
VK80
VKP80
VKP80II
VKP80II-EE

Edit by:

CUSTOM ENGINEERING S.p.A.
Str. Berettine 2 - 43010 Fontevivo (PARMA) - Italy
[http: www.custom.biz](http://www.custom.biz)

All rights reserved

1 INTRODUCTION

1.1 Command description

Each command reported in this manual is described as shown in the following picture. In the first heading line (grey colour) is reported the hexadecimal command value. In the second heading line are listed the printers on which it is possible to use the command (for example printer AAAA).

The next fields give all the information useful to use the command.

- [Name] Command title
- [Format] ASCII, hexadecimal and decimal command value.
- [Range] Limits of the values the command and its variables can take
- [Description] Description of command function
- [Notes] Additional information about command use and settings .
- [Default] Default value of the command and its variables.
- [Reference] Pertaining commands related to described command.
- [Example]

\$0D

Printers: AAAA, BBBB, CCCC

Print and carriage return

ASCII CR

Hex 0D

Decimal 13

When autofeed is "CR enabled", this command function is performed, otherwise it is disregarded.

This command sets the print position to the beginning of the line.

AAAA, BBBB

This command sets the print position to the beginning of the line.

CCCC

This command is immediately executed when the buffer is full.

This status is transmitted whenever data sequence is full.

[Default]

[Reference] \$0A

[Example]

X

Y

1° HEADING: Command title

2° HEADING: Printers that use the command

Information valid for printers AAAA, BBBB, CCC

Information valid for printers AAAA, BBBB

Information valid for printer CCCC

The information reported in the picture are aligned with line X or line Y:

LINE X Description valid for all the printers listed in the second heading line.

LINE Y Description valid for a specific printer (written in bold).

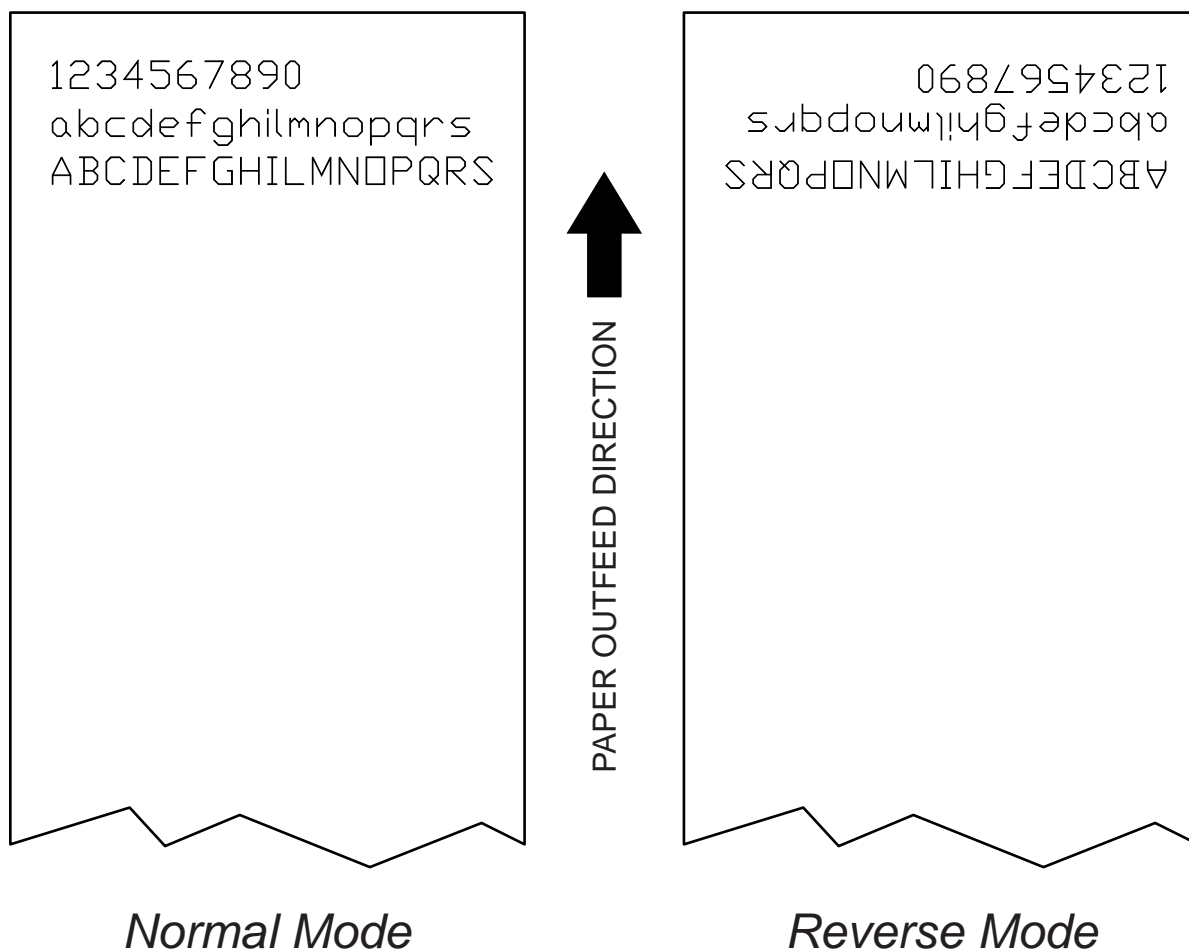
LEGEND	
\$	indicates the representation of the command hexadecimal value (for example \$40 means HEX 40).
{ }	indicates an ASCII character not performable.
n, m, t, x, y	are optional parameters that can have different values.

CUSTOM®

Commands Manual 3

1.2 Print direction

The printer has two printing direction which can be selected by means of the control characters: normal e reverse.



2 ESC/POS™ EMULATION

The following table lists all the commands for function management in ESC/POS Emulation of the printer. The commands can be transmitted to the printer at any moment, but they will only be carried out when the commands ahead of them have been executed. The commands are carried out when the circular buffer is free to do so.

COMMAND DESCRIPTION TABLE

Com. HEX	Com. ASCII	Description
PRINT COMMANDS		
\$0A	LF	Print and line feed
\$0C	FF	Form feed
\$0D	CR	Print and carriage return
\$1B \$0C	ESC FF	Print data in page mode
\$1B \$4A	ESC J	Print and feed paper
\$1B \$64	ESC d	Print and feed paper n lines
LINE SPACING COMMANDS		
\$1B \$30	ESC 0	Select 1/8-inch line spacing
\$1B \$32	ESC 2	Select 1/6-inch line spacing
\$1B \$33	ESC 3	Set line spacing using minimum units
CHARACTER COMMANDS		
\$18	CAN	Cancel current line transmitted
\$1B \$20	ESC SP	Set right-side character spacing
\$1B \$21	ESC !	Set print mode
\$1B \$25	ESC %	Select/cancel user-defined character set
\$1B \$26	ESC &	Define user-defined characters
\$1B \$2D	ESC -	Turn underline mode on/off
\$1B \$34	ESC 4	Set/reset script mode
\$1B \$3F	ESC ?	Cancel user-defined characters
\$1B \$45	ESC E	Select emphasized mode
\$1B \$47	ESC G	Select double-strike mode
\$1B \$4D	ESC M	Select character font
\$1B \$52	ESC R	Select international character set
\$1B \$56	ESC V	Select print mode 90° turned
\$1B \$74	ESC t	Select character code table
\$1B \$7B	ESC { }	Set/cancel upside-down character printing
\$1B \$C1	ESC { }	Set/cancel cpi mode
\$1D \$21	GS !	Seleziona dimensione caratteri
\$1D \$42	GS B	Select character size
PRINT POSITION COMMANDS		
\$08	BS	Back space
\$09	HT	Horizontal tab
\$1B \$24	ESC \$	Set absolute print position

\$1B \$28 \$76	ESC (v	Set relative vertical print position
\$1B \$44	ESC D	Set horizontal tab position
\$1B \$54	ESC T	Select print direction in page mode
\$1B \$57	ESC W	Set printing area in page mode
\$1B \$5C	ESC \	Set relative print position
\$1B \$61	ESC a	Select justification
\$1D \$24	GS \$	Set absolute vertical print position in page mode
\$1D \$4C	GS L	Set left margin
\$1D \$57	GS W	Set printing area width
\$1D \$5C	GS \	Set relative vertical print position in page mode
BIT-IMAGE COMMANDS		
\$1B \$2A	ESC *	Select image print mode
\$1D \$2A	GS *	Define downloaded bit image
\$1D \$2F	GS /	Print downloaded bit image
\$1D \$76 \$30	GS v 0	Print raster image
STATUS COMMANDS		
\$10 \$04	DLE EOT	Real-time status transmission
\$1B \$76	ESC v	Transmit printer status
\$1D \$72	GS r	Transmit status
\$1D \$E0	GS { }	Enable / disable automatic FULL STATUS back
\$1D \$E1	GS { }	Reading of length paper (cm) available before virtual paper end
\$1D \$E2	GS { }	Reading number of cuts performed from the printer
\$1D \$E3	GS { }	Reading of length (cm) of printed paper
\$1D \$E4	GS { }	Reading number of retracting
\$1D \$E5	GS { }	Reading number of power up
BARCODE COMMANDS		
\$1D \$48	GS H	Select printing position of HRI characters
\$1D \$66	GS f	Select font for HRI characters
\$1D \$68	GS h	Select barcode height
\$1D \$6B	GS k	Print barcode
\$1D \$77	GS w	Select horizontal size (enlargement) of barcode
MACRO FUNCTION COMMANDS		
\$1D \$3A	GS :	Set start/end of macro definition
\$1D \$5E	GS ^	Execute macro
MECHANISM CONTROL COMMANDS		
\$1B \$69	ESC i	Total cut
\$1D \$56	GS V	Select cut mode
MISCELLANEOUS COMMANDS		
\$1B \$3D	ESC =	Select peripherals device
\$1B \$40	ESC @	Initialize printer
\$1B \$4C	ESC L	Select page mode

\$1B \$53	ESC S	Select standard mode
\$1B \$63 \$35	ESC c 5	Enable/Disable front panel buttons
\$1B \$FA	ESC { }	Print graphic bank
\$1B \$FF	ESC { }	Receive graphic page from communication port
\$1C \$C0	FS { }	Select logo share and print it in any graphic page point
\$1C \$C1	FS { }	Enable / disable the paper recovery after a cut
\$1D \$43 \$30	GS C 0	Select counter print mode
\$1D \$43 \$31	GS C 1	Select count mode (A)
\$1D \$43 \$32	GS C 2	Select counter
\$1D \$43 \$3B	GS C ;	Select count mode (B)
\$1D \$49	GS I	Transmit printer ID
\$1D \$50	GS P	Set horizontal and vertical motion units (mode 1)
\$1D \$63	GS c	Print counter
\$1D \$D0	GS { }	Set horizontal and vertical motion units (mode 2)
\$1D \$E6	GS { }	Virtual paper end limit
TICKET MANAGEMENT COMMANDS		
\$1D \$7C	GS { }	Set printing density
\$1D \$E7	GS { }	Set notch distance
\$1D \$F0	GS { }	Set printing speed
\$1D \$F6	GS { }	Ticket align at print
\$1D \$F8	GS { }	Ticket align at cut
EJECTOR COMMANDS		
\$1D \$65	GS e	Ejector commands

Given below are more detailed descriptions of each command.

\$08

Printers: *ALL*

[Name] **Back space**

[Format] ASCII BS
 Hex 08
 Decimal 8

[Range]

[Description] Moves print position to previous character..

[Notes] • Can be used to put two characters at the same position.

[Default]

[Reference]

[Example]

\$09

Printers: *ALL*

[Name] **Horizontal tab**

[Format] ASCII HT
 Hex 09
 Decimal 9

[Range]

[Description] Moves the print position to the next horizontal tab position.

[Notes] • Ignored unless the next horizontal tab position has been set..
 • If the command is received when the printing position is at the right margin, the printer executes print buffer full printing and horizontal tab processing from the beginning of the next line.
 • Horizontal tab positions are set using \$1B \$44.

[Default]

[Reference] \$1B \$44

[Example]

\$0APrinters: *ALL*[Name] **Print and line feed**

[Format]	ASCII	LF
	Hex	0A
	Decimal	10

[Range]

[Description] Prints the data in the buffer and feeds one line based on the current line spacing.

[Notes] • Sets the print position to the beginning of the line.

[Default]

[Reference] \$0D

[Example]

\$0CPrinters: *ALL*[Name] **Form Feed**

[Format]	ASCII	FF
	Hex	0C
	Decimal	12

[Description] Prints the data in the buffer, cuts the paper and presents the ticket.

[Notes]

[Default]

[Reference]

[Example]

\$0D

Printers: *ALL*

[Name] **Print and carriage return**

[Format] ASCII CR

Hex 0D

Decimal 13

[Description] When autofeed is “CR enabled”, this command functions in the same way as \$0A, otherwise it is disregarded.

[Notes] • Sets the print position to the beginning of the line.

[Default] See “Autofeed in setup” parameter.

[Reference] \$0A

[Example]

\$10 \$04Printers: *ALL*[Name] **Real-time status transmission**

[Format] ASCII DLE EOT n
 Hex 10 04 n
 Decimal 16 4 n

[Range] $1 \leq n \leq 4, n = 17, n = 20$

[Description] Transmits the selected printer status specified by n in real time according to the following parameters:

n = 1 transmit printer status
 n = 2 transmit off-line status
 n = 3 transmit error status
 n = 4 transmit paper roll sensor status
 n = 17 transmit print status
 n = 20 transmit FULL STATUS

[Notes] • This command is executed when the data buffer is full.
 • This status is transmitted whenever data sequence \$10 \$04 is received.

[Default]

[Reference] See tables below.

