive Data (RD) hardware flow control, Request to Send (RTS) (see also &H*n*).**

&R0 Reserved
&R1 Modem ignores RTS
&R2 *Received Data to computer only on RTS*

&S*n* **Controls Data Set Ready (DSR) operations.**

&S0 *DSR override; always ON*
&S1 Modem controls DSR

&T*n* Begins test modes.

&T0	Ends testing
&T1	Analog Loopback
&T2	Reserved
&T3	Local Digital Loopback
&T4	Enables Remote Digital Loopback
&T5	*Prohibits Remote Digital Loopback*
&T6	Initiates Remote Digital Loopback
&T7	Remote Digital with self-test and error detector
&T8	Analog Loopback with self-test and error detector

&U*n* Sets floor connect speed when set above 0. If the connection cannot be established above this speed, the modem will hang up. When &U*n* is used in conjunction with &N*n* and &N*n* is greater than 0, &N*n* is the ceiling connect speed.

	$N=0	**&N>0**
&U=0	Connects at best possible by your modem and the remote modem. NOTE: These factory default settings should be sufficient for most users.	Connects at speed defined between &Nn If the Connection cannot be made above this speed the modem will hang
&U>0	Connects at any speed between &Nn and &Un.	Connects at any speed faster than the value of &Un.

&U*n* speeds are listed on the next page.

&U0 No restrictions on the minimum speed for the connection.
&U1 300 bps
&U2 1200 bps
&U3 2400 bps
&U4 4800 bps
&U5 7200 bps
&U6 9600 bps
&U7 12,000 bps
&U8 14,400 bps
&U9 16,800 bps
&U10 19,200 bps
&U11 21,600 bps
&U12 24,000 bps
&U13 26,400 bps
&U14 28,800 bps
&U15 31,200 bps
&U16 33,600 bps
&U17 28000 bps
&U18 29333 bps
&U19 30666 bps
&U20 32000 bps
&U21 33,333 bps
&U22 34666 bps
&U23 36000 bps
&U24 37,333 bps
&U25 38666 bps
&U26 40000 bps
&U27 41,333 bps
&U28 42,666 bps
&U29 44,000 bps
&U30 45,333 bps
&U31 46666 bps
&U32 48000 bps
&U33 49333 bps
&U34 50666 bps
&U35 52000 bps
&U36 53333 bps
&U37 54666 bps
&U38 56000 bps
&U39 57333 bps

&W*n* **Writes current configuration to NVRAM templates.**

&W0 Modifies the NVRAM 0 template (Y0)

&W1 Modifies the NVRAM 1 template (Y1)

&Yn **Sets break handling.**

&Y0 Destructive, but doesn't send break

&Y1 Destructive, expedited

&Y2 Nondestructive, expedited

&Y3 Nondestructive, unexpedited

&Z*n*=*s* Writes phone number string *s* to NVRAM at position *n (n* = 0–3).

&Z*n*=L Writes last executed dial string to NVRAM at position *n* (*n* = 0–3).

&Z*n*? Displays the phone number stored at position *n* (*n* = 0–3).

&ZL? Displays the last executed dial string.

#**CID=*n*** **Controls Caller ID feature.**

#CID=0 Caller ID disabled.

#CID=1 Caller ID enabled with formatted information.

#CID=2 Caller ID enabled with unformatted information.

+++ Escapes to online-command mode.

DIP Switches (External Modems with DIP Switches Only)

Note: If a DIP switch is on, it is down. If a DIP switch is off, it is up. *Defaults are in italics.*

Switch	Factory Setting	Function
1	OFF	Data Terminal Ready (DTR) Override OFF Normal DTR operations: computer must provide DTR signal for the modem to accept commands; dropping DTR terminates a call ON Modem ignores DTR (Override)
2	OFF	Verbal/Numeric Result Codes OFF Verbal (word) results ON Numeric results
3	ON	Result Code Display OFF Suppresses result codes ON Enables result codes
4	OFF	Command Mode Local Echo Suppression OFF Displays keyboard commands ON Suppresses echo
5	ON	Auto Answer Suppression OFF Modem answers on first ring, or higher if specified in NVRAM ON Disables auto answer

Switch	Factory Setting	Function
6	OFF	Carrier Detect (CD) Override OFF Modem sends CD signal when it connects with another modem, drops CD on disconnect ON CD always ON (Override)
7	OFF	Power-on and ATZ Reset Software Defaults OFF Loads Y0-Y4 configuration from user-defined nonvolatile memory (NVRAM) ON Loads &F0—Generic template from read only memory (ROM)
8	ON	AT Command Set Recognition OFF Disables command recognition (Dumb Mode) ON Enables recognition (Smart mode)

S-Registers

To change a setting, use the ATS*r*=*n* command, where *r* is the register and *n* is a decimal value from 0 – 255 (unless otherwise indicated).

