OEM

COMMANDS MANUAL

KPM180H
TK180

Code: **7720000001800**

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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.

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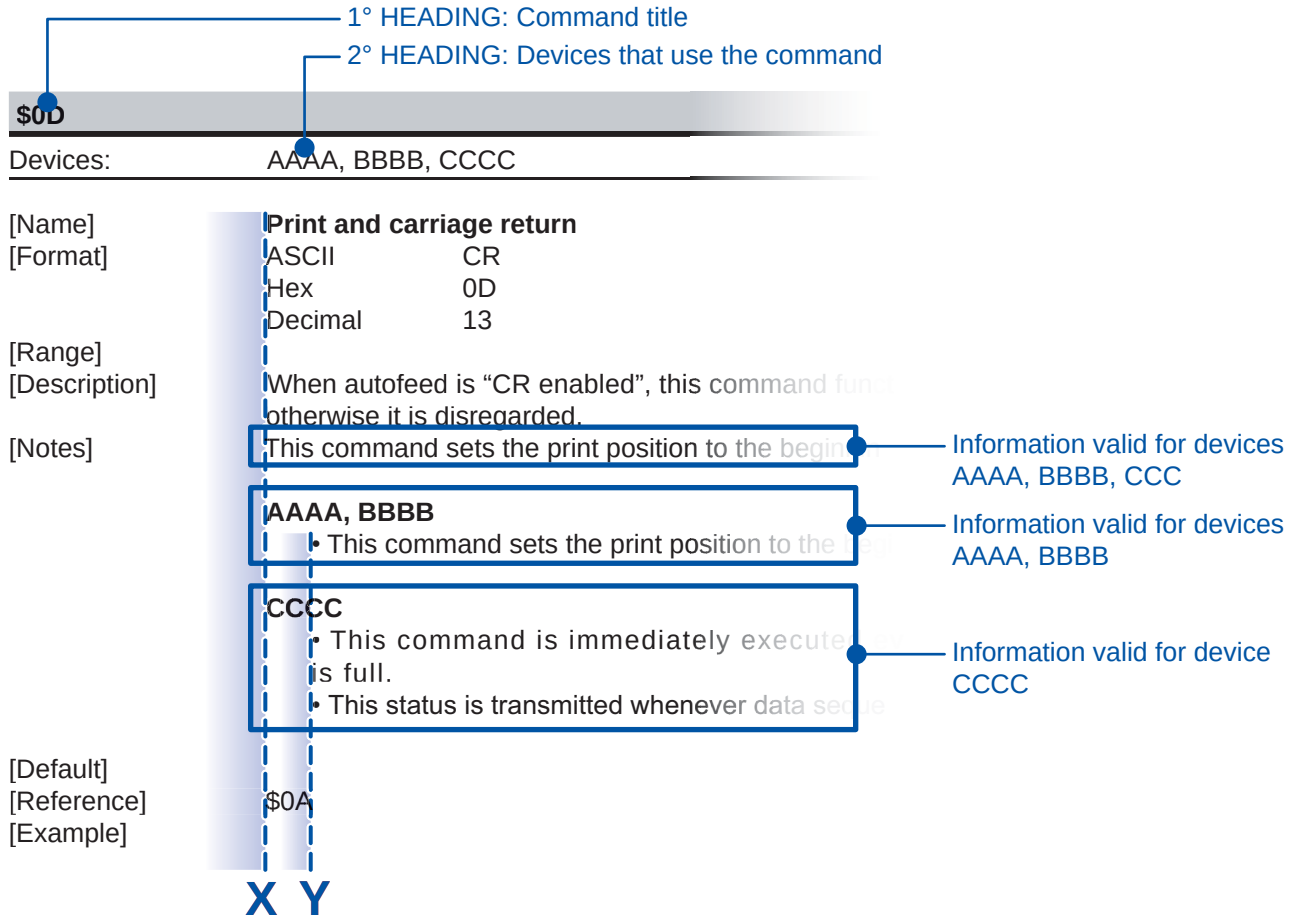
1 INTRODUCTION

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]	

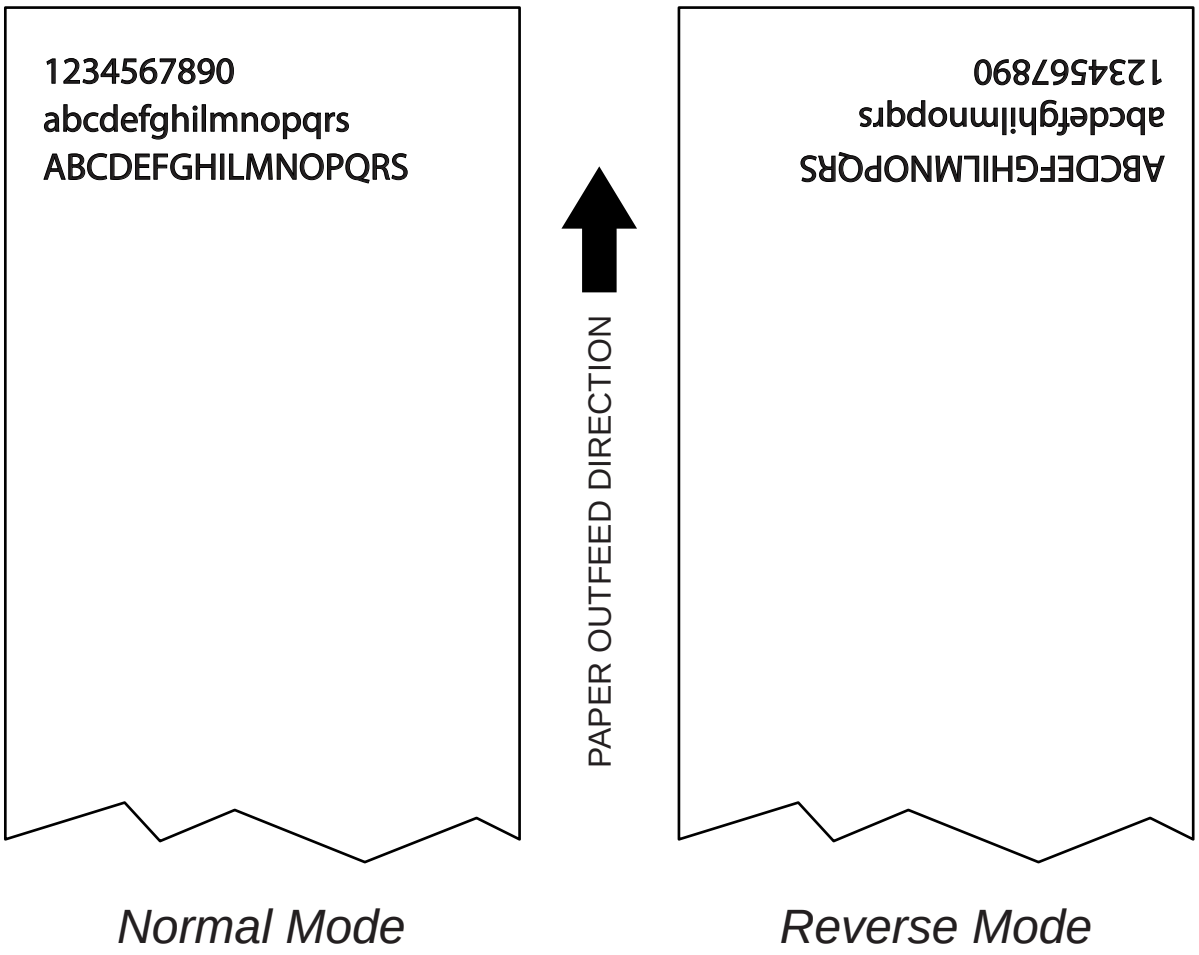


The information reported in the picture are aligned with line X or line Y:	
LINE X	Description valid for all the devices listed in the second heading line.
LINE Y	Description valid for a specific printer (written in bold).

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 ESC/POS™ EMULATION

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

COMMAND DESCRIPTION TABLE

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
$1C $65	FS e	Enable/Disable TrueType fonts encoding
$1C $66	FS f	TrueType fonts management
$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 $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
MECHANISM CONTROL COMMANDS		
$1B $69	ESC i	Total cut and paper recovery
MISCELLANEOUS COMMANDS		
$1B $40	ESC @	Initialize printer
$1B $63 $35	ESC c 5	Enable/Disable front panel keys
$1B $FF	ESC { }	Receive graphic page from communication port
$1C $3C	FS <	Change printer emulation to SVELTA
$1C $6C	FS l	Reload paper
$1C $6E	FS n	Set mass storage
$1C $90	FS { }	Get number of stored logo
$1C $91	FS { }	Get pictures header list
$1C $92	FS { }	Get pictures header info

$1C $93	FS { }	Print logo
$1C $94	FS { }	Save the image received from serial port into the flash
$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 { }	Align the ticket
$1D $F8	GS { }	Align the ticket
EJECTOR COMMANDS		
$1B $46	ESC F	Enable feedaway (dispenser continuous mode)
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: *ALL*

[Name] **Back space**
[Format] ASCII BS
Hex 08
Decimal 8
[Range]
[Description] Moves print position to previous character..
[Notes] • Can be used to put two characters at the same position.
[Default]
[Reference]
[Example]

$09

Devices: *ALL*

[Name] **Horizontal tab**
[Format] ASCII HT
Hex 09
Decimal 9
[Range]
[Description] Moves the print position to the next horizontal tab position.
[Notes] • Ignored unless the next horizontal tab position has been set..
• If the command is received when the printing position is at the right margin, the printer executes print buffer full printing and horizontal tab processing from the beginning of the next line.
• Horizontal tab positions are set using $1B $44.
[Default]
[Reference] $1B $44
[Example]

$0A

Devices: *ALL*

[Name] **Print and line feed**
[Format] ASCII LF
Hex 0A
Decimal 10
[Range]
[Description] Prints the data in the buffer and feeds one line based on the current line spacing.
[Notes] • Sets the print position to the beginning of the line.
[Default]
[Reference] $0D
[Example]

$0D

Devices: *ALL*

[Name] **Print and carriage return**
[Format] ASCII CR
Hex 0D
Decimal 13
[Description] When autofeed is “CR enabled”, this command functions in the same way as $0A, otherwise it is disregarded.
[Notes] • Sets the print position to the beginning of the line.
[Default] See “Autofeed in setup” parameter.
[Reference] $0A
[Example]

$10 $04

Devices: *ALL*

[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	Paper not present
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 *(only models with presenter and cutter)*
	On	08	8	Cutter error *(only models with presenter and cutter)*
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 *(only models with presenter and cutter)*
	On	08	8	Ejecter motor on *(only models with presenter and cutter)*
4	-	-	-	RESERVED.
5	Off	00	0	Paper present
	On	20	32	Paper not present
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	Paper virtually present (*)
	On	40	64	Virtual paper end (*).
7	Off	00	0	The notch is placed over the sensor
	On	80	128	The notch is not placed over the sensor

(*) 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	Off	00	0	Notch search ok
	On	80	128	Error in notch search

6th Byte = Unrecoverable error status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Cutter ok *(only models with presenter and cutter)*
	On	01	1	Cutter error *(only models with presenter and cutter)*
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	08	8	EEPROM error.
4	-	-	-	RESERVED.
5	-	-	-	RESERVED.
6	-	-	-	RESERVED.
7	Off	00	0	Emitter ok
	On	80	128	Emitter error

$18

Devices: *ALL*

[Name] **Cancel current line transmitted**

[Format]

ASCII	CAN
Hex	18
Decimal	24

[Range]

[Description] Deletes current line transmitted.

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

[Reference]

[Example]

$1B $0C

Devices: *ALL*

[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] $1B $4C, $1B $53

[Example]

$1B $20

Devices: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[Name] **Defines user-defined characters**

[Format]

ASCII	ESC	&	y	c1	c2
Hex	1B	26	y	c1	c2
Decimal	27	37	y	c1	c2

[Range]
y = 3
32 ≤ 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

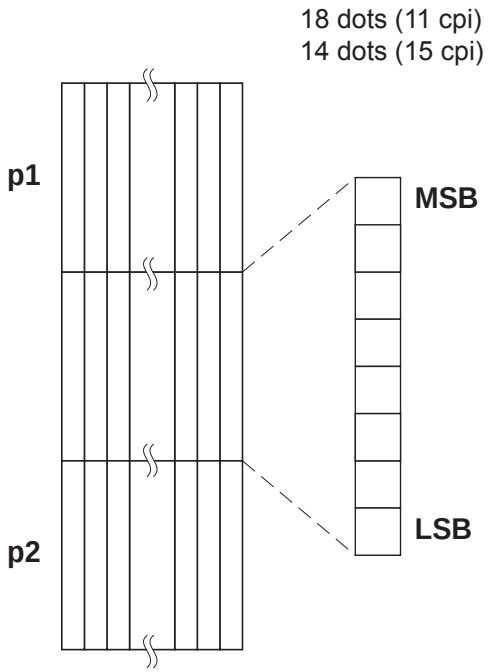
[Description]
Defines user-defined characters.
Y specifies the number of bytes in the vertical direction.
C1 specifies the beginning character code for the definition, and C2 specifies the final code.
X specifies the number of dots in the horizontal direction.

