OEM

COMMANDS MANUAL

VKP80III

Code: **7720000000200**

CUSTOM ENGINEERING S.p.A.
Str. Berettine 2
43010 Fontevivo (PARMA) - Italy
Tel. : +39 0521-680111
Fax : +39 0521-610701
http: www.custom.biz

Customer Service Department:
Email : support@custom.it

THE IMAGES USED IN THIS MANUAL ARE USED AS AN ILLUSTRATIVE EXAMPLES. THEY COULDN'T REPRODUCE THE DESCRIBED MODEL FAITHFULLY.

UNLESS OTHERWISE SPECIFIED, THE INFORMATION GIVEN IN THIS MANUAL ARE REFERRED TO ALL MODELS IN PRODUCTION AT THE ISSUE DATE OF THIS DOCUMENT.

GENERAL SAFETY INFORMATION

Your attention is drawn to the following actions that could compromise the characteristics of the product:

- Read and retain the instructions which follow.
- Follow all indications and instructions given on the device.
- Make sure that the surface on which the device rests is stable. If it is not, the device could fall, seriously damaging it.
- Make sure that the device rests on a hard (non-padded) surface and that there is sufficient ventilation.
- When positioning the device, make sure cables do not get damaged.
- Use the type of electrical power supply indicated on the device label. If uncertain, contact your dealer.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- Do not block the ventilation openings.
- Do not insert objects inside the device as this could cause short-circuiting or damage components that could jeopardize printer functioning.
- Do not carry out repairs on the device yourself, except for the normal maintenance operations given in the user manual.
- Make sure that there is an easily-accessible outlet with a capacity of no less than 10A closely to where the device is to be installed.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- Before any type of work is done on the machine, disconnect the power supply.
- Do not touch the head heating line with bare hands or metal objects. Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.

GENERAL INSTRUCTIONS

CUSTOM ENGINEERING S.p.A. declines all responsibility for accidents or damage to persons or property occurring as a result of tampering, structural or functional modifications, unsuitable or incorrect installations, environments not in keeping with the equipment's protection degree or with the required temperature and humidity conditions, failure to carry out maintenance and periodical inspections and poor repair work.

CE THE CE MARK AFFIXED TO THE PRODUCT CERTIFY THAT THE PRODUCT SATISFIES THE BASIC SAFETY REQUIREMENTS.

The device is in conformity with the essential Electromagnetic Compatibility and Electric Safety requirements laid down in Directives 2006/95/CE and 2004/108/CE inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55022 Class B *(Limits and methods of measurements of radio disturbance characteristics of Information Technology Equipment)*
- EN 55024 *(Information Technology Equipment – Immunity characteristics – Limits and methods of measurement)*
- EN 60950-1 *(Safety of information equipment including electrical business equipment)*

GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

The crossed-out rubbish bin logo means that used electrical and electronic products shall NOT be mixed with unsorted municipal waste. For more detailed information about recycling of this product, refer to the instructions of your country for the disposal of these products.

- Do not dispose of this equipment as miscellaneous solid municipal waste, but arrange to have it collected separately.
- The re-use or correct recycling of the electronic and electrical equipment (EEE) is important in order to protect the environment and the wellbeing of humans.
- In accordance with European Directive WEEE 2002/96/EC, special collection points are available to which to deliver waste electrical and electronic equipment and the equipment can also be handed over to a distributor at the moment of purchasing a new equivalent type.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorised disposal of waste electrical and electronic equipment is punishable by law with the appropriate penalties.

The format used for this manual improves use of natural resources reducing the quantity of necessary paper to print this copy.

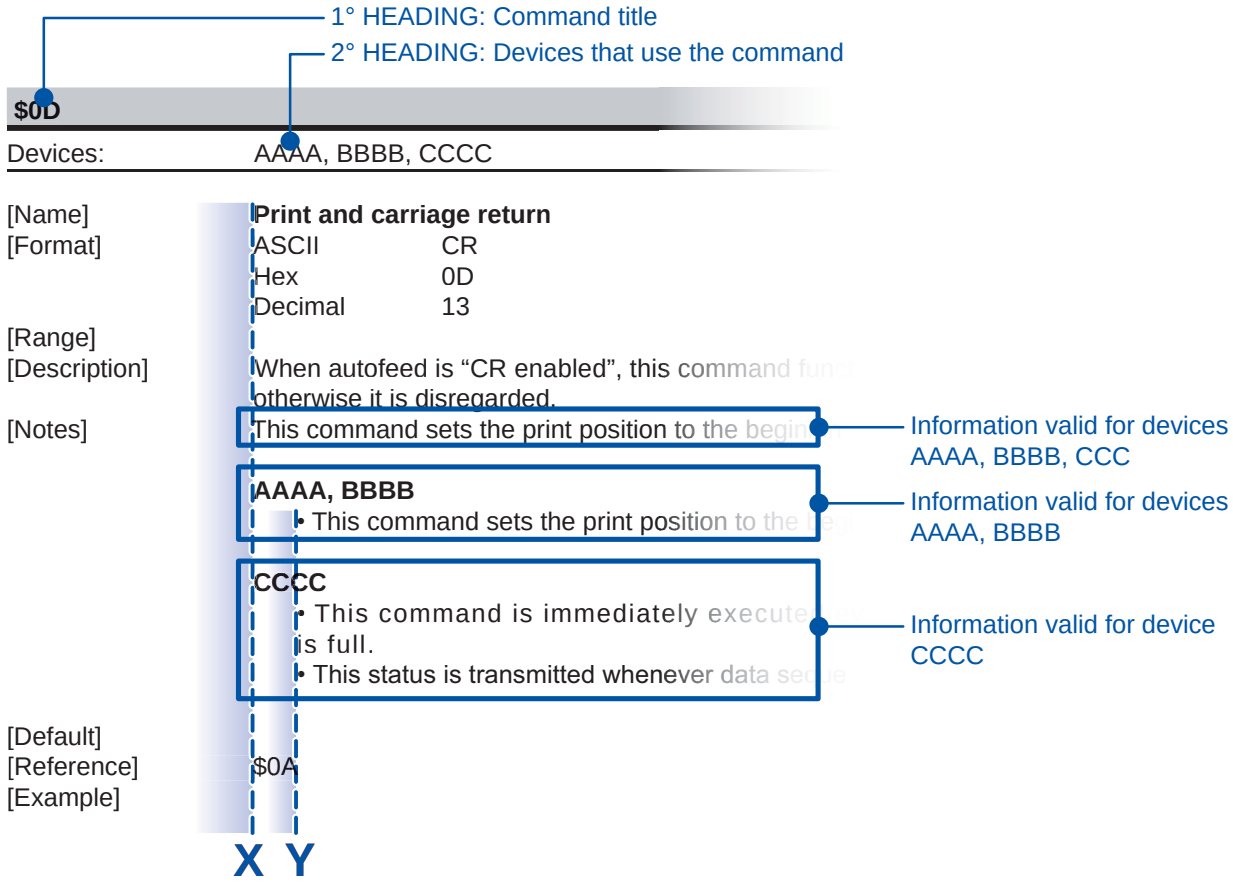
INDEX

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 devices 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]	

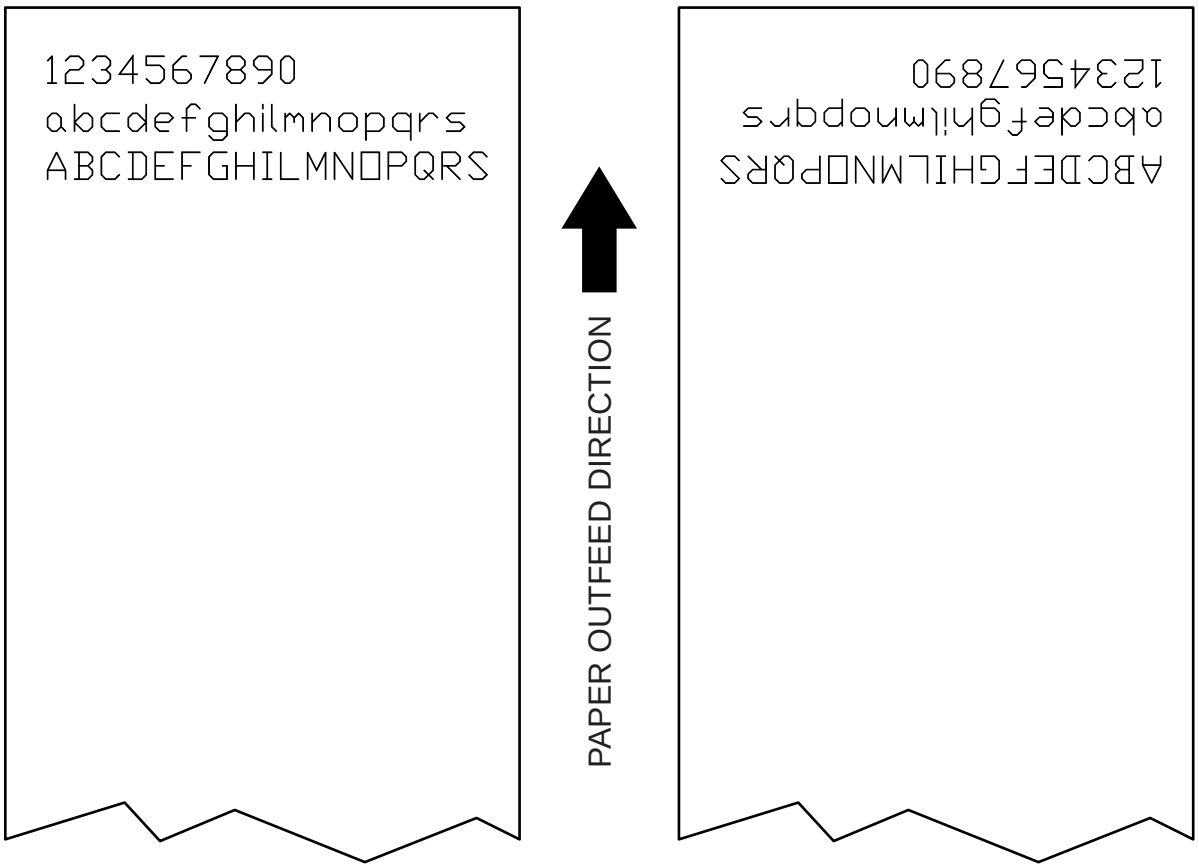


The information reported in the picture are aligned with line X or line Y:	
LINE X	Description valid for all the devices listed in the second heading line.
LINE Y	Description valid for a specific printer (written in bold).

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.

1.2 Print direction

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



2 VKP80II EMULATION

The following table lists all the commands for function management in VKP80II 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

HEX	ASCII	DESCRIPTION
PRINT COMMANDS		
$0A	LF	Print and line feed
$0C	FF	Form feed
$0D	CR	Print and carriage return
$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 italic 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 !	Select character size
$1D $42	GS B	Turn white/black reverse printing mode on/off
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 $5C	ESC \	Set relative print position
$1B $61	ESC a	Select justification
$1D $4C	GS L	Set left margin
$1D $57	GS W	Set printing area width
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 paper sensor 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	Set bar code width
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 peripheral device
$1B $40	ESC @	Initialize printer
$1B $63 $35	ESC c 5	Enable/Disable front panel keys
$1B $FA	ESC { }	Print graphic bank (608x862)
$1B $FF	ESC { }	Receive graphic page from communication port
$1C $C0	FS { }	Prints graphic logo in the graphic page
$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 { }	Sett 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
PAGE MODE COMMANDS		
$1B $0C	ESC FF	Print data in page mode
$1B $4C	ESC L	Select page mode
$1B $53	ESC S	Select standard mode
$1B $54	ESC T	Select print direction in page mode
$1B $57	ESC W	Set printing area in page mode
$1D $24	GS $	Set absolute vertical print position in page mode
$1D $5C	GS \	Set relative vertical print position in page mode

Given below are more detailed descriptions of each command.

$08

Devices:	VKP80III	
[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

Devices:	VKP80III	
[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]		

$0A

Devices: VKP80III

[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]

$0C

Devices: VKP80III

[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

Devices: VKP80III

[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 $04

Devices: VKP80III

[Name] **Real-time status transmission**

[Format]

ASCII	DLE	EOT	n
Hex	10	04	n
Decimal	16	4	n

[Range] 1 ≤ n ≤ 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	Off	00	0	Ejector motor off.
	On	08	8	Ejecter motor on.
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, read 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	04	4	RAM error
3	-	-	-	RESERVED.
4	-	-	-	RESERVED.
5	-	-	-	RESERVED.
6	-	-	-	RESERVED.
7	-	-	-	RESERVED.

$18

Devices: VKP80III

[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

Devices: VKP80III

[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

Devices: VKP80III

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

[Format]

ASCII	ESC	SP	n
Hex	1B	20	n
Decimal	27	32	n

[Range] 0 ≤ n ≤ 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

Devices: VKP80III

[Name] **Select print mode**

[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 $24

Devices: VKP80III

[Name] **Set absolute print position**

[Format]

ASCII	ESC	$	nL	nH
Hex	1B	24	nL	nH
Decimal	27	36	nL	nH

[Range] 0 ≤ nL ≤ 255
0 ≤ nH ≤ 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 × 256) × (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

Devices: VKP80III

[Name] **Select/cancel user-defined character set**

[Format]

ASCII	ESC	%	n
Hex	1B	25	n
Decimal	27	37	n

[Range] 0 ≤ n ≤ 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 cancelled, the internal character set is automatically selected.

[Default] n=0

[Reference] $1B $26, $1B $3F

[Example]

$1B $26

Devices: VKP80III

[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 ≤ c1 ≤ c2 ≤ 126
0 ≤ x ≤ 16 (Font (18 x 24))
0 ≤ x ≤ 13 (Font (13 x 24))
0 ≤ x ≤ 10 (Font 10 x 24)
0 ≤ d1 … d (y × xk) ≤ 255
k = c2 – c1 + 1

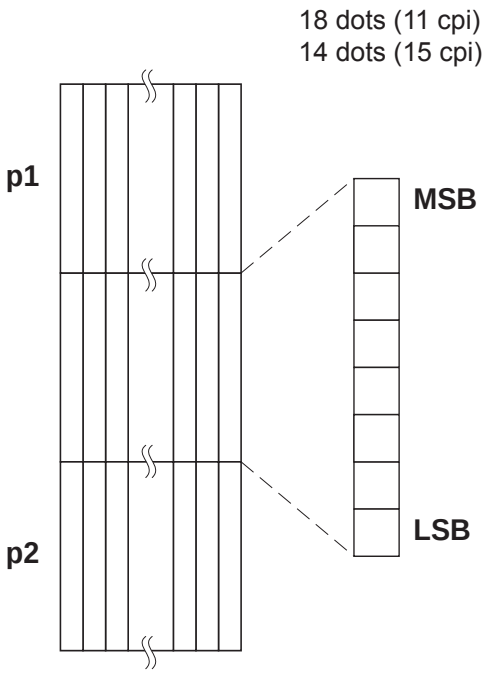
[Description]
Defines user-defined characters.
Y specifies the number of bytes in the vertical direction.
C1 specifies the beginning character code for the definition, and C2 specifies the final code.
X specifies the number of dots in the horizontal direction.

[Notes]
• The allowable character code range is from ASCII $20 (32) to $7E (126) (95 characters).
• 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.

[Default] Internal character set.