Register	Default	Function
S0	0	Sets the number of rings on which to answer in Auto Answer mode. When set to 0, Auto Answer is disabled.
S1	0	Counts and stores the number of rings from an incoming call. (S0 must be greater than 0.)
S2	43	Stores the ASCII decimal code for the escape code character. Default character is +. A value of 128 – 255 disables the escape code.
S3	13	Stores the ASCII code for the Carriage Return character. Valid range is 0 - 127.
S4	10	Stores the ASCII decimal code for the Line Feed character. Valid range is 0 - 127.
S5	8	Stores the ASCII decimal code for the Backspace character. A value of 128 - 255 disables the Backspace key's delete function.

Register	Default	Function
S6	2	Sets the number of seconds the modem waits before dialing. If X*n* is set to X2 or X4, this is the time-out length if there isn't a dial tone.
S7	60	Sets the number of seconds the modem waits for a carrier. May be set for much longer duration if, for example, the modem is originating an international connection.
S8	2	Sets the duration, in seconds, for the pause (,) option in the Dial command.
S9	6	Sets the required duration, in tenths of a second, of the remote modem's carrier signal before recognition by the U.S. Robotics modem.
S10	14	Sets the duration, in tenths of a second, that the modem waits to hang up after loss of carrier. This guard time allows the modem to distinguish between a line disturbance from a true disconnect (hang up) by the remote modem.

Register	Default	Function
S10 *(cont.)*		**Note:** If you set S10 = 255, the modem will not hang up when carrier is lost. Dropping DTR hangs up the modem.
S11	70	Sets the duration and spacing, in milliseconds, for tone dialing.
S12	50	Sets the duration, in fiftieths of a second, of the guard time for the escape code sequence (+++).
S13	0	Bit-mapped register. Select the bit(s) you want on and set S13 to the total of the values in the Value column. For example, ATS13 = 17 enables bit 0 (value is 1) and bit 4 (value is 16).

Bit	Value	Result
0	1	Reset when DTR drops.
1	2	Reset non-MNP transmit buffer from 1.5K to 128 bytes.*
2	4	Set backspace key to delete.
3	8	On DTR signal, autodial the number stored in NVRAM at position 0.

Register	Default	Function		
S13 *(cont.)*		**Bit**	**Value**	**Result**
		4	16	At power on/reset, autodial the number stored in NVRAM at position 0.
		5	32	Reserved
		6	64	Disable quick retrains.
		7	128	Disconnect on escape code.

* The 1.5K-byte non-ARQ buffer allows data transfer with Xmodem- and Ymodem-type file transfer protocols without using flow control.
The 128-byte option lets remote users with slower modems keep data you're sending from scrolling off their screens. When remote users send your computer an XOFF (Ctrl-S) and you stop transmitting, the data in transit from your modem's buffer doesn't exceed the size of their screen.
This is also very helpful in situations when a remote modem/printer application is losing characters.

S14 0 Reserved

S15 0 Bit-mapped register setup. To set the register, see instructions for S13.

Bit	**Value**	**Result**
0	1	Disable ARQ/MNP for V.22.
1	2	Disable ARQ/MNP for V.22bis.
2	4	Disable ARQ/MNP V.32/V.32bis/V.32terbo.

Register	Default	Function
S15 *(cont.)*		**Bit** **Value** **Result** 3 8 Disable MNP handshake. 4 16 Disable MNP level 4. 5 32 Disable MNP level 3. 6 64 MNP incompatibility. 7 128 Disable V.42 operation. To disable V.42 detect phase, select the total of the values for bits 3 and 7 (in other words S15 = 136 [the sum of values 8 and 128])
S16	0	Reserved
S17	0	Reserved
S18	0	Test timer for &T loopback testing. Sets the time in seconds of testing before the modem automatically times out and terminates the test. When set to 0, the timer is disabled. Valid range is 1-255.

