

COMMANDS MANUAL

Q3

Q3x

Q3x ETH

CUSTOM[®]

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GENERAL INSTRUCTIONS

CUSTOM 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.

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.
- Do not fix indissolubly the device or its accessories such as power supplies unless specifically provided in this manual.
- When positioning the device, make sure cables do not get damaged.
- [Only OEM equipment] The equipment must be installed in a kiosk or system that provides mechanical, electrical and fire protection.
- The mains power supply must comply with the rules in force in the Country where you intend to install the equipment.
- 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.
- Make sure the power cable provided with the appliance, or that you intend to use is suitable with the wall socket available in the system.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- Before any type of work is done on the machine, disconnect the power supply.
- Use the type of electrical power supply indicated on the device label.
- These devices are intended to be powered by a separately certified power module having an SELV, non-energy hazardous output. (IEC60950-1 second edition).
- [Only POS equipment] The energy to the equipment must be provided by power supply approved by CUSTOM S.p.A.
- Take care the operating temperature range of equipment and its ancillary components.
- 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.
- The equipment must be accessible on these components only to trained, authorized personnel.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- 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.
- Use consumables approved by CUSTOM S.p.A.



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 2014/30/EU and 2014/35/EU inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55032 (*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*)

The device is in conformity with the essential requirements laid down in Directives 2014/53/EU about devices equipped with intentional radiators. The Declaration of Conformity and other available certifications can be downloaded from the site www.custom4u.it.



GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

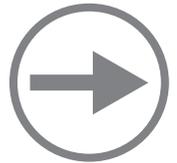
The crossed-out rubbish bin logo means that used electrical and electronic products shall NOT be mixed with unsorted municipal waste. For more detailed information about recycling of this product, refer to the instructions of your country for the disposal of these products.

- 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.

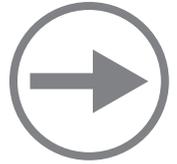


The format used for this manual improves use of natural resources reducing the quantity of necessary paper to print this copy.

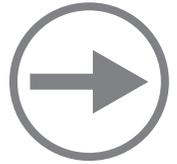
INTRODUCTION



CUSTOM/POS EMULATION



ALIGNMENT





INTRODUCTION

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1 CONSULTING COMMANDS MANUAL

Each command reported in this manual is described as shown in the following picture. In the first heading field is reported the hexadecimal command value and the ASCII command value. In the second heading field reported the command function. In the third heading field are listed the devices on which it is possible to use the command (for example, device AAAA).

0x0D

Print and carriage return

Valid for	AAAA
	BBBB
	CCCC

<CR>

Command value

Command function

Devices that use the command

[Format]

ASCII	CR
Hex	0D
Decimal	13

[Range]

[Description]

When autofeed is "CR enabled", this command functions in the same way as 0x0A, otherwise it is disregarded.

[Notes]

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

Information valid for devices AAAA, BBBB, CCC

AAAA

BBBB

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

Information valid for devices AAAA, BBBB

CCCC

- This command is immediately executed even when the printer is full.
- This status is transmitted whenever data sequence is received.

Information valid for device CCCC

[Default]

[Reference]

0x0A

[Example]

Information valid only for the devices marked in bold

Information valid for all the devices listed in the third heading field



The fields shown in the scheme of the previous figure have the following meaning:

[Format]	ASCII and hexadecimal 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]	Example of using the command

Listed below are the meanings of some of symbols that may be found in the command description:

0x	indicates the representation of the command hexadecimal value (for example 0x40 means HEX 40).
n, m, t, x, y	are optional parameters that can have different values.