[Example] n=1: Printer status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	-	-	-	RESERVED.
1	-	-	-	RESERVED.
2	-	-	-	RESERVED.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	-	-	-	RESERVED.
5	-	-	-	Not defined.
6	-	-	-	Not defined.
7	-	-	-	RESERVED.

n=2: Off-line status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	-	-	-	RESERVED.
1	-	-	-	RESERVED.
2	Off	00	0	Cover closed.
	On	04	4	Cover opened.
3	Off	00	0	Paper isn't fed by LINE FEED button
	On	08	8	Paper is fed by LINE FEED button
4	-	-	-	RESERVED.
5	Off	00	0	Paper present
	On	20	32	Printing stop due to paper end.
6	Off	00	0	No error.
	On	40	64	Error.
7	-	-	-	RESERVED.

n=3: Error status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	-	-	-	RESERVED.
1	-	-	-	RESERVED.
2	-	-	-	RESERVED.
3	Off	00	0	Cutter ok
	On	08	8	Cutter error
4	-	-	-	RESERVED.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error.
6	Off	00	0	No auto-recoverable error.
	On	40	64	Auto-recoverable error.
7	-	-	-	RESERVED.

n=4: Paper roll sensor status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	-	-	-	RESERVED.
1	-	-	-	RESERVED.
2,3	Off	00	0	Paper present in abundance
	On	0C	12	Near paper end
4	-	-	-	RESERVED.
5, 6	Off	00	0	Paper present
	On	60	96	Paper not present
7	-	-	-	RESERVED.

n=17: Print status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	-	-	-	RESERVED.
1	-	-	-	RESERVED.
2	Off	00	0	Paper drag motor off.
	On	04	4	Paper drag motor on.
3	-	-	-	RESERVED.
4	-	-	-	RESERVED.
5	Off	00	0	Paper present.
	On	20	32	Printing stop due to paper end.
6	-	-	-	RESERVED.
7	-	-	-	RESERVED.

n=20: FULL status (6 bytes)

1st Byte = \$10 (DLE);

2nd Byte = \$0F;

3rd Byte = paper status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Paper present.
	On	01	1	Paper not present.
1	-	-	-	RESERVED.
2	Off	00	0	Paper present in abundance.
	On	04	4	Near paper end
3	-	-	-	RESERVED.
4	-	-	-	RESERVED.
5	Off	00	0	Ticket not present in output.
	On	20	32	Ticket present in output.
6	Off	00	0	Not virtual paper end (*)
	On	40	64	Virtual paper end (*).
7	Off	00	0	Notch not found
	On	80	128	Notch found

(*) Virtual paper end is set when the paper length available, readed by \$1D \$E1, is 0.

4th Byte = User status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Cover closed
	On	01	1	Cover opened.
1	Off	00	0	Cover closed
	On	02	2	Cover opened.
2	Off	00	0	No spooling.
	On	04	4	Spooling.
3	Off	00	0	Drag paper motor off.
	On	08	8	Drag paper motor on.
4	-	-	-	RESERVED.
5	Off	00	0	LF key released
	On	20	32	LF key pressed.
6	Off	00	0	FF key released.
	On	40	64	FF key pressed.
7	-	-	-	RESERVED.

5th Byte = Recoverable error status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Head temperature ok.
	On	01	1	Head temperature error.
1	Off	00	0	No COM error
	On	02	2	RS232 COM error
2	-	-	-	RESERVED.
3	Off	00	0	Power supply voltage ok
	On	08	8	Power supply voltage error
4	-	-	-	RESERVED.
5	Off	00	0	Acknowledge command
	On	20	32	Not acknowledge command error
6	Off	00	0	Free paper path
	On	40	64	Paper jam
7	-	-	-	RESERVED.

6th Byte = Unrecoverable error status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Cutter ok
	On	01	1	Cutter error
1	-	-	-	RESERVED.
2	Off	00	0	RAM ok.
	On	00	0	RAM error
3	Off	0C	12	EEPROM ok.
	On			EEPROM error.
4	-	-	-	RESERVED.
5	-	-	-	RESERVED.
6	Off			Flash ok.
	On			Flash error
7	-	-	-	RESERVED.

\$18Printers: *ALL*[Name] **Cancel current line transmitted**

[Format]

ASCII	CAN
Hex	18
Decimal	24

[Range]

[Description] Deletes current line transmitted.

[Notes]

- Sets the print position to the beginning of the line.
- However, this command does not clear the receive buffer.

[Reference]

[Example]

\$1B \$0C

Printers: VK80
VKP80II-EE

[Name] **Print data in page mode**

[Format] ASCII ESC FF
 Hex 1B 0C
 Decimal 29 12

[Range]

[Description] In page mode, prints all buffered data in the printing area collectively.

[Notes] • This command is enabled only in page mode.
 • After printing, the printer does not clear the buffered data, setting values for \$1B \$54 and \$1B \$57 and the position for buffering character data.

[Default]

[Reference] \$0C, \$1B \$4C, \$1B \$53

[Example]

\$1B \$20

Printers: ALL

[Name] **Set right-side character spacing**

[Format] ASCII ESC SP n
 Hex 1B 20 n
 Decimal 27 32 n

[Range] $0 \leq n \leq 255$

[Description] Sets the character spacing for the right side of the character to [n x horizontal or vertical motion units].

[Notes] • The right character spacing for double-width mode is twice the normal value. When the characters are enlarged, the right side character spacing is m (2 or 4) times the normal value.
 • The horizontal and vertical motion units are specified by \$1D \$50. Changing the horizontal or vertical motion units does not affect the current right side spacing.
 • The \$1D \$50 command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount.
 • In standard mode, the horizontal motion unit is used.
 • The maximum right side spacing is 255/200 inches.

[Default] n = 0

[Reference] \$1D \$50, \$1D \$D0

[Example]

\$1B \$21

Printers: ALL

[Name] **Select print modes**
 [Format] ASCII ESC ! n
 Hex 1B 21 n
 Decimal 27 33 n
 [Range] 0 ≤ n ≤ 255
 [Description] Selects print modes using n (see table below):

BIT	OFF/ON	HEX	Decimal	FUNCTION	11/15 cpi	15/20 cpi
0	Off	00	0	Character font A selected.	18 x 24	14 x 24
	On	01	1	Character font B selected	14 x 24	10 x 24
1	-	-	-	Undefined.		
2	-	-	-	Undefined.		
3	Off	00	0	Expanded mode not selected.		
	On	08	8	Expanded mode selected.		
4	Off	00	0	Double-height mode not selected.		
	On	10	16	Double-height mode selected.		
5	Off	00	0	Double-width mode not selected.		
	On	20	32	Double-width mode selected.		
6	Off	00	0	Italic mode not selected.		
	On	40	64	Italic mode selected.		
7	Off	00	0	Underline mode not selected.		
	On	80	128	Underline mode selected.		

[Notes]

- The printer can underline all characters, but cannot underline the spaces set by \$09, \$1B \$24, \$1B \$5C and 90°/270° rotated characters.
- This command resets the left and right margin at default value (see \$1D \$4C, \$1D \$57).
- \$1B \$45 can also be used to turn the emphasized mode on/off. However, the last-received setting command is the effective one.
- \$1B \$2D can also be used to turn the underlining mode on/off. However, the last-received setting command is the effective one.
- \$1D \$21 can also be used to select character height/width. However, the last-received setting command is the effective one.
- \$1B \$34 can also be used to turn the italic mode on/off. However, the last-received setting command is the effective one.

[Default] n = 0
 [Reference] \$1B \$2D, \$1B \$34, \$1B \$45, \$1D \$21
 [Example]

\$1B \$24Printers: *ALL***[Name] Set absolute print position**

[Format]	ASCII	ESC	\$	nL	nH
	Hex	1B	24	nL	nH
	Decimal	27	36	nL	nH

[Range] $0 \leq nL \leq 255$ $0 \leq nH \leq 255$ **[Description]** Sets the distance from the beginning of the line to the position at which subsequent characters are to be printed.The distance from the beginning of the line to the print position is $[(nL + nH \times 256) \times (\text{vertical or horizontal motion unit})]$ inches.

[Notes]

- Settings outside the specified printable area are ignored.
- The horizontal and vertical motion unit are specified by \$1D \$50.
- \$1D \$50 can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount.
- In standard mode, the horizontal motion unit (x) is used.
- If the setting is outside the printing area width, it sets the absolute print position, but the left or right margin is set at default value.
- The horizontal and vertical motion unit are specified by \$1D \$50 or \$1D \$D0.
- \$1D \$50 or \$1D \$D0 can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount.

[Default]**[Reference]** \$1B \$5C, \$1D \$50, \$1D \$D0**[Example]****\$1B \$25**Printers: *ALL***[Name] Select/cancel user-defined character set**

[Format]	ASCII	ESC	%	n
	Hex	1B	25	n
	Decimal	27	37	n

[Range] $0 \leq n \leq 255$

[Description] Selects or cancels the user-defined character set.
 When the Least Significant Bit (LSB) of n is 0, the user-defined character set is cancelled.
 When the LSB of n is 1, the user-defined character set is selected.

[Notes]

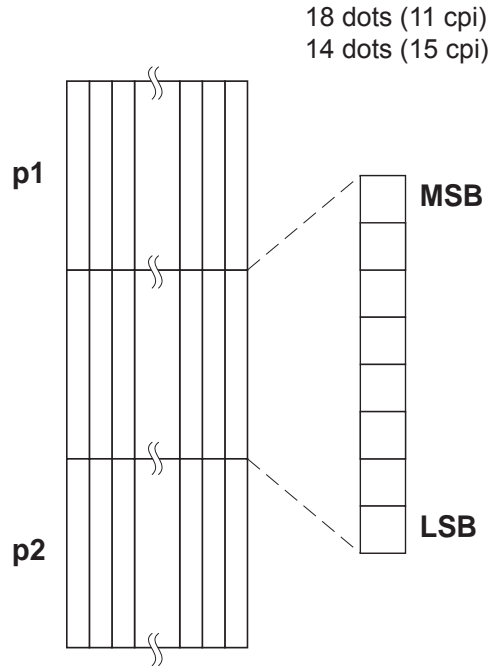
- Only the LSB of n is applicable.
- When the user-defined character set is canceled, the internal character set is automatically selected.

[Default] n=0**[Reference]** \$1B \$26, \$1B \$3F**[Example]**

\$1B \$26

Printers: ALL

[Name]	Defines user-defined characters					
[Format]	ASCII	ESC	&	y	c1	c2
	Hex	1B	26	y	c1	c2
	Decimal	27	37	y	c1	c2
[Range]	y = 3					
	$32 \leq c1 \leq c2 \leq 126$					
	$0 \leq x \leq 16$ (Font (18 x 24))					
	$0 \leq x \leq 13$ (Font (13 x 24))					
	$0 \leq x \leq 10$ (Font 10 x 24)					
	$0 \leq d1 \dots d (y \times xk) \leq 255$					
[Description]	k = c2 – c1 + 1					
	Defines user-defined characters.					
	Y specifies the number of bytes in the vertical direction.					
	C1 specifies the beginning character code for the definition, and C2 specifies the final code.					
	X specifies the number of dots in the horizontal direction.					
	The allowable character code range is from ASCII \$20 (32) to \$7E (126) (95 characters).					
[Notes]	It is possible to define multiple characters for consecutive character codes.					
	If only one character is desired, use c1 = c2.					
	if c2 < c1, the command is not executed.					
	d is the dot data for the characters. The dot pattern is in the horizontal direction starting from the left. Any remaining dots on the right remain blank.					
	The data to define a user-defined character is (X × Y) bytes.					
	To print a dot, set the corresponding bit to 1; to not have it print, set to 0.					
	This command can define different user-defined character patterns for each font. To select the font, use \$1B \$21, \$1B \$C1.					
	The user-defined character definitions are cleared when:					
	\$1B \$40 or \$1D \$2A or \$1B \$3F are executed or the printer is reset or the power shut off.					
	Internal character set.					
[Default]	\$1B \$25, \$1B \$3F					
[Reference]						
[Example]						



\$1B \$28 \$76Printers: *ALL*[Name] **Set relative vertical print position**

[Format]	ASCII	ESC	(v	nL	nH
	Hex	1B	28	76	nL	nH
	Decimal	27	40	118	nL	nH

[Range] $0 \leq nL \leq 255$
 $0 \leq nH \leq 255$

[Description] Sets the print vertical position based on the current position by using the horizontal or vertical motion unit. This command sets the distance from the current position to $[(nL + nH \times 256) \times (\text{horizontal or vertical motion unit})]$.

[Notes]

- When the starting position is specified by N motion unit to the bottom: $nL + nH \times 256 = N$
- When the starting position is specified by N motion unit to the top (negative direction), use the complement of 65536: $nL + nH \times 256 = 65536 - N$
- The horizontal and vertical motion unit are specified by \$1D \$50.
- The \$1D \$50 command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount.
- In standard mode, the vertical motion unit is used.