Register	Default	Function
S19	0	Sets the duration, in minutes, for the inactivity timer. The timer activates when there is no data activity on the phone line; at time-out the modem hangs up. S19 = 0 disables the timer.
S20	0	Reserved
S21	10	Sets the length, in 10-millisecond units, of breaks sent from the modem to the computer; applies to MNP or V.42 mode only.
S22	17	Stores the ASCII decimal code for the XON character.
S23	19	Stores the ASCII decimal code for the XOFF character.
S24	0	Reserved
S25	20	Sets the duration, in hundredths of a second, that DTR must be dropped so that the modem doesn't interpret a random glitch as a DTR loss. (Most users will want to use the default; this register is useful for setting compatibility with older systems running under older operating software.)
S26	0	Reserved

Register	Default	Function
S27	0	Bit-mapped register setup. To set the register, see instructions for S13.

Bit	Value	Result
0	1	Enables ITU-T V.21 modulation at 300 bps for overseas calls; in V.21 mode, the modem answers both overseas and domestic (U.S. and Canada) calls, but only originates V.21 calls. (Default Bell 103)
1	2	Enables unencoded (non-trellis coded) modulation in V.32 mode.
2	4	Disables V.32 modulation.
3	8	Disables 2100 Hz answer tone to allow two V.42 modems to connect faster.
4	16	Enables V.23 fallback mode.
5	32	Disables V.32*bis* mode.
6	64	Disable V.42 selective reject.
7	128	Software compatibility mode. This setting disables the codes and displays the 9600 code instead. The actual rate of the call can be viewed on the ATI6 screen. Used for unusual software incompatibilities. Some software may not accept 7200, 12,000, and 14,400 bps or greater result codes.

Register	Default	Function
S28	0	Eliminates the V.32 answer tones for a faster connection.
	8	Default item, all times are in tenths of seconds.
	255	Disables all connections except V.32 at 9600 bps.
S29	20	Sets the duration, in tenths of a second, of the V.21 answer mode fallback timer.
S30	0	Reserved
S31	128	Reserved
S32	2	Bit-mapped register setup. To set the register, see the instructions for S13.

Bit	Value	Result
0	1	V.8 Call Indicate enabled.
1	2	Enables V.8 mode.
2	4	Reserved.
3	8	Disable V.34 modulation.
4	16	Disable V.34+ modulation.
5	32	Disable x2 modulation.
6	64	Disable V.PCM modulation.
7	128	Reserved.

Register	Default	Function
S33	0	Bit-mapped register setup. To set the register, see the instructions for S13.

Bit	Value	Result
0	1	Disable 2400 symbol rate.
1	2	Disable 2743 symbol rate.
2	4	Disable 2800 symbol rate.
3	8	Disable 3000 symbol rate.
4	16	Disable 3200 symbol rate.
5	32	Disable 3429 symbol rate.
6	64	Reserved
7	128	Disable shaping.

S34 0 Bit-mapped register setup. To set registers, see instructions for S13.

Bit	Value	Result
0	1	Disable 8S-2D trellis encoding.
1	2	Disable 16S-4D trellis encoding.
2	4	Disable 32S-2D trellis encoding.
3	8	Disable 64S-4D trellis encoding.
4	16	Disable non-linear coding.

Register	Default	Function
S34 *(cont.)*		**Bit** **Value** **Result** 5 32 Disable TX level deviation. 6 64 Disable Pre-emphasis. 7 128 Disable Pre-coding.
S35-S37		Reserved
S38	0	Sets an optional delay, in seconds, before a forced hang-up and clearing of the Transmit buffer when DTR drops during an ARQ call. This allows time for a remote modem to acknowledge receipt of all transmitted data before it is disconnected. The modem immediately hangs up when DTR drops. This option only applies to connections terminated by dropping DTR. If the modem receives the ATH command, it ignores S38 and immediately hangs up.

Register	Default	Function
S39-S40	Reserved	
S41	0	Bit-mapped register setup. To set registers, see instructions for S13.