[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: *ALL*

[Name] **Set relative vertical print position**

[Format]

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

[Range]
0 ≤ 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: *ALL*

[Name] **Select image print mode**

[Format]

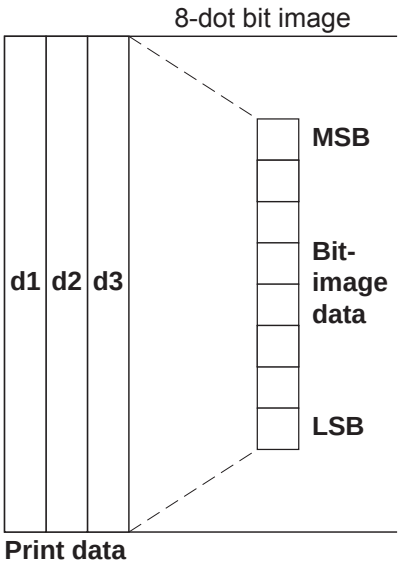
ASCII	ESC	*	m	nL	nH	d1...dk
Hex	1B	2A	m	nL	nH	d1...dk
Decimal	27	42	m	nL	nH	d1...dk

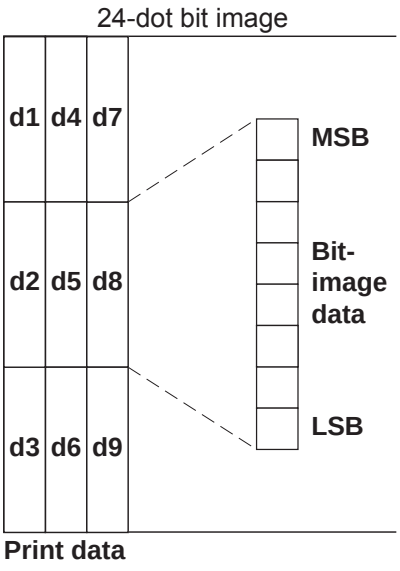
[Range]
m = 0, 1, 32, 33
0 ≤ nL ≤ 255
0 ≤ nH ≤ 3
0 ≤ d ≤ 255

[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: *ALL*

[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: *ALL*

[Name] **Select 1/8-inch line spacing**

[Format]

ASCII	ESC	2
Hex	1B	30
Decimal	27	48

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

[Notes]

[Default]

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

[Example]

$1B $32

Devices: *ALL*

[Name] **Select 1/6-inch line spacing**

[Format]

ASCII	ESC	2
Hex	1B	32
Decimal	27	50

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

[Notes]

[Default]

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

[Example]

$1B $33

Devices: *ALL*

[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: *ALL*

[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 $3F

Devices: *ALL*

[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: *ALL*

[Name] **Initialize printer**

[Format]

ASCII	ESC	@
Hex	1B	40
Decimal	27	64

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

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

[Default]

[Reference]

[Example]

$1B $44

Devices: *ALL*

[Name] **Set horizontal tab position**

[Format]

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

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

[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.
- To return to the default settings is necessary, turn off the machine or send the reset command

[Reference] $09

[Example]

$1B $45

Devices: *ALL*

[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: KPM180H *(models with presenter and cutter)*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[Name] **Select character font**

[Format]

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

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

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

CHAR /INCH	n	FUNCTION
A=11cpi 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: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

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

[Format]

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

[Range] n = 0, 1

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

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

[Notes]
- When the keys panel is disabled, the keys may only be used after the printer has been reset.

[Default] n = 0

[Reference]

[Example]

$1B $64

Devices: *ALL*

[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: KPM180H *(models with presenter and cutter)*

[Name] **Total cut and paper recovery**

[Format]

ASCII	ESC	i
Hex	1B	69
Decimal	27	105

[Range]

[Description] This command prints the data in the buffer and enables cutter operation. If there is no cutter, a disabling flag is set and any subsequent cut commands will be ignored.
The printer acts as follows:
- The ticket is fed to the distance <printing line / cutting line>.
- Is performed the full cut of the ticket.
- Ticket can be picked up
- The paper in the printer is recovered according to the distance specified by the command $1C $C1.

[Notes]

[Default]

[Reference] $1C $C1

[Example]

$1B $74

Devices: *ALL*

[Name] **Select character code table**

[Format]

ASCII	ESC	t	n
Hex	1B	74	n
Decimal	27	116	n

[Range] n = 0, 2, 3, 4, 5, 16, 17, 18, 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: *ALL*

[Name] **Transmit paper sensor status**

[Format]

ASCII	ESC	v	
Hex	1B	76	
Decimal	27	118	

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

BIT	OFF/ON	HEX	Decimal	FUNCTION
0,1	Off	00	0	Near paper-end sensor: paper present.
	On	03	3	Near paper-end sensor: paper not present.
2,3	Off	00	0	Paper-end sensor: paper present.
	On	0C	12	Paper-end sensor: paper not present.
4	-	-	-	[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: *ALL*

[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: *ALL*

[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 $FF

Devices: *ALL*

[Name] **Receive the graphic page from the communication port**

[Format]

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

[Range] 1 ≤ 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 $3C

Devices: *ALL*

[Name] **Change printer emulation to SVELTA**

[Format]

ASCII	FS	<	S	V	E	L	>
Hex	1C	3C	53	56	45	4C	3E
Decimal	28	60	83	86	69	76	62

[Range]
[Description] Change the printer emulation to SVELTA emulation.
[Notes]
[Default]
[Reference]
[Example]

$1C $65

Devices: *ALL*

[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: *ALL*

[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 $6C

Devices: *ALL*

[Name] **Reload paper**

[Format]

ASCII	FS	l	
Hex	1C	6C	
Decimal	28	108	

[Range]

[Description] When this command is received, the printer performs a paper reloading.

[Notes] During the execution of the command, the printer indicates the paper end

[Default]

[Reference]

[Example]

$1C $6E

Devices: *ALL*

[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 $90

Devices: *ALL*

[Name] **Get number of stored logo**

[Format]

ASCII	FS	{ }
Hex	1C	90
Decimal	28	144

[Range]

[Description] This command sends to the printer the request of number of stored logo; the printer returns a bytes sequence as follows : <PN*n*>
where *n* (in ASCII format) indicates the number of stored images.

[Notes]

[Default]

[Reference]

[Example] If in the flash memory are stored 10 logos send this command :

HEX	$1C	$90
ASCII	FS	{ }

The printer's answer will be :

HEX	$3C	$50	$4E	$31	$30	$3E
ASCII	<	P	N	1	0	>

$1C $91

Devices: *ALL*

[Name] **Get pictures header list**

[Format]

ASCII	FS	{ }
Hex	1C	91
Decimal	28	145

[Range]

[Description] This command requests to the printer the list of stored logo. The printer returns a bytes sequence as follows : <PL *CrLf [N-ID CrLf]*>
where:

CrLf indicates the two characters $0D (Carriage return) and $0A (Line Feed);

N is the number of stored logo;

[ID] indicates the file-name that identify the logo, a sequence of 16 bytes that was defined when the logo is stored. This field is optional because it's returned only if the logo has been found.

[Notes]

[Default]

[Reference] $1C $92, $1C $94

[Example]

$1C $92

Devices: *ALL*

[Name] **Get pictures header info**

[Format]

ASCII	FS	{ }	nH	nL
Hex	1C	92	nH	nL
Decimal	28	146	nH	nL

[Range] 0 ≤ nH, nL ≤ 255

[Description] Gets the logo header info stored specified by n.
• n is the number of stored logo;
• The printer returns a byte sequence as follows :
<PIe*[ID]*>

where:

e	indicates the search result e = 0 picture not found e = 1 picture found
[ID]	indicates the file-name that identify the logo, a sequence of 16 bytes that was defined when the logo is stored. This field is optional because it's returned only if the logo has been found.

[Notes]
[Default]
[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 $94

Devices: *ALL*

[Name] **Save the image received from serial port into the flash**

[Format]

ASCII	FS { } nH nL xDimH xDimL yDimH yDimL TbdH TbdL Id0..Idn d0..dn >
Hex	1C 94 nH nL xDimH xDimL yDimH yDimL TbdH TbdL Id0..Idn d0..dn 3E
Decimal	28 148 nH nL xDimH xDimL yDimH yDimL TbdH TbdL Id0..Idn d0..dn 62

[Range]
0 ≤ nH, nL ≤ 255,
0 ≤ xDimH, xDimL ≤ 255,
0 ≤ yDimH, yDimL ≤ 255
0 ≤ d0, dn ≤ 255

[Description]
Saves the image received from serial port into the printer flash; if the number used to store logo is not already present inside the printer, the new logo is appended to stored logos. Otherwise the new logo is updated.
• *nH* and *nL* indicates the number of logo (2 bytes expressed in hexadecimal notation).
• *xDimH* and *xDimL* indicate the logo horizontal dimension in pixel (2 bytes expressed in hexadecimal notation); the value must be multiple of 16.
• *yDimH* and *yDimL* indicates the logo vertical dimension in pixel (2 bytes expressed in hexadecimal notation).
• *TbdH* and *TbdL* 2 bytes fixed to $00 (RESERVED)
• *Id0..Idn* indicates the file-name of the logo, a sequence of 16 bytes to identify univocally the logo.
• *d0 ...dn* are the image data. The size of image is defined as follows :
xSize = xDim /16; number of WORD (16 bit) in a horizontal image line
Total Size = (xSize * yDim) *2;
• *'>' is* the character terminator (in ASCII) of this command.
The printer returns a sequence of bytes as follows :
<*PC0*> if the saving include an incorrect syntax or the memory in flash available for logos is finished (128Kbyte);
<*PC1n*> if the syntax command is correct and there's memory enough in flash for saving logos; n returns the status of the flash programming :
$88 -> sector not erased
$77 -> error during programming
$AA -> Programming done.

[Notes]
• If file-name length is shorter than 16 byte, add a terminator (0) and make padding to 16 characters.
• If file-name extension is absent, it is automatically added to the name.

[Default]

[Reference]

[Example]
The following example shows the bytes sequence received from serial port to store a logo into the printer flash :

Offset	Hexadecimal	ASCII
00000000:	1C 94 00-08 01 C0 02-49 00 00 4C-6F 67 6F 32 36	° ° ° ´ + ˆ I L o g o - 2 6
00000010:	2E 42 4D-50 00 00 00-00 00 00 00-00 00 00 00 00	.BMP
00000020:	00 00 00-00 00 00 00-00 00 00 00-00 00 00 00 00	
....		***Image data***
....		
....		
00008000:	00 00 00 00-00 00 00 00-00 00 00 00-00 00 00 00	
00008010:	00 00 3E	>

If the programming is successful, the printer's answer will be :

HEX	$3C	$50	$43	$31	$AA	$3E
ASCII	<	P	C	1	{}	>

$1C $C1

Devices: KPM180H *(models with presenter and cutter)*

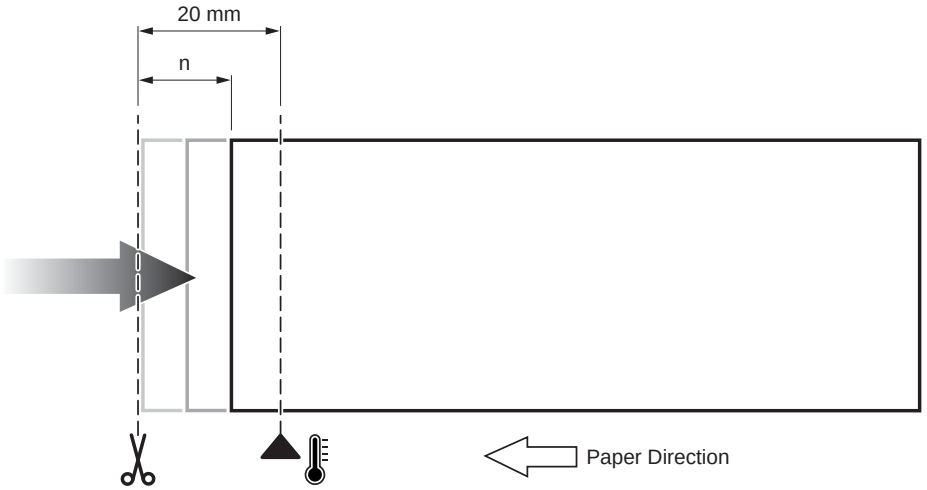
[Name] **Enable / disable the paper recovery after a cut**

[Format]

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

[Range] 0 ≤ n ≤ 19

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



0 ≤ n ≤ 19 Enable the recovery of the specified value (ex. n = 8 recovers 8mm)

[Notes] • To retract all the paper set n = 19.

[Default] n = 19

[Reference]

[Example]

$1D $21

Devices: *ALL*

[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: *ALL*

[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: *ALL*

[Name] **Define dowloaded bit image**

[Format]

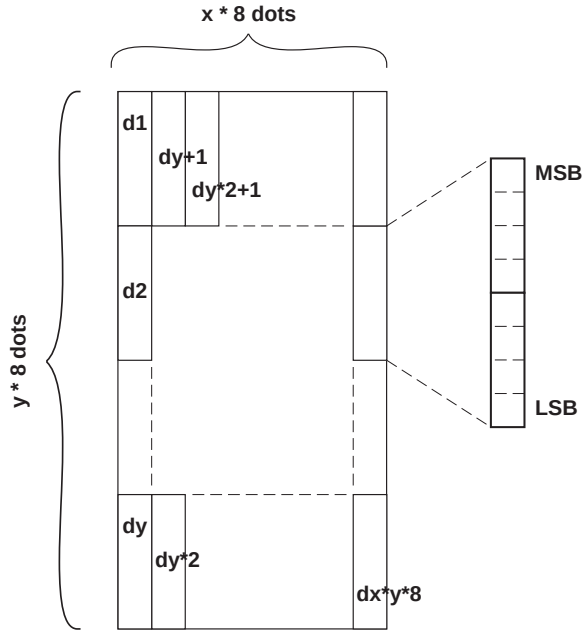
ASCII	GS	*	x	y	d1...d(x x y x 8)
Hex	1D	2A	x	y	d1...d(x x y x 8)
Decimal	29	42	x	y	d1...d(x x y x 8)

[Range] $1 \le x \le 255$, $1 \le y \le 48$
$x \times y \le 1536$, $0 \le d \le 255$

[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: *ALL*

[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: *ALL*

[Name] **Set start/end of macro definition**

[Format]

ASCII	GS	:
Hex	1D	3A
Decimal	29	58

[Range]

[Description] Starts or ends macro definition.