[Default]

[Reference] \$1D \$50

[Example]

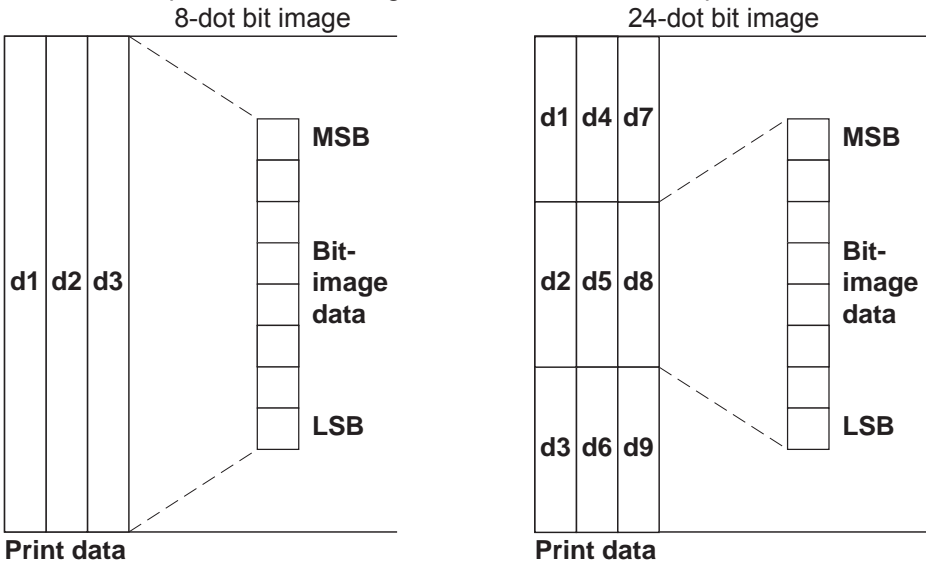
\$1B \$2A

Printers: ALL

[Name] **Select bit image mode**
[Format] ASCII ESC * m nL nH d1...dk
Hex 1B 2A m nL nH d1...dk
Decimal 27 42 m nL nH d1...dk
[Range] m = 0, 1, 32, 33
 0 ≤ nL ≤ 255
 0 ≤ nH ≤ 3
 0 ≤ d ≤ 255
[Description] Selects a bit image mode using m for the number of dots specified by nL and nH, as follows:

m	MODE	VERTICAL DIRECTION		HORIZONTAL DIRECTION	
		N° dots	DPI	DPI	N° of data (k)
0	8 dot single density	8	67	100	nL + nH x 256
1	8 dot double density	8	67	200	nL + nH x 256
32	24 dot single density	24	200	100	(nL + nH x 256) x 3
33	24 dot double density	24	200	200	(nL + nH x 256) x 3

- [Notes]
- The nL and nH parameters indicate the number of dots of the bit image in the horizontal direction. The number of dots is calculated using: nL + nH x 256.
 - If the bit image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
 - d indicates the bit image data. Set a corresponding bit to 1 to print a dot, or to 0 to not print the dot.
 - If the value of m is outside the specified range, nL and data following it are processed as normal data.
 - If the width of the printing area set by \$1D \$4C and \$1D \$57 is less than the width required by the data set using \$1B \$2A, the excess data are ignored.
 - To print the bit image use \$0A, \$0D, \$1B \$4A or \$1B \$64.
 - After printing a bit image, the printer returns to normal data processing mode.
 - This command is not affected by the emphasized, double-strike, underline (etc.) print modes, except for the upside-down mode.
 - The relationship between the image data and the dots to be printed is as follows:



[Default]
[Reference]
[Example]

\$1B \$2DPrinters: *ALL*[Name] **Turn underline mode on/off**

[Format]	ASCII	ESC	-	n
	Hex	1B	2D	n
	Decimal	27	45	n

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Description] Turns underline mode on or off, based on the following values of n:

n = 0, 48 Turns off underline mode

n = 1, 49 Turns on underline mode (1-dot thick)

n = 2, 50 Turns on underline mode (2-dot thick)

[Notes]

- The printer can underline all characters, but cannot underline the space and right-side character spacing (command \$09).
- The printer cannot underline 90°/270° rotated characters and white/black inverted characters.
- When underline mode is turned off by setting the value of n to 0 or 48, the data which follows is not underlined.
- Underline mode can also be turned on or off by using \$1B \$21. Note, however, that the last received command is the effective one.

[Default] n=0

[Reference] \$1B \$21

[Example]

\$1B \$30Printers: *ALL*[Name] **Select 1/8-inch line spacing**

[Format]	ASCII	ESC	2
	Hex	1B	30
	Decimal	27	48

[Description] Selects 1/8-inch line spacing.

[Notes]

[Default]

[Reference] \$1B \$32, \$1B \$33

[Example]

\$1B \$32Printers: *ALL*[Name] **Select 1/6-inch line spacing**

[Format]	ASCII	ESC	2
	Hex	1B	32
	Decimal	27	50

[Description] Selects 1/6-inch line spacing.

[Notes]

[Default]

[Reference] \$1B \$33, \$1B \$30

[Example]

\$1B \$33Printers: *ALL*[Name] **Set line spacing**

[Format]	ASCII	ESC	3	n
	Hex	1B	33	n
	Decimal	27	51	n

[Range] $0 \leq n \leq 255$ [Description] Sets line spacing to [$n \times$ (vertical or horizontal motion unit)] inches.

[Notes]

- The horizontal and vertical motion unit are specified by \$1D \$50. Changing the horizontal or vertical motion unit does not affect the current line spacing.
- The \$1D \$50 command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum vertical movement amount.
- In standard mode, the vertical motion unit is used.
- The horizontal and vertical motion unit are specified by \$1D \$50 or \$1D \$D0. Changing the horizontal or vertical motion unit does not affect the current line spacing.
- The \$1D \$50 or \$1D \$D0 command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum vertical movement amount.

[Default] $n = 64$ (1/6 inch)

[Reference] \$1B \$32, \$1D \$50, \$1B \$30, \$1D \$D0

[Example]

\$1B \$34Printers: *ALL*[Name] **Set / reset italic mode**

[Format]	ASCII	ESC	4	n
	Hex	1B	34	n
	Decimal	27	52	n

[Range] $0 \leq n \leq 1, 48 \leq n \leq 49$

[Description] Turns italic mode on or off, based on the following values of n:

n	Function
0, 48	Turns off italic mode
1, 49	Turns on italic mode

[Notes]

- The printer can print any character in italic mode.
- When italic mode is turned off by setting the value of n to 0 or 48, the data which follows is printed in normal mode.
- Italic mode can also be turned on or off using \$1B \$21. Note, however, that the last received command is the effective one.

[Default] n = 0

[Reference] \$1B \$21

[Example]

\$1B \$3DPrinters: *ALL*[Name] **Select peripheral device**

[Format] ASCII ESC = n
 Hex 1B 3D n
 Decimal 27 61 n

[Range] $0 \leq n \leq 255$ [Description] Select the device to which the host computer sends data, using *n* as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Printer Disabled.
	On	01	1	Printer Enabled.
1	-	-	-	Undefined
2	-	-	-	Undefined
3	-	-	-	Undefined
4	-	-	-	Undefined
5	-	-	-	Undefined
6	-	-	-	Undefined
7	-	-	-	Undefined

[Notes] • When the printer is disabled, it ignores all transmitted data until the printer is enabled through this command.

[Default] n = 1

[Reference]

[Example]

\$1B \$3FPrinters: *ALL*[Name] **Cancel user-defined characters**

[Format] ASCII ESC ? n
 Hex 1B 3F n
 Decimal 27 63 n

[Range] $32 \leq n \leq 126$

[Description] Cancels user-defined characters.

[Notes] • This command cancels the pattern defined for the character code specified by *n*.
 • This command deletes the pattern defined for the specified character code in the font selected by \$1B \$21.
 • If the user-defined character has not been defined for the specified character code, the printer ignores this command.

[Default]

[Reference] \$1B \$26, \$1B \$25

[Example]

\$1B \$40Printers: *ALL*[Name] **Initialize printer**

[Format]	ASCII	ESC	@
	Hex	1B	40
	Decimal	27	64

[Description] Clears the data in the print buffer and resets the printer mode to that in effect when power was turned on.

[Notes]

- The data in the receiver buffer is not cleared.
- The macro definitions are not cleared.

[Default]

[Reference]

[Example]

\$1B \$44Printers: *ALL*[Name] **Set horizontal tab position**

[Format]	ASCII	ESC	D	n1...nk	NUL
	Hex	1B	44	n1...nk	00
	Decimal	27	68	n1...nk	0

[Range]

$$1 \leq n \leq 255$$

$$0 \leq k \leq 32$$

[Description] Sets horizontal tab positions

- n specifies the column number for setting a horizontal tab position calculated from the beginning of the line.
- k indicates the total number of horizontal tab positions to be set.

[Notes]

- The horizontal tab position is stored as a value of [character width x n] measured from the beginning of the line. The character width includes the right-side character spacing and double-width characters are set with twice the width of normal characters.
- This command cancels previous tab settings.
- When setting n = 8, the print position is moved to column 9 sending \$09.
- Up to 32 tab positions (k = 32) can be set. Data exceeding 32 tab positions is processed as normal data.
- Send [n] k in ascending order and place a 0 NUL code at the end. When [n] k is less than or equal to the preceding value [n] k-1, the setting is complete and the data which follows is processed as normal data.
- \$1B \$44 00 cancels all horizontal tab positions.
- The previously specified horizontal tab position does not change, even if the character width is modified.

[Default] Default tab positions are set at intervals of 8 characters (columns 9, 17, 25, ...) for Font A when the right-side character spacing is 0.

[Reference] \$09

[Example]

\$1B \$45Printers: *ALL*[Name] **Select emphasized mode**

[Format]	ASCII	ESC	E	n
	Hex	1B	45	n
	Decimal	27	69	n

[Range] $0 \leq n \leq 255$

[Description] Turns emphasized mode on/off.

- When the LSB of n is 0, the emphasized mode is off.
- When the LSB of n is 1, the emphasized mode is on.

[Notes] • Only the LSB of n is effective.

- \$1B \$21 also turns on and off the emphasized mode. However, the last received command is the effective one.

[Default] $n = 0$

[Reference] \$1B \$21

[Example]

\$1B \$47Printers: *ALL*[Name] **Select double-strike mode**

[Format]	ASCII	ESC	G	n
	Hex	1B	47	n
	Decimal	27	71	n

[Range] $0 \leq n \leq 255$

[Description] Turns double-strike mode on or off.

- When the LSB of n is 0, the double-strike mode is off.
- When the LSB of n is 1, the double-strike mode is on.

[Notes] • Only the LSB of n is effective.

- Printer output is the same in double-strike and emphasized mode.

[Default] $n = 0$

[Reference] \$1B \$45

[Example]

\$1B \$4APrinters: *ALL*[Name] **Print and feed paper**

[Format]	ASCII	ESC	J	n
	Hex	1B	4A	n
	Decimal	27	74	n

[Range] $0 \leq n \leq 255$ [Description] Prints the data in the print buffer and feeds the paper [$n \times$ (vertical or horizontal motion unit)] inches.

[Notes]

- After printing has been completed, this command sets the print starting position to the beginning of the line.
- The paper feed amount set by this command does not affect the values set by \$1B \$32 or \$1B \$33.
- The horizontal and vertical motion units are specified by \$1D \$50.
- \$1D \$50 can change the vertical (and horizontal) motion unit. However, the value cannot be less than the minimum vertical movement amount.
- In standard mode, the vertical motion unit is used.
- The horizontal and vertical motion units are specified by \$1D \$50 or \$1D \$D0.
- \$1D \$50 or \$1D \$D0 can change the vertical (and horizontal) motion unit. However, the value cannot be less than the minimum vertical movement amount.

[Default]

[Reference] \$1D \$50, \$1D \$D0

[Example]

\$1B \$4C	
Printers:	VK80
	VKP80II-EE
[Nome]	Select page mode
[Formato]	ASCII ESC L Hex 1B 4C Decimal 27 76
[Description]	Switches from standard mode to page mode.
[Notes]	<ul style="list-style-type: none"> • This command is enabled only when processed at the beginning of a line in standard mode. • This command has no effect in page mode • After printing by \$0C or \$1B \$0C is completed or by using \$1B \$53, the printer returns to standard mode. • This command sets the position where data is buffered to the position specified by \$1B \$54 within the printing area defined by \$1B \$57. • This command switches the settings for the following commands (in which the values can be set independently in standard mode and page mode) to those for page mode: <ol style="list-style-type: none"> 1) Set right-side character spacing: \$1B \$20 2) Select default line spacing: \$1B \$32, \$1B \$33 • Only value settings is possible for the following commands in page mode; these commands are not executed. <ol style="list-style-type: none"> 1) Turn 90° clockwise rotation mode on/off: \$1B \$56 2) Select justification: \$1B \$61 3) Turn upside-down printing mode on/off: \$1B \$7B 4) Set left margin: \$1D \$4C 5) Set printable area width: \$1D \$57 • The following command is not available in page mode: <ol style="list-style-type: none"> 1) Print raster bit image: \$1D \$76 \$30 • The printer returns to standard mode when power is turned on, the printer is reset, or \$1B \$40 is used.
[Reference]	\$0C, \$18, \$1B \$0C, \$1B \$53, \$1B \$54, \$1B \$57, \$1D \$24, \$1D \$5C.
[Example]	

\$1B \$4DPrinters: *ALL*[Name] **Select character font**

[Format] ASCII ESC M n
 Hex 1B 4D n
 Decimal 27 77 n

[Range] n = 0, 1, 48, 49

[Description] Selects characters font depending of cpi value set (Char/Inch) as follows :

Char /Inch	n	Function
A=11cpi	0,48	Font 11 cpi (18x24)
B=15cpi	1,49	Font 15 cpi (14x24)
A=15cpi	0,48	Font 15 cpi (14x24)
B=20cpi	1,49	Font 20 cpi (10x24)
A=20cpi	0,48	Font 20 cpi (10x24)
B=15cpi	1,49	Font 15 cpi (14x24)

[Notes]

[Default]

[Reference] \$1B \$C1

[Example]

\$1B \$52

Printers: ALL

[Name] **Select international character set**

[Format] ASCII ESC R n
 Hex 1B 52 n
 Decimal 27 82 n

[Range] $0 \leq n \leq 10$

[Description] Selects the international character set n according to the table below:

	Hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
n	Characters Set												
0	U.S.A.	#	\$	@	[\]	^	`	{		}	~
1	France	#	\$	à	°	ç	§	^	`	é	ù	è	“
2	Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	b
3	United Kingdom	£	\$	@	[\]	^	`	{		}	~
4	Denmark I	#	\$	@	Æ	Æ	Å	^	`	æ	f	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain 1	Pt	\$	@	i	Ñ	¿	^	`	“	ñ	}	~
8	Japan	#	\$	@	[¥]	^	`	{		}	~
9	Norway	#	¤	É	Æ	Æ	Å	Ü	é	æ	f	å	ü
10	Denmark II	#	\$	É	Æ	Æ	Å	Ü	é	æ	f	å	ü

[Notes]

[Default]

n = 0

[Reference]

[Example]

\$1B \$53

Printers: VK80
VKP80II-EE

[Name] **Select standard mode**

[Format] ASCII ESC S
Hex 1B 53
Decimal 27 83

[Description] Switches from page mode to standard mode.