Bit	Value	Result
0	1	Distinctive ring enabled.
1	2	Speakerphone connect message override (voice products only).
2	4	Reserved.
3	8	Message waiting (voice products only).
4	16	Reserved.
5	32	Reserved.
6	64	Reserved.
7	128	Reserved.

S42	0	Reserved

Fax Commands

+FCLASS=*n* **Sets the mode of operation.**
FCLASS=0 *Data mode*
FCLASS=1 Group 3 Facsimile Service Class 1 mode

FCLASS? Displays the current FCLASS mode. (See mode descriptions above.)

+FCLASS=? Displays the FCLASS mode options. (See mode descriptions above.)

+FTS=*n* Stops the fax transmission. Then the modem waits for a specified time before **OK** appears on screen. The pause is set in 10 millisecond intervals. *n* is the number of 10 millisecond intervals that pass before **OK** appears. (*n*=0-255)

+FRS=*n* Makes the modem wait for a specified length of silence before sending **OK** to the screen. The pause is set in 10 millisecond intervals. *n* is the number of 10 millisecond intervals that pass before **OK** appears. (*n*=0-255)
Note: This command terminates with **OK** when either the specified amount of silence is detected or when the user types anything (which is ignored).

+FTM=*n* Transmits data using the modulation specified by *n*. (*n* = 3, 24, 48, 72, 96, 97, 98, 121, 122, 145, or 146)
Note: See the "Screen Messages" table at the end of this section for an explanation of messages that appear in response to this command.

+FRM=*n* Receives data using the modulation specified by *n*. (*n* = 3, 24, 48, 72, 96, 97, 98, 121, 122, 145, or 146)
Note: See the "Screen Messages" table at the end of this section for an explanation of messages that appear in response to this command.

+FTH=*n* Transmits data framed in the HDLC protocol using the modulation specified by *n*.
(*n* = 3, 24, 48, 72, 96, 97, 98, 121, 122, 145, or 146)
Note: See the "Screen Messages" table at the end of this section for an explanation of messages that appear in response to this command.

+FRH=*n* Receives data framed in the HDLC protocol using the modulation specified by *n*.
(*n* = 3, 24, 48, 72, 96, 97, 98, 121, 122, 145, or 146)
Note: See the "Screen Messages" table at the end of this section for an explanation of messages that appear in response to this command.

Screen Messages

Displayed as a number	Displayed in words	Description
0	OK	The previous command has been processed successfully.
1	CONNECT	The modem has just connected to another modem.
2	RING	Reports the receipt of a network altering ring.
3	NO CARRIER	No carrier is being received from the modem.
4	ERROR	The previous command line has not been recognized or was completed abnormally.
5	NO DIAL TONE	(Optional) Dial tone was not received within the time-out period.
6	BUSY	(Optional) A busy signal was deleted.
64	CONNECT/FAX	(Optional) The modem has established a fax connection. This response is used only when the fax mode is selected.

The Serial Interface

The serial interface is a standard developed by the Electronic Industries Association (EIA). It defines the signals and voltages used when data is exchanged between a computer and a modem or serial printer.

The entire standard covers many more functions than are used in most data communications applications. Data is transmitted between the devices over a shielded serial cable with a 25-pin male (DB-25) connector to the modem and a 25-pin, 9-pin, 8-pin, or custom-built connector to the computer.

FCC regulations require the use of a shielded cable when connecting a modem to a computer to ensure minimal interference with radio and television.

Pin assignments are factory-set in the U.S. Robotics modem to match the standard DB-25 assignments in the following table. DB-9 connectors for IBM/AT-compatible computers should be wired at the computer end of the cable as shown in the DB-9 column.

Serial Interface Pin Definitions

DB-25	DB-9	Circuit	Function	Signal Source Computer/Modem
1	—	AA	Chassis Ground	Both
2	3	BA	Transmitted Data	Computer
3	2	BB	Received Data	Modem
4	7	CA	Request to Send	Computer
5	8	CB	Clear to Send	Modem
6	6	CC	Data Set Ready	Modem
7	5	AB	Signal Ground	Both
8	1	CF	Carrier Detect	Modem
12	—	SCF	Speed Indicate	Modem
20	4	CD	Data Terminal Ready	Computer
22	9	CE	Ring Indicate	Modem