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

[Default]

[Reference] $1D $5E

[Example]

$1D $42

Devices: *ALL*

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

[Format]

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

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

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

[Name] **Select counter print mode**

[Format]

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

[Range] 0 ≤ 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: *ALL*

[Name] **Select count mode (A)**

[Format]

ASCII	GS	C	1	aL	aH	bL	bH	n	r
Hex	1D	43	31	aL	aH	bL	bH	n	r
Decimal	29	67	49	aL	aH	bL	bH	n	r

[Range]
0 ≤ 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: *ALL*

[Name] **Set counter**

[Format]

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

[Range] 0 ≤ 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: *ALL*

[Name] **Select count mode (B)**

[Format]

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

[Range] 0 ≤ 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:

$1D	$43	$3B	$30	$3B	$31	$30	$3B	$31	$3B	$31	$3B	$32	$3B
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
“GS”	*“C”*	*“;”*	*“0”*	*“;”*	*“1”*	*“0”*	*“;”*	*“1”*	*“;”*	*“1”*	*“;”*	*“2”*	*“;”*
			↓		↓			↓		↓		↓	
			sa	*;*	*sb*		*;*	*sn*	*;*	*sr*	*;*	*sc*	*;*

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: *ALL*

[Name] **Select printing position of Human Readable Interpretation (HRI) characters**

[Format]

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

[Range] 0 ≤ 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: *ALL*

[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 $08 (KPM180H, TK180)

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 *(only models with presenter and cutter)*
	On	02	2	Autocutter supplied *(only models with presenter and cutter)*
2	Off	00	0	Thermal paper w/o label
	On	04	4	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: *ALL*

[Name] **Set left margin**

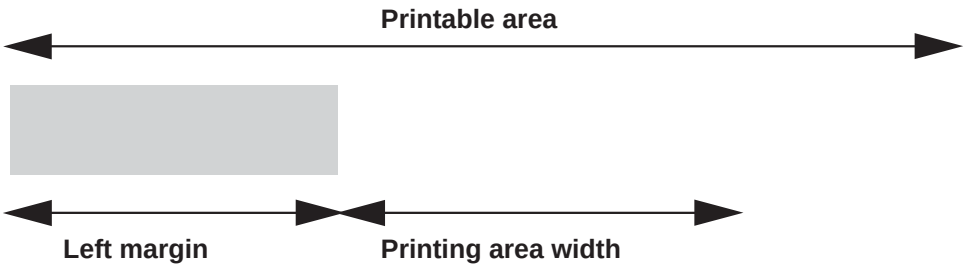
[Format]

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: *ALL*

[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

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

[Example]

$1D $57

Devices: *ALL*

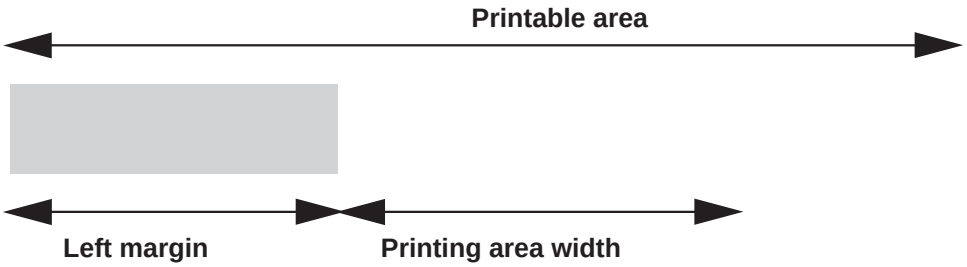
[Name] **Set printing area width**

[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: *ALL*

[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: *ALL*

[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: *ALL*

[Name] **Print counter**

[Format]

ASCII	GS	c
Hex	1D	63
Decimal	29	102

[Range]

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

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

[Default]

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

[Example]

$1D $66

Devices: *ALL*

[Name] **Select font for HRI characters**

[Format]

ASCII	GS	f	n
Hex	1D	66	n
Decimal	29	102	n

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

[Description] Selects a font for the HRI characters used when printing a bar code. n selects a font from the following table:

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

[Notes] HRI characters are printed at the position specified by $1D $48.

[Default] n = 0

[Reference] $1D $48, $1D $6B

[Example]

$1D $68

Devices: *ALL*

[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: *ALL*

[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: *ALL*

[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: *ALL*

[Name] **Print raster image**

[Format]

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

[Range]
0 ≤ 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: *ALL*

[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: *ALL*

[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] $1D $7C

[Example]

$1D $D0 (mode 2)

Devices: *ALL*

[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: *ALL*

[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: *ALL*

[Name] **Reading of length paper (cm) available before virtual paper-end**

[Format]

ASCII	GS	{ }
Hex	1D	E1
Decimal	29	225

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

[Notes]
- The 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: KPM180H *(models with presenter and cutter)*

[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: *ALL*

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

[Format]

ASCII	GS	{ }
Hex	1D	E3
Decimal	29	227

[Range]

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

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

[Default]

[Reference]

[Example]

$1D $E5

Devices: *ALL*

[Name] **Reading number of power up**

[Format]

ASCII	GS	{ }
Hex	1D	E5
Decimal	29	229

[Range]

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

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

[Default]

[Reference]

[Example]

$1D $E6

Devices: *ALL*

[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: *ALL*

[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).

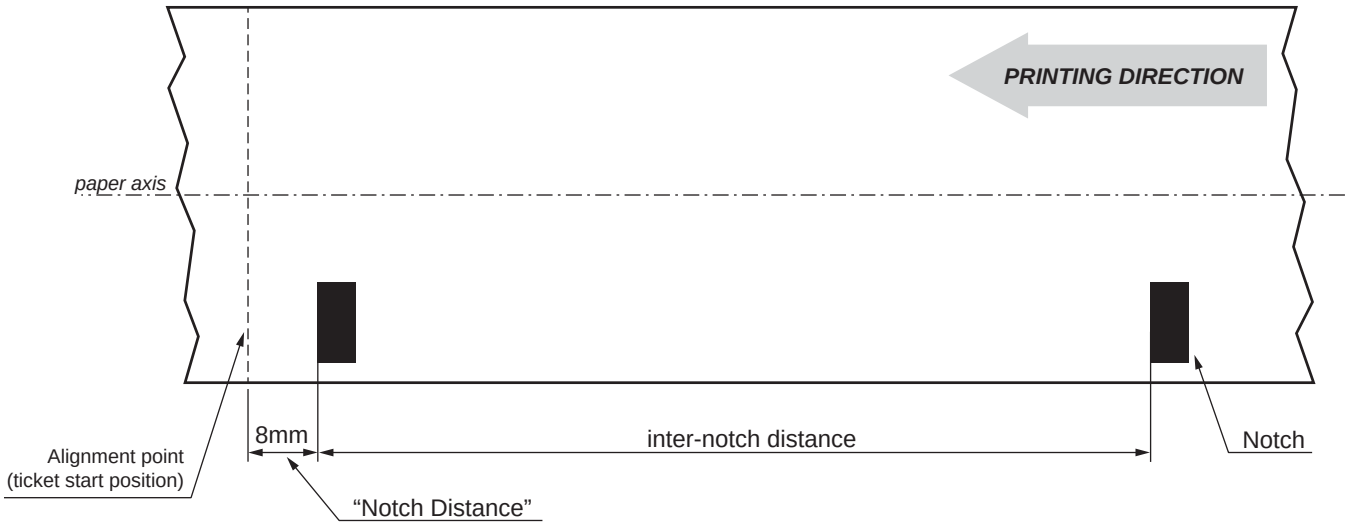
[Default] nH = $00
nL = $00

[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: *ALL*

[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: *ALL*

[Name] **Align the ticket**

[Format]

ASCII	GS	{ }
Hex	1D	F6
Decimal	29	246

[Description] This command will move the ticket into the printer to match the alignment point of the ticket with the print line. The alignment point of the ticket is generally identified by the edge of the black mark but can be set to a custom distance with respect to the black mark using the command $1D $E7 (for more information, see the examples of alignment at the end of this document). The ticket is ready to be printed.

[Notes]
- Use the command $1D $E7 to set an offset between the black mark and the print line (0 to 19 mm).
- Use this alignment command even to print more tickets without cutting.

[Default]

[Reference] $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 and recovery*

$1D $F8

Devices: *ALL*

[Name] **Align the ticket**

[Format]

ASCII	GS	{ }
Hex	1D	F8
Decimal	29	248

[Description] This command will move the ticket into the printer to match the alignment point of the ticket with the print line. The alignment point of the ticket is generally identified by the edge of the black mark but can be set to a custom distance with respect to the black mark using the command $1D $E7 (for more information, see the examples of alignment at the end of this document).
The ticket is ready to be cut.
To work properly, you must send this command just before the cut command

[Notes] • Use the command $1D $E7 to set an offset between the black mark and the cut line (0 to 19 mm).

[Default]

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

[Example]

$1D $F6	*Positioning ticket*
<print ticket>	
$1D $F8	*Align ticket*
$1B $69	*Cut and paper recovery*

3 SVELTA EMULATION

The following table lists all the commands for function management. The commands must be transmitted to the printer as command string enclosed between '<' character and '>' character.

COMMAND DESCRIPTION TABLE

Com. ASCII	Description
PRINT COMMANDS	
<p>	Printing command (cut and buffer cleaning) in reverse
<P>	Printing command (cut and buffer cleaning) in normal
<PP n, x, y, sp>	Print image in graphic page
<PR n, x, y, sp>	Print rotated image
<q>	Printing command (only buffer cleaning) in reverse
<Q>	Printing command (only buffer cleaning) in normal
CHARACTERS COMMAND	
<BS height, width>	Define area of the BOX mode
<F n>	Select the font
<HW height, width>	Set height and width of the current font
<NR>	Restore the text horizontal
<RL>	Rotate test 90° counter-clockwise
<RR>	Rotate test 90° clockwise
<RU>	Rotate test 180°
PRINT POSITION COMMANDS	
<LHTlength, width, notch, dim-notch>	Set the ticket dimension to print
<MM n>	Feed the paper of n step
<OXY x, y>	Set printing offset
<RC row, column>	Position the cursor
<T>	Get the ticket dimension to print
BIT-IMAGE COMMANDS	
<BF x1, y1, x2, y2>	Command to create filled BOX
<BV x1, y1, x2, y2>	Command to create empty BOX
<BX x1, y1, x2, y2, s, t>	Command to create parametric BOX
<CB>	Clear data in the print buffer
STATUS COMMAND	
<AFSB x>	Enable / Disable auto FULL STATUS back
<S n>	Status request
<SB x>	FULL STATUS request
BARCODE COMMANDS	
<B2D k, A, x>	Set the number of columns of two-dimensional barcode (PDF417)
<B2D k, B, x>	Set the number of rows of two-dimensional barcode (PDF417)

<B2D k, C, x>	Set the width of two-dimensional barcode (PDF417)
<B2D k, D, x>	Set the height of two-dimensional barcode (PDF417)
<B2D k, E, m, x>	Set the error correction level (PDF417)
<B2D k, P, x, d1...dn>	Store the two-dimensional barcode data in the barcode save area (PDF417)
<B2D l, A, x>	Set the height of DATAMATRIX barcode
<B2D l, B, x>	Set dot size (DATAMATRIX)
<B2D l, C, x>	Set barcode size (DATAMATRIX)
<B2D l, D, x>	Set rotation (DATAMATRIX)
<B2D l, P, x, d1...dn>	Store the two-dim. barcode data in the barcode save area (DATAMATRIX)
<B2D m, A, n>	Specify encoding scheme (AZTEC)
<B2D m, B, n>	Specify dot size (AZTEC)
<B2D m, C, n>	Specify size (AZTEC)
<B2D m, D, n>	Specify error correction level (AZTEC)
<B2D m, P, x, d0...dk>	Store the received data in the barcode save area (AZTEC)
<B2D n, A, n>	Specify encoding scheme (QRcode)
<B2D n, B, n>	Specify dot size (QRcode)
<B2D n, C, n>	Specify size (QRcode)
<B2D n, D, n>	Specify error correction level (QRcode)
<B2D n, P, x, d0...dk>	Store the received data in the barcode save area (QRcode)
<NCL x,y>	Print an horizontal code 128 barcode
<NCP x,y>	Print a vertical code 128 barcode
<NEL n>	Print horizontal EAN13 barcode
<NEP n>	Print a vertical EAN13 barcode
<NFL s>	Print horizontal ITF barcode
<NFP s>	Print a vertical ITF barcode
<NL s>	Print an horizontal code 39 barcode
<NP s>	Print a vertical code 39 barcode
<X n, M>	Define the barcode lines dimension
MISCELLANEOUS COMMANDS	
<BMP>	Save a bitmap into flash disk
<EPOS>	Change printer emulation to ESC/ POS
<KEYS x>	Enable/Disable keys panel
<LOAD>	Reload paper
<SVEL>	Change printer emulation to SVELTA
TICKET MANAGEMENT COMMANDS	
<BA n>	Change the ticket print intensity
<SP n>	Change speed
LOGOS MANAGEMENT COMMANDS	
<PC HexNumLogo HexXDim HexY-Dim HexTBD Id HexData>	Save the image in flash
<PE n>	Delete image
<PI n>	Get picture header info

<PL>	Get picture header list
<PN>	Get number of stored logo
TRUE TYPE FONTS MANAGEMENT COMMANDS	
<F:bold>	Set bold mode
<F:clear>	Uninstall all TrueType fonts from printer
<F:draw:n>	Set drawing mode
<F:enc:ascii>	Set ASCII encoding
<F:enc:utf-8>	Set UTF-8 encoding
<F:enc:utf-16>	Set UTF-16 encoding
<F:err:n>	Get error
<F:*filename.ttf*>	Install new font
<F:italic>	Set italic mode
<F:regular>	Set regular mode
<F:rotate:aa>	Set font angle rotation
<F:size:nn>	Set font dimension

Given below are more detailed descriptions of each command.

<AFSB x>

Devices: *ALL*

[Name] **Enable / Disable auto FULL STATUS back**
[Format]
[Range]
[Description] This command enables the automatic sending of a response to the change of a state. x represents the bitmask according to the table described in the command <SB x>.
[Notes]
[Default]
[Reference] <SB x>
[Example]

<B2D k, A, x>

Devices: *ALL*

[Name] **Set the number of columns of two-dimensional barcode PDF417**
[Format] ASCII <B2D k, A, x>
[Range] 0 ≤ x ≤ 30
[Description] Set the number of columns of PDF417 barcode.
- *x* = 0 specifies auto processing
- When x is not 0, specifies the number of columns of the data area as x code word.

[Notes]
- When auto processing (x = 0) is specified, the maximum number of columns in the data area is 30 columns.

[Default] x = 0
[Reference]
[Example]

<B2D k, B, x>

Devices: *ALL*

[Name] **Set the number of rows of two-dimensional PDF417 barcode**
[Format] ASCII <B2D k, B, x>
[Range] 3 ≤ x ≤ 90
[Description] Set the number of rows of PDF417 barcode.
- x specifies the number of rows of the data area as x rows.

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

<B2D k, C, x>

Devices: *ALL*

[Name] **Set the width of a module of two-dimensional barcode PDF417**
[Format] ASCII <B2D k, C, x>
[Range] 2 ≤ x ≤ 8
[Description] Set the width of a module of PDF417 barcode.
[Notes]
[Default] x = 3
[Reference]
[Example]

<B2D k, D, x>

Devices: *ALL*

[Name] **Set the height of two-dimensional barcode PDF417**
[Format] ASCII <B2D k, D, x>
[Range] 2 ≤ x ≤ 8
[Description] Set the height of PDF417 barcode.
[Notes]
[Default] x = 3
[Reference]
[Example]

<B2D k, E, m, x>

Devices: *ALL*

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

[Format] ASCII <B2D k, E, m, x>

[Range] m = 0, 1

m = 0 0 ≤ x ≤ 8

m = 1 1 ≤ x ≤ 40

[Description] Set the error correction level of PDF417 barcode.