[Notes]

- This command is effective only in page mode.
- Data buffered in page mode are cleared.
- This command sets the print position to the beginning of the line.
- The printing area set by \$1B \$57 are initialized.
- This command switches the settings for the following commands (in which the values can be set independently in standard mode and page mode) to those for standard mode:
 - 1) Set right-side character spacing: \$1B \$20
 - 2) Select default line spacing: \$1B \$32, \$1B \$33
- The following commands are enabled only to set in standard mode.
 - 1) Set printing area in page mode: \$1B \$57
 - 2) Select print direction in page mode: \$1B \$54
- The following commands are ignored in standard mode.
 - 1) Set absolute vertical print position in page mode: \$1D \$24
 - 2) Set relative vertical print position in page mode: \$1D \$5C
- Standard mode is selected automatically when power is turned on, the printer is reset, or command \$1B \$40 is used.

[Reference] \$0C, \$1B \$0C, \$1B \$4C

[Example]

\$1B \$54

Printers: VK80

VKP80II-EE

[Name] Select print direction in page mode

[Format] ASCII ESC T n
 Hex 1B 54 n
 Decimal 27 84 n

[Range] $0 \leq n \leq 3$
 $48 \leq n \leq 51$

[Description] Select the print direction and starting position in page mode. n specifies the print direction and starting position as follows :

n	PRINT DIRECTION	STARTING POSITION
0, 48	Left to right	Upper left
1, 49	Bottom to top	Lower left
2, 50	Right to left	Lower right
3, 51	Top to bottom	Upper right

[Notes]

- When the command is input in standard mode, the printer executes only internal flag operation. This command does not affect printing in standard mode.
- This command sets the position where data is buffered within the printing area set by \$1B \$57.
- Parameters for horizontal or vertical motion units (x or y) differ as follows, depending on the starting position of the printing area:
 - 1) If the starting position is the upper left or lower right of the printing area, data is buffered in the direction perpendicular to the paper feed direction:

Commands using horizontal motion units: \$1B \$20, \$1B \$24, \$1B \$5C.

Commands using vertical motion units: \$1B \$33, \$1B \$4A, \$1D \$24, \$1D \$5C.

2) If the starting position is the upper right or lower left of the printing area, data is buffered in the paper feed direction:

Commands using horizontal motion units: \$1B \$33, \$1B \$4A, \$1D \$24, \$1D \$5C.

Commands using vertical motion units: \$1B \$20, \$1B \$24, \$1B \$5C.

[Default] n = 0

[Reference] \$1B \$24, \$1B \$4C, \$1B \$57, \$1B \$5C, \$1D \$24, \$1D \$50, \$1D \$5C.

[Example]

\$1B \$56Printers: *ALL*[Name] **Select print mode 90° turned**

[Format] ASCII ESC V n
 Hex 1B 56 n
 Decimal 27 86 n

[Range] $0 \leq n \leq 1, 48 \leq n \leq 49$

[Description] Turns 90° rotation mode on/off. n is used as follows:

n	FUNCTION
0, 48	Turns off 90° rotation mode
1, 49	Turns on 90° rotation mode

[Notes]

- When underlined mode is turned on, the printer does not underline 90° rotated characters. All the same it's possible select the underline mode.
- Double-width and double-height commands in 90° rotation mode enlarge characters in the opposite directions from double-height and double-width commands in normal mode.
- This command is not available in Page mode.
- If this command is entered in Page mode, the printer all the same save the setting.

[Default] n = 0

[Reference] \$1B \$21 , \$1B \$2D

[Example]

\$1B \$57

Printers: VK80

VKP80II-EE

[Name]	Set printing area in page mode			
[Format]	ASCII	ESC	W	xL xH yL yH dxL dxH dyL dyH
	Hex	1B	57	xL xH yL yH dxL dxH dyL dyH
	Decimal	27	87	xL xH yL yH dxL dxH dyL dyH
[Range]	$0 \leq xL, xH, yL, yH, dxL, dxH, dyL, dyH \leq 255$ (eccetto $dxL = dxH = 0$ or $dyL = dyH = 0$)			
[Description]	<p>The horizontal starting position, vertical starting position, printing area width, and printing area height are defined as x0, y0, dx (inch), dy (inch), respectively.</p> <p>Each setting for the printing area is calculated as follows:</p> $x0 = [(xL + xH \times 256) \times (\text{horizontal motion unit})]$ $y0 = [(yL + yH \times 256) \times (\text{vertical motion unit})]$ $dx = [dxL + dxH \times 256] \times (\text{horizontal motion unit})$ $dy = [dyL + dyH \times 256] \times (\text{vertical motion unit})$			
[Notes]	<ul style="list-style-type: none"> • If this command is input in standard mode, the printer executes only internal flag operation. This command does not affect printing in standard mode. • If the horizontal or vertical starting position is set outside the printable area, the printer stops command processing and processes the following data as normal data. • If the printing area width or height is set to 0, the printer stops command processing and processes the following data as normal data. • This command sets the position where data is buffered to the position specified by \$1B \$54 within the printing area. • If (horizontal starting position + printing area width) exceeds the printable area, the printing area width is automatically set to (horizontal printable area - horizontal starting position). • If (vertical starting position + printing area height) exceeds the printable area, the printing area height is automatically set to (vertical printable area - vertical starting position). • The horizontal and vertical motion unit are specified by \$1D \$50. Changing the horizontal or vertical motion unit does not affect the current printing area. • The \$1D \$50 command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount, and it must be in even units of minimum horizontal movement amount. • Use the horizontal motion unit (x) for setting the horizontal starting position and printing area width, and use the vertical motion unit (y) for setting the vertical starting position and printing area height. • When the horizontal starting position, vertical starting position, printing area width, and printing area height are defined as X, Y, Dx, and Dy respectively, the printing area is set. 			
[Default]				
[Reference]				
[Example]				

\$1B \$5CPrinters: *ALL*[Name] **Set relative print position**

[Format]	ASCII	ESC	\	nL	nH
	Hex	1B	5C	nL	nH
	Decimal	27	92	nL	nH

[Range] $0 \leq nL \leq 255$
 $0 \leq nH \leq 255$

[Description] Sets the print starting position based on the current position by using the horizontal or vertical motion unit.

This command sets the distance from the current position to $[(nL + nH \times 256) \times (\text{horizontal or vertical motion unit})]$.

[Notes]

- When the starting position is specified by n motion units to the right : $nL + nH \times 256 = N$
- When the starting position is specified by n motion units to the left (negative direction) use the complement of 65536 : $nL + nH \times 256 = 65536 - N$
- If setting exceeds the printing area width, the left or right margin is set to the default value.
- The horizontal and vertical motion unit are specified by \$1D \$50.
- \$1D \$50 can change the horizontal (and vertical) motion units. However, the value cannot be less than the minimum horizontal movement amount.
- In standard mode, the horizontal motion unit is used.
- Any setting that exceeds the printable area is ignored.
- The horizontal and vertical motion unit are specified by \$1D \$50 or \$1D \$D0.
- \$1D \$50 or \$1D \$D0 can change the horizontal (and vertical) motion units. However, the value cannot be less than the minimum horizontal movement amount.

[Default]

[Reference] \$1B \$24, \$1D \$50, \$1D \$D0

[Example]

\$1B \$61

Printers: *ALL*

[Name] **Select justification**

[Format]

ASCII	ESC	a	n
Hex	1B	61	n
Decimal	27	97	n

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Description] Aligns all data in one line to the specified position. n selects the type of justification as follows:

n	JUSTIFICATION
0, 48	Flush left
1, 49	Centered
2, 50	Flush right

[Notes]

- This command is only enabled when inserted at the beginning of a line.
- Lines are justified within the specified printing area.
- Spaces set by \$09, \$1B \$24 and \$1B \$5C will be justified according to the previously-entered mode.

[Default] n = 0

[Reference]

[Example]

Flush left

ABC
ABCD
ABCDE

Centred

ABC
ABCD
ABCDE

Flush right

ABC
ABCD
ABCDE

\$1B \$63 \$35

Printers: *ALL*

[Name] **Enable/Disable front panel keys**

[Format]

ASCII	ESC	c	5	n
Hex	1B	63	35	n
Decimal	27	99	53	n

[Range] n = 0, 1

[Description] Enables/disables the keys of the front panel:

n	FUNCTION
0	Disables front panel keys
1	Enables front panel keys

[Notes]

[Default] n = 1

[Reference]

[Example]

\$1B \$64Printers: *ALL*[Name] **Print and feed paper *n* rows**

[Format]	ASCII	ESC	d	n
	Hex	1B	64	n
	Decimal	27	100	n

[Range] $0 \leq n \leq 255$ [Description] Prints the data in the print buffer and feeds the paper *n* rows.

[Notes]

- *n* rows paper feed is equivalent to (*n* × char height + line spacing set).
- Sets the print starting position at the beginning of the line.
- This command does not affect the line spacing set by \$1B \$32 or \$1B \$33.
- The maximum paper feed amount is 254 rows. Even if a paper feed amount of more than 254 rows is set, the printer feeds the paper only 254 rows.

[Default]

[Reference] \$1B \$32, \$1B \$33

[Example]

\$1B \$69Printers: *ALL*[Name] **Total cut**

[Format]	ASCII	ESC	i
	Hex	1B	69
	Decimal	27	105

[Description] This command enables cutter operation. If there is no cutter, a disabling flag is set and any subsequent cut commands will be ignored.

[Notes]

- The printer waits to complete all paper movement commands before it executes a total cut.

[Default]

[Reference]

[Example]

\$1B \$74

Printers: ALL

[Name] **Select character code table**

[Format] ASCII ESC t n
 Hex 1B 74 n
 Decimal 27 116 n

[Range] n = 0, 2, 3, 4, 5, 19, 255

[Description] Selects a page n from the character code table, as follows:

n	PAGE
0	0 (PC437 [U.S.A., Standard Europe])
2	2 (PC850 [Multilingual])
3	3 (PC860 [Portuguese])
4	4 (PC863 [Canadian-French])
5	5 (PC865 [Nordic])
19	19 (PC858 for Euro symbol at position 213)
255	Space page

[Notes]

[Default] n = 0

[Reference] See character code table.

[Example] For printing Euro symbol (€), the command sequence is: 1B, 74, 13, D5

\$1B \$76Printers: *ALL***[Name] Transmit paper sensor status**

[Format] ASCII ESC v
 Hex 1B 76
 Decimal 27 118

[Description] When this command is received, transmit the current status of the paper sensor.
 The status to be transmitted is shown in the table below:

BIT	OFF/ON	HEX	Decimal	FUNCTION
0,1	Off	00	0	Near paper-end sensor: paper present.
	On	03	3	Near paper-end sensor: paper not present.
2,3	Off	00	0	Paper-end sensor: paper present.
	On	(0C)	(12)	Paper-end sensor: paper not present.
4	Off	00	0	[RESERVED]
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	Off	00	0	[RESERVED]

[Note]

- This command is executed immediately, even when the data buffer is full (Busy).
- After the paper autoloader all buffers (receive and print) are cleared.

[Default]**[Reference]**

\$10 \$04 n

[Example]

\$1B \$7B

Printers: ALL

[Name] **Set/cancel upside-down character printing**
[Format] ASCII ESC { n
Hex 1B 7B n
Decimal 27 123 n
[Range] $0 \leq n \leq 255$
[Description] Turns upside-down printing mode on or off.
• When the LSB of n is 0, the upside-down printing mode is off.
• When the LSB of n is 1, the upside-down printing mode is on.
[Notes] • Only the LSB of n is effective.
• This command is valid only if entered at the beginning of a line.
• In upside-down printing mode, the printer rotates the line to be printed 180° and then prints it.
[Default] n = 0

[Reference]
[Example]

Upside-down printing Off

Upside-down printing On

ABCDEFGH
123456

123456
ABCDEFGH

↑

Printing direction

\$1B \$C1

Printers: ALL

[Name] **Set/cancel cpi mode**
[Format] ASCII ESC { } n
Hex 1B C1 n
Decimal 27 193 n
[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$
[Description] Sets cpi mode based on the following values of n:

n	FUNCTION	
0, 48	Font A = 11 cpi	Font B = 15 cpi
1, 49	Font A = 15 cpi	Font B = 20 cpi
2, 50	Font A = 20 cpi	Font B = 15 cpi

[Default] n = 0
[Reference] \$1B \$21
[Example]

\$1B \$FAPrinters: *ALL*[Name] **Print graphic bank (608x862)**

[Format] ASCII ESC { } n xH xL yH yL
 Hex 1B FA n xH xL yH yL
 Decimal 27 250 n xH xL yH yL

[Range] $1 \leq n \leq 2$ $0 \leq xH, xL, yH, yL \leq 255$

[Description] Prints graphic logo from flash or current graphic page located in ram. n selects the graphic source as follows:

n	FUNCTION
1	Print logo 1 from flash bank
2	Print logo 2 from flash bank

xL + xH × 256 specifies the starting dotline (1 ÷ 862).

yL + yH × 256 specifies the number of lines to print.

- [Notes]
- If (xL + (xH × 256)) > 862 the printer does not execute the command.
 - If (xL + (xH × 256) + yL + (yH × 256)) > 862 the printer prints only 862 - xL + (xH × 256) + 1 dotline.
 - If the logo has been previously saved in the flash bank it will be printed correctly. If not a "NAK" (\$15) will be returned.