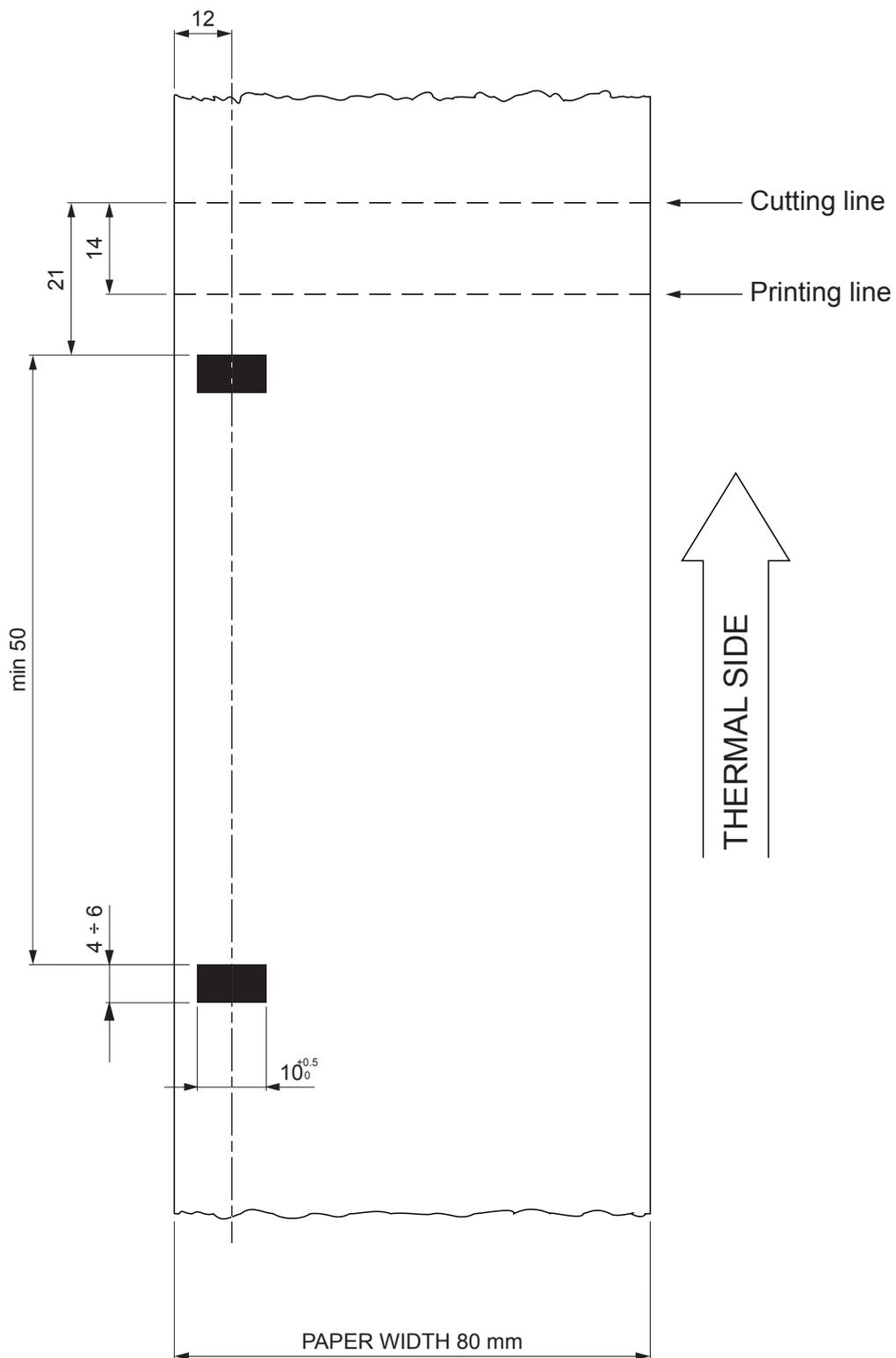


2 PAPER SPECIFICATIONS

Paper with black mark for alignment

The following image shows the placement of the black mark on the thermal side of the paper.

All the dimensions shown in following figures are in millimetres.





CUSTOM/POS EMULATION

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1 COMMANDS LISTED IN ALPHANUMERIC ORDER

0x09	<HT>	48
0x0A	<LF>	20
0x0D	<CR>	21
0x10 0x04	<DLE EOT>	65
0x10 0x05	<DLE ENQ>	70
0x10 0x14	<DLE DC4>	111
0x1B 0x20	<ESC SP>	27
0x1B 0x21	<ESC !>	28
0x1B 0x24	<ESC \$>	49
0x1B 0x25	<ESC %>	30
0x1B 0x26	<ESC &>	31
0x1B 0x2A	<ESC *>	55
0x1B 0x2D	<ESC ->	32
0x1B 0x32	<ESC 2>	25
0x1B 0x33	<ESC 3>	26
0x1B 0x3D	<ESC =>	112
0x1B 0x3F	<ESC ?>	33
0x1B 0x40	<ESC @>	113
0x1B 0x44	<ESC D>	50
0x1B 0x45	<ESC E>	34
0x1B 0x47	<ESC G>	35
0x1B 0x4A	<ESC J>	22
0x1B 0x4D	<ESC M>	36
0x1B 0x52	<ESC R>	37
0x1B 0x56	<ESC V>	38
0x1B 0x5C	<ESC \>	51



0x1B 0x61	<ESC a>	52
0x1B 0x63 0x35	<ESC c>	114
0x1B 0x64	<ESC d>	23
0x1B 0x69	<ESC i>	108
0x1B 0x6D	<ESC m>	109
0x1B 0x70	<ESC p>	115
0x1B 0x74	<ESC t>	39
0x1B 0x76	<ESC v>	71
0x1B 0x7B	<ESC {>	42
0x1B 0xC1		43
0x1B 0xFA		116
0x1B 0xFB		117
0x1B 0xFC		118
0x1B 0xFD		119
0x1B 0xFE		120
0x1C 0x25	<FS %>	44
0x1C 0x70	<FS p>	57
0x1C 0x71	<FS q>	59
0x1C 0xB0		121
0x1D 0x21	<GS !>	45
0x1D 0x28 0x6B	<GS (>	81
0x1D 0x28 0x6B [fn 065]	<GS (>	83
0x1D 0x28 0x6B [fn 065]	<GS (k>	91
0x1D 0x28 0x6B [fn 066]	<GS (>	84
0x1D 0x28 0x6B [fn 066]	<GS (k>	92
0x1D 0x28 0x6B [fn 067]	<GS (>	85



0x1D 0x28 0x6B [fn 067]	<GS (k>	93
0x1D 0x28 0x6B [fn 068]	<GS (>	86
0x1D 0x28 0x6B [fn 069]	<GS (>	87
0x1D 0x28 0x6B [fn 069]	<GS (k>	94
0x1D 0x28 0x6B [fn 080]	<GS (>	89
0x1D 0x28 0x6B [fn 080]	<GS (k>	95
0x1D 0x28 0x6B [fn 081]	<GS (>	90
0x1D 0x28 0x6B [fn 081]	<GS (k>	96
0x1D 0x2A	<GS *>	61
0x1D 0x2F	<GS />	62
0x1D 0x3A	<GS :>	106
0x1D 0x42	<GS B>	47
0x1D 0x48	<GS H>	97
0x1D 0x49	<GS l>	122
0x1D 0x4C	<GS L>	53
0x1D 0x50	<GS P>	123
0x1D 0x56	<GS V>	110
0x1D 0x57	<GS W>	54
0x1D 0x5E	<GS ^>	107
0x1D 0x61	<GS a>	72
0x1D 0x66	<GS f>	99
0x1D 0x68	<GS h>	100
0x1D 0x6B	<GS k>	101
0x1D 0x72	<GS r>	73
0x1D 0x76 0x30	<GS v 0>	63
0x1D 0x77	<GS w>	105
0x1D 0x7C	<GS |>	24
0x1D 0xDE		75