[Reference] $1B $25, $1B $3F

[Example]



$1B $28 $76

Devices:	VKP80III					
[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 ≤ nL ≤ 255 0 ≤ nH ≤ 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* × 256) × (horizontal or vertical motion unit)].					
[Notes]	• When the starting position is specified by N motion unit to the bottom: *nL* + *nH* × 256 = N • When the starting position is specified by N motion unit to the top (negative direction), use the complement of 65536: *nL* + *nH* × 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

Devices: VKP80III

[Name] **Select image print 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

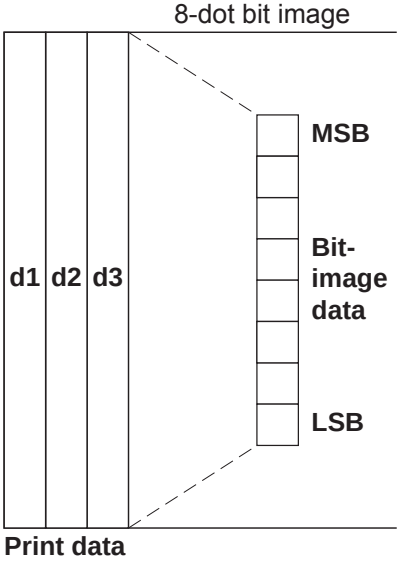
[Range]
m = 0, 1, 32, 33
0 ≤ nL ≤ 255
0 ≤ nH ≤ 3
0 ≤ d ≤ 255

[Description] Selects a bit image mode using m for the number of dots specified by nL and nH, as follows:

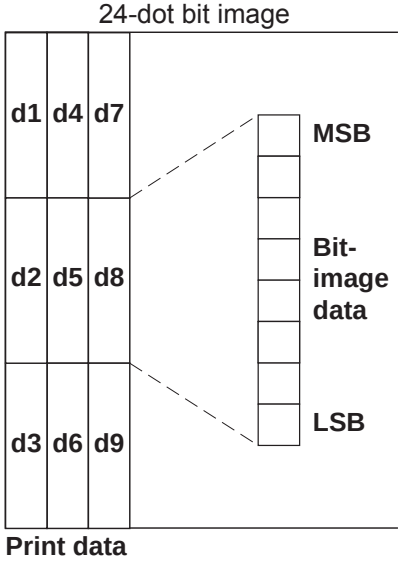
m	MODE	VERTICAL DIRECTION		HORIZONTAL DIRECTION	
		N° dots	DPI	DPI	N° of data (k)
0	8 dot single density	8	67	100	nL + nH x 256
1	8 dot double density	8	67	200	nL + nH x 256
32	24 dot single density	24	200	100	(nL + nH x 256) x 3
33	24 dot double density	24	200	200	(nL + nH x 256) x 3

[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:

8-dot bit image



24-dot bit image



[Default]
[Reference]
[Example]

$1B $2D

Devices:	VKP80III			
[Name]	**Turn underline mode on/off**			
[Format]	ASCII	ESC	-	n
	Hex	1B	2D	n
	Decimal	27	45	n
[Range]	0 ≤ n ≤ 2, 48 ≤ n ≤ 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 $30

Devices:	VKP80III		
[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 $32

Devices:	VKP80III		
[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 $33

Devices:	VKP80III			
[Name]	**Set line spacing using minimum units**			
[Format]	ASCII	ESC	3	n
	Hex	1B	33	n
	Decimal	27	51	n
[Range]	0 ≤ n ≤ 255			
[Description]	Sets line spacing to [n × (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 $34

Devices: VKP80III

[Name] **Set/reset italic mode**

[Format]

ASCII	ESC	4	n
Hex	1B	34	n
Decimal	27	52	n

[Range] 0 ≤ n ≤ 1, 48 ≤ n ≤ 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 $3D

Devices: VKP80III

[Name] **Select peripheral device**

[Format]

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

[Range] 0 ≤ n ≤ 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	Off	00	0	Pass-Through function disabled
	On	80	128	Pass-Through unction enabled

[Notes]
- When the printer is disabled, it ignores all transmitted data until the printer is enabled through this command.
- When the Pass-trough function is enabled, all transmitted data are sent on the 2nd serial.

[Default] n = 1

[Reference]

[Example]

$1B $3F

Devices: VKP80III

[Nome] **Cancel user-defined characters**

[Format]

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

[Range] 32 ≤ n ≤ 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 $40

Devices: VKP80III

[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 $44

Devices: VKP80III

[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]
$1 \le n \le 255$
$0 \le k \le 32$

[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 $45

Devices: VKP80III

[Name] **Select emphasized mode**

[Format]

ASCII	ESC	E	n
Hex	1B	45	n
Decimal	27	69	n

[Range] 0 ≤ n ≤ 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 $47

Devices: VKP80III

[Name] **Select double-strike mode**

[Format]

ASCII	ESC	G	n
Hex	1B	47	n
Decimal	27	71	n

[Range] 0 ≤ n ≤ 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 $4A

Devices:	VKP80III

[Name] **Print and feed paper**

[Format]

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

[Range] 0 ≤ n ≤ 255

[Description] Prints the data in the print buffer and feeds the paper [n × (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

Devices: VKP80III

[Nome] **Select page mode**

[Formato]

ASCII	ESC	L
Hex	1B	4C
Decimal	27	76

[Description] Switches from standard mode to page mode.

[Notes]
• 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:
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.
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:
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 $4D

Devices: VKP80III

[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 B=15cpi	0,48	Font 11 cpi (18x24)
	1,49	Font 15 cpi (14x24)
A=15cpi B=20cpi	0,48	Font 15 cpi (14x24)
	1,49	Font 20 cpi (10x24)
A=20cpi B=15cpi	0,48	Font 20 cpi (10x24)
	1,49	Font 15 cpi (14x24)

[Notes]

[Default]

[Reference] $1B $C1

[Example]

$1B $52

Devices: VKP80III

[Name] **Select international character set**

[Format]

ASCII	ESC	R	n
Hex	1B	52	n
Decimal	27	82	n

[Range] 0 ≤ n ≤ 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

Devices:	VKP80III

[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

Devices: VKP80III

[Name] **Select print direction in page mode**

[Format]

ASCII	ESC	T	n
Hex	1B	54	n
Decimal	27	84	n

[Range] 0 ≤ n ≤ 3
48 ≤ n ≤ 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 $56

Devices: VKP80III

[Name] **Select print mode 90° turned**

[Format]

ASCII	ESC	V	n
Hex	1B	56	n
Decimal	27	86	n

[Range] 0 ≤ n ≤ 1, 48 ≤ n ≤ 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

Devices:	VKP80III

[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 ≤ xL, xH, yL, yH, dxL, dxH, dyL, dyH ≤ 255
(eccetto dxL= dxH = 0 or dyL = dyH = 0)

[Description] The horizontal starting position, vertical starting position, printing area width, and printing area height are defined as x0, y0, dx (inch), dy (inch), respectively.
Each setting for the printing area is calculated as follows:
x0 = [(xL + xH x 256) x (horizontal motion unit)]
y0 = [(yL + yH x 256) x (vertical motion unit)]
dx = [dxL + dxH x 256) x (horizontal motion unit)]
dy = [dyL + dyH x 256) x (vertical motion unit)]

[Notes]
• 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 $5C

Devices:	VKP80III				
[Name]	**Set relative print position**				
[Format]	ASCII	ESC	\	nL	nH
	Hex	1B	5C	nL	nH
	Decimal	27	92	nL	nH
[Range]	0 ≤ nL ≤ 255 0 ≤ nH ≤ 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 × 256) × (horizontal or vertical motion unit)].				
[Notes]	• When the starting position is specified by n motion units to the right : nL + nH × 256 = N When the starting position is specified by n motion units to the left (negative direction) use the complement of 65536 : nL + nH × 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

Devices: VKP80III

[Name] **Select justification**

[Format]

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

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 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

Devices: VKP80III

[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 $64

Devices:	VKP80III

[Name] **Print and feed paper n lines**

[Format]

ASCII	ESC	d	n
Hex	1B	64	n
Decimal	27	100	n

[Range] 0 ≤ n ≤ 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 $69

Devices:	VKP80III

[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

Devices: VKP80III

[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 $76

Devices: VKP80III

[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	-	-	-	[RESERVED]
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	-	-	-	[RESERVED]

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

[Default]

[Reference] $10 $04 n

[Example]

$1B $7B

Devices: VKP80III

[Name] **Set/cancel upside-down character printing**

[Format]

ASCII	ESC	{	n
Hex	1B	7B	n
Decimal	27	123	n

[Range] 0 ≤ n ≤ 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

ABCDEFG
123456

Upside-down printing On

123456
ABCDEFG

Printing direction

$1B $C1

Devices: VKP80III

[Name] **Set/cancel cpi mode**

[Format]

ASCII	ESC	{ }	n
Hex	1B	C1	n
Decimal	27	193	n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 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 $FA

Devices: VKP80III

[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 ≤ n ≤ 2

0 ≤ xH, xL, yH, yL ≤ 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 fl ash bank
2	Print logo 2 from fl ash 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 fl ash 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 $FF

Devices: VKP80III

[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 ≤ n ≤ 2
0 ≤ nL, nH ≤ 255

[Description] Receive [nL + (nH * 256)] word from the communication port and save them in the fl ash bank specified by n as shown in the following table:

n	FUNCTION
1	Save logo in the fl ash bank 1
2	Save logo in the fl ash bank 2

[Notes]
• Set the communication protocol on “Hardware” for this command.
• The number of received data bytes is [nL + (nH x 256)] x 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 $C0

Devices: VKP80III

[Name] **Prints graphic logo in the graphic page**

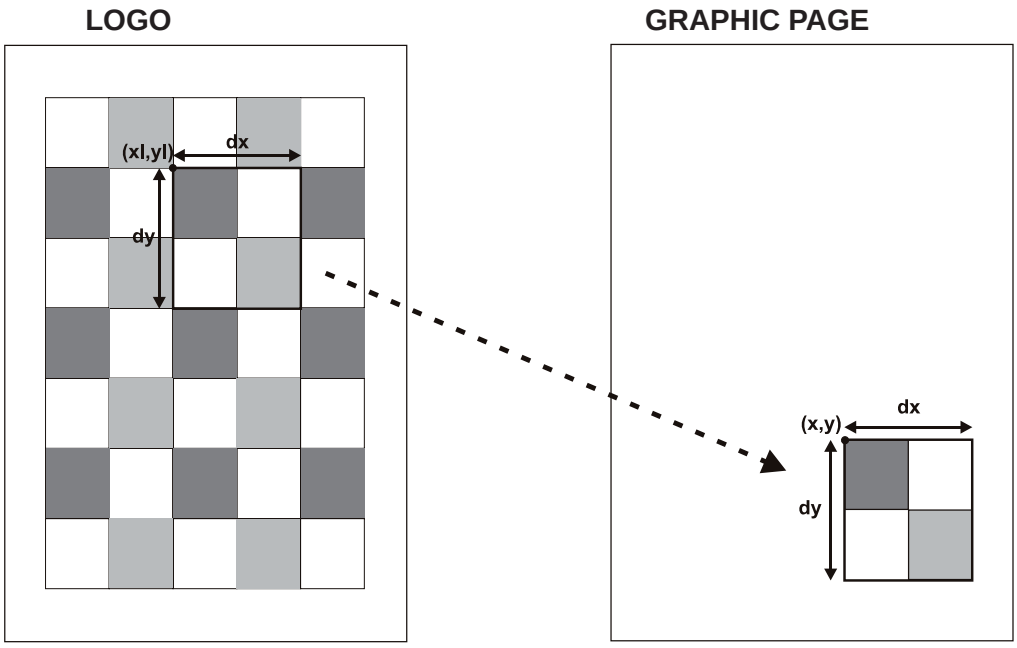
[Format]

ASCII	FS	{ }	xH	xL	yH	yL	dxH	dxL	dyH	dyL	xlH	xlL	ylH	ylL	num
Hex	1C	C0	xH	xL	yH	yL	dxH	dxL	dyH	dyL	xlH	xlL	ylH	ylL	num
Decimal	28	192	xH	xL	yH	yL	dxH	dxL	dyH	dyL	xlH	xlL	ylH	ylL	num

[Range]
dx + xl ≤ 608
dx + x ≤ 608
dy + yl ≤ 862
0 ≤ num ≤ 1

[Description] Allow graphic logo parts selection and coordinates of the graphic page point input for the graphic logo part printing.
(xl,yl) = graphic logo point coordinates:
xl = xlL + (xlH * 256) ; yl = ylL + (ylH * 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]



$1D $21

Devices: VKP80III

[Name] **Select character size**

[Format]

ASCII	GS	!	n
Hex	1D	21	n
Decimal	29	33	n

[Range] 0 ≤ n ≤ 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

Devices: VKP80III

[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 ≤ nL ≤ 255, 0 ≤ nH ≤ 255

[Description] Set the absolute vertical print starting position for buffer character data in page mode.
• This command sets the absolute print position to [(nL + nH × 256) × (vertical or horizontal motion unit)] inches.

[Notes]
• This command is effective only in page mode.
• If the [(nL + nH × 256) × (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:
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

Devices: VKP80III

[Name] **Define dowloaded bit image**

[Format]

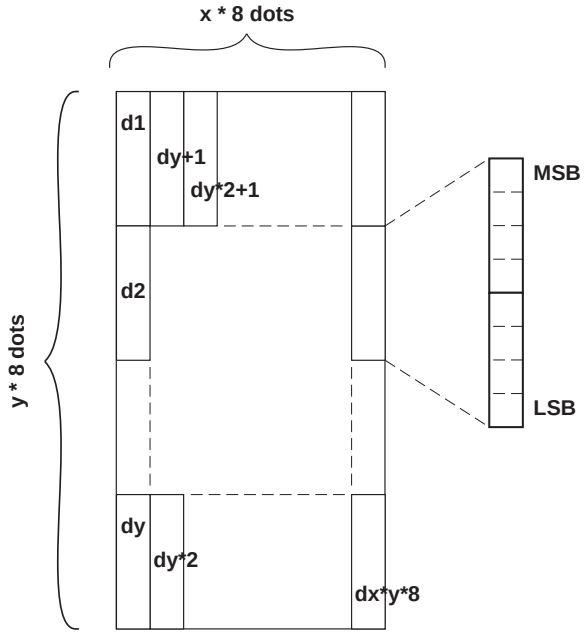
ASCII	GS	*	x	y	d1...d(x x y x 8)
Hex	1D	2A	x	y	d1...d(x x y x 8)
Decimal	29	42	x	y	d1...d(x x y x 8)

[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.
• x specifies the number of dots in the horizontal direction.
• y specifies the number of dots in the vertical direction.

[Notes]
• 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:
1) $1B $40 is executed.
2) $1B $26 is executed.
3) printer is reset or the power is turned off.

• The following figure shows the relationship between the downloaded bit image and the printed data.



[Default]

[Reference] $1D $5C

[Example]

$1D $2F

Devices: VKP80III

[Name] **Print dowloaded 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 $3A

Devices: VKP80III

[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 $42

Devices: VKP80III

[Name] **Turn white/black reverse printing mode on/off**

[Format]

ASCII	GS	B	n
Hex	1D	42	n
Decimal	29	66	n

[Range] 0 ≤ n ≤ 255

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

[Notes]
- 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] n = 0

[Reference]

[Example]

$1D $43 $30

Devices: VKP80III

[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 ≤ n ≤ 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 defi ned 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 $31

Devices: VKP80III

[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 ≤ aL, aH ≤ 255
0 ≤ bL, bH ≤ 255
0 ≤ n, r ≤ 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 ≠ 0 and r ≠ 0
• Count-down mode is specified when:
[aL + (aH * 256)] > [bL + (bH * 256)] and n ≠ 0 and r ≠ 0
• Counting stops when:
[aL + (aH * 256)] = [bL + (bH * 256)] o n = 0 o 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.
• When this command is executed, the internal count that indicates the repetition number specified by r is cleared.