- The error correction level is specified by "level" when m = 0.
- The error correction level is specified by "ratio" when m = 1 [x × 10%].

[Notes]

- Error correction level is specified by either "level" or "ratio".
- Error correction level specified by "level" (m = 0) is as follows. The number of the error correction code word is fixed regardless of the number of code words on the data area.

x	FUNCTION	N. OF ERROR CORRECTION CODE WORD
0	Error correction level 0	2
1	Error correction level 1	4
2	Error correction level 2	8
3	Error correction level 3	16
4	Error correction level 4	32
5	Error correction level 5	64
6	Error correction level 6	128
7	Error correction level 7	256
8	Error correction level 8	512

- Error correction level specified by "ratio" (m = 1) is as follows. The error correction level is defined by the calculated value [number of data code word × x × 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 or more	Error correction level 8	512

- The error correction code word calculated by modulus 929.

[Default] m = 1, x = 1 [ratio: 10%]

[Reference]

[Example]

<B2D k, P, x, d1...dn>

Devices: *ALL*

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

[Format] ASCII <B2D k, P, x, d1...dn>

[Range]

[Description] Store the PDF417 barcode data (d1...dn) in the barcode save area.
- x = number of characters (= dn)
- d1...dn = barcode data

[Notes]
- n bytes of d1...dn 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...dn because they are added automatically by the printer.

[Default]

[Reference]

[Example]

<B2D l, A, x>

Devices: *ALL*

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

[Format] ASCII <B2D l, A, x>

[Range] 0 ≤ x ≤ 6

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

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

[Notes]

[Default]

[Reference]

[Example]

<B2D I, B, x>

Devices: *ALL*

[Name] **Set dot size of the module of the DATAMATRIX barcode**
[Format] ASCII <B2D I, B, x>
[Range] 2 ≤ x ≤ 24
[Description] Set dot size of the module of DATAMATRIX barcode.
x = dot dimension.
[Notes]
[Default] x = 6
[Reference]
[Example]

<B2D I, C, x>

Devices: *ALL*

[Name] **Set size of the DATAMATRIX barcode**
[Format] ASCII <B2D I, C, x>
[Range] 1 ≤ x ≤ 29
[Description] Set the size specified by x as follows:

x	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

x	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]
[Default] DmtxSymbolSquareAuto
[Reference]
[Example]

<B2D l, D, x>

Devices: *ALL*

[Name] **Set rotation of the DATAMATRIX barcode**
[Format] ASCII <B2D l, D, x>
[Range] x = 0, 1
[Description] Set rotation by x as follows:

n	ROTATION
0	No rotation
1	Rotation

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

<B2D l, P, x, d1...dn>

Devices: *ALL*

[Name] **Store the two-dimensional DATAMATRIX barcode data in the barcode save area**
[Format] ASCII <B2D l, P, x, d1...dn>
[Range]
[Description] Store the DATAMATRIX barcode data (d1...dn) in the barcode save area.
- x = number of characters (= dn)
- d1...dn = barcode data

[Notes]
- n bytes of d1...dn 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...dn because they are added automatically by the printer.

[Default]
[Reference]
[Example]

<B2D m, A, n>

Devices: *ALL*

[Name] **Specify encoding scheme of AZTEC barcode**
[Format] ASCII <B2D m, A, n>
[Range] 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.
- Aztec Rune (Compact Aztec Code, sometimes called Small Aztec Code): Encode all numbers from 0 to 9 up to a maximum lenght of 3 numbers.

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

<B2D m, B, n>

Devices: *ALL*

[Name] **Specify dot size of the module of the AZTEC barcode**
[Format] ASCII <B2D, m, B, n>
[Range] 2 ≤ n ≤ 24
[Description] Specifies numbers of dot for each pixel of AZTEC barcode.
[Notes]
[Default] n = 0
[Reference]
[Example]

<B2D m, C, n>

Devices: *ALL*

[Name] **Specify AZTEC barcode size**
[Format] ASCII <B2D m, C, n>
[Range] 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]
[Default] n = 0
[Reference]
[Example]

<B2D m, D, n>

Devices: *ALL*

[Name] **Specify the error correction level of the AZTEC barcode**
[Format] ASCII <B2D m, D, n>
[Range] 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 barcodesize and error correction capacity for the same barcode. If both options are selected then the error correction capacity selection will be ignored.

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

<B2D m, P, n, d0...dk>

Devices: *ALL*

[Name] **Store and prints the AZTEC barcode data in the barcode save area**
[Format] ASCII <B2D m, P, n, d0...dk> <P>
[Range] n = n bytes of data
[Description] Store the AZTEC barcode data (d0...dk) in the barcode save area.
• k bytes of d0...dk are processed as barcode data.
• Specify only the data code word of the barcode with this function.

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

<B2D n, A, n>

Devices: *ALL*

[Name] **Specify encoding scheme of QRcode barcode**
[Format] ASCII <B2D n, A, n>
[Range] 0 ≤ n ≤ 1
[Description] Specifies encoding type of AZTEC 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.
- 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]

<B2D n, B, n>

Devices: *ALL*

[Name] **Specify dot size of the module of the QRcode barcode**
[Format] ASCII <B2D, n, B, n>
[Range] 2 ≤ n ≤ 24
[Description] Specifies numbers of dot for each pixel of the module of the QRcode barcode.
[Notes]
[Default] n = 0
[Reference]
[Example]

<B2D n, C, n>

Devices: *ALL*

[Name] **Specify QRcode barcode size**
[Format] ASCII <B2D n, C, n>
[Range] 0 ≤ n ≤ 40
[Description] Specifies QRcode barcode format (rows and columns), 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]
[Default] n = 0
[Reference]
[Example]

<B2D n, D, n>

Devices: *ALL*

[Name] **Specify the error correction level of the QRcode barcode**
[Format] ASCII <B2D n, D, n>
[Range] 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]
[Default] n = 0
[Reference]
[Example]

<B2D n, P, n, d0...dk>

Devices: *ALL*

[Name] **Store and prints the QRcode barcode data in the barcode save area**
[Format] ASCII <B2D n, P, n, d0...dk> <P>
[Range] n = n bytes of data
[Description] Store the QRcode barcode data (d0...dk) in the barcode save area.
- k bytes of d0...dk are processed as barcode data.
- Specify only the data code word of the barcode with this function.

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

<BA> n

Devices: *ALL*

[Name] **Change the ticket print intensity**
[Format] ASCII <BA n>
[Range]
[Description] Changes the ticket print intensity where n indicates the print mode. The possible values of n are as follows :

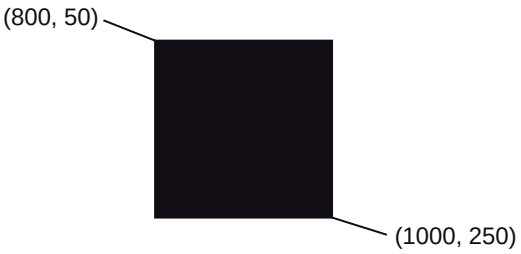
n	PRINT MODE
0	Black/white printing at 100% of maximum intensity
8	Black/white printing at 50% of maximum intensity
16	Black/white printing at 25% of maximum intensity
24	Black/white printing at 12% of maximum intensity
32	Black/white printing at 7% of maximum intensity
40	Black/white printing at 5% of maximum intensity

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

<BF x1 y1, x2, y2>

Devices: *ALL*

[Name] **Command to create filled Box**
[Format] ASCII <BF x1,y1,x2,y2>
[Range]
[Description] Create a filled box on the basis of x1, y1, x2, y2 coordinates where :
x1 -> minimum horizontal coordinate
y1 -> minimum vertical coordinate
x2 -> maximum horizontal coordinate
y2 -> maximum vertical coordinate
[Notes] • If the coordinates are reversed, the printer automatically turns the points to create in any case the box.
• If the x2 is greater than the maximum horizontal width of graphic page, the box is drawn using the maximum width as last point.
• If the y2 is greater than the maximum length of graphic page defined by <LHT...> command, the box is drawn using the maximum length (defined by this command) as last point.
[Default]
[Reference] <OXY x, y>
[Example] Ticket example that use a filled box
<CB><BA8>
<BF800,50,1000,250>
<q>



<BMP>

Devices: *ALL*

[Name] **Save a bitmap into flash disk**
[Format] ASCII <BMP>
[Range]
[Description] When this command is received, a bitmap with an image of the printing ticket is saved into “Prt-Ticket” folder on flash disk.
[Notes] The bitmap file name consists of data and time of ticket print.
[Default]
[Reference]
[Example]

<BS height, width>

Devices: *ALL*

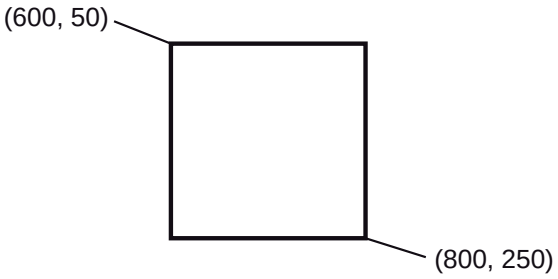
[Name] **Define area for the box mode**
[Format] ASCII <BS height, width>
[Range]
[Description] Defines the area where position a character. If the box dimensions are bigger than the font, then the empty spaces are filled with white spaces, whereas if the box dimensions are smaller than the font, then the font is cutted.
[Notes] • To disable the Box Size set height and width parameters to 0 (<BS0,0>).
• This command is not active with TrueType fonts.
[Default]
[Reference]
[Example]

<BV x1, y1, x2, y2>

Devices: *ALL*

[Name] **Command to create empty Box**
[Format] ASCII <BF x1,y1,x2,y2>
[Range]
[Description] Create an empty box on the basis of x1, y1, x2, y2 coordinates where :
x1 -> minimum horizontal coordinate
y1 -> minimum vertical coordinate
x2 -> maximum horizontal coordinate
y2 -> maximum vertical coordinate
[Notes] • The box border is fixed to 1mm (8 dots)
• If the coordinates are reversed, the printer automatically turns the points to create in any case the box.
• If the x2 is greater than the maximum horizontal width of graphic page, the box is drawn using the maximum width as last point.
• If the y2 is greater than the maximum length of graphic page defined by <LHT...> command, the box is drawn using the maximum length (defined by this command) as last point.

[Default]
[Reference] <OXY x, y>
[Example] Ticket example that use an empty box
<CB><BA8>
<BV600,50,800,250>



<BX x1, y1, x2, y2, s, t>

Devices: *ALL*

[Name] **Command to create parametric Box**
[Format] ASCII <BX x1,y1,x2,y2, s, t >
[Range]

[Description] Create a box defined by the following parameters where :
x1 -> minimum horizontal coordinate
y1 -> minimum vertical coordinate
x2 -> maximum horizontal coordinate
y2 -> maximum vertical coordinate
s -> border thickness in dot (8 dot = 1mm)s ≤ 255
t -> Fill mode 0 ≤ t ≤ 9

t	FILL MODE
0	Deletes area
1	Fills area
2..8	Fills area with specific pattern
9	The area leaves unchanged (only for rectangle border)

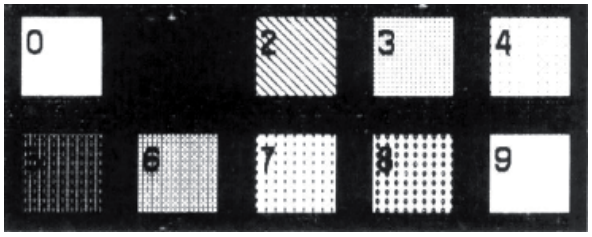
[Notes]
• If t > 9 the fill mode is set to 9
• If the coordinates are reversed, the printer automatically turns the points to create in any case the box.
• If the x2 is greater than the maximum horizontal width of graphic page, the box is drawn using the maximum width as last point.
• If the y2 is greater than the maximum length of graphic page defined by <LHT...> command, the box is drawn using the maximum length (defined by this command) as last point.
• If the defined thickness is greater than the half of box width, then the thickness is set to the half of box width to print (filled box).
• This command is not active with TrueType fonts.

[Default]
[Reference] <OXY x, y>
[Example]

Command sequence to generate a demo ticket with differents kinds of box

```
<CB><BA8><BS0,0>
<NR>
<BX200,100,300,200,16,0><RC120,220><F3><HW1,1>0
<BX300,100,400,200,16,1><RC120,320><F3><HW1,1>1
<BX400,100,500,200,16,2><RC120,420><F3><HW1,1>2
<BX500,100,600,200,16,3><RC120,520><F3><HW1,1>3
<BX600,100,700,200,16,4><RC120,620><F3><HW1,1>4
<BX200,200,300,300,16,5><RC220,220><F3><HW1,1>5
<BX300,200,400,300,16,6><RC220,320><F3><HW1,1>6
<BX400,200,500,300,16,7><RC220,420><F3><HW1,1>7
<BX500,200,600,300,16,8><RC220,520><F3><HW1,1>8
<BX600,200,700,300,16,9><RC220,620><F3><HW1,1>9
<q>
```

Example of what will be printed on ticket



<CB>

Devices: *ALL*

[Name] **Clear data in the print buffer**
[Format] ASCII <CB>
[Range]
[Description] Clear data in the print buffer, move the cursor to column 0, row 0, resets the text rotation, set the deault font as current and disables the Box Size function during the character writing.
[Notes]
[Default]
[Reference]
[Example]

<EPOS>

Devices: *ALL*

[Name] **Change printer emulation to ESC/ POS**
[Format] ASCII <EPOS>
[Range]
[Description] Set the ESC/ POS emulation.
[Notes]
[Default]
[Reference]
[Example]

<F:bold>

Devices: *ALL*

[Name] **Set bold mode**
[Format] ASCII <F:bold>
[Range]
[Description] Set the bold printing mode
[Notes] This command is active only with TrueType fonts.
[Default]
[Reference]
[Example]

<F:clear>

Devices: *ALL*

[Name] **Uninstall all TrueType fonts from printer**
[Format] ASCII <F:clear>
[Range]
[Description] Clear the installation memory by uninstalling TrueType fonts
[Notes]
- This command is active only with TrueType fonts.
- Use <F:err:n> command to verify the outcome of this command.