0x1D 0xDF	76
0x1D 0xE0	77
0x1D 0xE2	78
0x1D 0xE3	79
0x1D 0xE5	80
0x1D 0xF6	124
0x1D 0xF8	125



2 COMMANDS LISTED BY FUNCTION

PRINT COMMANDS

0x0A	<LF>	20
Print and line feed		
0x0D	<CR>	21
Print and carriage return		
0x1B 0x4A	<ESC J>	22
Print and feed paper		
0x1B 0x64	<ESC d>	23
Print and feed paper n lines		
0x1D 0x7C	<GS |>	24
Print and feed paper n lines		

LINE SPACING COMMANDS

0x1B 0x32	<ESC 2>	25
Select 1/6-inch line spacing		
0x1B 0x33	<ESC 3>	26
Set line spacing using minimum units		

CHARACTER COMMANDS

0x1B 0x20	<ESC SP>	27
Set right-side character spacing		
0x1B 0x21	<ESC !>	28
Set print mode		
0x1B 0x25	<ESC %>	30
Enable or disable user-defined character set		
0x1B 0x26	<ESC &>	31
Defines user-defined characters		
0x1B 0x2D	<ESC ->	32
Turn underline mode on or off		
0x1B 0x3F	<ESC ?>	33
Cancel user-defined characters		
0x1B 0x45	<ESC E>	34
Select bold mode		



0x1B 0x47	<ESC G>	35
Turn double-strike mode on or off		
0x1B 0x4D	<ESC M>	36
Select character font		
0x1B 0x52	<ESC R>	37
Select international character set		
0x1B 0x56	<ESC V>	38
Select print mode 90° turned		
0x1B 0x74	<ESC t>	39
Select character code table		
0x1B 0x7B	<ESC {>	42
Set or cancel upside-down character printing		
0x1B 0xC1		43
Select character pitch		
0x1C 0x25	<FS %>	44
Select the font type		
0x1D 0x21	<GS !>	45
Select character size		
0x1D 0x42	<GS B>	47
Turn black and white reverse printing mode on or off		

PRINT POSITION COMMAND

0x09	<HT>	48
Horizontal tab		
0x1B 0x24	<ESC \$>	49
Set absolute print position		
0x1B 0x44	<ESC D>	50
Set horizontal tab position		
0x1B 0x5C	<ESC \>	51
Set relative print position		
0x1B 0x61	<ESC a>	52
Select justification		
0x1D 0x4C	<GS L>	53
Set left margin		



0x1D 0x57	. . . . . <GS W>	54
Set printing area width		

BIT IMAGE COMMANDS

0x1B 0x2A	. . . . . <ESC *>	55
Select image print mode		
0x1C 0x70	. . . . . <FS p>	57
Print NV bit image		
0x1C 0x71	. . . . . <FS q>	59
Define NV bit image		
0x1D 0x2A	. . . . . <GS *>	61
Define downloaded bit image		
0x1D 0x2F	. . . . . <GS />	62
Print downloaded bit image		
0x1D 0x76 0x30	. . . . . <GS v 0>	63
Print raster image		

STATUS COMMANDS

0x10 0x04	. . . . . <DLE EOT>	65
Real-time status transmission		
0x10 0x05	. . . . . <DLE ENQ>	70
Real-time request to printer		
0x1B 0x76	. . . . . <ESC v>	71
Transmit printer status		
0x1D 0x61	. . . . . <GS a>	72
Enable or disable Automatic Status Back (ASB)		
0x1D 0x72	. . . . . <GS r>	73
Transmit status		
0x1D 0xDE	. . . . .	75
Transmit head temperature		
0x1D 0xDF	. . . . .	76
Transmit head voltage		
0x1D 0xE0	. . . . .	77
Enable or disable automatic full status back		
0x1D 0xE2	. . . . .	78
Reading number of cuts performed by the autocutter		
0x1D 0xE3	. . . . .	79
Reading of length of printed paper		



0x1D 0xE5	80
Reading number of power up	

BARCODE COMMANDS

0x1D 0x28 0x6B	<GS (>	81
Print two-dimensional barcode		
0x1D 0x28 0x6B [fn 065]	<GS (>	83
Specify the number of columns of PDF417 barcode		
0x1D 0x28 0x6B [fn 066]	<GS (>	84
Specify the number of rows of PDF417 barcode		
0x1D 0x28 0x6B [fn 067]	<GS (>	85
Specify the width of a module of PDF417 barcode		
0x1D 0x28 0x6B [fn 068]	<GS (>	86
Specify the height of PDF417 barcode		
0x1D 0x28 0x6B [fn 069]	<GS (>	87
Specify the error correction level of PDF417 barcode		
0x1D 0x28 0x6B [fn 080]	<GS (>	89
Store the PDF417 barcode data in the barcode save area		
0x1D 0x28 0x6B [fn 081]	<GS (>	90
Encodes and prints the PDF417 barcode data in the barcode save area		
0x1D 0x28 0x6B [fn 065]	<GS (k>	91
Specify encoding scheme of QRcode barcode		
0x1D 0x28 0x6B [fn 066]	<GS (k>	92
Specify dot size of the module of the QRcode barcode		
0x1D 0x28 0x6B [fn 067]	<GS (k>	93
Specify QRcode barcode size		
0x1D 0x28 0x6B [fn 069]	<GS (k>	94
Specify the error correction level of the QRcode barcode		
0x1D 0x28 0x6B [fn 080]	<GS (k>	95
Store the QRcode barcode data in the barcode save area		
0x1D 0x28 0x6B [fn 081]	<GS (k>	96
Prints the QRcode barcode data		
0x1D 0x48	<GS H>	97
Select printing position of Human Readable Interpretation (HRI) characters		
0x1D 0x66	<GS f>	99
Select font for HRI characters		
0x1D 0x68	<GS h>	100
Set barcode height		