[Default] 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] Send the command:

$1D	$43	$31	$01	$00	$0A	$00	$01	$02
			↓	↓	↓	↓	↓	↓
			aL	*aH*	*bL*	*bH*	*n*	*r*

The counter is set from 1 [aL + (aH * 256)] to 10 [bL + (bH * 256)]).
The counter is incremented by 1 (n) repeating the same value of 2 times (r).

$1D $43 $32

Devices: VKP80III

[Name] **Set counter**

[Format]

ASCII	GS	C	2	nL	nH
Hex	1D	43	32	nL	nH
Decimal	29	67	50	nL	nH

[Range] 0 ≤ nL, nH ≤ 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 specifi ed 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] Send the command:

$1D	$43	$32	$05	$00
			↓	↓
			nL	*nH*

The counter is set starting from 5 [nL + (nH * 256)].

$1D $43 $3B

Devices: VKP80III

[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 ≤ sa, sb, sc ≤ 65535
0 ≤ sn, sr ≤ 255
These values are all character strings.

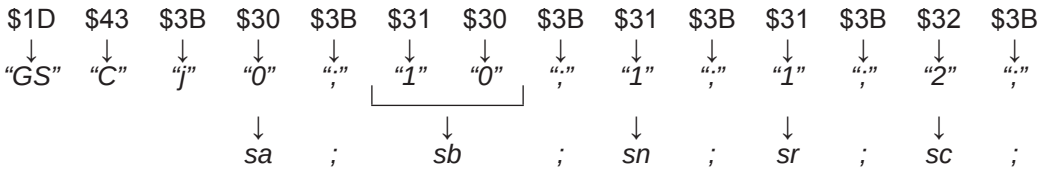
[Description] Selects a count mode for the serial number counter and specifies the value of the counter.
• sa, sb, sn, sr e sc are all displayed as ASCII characters using codes from ‘0’ to ‘9’.
• sa e sb specify the counter range.
• sn indicates the unit amount for counting up or down.
• sr indicates 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 ≠ 0 and sr ≠ 0
• Count-down mode is specifi ed when: sa > sb and sn ≠ 0 and sr ≠ 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] Send the command:



The counter is set from 0 (sa) to 10 (sb) starting from 2 (sc).
The counter is incremented by 1 (sn) repeating the same value of 1 time (sr).

$1D $48

Devices: VKP80III

[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 ≤ n ≤ 3, 48 ≤ n ≤ 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

Devices: VKP80III

[Name] **Transmit printer ID**

[Format]

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

[Range] 1 ≤ n ≤ 3,
49 ≤ n ≤ 51

[Description] Transmits the printer ID specified by n follows:

n	PRINTER ID	SPECIFICATION
1, 49	Printer model ID (1 byte)	$5D (VKP80III)
2, 50	Type ID	See table below
3, 51	ROM version ID	Depends on ROM version (4 character)

n = 2, 50 Type ID

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	2-byte character codes not supported
1	Off	00	0	Autocutter not supplied
				Autocutter supplied
2	Off	00	0	Thermal paper w/o label
				Thermal paper with label
3	-	-	-	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	Off	00	0	Not used. Fixed to Off.

[Notes] • 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 $4C

Devices: VKP80III

[Name] **Set left margin**

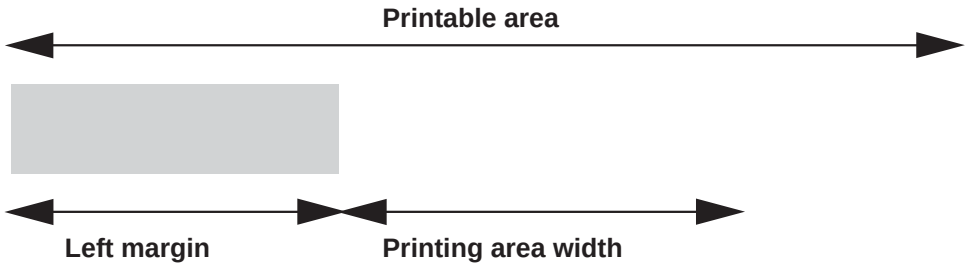
[Format]

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

[Range] 0 ≤ nL, nH ≤ 255

[Description] Sets the left margin.

• The left margin is set to [(nL + nH × 256) × (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 specifi ed 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)

Devices: VKP80III

[Name] **Set horizontal and vertical motion units (mode 1)**

[Format]

ASCII	GS	P	x	y
Hex	1D	50	x	y
Decimal	29	80	x	y

[Range] 0 ≤ x, y ≤ 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]
• 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.

• 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 (for the 204 dpi model)

[Reference] $1B $4A, $1D $4C, $1D $57, $1D $D0

[Example]

❶ $1D $56 , ❷ $1D $56

Devices: VKP80III

[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 ≤ n ≤ 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]
• This command is only enabled if set at the beginning of the line.
• The horizontal and vertical motion units are specifi ed by $1D $50 or $1D $D0.

[Default]

[Reference] $1B $69

[Example]

$1D $57

Devices: VKP80III

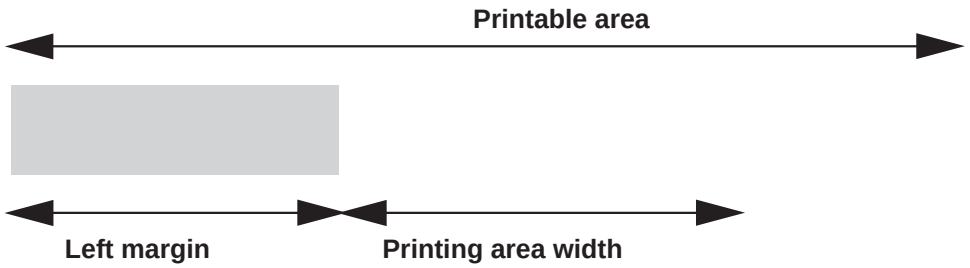
[Name] **Set printing area width**

[Format]

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

[Range] 0 ≤ nL, nH ≤ 255
0 ≤ nL + nH × 256) ≤ 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×256) × (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 specifi ed 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 $4C, $1D $50, $1D $D0

[Example]

$1D $5C

Devices:	VKP80III

[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 ≤ nL ≤ 255, 0 ≤ nH ≤ 255

[Description]
- 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 × 256) × vertical or horizontal motion unit] inches.

[Notes]
- This command is ignored unless page mode is selected.
- When N is specified to the movement downward: nL + nH × 256 = N
- When N is specified to the movement upward (the negative direction), use the complement of 65536.
- When N is specified to the movement upward:
nL + nH x 256 = 65536 - N
- Any setting that exceeds the specified printing area is ignored.
- This command function as follows, depending on the print starting position set by $1B $54:
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.
- 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 $24, $1D $50

[Example]

$1D $5E

Devices: VKP80III

[Name] **Execute macro**

[Format]

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

[Range] 0 ≤ r, t ≤ 255
0 ≤ m ≤ 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 × 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 specifi ed 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 × 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 $63

Devices: VKP80III

[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

Devices: VKP80III

[Name] **Ejector commands**

[Format]

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

[Range] 1 ≤ n ≤ 3, 5 ≤ n ≤ 6,
n = 8, n = 18, n = 20 n = 32; 0 ≤ t ≤ 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, unitl 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

Devices: VKP80III

[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

Devices: VKP80III

[Name] **Set bar code height**
[Format]

ASCII	GS	h	n
Hex	1D	68	n
Decimal	29	104	n

[Range] 1 ≤ n ≤ 255
[Description] Sets the height of the bar code. n specifies the number of vertical dots.
[Notes]
[Default] n = 162
[Reference] $1D $6B
[Example]

❶ $1D $6B, ❷ $1D $6B

Devices: VKP80III

[Name] **Print barcode**

[Format]

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

[Range]
❶ 0 ≤ m ≤ 20
❷ 65 ≤ m ≤ 90

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

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

❷	65	UPC-A	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	66	UPC-E	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	67	EAN13 (JAN)	12 ≤ n ≤ 13	48 ≤ d ≤ 57
	68	EAN8 (JAN)	7 ≤ n ≤ 8	48 ≤ d ≤ 57
	69	CODE39	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d ≤ 90, 32, 36, 37, 43, 45, 46, 47
	70	ITF	1 ≤ n ≤ 255	48 ≤ d ≤ 57
	71	CODABAR	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d1 ≤ 68, 36, 43, 45, 46, 47, 58
	72	CODE93	1 ≤ n ≤ 255	1 ≤ d ≤ 127
	73	CODE128	2 ≤ n ≤ 255	1 ≤ d ≤ 127
	90	CODE32	8 ≤ n ≤ 9	48 ≤ d ≤ 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] $1D $48, $1D $66, $1D $68, $1D $77
[Example]

$1D $72

Devices: VKP80III

[Name] **Transmit status**

[Format]

ASCII	GS	r	n
Hex	1D	72	n
Decimal	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 $30

Devices: VKP80III

[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 ≤ m ≤ 3, 48 ≤ m ≤ 51
0 ≤ xL ≤ 255
0 ≤ xH ≤ 255 (1 ≤ xL + xH × 256 ≤ 65535)
0 ≤ yL ≤ 255
0 ≤ yH ≤ 8 (1 ≤ yL + yH × 256 ≤ 2047)
0 ≤ d ≤ 255
k = (xL + xH ≤ 256) + (yL + yH ≤ 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 × 256) in the horizontal direction for the bit image.
• yL, yH selects the number of data bits (yL + yH × 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 $77

Devices: VKP80III

[Name] **Set bar code width**

[Format]

ASCII	GS	w	n
Hex	1D	77	n
Decimal	29	119	n

[Range] $1 ≤ n ≤ $6, $81 ≤ n ≤ $86

[Description] 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	2:1
	$86	3:1

[Notes] • The 2:1 wide and narrow bar ratio (n = $85) identifies the TITO standard.

[Default] n = 3

[Reference] $1D $6B

[Example]

$1D $7C

Devices: VKP80III

[Name] **Set printing density**

[Format]

ASCII	GS	{ }	n
Hex	1D	7C	n
Decimal	29	124	n

[Range] 0 ≤ n ≤ 8, 48 ≤ n ≤ 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)

Devices:	VKP80III

[Name] **Set horizontal and vertical motion units (mode 2)**

[Format]

ASCII	GS	{ }	xH	xL	yH	yL
Hex	1D	D0	xH	xL	yH	yL
Decimal	29	208	xH	xL	yH	yL

[Range] 0 ≤ (xH * 256) + xL) ≤ 2040
0 ≤ (yH * 256) + yL) ≤ 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]
• 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, $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 $E0

Devices: VKP80III

[Name] **Enable / disable automatic FULL STATUS back**

[Format]

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

[Range] 0 ≤ n ≤ 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 $E1

Devices:	VKP80III

[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 length 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

Devices:	VKP80III

[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

Devices: VKP80III

[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

Devices: VKP80III

[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 $E5

Devices: VKP80III

[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 $E6

Devices: VKP80III

[Name] **Virtual paper-end limit**

[Format]

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

[Range] 0 ≤ nH, nL ≤ 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 x 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 x 256) = 1500 - (5 x 256) = 220
and then send the following command:

Hex:	$1D	$E6	$05	$DC
Decimal:	29	230	5	220

$1D $E7

Devices: VKP80III

[Name] **Set notch distance**

[Format]

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

[Range] 0 ≤ nH ≤ 255, 0 ≤ nL ≤ 255

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

[Notes]
- This value is expressed as [(nH x 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 distance is saved in nonvolatile memory: it is therefore recommended not to send this command for each printed ticket, because the number of rewrites is limited. In many devices, however, is checked the diversity of the data before performing the rescue to avoid reaching the limit of rewrites.
- The distance defined by this command is the same that can be set with the value of the "Notch Distance" during the setup of the printer (see User Manual for further explanation).

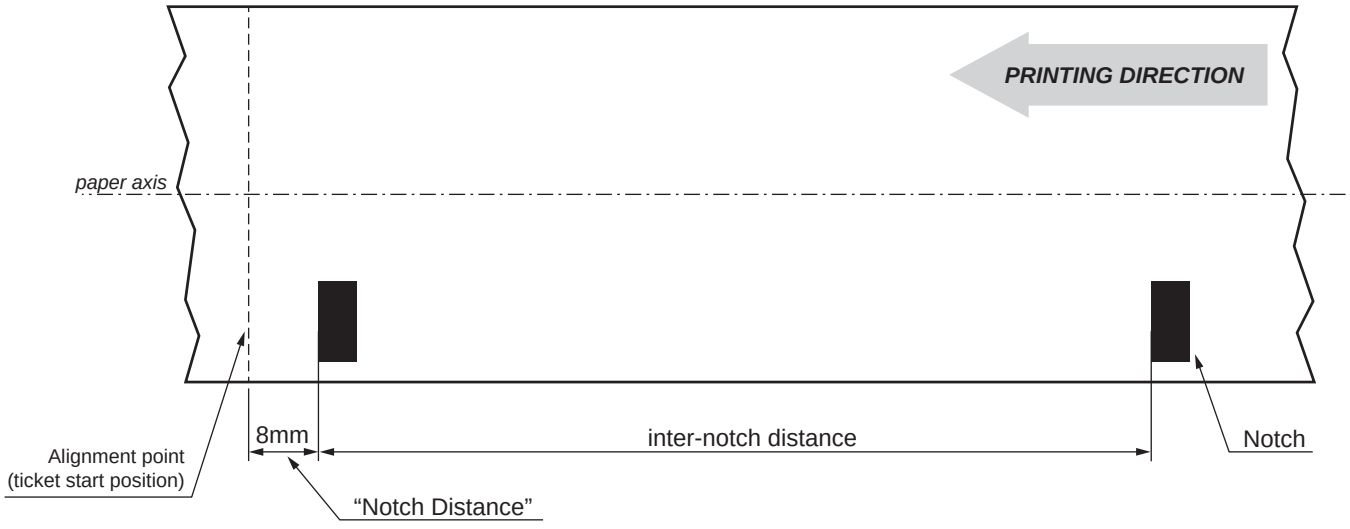
[Default] nH = $00
nL = $00

[Reference]

[Example] Send the command:

$1D $E7 $00 $50
↓ ↓
nH *nL*

Is set to notch a distance equal to 80 tenths of a mm [(nH x 256)+nL] equal to 8.0 mm.
The following image shows a ticket with "Alignment Point" positioned at 8 mm from the notch.



$1D $F0

Devices: VKP80III

[Name] **Set printing speed**

[Format]

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

[Range] 0 ≤ n ≤ 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 $F6

Devices: VKP80III

[Name] **Align the ticket**

[Format]

ASCII	GS	{ }
Hex	1D	F6
Decimal	29	246

[Description] This command align the edge of the ticket to the alignment point set with $1D $E7 command as the notch distance. The printout will start at this position (see User Manual for further explanation).

[Notes]
- Use the command $1D $E7 to set an offset between the black mark and the print line (0 to 32 mm).
- Use this alignment command even to print more tickets without cutting.

[Default]

[Reference] $1C $50, $1D $E7, $1D $F8

[Example]

EXAMPLE OF CONSECUTIVE PRINTS WITHOUT CUTTING

$1D $F6	*Positioning ticket*
<print ticket>	
$1D $F6	*Positioning ticket*
<print ticket>	
...	
...	
...	

EXAMPLE OF PRINTS WITH ALIGNMENT AND CUT

$1D $F6	*Positioning ticket*
<print ticket>	
$1D $F8	*Align ticket*
$1B $69	*Cut*
$1D $65 $03 $FF	*Presentation*

$1D $F8

Devices:	VKP80III

[Name] **Align the ticket**

[Format]

ASCII	GS	{ }
Hex	1D	F8
Decimal	29	248

[Description] This command align the edge of the ticket to the alignment point set with $1D $E7 command as the notch distance. The printout will start at this position (see User Manual for further explanation).