[Default]

[Reference]

[Example]

To print from ram bank dotline 100 to dotline 299, send:

\$1B \$FA \$00 \$00 \$64 \$00 \$C7

\$1B \$FFPrinters: *ALL***[Name] Receive the graphic page from the communication port**

[Format]

ASCII	ESC	{ }	n	nL	nH
Hex	1B	FF	n	nL	nH
Decimal	27	255	n	nL	nH

[Range] $1 \leq n \leq 2$, $0 \leq nL, nH \leq 255$ **[Description]** Receive $[nL + (nH * 256)]$ word from the communication port and save them in the flash bank specified by n as shown in the following table:

n	FUNCTION
1	Save logo in the flash bank 1
2	Save logo in the flash bank 2

[Notes]

- Set the communication protocol on “Hardware” for this command.
- The number of received data bytes is $[nL + (nH * 256)] * 2$.
- Every word is received first as MSByte and then as LSByte.
- If $[nL + (nH * 256)]$ is more than 32756, the following data are processed as normal data.
- In the horizontal dotline there are 38 words.
- The flash bank for graphic print dimensions are: 608 horizontal dots (76 bytes/line) * 862 vertical dots (65512 bytes).

[Default]**[Reference]****[Example]**

\$1C \$C0Printers: *ALL*[Name] **Prints graphic logo in the graphic page**

[Format] ASCII FS { } xH xL yH yL dxH dxL dyH dyL xIH xIL yIH yIL num
 Hex 1C C0 xH xL yH yL dxH dxL dyH dyL xIH xIL yIH yIL num
 Decimal 28 192 xH xL yH yL dxH dxL dyH dyL xIH xIL yIH yIL num

[Range] $dx + xL \leq 608$
 $dx + x \leq 608$
 $dy + yL \leq 862$
 $0 \leq num \leq 1$

[Description] Allow graphic logo parts selection and coordinates of the graphic page point input for the graphic logo part printing.

(xI,yI) = graphic logo point coordinates:

$xI = xIL + (xIH * 256)$; $yI = yIL + (yIH * 256)$

dx = horizontal dimension of the graphic logo part which must be printed:

$dx = dxL + (dxH * 256)$

dy = vertical dimension of the graphic logo part which must be printed:

$dy = dyL + (dyH * 256)$

(x,y) = coordinates of the graphic page point where must be printed the graphic logo part:

$x = xL + (xH * 256)$; $y = yL + (yH * 256)$

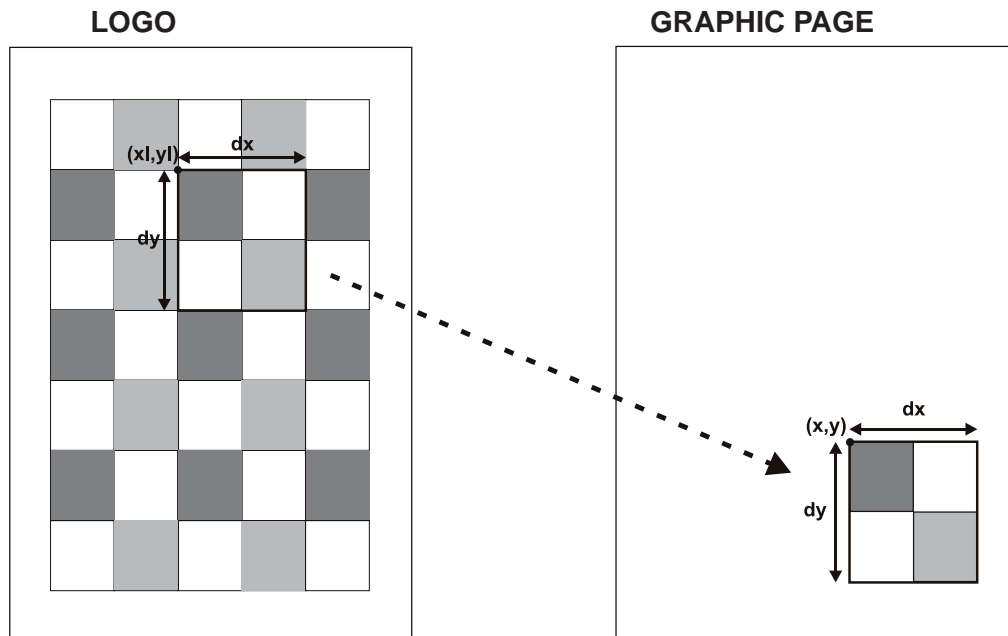
num = parameter for the graphic logo selection between the two logos available.

[Notes]

[Default]

[Reference]

[Example]



\$1C \$C1

Printers: VK80

[Name] **Enable / disable the paper recovery after a cut**

[Format] ASCII FS { } n
 Hex 1C C1 n
 Decimal 28 193 n

[Range]

[Description] Enables or disables the recovery of the paper after a cut, as follows:

- n = 0 : Enables paper recovery
- n ≠ 0 : Disables paper recovery

[Notes]

[Default] n ≠ 0

[Reference]

[Example]

\$1D \$21

Printers: ALL

[Name] **Select character size**

[Format] ASCII GS ! n
 Hex 1D 21 n
 Decimal 29 33 n

[Range] $0 \leq n \leq 255$

[Description] Selects character height and width, as follows:

- Bits 0 to 3: to select character height (see table 2).
- Bits 4 to 7: to select character width (see table 1).

Table 1 Select character width

HEX	Decimal	Width
00	0	1 (normal)
10	16	2 (width = 2x)
20	32	3 (width = 3x)
30	48	4 (width = 4x)
40	64	5 (width = 5x)
50	80	6 (width = 6x)
60	96	7 (width = 7x)
70	112	8 (width = 8x)

Table 2 Select character height

HEX	Decimal	Height
00	0	1 (normal)
01	1	2 (height = 2x)
02	2	3 (height = 3x)
03	3	4 (height = 4x)
04	4	5 (height = 5x)
05	5	6 (height = 6x)
06	6	7 (height = 7x)
07	7	8 (height = 8x)

[Notes]

- This command is effective for all characters (except HRI characters).
- If n falls outside the defined range, this command is ignored.
- Characters enlarged to different heights on the same line are aligned at the baseline or topline.
- \$1B \$21 can also be used to select character size. However, the setting of the last received command is the effective one.

[Default] n = 0

[Reference] \$1B \$21

[Example]

\$1D \$24

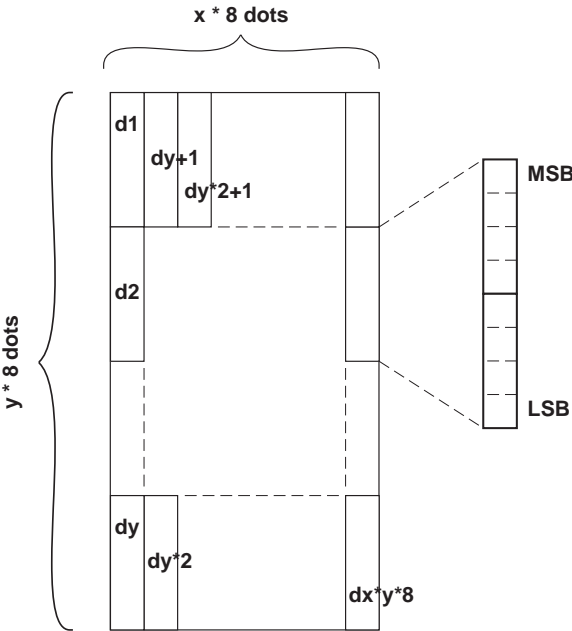
Printers: VK80
VKP80II-EE

[Name]	Set absolute vertical print position in page mode				
[Format]	ASCII	GS	\$	nL	nH
	Hex	1D	24	nL	nH
	Decimal	29	36	nL	nH
[Range]	$0 \leq nL \leq 255, 0 \leq nH \leq 255$				
[Description]	<p>Set the absolute vertical print starting position for buffer character data in page mode.</p> <ul style="list-style-type: none"> • This command sets the absolute print position to $[(nL + nH \times 256) \times (\text{vertical or horizontal motion unit})]$ inches. 				
[Notes]	<ul style="list-style-type: none"> • This command is effective only in page mode. • If the $[(nL + nH \times 256) \times (\text{vertical or horizontal motion unit})]$ exceeds the specified printing area, this command is ignored. • The horizontal starting buffer position does not move. • The reference starting position is that specified by \$1B \$54. • This command operates as follows, depending on the starting position of the printing area specified by \$1B \$54: <ol style="list-style-type: none"> 1) When the starting position is set to the upper left or lower right, this command sets the absolute position in the vertical direction. 2) When the starting position is set to the upper right or lower left, this command sets the absolute position in the horizontal direction. • The horizontal and vertical motion unit are specified by \$1D \$50. • The \$1D \$50 command can change the horizontal and vertical motion unit. However, the value cannot be less than the minimum horizontal movement amount, and it must be in even units of the minimum horizontal movement amount. 				
[Reference]	\$1B \$24, \$1B \$54, \$1B \$57, \$1B \$5C, \$1D \$50, \$1D \$5C.				
[Example]					

\$1D \$2A

Printers: ALL

[Name]	Define downloaded bit image					
[Format]	ASCII	GS	*	x	y	d1...d(x x y x 8)
	Hex	1D	2A	x	y	d1...d(x x y x 8)
	Decimal	29	42	x	y	d1...d(x x y x 8)
[Range]	1 ≤ x ≤ 255		1 ≤ y ≤ 48			
	x × y ≤ 1536		0 ≤ d ≤ 255			
[Description]	Defines a downloaded bit image using the number of dots specified by x and y. <ul style="list-style-type: none">• x specifies the number of dots in the horizontal direction.• y specifies the number of dots in the vertical direction.• The number of dots in the horizontal direction is x × 8, in the vertical direction it is y × 8.• If x × y is out of the specified range, this command is disabled.• The d indicates bit-image data. Data (d) specifies a bit printed to 1 and not printed to 0.• The downloaded bit image definition is cleared when:<ol style="list-style-type: none">1) \$1B \$40 is executed.2) \$1B \$26 is executed.3) printer is reset or the power is turned off.					
[Notes]						



[Default]	
[Reference]	\$1D \$5C
[Example]	

\$1D \$2FPrinters: *ALL*[Name] **Print downloaded bit image**

[Format] ASCII GS / m
 Hex 1D 2F m
 Decimal 29 47 m

[Description] Prints a downloaded bit image using the mode specified by m. m selects a mode from the table below:

m	MODE'
0, 48	Normal
1, 49	Double-width
2, 50	Double-height
3, 51	Quadruple

[Notes]

- This command is ignored if a downloaded bit image has not been defined.
- In standard mode, this command is effective only when there is no data in the print buffer.
- This command has no effect in the print modes (emphasized, underline, character size, or white/black reverse printing), except for upside-down printing mode.
- If the downloaded bit-image to be printed exceeds the printable area, the excess data is not printed.
- If the printing area width set by \$1D \$4C and \$1D \$57 is less than the bit image horizontal size, the following processing is performed:
 - 1) The printing area width is extended toward the right side up to hold the bit image. In this case, printing does not exceed the printable area.
 - 2) If the printing area width cannot be extended toward the right side, because there's no more printing area, the left margin is reduced to accommodate the bit image.

[Default]

[Reference]

\$1D \$2A

[Example]

\$1D \$3APrinters: *ALL*[Name] **Set start/end of macro definition**

[Format]	ASCII	GS	:
	Hex	1D	3A
	Decimal	29	58

[Range]

[Description] Starts or ends macro definition.

[Notes]

- Macro definition starts when this command is received during normal operation.
- When \$1D \$5E is received during macro definition, the printer ends macro definition and clears all definitions.
- Macros are not defined when power is turned on to the machine.
- Macro content is not cancelled by the \$1B \$40 command. Therefore, \$1B \$40 may be included in the content of macro definitions.
- If the printer receives \$1D \$3A a second time after previously receiving \$1D \$3A, the printer remains in macro undefined status.
- The contents of the macro can be defined up to 2048 bytes. If the macro definition exceeds 2048 bytes, excess data is not stored.

[Default]

[Reference] \$1D \$5E

[Example]

\$1D \$42Printers: *ALL*[Name] **Turn white/black reverse printing mode on/off**

[Format]	ASCII	GS	B	n
	Hex	1D	42	n
	Decimal	29	66	n

[Range] $0 \leq n \leq 255$

[Description] Turns white/black reverse printing mode on or off.

[Notes]

- When the LSB of n is 0, white/black reverse printing is turned off.
- When the LSB of n is 1, white/black reverse printing is turned on.
- Only the LSB of n is effective.
- This command is available for both built-in and user-defined characters.
- This command does not affect bit image, downloaded bit image, bar code, HRI characters and spacing skipped by \$09, \$1B \$24 and \$1B \$5C.
- This command does not affect white space between lines.
- White/black reverse mode has a higher priority than underline mode. Even if underline mode is on, it will be disabled (but not cancelled) when white/black reverse mode is selected.

[Default]

[Reference] n = 0

[Example]

\$1D \$43 \$30Printers: *ALL*[Name] **Select counter print mode**

[Format]	ASCII	GS	C	0	n	m
	Hex	1D	43	30	n	m
	Decimal	29	67	48	n	m

[Range] $0 \leq n \leq 5$ $m = 0, 1, 2, 48, 49, 50$

[Description] Selects a print mode for the serial number counter.

- n specifies the number of digits to be printed as follows:
when $n = 0$, the printer prints the actual digits indicated by the numeric value.
when $n = 1$ to 5, the command sets the number of digits to be printed.
- m specifies the printing position within the entire range of printed digits as follows:

m	Printing position	Processing of digits less than those specified
0,48	Flush right	Adds spaces to the left
1,49	Flush right	Adds a '0' to the left
2,50	Flush left	Adds spaces to the right

- [Notes]
- If n or m is out of the defined range, the previously set print mode is not changed.
 - If $n = 0$, m is not applicable.