0x1D 0x6B	<GS k>	101
Print barcode		
0x1D 0x77	<GS w>	105
Set barcode width		

MACRO FUNCTIONS

0x1D 0x3A	<GS :>	106
Set start or end of macro definition		
0x1D 0x5E	<GS ^>	107
Execute macro		

MECHANISM CONTROL

0x1B 0x69	<ESC i>	108
Total cut		
0x1B 0x6D	<ESC m>	109
Total cut		
0x1D 0x56	<GS V>	110
Select cut mode		

MISCELLANEOUS COMMANDS

0x10 0x14	<DLE DC4>	111
Generate pulse at real-time		
0x1B 0x3D	<ESC =>	112
Select peripherals device		
0x1B 0x40	<ESC @>	113
Initialize device		
0x1B 0x63 0x35	<ESC c>	114
Enables or disables front key		
0x1B 0x70	<ESC p>	115
Generate pulse on drawer connector		
0x1B 0xFA		116
Print graphic (576x910)		
0x1B 0xFB		117
Transmit graphic page to communication port		
0x1B 0xFC		118
Transfer flash bank into RAM		



0x1B 0xFD	119	
Receive graphic page from communication port		
0x1B 0xFE	120	
Transfer RAM into flash bank		
0x1C 0xB0	121	
Transfer n bytes on the drawer connector serial		
0x1D 0x49	<GS I>	122
Transmit device ID		
0x1D 0x50	<GS P>	123
Set horizontal and vertical motion units		

ALIGNMENT COMMANDS

0x1D 0xF6	124
Align the ticket with the printhead	
0x1D 0xF8	125
Align the ticket with the autocutter	

PRINT COMMANDS

0x0A

<LF>

Print and line feed

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	0A
	ASCII	LF

[Range]

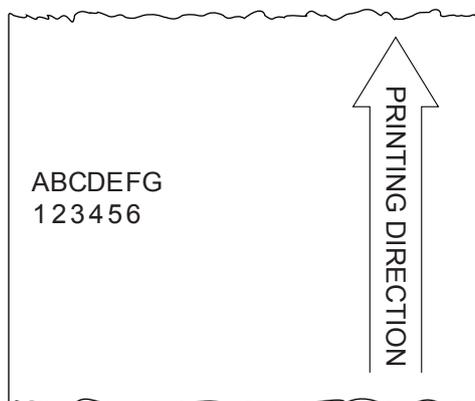
[Description] This command sets the print position to the beginning of the line printing the data in the buffer and feeding one line based on the line spacing set with the command [0x1B 0x32](#) or [0x1B 0x33](#).

[Notes] If the buffer is empty, the printing feeds of a value equal to the sum of the character height and line spacing.

[Default] 1/6-inch (32 dots)

[Reference] [0x1B 0x32](#), [0x1B 0x33](#), [0x0D](#)

[Example]



To print the receipt shown in figure the command sequence is:
ABCDEFGG 0x0A 123456 0x0A

0x0D

<CR>

Print and carriage return

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	0D
	ASCII	CR

[Range]

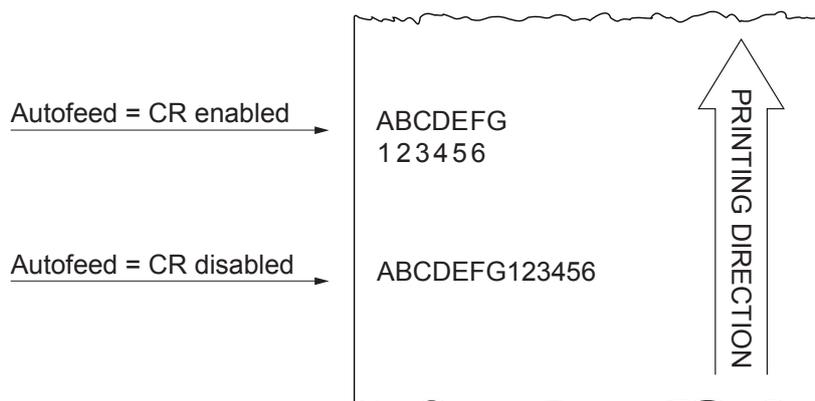
[Description] This command handles the end of a line text.

[Notes] If “Autofeed” setup parameter is set to “CR enabled”, this command works in the same way as [0x0A](#), otherwise it is disregarded.

[Default] See “Autofeed” setup parameter (refer to the user manual of the device).

[Reference] [0x0A](#)

[Example]



To print the receipt shown in figure the command sequence is:
ABCDEFGH 0x0D 123456 0x0D



0x1B 0x4A

<ESC J>

Print and feed paper

Valid for	Q3			
	Q3x			
	Q3x ETH			

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

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Prints the data in the print buffer and feeds the paper [n * vertical or horizontal motion unit].

[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 [0x1B 0x32](#) or [0x1B 0x33](#).
- The horizontal and vertical motion units are specified by [0x1D 0x50](#).
- [0x1D 0x50](#) 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 maximum paper feed amount is 520 mm.