[Notes]
- Use the command $1D $E7 to set an offset between the black mark and the cut line (0 to 32 mm).
- To work properly, you must send this command just before the cut and presentation command

[Default]

[Reference] $1C $50, $1D $E7, $1D $F6

[Example]

$1D $F6	*Positioning ticket*
<print ticket>	
$1D $F8	*Align ticket*
$1B $69	*Cut*
$1D $65 $03 $FF	*Presentation*

3 VKP80III EMULATION

The following table lists all the commands for function management in VKP80III 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

HEX	ASCII	DESCRIPTION
PRINT COMMANDS		
$0A	LF	Print and line feed
$0D	CR	Print and carriage return
$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 italic 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 !	Select character size
$1D $42	GS B	Turn white/black reverse printing mode on/off
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 $5C	ESC \	Set relative print position

$1B $61	ESC a	Select justification
$1D $4C	GS L	Set left margin
$1D $57	GS W	Set printing area width
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 paper sensor 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 $28 $6B	GS (k	Print two-dimensional barcode
$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	Set bar code width
MACRO FUNCTION COMMANDS		
$1D $3A	GS :	Set start/end of macro definition
$1D $5E	GS ^	Execute macro
MISCELLANEOUS COMMANDS		
$1B $3D	ESC =	Select peripheral device
$1B $40	ESC @	Initialize printer
$1B $63 $35	ESC c 5	Enable/Disable front panel keys
$1B $FA	ESC { }	Print graphic bank (608x862)
$1B $FF	ESC { }	Receive graphic page from communication port
$1C $6E	FS n	Set mass storage
$1C $93	FS { }	Print logo
$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 { }	Sett notch distance
$1D $F0	GS { }	Set printing speed
$1D $F6	GS { }	Ticket align at print
$1D $F8	GS { }	Ticket align at cut
EJECTOR COMMANDS		
$1B $43	ESC C	Enable / disable collect mode
$1B $46	ESC F	Enable feedaway (dispenser continuous mode)
$1C $50	FS P	Present command
PAGE MODE COMMANDS		
$1B $0C	ESC FF	Print data in page mode
$1B $4C	ESC L	Select page mode
$1B $53	ESC S	Select standard mode
$1B $54	ESC T	Select print direction in page mode
$1B $57	ESC W	Set printing area in page mode
$1D $24	GS $	Set absolute vertical print position in page mode
$1D $5C	GS \	Set relative vertical print position in page mode
TRUE TYPE FONT COMMANDS		
$1C $65	FS e	Enable/Disable TrueType fonts encoding
$1C $66	FS f	TrueType fonts management

Given below are more detailed descriptions of each command.

$08

Devices:	VKP80III

[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

Devices:	VKP80III

[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]

$0A

Devices: VKP80III

[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]

$0D

Devices: VKP80III

[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 $04

Devices: VKP80III

[Name] **Real-time status transmission**

[Format]

ASCII	DLE	EOT	n
Hex	10	04	n
Decimal	16	4	n

[Range] 1 ≤ n ≤ 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	Off	00	0	Paper isn't fed by LINE FEED button
	On	40	64	Paper is fed by LINE FEED button
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	Off	00	0	Ejector motor off.
	On	08	8	Ejecter motor on.
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, read 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	Off	00	0	Emitter motor off
	On	80	128	Emitter motor on

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	Off	00	0	Bulkhead paper path: ok
	On	02	2	Bulkhead paper path: error
2	Off	00	0	RAM ok.
	On	04	4	RAM error
3	Off	00	0	EEPROM ok.
	On	0C	12	EEPROM error.
4	-	-	-	RESERVED.
5	-	-	-	RESERVED.
6	-	-	-	RESERVED.
7	Off	00	0	Emitter ok
	On	80	128	Emitter error

$18

Devices: VKP80III

[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

Devices: VKP80III

[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

Devices:	VKP80III

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

[Format]

ASCII	ESC	SP	n
Hex	1B	20	n
Decimal	27	32	n

[Range] 0 ≤ n ≤ 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

Devices: VKP80III

[Name] **Select print mode**

[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 $24

Devices: VKP80III

[Name] **Set absolute print position**

[Format]

ASCII	ESC	$	nL	nH
Hex	1B	24	nL	nH
Decimal	27	36	nL	nH

[Range]
0 ≤ nL ≤ 255
0 ≤ nH ≤ 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 × 256) × (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

Devices: VKP80III

[Name] **Select/cancel user-defined character set**

[Format]

ASCII	ESC	%	n
Hex	1B	25	n
Decimal	27	37	n

[Range] 0 ≤ n ≤ 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 cancelled, the internal character set is automatically selected.

[Default] n=0

[Reference] $1B $26, $1B $3F

[Example]

$1B $26

Devices: VKP80III

[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 ≤ c1 ≤ c2 ≤ 126
0 ≤ x ≤ 16 (Font (18 x 24))
0 ≤ x ≤ 13 (Font (13 x 24))
0 ≤ x ≤ 10 (Font 10 x 24)
0 ≤ d1 … d (y × xk) ≤ 255
k = c2 – c1 + 1

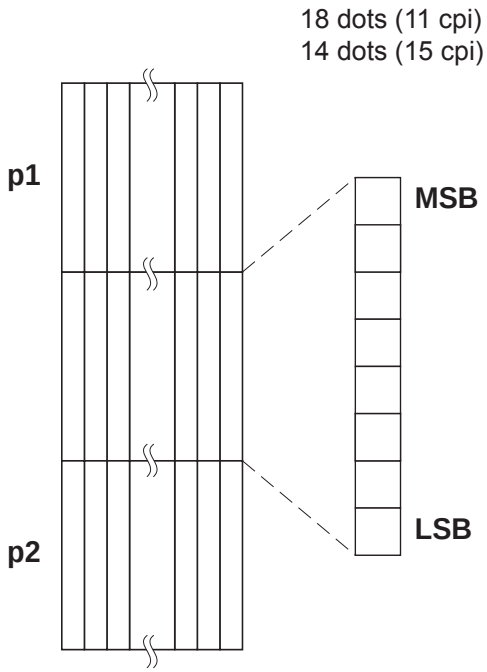
[Description]
Defines user-defined characters.
Y specifies the number of bytes in the vertical direction.
C1 specifies the beginning character code for the definition, and C2 specifies the final code.
X specifies the number of dots in the horizontal direction.

[Notes]
• The allowable character code range is from ASCII $20 (32) to $7E (126) (95 characters).
• 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.

[Default] Internal character set.

[Reference] $1B $25, $1B $3F

[Example]



$1B $28 $76

Devices:	VKP80III

[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 ≤ nL ≤ 255
0 ≤ nH ≤ 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* × 256) × (horizontal or vertical motion unit)].

[Notes]
• When the starting position is specified by N motion unit to the bottom: *nL* + *nH* × 256 = N
• When the starting position is specified by N motion unit to the top (negative direction), use the complement of 65536: *nL* + *nH* × 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

Devices: VKP80III

[Name] **Select image print mode**

[Format]

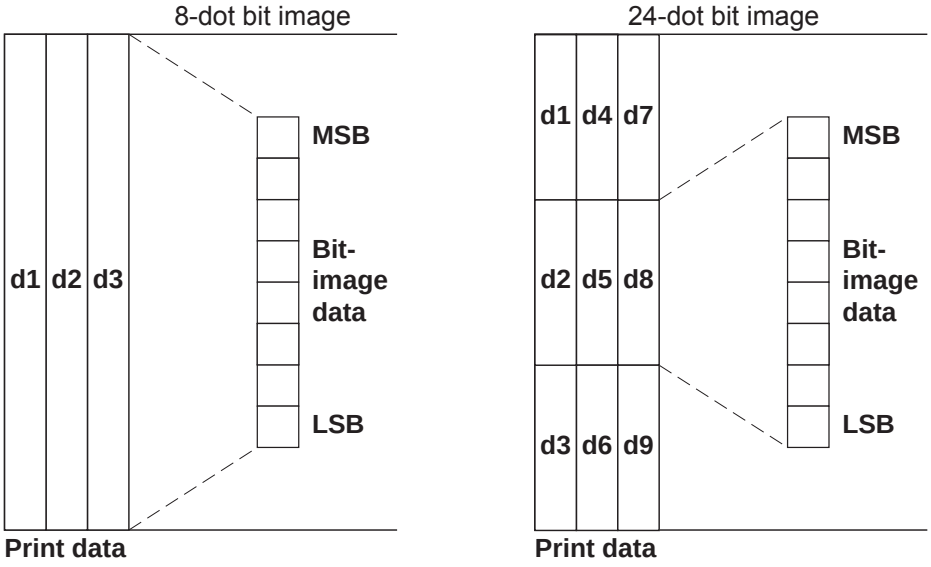
ASCII	ESC	*	m	nL	nH	d1...dk
Hex	1B	2A	m	nL	nH	d1...dk
Decimal	27	42	m	nL	nH	d1...dk

[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 $2D

Devices: VKP80III

[Name] **Turn underline mode on/off**

[Format]

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

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 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 $30

Devices: VKP80III

[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 $32

Devices:	VKP80III

[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 $33

Devices:	VKP80III

[Name] **Set line spacing using minimum units**

[Format]

ASCII	ESC	3	n
Hex	1B	33	n
Decimal	27	51	n

[Range] 0 ≤ n ≤ 255

[Description] Sets line spacing to [n × (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 $34

Devices: VKP80III

[Name] **Set/reset italic mode**

[Format]

ASCII	ESC	4	n
Hex	1B	34	n
Decimal	27	52	n

[Range] 0 ≤ n ≤ 1, 48 ≤ n ≤ 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 $3D

Devices: VKP80III

[Name] **Select peripheral device**

[Format]

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

[Range] 0 ≤ n ≤ 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	Off	00	0	Pass-Through function disabled
	On	80	128	Pass-Through unction enabled

[Notes]
- When the printer is disabled, it ignores all transmitted data until the printer is enabled through this command.
- When the Pass-trough function is enabled, all transmitted data are sent on the 2nd serial.

[Default] n = 1

[Reference]

[Example]

$1B $3F

Devices: VKP80III

[Nome] **Cancel user-defined characters**

[Format]

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

[Range] 32 ≤ n ≤ 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 $40

Devices: VKP80III

[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 $43

Devices: VKP80III

[Name] **Enable / disable collect mode**

[Format]

ASCII	ESC	C	n
Hex	1B	43	n
Decimal	27	67	n

[Range] n = 0, 1

[Description] This command enable / disable the collect mode as follow:

n	FUNCTION
0	Disable collect mode and cuts
1	Enable collect mode

[Notes] When the collect mode is enabled all tickets printed fall in the kiosk (lower output) without being cut. When the collect mode is disabled the last ticket is cut.

[Default]

[Reference]

[Example]

```
$1B $43 $01     Enable collect mode
<send ticket>
<send ticket>
<send ticket>
<send ticket>
$1B $43 $00     Disable collect mode and cuts
```

$1B $44

Devices: VKP80III

[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 ≤ n ≤ 255
0 ≤ k ≤ 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 $45

Devices: VKP80III

[Name] **Select emphasized mode**

[Format]

ASCII	ESC	E	n
Hex	1B	45	n
Decimal	27	69	n

[Range] 0 ≤ n ≤ 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 $46

Devices: VKP80III

[Name] **Enable feedaway (dispenser continuous mode)**

[Format]

ASCII	ESC	F
Hex	1B	46
Decimal	27	70

[Range]

[Description] This command enable feedaway (dispenser continuous mode).

[Notes] Send present command $1C $50 to disable feedaway (dispenser continuous mode). This command execute the cut of the ticket and eject or retracting.

[Default]

[Reference]

[Example]

$1B $46	Enable feedaway (dispenser continuous mode)
<send ticket>	
$1C $50 <*a*> <*b*> <*c*> <*d*>	Present command (disable feedaway)

$1B $47

Devices: VKP80III

[Name] **Select double-strike mode**

[Format]

ASCII	ESC	G	n
Hex	1B	47	n
Decimal	27	71	n

[Range] 0 ≤ n ≤ 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 $4A

Devices:	VKP80III

[Name] **Print and feed paper**

[Format]

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

[Range] 0 ≤ n ≤ 255

[Description] Prints the data in the print buffer and feeds the paper [n × (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

Devices:	VKP80III

[Nome] **Select page mode**

[Formato]

ASCII	ESC	L
Hex	1B	4C
Decimal	27	76

[Description] Switches from standard mode to page mode.

[Notes]
• 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:
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.
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:
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 $4D

Devices: VKP80III

[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 B=15cpi	0,48	Font 11 cpi (18x24)
	1,49	Font 15 cpi (14x24)
A=15cpi B=20cpi	0,48	Font 15 cpi (14x24)
	1,49	Font 20 cpi (10x24)
A=20cpi B=15cpi	0,48	Font 20 cpi (10x24)
	1,49	Font 15 cpi (14x24)

[Notes]

[Default]

[Reference] $1B $C1

[Example]

$1B $52

Devices: VKP80III

[Name] **Select international character set**

[Format]

ASCII	ESC	R	n
Hex	1B	52	n
Decimal	27	82	n

[Range] 0 ≤ n ≤ 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

Devices:	VKP80III

[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

Devices: VKP80III

[Name] **Select print direction in page mode**

[Format]

ASCII	ESC	T	n
Hex	1B	54	n
Decimal	27	84	n

[Range] 0 ≤ n ≤ 3
48 ≤ n ≤ 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 $56

Devices: VKP80III

[Name] **Select print mode 90° turned**

[Format]

ASCII	ESC	V	n
Hex	1B	56	n
Decimal	27	86	n

[Range] 0 ≤ n ≤ 1, 48 ≤ n ≤ 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

Devices: VKP80III

[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 ≤ xL, xH, yL, yH, dxL, dxH, dyL, dyH ≤ 255
(eccetto dxL= dxH = 0 or dyL = dyH = 0)

[Description] The horizontal starting position, vertical starting position, printing area width, and printing area height are defined as x0, y0, dx (inch), dy (inch), respectively.
Each setting for the printing area is calculated as follows:
x0 = [(xL + xH x 256) x (horizontal motion unit)]
y0 = [(yL + yH x 256) x (vertical motion unit)]
dx = [dxL + dxH x 256) x (horizontal motion unit)]
dy = [dyL + dyH x 256) x (vertical motion unit)]

[Notes]
• 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 $5C

Devices:	VKP80III				
[Name]	**Set relative print position**				
[Format]	ASCII	ESC	\	nL	nH
	Hex	1B	5C	nL	nH
	Decimal	27	92	nL	nH
[Range]	0 ≤ nL ≤ 255 0 ≤ nH ≤ 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 × 256) × (horizontal or vertical motion unit)].				
[Notes]	• When the starting position is specified by n motion units to the right : nL + nH × 256 = N When the starting position is specified by n motion units to the left (negative direction) use the complement of 65536 : nL + nH × 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

Devices: VKP80III

[Name] **Select justification**

[Format]

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

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 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

Devices: VKP80III

[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 $64

Devices: VKP80III

[Name] **Print and feed paper n lines**

[Format]

ASCII	ESC	d	n
Hex	1B	64	n
Decimal	27	100	n

[Range] 0 ≤ n ≤ 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 $74

Devices: VKP80III

[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, 16, 17, 18, 19, 255

[Description] Select a page n from the chatacter 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])
16	16 (WPC1252)
17	17 (PC866 [Cyrillic #2])
18	18 (PC852 [Latin 2])
19	19 (PC858 for Euro symbol at position213)
255	Space page

[Notes] WPC1252, PC866 and PC852 tables are valid only for TrueType fonts.