[Default]
[Reference] <F:err:n>
[Example]

<F:draw:n>

Devices: *ALL*

[Name] **Set drawing mode**
[Format] ASCII <F:draw:n>
[Range] n = ’0’, ‘1’, ‘2’
[Description] Set drawing mode functioning with following n values:

n = ‘0’ OR mode
n = ‘1’ XOR mode
n = ‘2’ AND mode

[Notes] This command is active only with TrueType fonts.
[Default] n = '0'
[Reference]
[Example]

<F:enc:ascii>

Devices: *ALL*

[Name] **Set ASCII encoding**
[Format] ASCII <F:enc:ascii>
[Range]
[Description] Set default encoding (ASCII) for TrueType fonts
[Notes] This command is active only with TrueType fonts.
[Default]
[Reference]
[Example]

<F:enc:utf-8>

Devices: *ALL*

[Name] **Set UTF-8 encoding**
[Format] ASCII <F:enc:utf-8>
[Range]
[Description] Set UTF-8 encoding for TrueType fonts
[Notes]
- This command is active only with TrueType fonts.
- The character's addressing respects the UNICODE™ standard (see www.unicode.org).

[Default]
[Reference]
[Example]

<F:enc:utf-16>

Devices: *ALL*

[Name] **Set UTF-16 encoding**
[Format] ASCII <F:enc:utf-16>
[Range]
[Description] Set UTF-16 encoding for TrueType fonts
[Notes]
- This command is active only with TrueType fonts.
- The character's addressing respects the UNICODE™ standard (see www.unicode.org).

[Default]
[Reference]
[Example]

<F:err:n>

Devices: *ALL*

[Name] **Get error**

[Format] ASCII <F:err:n>

[Range] n = ’0’, ‘1’

[Description] Get the last error functioning with n, where

n = ‘0’ Get last error

n = ‘1’ Get last error + internal error code

• If n = 0 the answer is the following:

<F : err : k>

where:

k = specify the errore code as follows:

k	ERROR TYPE	ERROR DESCRIPTION
0	NO ERR	No error
1	INVALID PATH	Path of the file not valid
2	FILE NOT FOUND	File not found
3	FILE ERROR	Error opening file, generic error of the file, file type incorrect
4	OUT OF MEMORY	Out of memory error
5	INTERNAL ERROR	Internal error

• If n = 1 the answer is the following:

<F : err : k - m>

where:

k = specify the code error as shown in the previous table.

m = specify the internal error code, in hexadecimal format (from $00 to $FF). For the list of internal error codes, contact technical support.

[Notes]
- Use this command to know if an error occurs during the execution of commands for TrueType fonts management (as <F:filename.ttf> or <F:clear>).
- This command is active only with TrueType fonts.

[Default]

[Reference]

[Example]

<F:*filename.ttf*>

Devices: *ALL*

[Name] **Install new font**

[Format] ASCII <F:*filename.ttf*>

[Range]

[Description] Install a new TrueType font.

[Notes]
- This command is active only with TrueType fonts.
- Use <F:err:n> command to verify the outcome of this command.

[Default]

[Reference] <F:err:n>

[Example]

<F:italic>

Devices: *ALL*

[Name] **Set italic mode**
[Format] ASCII <F:italic>
[Range]
[Description] Set the italic printing mode
[Notes] This command is active only with TrueType fonts.
[Default]
[Reference]
[Example]

<F n>

Devices: *ALL*

[Name] **Select the font**
[Format] ASCII <F n>
[Range]
[Description] Selects the current font where n indicates the font to use.
[Notes]
[Default]
[Reference]
[Example]

<F:regular>

Devices: *ALL*

[Name] **Set regular mode**
[Format] ASCII <F:regular>
[Range]
[Description] Set the regular printing mode
[Notes] This command is active only with TrueType fonts.
[Default]
[Reference]
[Example]

<F:rotate:aa>

Devices: *ALL*

[Name] **Set rotation angle for TrueType font**
[Format] ASCII <F:rotate:aa>
[Range] 0 ≤ aa ≤ 360
[Description] Set rotation angle for TrueType font, functioning with aa.
[Notes]
- This command is active only with TrueType fonts.
- For TrueType fonts, it is also possible to use the commands for standard angles of rotation (<NR>, <RR>, <RL>, <RU>).

[Default] aa = 0
[Reference] <NR>, <RR>, <RL>, <RU>
[Example]

<F:size:nn>

Devices: *ALL*

[Name] **Set font dimension**
[Format] ASCII <F:size:nn>
[Range]
[Description] Set font dimension functioning with n.
[Notes]
- The size is not expressed in pixels but in points
- This command is active only with TrueType fonts.

[Default] 10 points
[Reference]
[Example]

<HW height, width>

Devices: *ALL*

[Name] **Set height and width of the current font**
[Format] ASCII <HW height, widht>
[Range]
[Description] Modifies the height and width of the current font where height and width are the multiplier coefficients of heigth and width of how enlarge the font.Both values can be:

1: Font dimension ×1
2: Font dimension ×2
3: Font dimension ×3
4: Font dimension ×4
5: Font dimension ×5
6: Font dimension ×6
7: Font dimension ×7
8: Font dimension ×8

[Notes] The command is ignored if height or width has different value from that reported above.
[Default]
[Reference]
[Example]

<KEYS x>

Devices: *ALL*

[Name] **Enable/Disable keys panel**
[Format] ASCII <KEYS x>
[Range] x = 0, 1
[Description] Enables / disables the keys panel.
- When x = 0, the keys panel is disabled.
- When x = 1, the keys panel is enabled.

[Notes]
- When the keys panel is disabled, the keys may only be used after the printer has been reset.

[Default] x = 1
[Reference]
[Example]

<LHT length, height, notch, dimnotch>

Devices: *ALL*

[Name] **Set ticket dimension to print**

[Format] ASCII <LHT *length, height, notch, dimnotch*>

[Range]

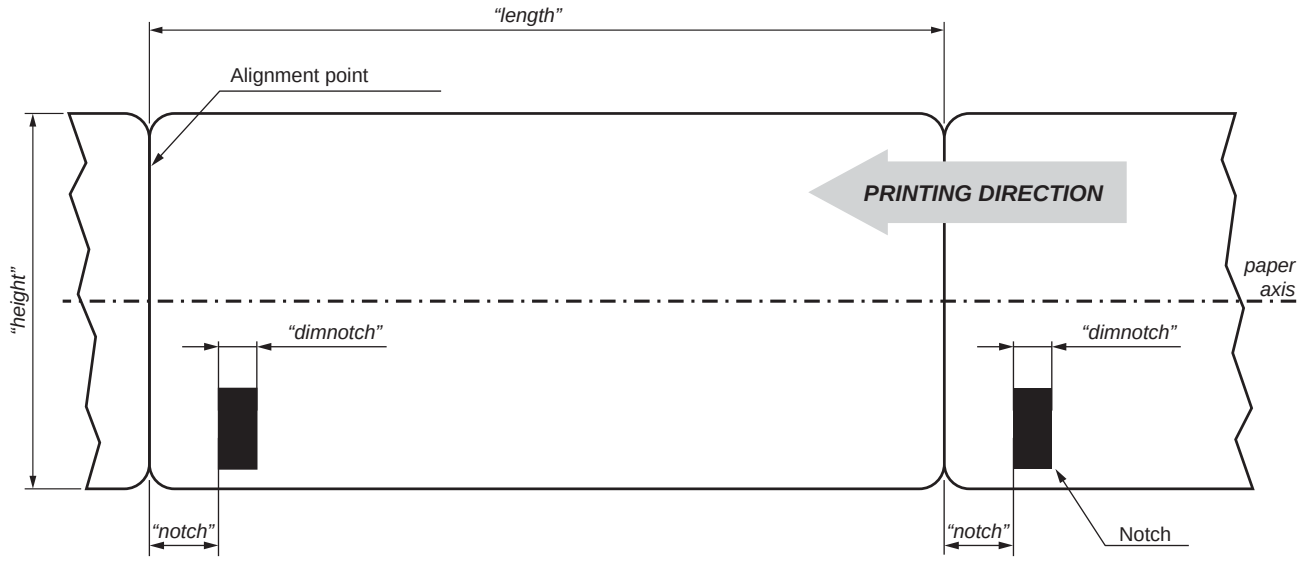
[Description] Sets the ticket dimension to print in the following mode:
lenght is the ticket length (in dot);
height is the ticket height (in dot);
notch is the distance (in dot) between the ticket upper edge and strobe backside preprinted black mark;
dimnotch is the notch dimension (in dot).

[Notes]
- If using the point (.) character as decimal separator instead of commas then the passed value are stored in nonvolatile memory.
- The parameters are 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 parameters defined by this command are the same that can be set by modifing the same parameters of the "Setup.ini" file (see User Manual for further explanation).
- 1mm = 8 dot.

[Default]

[Reference]

[Example] The following image shows a ticket with the parameters set by this command:



<LOAD>

Devices: *ALL*

[Name] **Reload paper**
[Format] ASCII <LOAD>
[Range]
[Description] When this command is received, the printer performs a paper reloading.
[Notes] • This command is valid only if alignment is enabled.
• During the execution of the command, the printer indicates the paper end.
[Default]
[Reference]
[Example]

<MM n>

Devices: *ALL*

[Name] **Feed the paper of n step**
[Format] ASCII <MM n>
[Range]
[Description] When this command is received, the paper feed of n STEP.
[Notes] 1 STEP = 0,125 mm (1/8 mm)
[Default]
[Reference]
[Example]

<NCL x,y>Data

Devices: *ALL*

[Name] **Print horizontal CODE 128 barcode**
[Format] ASCII <NCL x, y>Data
[Range]
[Description] Print a CODE 128 barcode type in horizontal, where:
x = barcode height in millimetres;
y = byte number of the string to encode.
[Notes] • The top part of the bar code data string must be a code set selection character (CODE A, CODE B or CODE C) which selects the first code set.
• Special characters are defined by combining two characters "{" and one character. ASCII character "{" is defined by transmitting "{" twice, consecutively.

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

[Default]
[Reference]
[Example] code A : <RC10,300><NCL15,9>{A3456789
code B: <RC10,300><NCL15,9>{B3456789
code C : <RC10,300><NCL15,9>{C3456789

<NCP x,y>Data

Devices: *ALL*

[Name] **Print vertical CODE 128 barcode**
[Format] ASCII <NCP x, y>Data
[Range]
[Description] Print a CODE 128 barcode type in vertical, where:
x = barcode height in millimetres;
y = byte number of the string to encode.
[Notes] • The top part of the bar code data string must be a code set selection character (CODE A, CODE B or CODE C) which selects the first code set.
• Special characters are defined by combining two characters "{" and one character. ASCII character "{" is defined by transmitting "{" twice, consecutively.

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

[Default]
[Reference]
[Example] code A : <RC10,300><NCP15,9>{A3456789
code B : <RC10,300><NCP15,9>{B3456789
code C : <RC10,300><NCP15,9>{C3456789

<NEL n> *Data*

Devices: *ALL*

[Name] **Print horizontal EAN13 barbode**
[Format] ASCII <NEL n> *Data*
[Range]
[Description] Print an EAN13 barcode type in horizontal.
The n parameter indicates the barcode height in millimetres.
The Data parameter contains the data to convert, with start and stop characters of barcode.
[Notes] The "*" star character is the start and the stop character of the barcode.
[Default]
[Reference]
[Example] <X2,L>
<RC220,20><NEL10>*123456789012*

<NEP n> *Data*

Devices: *ALL*

[Name] **Print vertical EAN13 barcode**
[Format] ASCII <NEP n>*Data*
[Range]
[Description] Print an EAN13 barcode type in vertical.
The n parameter indicates the barcode height in millimetres.
The Data parameter contains the data to convert, with start and stop characters of barcode.
[Notes] The "*" star character is the start and the stop character of the barcode.
[Default]
[Reference]
[Example] <X2,L>
<RC20,10><NEP10>*123456789012*

<NFL s> *Data*

Devices: *ALL*

[Name] **Print horizontal ITF barbode**
[Format] ASCII <NFL s> *Data*
[Range]
[Description] Print an ITF barcode type in horizontal. The s parameter indicates the barcode height in millimetres. The Data parameter contains the data to convert, with start and stop characters of barcode.
[Notes] The "*" star character is the start and the stop character of the barcode.
[Default]
[Reference]
[Example] <X2,L>
<RC220,20><NFL10>*123456*

<NFP s> *Data*

Devices: *ALL*

[Name] **Print vertical ITF barcode**
[Format] ASCII <NFP s>*Data*
[Range]
[Description] Print an ITF barcode type in vertical. The s parameter indicates the barcode height in millimetres. The Data parameter contains the data to convert, with start and stop characters of barcode.
[Notes] The "*" star character is the start and the stop character of the barcode.
[Default]
[Reference]
[Example] <X2,L>
<RC20,10><NFP10>*123456*

<NL s> *Data*

Devices: *ALL*

[Name] **Print an horizontal CODE 39 barcode**
[Format] ASCII <NL s>*Data*
[Range]
[Description] Print a CODE 39 barcode type in horizontal. The s parameter indicates the barcode height in millimetres. The Data parameter contains the data to convert, with start and stop characters of barcode.
[Notes] The "*" star character is the start and the stop character of the barcode.
[Default]
[Reference]
[Example] <X2,L>
<RC220,120><NL10>*123456*

<NP s> *Data*

Devices: *ALL*

[Name] **Print a vertical CODE 39 barcode**
[Format] ASCII <NP s> *Data*
[Range]
[Description] Print a CODE 39 barcode type in vertical. The s parameter indicates the barcode height in millimetres. The Data parameter contains the data to convert, with start and stop characters of barcode.
[Notes] The "*" star character is the start and the stop character of the barcode.
[Default]
[Reference]
[Example] <X2,L>
<RC120,10><NP10>*123456*

<NR>

Devices: *ALL*

[Name] **Restore the text in horizontal**
[Format] ASCII <NR>
[Range]
[Description] Restore the text in horizontal, without rotation.
[Notes]
[Default]
[Reference] <F:rotate:aa>
[Example]

