

## VT100 PROGRAMMING REFERENCE CARD

### 7-BIT ASCII CODE

Octal Code	Char	Octal Code	Char	Octal Code	Char	Octal Code	Char
000	NUL	040	SP	100	@	140	,
001	SOH	041	!	101	A	141	a
002	STX	042	"	102	B	142	b
003	ETX	043	#	103	C	143	c
004	EOT	044	\$	104	D	144	d
005	ENQ	045	%	105	E	145	e
006	ACK	046	&	106	F	146	f
007	BEL	047	' (apostrophe)	107	G	147	g
010	BS	050	(	110	H	150	h
011	HT	051	)	111	I	151	i
012	LF	052	*	112	J	152	j
013	VT	053	+	113	K	153	k
014	FF	054	, (comma)	114	L	154	l
015	CR	055	-	115	M	155	m
016	SO	056	. (period)	116	N	156	n
017	SI	057	/	117	O	157	o
020	DLE	060	0	120	P	160	p
021	DC1	061	1	121	Q	161	q
022	DC2	062	2	122	R	162	r
023	DC3	063	3	123	S	163	s
024	DC4	064	4	124	T	164	t
025	NAK	065	5	125	U	165	u
026	SYN	066	6	126	V	166	v
027	ETB	067	7	127	W	167	w
030	CAN	070	8	130	X	170	x
031	EM	071	9	131	Y	171	y
032	SUB	072	:	132	Z	172	z
033	ESC	073	;	133	[	173	{
034	FS	074	<	134	\	174	
035	GS	075	=	135	]	175	}
036	RS	076	>	136	^	176	~
037	US	077	?	137	_	177	DEL

### CURSOR CONTROL KEY CODES

Cursor Key (arrow)	VT52 Mode	ANSI/Cursor Key Mode Reset	ANSI/Cursor Key Mode Set
Up	ESC A	ESC [ A	ESC O A
Down	ESC B	ESC [ B	ESC O B
Right	ESC C	ESC [ C	ESC O C
Left	ESC D	ESC [ D	ESC O D

### SPECIAL GRAPHICS CHARACTERS

Octal Code	Graphic with US or UK Set	Graphic with "Special Graphics" Set
137	—	Blank
140	\	◆ Diamond
141	a	⋈ Checkerboard (error indicator)
142	b	HT horizontal tab
143	c	FF form feed
144	d	CR carriage return
145	e	LF line feed
146	f	° Degree symbol
147	g	± Plus/minus
150	h	NL new line
151	i	VT vertical tab
152	j	└ Lower-right corner
153	k	┐ Upper-right corner
154	l	┌ Upper-left corner
155	m	└ Lower-left corner
156	n	+ Crossing lines
157	o	— Horizontal line - Scan 1
160	p	— Horizontal line - Scan 3
161	q	— Horizontal line - Scan 5
162	r	— Horizontal line - Scan 7
163	s	— Horizontal line - Scan 9
164	t	├ Left "T"
165	u	┤ Right "T"
166	v	└ Bottom "T"
167	w	┌ Top "T"
170	x	Vertical Bar
171	y	≤ Less than or equal to
172	z	≥ Greater than or equal to
173	{	π Pi
174		≠ Not equal to
175	}	£ UK pound sign
176	~	· Centered dot

### ANSI COMPATIBLE MODE

#### CURSOR MOVEMENT COMMANDS

Cursor up	ESC [ Pn A
Cursor down	ESC [ Pn B
Cursor forward (right)	ESC [ Pn C
Cursor backward (left)	ESC [ Pn D
Direct cursor addressing	ESC [ P; Pc H or ESC [ P; Pc f
Index	ESC D
Next Line	ESC E
Reverse index	ESC M
Save cursor and attributes	ESC 7
Restore cursor and attributes	ESC B