[Default] $n = 0, m = 0$

[Reference] \$1D \$43 \$31, \$1D \$43 \$32, \$1D \$43 \$3B, \$1D \$63

[Example] $n = 3, m = 0$ $n = 3, m = 1$ $n = 3, m = 2$

□ □ 1 001 1 □ □

□ indicates a space

\$1D \$43 \$31Printers: *ALL*

[Name]	Select count mode (A)									
[Format]	ASCII	GS	C	1	aL	aH	bL	bH	n	r
	Hex	1D	43	31	aL	aH	bL	bH	n	r
	Decimal	29	67	49	aL	aH	bL	bH	n	r
[Range]	$0 \leq aL, aH \leq 255$									
	$0 \leq bL, bH \leq 255$									
	$0 \leq n, r \leq 255$									
[Description]	Selects a count mode for the serial number counter.									
	• aL, aH or bL, bH specify the counter range.									
	• n indicates the unit amount when counting up or down.									
	• indicates the repetition number when the counter value is fixed.									
[Notes]	• Count-up mode is specified when:									
	$[aL + (aH * 256)] < [bL + (bH * 256)]$ and $n \neq 0$ and $r \neq 0$									
	• Count-down mode is specified when:									
	$[aL + (aH * 256)] > [bL + (bH * 256)]$ and $n \neq 0$ and $r \neq 0$									
	• Counting stops when:									
	$[aL + (aH * 256)] = [bL + (bH * 256)]$ or $n = 0$ or $r = 0$									
	• Setting the count-up mode, the minimum counter value is $[aL + (aH * 256)]$ and the maximum value is $[bL + (bH * 256)]$. If the counting up reaches a value that exceeds the maximum, it resets to the minimum value.									
	• Setting the count-down mode, the maximum counter value is $[aL + (aH * 256)]$ and the minimum value is $[bL + (bH * 256)]$. If the counting down reaches a value less than the minimum, it resets to the maximum value.									
[Default]	aL = 1, aH = 0, bL = 255, bH = 255, n = 1, r = 1									
	aL = 1, aH = 0, bL = 255, bH = 255, n = 1, r = 1									
[Reference]	\$1D \$43 \$30, \$1D \$43 \$32, \$1D \$43 \$3B, \$1D \$63									
[Example]										

\$1D \$43 \$32Printers: *ALL*

[Name]	Set counter					
[Format]	ASCII	GS	C	2	nL	nH
	Hex	1D	43	32	nL	nH
	Decimal	29	67	50	nL	nH
[Range]	$0 \leq nL, nH \leq 255$					
[Description]	Sets the serial number counter value.					
	• nL and nH determine the value of the serial number counter set by $[nL + (nH * 256)]$.					
[Note]	• In count-up mode, if the counter value specified by this command goes out of the counter operation range specified by \$1D \$43 \$31 or \$1D \$43 \$3B, it is forced to convert to the minimum value through \$1D \$63.					
	• In count-down mode, if the counter value specified by this command goes out of the counter operation range specified by \$1D \$43 \$31 or \$1D \$43 \$3B, it is forced to convert to the maximum value through \$1D \$63.					
[Default]	nL = 1, nH = 0					
[Reference]	\$1D \$43 \$30, \$1D \$43 \$31, \$1D \$43 \$3B, \$1D \$63					
[Example]						

\$1D \$43 \$3BPrinters: *ALL*[Name] **Select count mode (B)**

[Format]	ASCII	GS	C	;	sa	;	sb	;	sn	;	sr	;	sc	;
	Hex	1D	43	3B	sa	3B	sb	3B	sn	3B	sr	3B	sc	3B
	Decimal	29	67	59	sa	59	sb	59	sn	59	sr	59	sc	59

[Range] $0 \leq sa, sb, sc \leq 65535$ $0 \leq sn, sr \leq 255$

These values are all character strings.

[Description] Selects a count mode for the serial number counter and specifies the value of the counter.

- sa, sb, sn, sr e sc are all displayed as ASCII characters using codes from '0' to '9'.

- sa e sb specify the counter range.

- sn indicates the unit amount for counting up or down.

- sr indicates the repetition number when the counter value is fixed.

- sc indicates the counter value.

[Notes]

- Count-up mode is specified when: $sa < sb$ and $sn \neq 0$ and $sr \neq 0$

- Count-down mode is specified when: $sa > sb$ and $sn \neq 0$ and $sr \neq 0$

- Counting stops when:

- sa = sb o $sn = 0$ or $sr = 0$

- In setting count-up mode, the minimum value of the counter is sa and the maximum value is sb. If counting up reaches a value exceeding the maximum, it resets to the minimum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the minimum value by executing \$1D \$63.

- In setting count-down mode, the maximum value of the counter is sa and the minimum value is sb. If counting down reaches a value less than the minimum, it resets to the maximum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the maximum value by executing \$1D \$63.

- Parameters sa to sc can be omitted. If omitted, they remain unchanged.

- Parameters sa to sc cannot contain characters other than '0' to '9'.

[Default] sa = 1, sb = 65535, sn = 1, sr = 1, sc = 1

[Reference] \$1D \$43 \$30, \$1D \$43 \$32, \$1D \$43 \$31, \$1D \$63

[Example]

\$1D \$48Printers: *ALL***[Name]** Select printing position of Human Readable Interpretation (HRI) characters

[Format]

ASCII	GS	H	n
Hex	1D	48	n
Decimal	29	72	n

[Range] $0 \leq n \leq 3, 48 \leq n \leq 51$ **[Description]** Selects the printing position of HRI characters when printing bar codes. n selects the printing positions as follows::

n	FUNCTION
0, 48	Not printed
1, 49	Above the bar code
2, 50	Below the bar code
3, 51	Both above the below the bar code

[Notes] • HRI characters are printed using the font specified by \$1D \$66.**[Default]** n = 0**[Reference]** \$1D \$66, \$1D \$68**[Example]****\$1D \$49**Printers: *ALL***[Name]** Transmit printer ID

[Format]

ASCII	GS	I	n
Hex	1D	49	n
Decimal	29	73	n

[Range] $1 \leq n \leq 3, 49 \leq n \leq 51$ **[Description]** Transmits the printer ID specified by n follows:

n	Printer ID	Specification
1, 49	Printer model ID	\$5D (VKP80 200 dpi) \$95 (VKP80II-EE) \$B9 (VK80)
2, 50	Type ID	Undefined
3, 51	ROM version ID	Depends on ROM version (4 character)

[Notes] • The printer only transmits 1 byte (printer ID) without confirmation that the host is ready to receive data.

• This command is executed when the data is processed in the data buffer. Therefore, there could be a time lag between command reception and data transmission, depending on data buffer status.

[Default]**[Reference]****[Example]**

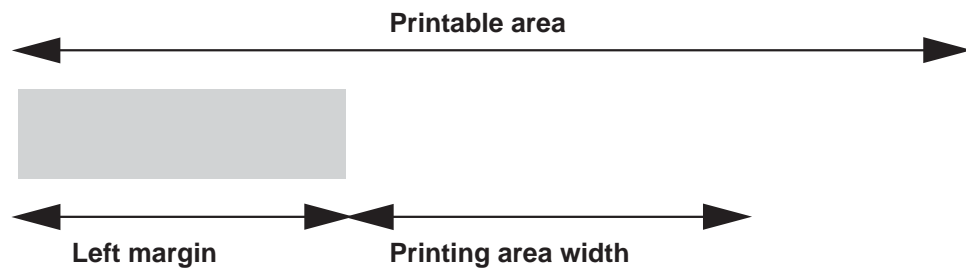
\$1D \$4CPrinters: *ALL*[Name] **Set left margin**

[Format]	ASCII	GS	L	nL	nH
	Hex	1D	4C	nL	nH
	Decimal	29	76	nL	nH

[Range] $0 \leq nL, nH \leq 255$

[Description] Sets the left margin.

- The left margin is set to $[(nL + nH \times 256) \times (\text{horizontal motion unit})]$ inches.



- [Notes]
- This command is enabled only if set at the beginning of the line.
 - If the setting exceeds the printable area, the maximum value of the printable area is used.
 - If the left margin + printing area width is greater than the printable area, the printing area width is set at maximum value.
 - The horizontal and vertical motion unit are specified by \$1D \$50. Changing the horizontal or vertical motion unit does not affect the current left margin.
 - The \$1D \$50 command can change the horizontal (and vertical) motion unit.
 - However, the value cannot be less than the minimum horizontal movement amount and it must be in even units of the minimum horizontal movement amount.
 - The horizontal and vertical motion unit are specified by \$1D \$50 or \$1D \$D0. Changing the horizontal or vertical motion unit does not affect the current left margin.
 - The \$1D \$50 or \$1D \$D0 command can change the horizontal (and vertical) motion unit.

[Default]

[Reference] \$1D \$50, \$1D \$57, \$1D \$D0

[Example]

\$1D \$50 (mode 1)Printers: *ALL*

[Name]	Set horizontal and vertical motion units				
[Format]	ASCII	GS	P	x	y
	Hex	1D	50	x	y
	Decimal	29	80	x	y
[Range]	$0 \leq x, y \leq 255$				
[Description]	Sets the horizontal and vertical motion units to 1/x inch and 1/y inch respectively.				
	When x is set to 0, the default setting value is used.				
	When y is set to 0, the default setting value is used.				
[Notes]	<ul style="list-style-type: none"> The horizontal direction is perpendicular to the paper feed direction. In standard mode, the following commands use x or y, regardless of character rotation (upside-down or 90° clockwise rotation): 				
	❶ Commands using x : \$1D \$4C, \$1D \$57.				
	❷ Commands using y : \$1B \$4A.				
	<ul style="list-style-type: none"> This command does not affect the previously specified values. The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch or an exact multiple of that value. 				
	x = 204, y = 408 (for the 204 dpi model)				
[Default]	x = 204, y = 408 (for the 204 dpi model)				
[Reference]	\$1B \$4A, \$1D \$4C, \$1D \$57, \$1D \$D0				
[Example]					

❶ \$1D \$56 , ❷ \$1D \$56Printers: *ALL*

[Name]	Select cut mode					
[Format]	❶	ASCII	GS	V	m	
		Hex		1D	56	m
		Decimal		29	86	m
	❷	ASCII	GS	V	m	n
		Hex		1D	56	m n
		Decimal		29	86	m n
[Range]	❶	m = 0, 48				
	❷	m = 65, $0 \leq n \leq 255$				

[Description] Selects cut mode and executes the cut command. m selects cut mode as follows:

m	FUNCTION
0, 48	Total cut
65	Form feed (cut position + [n x vertical motion unit]) and total cut

[Notes]	<ul style="list-style-type: none"> This command is only enabled if set at the beginning of the line. The horizontal and vertical motion units are specified by \$1D \$50 or \$1D \$D0.
[Default]	
[Reference]	\$1B \$69
[Example]	

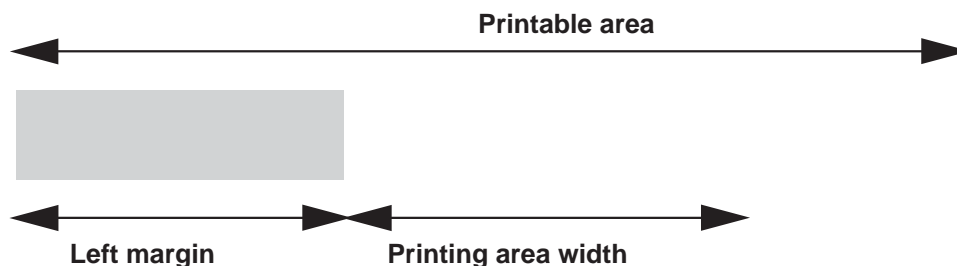
\$1D \$57Printers: *ALL*[Name] **Set printing area width**

[Format]	ASCII	GS	W	nL	nH
	Hex	1D	57	nL	nH
	Decimal	29	87	nL	nH

[Range] $0 \leq nL, nH \leq 255$ $0 \leq nL + nH \times 256 \leq nMAX$

[Description] Sets the printing area width to the area specified by nL and nH.

The nMAX value is 576.

• The left margin is set to $[(nL+nH \times 256) \times (\text{horizontal motion unit})]$ inches.

- [Notes]
- This command is only enabled if set at the beginning of the line.
 - If the right margin is greater than the printable area, the printing area width is set at maximum value.
 - If the printing area width = 0, it is set at the maximum value.
 - The horizontal and vertical motion units are specified by \$1D \$50. Changing the horizontal or vertical motion unit does not affect the current left margin.
 - The \$1D \$50 command can change the horizontal (and vertical) motion unit.
 - However, the value cannot be less than the minimum horizontal movement amount and it must be in even units of the minimum horizontal movement amount.
 - The horizontal and vertical motion units are specified by \$1D \$50 or \$1D \$D0. Changing the horizontal or vertical motion unit does not affect the current left margin.
 - The \$1D \$50 or \$1D \$D0 command can change the horizontal (and vertical) motion unit.

[Default]

[Reference]

[Example]

\$1D \$4C, \$1D \$50, \$1D \$D0

\$1D \$5C

Printers: VK80

VKP80II-EE

[Name]	Set relative vertical print position in page mode				
[Format]	ASCII	GS	\	nL	nH
	Hex	1D	5C	nL	nH
	Decimal	29	92	nL	nH
[Range]	$0 \leq nL \leq 255, 0 \leq nH \leq 255$				
[Description]	<ul style="list-style-type: none"> • Sets the relative vertical print starting position from the current position in page mode. • This command sets the distance from the current position to $[(nL + nH \times 256) \times \text{vertical or horizontal motion unit}]$ inches. 				
[Notes]	<ul style="list-style-type: none"> • This command is ignored unless page mode is selected. 				
	<ul style="list-style-type: none"> • When N is specified to the movement downward: $nL + nH \times 256 = N$ 				
	<ul style="list-style-type: none"> • When N is specified to the movement upward (the negative direction), use the complement of 65536. 				
	<ul style="list-style-type: none"> • When N is specified to the movement upward: 				
	$nL + nH \times 256 = 65536 - N$				
	<ul style="list-style-type: none"> • Any setting that exceeds the specified printing area is ignored. 				
	<ul style="list-style-type: none"> • This command function as follows, depending on the print starting position set by \$1B \$54: 				
[Reference]	1) When the starting position is set to the upper left or lower right of the printing, the vertical motion unit (y) is used.				
	2) When the starting position is set to the upper right or lower left of the printing area, the horizontal motion unit (x) is used.				
[Example]	<ul style="list-style-type: none"> • The horizontal and vertical motion unit are specified by \$1D \$50. 				
	<ul style="list-style-type: none"> • The \$1D \$50 command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount, and it must be in even units of the minimum horizontal movement amount. 				
	\$1B \$24, \$1B \$54, \$1B \$57, \$1B \$5C, \$1D \$24, \$1D \$50				

\$1D \$5EPrinters: *ALL*[Name] **Execute macro**

[Format]	ASCII	GS	^	r	t	m
	Hex	1D	5E	r	t	m
	Decimal	29	94	r	t	m

[Range] $0 \leq r, t \leq 255$
 $0 \leq m \leq 1$

[Description] Executes a macro.