<OXY x, y>

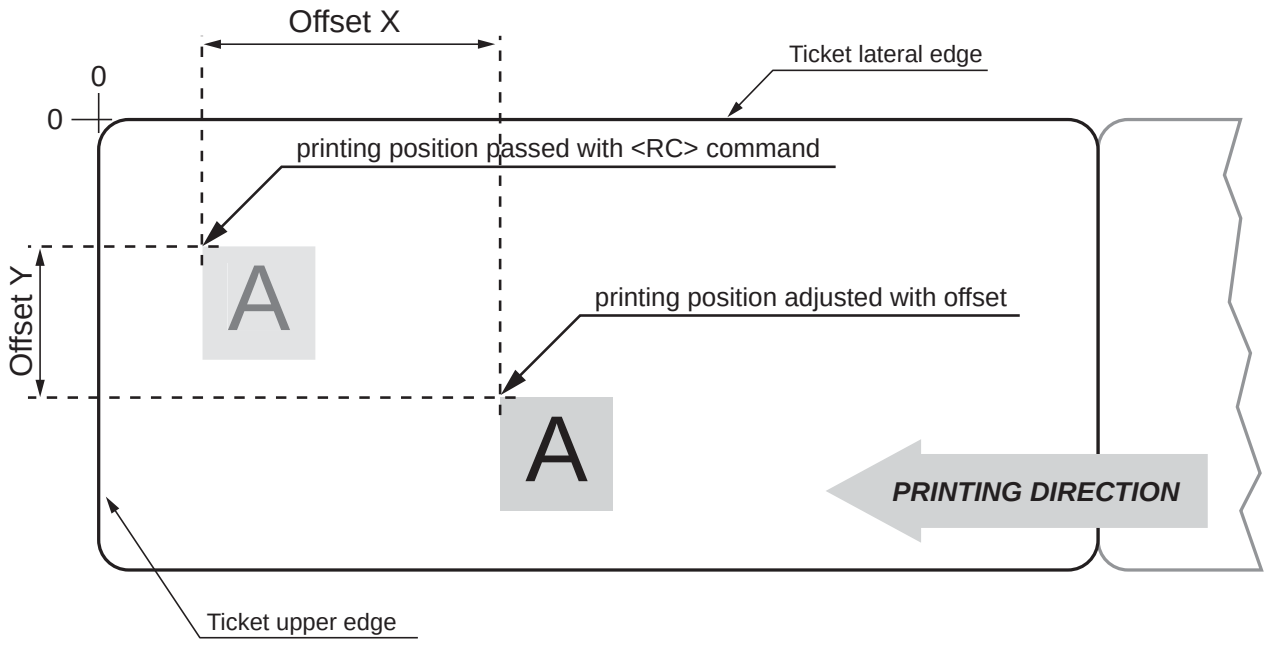
Devices: *ALL*

[Name] **Set printing offset**
[Format] ASCII <OXY x, y>
[Range]
[Description] Sets an offset that will be added to all the transmitted positions, where:
x is the distance (in dot) between the ticket upper edge and the starting point of printing
y is the distance (in dot) between the ticket lateral edge and the starting point of printing

This command is useful to adjusting the printout positions, without having to modify all the transmitted positions.

[Notes] • If using the point (.) character as decimal separator instead of commas then the passed value are stored in EEProm.
• It's possible to set negative values of offset.
• If you get negative values after adding the offset, (the printing position is outside the ticket), the printing position is set to 0.
• 1mm = 8 dot.

[Default]
[Reference] <RC>
[Example]



<p>

Devices:	KPM180H	*(models with presenter and cutter)*

[Name] **Printing command (cut and buffer cleaning) in reverse**
[Format] ASCII <p>
[Range]
[Description] This command executes the following operations :
- align the ticket to notch (based on the alignment set with the <LHT> command);
- prints ticket;
- clear the data in the print buffer;
- align the ticket to cut (based on the alignment set with the <LHT> command);
- executes a ticket cut.
- recovers the portion of paper equal to the distance between cutter and printing head.

[Notes] • Print ticket in reverse
[Default]
[Reference] <CB>, <LHT>
[Example]

<P>

Devices:	KPM180H	*(models with presenter and cutter)*

[Name] **Printing command (cut and buffer cleaning) in normal**
[Format] ASCII <P>
[Range]
[Description] This command executes the following operations :
- align the ticket to notch (based on the alignment set with the <LHT> command);
- prints ticket;
- clear the data in the print buffer;
- align the ticket to cut;
- executes a ticket cut (based on the alignment set with the <LHT> command);
- recovers the portion of paper equal to the distance between cutter and printing head.

[Notes] • Print ticket in normal
[Default]
[Reference] <CB>, <LHT>
[Example]

<PCHexNumLogo HexXDim HexYDim HexTBD Id Hexdata>

Devices: *ALL*

[Name] **Save the image received from serial port into flash**

[Format] ASCII <PCHexNumLogo HexXDim HexYDim HexTBD Id Hexdata>

[Range]

[Description] Save the image received from serial port into printer flash; if the number used to store logo is not already present inside the printer, the new logo is appended to stored logos, otherwise the image is overwritten and moved in the last position of flash.

• The source image must be a monochrome bitmap.

HexNumLogo indicates the number of logo, 2 bytes expressed in hexadecimal notation;

HexXDim indicates the logo horizontal dimension in pixel, 2 bytes expressed in hexadecimal notation; the value must be multiple of 32;

HexYDim indicates the logo vertical dimension in pixel, 2 bytes expressed in hexadecimal notation;

HexTBD 2 bytes fixed to $00 (RESERVED);

Id indicates the file-name of the logo, a sequence of 16 bytes that identify univocally the logo;

Hexdata are the image data (logo's bytes less than the first 62 bytes of the header).

• The printer returns a sequence of bytes as follows :

<PC0> if the saving include an incorrect syntax or the available memory in flash for logos is finished (128Kbyte);

<PC1n> if the syntax command is correct and there's enough memory in flash for saving logos; n returns the status of the flash programming :

$88 -> Sector not erased

$77 -> Error during programming

$AA -> Programming done.

[Notes] • The logo is stored into the printer flipped vertically relative to the bitmap

• The colors of monochrome bitmaps may appear reversed if the "palette" in the header of the bitmap in position 0x3B is 0xFF 0xFF 0xFF 0x00".

• If file-name length is shorter than 16 byte, add a terminator byte NULL (0x00) up to 16 characters.

• If file-name extension is absent, it is automatically added to the name.

[Default]

[Reference]

[Example] The following example shows the bytes sequence received from serial port to store a logo into the printer flash :

```
Offset      Hexadecimal                                             ASCII
00000000: 3C 50 43 00 08 00 60 00 58 00 00 65 78 61 6D 70   <PC...`.X..examp
00000010: 6C 65 6C 6F 67 6F 38 00 00 00 00 00 00 00 00 2F   lelogo8.bmp
....
....                                    Image data less than the first 62 bytes
....
>
```

If the programming is successful, the printer's answer will be:

HEX	$3C	$50	$43	$31	$AA	$3E
ASCII	<	P	C	1	{}	>

<PE n>

Devices: *ALL*

[Name] **Delete image**
[Format] ASCII <PE n>
[Range]
[Description] Deletes image defined by n.
The printer returns a sequence of bytes as follows :
<PE0> Image n not found;
<PE1n> Image found; n returns to the flash programming status
$88 -> Sector not erased
$77 -> Error during erasing operation
$AA -> Erasing done.
[Notes]
[Default]
[Reference]
[Example]

<PI n>

Devices: *ALL*

[Name] **Get pictures header info**
[Format] ASCII <PI n>
[Range]
[Description] Gets the logo header info stored specified by n (express in ASCII). The printer returns a bytes sequence as follows :
<PI*e[ID]*> where
• *e* indicates the search result
e = 0 picture not found
e = 1 picture found

• *[ID]* indicates the file-name that identify the logo, a sequence of 16 bytes that was defined when the logo is stored. This field is optional because it's returned only if the logo has been found.
[Notes]
[Default]
[Reference]
[Example]

<PL>

Devices: *ALL*

[Name] **Get pictures header list**
[Format] ASCII <PL>
[Range]
[Description] This command requests to the printer the list of stored logo. The printer returns a bytes sequence as follows :
<PL *CrLf [N-ID CrLf]*> where
• *CrLf* indicates the two characters $0D (Carriage return) and $0A (Line Feed);
• *N* is the number of stored logo;
• *[ID]* indicates the file-name that identify the logo, a sequence of 16 bytes that was defined when the logo is stored. This field is optional because it's returned only if the logo has been found.
[Notes] • The fields enclosed in square bracket are repeated for all number of stored images.
[Default]
[Reference]
[Example]

<PN>

Devices: *ALL*

[Name] **Get number of stored logo**
[Format] ASCII <PN>
[Range]
[Description] This command sends to the printer the request of number of stored logo; the printer returns a bytes sequence as follows : <PN*n*>
where *n* (in ASCII format) indicates the number of stored images.
[Notes]
[Default]
[Reference]
[Example] If in the flash memory are stored 10 logos send this command

HEX	$1C	$90
ASCII	FS	{}

The printer's answer will be :

HEX	$3C	$50	$4E	$31	$30	$3E
ASCII	<	P	N	1	0	>

<PP n, x, y, sp>

Devices: *ALL*

[Name] **Print image in graphic page**
[Format] ASCII <PP n, x, y, sp>
[Range]
[Description] Prints image in graphic page where
• *n* is the number of image to print;
• *x* indicates the horizontal position inside the graphic page
• *y* indicates the vertical position inside the graphic page
• *sp* indicates the thickness value of the image border (express in dot).
[Notes] • if *n* is a negative number the image is printed as a background image, without deleting the area below.
[Default]
[Reference] <OXY x, y>
[Example] Several printing commands in graphic page; in the first printing command the image no. 2 is printed with border, instead the other images are printed without border:

```
<CB><n><BA8><HW1,1><BS0,0>
<PP2,10,10,8>          (image printed with border)
<PP1,10,200,0>         (image printed without border)
<PP3,210,200,0>        (image printed without border)
<PP4,620,200,0>        (image printed without border)
<q>
```

<PR n, x, y, sp>

Devices: *ALL*

[Name] **Print rotated image**
[Format] ASCII <PR n, x, y, sp>
[Range]
[Description] Prints rotated image in graphic page where
• *n* is the number of image to print;
• *x* indicates the horizontal position inside the graphic page
• *y* indicates the vertical position inside the graphic page
• *sp* indicates the thickness value of the image border (express in dot).
[Notes] • if *n* is a negative number the image is printed as a background image, without deleting the area below.
[Default]
[Reference] <OXY x, y>
[Example] Several printing commands in graphic page; in the first printing command the image no. 2 is printed with border, instead the other images are printed without border:

```
<CB><n><BA8><HW1,1><BS0,0>
<PR2,10,10,8>          (image printed with border)
<PR1,10,200,0>         (image printed without border)
<PR3,210,200,0>        (image printed without border)
<PR4,620,200,0>        (image printed without border)
<q>
```

<q>

Devices: *ALL*

[Name] **Printing command (only buffer cleaning) in reverse**
[Format] ASCII <q>
[Range]
[Description] This command executes the following operations :
- align the ticket to notch (based on the alignment set with the <LHT> command);
- prints ticket;
- clear the data in the print buffer;

[Notes] • Print ticket in reverse
[Default]
[Reference] <CB>, <LHT>
[Example]

<Q>

Devices: *ALL*

[Name] **Printing command (only buffer cleaning) in normal**
[Format] ASCII <Q>
[Range]
[Description] This command executes the following operations :
- align the ticket to notch (based on the alignment set with the <LHT> command);
- prints ticket;
- clear the data in the print buffer;

[Notes] • Print ticket in normal
[Default]
[Reference] <CB>, <LHT>
[Example]

<RC row, column>

Devices: *ALL*

[Name] **Position the cursor**
[Format] ASCII <RC row, column>
[Range]
[Description] Moves the cursor at the position specified by row and column parameters.
[Notes] • The row and column values must be a number with four digit at most, otherwise the command will be ignored.
[Default]
[Reference] <OXY x, y>
[Example] To move the cursor at row (dot) 10, column (dot) 30 the command sequence is :
<RC 10,30>

<RL>

Devices: *ALL*

[Name] **Rotate text 90° counter-clockwise**
[Format] ASCII <RL>
[Range]
[Description] Rotate text 90° counter-clockwise, (to the left).
[Notes]
[Default]
[Reference] <F:rotate:aa>
[Example]

<RR>

Devices: *ALL*

[Name] **Rotate text 90° clockwise**
[Format] ASCII <RR>
[Range]
[Description] Rotate text 90° clockwise, (to the right).
[Notes]
[Default]
[Reference] <F:rotate:aa>
[Example]

<RU>

Devices: *ALL*

[Name] **Rotate text 180°**
[Format] ASCII <RU>
[Range]
[Description] Rotate text 180°.
[Notes]
[Default]
[Reference] <F:rotate:aa>
[Example]

<S n>

Devices: *ALL*

[Name] **Status request**

[Format] ASCII <Sn>

[Range]

[Description] The host can ask to the printer many different status info; the n parameter indicates which type of request :

KPM180H *(models with presenter and cutter)*

If n = 1 the printer return a byte that represent the status:

$10: Paper end
$11: No error
$19: Wrong command
$20: Notch error
$21: Heading over temperature error
$22: Power supply voltage error
$23: Cutter error

KPM180H, TK180

If n = 1 the printer return a byte that represent the status:

$10: Paper end
$11: No error
$19: Wrong command
$20: Notch error
$21: Heading over temperature error
$22: Power supply voltage error

• If n=3 the printer return ACK ($06) if printing is properly finished, otherwise return NACK ($15). If the request will be transmitted during printing phase, it waits the end of the process and then is sent the answer.

[Notes]

[Default]

[Reference]

[Example]

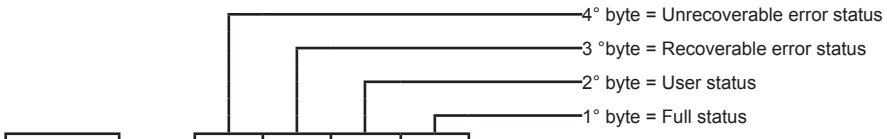
<SB x>

Devices: *ALL*

[Name] **FULL STATUS back request**
[Format] ASCII <SB x>

[Range] ‘0’ ≤ x ≤ ‘9’, ‘A’ ≤ x ≤ ‘F’

[Description]
• FULL STATUS back request.
• x specify the request for FULL STATUS. where x identify the bitmask with the following table:



x		*BIT3*	*BIT2*	*BIT1*	*BIT0*
0	»	0	0	0	0
1	»	0	0	0	1
2	»	0	0	1	0
3	»	0	0	1	1
4	»	0	1	0	0
5	»	0	1	0	1
6	»	0	1	1	0
7	»	0	1	1	1
8	»	1	0	0	0
9	»	1	0	0	1
A	»	1	0	1	0
B	»	1	0	1	1
C	»	1	1	0	0
D	»	1	1	0	1
E	»	1	1	1	0
F	»	1	1	1	1

[Notes]
• The status sent from the printer will be so composed as follows:

<SB x, *CHR1 ..... CHRn*>

where:

SB	=	fixed characters
x	=	is the bitmask to identify the request.
CHR1..CHRn	=	response bytes referred to the following tables:

1° byte = Full 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
	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	Paper virtually present
	On	40	64	Virtual paper end
7	Off	00	0	Notch found
	On	80	128	Notch not found

2° byte = User status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Printing head down
	On	01	1	Printing head up error
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

3° 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	Off	00	0	Notch search ok
	On	80	128	Error in notch search

4° 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	Cutter cover ok
	On	02	2	Cutter cover open
2	Off	00	0	RAM ok
	On	04	4	RAM error
3	Off	00	0	EEPROM ok
	On	08	8	EEPROM error
4	-	-	-	RESERVED
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	-	-	-	RESERVED

[Default]

[Reference] To automatically receive a response to the change of a state, enable the status byte of interest using the command <AFSB x>.