[Default]

[Reference] [0x1D 0x50](#)

[Example]



0x1B 0x64

<ESC d>

Print and feed paper n lines

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	64	n
	ASCII	ESC	d	n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Prints the data in the print buffer and feeds the paper n lines.

[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 [0x1B 0x32](#) or [0x1B 0x33](#).
- The maximum paper feed amount is 254 lines. Even if a paper feed amount of more than 254 lines is set, the printer feeds the paper only 254 lines.

[Default]

[Reference] [0x1B 0x32](#), [0x1B 0x33](#)

[Example]

0x1D 0x7C

<GS |>

Print and feed paper n lines

Valid for
 Q3
 Q3x
 Q3x ETH

[Format] Hex 1D 7C n
 ASCII GS | n

[Range] 0x02 ≤ n ≤ 0x06
 0x32 ≤ n ≤ 0x36

[Description] Sets printing density based on the value of n as follows:

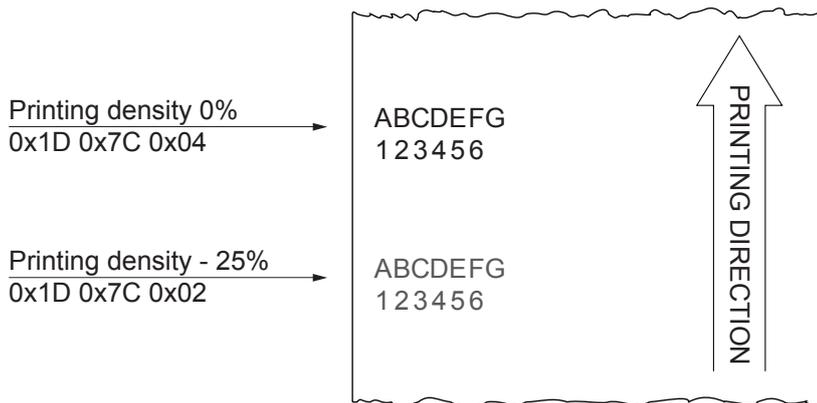
n	PRINTING DENSITY
0x02, 0x32	- 25%
0x03, 0x33	- 12.5%
0x04, 0x34	0%
0x05, 0x35	+ 12.5%
0x06, 0x36	+ 25%

[Notes] Printing density reverts to the default value when the device is reset or turned off.

[Default] n = 0x04

[Reference]

[Example]





LINE SPACING COMMANDS

0x1B 0x32

<ESC 2>

Select 1/6-inch line spacing

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	32
	ASCII	ESC	2

[Range]

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

[Notes]

[Default]

[Reference] [0x1B 0x33](#)

[Example]



0x1B 0x33

<ESC 3>

Set line spacing using minimum units

Valid for	Q3			
	Q3x			
	Q3x ETH			

[Format]	Hex	1B	33	n
	ASCII	ESC	3	n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Sets line spacing to [n * vertical or horizontal motion unit].

[Notes]

- The horizontal and vertical motion unit are specified by [0x1D 0x50](#). Changing the horizontal or vertical motion unit does not affect the current line spacing.
- The [0x1D 0x50](#) 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 maximum spacing is 32.5 mm.

[Default] n = 0x40 (1/6 inch)

[Reference] [0x1B 0x32](#), [0x1D 0x50](#)

[Example]

CHARACTER COMMANDS

0x1B 0x20

<ESC SP>

Set right-side character spacing

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	20	n
	ASCII	ESC	SP	n

[Range] 0x00 ≤ n ≤ 0xFF

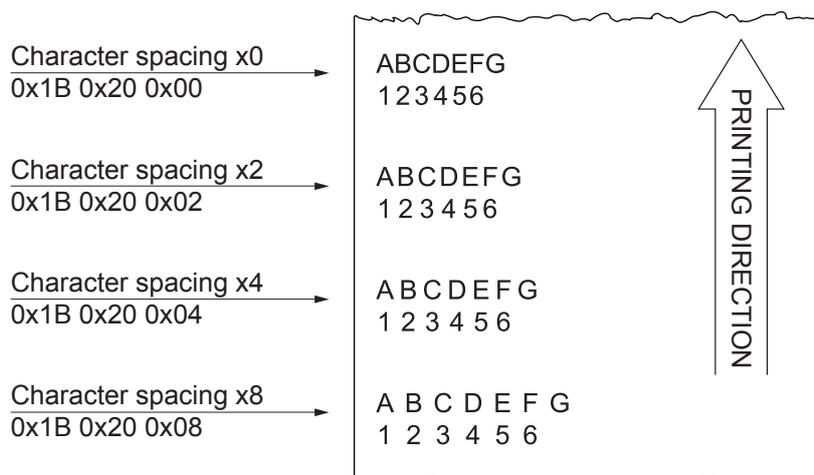
[Description] Sets the character spacing for the right side of the character to [n * horizontal or vertical motion units].

- [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 n (2 or 8) times the normal value.
 - The horizontal and vertical motion units are specified by [0x1D 0x50](#). Changing the horizontal or vertical motion units does not affect the current right side spacing.
 - The [0x1D 0x50](#) command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount.
 - The maximum right side character spacing is 32 mm.
 - In standard mode, the horizontal motion unit is used.