[Default] n = 0

[Reference] See character code tables, $1C $65, $1C, $66

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

$1B $76

Devices: VKP80III

[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	-	-	-	[RESERVED]
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	-	-	-	[RESERVED]

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

[Default]

[Reference] $10 $04 n

[Example]

$1B $7B

Devices: VKP80III

[Name] **Set/cancel upside-down character printing**

[Format]

ASCII	ESC	{	n
Hex	1B	7B	n
Decimal	27	123	n

[Range] 0 ≤ n ≤ 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

ABCDEFG
123456

Upside-down printing On

123456
ABCDEFG

Printing direction

$1B $C1

Devices: VKP80III

[Name] **Set/cancel cpi mode**

[Format]

ASCII	ESC	{ }	n
Hex	1B	C1	n
Decimal	27	193	n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 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 $FA

Devices: VKP80III

[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 ≤ n ≤ 2

0 ≤ xH, xL, yH, yL ≤ 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 fl ash bank
2	Print logo 2 from fl ash 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 fl ash 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 $FF

Devices: VKP80III

[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 ≤ n ≤ 2
0 ≤ nL, nH ≤ 255

[Description] Receive [nL + (nH * 256)] word from the communication port and save them in the fl ash bank specified by n as shown in the following table:

n	FUNCTION
1	Save logo in the fl ash bank 1
2	Save logo in the fl ash bank 2

[Notes]
• Set the communication protocol on “Hardware” for this command.
• The number of received data bytes is [nL + (nH x 256)] x 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 $50

Devices: VKP80III

[Name] **Present command**

[Format]

ASCII	FS	P	a	b	c	d
Hex	1C	50	a	b	c	d
Decimal	28	80	a	b	c	d

[Range]
0 ≤ a ≤ 255
b = 0, 1
c = 'E', 'R'
0 ≤ d ≤ 255

[Description]
This command cuts the paper and present/retract the ticket.
• a indicates the number of steps for the ticket present (1 step = 5mm)
• b indicates the behaviour of the paper mouth as follow:

b	FUNCTION
0	Paper mouth: led OFF
1	Paper mouth: led blinking

• c indicates the ticket movement after the print as follow:

c	FUNCTION
'E'	Eject ticket
'R'	Retract ticket

• d indicates the timeout for the ticket present (1 = 1 second)

[Notes]
• If c = 'R' but the parameter "Paper retracting" configurable in setup is disabled, the ticket is not retracted but ejected.
• If d = 0 the ticket stays pending and is ejected/retracted (depending on the parameter c) when a new ticket is printed.
• If d > 0 and a new print job is sent before the expiry of the timeout, the ticket is ejected/retracted (depending on the parameter c).
• If a = 0 and d = 0 the ticket is ejected/retracted (depending on the parameter c) immediately after the cut.
• If a > 0 the printer execute a check of the ticket presentation length. If the value is too high, automatically the ticket presentation is executed using the maximum length allowed.
• When this command is used after the command $1B $46, a_{max} = 6. In the case of a > 6 is used the default value (a = 2).

[Default]

[Reference]

[Example]
Send:
<send ticket>
$1C $50 $1 $1 $45 $5

Is executed:
- Cut of the ticket
- Presentation for 5mm
- The paper mouth start blinking
- After 5 seconds the ticket is ejected.

$1C $65

Devices: VKP80III

[Name] **Enable/Disable encoding**

[Format]

ASCII	FS	e	n
Hex	1C	65	n
Decimal	28	101	n

[Range] n = '0', '1', '2', 48, 49, 50

[Description] Enable/Disable the text encoding based on the following values of n:

n	ENCODING
0, 48	Disabled
1, 49	Enable UTF-8
2, 50	Enable UTF-16

[Notes]
- This command is valid only for TrueType fonts of monospace type.
- If the text encoding is disabled, manage the characters coding by $1B $52 and $1B $74 commands.
- If the text encoding is enabled, the character's addressing respects the UNICODE™ standard (see www.unicode.org).

[Default] Disabled.

[Reference] $1B $52, $1B $74, $1C $66

[Example]

$1C $66

Devices: VKP80III

[Name] **True Type font management**

[Format]

ASCII	FS	f	m	n	d[0]...d[n]
Hex	1C	66	m	n	d[0]...d[n]
Decimal	28	102	m	n	d[0]...d[n]

[Range] 0 ≤ m ≤ 256
0 ≤ n ≤ 64

[Description] Manage the TrueType fonts depending on the following values of m

m (BIT)	FUNCTION
0	Check glyph width
1	TTF enable hinting
2	Not used
3	Not used
4	Re-enable TrueType font
5	Disable TrueType font
6	De-init TrueType font
7	Clear all

n specifies the name length of the font to use.
d[0]...d[n] specifies the font name to use.

[Notes]
- If "Check glyph width" is selected, for every character, printer checks if the glyph width is different from default width. In this case, the font will be not installed. The check may require some time (it depends on the characters number of the font).
- For "Hinting" means the font adaptation to the grid. Whit hinting enabled, the characters are more legible but some characters may be too high (for example, the accented capital letters). This bit is active only when you install a new font.
- "Re-enable" function re-enables a TrueType font previously disabled.
- "Disable" function disables a TrueType font.
- "De-init" function uninstall a font and clear the memory used by the font. Use this function only when you intend to use the font more, otherwise use the "Disable" function to speed up operations.
- "Clear all" function unistall all the installed fonts.
- If command is successful the printer transmits the ACK ($06), otherwise return NACK ($015).
- After "Disable", "Re-enable" and "Clear-all" functions, do not pass the filename of the TrueType font.

[Default]

[Reference]

[Example]
- Select the TrueType font with dimensions check, without hinting:
  $1C $66 $02 $0C "veramono.ttf"
- Return to use the embedded fonts:
  $1C $66 $20 $00
- Select the font previously disabled:
  $1C $66 $10 $00
- Uninstall a TrueType font:
  $1C $66 $40 $0C

$1C $6E

Devices: VKP80III

[Name] **Set mass storage**

[Format]

ASCII	FS	n	m
Hex	1C	6E	m
Decimal	28	110	m

[Range] n = 0, 1

[Description] Enable or disable the mass storage function in RAM according to m value:

m	FUNCTION
0	enable mass storage
1	disable mass storage

[Notes]

[Default] n = 0

[Reference]

[Example]

$1C $93

Devices: *ALL*

[Name] **Print logo**

[Format]

ASCII	FS	{ }	nH	nL	opt	sp	posH	posL
Hex	1C	93	nH	nL	opt	sp	posH	posL
Decimal	28	147	nH	nL	opt	sp	posH	posL

[Range] 0 ≤ nH, nL ≤ 255

[Description] Prints logo defined by n.

• n is the number of image to print;

• opt is the option byte that specifies justification and rotation as shown in the following table:

BIT	DESCRIPTION	BIN	FUNCTION
0,1	Justification	00	Left
		01	Center
		10	Right
		11	User Define (on the basis of position specified by posH and posW)
2, 3	N.U.	00	Not used.
4, 6	N.U.	00	Not used.
7	Rotated print	0	Print normal.
		1	Print rotate.

• sp specifies the thickness of the image border.

• posH, posL specifies the logo's horizontal position (from the left border); used only with user-defined justification.

[Notes]

[Default]

[Reference]

[Example]

Example 1:

To print logo no.10 centered and rotated transmits :

$1C $93 $00 $0A $81 $01 $00 $00

where

$1C $93 //print logo command

$00 $0A //Logo no. 10

$81 //printing rotated and centered

$01 //1 pixel of image border

$00 $00 //Positioning not used

Example 2:

To print logo no.10 not rotated and with a user-defined printing position transmits:

$1C $93 $00 $0A $03 $01 $00 $50

where

$1C $93 //print logo command

$00 $0A //Logo no. 10

$03 //printing with a user define positioning and not rotated

$01 //1 pixel of image border

$00 $50 //Printing 10mm from the left border

$1C $C1

Devices: VKP80III

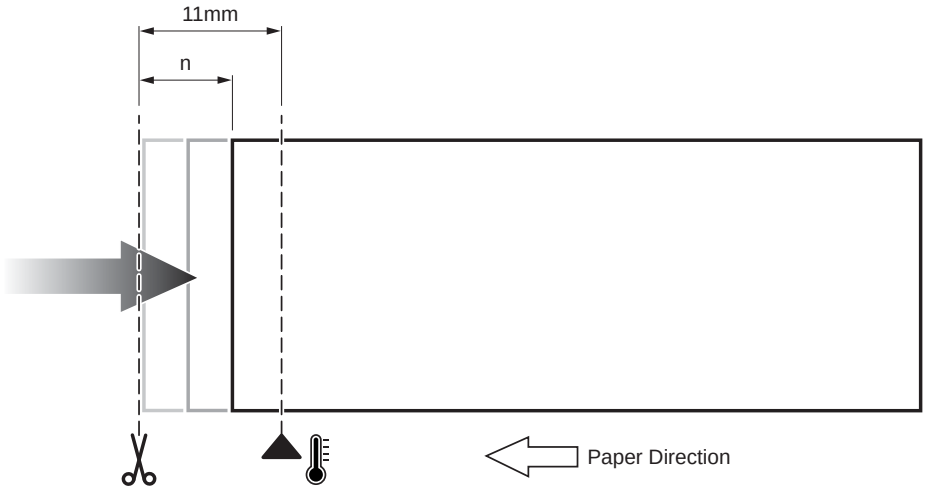
[Name] **Enable / disable the paper recovery after a cut**

[Format]

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

[Range] 0 ≤ n ≤ 11

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



0 ≤ n ≤ 11 Enable the recovery of the specified value (ex. n = 8 recovers 8mm)

[Notes]
- To retract all the paper set n = 11.
- Set n=11 only for paper with low weight.

[Default] n = 11

[Reference]

[Example]

$1D $21

Devices: VKP80III

[Name] **Select character size**

[Format]

ASCII	GS	!	n
Hex	1D	21	n
Decimal	29	33	n

[Range] 0 ≤ n ≤ 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

Devices: VKP80III

[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 ≤ nL ≤ 255, 0 ≤ nH ≤ 255

[Description] Set the absolute vertical print starting position for buffer character data in page mode.
• This command sets the absolute print position to [(nL + nH × 256) × (vertical or horizontal motion unit)] inches.

[Notes]
• This command is effective only in page mode.
• If the [(nL + nH × 256) × (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:
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 $28 $6B

Devices: *ALL*

[Name] **Print two-dimensional barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn
Hex	1D	28	6B	pL	pH	cn	fn
Decimal	29	40	107	pL	pH	cn	fn

[Range]

[Description] Processes the data concerning two-dimensional barcode.

- Barcode type is specified by *cn*
- Function is specified by *fn*

cn	fn	FUNCTION	
48	65	Function 065	PDF 417: Specify the number of columns
48	66	Function 066	PDF 417: Specify the number of rows
48	67	Function 067	PDF 417: Specify the width of module
48	68	Function 068	PDF 417: Specify the module height
48	69	Function 069	PDF 417: Specify the error correction level
48	80	Function 080	PDF 417: Store the received data in the barcode save area
48	81	Function 081	PDF 417: Print the barcode data in the barcode save area
49	65	Function 065	QRcode: Specify encoding scheme
49	66	Function 066	QRcode: Specify dot size of the module
49	67	Function 067	QRcode: Specify size of barcode
49	69	Function 069	QRcode: Specify the error correction level
49	80	Function 080	QRcode: Store the received data in the barcode save area
49	81	Function 081	QRcode: Print the barcode data
51	65	Function 365	DATAMATRIX: Set encoding scheme
51	66	Function 366	DATAMATRIX: Set rotate
51	67	Function 367	DATAMATRIX: Set dot size of the module
51	68	Function 368	DATAMATRIX: Set size of barcode
51	80	Function 380	DATAMATRIX: Store the received data in the barcode save area
51	81	Function 381	DATAMATRIX: Print the barcode data in the barcode save area
52	65	Function 065	AZTEC: Specify encoding scheme
52	67	Function 067	AZTEC: Specify dot size of the module
52	68	Function 068	AZTEC: Specify size of barcode
52	69	Function 069	AZTEC: Specify the error correction level
52	80	Function 080	AZTEC: Store the received data in the barcode save area
52	81	Function 081	AZTEC: Print the barcode

[Notes]

[Default]

[Reference]

[Example]

$1D $28 $6B [function 065]

Devices: *ALL*

[Name] **Specify the number of columns of PDF417 barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 48
fn = 65
0 ≤ n ≤ 30

[Description] Specifies the number of columns of PDF417 barcode.
- pL and pH specify the number of successive bytes to be sent
- *n* = 0 specifies auto processing
- When n is not 0, specifies the number of columns of the data area as n code word.
- When auto processing (n = 0) is specified, the maximum number of columns in the data area is 30 columns.

[Notes]
- The following data is not included in the number of columns:
  - start pattern and stop pattern
  - indicator code word of left and right
- Settings are effective until ESC @ is executed, the printer is reset or the power is turned off.

[Default] n = 0

[Reference] $1D $28 $6B

[Example] To define 3 columns, the command sequence is : $1D $28 $6B $03 $00 $30 $41 $03

$1D $28 $6B [function 066]

Devices: *ALL*

[Name] **Specify the number of rows of PDF417 barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 48
fn = 66
n = 0, 3 ≤ n ≤ 20

[Description] Specifies the number of rows of PDF417 barcode.
- pL and pH specify the number of successive bytes to be sent
- *n* = 0 specifies auto processing
- When n is not 0, specifies the number of rows of the data area as n rows.
- When auto processing (n = 0) is specified, the maximum number of rows is 90.

[Notes]
- Settings are effective until ESC @ is executed, the printer is reset or the power is turned off.

[Default] n = 0

[Reference] $1D $28 $6B

[Example] To define 3 rows, the command sequence is : $1D $28 $6B $03 $00 $30 $42 $03

$1D $28 $6B [function 067]

Devices: *ALL*

[Name] **Specify the width of a module of PDF417 barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 48
fn = 67
2 ≤ n ≤ 8

[Description] Specifies the width of a module of PDF417 barcode.

[Notes]
- Settings are effective until ESC @ is executed, the printer is reset or the power is turned off.
- pL and pH specify the number of successive bytes to be sent

[Default] n = 3

[Reference] $1D $28 $6B

[Example] To set width = 4, the command sequence is : $1D $28 $6B $03 $00 $30 $43 $04

$1D $28 $6B [function 068]

Devices: *ALL*

[Name] **Specify the height of the module of PDF417 barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 48
fn = 68
2 ≤ n ≤ 8

[Description] Specifies the height of the module of the PDF417 barcode.

[Notes]
- Settings are effective until ESC @ is executed, the printer is reset or the power is turned off.
- pL and pH specify the number of successive bytes to be sent

[Default] n = 3

[Reference] $1D $28 $6B

[Example] To set height = 4, the command sequence is : $1D $28 $6B $03 $00 $30 $44 $04

$1D $28 $6B [function 069]

Devices: *ALL*

[Name] **Specify the error correction level of PDF417 barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m	n
Hex	1D	28	6B	pL	pH	cn	fn	m	n
Decimal	29	40	107	pL	pH	cn	fn	m	n

[Range]
(pL+pH × 256) = 4 (pL = 4, pH = 0)
cn = 48
fn = 69
m = 48 48 ≤ n ≤ 56
m = 49 1 ≤ n ≤ 40

[Description]
Specifies the error correction level of PDF417 barcode.
- pL and pH specify the number of successive bytes to be sent
- The error correction level is specified by "level" when m = 48.
- The error correction level is specified by "ratio" when m = 49 [n × 10%].