[Example1] To request the printer status:

Send the command: <SBF>
Possible answers: <SBF, 00000000> no errors
<SBF, 04000000> near paper end
<SBF, 01030000> paper not present, printing head up, cover open

[Example2] To request the Full status (1° byte) and the User status (2°byte) proceed as follow:

see bitmask:
*BIT*3 = 0 *BIT*2 = 0 *BIT*1 = 1 *BIT*0 =1 therefore 0011 = 3

Send the command: <SB3>
Possible answer: <SB3,0504>

where:

1°byte

0 = 0000	bit7 = 0 (notch found)	bit6 = 0 (paper virtually present)	bit5 = 0 (ticket not present)	bit4 =0 (RESERVED)
5 = 0101	bit3 = 0 (RESERVED)	bit2 = 1 (near paper end)	bit1 = 0 (RESERVED)	bit0 =1 (Paper not present)

2°byte

0 = 0000	bit7 = 0 (RESERVED)	bit6 = 0 (FF key released)	bit5 = 0 (LF key released)	bit4 =0 (RESERVED)
4 = 0100	bit3 = 0 (drag motor off)	bit2 = 1 (spooling)	bit1 = 0 (cover closed)	bit0 =0 (print head down)

<SP n>

Devices: *ALL*

[Name] **Change speed**
[Format] ASCII <SP n>
[Range]
[Description] Sets printing speed using n as follows :

n	PRINTING SPEED
0	High quality
1	Normal
2	High speed

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

<SVEL>

Devices: *ALL*

[Name] **Change printer emulation to SVELTA**
[Format] ASCII <SVEL>
[Range]
[Description] Set the SVELTA emulation.
[Notes]
[Default]
[Reference]
[Example]

<T>

Devices: *ALL*

[Name] **Get the ticket dimension to print**
[Format] ASCII <T>
[Range]
[Description] Get the ticket dimensions to print, in the Ticket Size format.
[Notes]
[Default]
[Reference]
[Example]

<X n, m>

Devices: *ALL*

[Name] **Define the barcode lines dimension**
[Format] ASCII <X n, M>
[Range]
[Description] n defines the thins lines dimension (in dot) of barcode. The M parameter defines the barcode printing speed if it must be printed rotated.
[Notes] If the M parameter = 'H' as ASCII value, the barcodes will be printed in high speed. Otherwise if if the M parameter = 'L' as ASCII value the barcodes will be printed at reduced speed (only if n is less than 4).
[Default]
[Reference]
[Example]

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;
- FanFold modules 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

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.

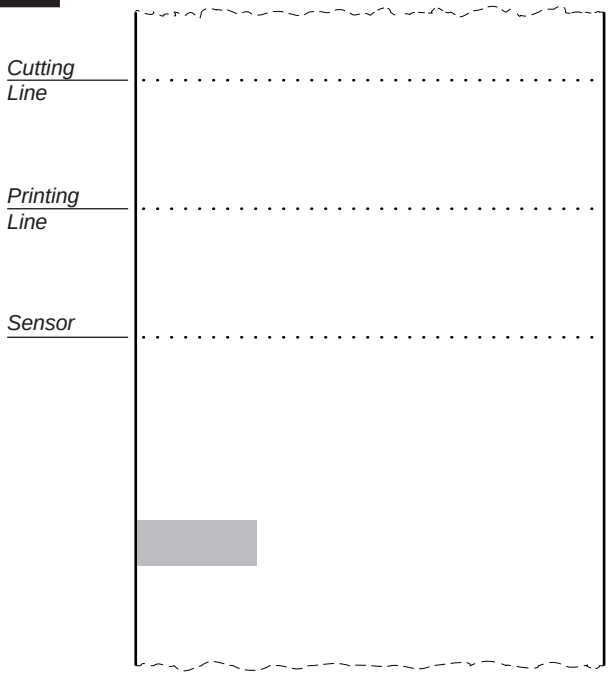
NOTE:
The settings take effect from next ticket to the one already in the printer.

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

EXAMPLE 1

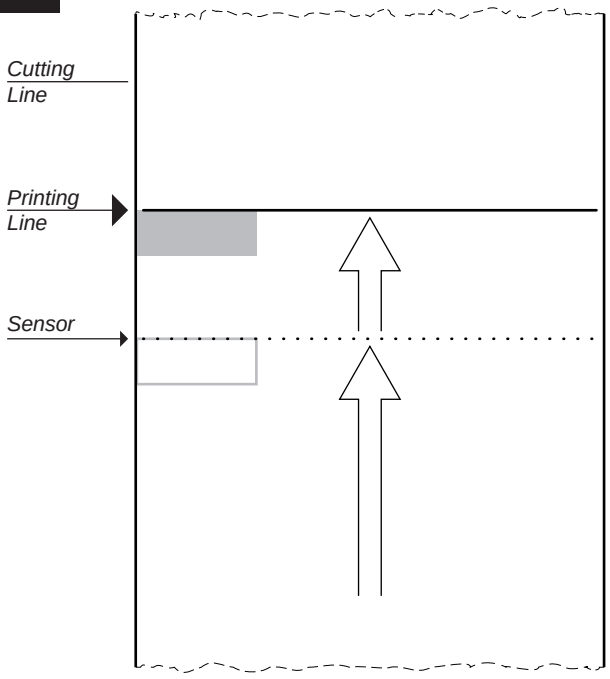
Commands sequence to print tickets with “alignment point” used to align the printing line over the edge of the notch (Notch Distance = 0mm set from SETUP).

1



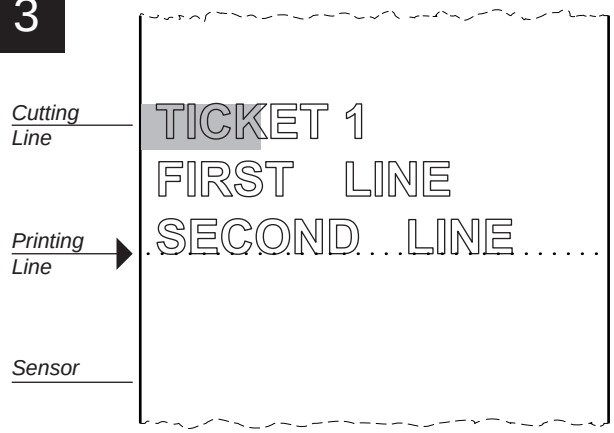
Start
Paper with black mark not aligned

2



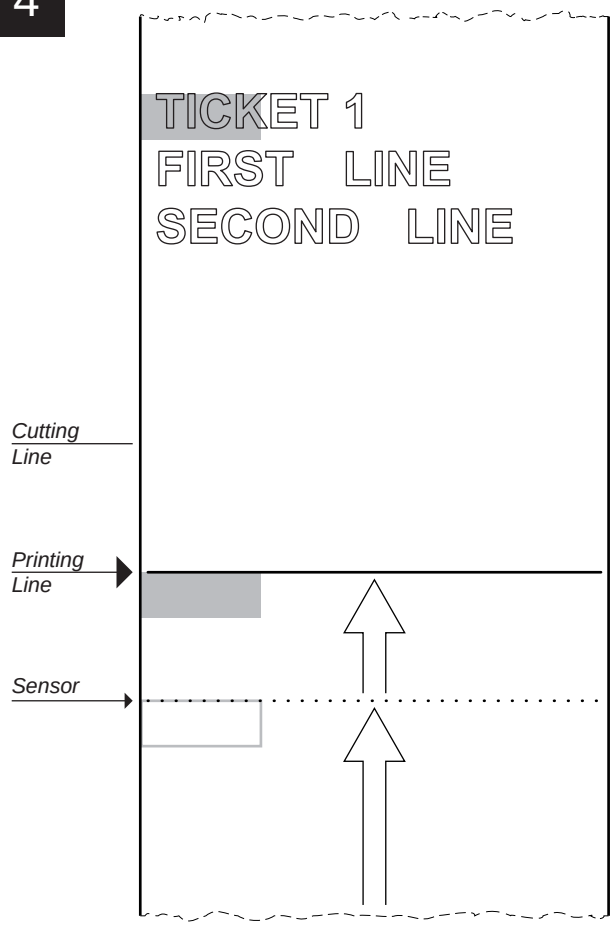
Alignment command $1D $F6
Paper is fed. The black mark is recognized by the sensor and aligned under the printing line

3



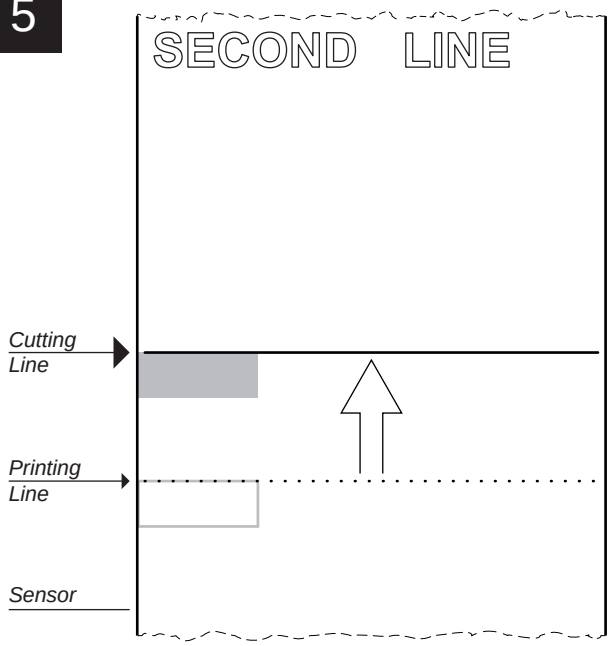
Command for text printing
‘TICKET 1’,$0A,’FIRST LINE’,$0A,
’SECOND LINE’,$0A

4

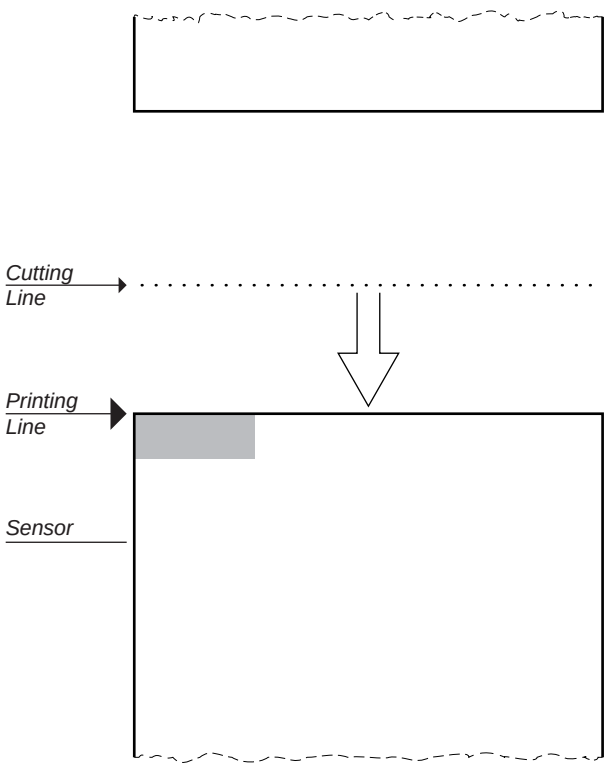


Alignment command $1D $F8
Paper is fed. The next black mark is recognized by the sensor and aligned under the printing line

5



Cut command $1B $69
Paper is fed until the black mark is not aligned under the cutting line ...

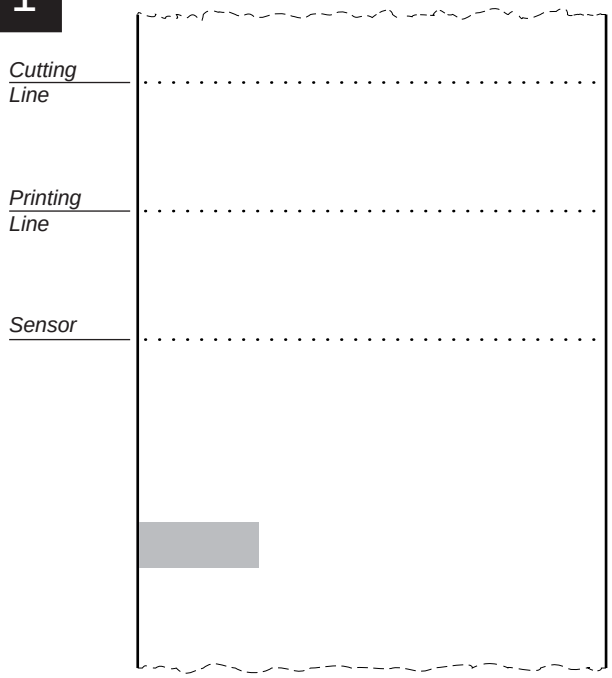


... The paper is cut.
The paper is retracted under the printing.