- r specifies the number of times to execute the macro.
- t specifies the waiting time for executing the macro. The waiting time is $t \times 100$ msec. for each macro execution.
- m specifies macro executing mode: When the LSB of m = 0, the macro is executed r times continuously at the interval specified by t.

When the LSB of m = 1, after waiting for the period specified by t, the LED indicator blinks and the printer waits for the FEED button to be pressed. After the button is pressed, the printer executes the macro once. The printer repeats the operation r times.

[Notes]

- This command has an interval of ($t \times 100$ msec.) after a macro is executed by t.
- If this command is received while a macro is being defined, the macro definition is aborted and the definition is cleared.
- If the macro is not defined or if r is 0, nothing is executed.
- When the macro is executed by pressing the LINE FEED button (m=1), the paper cannot be fed using the LINE FEED button.

[Default]

[Reference] \$1D \$3A

[Example]

\$1D \$63Printers: *ALL*[Name] **Print counter**

[Format]	ASCII	GS	c
	Hex	1D	63
	Decimal	29	102

[Range]

[Description] Sets the serial counter value in the print buffer and increments or decrements the counter value.

[Notes]

- After setting the current counter value in the print buffer as print data (a character string), the printer counts up or down based on the count mode set. The counter value in the print buffer is printed when the printer receives a print command or the buffer is full.
- The counter print mode is set using \$1D \$43 \$30.
- The counter mode is set using \$1D \$43 \$31 or \$1D \$43 \$3B.
- In count-up mode, if the counter value set by this command goes out of the counter operation range set by \$1D \$43 \$31 or \$1D \$43 \$3B, it is forced to revert to the minimum value.
- In count-down mode, if the counter value set by this command goes out of the counter operation range set by \$1D \$43 \$31 or \$1D \$43 \$3B, it is forced to revert to the maximum value.

[Default]

[Reference] \$1D \$43 \$30, \$1D \$43 \$31, \$1D \$43 \$32, \$1D \$43 \$3B

[Example]

\$1D \$65

Printers: VKP80

VKP80II

VKP80II-EE

[Name] **Ejector commands**

[Format] ASCII GS e n m
 Hex 1D 65 n m
 Decimal 29 101 n m

[Range] $1 \leq n \leq 3, 5 \leq n \leq 6, n = 8, n = 18, n = 20, n = 32; 0 \leq t \leq 255$

[Description] This command handles tickets ejector:

n = 1

n = 2 Ticket retracted (only if Paper retracting is enabled)

n = 3 Ticket produced with m steps (1 step = 7.3 mm)

n = 5 Eject ticket

n = 6 Transmit the status byte of the ejector

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper present in abundance
	On	01	1	Near paper end
1	Off	00	0	RESERVED
2	Off	00	0	Paper end sensor (paper not present)
	On	04	4	Paper end sensor (paper present)
3	Off	00	0	Ticket not present on the output
	On	08	8	Ticket present on the output
4	Off	00	0	Printer's stepper motor off
	On	10	16	Printer's stepper motor on
5	Off	00	0	Emitter motor off
	On	20	32	Emitter motor on
6	Off	00	0	Not error
	On	40	64	Error
7	Off	00	0	Free paper route
	On	80	128	Paper jam

n = 8 sets the length of thicket dispense with m steps (1 step = 7.3 mm).

n = 18 Disable the dispenser continuous mode, sets the normal functioning: when printing the ticket remains in the outlet paper mouth, until a cut command or eject command will be sent.

n = 20 Enable the dispenser continuous mode: when printing the ticket doesn't remain in the outlet paper mouth, but continuously presented it.

n = 32 Produce a ticket with m steps (1 step = 7.3 mm) and a timeout t

(t = 1 z1 sec. t = 2 z2 sec)

[Notes]

• m must be sent with n = 3, n = 8 and n = 32;

• with n = 3, 8, 32 the printer execute a check of the ticket produced length: if the m input has a too high value automatically the ticket produced is ejected with the maximum length allowed.

• with n = 3, 32 if the ticket is not yet cutted, before to perform the command, the printer made a total cut.

• with n = 32 it's necessary set a timeout that indicate how long th ticket remain presented; if send a now print before the timeout it's execute a ticket retract or ticket eject in according to printer setup setting, when timeout occurs the printer executes a ticket retract or ticket eject in according to printer setup settings

[Reference]

[Example]

The correct commands sequence to print a ticket is:

1. Clear dispenser: Ejection (\$1D \$65 \$05) or Retraction (\$1D \$65 \$02)
2. Prints ticket
3. Cuts paper: Total cut (\$1B \$69)
4. Dispenser: Presents ticket with @ 87 mm (\$1D \$65 \$03 \$0C)

\$1D \$66

Printers: ALL

[Name] **Select font for HRI characters**
[Format] ASCII GS f n
Hex 1D 66 n
Decimal 29 102 n
[Range] n = 0, 1, 48, 49
[Description] Selects a font for the HRI characters used when printing a bar code. n selects a font from the following table:

n	FONT
0, 48	Font A
1, 49	Font B

[Notes] HRI characters are printed at the position specified by \$1D \$48.
[Default] n = 0
[Reference] \$1D \$48, \$1D \$6B
[Example]

\$1D \$68

Printers: ALL

[Name] **Set bar code height**
[Format] ASCII GS h n
Hex 1D 68 n
Decimal 29 104 n
[Range] $1 \leq n \leq 255$
[Description] Sets the height of the bar code. n specifies the number of vertical dots.
[Notes]
[Default] n = 162
[Reference] \$1D \$6B
[Example]

① \$1D \$6B, ② \$1D \$6B

Printers: ALL

[Name]

Print barcode

[Format]

①	ASCII	GS	k	m	NUL
	Hex	1D	6B	m	00
	Decimal	29	107	m	0
②	ASCII	GS	k	m	n
	Hex	1D	6B	m	n
	Decimal	29	107	m	n

[Range]

- ①** $0 \leq m \leq 20$
② $65 \leq m \leq 90$

[Description]

Selects a bar code system and prints the bar code. m selects a bar code system as follows:

①	m	BARCODE SYSTEM	No. OF CHARACTERS	REMARKS
	0	UPC-A	$11 \leq k \leq 12$	$48 \leq d \leq 57$
	1	UPC-E	$11 \leq k \leq 12$	$48 \leq d \leq 57$
	2	EAN13 (JAN)	$12 \leq k \leq 13$	$48 \leq d \leq 57$
	3	EAN8 (JAN)	$7 \leq k \leq 8$	$48 \leq d \leq 57$
	4	CODE39	$1 \leq k$	$48 \leq d \leq 57, 65 \leq d \leq 90,$ 32, 36, 37, 43, 45, 46, 47
	5	ITF	$1 \leq k$ (even number)	$48 \leq d \leq 57$
	6	CODABAR	$1 \leq k$	$48 \leq d \leq 57, 65 \leq d1 \leq 68,$ 36, 43, 45, 46, 47, 58
	7	CODE93	$1 \leq k \leq 255$	$1 \leq d \leq 127$
	8	CODE128	$2 \leq k \leq 255$	$1 \leq d \leq 127$
	20	CODE32	$8 \leq k \leq 9$	$48 \leq d \leq 57$

②	65	UPC-A	$11 \leq n \leq 12$	$48 \leq d \leq 57$
	66	UPC-E	$11 \leq n \leq 12$	$48 \leq d \leq 57$
	67	EAN13 (JAN)	$12 \leq n \leq 13$	$48 \leq d \leq 57$
	68	EAN8 (JAN)	$7 \leq n \leq 8$	$48 \leq d \leq 57$
	69	CODE39	$1 \leq n \leq 255$	$48 \leq d \leq 57, 65 \leq d \leq 90, 32,$ 36, 37, 43, 45, 46, 47
	70	ITF	$1 \leq n \leq 255$	$48 \leq d \leq 57$
	71	CODABAR	$1 \leq n \leq 255$	$48 \leq d \leq 57, 65 \leq d1 \leq 68,$ 36, 43, 45, 46, 47, 58
	72	CODE93	$1 \leq n \leq 255$	$1 \leq d \leq 127$
	73	CODE128	$2 \leq n \leq 255$	$1 \leq d \leq 127$
	90	CODE32	$8 \leq n \leq 9$	$48 \leq d \leq 57$

[Notes]

- If d is outside of the specified range, the printer prints the following message: "BAR CODE GENERATOR IS NOT OK!" and processes the data which follows as normal data.
- If the horizontal size exceeds the printing area, the printer only feeds the paper.
- This command feeds as much paper as is required to print the bar code, regardless of the line spacing.
- After printing the bar code, this command sets the print position to the beginning of the line.
- This command is not affected by print modes (emphasized, double-strike, underline or character size), except for upside-down and justification mode.

[Note per ❶]

- This command ends with a NUL code.
- When the bar code system used is UPC-A or UPC-E, the printer prints the bar code data after receiving 11 (without check digit) or 12 (with check digit) bytes bar code data.
- When the bar code system used is EAN13, the printer prints the bar code data after receiving 12 (without check digit) or 13 (with check digit) bytes bar code data.
- When the bar code system used is EAN8, the printer prints the bar code data after receiving 7 (without check digit) or 8 (with check digit) bytes bar code data.
- The number of data for ITF bar code must be even numbers. When an odd number of data is input, the printer ignores the last received data.

[Note per ❷]

- If n is outside of the specified range, the printer stops command processing and processes the following data as normal data.

When CODE93 is used the printer :

- prints an HRI character (o) as a start character at the beginning of the HRI character string
- prints an HRI character (o) as a stop character at the end of the HRI character string.
- the printer prints an HRI character (n) as a control character (\$00 to \$1F and \$7F).

When CODE128 is used the printer :

- please note the following regarding data transmission:
- The top part of the bar code data string must be a code set selection character (CODE A, CODE B or CODE C) which selects the first code set.
- Special characters are defined by combining two characters “{” and one character. ASCII character “{” is defined by transmitting “{” twice, consecutively.

SPECIFIC CHARACTER	DATA TRANSMISSION		
	ASCII	HEX	DECIMAL
SHIFT	{S	7B, 53	123, 83
CODE A	{A	7B, 41	123, 65
CODE B	{B	7B, 42	123, 66
CODE C	{C	7B, 43	123, 67
FNC1	{1	7B, 31	123, 49
FNC2	{2	7B, 32	123, 50
FNC3	{3	7B, 33	123, 51
FNC4	{4	7B, 34	123, 52
{	{{	7B, 7B	123, 123

[Default]

[Reference]

[Example]

\$1D \$48, \$1D \$66, \$1D \$68, \$1D \$77

\$1D \$72Printers: *ALL*[Name] **Transmit status**

[Format] ASCII GS r n
 Hex 1D 72 n
 Decimale 29 114 n

[Range] n = 1, 49

[Description] Transmits the status specified by n as follows:

n	FUNCTION
1, 49	Transmits paper sensor status (as for \$1B \$76).

Paper sensor status (n = 1, 49)

BIT	OFF/ON	HEX	Decimal	FUNCTION
0,1	Off	00	0	Near paper-end sensor (paper present)
	On	03	3	Near paper-end sensor (paper not present)
2,3	Off	00	0	Paper-end sensor (paper present)
	On	(0C)	(12)	Paper-end sensor (paper not present)
4	-	-	-	RESERVED
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	-	-	-	RESERVED

[Notes] • This command is executed when the data is processed in the data buffer. Therefore, there may be a time lag between receiving the command and transmitting the status, depending on data buffer status.