[Notes]
- Error correction level is specified by either "level" or "ratio".
- Error correction level specified by "level" (m = 48) is as follows. The number of the error correction code word is fixed regardless of the number of code words on the data area.

n	CORRECTION LEVEL	N. OF ERROR CORRECTION CODE WORD
48	Error correction level 0	2
49	Error correction level 1	4
50	Error correction level 2	8
51	Error correction level 3	16
52	Error correction level 4	32
53	Error correction level 5	64
54	Error correction level 6	128
55	Error correction level 7	256
56	Error correction level 8	512

- Error correction level specified by "ratio" (m = 49) is as follows. The error correction level is defined by the calculated value [number of data code word × n × 0.1 = (A)]. The number of the error correction code word is changeable in proportion to the number of the code words on the data area.

CALCULATED VALUE (A)	CORRECTION LEVEL	N. OF ERROR CORRECTION CODE WORD
0 - 3	Error correction level 1	4
4 - 10	Error correction level 2	8
11 - 20	Error correction level 3	16
21 - 45	Error correction level 4	32
46 - 100	Error correction level 5	64
101 - 200	Error correction level 6	128
201 - 400	Error correction level 7	256
> 400	Error correction level 8	512

- Settings are effective until ESC @ is executed, the printer is reset or the power is turned off.

[Default] m = 49, n = 1 [ratio: 10%]

[Reference] $1D $28 $6B

[Example] To set error correction=0,2 the command sequence is :$1D $28 $6B $03 $00 $30 $45 $30 $02

$1D $28 $6B [function 080]

Devices: *ALL*

[Name] **Store the PDF417 barcode data in the barcode save area**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m	d1...dk
Hex	1D	28	6B	pL	pH	cn	fn	m	d1...dk
Decimal	29	40	107	pL	pH	cn	fn	m	d1...dk

[Range]
cn = 48
fn = 80
m = 48
0 ≤ d ≤ 255
k = (pL + pH × 256) - 3
- PDF417 barcode only with ASCII characters:
  4 ≤ (pL + pH × 256) ≤ 1112 (0 ≤ pL ≤ 255, 0≤ pH ≤ 4)
- PDF417 barcode only with alphanumeric characters:
  4 ≤ (pL + pH × 256) ≤ 1854 (0 ≤ pL ≤ 255, 0≤ pH ≤ 7)
- PDF417 barcode only with numeric characters:
  4 ≤ (pL + pH × 256) ≤ 2729 (0 ≤ pL ≤ 255, 0≤ pH ≤ 10)

[Description] Store the PDF417 barcode data (d1...dk) in the barcode save area.

[Notes]
- Data stored in the barcode save area by this function are processed by Function 081. The data in the barcode save area are reserved after processing Function 081.
- pL and pH specify the number of successive bytes to be sent
- k bytes of d1...dk are processed as barcode data.
- Specify only the data code word of the barcode with this function. Be sure not to include the control data in the data d1...dk because they are added automatically by the printer.
- Settings are effective until ESC @ is executed, the printer is reset or the power is turned off.

[Default]

[Reference] $1D $28 $6B

[Example]

$1D $28 $6B [function 081]

Devices: *ALL*

[Name] **Encodes and prints the PDF417 barcode data in the barcode save area**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m
Hex	1D	28	6B	pL	pH	cn	fn	m
Decimal	29	40	107	pL	pH	cn	fn	m

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 48
fn = 81
m = 48

[Description] Encodes and prints the PDF417 barcode data in the barcode save area.

[Notes]
- In standard mode, use this function when printer is "at the beginning of a line" or "there is no data in the print buffer".
- pL and pH specify the number of successive bytes to be sent
- A barcode that size exceeds the printing area cannot be printed.
- If there is any error described below in the data of the barcode save area, it cannot be printer.
  - There is no data (Function 080 is not processed).
  - If [(number of columns × number of rows) < number of code word] when auto processing is specified for number of columns and number of rows.
  - Number of code word exceeds 928 in the data area.
- When auto processing (Function 065) is specified, the number of columns is calculated by the current printing area, module width (Function 067) and the code word in the data area. Maximum number of the columns is 30.

[Default]

[Reference] $1D $28 $6B

[Example] To print the PDF417 barcode data the command sequence is : $1D $28 $6B $03 $00 $30 $51 $30

$1D $28 $6B [function 065]

Devices: *ALL*

[Name] **Specify encoding scheme of QRcode barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 49
fn = 65
0 ≤ n ≤ 1

[Description] Specifies encoding type of QRcode barcode.

n	ENCODING SCHEME
0	QRcode
1	MicroQR

[Notes]
- QRcode: Encode all extended ASCII characters data up to a maximum length of 7089 numeric digits, 4296 alphabetic characters or 2953 bytes of data.
- pL and pH specify the number of successive bytes to be sent
- MicroQR (a miniature version of the QRcode barcode for short message): Encode all numbers from 0 to 9 up to a maximum length of 35 characters.

[Default] n = 0

[Reference]

[Example]

$1D $28 $6B [function 066]

Devices: *ALL*

[Name] **Specify dot size of the module of the QRcode barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 49
fn = 66
2 ≤ n ≤ 24

[Description] Specifies numbers of dot for each pixel of QRcode barcode.

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default] n = 0

[Reference]

[Example]

$1D $28 $6B [function 067]

Devices: *ALL*

[Name] **Specify QRcode barcode size**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 49
fn = 67
0 ≤ n ≤ 40

[Description] Specifies QRcode barcode eversion, as follows:

n	VERSION
0	AUTO
1	V1
2	V2
3	V3
4	V4
5	V5
6	V6
7	V7
8	V8
9	V9
10	V10
11	V11
12	V12
13	V13

n	VERSION
14	V14
15	V15
16	V16
17	V17
18	V18
19	V19
20	V20
21	V21
22	V22
23	V23
24	V24
25	V25
26	V26
27	V27

n	VERSION
28	V28
29	V29
30	V30
31	V31
32	V32
33	V33
34	V34
35	V35
36	V36
37	V37
38	V38
39	V39
40	V40

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default] n = 0
[Reference]
[Example]

$1D $28 $6B [function 069]

Devices: *ALL*

[Name] **Specify the error correction level of the QRcode barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 49
fn = 69
0 ≤ n ≤ 4

[Description] Specifies the ECC level (Error Correction Capacity) of QRcode barcode.

n	ECC level	
0	AUTO	
1	ECC = approx 20% of barcode	Recovery Capacity = approx 7%
2	ECC = approx 37% of barcode	Recovery Capacity = approx 15%
3	ECC = approx 50% of barcode	Recovery Capacity = approx 25%
4	ECC = approx 65% of barcode	Recovery Capacity = approx 30%

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default] n = 0

[Reference]

[Example]

$1D $28 $6B [function 080]

Devices: *ALL*

[Name] **Store the QRcode barcode data in the barcode save area**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m	d1...dk
Hex	1D	28	6B	pL	pH	cn	fn	m	d1...dk
Decimal	29	40	107	pL	pH	cn	fn	m	d1...dk

[Range] cn = 49 fn = 80
m = 49 0 ≤ d ≤ 255
k = (pL + pH × 256) - 3
- QRcode barcode only with binary characters (8 bit):
  4 ≤ (pL + pH × 256) ≤ 2957 (0 ≤ pL ≤ 255, 0≤ pH ≤ 11)
- QRcode barcode only with alphanumeric characters:
  4 ≤ (pL + pH × 256) ≤ 4300 (0 ≤ pL ≤ 255, 0≤ pH ≤ 16)
- QRcode barcode only with numeric characters:
  4 ≤ (pL + pH × 256) ≤ 7093 (0 ≤ pL ≤ 255, 0≤ pH ≤ 27)

[Description] Store the QRcode barcode data (d1...dk) in the barcode save area.

[Notes]
- Data stored in the barcode save area by this function are processed by Function 081. The data in the barcode save area are reserved after processing Function 081.
- pL and pH specify the number of successive bytes to be sent
- k bytes of d1...dk are processed as barcode data.
- Specify only the data code word of the barcode with this function.

[Default]

[Reference]

[Example]

$1D $28 $6B [function 081]

Devices: *ALL*

[Name] **Prints the QRcode barcode data**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m
Hex	1D	28	6B	pL	pH	cn	fn	m
Decimal	29	40	107	pL	pH	cn	fn	m

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 49
fn = 81
m = 49

[Description] Prints the QRcode barcode in the current position.

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default]

[Reference]

[Example]

$1D $28 $6B [function 365]

Devices: *ALL*

[Name] **Specify the encoding scheme of DATAMATRIX barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 51
fn = 65
0 ≤ n ≤ 6

[Description] Set the encoding scheme specified by n as follows:

n	ENCODING SCHEME
0	Ascii
1	C40
2	Text
3	X12
4	Edifact
5	Base256
6	AutoBest

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default]

[Reference] $1D $28 $6B

[Example] To set encoding = Ascii, the command sequence is: $1D $28 $6B $03 $00 $33 $41 $00

$1D $28 $6B [function 366]

Devices: *ALL*

[Name] **Set rotation of DATAMATRIX barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 51
fn = 66
n = 0, 1

[Description] Set rotate by n as follows:

n	ROTATION
0	No rotation
1	Rotation

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default]

[Reference] $1D $28 $6B

[Example]

$1D $28 $6B [function 367]

Devices: *ALL*

[Name] **Set dot size of the module of DATAMATRIX barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 51
fn = 67
2 ≤ n ≤ 24

[Description] Set dot size of the module of the DATAMATRIX barcode.
n = dot dimension

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default] n = 6

[Reference] $1D $28 $6B

[Example] To set dot size = 6 the command sequence is : $1D $28 $6B $03 $00 $33 $43 $06

$1D $28 $6B [function 368]

Devices: *ALL*

[Name] **Set size of DATAMATRIX barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL + pH × 256) = 3 (pL = 3, pH = 0)
cn = 51
fn = 68
1 ≤ n ≤ 29

[Description] Set the size of DATAMATRIX barcode specified by n as follows:

n	BARCODE SIZE
1	10 x 10
2	12 x 12
3	14 x 14
4	16 x 16
5	18 x 18
6	20 x 20
7	22 x 22
8	24 x 24
8	26 x 26
10	32 x 32
11	36 x 36
12	40 x 40
13	44 x 44
14	48 x 48
15	52 x 52

n	BARCODE SIZE
16	64 x 64
17	72 x 72
18	80 x 80
19	88 x 88
20	96 x 96
21	104 x 104
22	120 x 120
23	132 x 132
24	144 x 144
25	8 x 18
26	8 x 32
27	12 x 26
28	12 x 36
29	16 x 36

[Notes] • pL and pH specify the number of successive bytes to be sent
[Default] DmtxSymbolSquareAuto
[Reference] $1D $28 $6B
[Example]

$1D $28 $6B [function 380]

Devices: *ALL*

[Name] **Store the DATAMATRIX barcode data in the barcode save area**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m	d1...dk
Hex	1D	28	6B	pL	pH	cn	fn	m	d1...dk
Decimal	29	40	107	pL	pH	cn	fn	m	d1...dk

[Range]
cn = 51
fn = 80
m = 51
0 ≤ d ≤ 255
k = (pL + pH × 256) - 3
- DATAMATRIX barcode only with ASCII characters (8 bit) :
  4 ≤ (pL + pH × 256) ≤ 1560 (0 ≤ pL ≤ 255, 0≤ pH ≤ 6)
- DATAMATRIX barcode only with alphanumeric characters:
  4 ≤ (pL + pH × 256) ≤ 2339 (0 ≤ pL ≤ 255, 0≤ pH ≤ 9)
- DATAMATRIX barcode only with numeric characters:
  4 ≤ (pL + pH × 256) ≤ 3120 (0 ≤ pL ≤ 255, 0≤ pH ≤ 12)

[Description] Store the DATAMATRIX barcode data (d1...dk) in the barcode save area.

[Notes]
- Data stored in the barcode save area by this function are processed by Function 081. The data in the barcode save area reserved after processing Function 381.
- k bytes of d1...dk are processed as barcode data.
- Specify only the data code word of the barcode with this function. Be sure not to include the control data in the data d1...dk because they are added automatically by the printer.
- Settings are effective until ESC @ is executed, the printer is reset or the power is turned off.

[Default]

[Reference] $1D $28 $6B

[Example]

$1D $28 $6B [function 381]

Devices: *ALL*

[Name] **Encodes and prints the DATAMATRIX barcode data in the barcode save area**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m
Hex	1D	28	6B	pL	pH	cn	fn	m
Decimal	29	40	107	pL	pH	cn	fn	m

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 51
fn = 81
m = 51

[Description] Encodes and prints the DATAMATRIX barcode data in the barcode save area.

[Notes]
- In standard mode, use this function when printer is "at the beginning of a line" or "there is no data in the print buffer".
- pL and pH specify the number of successive bytes to be sent
- A barcode that size exceeds the printing area cannot be printed.
- If there is any error described below in the data of the barcode save area, it cannot be printer.
    - There is no data (Function 380 is not processed).
    - If [(number of columns × number of rows) < number of code word] when auto processing is specified for number of columns and number of rows.
    - Number of code word exceeds 928 in the data area.

[Default]

[Reference] $1D $28 $6B

[Example] To print the DATAMATRIX barcode data the command sequence is : $1D $28 $6B $03 $00 $33 $51 $33

$1D $28 $6B [function 065]

Devices: *ALL*

[Name] **Specify encoding scheme of AZTEC barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 52
fn = 65
0 ≤ n ≤ 1

[Description] Specifies encoding type of AZTEC barcode.

n	ENCODING SCHEME
0	FULL AZTEC
1	AZTEC RUNE

[Notes]
- Full Aztec: Encode all extended ASCII characters data up to a maximum lenght of approximately 3823 numeric or 3067 alphabetic characters or 1914 bytes of data.
- pL and pH specify the number of successive bytes to be sent
- Aztec Rune (Compact Aztec Code, sometimes called Small Aztec Code): Encode all numbers from 0 to 255 up to a maximum lenght of 3 numbers.

[Default] n = 0
[Reference]
[Example]

$1D $28 $6B [function 067]

Devices: *ALL*

[Name] **Specify dot size of the module of the AZTEC barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 52
fn = 67
2 ≤ n ≤ 24

[Description] Specifies numbers of dot for each pixel of AZTEC barcode.
[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default] n = 0
[Reference]
[Example]

$1D $28 $6B [function 068]

Devices: *ALL*

[Name] **Specify AZTEC barcode size**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 52
fn = 68
0 ≤ n ≤ 36

[Description] Specifies AZTEC barcode format (rows and columns), as follows:

n	FORMAT
0	AUTO
1	C15X15 Compact
2	C19X19 Compact
3	C23X23 Compact
4	C27X27 Compact
5	C19X19
6	C23X23
7	C27X27
8	C31X31
9	C37X37
10	C41X41
11	C45X45
12	C49X49

n	FORMAT
13	C53X53
14	C57X57
15	C61X61
16	C67X67
17	C71X71
18	C75X75
19	C79X79
20	C83X83
21	C87X87
22	C91X91
23	C95X95
24	C101X101
25	C105X105

n	FORMAT
26	C109X109
27	C113X113
28	C117X117
29	C121X121
30	C125X125
31	C131X131
32	C135X135
33	C139X139
34	C143X143
35	C147X147
36	C151X151

[Notes] • pL and pH specify the number of successive bytes to be sent
[Default] n = 0
[Reference]
[Example]

$1D $28 $6B [function 069]

Devices: *ALL*

[Name] **Specify the error correction level of the AZTEC barcode**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	n
Hex	1D	28	6B	pL	pH	cn	fn	n
Decimal	29	40	107	pL	pH	cn	fn	n

[Range] (pL+pH × 256) = 4 (pL = 4, pH = 0)
cn = 52
fn = 69
0 ≤ n ≤ 4

[Description] Specifies the ECC level (Error Correction Capacity) of AZTEC barcode.

n	ECC level
0	AUTO
1	> 10 % + 3 codewords
2	> 23 % + 3 codewords
3	> 36 % + 3 codewords
4	> 50 % + 3 codewords

[Notes]
- It is not possible to select both barcode size and error correction capacity for the same barcode. If both options are selected then the error correction capacity selection will be ignored.
- pL and pH specify the number of successive bytes to be sent

[Default] n = 0

[Reference]

[Example]

$1D $28 $6B [function 080]

Devices: *ALL*

[Name] **Store the AZTEC barcode data in the barcode save area**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m	d1...dk
Hex	1D	28	6B	pL	pH	cn	fn	m	d1...dk
Decimal	29	40	107	pL	pH	cn	fn	m	d1...dk

[Range]
cn = 52
fn = 80
m = 52
0 ≤ d ≤ 255
k = (pL + pH × 256) - 3
- AZTEC barcode only with ASCII characters:
  4 ≤ (pL + pH × 256) ≤ 1918 (0 ≤ pL ≤ 255, 0≤ pH ≤ 7)
- AZTEC barcode only with alphanumeric characters:
  4 ≤ (pL + pH × 256) ≤ 3071 (0 ≤ pL ≤ 255, 0≤ pH ≤ 11)
- AZTEC barcode only with numeric characters:
  4 ≤ (pL + pH × 256) ≤ 3836 (0 ≤ pL ≤ 255, 0≤ pH ≤ 14)

[Description] Store the AZTEC barcode data (d1...dk) in the barcode save area.