[Default] n = 0x00

[Reference] [0x1D 0x50](#)

[Example]





0x1B 0x21

<ESC !>

Set print mode

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1B 21 n
ASCII ESC ! n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Selects print modes based on the value of n as follows:

BIT	OFF/ON	n	FUNCTION	11/15 cpi	15/20 cpi
0	Off	00	Character font A selected	18 x 24	14 x 24
	On	01	Character font B selected	14 x 24	10 x 24
1	-	-	Undefined		
2	-	-	Undefined		
3	Off	00	Bold mode not selected		
	On	08	Bold mode selected		
4	Off	00	Double-height mode not selected		
	On	10	Double-height mode selected		
5	Off	00	Double-width mode not selected		
	On	20	Double-width mode selected		
6	Off	00	Italic mode not selected		
	On	40	Italic mode selected		
7	Off	00	Underline mode not selected		
	On	80	Underline mode selected		

- [Notes]
- The device can underline all characters, but cannot underline the spaces set by 0x09, 0x1B 0x24, 0x1B 0x5C and 90°/270° rotated characters.
 - This command resets the left and right margin at default value (see 0x1D 0x4C, 0x1D 0x57).
 - 0x1B 0x45 can also be used to turn the bold mode on or off. However, the last-received setting command is the effective one.
 - 0x1B 0x2D can also be used to turn the underlining mode on or off. However, the last-received setting command is the effective one.
 - 0x1D 0x21 can also be used to select character height or width. However, the last-received setting command is the effective one.
 - Commands that change the height and width of characters are effective on the x and y axes. In case of 90°/270° rotated characters, command 0x1B 0x21 0x10 selects double-width mode and command 0x1B 0x21 0x20 selects double-height mode.

[Default] n = 0x00
[Reference] 0x1B 0x2D, 0x1B 0x45, 0x1D 0x21
[Example]

Character font A selected
0x1B 0x21 0x00

ABCDEFGH
123456

Character font B selected
0x1B 0x21 0x01

ABCDEFGH
123456

Bold mode selected
0x1B 0x21 0x08

ABCDEFGH
123456

Double-height mode selected
0x1B 0x21 0x10

ABCDEFGH
123456

Double-width mode selected
0x1B 0x21 0x20

ABCDEFGH
1 2 3 4 5 6

Italic mode selected
0x1B 0x21 0x40

ABCDEFGH
123456

Underline mode selected
0x1B 0x21 0x80

ABCDEFGH
123456





0x1B 0x25

<ESC %>

Enable or disable user-defined character set

Valid for	Q3
	Q3x
	Q3x ETH
[Format]	Hex 1B 25 n
	ASCII ESC % n
[Range]	0x00 ≤ n ≤ 0xFF
[Description]	Enables or disables the user-defined character set. <ul style="list-style-type: none">• When the 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]	<ul style="list-style-type: none">• Only the LSB of n is applicable.• When the user-defined character set is disabled, the internal character set is automatically selected.
[Default]	n = 0x00
[Reference]	0x1B 0x26 , 0x1B 0x3F
[Example]	



0x1B 0x26

<ESC &>

Defines user-defined characters

Valid for	Q3 Q3x Q3x ETH
[Format]	Hex 1B 26 y c1 cn x1 [d0...dk] ... xn [d0...dk] ASCII ESC & y c1 cn x1 [d0...dk] ... xn [d0...dk]
[Range]	y = 0x03 0x20 ≤ c1 ≤ c2 ≤ 0x7E 0x00 ≤ x ≤ 0x10 (Font 18 × 24) 0x00 ≤ x ≤ 0x0D (Font 13 × 24) 0x00 ≤ x ≤ 0A (Font 10 × 24) 0x00 ≤ [d0...dk] ≤ 0xFF k = cn – c1 + 1
[Description]	Defines user-defined characters. y specifies the number of bytes in the vertical direction. c1 specifies the index of the start character and cn specifies the final index of the character map area to be replaced. x specifies the width in number of dots of the character to be modified. d0...dk specifies the new character definition.
[Notes]	<ul style="list-style-type: none"> • The allowable character code range is from 0x20 to 0x7E (95 characters). • It is possible to define multiple characters for consecutive character codes. If only one character is desired, use c1 = cn. • If cn < 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 0x1B 0x21. • The user-defined character definitions are cleared when 0x1B 0x40, 0x1B 0x3F are executed. The printer is reset or the power shut off. • The operation x1 [d0...dk] must be repeated for each character to be modified
[Default]	Internal character set.
[Reference]	0x1B 0x25 , 0x1B 0x3F
[Example]	To replace the "A" character of the 11 Cpi font table (font 18x24) the command sequence is: 0x1B 0x26 0x03 0x41 0x41 0x10 [48 bytes of definition of the new character]
	To replace "A" and "B" characters of the 11 Cpi font table (font 18x24) the command sequence is: 0x1B 0x26 0x03 0x41 0x42 0x10 [48 bytes of definition of the new character] 0x10 [48 bytes of definition of the new character]

0x1B 0x2D

<ESC ->

Turn underline mode on or off

Valid for Q3
Q3x
Q3x ETH

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

[Range] 0x00 ≤ n ≤ 0x02
0x30 ≤ n ≤ 0x32

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

n	FUNCTION
0x00, 0x30	Turns off underline mode
0x01, 0x31	Turns on underline mode (1 dot thick)
0x02, 0x32	Turns on underline mode (2 dot thick)

- [Notes]
- The device can underline all characters, but cannot underline the space and right-side character spacing (command 0x09).
 - The device cannot underline 90°/270° rotated characters and black and white inverted characters.
 - When underline mode is turned off by setting the value of n to 0x00 or 0x30, the data which follows is not underlined.
 - Underline mode can also be turned on or off by using 0x1B 0x21. However, the last-received setting command is the effective one.

