

# ANSI Codes

ANSI codes define functions that change display graphics, control cursor movement, and reassign keys. ANSI escape sequence is a sequence of ASCII characters, the first two of which are the escape character (1Bh) and the left-bracket character (5Bh). The character or characters following the escape and left-bracket characters specify an alphanumeric code that controls a keyboard or display function.

ANSI escape sequences distinguish between uppercase and lowercase letters; for example,"A" and "a" have completely different meanings.

## Parameters used in ANSI escape sequences

- Pn - Numeric parameter. Specifies a decimal number.
- Ps - Selective parameter. Specifies a decimal number that you use to select a function. You can specify more than one function by separating the parameters with semicolons.
- PL - Line parameter. Specifies a decimal number that represents one of the lines on your display or on another device.
- Pc - Column parameter. Specifies a decimal number that represents one of the columns on your screen or on another device.

## ANSI escape sequences for cursor movement, graphics, and keyboard settings

In the following list of ANSI escape sequences, the abbreviation ESC represents the ASCII escape character 27 (1Bh), which appears at the beginning of each escape sequence.

- ESC[PL;PcH - Cursor Position: Moves the cursor to the specified position (coordinates). If you do not specify a position, the cursor moves to the home position: the upper-left corner of the screen (line 0, column 0). This escape sequence works the same way as the following Cursor Position escape sequence.
- ESC[PL;Pcf - Cursor Position: Works the same way as the preceding Cursor Position escape sequence.
- ESC[PnA - Cursor Up: Moves the cursor up by the specified number of lines without changing columns. If the cursor is already on the top line, ANSI.SYS ignores this sequence.
- ESC[PnB - Cursor Down: Moves the cursor down by the specified number of lines without changing columns. If the cursor is already on the bottom line, ANSI.SYS ignores this sequence.
- ESC[PnC - Cursor Forward: Moves the cursor forward by the specified number of columns without changing lines. If the cursor is already in the rightmost column, ANSI.SYS ignores this sequence.
- ESC[PnD - Cursor Backward: Moves the cursor back by the specified number of columns without changing lines. If the cursor is already in the leftmost column, ANSI.SYS ignores this sequence.
- ESC[s - Save Cursor Position: Saves the current cursor position. You can move the cursor to the saved cursor position by using the Restore Cursor Position sequence.
- ESC[u - Restore Cursor Position: Returns the cursor to the position stored by the Save Cursor Position sequence.
- ESC[2J - Erase Display: Clears the screen and moves the cursor to the home position (line 0, column 0).
- ESC[K - Erase Line: Clears all characters from the cursor position to the end of the line (including the character at the cursor position).
- ESC[Ps;...;Psm - Set Graphics Mode: Calls the graphics functions specified by the following values. These specified functions remain active until the next occurrence of this escape sequence. Graphics mode changes the colors and attributes of text (such as bold and underline) displayed on the screen.

Text attributes	Foreground colors	Background colors
0 - All attributes off	30 - Black	40 - Black
1 - Bold on	31 - Red	41 - Red
4 - Underscore (on monochrome display adapter only)	32 - Green	42 - Green
5 - Blink on	33 - Yellow	43 - Yellow
7 - Reverse video on	34 - Blue	44 - Blue
8 - Concealed on	35 - Magenta	45 - Magenta
	36 - Cyan	46 - Cyan
	37 - White	47 - White

Parameters 30 through 47 meet the ISO 6429 standard.

- ESC[=psh - Set Mode: Changes the screen width or type to the mode specified by one of the following values:

0	40 x 148 x 25 monochrome (text)
1	40 x 148 x 25 color (text)
2	80 x 148 x 25 monochrome (text)
3	80 x 148 x 25 color (text)
4	320 x 148 x 200 4-color (graphics)
5	320 x 148 x 200 monochrome (graphics)
6	640 x 148 x 200 monochrome (graphics)
7	Enables line wrapping

13	320 x 148 x 200 color (graphics)
14	640 x 148 x 200 color (16-color graphics)
15	640 x 148 x 350 monochrome (2-color graphics)
16	640 x 148 x 350 color (16-color graphics)
17	640 x 148 x 480 monochrome (2-color graphics)
18	640 x 148 x 480 color (16-color graphics)
19	320 x 148 x 200 color (256-color graphics)

- ESC[=Psl - Reset Mode: Resets the mode by using the same values that Set Mode uses, except for 7, which disables line wrapping. The last character in this escape sequence is a lowercase L.
- ESC[code;string;...p - Set Keyboard Strings: Redefines a keyboard key to a specified string. The parameters for this escape sequence are defined as follows:
  - Code is one or more of the values listed in the following table. These values represent keyboard keys and key combinations. When using these values in a command, you must type the semicolons shown in this table in addition to the semicolons required by the escape sequence. The codes in parentheses are not available on some keyboards. ANSI.SYS will not interpret the codes in parentheses for those keyboards unless you specify the /X switch in the DEVICE command for ANSI.SYS.
  - String is either the ASCII code for a single character or a string contained in quotation marks. For example, both 65 and "A" can be used to represent an uppercase A.
  - IMPORTANT: Some of the values in the following table are not valid for all computers. Check your computer's documentation for values that are different.