[Notes]
- Data stored in the barcode save area by this function are processed by Function 081. The data in the barcode save area are reserved after processing Function 081.
- pL and pH specify the number of successive bytes to be sent
- k bytes of d1...dk are processed as barcode data.
- Specify only the data code word of the barcode with this function.

[Default]
[Reference]
[Example]

$1D $28 $6B [function 081]

Devices: *ALL*

[Name] **Prints the AZTEC barcode data**

[Format]

ASCII	GS	(	k	pL	pH	cn	fn	m
Hex	1D	28	6B	pL	pH	cn	fn	m
Decimal	29	40	107	pL	pH	cn	fn	m

[Range] (pL+pH × 256) = 3 (pL = 3, pH = 0)
cn = 52
fn = 81
m = 48

[Description] Prints the AZTEC barcode in the current position.

[Notes]
- pL and pH specify the number of successive bytes to be sent

[Default]
[Reference]
[Example]

$1D $2A

Devices: VKP80III

[Name] **Define dowloaded bit image**

[Format]

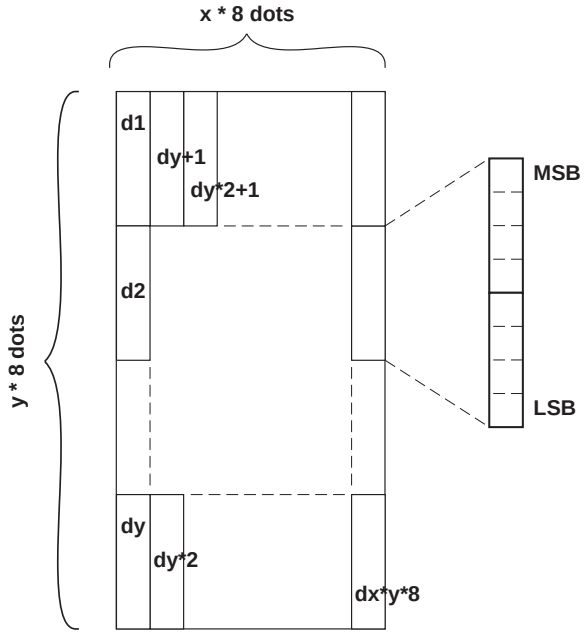
ASCII	GS	*	x	y	d1...d(x x y x 8)
Hex	1D	2A	x	y	d1...d(x x y x 8)
Decimal	29	42	x	y	d1...d(x x y x 8)

[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.
• x specifies the number of dots in the horizontal direction.
• y specifies the number of dots in the vertical direction.

[Notes]
• 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:
1) $1B $40 is executed.
2) $1B $26 is executed.
3) printer is reset or the power is turned off.

• The following figure shows the relationship between the downloaded bit image and the printed data.



[Default]

[Reference] $1D $5C

[Example]

$1D $2F

Devices: VKP80III

[Name] **Print dowloaded 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 $3A

Devices: VKP80III

[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 $42

Devices: VKP80III

[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.
- 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.

[Notes]
- 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] n = 0

[Reference]

[Example]

$1D $43 $30

Devices: VKP80III

[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 ≤ n ≤ 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 defi ned 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 $31

Devices: VKP80III

[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 ≤ aL, aH ≤ 255
0 ≤ bL, bH ≤ 255
0 ≤ n, r ≤ 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 ≠ 0 and r ≠ 0
• Count-down mode is specified when:
[aL + (aH * 256)] > [bL + (bH * 256)] and n ≠ 0 and r ≠ 0
• Counting stops when:
[aL + (aH * 256)] = [bL + (bH * 256)] o n = 0 o 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.
• When this command is executed, the internal count that indicates the repetition number specified by r is cleared.

[Default] 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] Send the command:

$1D	$43	$31	$01	$00	$0A	$00	$01	$02
			↓	↓	↓	↓	↓	↓
			aL	*aH*	*bL*	*bH*	*n*	*r*

The counter is set from 1 [aL + (aH * 256)] to 10 [bL + (bH * 256)]).
The counter is incremented by 1 (n) repeating the same value of 2 times (r).

$1D $43 $32

Devices:	VKP80III

[Name] **Set counter**

[Format]

ASCII	GS	C	2	nL	nH
Hex	1D	43	32	nL	nH
Decimal	29	67	50	nL	nH

[Range] 0 ≤ nL, nH ≤ 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 specifi ed 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] Send the command:

$1D	$43	$32	$05	$00
			↓	↓
			nL	*nH*

The counter is set starting from 5 [nL + (nH * 256)].

$1D $43 $3B

Devices: VKP80III

[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 ≤ sa, sb, sc ≤ 65535
0 ≤ sn, sr ≤ 255
These values are all character strings.

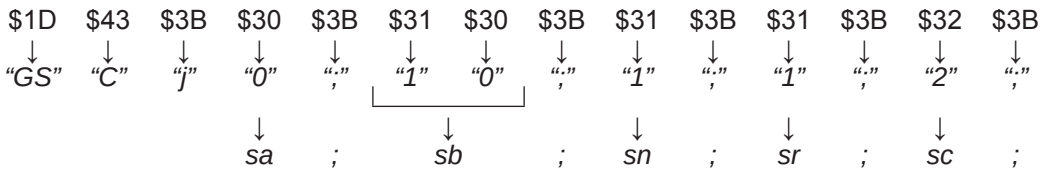
[Description] Selects a count mode for the serial number counter and specifies the value of the counter.
• sa, sb, sn, sr e sc are all displayed as ASCII characters using codes from ‘0’ to ‘9’.
• sa e sb specify the counter range.
• sn indicates the unit amount for counting up or down.
• sr indicates 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 ≠ 0 and sr ≠ 0
• Count-down mode is specifi ed when: sa > sb and sn ≠ 0 and sr ≠ 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] Send the command:



The counter is set from 0 (sa) to 10 (sb) starting from 2 (sc).
The counter is incremented by 1 (sn) repeating the same value of 1 time (sr).

$1D $48

Devices: VKP80III

[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 ≤ n ≤ 3, 48 ≤ n ≤ 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

Devices: VKP80III

[Name] **Transmit printer ID**

[Format]

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

[Range] 1 ≤ n ≤ 3
49 ≤ n ≤ 51
n=255

[Description] Transmits the printer ID specified by n follows:

n	PRINTER ID	SPECIFICATION
1, 49	Printer model ID (1 byte)	$FF (resend the command with n=255)
2, 50	Type ID	See table below
3, 51	ROM version ID	Depends on ROM version (4 character)
255	Printer model ID (2 bytes)	$02 $05 (VKP80III)

n = 2, 50 Type ID

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	2-byte character codes not supported
1	Off	00	0	Autocutter not supplied
				Autocutter supplied
2	Off	00	0	Thermal paper w/o label
				Thermal paper with label
3	-	-	-	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	Off	00	0	Not used. Fixed to Off.

[Notes] • 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 $4C

Devices: VKP80III

[Name] **Set left margin**

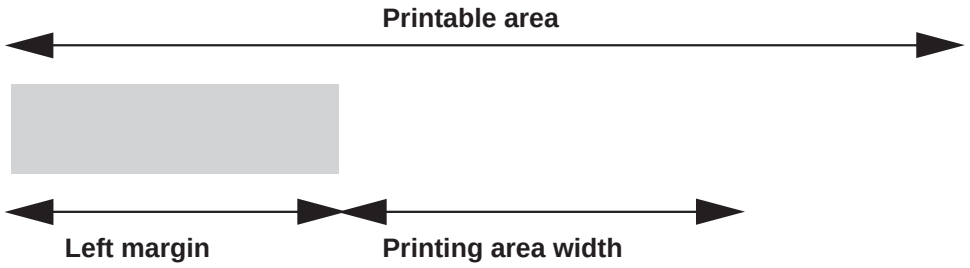
[Format]

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

[Range] 0 ≤ nL, nH ≤ 255

[Description] Sets the left margin.

• The left margin is set to [(nL + nH × 256) × (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 specifi ed 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)

Devices:	VKP80III

[Name] **Set horizontal and vertical motion units (mode 1)**

[Format]

ASCII	GS	P	x	y
Hex	1D	50	x	y
Decimal	29	80	x	y

[Range] 0 ≤ x, y ≤ 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]
• 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.

• 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 (for the 204 dpi model)

[Reference] $1B $4A, $1D $4C, $1D $57, $1D $D0

[Example]

$1D $57

Devices: VKP80III

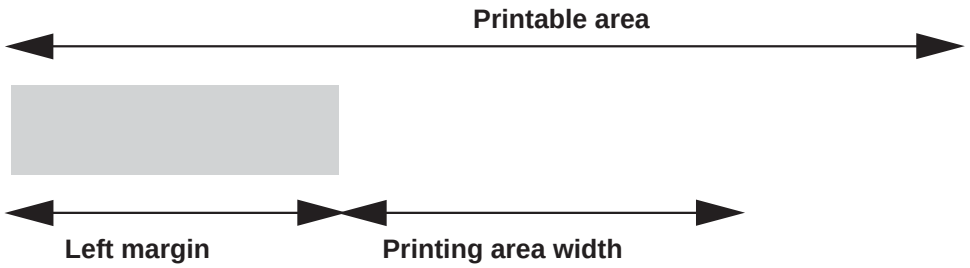
[Name] **Set printing area width**

[Format]

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

[Range] 0 ≤ nL, nH ≤ 255
0 ≤ nL + nH × 256) ≤ 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×256) × (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 specifi ed 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 $4C, $1D $50, $1D $D0

[Example]

$1D $5C

Devices:	VKP80III

[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 ≤ nL ≤ 255, 0 ≤ nH ≤ 255

[Description]
- 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 × 256) × vertical or horizontal motion unit] inches.

[Notes]
- This command is ignored unless page mode is selected.
- When N is specified to the movement downward: nL + nH × 256 = N
- When N is specified to the movement upward (the negative direction), use the complement of 65536.
- When N is specified to the movement upward:
nL + nH x 256 = 65536 - N
- Any setting that exceeds the specified printing area is ignored.
- This command function as follows, depending on the print starting position set by $1B $54:
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.
- 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 $24, $1D $50

[Example]

$1D $5E

Devices: VKP80III

[Name] **Execute macro**

[Format]

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

[Range] 0 ≤ r, t ≤ 255
0 ≤ m ≤ 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 × 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 specifi ed 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 × 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 $63

Devices: VKP80III

[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 $66

Devices: VKP80III

[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

Devices: VKP80III

[Name] **Set bar code height**

[Format]

ASCII	GS	h	n
Hex	1D	68	n
Decimal	29	104	n

[Range] 1 ≤ n ≤ 255

[Description] Sets the height of the bar code. n specifies the number of vertical dots.

[Notes]

[Default] n = 162

[Reference] $1D $6B

[Example]

❶ $1D $6B, ❷ $1D $6B

Devices: VKP80III

[Name] **Print barcode**

[Format]

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

[Range]
❶ 0 ≤ m ≤ 20
❷ 65 ≤ m ≤ 90

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

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

❷	65	UPC-A	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	66	UPC-E	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	67	EAN13 (JAN)	12 ≤ n ≤ 13	48 ≤ d ≤ 57
	68	EAN8 (JAN)	7 ≤ n ≤ 8	48 ≤ d ≤ 57
	69	CODE39	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d ≤ 90, 32, 36, 37, 43, 45, 46, 47
	70	ITF	1 ≤ n ≤ 255	48 ≤ d ≤ 57
	71	CODABAR	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d1 ≤ 68, 36, 43, 45, 46, 47, 58
	72	CODE93	1 ≤ n ≤ 255	1 ≤ d ≤ 127
	73	CODE128	2 ≤ n ≤ 255	1 ≤ d ≤ 127
	90	CODE32	8 ≤ n ≤ 9	48 ≤ d ≤ 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] $1D $48, $1D $66, $1D $68, $1D $77
[Example]

$1D $72

Devices: VKP80III

[Name] **Transmit status**

[Format]

ASCII	GS	r	n
Hex	1D	72	n
Decimal	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 $30

Devices: VKP80III

[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 ≤ m ≤ 3, 48 ≤ m ≤ 51
0 ≤ xL ≤ 255
0 ≤ xH ≤ 255 (1 ≤ xL + xH × 256 ≤ 65535)
0 ≤ yL ≤ 255
0 ≤ yH ≤ 8 (1 ≤ yL + yH × 256 ≤ 2047)
0 ≤ d ≤ 255
k = (xL + xH ≤ 256) + (yL + yH ≤ 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 × 256) in the horizontal direction for the bit image.
• yL, yH selects the number of data bits (yL + yH × 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 $77

Devices: VKP80III

[Name] **Set bar code width**

[Format]

ASCII	GS	w	n
Hex	1D	77	n
Decimal	29	119	n

[Range] $1 ≤ n ≤ $6, $81 ≤ n ≤ $86

[Description] 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	2:1
	$86	3:1

[Notes]

[Default] n = 3

[Reference] $1D $6B

[Example]

$1D $7C

Devices: VKP80III

[Name] **Set printing density**

[Format]

ASCII	GS	{ }	n
Hex	1D	7C	n
Decimal	29	124	n

[Range] 0 ≤ n ≤ 8, 48 ≤ n ≤ 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] **eO 3.0**

$1D $7C

[Example]

$1D $D0 (mode 2)

Devices: VKP80III

[Name] **Set horizontal and vertical motion units (mode 2)**

[Format]

ASCII	GS	{ }	xH	xL	yH	yL
Hex	1D	D0	xH	xL	yH	yL
Decimal	29	208	xH	xL	yH	yL

[Range]
0 ≤ (xH * 256) + xL) ≤ 2040
0 ≤ (yH * 256) + yL) ≤ 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]
• 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, $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 $E0

Devices: VKP80III

[Name] **Enable / disable automatic FULL STATUS back**

[Format]

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

[Range] 0 ≤ n ≤ 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 $E1

Devices: VKP80III

[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 length 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

Devices: VKP80III

[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

Devices:	VKP80III

[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

Devices:	VKP80III

[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 $E5

Devices: VKP80III

[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 $E6

Devices: VKP80III

[Name] **Virtual paper-end limit**

[Format]

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

[Range] 0 ≤ nH, nL ≤ 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 x 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 x 256) = 1500 - (5 x 256) = 220
and then send the following command:

Hex:	$1D	$E6	$05	$DC
Decimal:	29	230	5	220

$1D $E7

Devices: VKP80III

[Name] **Set notch distance**

[Format]

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

[Range] 0 ≤ nH ≤ 255, 0 ≤ nL ≤ 255

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

[Notes]
- This value is expressed as [(nH x 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 99,9 mm.
- The distance is saved in nonvolatile memory: it is therefore recommended not to send this command for each printed ticket, because the number of rewrites is limited. In many devices, however, is checked the diversity of the data before performing the rescue to avoid reaching the limit of rewrites.
- The distance defined by this command is the same that can be set with the value of the "Notch Distance" during the setup of the printer (see User Manual for further explanation).