[Default]

[Reference] \$10 \$04, \$1B \$76

[Example]

\$1D \$76 \$30Printers: *ALL*[Name] **Print raster image**

[Format]	ASCII	GS	v	0	m	xL	xH	yL	yH	d1...dk
	Hex	1D	76	30	m	xL	xH	yL	yH	d1...dk
	Decimal	29	118	48	m	xL	xH	yL	yH	d1...dk

[Range] $0 \leq m \leq 3, 48 \leq m \leq 51$
 $0 \leq xL \leq 255$
 $0 \leq xH \leq 255 (1 \leq xL + xH \times 256 \leq 65535)$
 $0 \leq yL \leq 255$
 $0 \leq yH \leq 8 (1 \leq yL + yH \times 256 \leq 2047)$
 $0 \leq d \leq 255$
 $k = (xL + xH \leq 256) + (yL + yH \leq 256)$
(except for $k = 0$)

[Description] Selects raster bit image mode. The value of m selects the mode as follows:

m	MODE
0, 48	Normal
1, 49	Double width
2, 50	Double height
3, 51	Quadruple

- xL, xH selects the number of data bits ($xL + xH \times 256$) in the horizontal direction for the bit image.
 - yL, yH selects the number of data bits ($yL + yH \times 256$) in the vertical direction for the bit image.
 - k shows the number of data of the image. It's an explanation parameter so it isn't necessary to transmit it.
 - d shows the data of the image.
- [Notes]
- In standard mode for receipt paper, this command is effective only when there is no data in the print buffer.
 - The data (d) identify as 1 a printed bit and as 0 a non printed bit.
 - If a raster bit image is longer than one line, the surplus data aren't printed.
 - This command has no effect in all print modes (character size, emphasized, upside-down, underline, white/black reverse printing, etc.) for raster bit image, except the reverse mode (90° anticlockwise rotation).
 - This command feed the paper as much as is necessary to print the raster bit image, though the spacing set by \$1B \$32 or \$1B \$33.
 - Don't use this command during a macro execution because it can't be included in a macro.
 - After the printing, the printing position moves to the beginning of the line.
 - The following table shows the report between the image data and the printing result:

d1	d2	...	dx
dX+1	dX+2	...	dX x 2
:	:	...	:
...	dk-2	dk-1	d

[Default]

[Reference]

[Example]

\$1D \$77Printers: *ALL*[Name] **Set bar code width**

[Format] ASCII GS w n
 Hex 1D 77 n
 Decimal 29 119 n

[Range] **VK80, VKP80II-EE**
 $\$1 \leq n \leq \$6, \$81 \leq n \leq \86

VKP80, VKP80II
 $1 \leq n \leq 6$

[Description] **VK80, VKP80II-EE**
 Sets the horizontal size of the bar code. n specifies the bar code width (referred to the narrow bar) as follows:

n	MODULE WIDTH (mm)
\$1, \$81	0.125
\$2, \$82	0.25
\$3, \$83	0.375
\$4, \$84	0.5
\$5, \$85	0.625
\$6, \$86	0.75

• If barcode ≠ CODE128 the wide and narrow bar ratio is the following:

n		Wide bar / narrow bar ratio
If n < \$80	\$1, \$2, \$3, \$4, \$5, \$6	3:1
If n > \$80	\$81	3:1
	\$82	2,5:1
	\$83	2,33:1
	\$84	2,25:1
	\$85	3:1
	\$86	3:1

VKP80, VKP80II

Sets the horizontal size of the bar code. n specifies the bar code width as follows:

n	MODULE WIDTH (mm)
1	0.125
2	0.25
3	0.375
4	0.5
5	0.625
6	0.75

[Notes]

[Default]

[Reference]

[Example]

n = 3

\$1D \$6B

\$1D \$7C

Printers: ALL

[Name] Set printing density
[Format] ASCII GS { } n
Hex 1D 7C n
Decimal 29 124 n
[Range] $0 \leq n \leq 8, 48 \leq n \leq 56$
[Description] Sets printing density. n specifies printing density as follows:

n	PRINTING DENSITY
0, 48	- 50%
1, 49	- 37.5%
2, 50	- 25%
3, 51	- 12.5%
4, 52	0%
5, 53	+ 12.5%
6, 54	+ 25%
7, 55	+ 37.5%
8, 56	+ 50%

[Notes] • Printing density reverts to the default value when the printer is reset or turned off.
[Default] $n = 4$
[Reference]
[Example]

\$1D \$D0 (mode 2)Printers: *ALL*

[Name]	Set horizontal and vertical motion units						
[Format]	ASCII	GS	{ }	xH	xL	yH	yL
	Hex	1D	D0	xH	xL	yH	yL
	Decimal	29	208	xH	xL	yH	yL
[Range]	$0 \leq (xH * 256) + xL \leq 2040$ $0 \leq (yH * 256) + yL \leq 4080$						
[Description]	Sets the horizontal and vertical motion units to $1/((xH * 256) + xL)$ inch and $1/((yH * 256) + yL)$ inch respectively. When x is set to 0, the default setting value is used. When y is set to 0, the default setting value is used.						
[Notes]	<ul style="list-style-type: none"> The horizontal direction is perpendicular to the paper feed direction. In standard mode, the following commands use x or y, regardless of character rotation (upside-down or 90° clockwise rotation): <ul style="list-style-type: none"> ❶ Commands using x : \$1D \$4C, \$1D \$57. ❷ Commands using y : \$1B \$4A, \$1B \$33. This command does not affect the previously specified values. The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch or an exact multiple of that value. 						
[Default]	x = 204, y = 408						
[Reference]	\$1B \$4A, \$1D \$4C, \$1D \$57, \$1D \$D0						
[Example]							

\$1D \$E0Printers: *ALL***[Name] Enable / disable automatic FULL STATUS back**

[Format] ASCII GS { } n
 Hex 1D E0 n
 Decimal 29 224 n

[Range] $0 \leq n \leq 255$ **[Description]** Enable / disable automatic full status back. n specifies the composition of FULL STATUS as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Disable paper status
	On	01	1	Enable paper status
1	Off	00	0	Disable user status
	On	02	2	Enable user status
2	Off	00	0	Disable Recoverable Error Status
	On	04	4	Enable Recoverable Error Status
3	Off	00	0	Disable Unrecoverable Error Status
	On	08	8	Enable Unrecoverable Error Status
4	-	-	-	Undefined
5	-	-	-	Undefined
6	-	-	-	Undefined
7	-	-	-	Undefined

[Notes]

- Once enable at least one byte of the FULL STATUS, for each change of at least one of the bits which compose the required status, the status sent in automatic from the printer will be so composed as follows:

1° Byte = 0x10 (\$10)

2° Byte = n

Next byte (depends how many bits are active in in)

[Default]**[Reference]** \$10 \$04 n**[Example]**

\$1D \$E1Printers: *ALL***[Name] Reading of length paper (cm) available before virtual paper-end**

[Format]

ASCII	GS	{ }
Hex	1D	E1
Decimal	29	225

[Description] Reading of length (cm) paper available before virtual paper-end. The command return a string pointing out how much paper is available, for example if there are 5.1 m before the paper end, it will be: '510cm'.

[Notes]

- The lenght of residual paper reported is just as an indication because tolerances and other factors are not taken into consideration (paper thickness, roll core diameter, roll core thickness). The virtual paper-end limit is set by the command \$1D \$E6.
- To set virtual paper-end limit, measure the length of the paper from near paper end to the end of the roll, using several of them.

[Default]**[Reference]** \$1D \$E6**[Example]****\$1D \$E2**Printers: *ALL***[Name] Reading number of cuts performed from the printer**

[Format]

ASCII	GS	{ }
Hex	1D	E2
Decimal	29	226

[Description] Reading the number of cuts performed from the printer.
The command return a string that points out how many cuts are performed by the printer, for example if there are performed 2376 cuts, it will be: '2376 cuts'

[Notes]**[Default]****[Reference]****[Example]**

\$1D \$E3

Printers: *ALL*

[Name] **Reading of length (cm) of printed paper**

[Format] ASCII GS {}
 Hex 1D E3
 Decimal 29 227

[Range]

[Description] Reading of length (cm) of printed paper.

[Notes] The command return a string pointing out how much paper is printed, for example if the printer has print about 2515,5 m, it will be: '251550cm'.

[Default]

[Reference]

[Example]

\$1D \$E4

Printers: VKP80

VKP80II

VKP80II-EE

[Name] **Reading number of retracting**

[Format] ASCII GS {}
 Hex 1D E4
 Decimal 29 228

[Range]

[Description] Reading number of retracting of the printer.

[Notes] • The command return a string pointing out the number of retracting of the printer, for example if the printer has retracted the paper 512 times, it will be: '512ret'

[Default]

[Reference]

[Example]

\$1D \$E5Printers: *ALL*[Name] **Reading number of power up**

[Format]	ASCII	GS	{ }
	Hex	1D	E5
	Decimal	29	229

[Range]

[Description] Reading number of power up of the printer.

[Notes] • The command return a string pointing out the number of turning on of the printer, for example if the printer is turned on 512 times, it will be: '512on'.

[Default]

[Reference]

[Example]

\$1D \$E6Printers: *ALL*[Name] **Virtual paper-end limit**

[Format]	ASCII	GS	{ }	nH	nL
	Hex	1D	E6	nH	nL
	Decimal	29	230	nH	nL

[Range] $0 \leq nH, nL \leq 255$

[Description] This command sets the limit after which is pointed out the virtual paper-end.

[Notes] • The calculation limit of the near paper-end is in centimetres.
 • This value is expressed as $[(nH \times 256) + nL]$

[Default] nH = 0x00

nL = 0xF0

[Reference]

[Example] To see the virtual paper-end is pointed out after 15 metres from the first detection of near paper end, it's necessary convert 15 metres in 1500 centimetres and then, calculate nH and nL value in the following mode:

nH = $1500 / 256 = 5$ nL = $1500 - (nH \times 256) = 1500 - (5 \times 256) = 220$

and then send the following command:

Hex: \$1D \$E6 \$05 \$DC

Decimal: 29 230 5 220

\$1D \$E7

Printers: *ALL*
[Name] Set notch distance

[Format]

ASCII	GS	{ }	nH	nL
Hex	1D	E7	nH	nL
Decimal	29	231	nH	nL

[Range] $0 \leq nH \leq 255, 0 \leq nL \leq 255$

[Description] Sets notch distance in tenth mm from the beginning of the document.

[Notes]

- This value is expressed as $[(nH \times 256) + nL]$
- It's possible to put in the notch distance maximum limit during the setup phase. The notch distance value range goes from 0 to 32 mm.
- The setting are saved in the EEPROM to keep the value when the printer is turned off.

[Default]
nH = \$00
nL = \$00

[Reference]

[Example]

\$1D \$F0

Printers: *ALL*
[Name] Set printing speed

[Format]

ASCII	GS	{ }	n
Hex	1D	F0	n
Decimal	29	240	n

[Range] $0 \leq n \leq 2$

[Description] Sets printing speed. n specifies the printing speed as follows:

n	PRINTING SPEED
0	High quality
1	Normal
2	High speed

[Notes] • Printing speed reverts to the default value when the printer is reset or turned off.

[Default] n = 1

[Reference]

[Esempio]

\$1D \$F6Printers: *ALL*[Name] **Align the print head with the notch**

[Format] ASCII GS { }

 Hex 1D F6

 Decimal 29 246

[Description] Set the print head notch alignment. With the \$1D \$E7 command it's possible to program the printing start distance from the notch.

[Notes] • The distances range goes from 0 to 32 mm.

[Default] 0

[Reference] \$1D \$E7, \$1D \$F8

[Example]

\$1D \$F8Printers: *ALL*[Name] **Align the autocutter with the notch**

[Format] ASCII GS { }

 Hex 1D F8

 Decimal 29 248

[Description] Set the autocutter notch alignment. With the \$1D \$E7 command it's possible to program the paper cut start distance from the notch.

[Notes] • The distances range goes from 0 to 32 mm.

[Default] 0

[Reference] \$1D \$E7, \$1D \$F6

[Example]

3 COMMANDS INDEX

ESC/POS™ EMULATION

\$08.....	8	\$1D \$43 \$31.....	50
\$09.....	8	\$1D \$43 \$32.....	50
\$0A.....	9	\$1D \$43 \$3B.....	51
\$0C.....	9	\$1D \$48.....	52
\$0D.....	10	\$1D \$49.....	52
\$10 \$04.....	11	\$1D \$4C.....	53
\$18.....	14	\$1D \$50 (mode 1).....	54
\$1B \$0C.....	15	❶ \$1D \$56 , ❷ \$1D \$56.....	54
\$1B \$20.....	15	\$1D \$57.....	55
\$1B \$21.....	16	\$1D \$5C.....	56
\$1B \$24.....	17	\$1D \$5E.....	57
\$1B \$25.....	17	\$1D \$63.....	57
\$1B \$26.....	18	\$1D \$65.....	58
\$1B \$28 \$76.....	19	\$1D \$66.....	60
\$1B \$2A.....	20	\$1D \$68.....	60
\$1B \$2D.....	21	❶ \$1D \$6B, ❷ \$1D \$6B.....	61
\$1B \$30.....	21	\$1D \$72.....	63
\$1B \$32.....	22	\$1D \$76 \$30.....	64
\$1B \$33.....	22	\$1D \$77.....	65
\$1B \$34.....	23	\$1D \$7C.....	66
\$1B \$3D.....	24	\$1D \$D0 (mode 2).....	67
\$1B \$3F.....	24	\$1D \$E0.....	68
\$1B \$40.....	25	\$1D \$E1.....	69
\$1B \$44.....	25	\$1D \$E2.....	69
\$1B \$45.....	26	\$1D \$E3.....	70
\$1B \$47.....	26	\$1D \$E4.....	70
\$1B \$4A.....	27	\$1D \$E5.....	71
\$1B \$4C.....	28	\$1D \$E6.....	71
\$1B \$4D.....	29	\$1D \$E7.....	72
\$1B \$52.....	30	\$1D \$F0.....	72
\$1B \$53.....	31	\$1D \$F6.....	73
\$1B \$54.....	32	\$1D \$F8.....	73
\$1B \$56.....	33		
\$1B \$57.....	34		
\$1B \$5C.....	35		
\$1B \$61.....	36		
\$1B \$63 \$35.....	36		
\$1B \$64.....	37		
\$1B \$69.....	37		
\$1B \$74.....	38		
\$1B \$76.....	39		
\$1B \$7B.....	40		
\$1B \$C1.....	40		
\$1B \$FA.....	41		
\$1B \$FF.....	42		
\$1C \$C0.....	43		
\$1C \$C1.....	44		
\$1D \$21.....	44		
\$1D \$24.....	45		
\$1D \$2A.....	46		
\$1D \$2F.....	47		
\$1D \$3A.....	48		
\$1D \$42.....	48		
\$1D \$43 \$30.....	49		

CUSTOM



M . U . R . S . T .
Ministry University
Research Scientific
T e c h n o l o g y
Authorized laboratory
n o . 5 0 8 4 6 Z Y Z

CUSTOM ENGINEERING S.p.A.

World Headquarters

Via Berettine, 2 - 43010 Fontevivo, Parma ITALY

Tel. +39 0521 680111 - Fax +39 0521 610701

info@custom.biz - www.custom.biz

All rights reserved

www.custom.biz

Always On!