Key	Code	SHIFT+code	CTRL+code	ALT+code<
F1	0;59	0;84	0;94	0;104
F2	0;60	0;85	0;95	0;105
F3	0;61	0;86	0;96	0;106
F4	0;62	0;87	0;97	0;107
F5	0;63	0;88	0;98	0;108
F6	0;64	0;89	0;99	0;109
F7	0;65	0;90	0;100	0;110
F8	0;66	0;91	0;101	0;111
F9	0;67	0;92	0;102	0;112
F10	0;68	0;93	0;103	0;113
F11	0;133	0;135	0;137	0;139
F12	0;134	0;136	0;138	0;140
HOME (num keypad)	0;71	55	0;119	
UP ARROW (num keypad)	0;72	56	(0;141)	
PAGE UP (num keypad)	0;73	57	0;132	
LEFT ARROW (num keypad)	0;75	52	0;115	
RIGHT ARROW (num keypad)	0;77	54	0;116	
END (num keypad)	0;79	49	0;117	
DOWN ARROW (num keypad)	0;80	50	(0;145)	
PAGE DOWN (num keypad)	0;81	51	0;118	
INSERT (num keypad)	0;82	48	(0;146)	
DELETE (num keypad)	0;83	46	(0;147)	
HOME	(224;71)	(224;71)	(224;119)	(224;151)
UP ARROW	(224;72)	(224;72)	(224;141)	(224;152)
PAGE UP	(224;73)	(224;73)	(224;132)	(224;153)
LEFT ARROW	(224;75)	(224;75)	(224;115)	(224;155)
RIGHT ARROW	(224;77)	(224;77)	(224;116)	(224;157)
END	(224;79)	(224;79)	(224;117)	(224;159)
DOWN ARROW	(224;80)	(224;80)	(224;145)	(224;154)
PAGE DOWN	(224;81)	(224;81)	(224;118)	(224;161)
INSERT	(224;82)	(224;82)	(224;146)	(224;162)
DELETE	(224;83)	(224;83)	(224;147)	(224;163)
PRINT SCREEN			0;114	
PAUSE/BREAK			0;0	
BACKSPACE	8	8	127	(0)
ENTER	13		10	(0
TAB	9	0;15	(0;148)	(0;165)
NULL	0;3			
A	97	65	1	0;30
B	98	66	2	0;48
C	99	66	3	0;46

D	100	68	4	0;32
E	101	69	5	0;18
F	102	70	6	0;33
G	103	71	7	0;34
H	104	72	8	0;35
I	105	73	9	0;23
J	106	74	10	0;36
K	107	75	11	0;37
L	108	76	12	0;38
M	109	77	13	0;50
N	110	78	14	0;49
O	111	79	15	0;24
P	112	80	16	0;25
Q	113	81	17	0;16
R	114	82	18	0;19
S	115	83	19	0;31
T	116	84	20	0;20
U	117	85	21	0;22
V	118	86	22	0;47
W	119	87	23	0;17
X	120	88	24	0;45
Y	121	89	25	0;21
Z	122	90	26	0;44
1	49	33		0;120
2	50	64	0	0;121
3	51	35		0;122
4	52	36		0;123
5	53	37		0;124
6	54	94	30	0;125
7	55	38		0;126
8	56	42		0;126
9	57	40		0;127
0	48	41		0;129
-	45	95	31	0;130
=	61	43		0;131
[	91	123	27	0;26
]	93	125	29	0;27
	92	124	28	0;43
;	59	58		0;39
'	39	34		0;40
,	44	60		0;51
.	46	62		0;52
/	47	63		0;53
`	96	126		(0;41)
ENTER (keypad)	13		10	(0;166)
/ (keypad)	47	47	(0;142)	(0;74)
* (keypad)	42	(0;144)	(0;78)	
- (keypad)	45	45	(0;149)	(0;164)
+ (keypad)	43	43	(0;150)	0;55)
5 (keypad)	(0;76)	53	(0;143)	