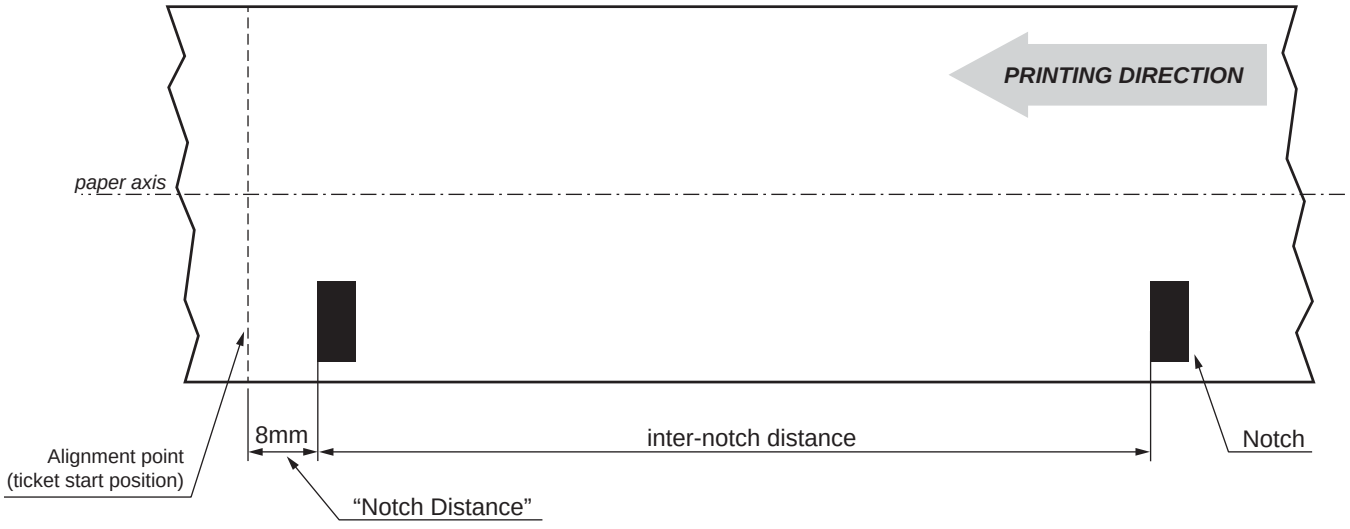
[Default] nH = $00
nL = $00

[Reference]

[Example] Send the command:

$1D	$E7	$00	$50
		↓	↓
		nH	*nL*

Is set to notch a distance equal to 80 tenths of a mm [(nH x 256)+nL] equal to 8.0 mm.
The following image shows a ticket with "Alignment Point" positioned at 8 mm from the notch.



$1D $F0

Devices: VKP80III

[Name] **Set printing speed**

[Format]

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

[Range] 0 ≤ n ≤ 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 $F6

Devices: VKP80III

[Name] **Align at print**

[Format]

ASCII	GS	{ }
Hex	1D	F6
Decimal	29	246

[Description] This command align the edge of the ticket to the alignment point set with $1D $E7 command as the notch distance. The printout will start at this position (see User Manual for further explanation).

[Notes]
- Use the command $1D $E7 to set an offset between the black mark and the print line (0 to 32 mm).
- Use this alignment command even to print more tickets without cutting.
- If has been produced less than 10mm of paper from the last notch alignment and the command is sent, is performed a paper retract to the alignment position otherwise is performed the alignment to the next black mark

[Default]

[Reference] $1C $50, $1D $E7, $1D $F8

[Example]

EXAMPLE OF CONSECUTIVE PRINTS WITHOUT CUTTING

$1D $F6	*Positioning ticket*
<print ticket>	
$1D $F6	*Positioning ticket*
<print ticket>	
...	
...	
...	

EXAMPLE OF PRINTS WITH ALIGNMENT AND CUT

$1D $F6	*Positioning ticket*
<print ticket>	
$1D $F8	*Align ticket*
$1C $50 $08 $01 $45 $02	*Cut and presentation*

$1D $F8

Devices: VKP80III

[Name] **Align at cut**

[Format]

ASCII	GS	{ }
Hex	1D	F8
Decimal	29	248

[Description] This command align the edge of the ticket to the alignment point set with $1D $E7 command as the notch distance. The printout will start at this position (see User Manual for further explanation).

[Notes]
- Use the command $1D $E7 to set an offset between the black mark and the cut line (0 to 32 mm).
- To work properly, you must send this command just before the cut and presentation command

[Default]

[Reference] $1C $50, $1D $E7, $1D $F6

[Example]

$1D $F6	*Positioning ticket*
<print ticket>	
$1D $F8	*Align ticket*
$1C $50 $08 $01 $45 $02	*Cut and presentation*

4 ALIGNMENT: PRACTICAL APPLICATIONS

The device is equipped with sensors that allows the use of alignment notch to handle rolls of tickets with pre-printed and fixed length fields.
For further information, refer to the User Manual of each device.

4.1 Alignment commands

The commands available for managing the alignment of the ticket are the following:
- $1D $E7: sets the distance between the point of alignment and the notch (value of parameter "Notch Distance")
- $1D $F6 and $1D $F8: perform the ticket alignment, which is advanced to cut the ticket at the first alignment point available
- $1C $C1 : performs the desired recovery of the paper after the cutting operation (only for VKP80III emulation)

Print a ticket with alignment requires the following sequence of commands:
1. General settings of the ticket: character formatting, print density, margins etc..
2. Alignment command: $1D $F6.
3. Ticket printout: printing text, logos or any graphic.
4. Alignment command: $1D $F8.
5. Cut command.

NOTE:
The settings take effect from next ticket to the one already in the printer.

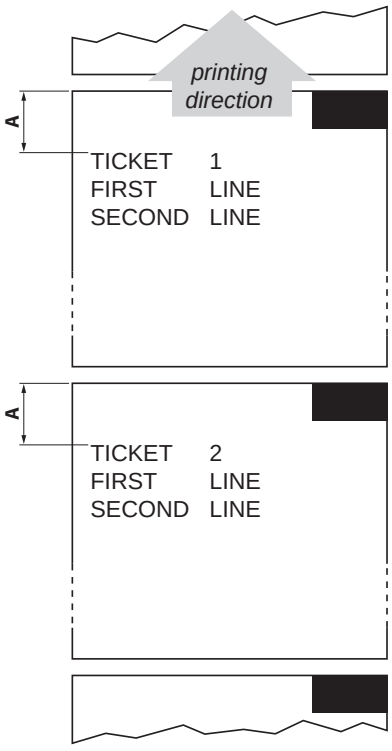
In the following examples, are described some sequences of commands to manage the alignment.

EXAMPLE 1
Commands sequence to print two tickets with "alignment point" used to align the cut over the edge of the notch (Notch Distance = 0mm = $00 $00).

{Set Notch Distance}
$1D,$E7,$00,$00,

{Alignment}
$1D, $F6,
{Print text}
'TICKET 1',$0A,'FIRST LINE',$0A,'SECOND LINE',$0A
{Alignment}
$1D, $F8,
{Cut}
$1B $69,

{Alignment}
$1D, $F6,
{Print text}
'TICKET 2',$0A,'FIRST LINE',$0A,'SECOND LINE',$0A
{Aligment}
$1D,$F8,
{Cut}
$1B $69



NOTE:
The dimension A shown in the figure, represents the non-printable area, equal to the distance between cutting line and printing line that may be recoverable by the $1C $C1 command (only for VKP80III emulation).

NOTE:
For a better comprehension of the images, the black mark has been represented on the thermal side of the paper.

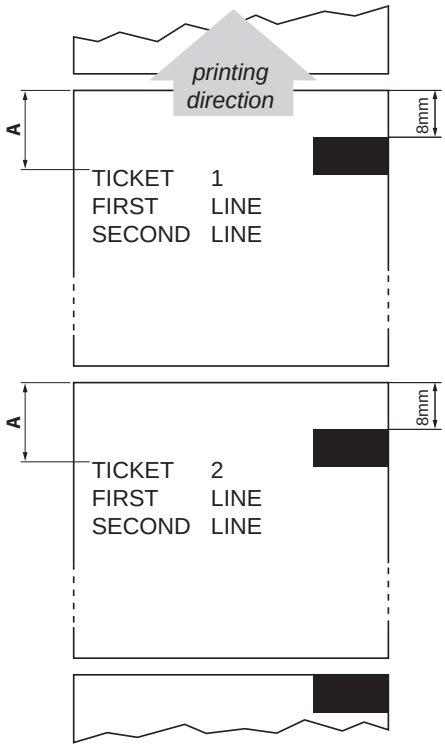
EXAMPLE 2

Commands sequence to print tickets with "alignment point" used to the cut the paper 8mm before the notch ("Notch Distance" = 8mm = 80 tenths of a millimeter = $ 00 $ 50).

{Set Notch Distance}
$1D, $E7, $00, $50,

{Alignment}
$1D, $F6,
{Print text}
'TICKET 1',$0A,'FIRST LINE',$0A,'SECOND LINE',$0A
{Alignment}
$1D, $F8,
{Cut}
$1B $69,

{Alignment}
$1D, $F6,
{Print text}
'TICKET 2',$0A,'FIRST LINE',$0A,'SECOND LINE',$0A
{Alignment}
$1D,$F8,
{Cut}
$1B $69



NOTE:
The dimension A shown in the figure, represents the non-printable area, equal to the distance between cutting line and printing line that may be recoverable by the $1C $C1 command (only for VKP80III emulation).

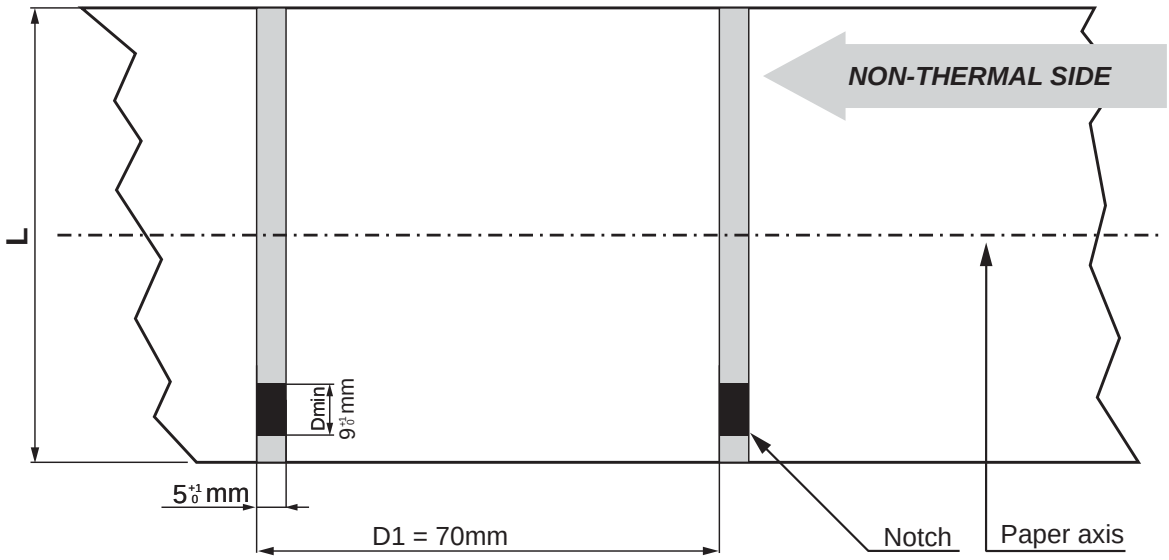
NOTE:
For a better comprehension of the images, the black mark has been represented on the thermal side of the paper.

5 PAPER SPECIFICATIONS

This chapter shows the specifications for paper types available for devices related to this manual.

5.1 Paper with alignment notch on the non-thermal side

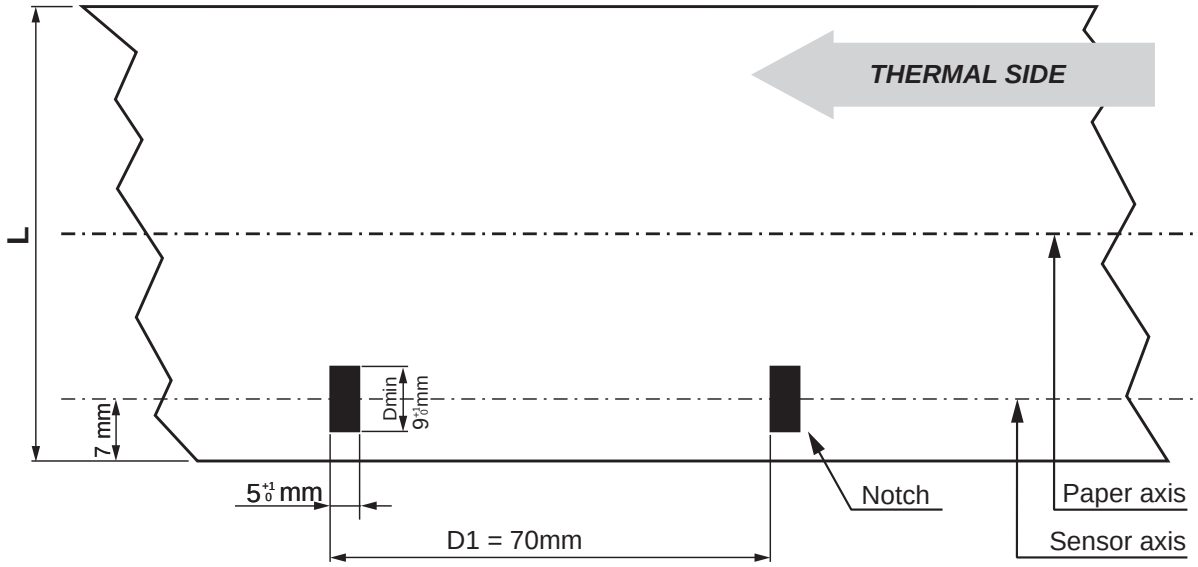
The following figure shows a sample paper with alignment notch placed on the non-thermal side of paper.
The notch can be positioned anywhere across the width of the paper, because the notch detector is a mobile sensor.



L = paper width used (adjustable from 50mm to 82,5 mm)
Dmin = minimum notch dimension
D1 = minimum notch to notch distance

5.2 Paper with alignment notch on the thermal side (only in VKP80III emulation)

The following figure shows a sample paper with alignment notch placed on the thermal side of paper. This sample paper is for the printer models with the upper notch detector (optional) assembled on the right cursor. For models with the upper notch detector (optional) assembled on the left cursor, the paper will be symmetrical to its longitudinal axis.



L = paper width used (adjustable from 50mm to 82,5 mm)
Dmin = minimum notch dimension
D1 = minimum notch to notch distance

6 COMMANDS INDEX

VKP80II EMULATION

VKP80III EMULATION

Part Number : 7720000000200 Rev. 1.60

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