[Default] n = 0x00

[Reference] 0x1B 0x21

[Example]

Underline mode off
0x1B 0x2D 0x00

Underline mode on
0x1B 0x2D 0x01





0x1B 0x3F

<ESC ?>

Cancel user-defined characters

Valid for	Q3
	Q3x
	Q3x ETH

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

[Range] 0x20 ≤ n ≤ 0x7E

[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 [0x1B 0x21](#).
- If the user-defined character has not been defined for the specified character code, the printer ignores this command.

[Default]

[Reference] [0x1B 0x25](#), [0x1B 0x26](#)

[Example]

0x1B 0x45

<ESC E>

Select bold mode

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1B 45 n
ASCII ESC E n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Turns emphasized mode on or off.

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

[Notes]

- Only the LSB of n is effective.
- [0x1B 0x21](#) also turns on and off the bold mode. However, the last received command is the effective one

[Default] n = 0x00

[Reference] [0x1B 0x21](#)

[Example]



0x1B 0x47

<ESC G>

Turn double-strike mode on or off

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1B 47 n
ASCII ESC G n

[Range] $0x00 \leq n \leq 0xFF$

[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 bold mode.

[Default] n = 0x00

[Reference] [0x1B 0x45](#)

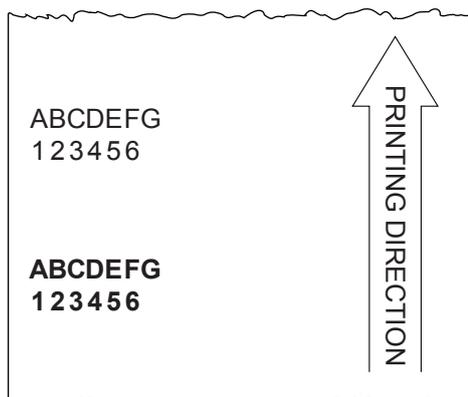
[Example]

Double-strike mode off
0x1B 0x47 0x00 →

ABCDEFGH
1 2 3 4 5 6

Double-strike mode on
0x1B 0x47 0x01 →

ABCDEFGH
1 2 3 4 5 6





0x1B 0x4D

<ESC M>

Select character font

Valid for Q3
 Q3x
 Q3x ETH

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

[Range] n = 0x00, 0x01, 0x30, 0x31

[Description] Selects characters font.

n	FUNCTION
0x00, 0x30	Characters font A selected
0x01, 0x31	Characters font B selected

[Notes]

[Default]

[Reference]

[Example]



0x1B 0x52

<ESC R>

Select international character set

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	52	n
	ASCII	ESC	R	n

[Range] 0x00 ≤ n ≤ 0x0A

[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												
0x00	U.S.A.	#	\$	@	[	\	\]	^	`	{	|	}	~
0x01	France	#	\$	à	°	ç	§	^	`	é	ù	è	“
0x02	Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
0x03	United Kingdom	£	\$	@	[	\	\]	^	`	{	|	}	~
0x04	Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
0x05	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
0x06	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
0x07	Spain I	Pt	\$	@	i	Ñ	¿	^	`	“	ñ	}	~
0x08	Japan	#	\$	@	[	¥	]	^	`	{	|	}	~
0x09	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
0x0A	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

[Notes]

[Default] n = 0x00

[Reference]

[Example]

0x1B 0x56

<ESC V>

Select print mode 90° turned

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1B 56 n
ASCII ESC V n

[Range] n = 0x00, 0x01, 0x30, 0x31

[Description] Turns 90° rotation mode on or off based on the value of n as follows:

n	FUNCTION
0x00, 0x30	Turns off 90° rotation mode
0x01, 0x31	Turns on 90° rotation mode

[Notes]

- When underlined mode is turned on, the device 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.

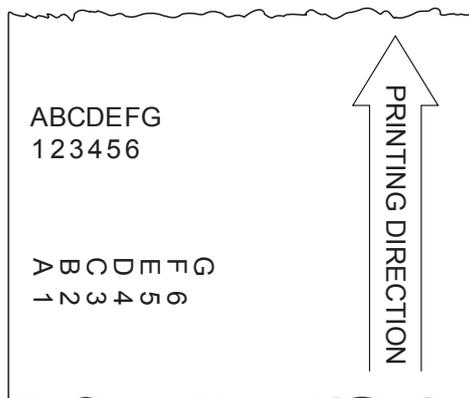
[Default] n = 0x00

[Reference] [0x1B 0x21](#), [0x1B 0x2D](#)

[Example]

90° rotated printing off
0x1B 0x56 0x00

90° rotated printing on
0x1B 0x56 0x01





0x1B 0x74

<ESC t>

Select character code table

Valid for Q3
 Q3x
 Q3x ETH

[Format] Hex 1B 74 n
 ASCII ESC t n

[Range] **Q3**
 n = 0x00, 0x02 ≤ n ≤ 0x05, 0x13, 0xFF

Q3x, Q3x ETH
 0x01 ≤ n ≤ 0x05, 0x0B ≤ n ≤ 0x15, n = 0x1A, 0x1E ≤ n ≤ 0x35, n = 0xFF

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

Q3

n	PAGE
0x00	PC437 - U.S.A., Standard Europe
0x02	PC850 - Multilingual
0x03	PC860 - Portuguese
0x04	PC863 - Canadian/French
0x05	PC865 - Nordic
0x13	PC858 for Euro symbol in 0xD5 position
0xFF	Space page

Q3x, Q3x ETH

n	PAGE
0x00	PC437 - U.S.A., Standard Europe
0x01	Katakana
0x02	PC850 - Multilingual
0x03	PC860 - Portuguese
0x04	PC863 - Canadian/French
0x05	PC865 - Nordic
0x0B	PC851 - Greek on request
0x0C	PC853 - Turkish on request
0x0D	PC857 - Turkish
0x0E	PC737 - Greek