#### LINE SIZE (DOUBLE-HEIGHT AND DOUBLE-WIDTH) COMMANDS

Change this line to double-height top half	ESC # 3
Change this line to double-height bottom half	ESC # 4
Change this line to single-width single-height	ESC # 5
Change this line to double-width single-height	ESC # 6

#### CHARACTER ATTRIBUTES

ESC [ Ps;Ps;Ps;...;Ps m

Ps =	0 or None	All Attributes Off
	1	Bold on
	4	Underscore on
	5	Blink on
	7	Reverse video on

#### ERASING

From cursor to end of line	ESC [ K or ESC [ O K
From beginning of line to cursor	ESC [ 1 K
Entire line containing cursor	ESC [ 2 K
From cursor to end of screen	ESC [ J or ESC [ O J
From beginning of screen to cursor	ESC [ 1 J
Entire screen	ESC [ 2 J

NOTE: The following control characters are generated differently from previous DIGITAL terminals.

Code	VT100	Previous Terminal
NUL	CTRL - Space bar	CTRL - @
RS	CTRL - ~	CTRL - ^
US	CTRL - ?	CTRL - _

## PROGRAMMABLE LEDs

**ESC [ Ps;Ps...Ps q**

Ps =	0 or None	All LEDs Off
	1	L1 on
	2	L2 on
	3	L3 on
	4	L4 on

## CHARACTER SETS (GO AND G1 DESIGNATORS)

Character Set	GO Designator	G1 Designator
United Kingdom (UK)	<b>ESC ( A</b>	<b>ESC ) A</b>
United States (USASCII)	<b>ESC ( B</b>	<b>ESC ) B</b>
Special graphics characters and line drawing set	<b>ESC ( 0</b>	<b>ESC ) 0</b>
Alternate character ROM	<b>ESC ( 1</b>	<b>ESC ) 1</b>
Alternate character ROM special graphics characters	<b>ESC ( 2</b>	<b>ESC ) 2</b>

## SCROLLING REGION

**ESC [ Pt ; Pb r**

## TAB STOPS

Set tab at current column  
Clear tab at current column  
Clear all tabs

**ESC H**  
**ESC [ g or ESC [ 0 g**  
**ESC [ 3 g**

## MODES

Mode Name	To Set		To Reset	
	Mode	Sequence	Mode	Sequence
Line feed/new line	New line	<b>ESC [20h</b>	Line feed	<b>ESC [20/*</b>
Cursor key mode	Application	<b>ESC [?1h</b>	Cursor	<b>ESC [?/*</b>
ANSI/VT52 mode	ANSI	N/A	VT52	<b>ESC [?2/*</b>
Column mode	132 Col	<b>ESC [?3h</b>	80 Col	<b>ESC [?3/*</b>
Scrolling mode	Smooth	<b>ESC [?4h</b>	Jump	<b>ESC [?4/*</b>
Screen mode	Reverse	<b>ESC [?5h</b>	Normal	<b>ESC [?5/*</b>
Origin mode	Relative	<b>ESC [?6h</b>	Absolute	<b>ESC [?6/*</b>
Wraparound	On	<b>ESC [?7h</b>	Off	<b>ESC [?7/*</b>
Auto repeat	On	<b>ESC [?8h</b>	Off	<b>ESC [?8/*</b>
Interlace	On	<b>ESC [?9h</b>	Off	<b>ESC [?9/*</b>
Graphic proc. option	On	<b>ESC 1</b>	Off	<b>ESC 2</b>
Keypad mode	Application	<b>ESC =</b>	Numeric	<b>ESC &gt;</b>

\* The last character of the escape sequence is a lowercase L (154<sub>h</sub>).