EXAMPLE 2

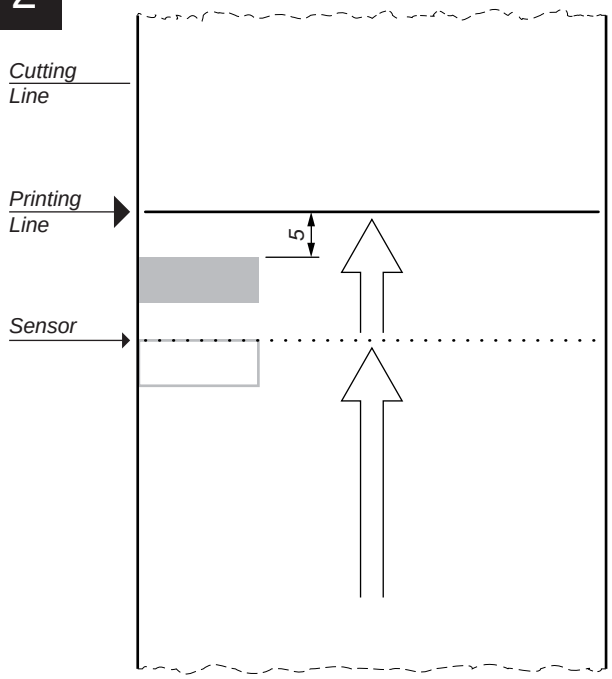
Commands sequence to print tickets with “alignment point” used to align the printing line 10mm before the notch (Notch Distance = 10mm set from SETUP).

1



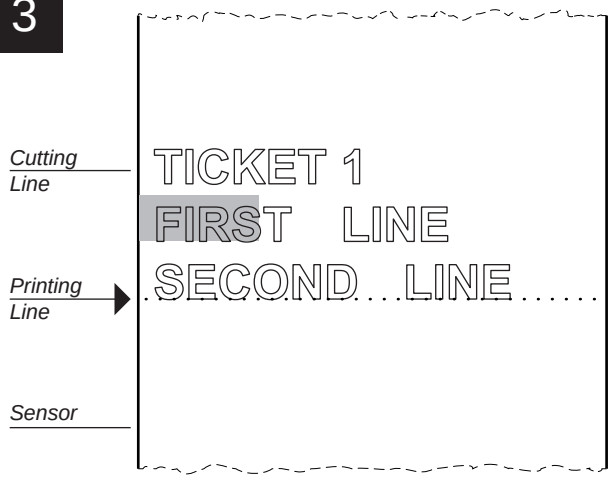
Start
Paper with black mark not aligned

2



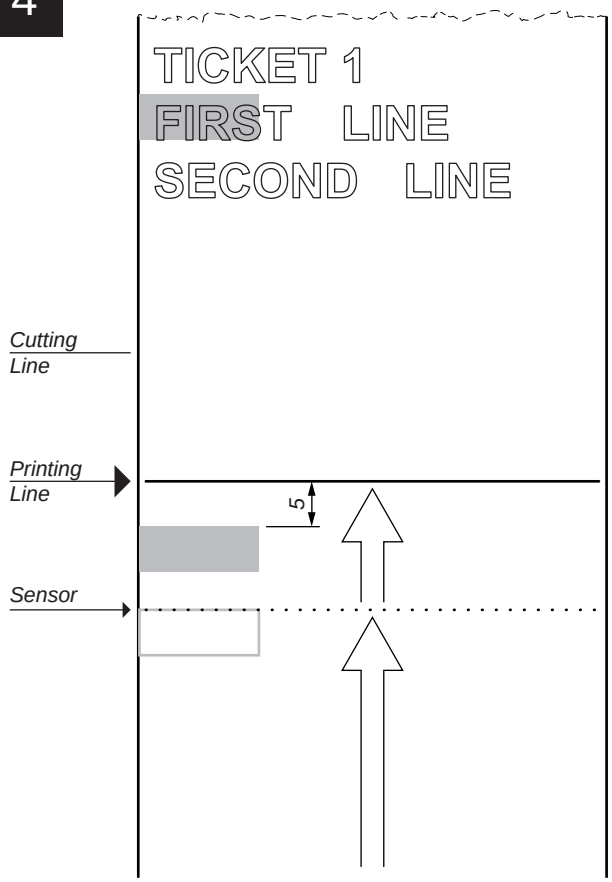
Alignment command $1D $F6
Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 5mm (notch distance) from the printing line

3



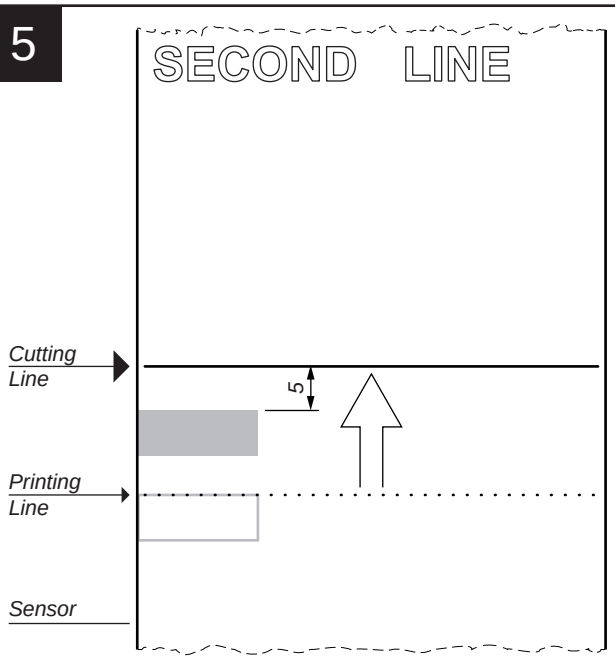
Command for text printing
‘TICKET 1’,$0A,’FIRST LINE’,$0A,
’SECOND LINE’,$0A

4

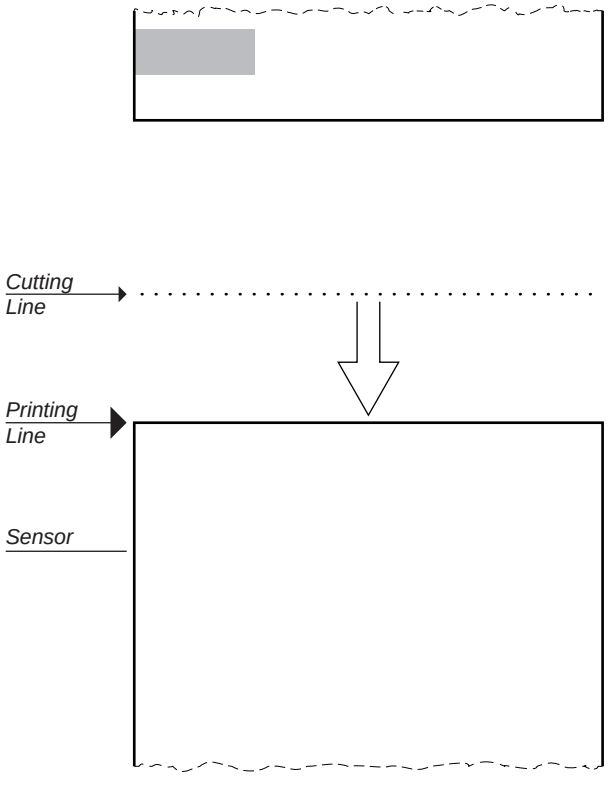


Alignment command $1D $F8
Paper is fed. The next black mark is recognized by the sensor and aligned at a distance of 5mm (notch distance) from the printing line

5



Cut command $1B $69
Paper is fed until the black mark is not aligned at a distance of 5mm (notch distance) from the cutting line ...



... The paper is cut.
The paper is retracted under the printing.

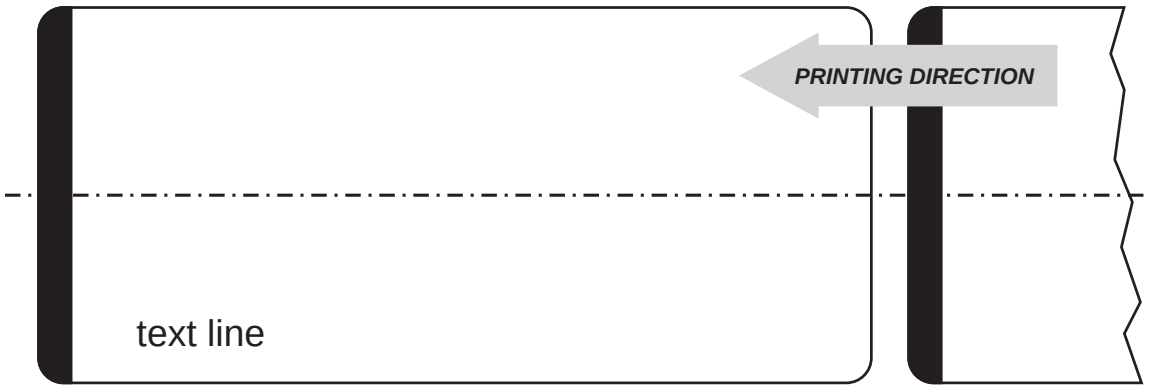
4.2 Alignment commands: SVELTA emulation

In SVELTA emulation, alignment is automatically managed if set during the printer setup procedure by the following commands:

- <p>, <P>, <q> and <Q>: printing commands that perform also the ticket alignment.
- <LHT length, height, notch, dimnotch> : defines the alignment point, the notch size and the ticket size.
- <OXY x, y>: adjusts the position of the page to be printed within the ticket.

The following example shows the commands sequence to print a ticket with "alignment point" used to cut the paper on the notch edge (Notch = 0mm).

{Setting of ticket properties}
<LHT1616,656,0,40>
{Setting of printing coordinates}
<RC50,624>
{Text}
text line
{Alignment, text printout and cut}
<p>



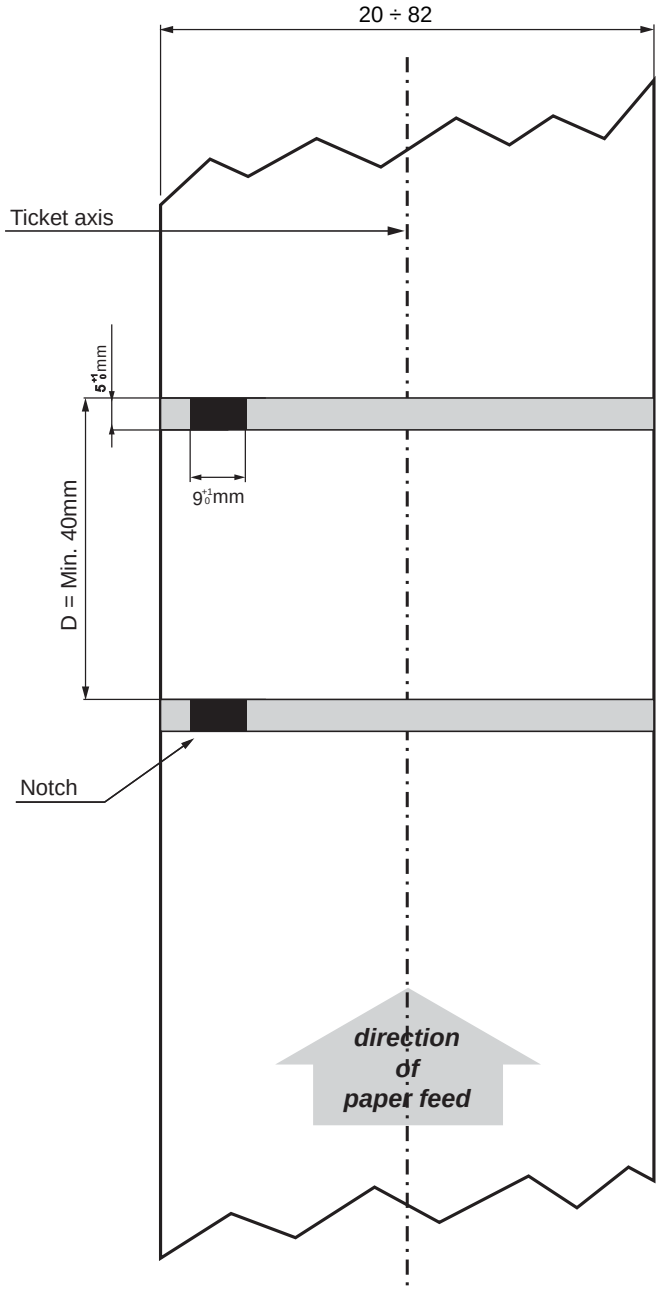
NOTE:
For a better comprehension of the images, the black mark has been represented on the heat sensitive side of the paper.

5 PAPER SPECIFICATIONS

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

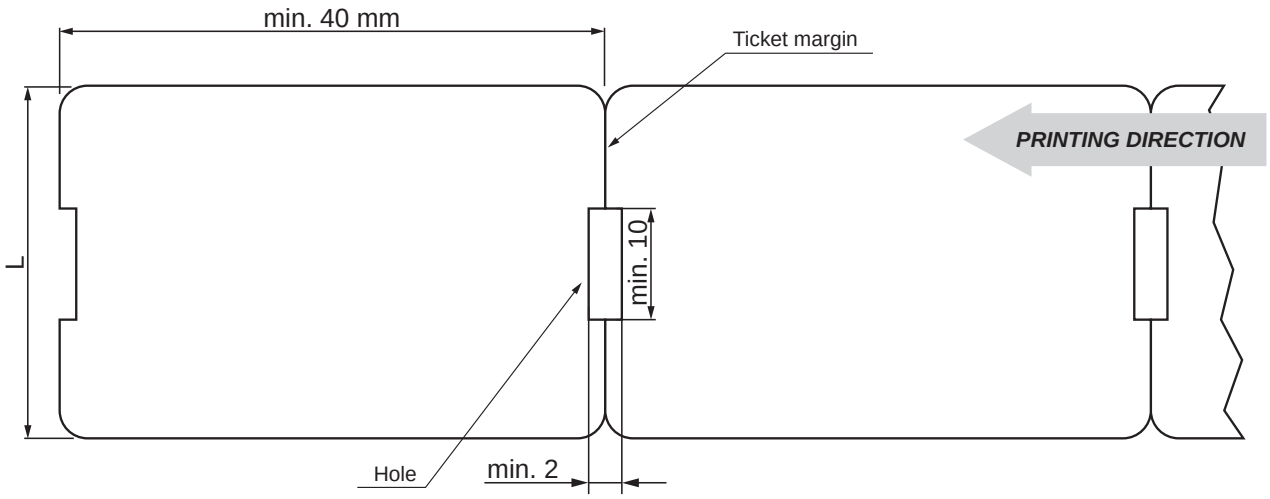
5.1 Paper with alignment notch

D = minimum notch to notch distance.



- The black mark can be positioned anywhere across the width of the paper.
- The printer automatically choose the sensor used to detect the paper presence according to the selected value for “Notch / b.mark position” parameter.

5.2 Ticket with hole



where
L = width of paper used

6 COMMANDS INDEX

ESC/POS™ EMULATION

EMULAZIONE SVELTA

Part Number : 77200000001800 Rev.1.00

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