## REPORTS

### Cursor Position Report

Invoked by **ESC [ 6 n**  
Response is **ESC [ P; Pc R**

### Status Report

Invoked by **ESC [ 5 n**  
Response is **ESC [ 0 n** (terminal ok)  
**ESC [ 3 n** (terminal not ok)

### What Are You

Invoked by **ESC [ c or ESC [ 0 c**  
Response is **ESC [ ?! ; Ps C**

Ps =	0	Base VT100, no options
	1	Processor option (STP)
	2	Advanced video option (AVO)
	3	AVO and STP
	4	Graphics processor option (GO)
	5	GO and STP
	6	GO and AVO
	7	GO, STP, and AVO

Alternately invoked by **ESC Z** (not recommended). Response is the same.

## RESET

**ESC c**

## CONFIDENCE TESTS

Fill Screen with "Es" **ESC # 8**  
Invoke Test(s) **ESC [ 2 ; Ps y**

Ps =	1	Power-up self test (ROM checksum, RAM, NVR, keyboard and AVO if installed)
	2 (Loop back connector required)	Data Loop Back
	4 (Loop back connector required)	ETA Modern Control Test
	8	Repeat selected test(s) indefinitely (until failure or power off)

## VT52 COMPATIBLE MODE

Cursor Up	<b>ESC A</b>
Cursor Down	<b>ESC B</b>
Cursor Right	<b>ESC C</b>
Cursor Left	<b>ESC D</b>
Select Special Graphics character set	<b>ESC F</b>
Select ASCII character set	<b>ESC G</b>
Cursor to home	<b>ESC H</b>
Reverse line feed	<b>ESC I</b>
Erase to end of screen	<b>ESC J</b>
Erase to end of line	<b>ESC K</b>
Direct cursor address	<b>ESC Ylc</b> (see note 1)
Identify	<b>ESC Z</b> (see note 2)
Enter alternate keypad mode	<b>ESC =</b>
Exit alternate keypad mode	<b>ESC &gt;</b>
Enter ANSI mode	<b>ESC &lt;</b>

NOTE 1: Line and column numbers for direct cursor address are single character codes whose values are the desired number plus 37<sub>h</sub>.

Line and column numbers start at 1.

NOTE 2: Response to **ESC Z** is **ESC / Z**.

## AUXILIARY KEYPAD CODES

Key	VT52	VT52	ANSI	ANSI
	Numeric Mode	Application Mode	Numeric Mode	Application Mode
0	0	<b>ESC p</b>	0	<b>ESC O p</b>
1	1	<b>ESC ? q</b>	1	<b>ESC O q</b>
2	2	<b>ESC ? r</b>	2	<b>ESC O r</b>
3	3	<b>ESC ? s</b>	3	<b>ESC O s</b>
4	4	<b>ESC ? t</b>	4	<b>ESC O t</b>
5	5	<b>ESC ? u</b>	5	<b>ESC O u</b>
6	6	<b>ESC ? v</b>	6	<b>ESC O v</b>
7	7	<b>ESC ? w</b>	7	<b>ESC O w</b>
8	8	<b>ESC ? x</b>	8	<b>ESC O x</b>
9	9	<b>ESC ? y</b>	9	<b>ESC O y</b>
-	-	<b>ESC ? m</b>	-	<b>ESC O m</b>
.(comma)	.(comma)	<b>ESC ? / *</b>	.(comma)	<b>ESC O / *</b>
.(period)	.(period)	<b>ESC ? n</b>	.(period)	<b>ESC O n</b>
ENTER	Same as RETURN	<b>ESC ? M</b>	Same as RETURN	<b>ESC O M</b>
PF1	<b>ESC P</b>	<b>ESC P</b>	<b>ESC O P</b>	<b>ESC O P</b>
PF2	<b>ESC Q</b>	<b>ESC Q</b>	<b>ESC O Q</b>	<b>ESC O Q</b>
PF3	<b>ESC R</b>	<b>ESC R</b>	<b>ESC O R</b>	<b>ESC O R</b>
PF4	<b>ESC S</b>	<b>ESC S</b>	<b>ESC O S</b>	<b>ESC O S</b>

\* The last character of the escape sequence is a lowercase L (154<sub>h</sub>).