0x0F	ISO8859-7 - Greek	
0x10	WPC1252	
0x11	PC866 - Cyrillic 2	
0x12	PC852 - Latin 2	
0x13	PC858 for Euro symbol at position 0xD5	
0x14	KU42 - Thai	
0x15	TIS11 - Thai	on request
0x1A	TIS18 - Thai	on request
0x1E	TCVN_3 - Vietnamese	on request
0x1F	TCVN_3 - Vietnamese	on request
0x20	PC720 - Arabic	on request
0x21	WPC775 - Baltic Rim	on request
0x22	PC855 - Cyrillic	
0x23	PC861 - Icelandic	on request
0x24	PC862 - Hebrew	
0x25	PC864 - Arabic	
0x26	PC869 - Greek	on request
0x27	ISO8859-2 - Latin 2	on request
0x28	ISO8859-15 - Latin 9	on request
0x29	PC1098 - Farci	on request
0x2A	PC1118 - Lithuanian	on request
0x2B	PC1119 - Lithuanian	on request
0x2C	PC1125 - Ukrainian	on request
0x2D	WPC1250 - Latin 2	
0x2E	WPC1251 - Cyrillic	on request
0x2F	WPC1253 - Greek	on request
0x30	WPC1254 - Turkish	on request
0x31	WPC1255 - Hebrew	on request
0x32	WPC1256 - Arabic	on request
0x33	WPC1257 - Baltic Rim	on request
0x34	WPC1258 - Vietnamese	on request
0x35	KZ1048 - Kazakh	on request
0xFF	Space page	



[Notes]	Q3x, Q3x ETH <ul style="list-style-type: none">• The tables are selectable only if the code pages are present on the device. By selecting a code page not present on the device, the code page remains the one currently in use.• Make sure to select the font type “International” with the command 0x1C 0x25 or with the “Font type” parameter during the setup procedure (refer to the user manual of the device).
[Default]	n = 0x00
[Reference]	0x1C 0x25
[Example]	For printing Euro symbol (€), the command sequence is: 0x1B 0x74 0x13 0xD5

0x1B 0x7B

<ESC {>

Set or cancel upside-down character printing

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1B 7B n
ASCII ESC { n

[Range] 0x00 ≤ n ≤ 0xFF

[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.

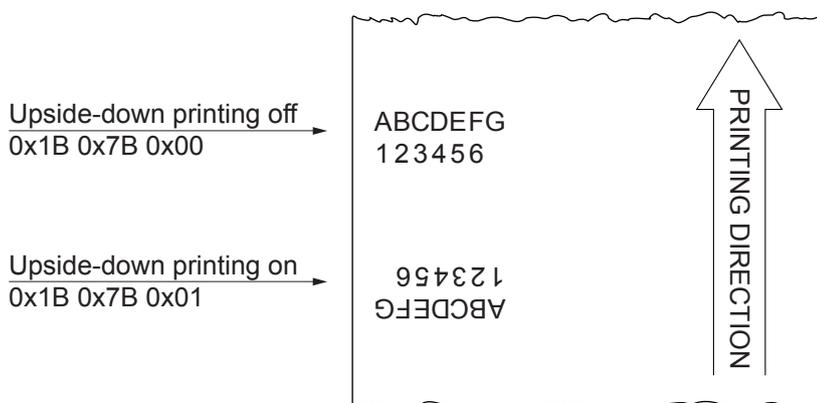
[Notes]

- 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 device rotates the line to be printed 180° and then prints it.

[Default] n = 0x00

[Reference]

[Example]



0x1B 0xC1

Select character pitch

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	C1	n
	ASCII	ESC	0xC1	n

[Range] n = 0x00, 0x01, 0x30, 0x31

[Description] This command selects the character pitch expressed in cpi (characters per inch) based on the following value of n:

n	CHARACTER PITCH	
0x00, 0x30	Font A = 11 cpi	Font B = 15cpi
0x01, 0x31	Font A = 15 cpi	Font B = 20 cpi

[Notes]

[Default] n = 0x00

[Reference] [0x1B 0x21](#)

[Example]

Character pitch 11 cpi
0x1B 0xC1 0x00 →

12345678901

Character pitch 15 cpi
0x1B 0xC1 0x01 →

123456789012345

← 1 inch →





0x1C 0x25

<FS %>

Select the font type

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1C	25	n
	ASCII	FS	%	n

[Range] 0x00 ≤ n ≤ 0x02

[Description] Select the font type based on the value of n as follows:

n	FONT TYPE
0x00	International
0x01	Chinese GB18030
0x02	Korean PC949

[Notes]

- The selection made by this command is stored in the RAM memory. Turning off the device reverts to the default value, that can be set with the “Font type” parameter during the setup procedure (refer to the user manual of the device).

- After selecting the font type “International” it must be selected the desired character code table using the command [0x1B 0x74](#).

[Default] n = 0x00

[Reference] [0x1B 0x74](#), see the Chinese fonts management commands manual.

[Example]



0x1D 0x21

<GS !>

Select character size

Valid for

Q3

Q3x

Q3x ETH

[Format]

Hex	1D	21	n
ASCII	GS	!	n

[Range]

Q3

0x00 ≤ n ≤ 0x07

0x10 ≤ n ≤ 0x17

0x20 ≤ n ≤ 0x27

0x30 ≤ n ≤ 0x37

0x40 ≤ n ≤ 0x47

0x50 ≤ n ≤ 0x57

0x60 ≤ n ≤ 0x67

0x70 ≤ n ≤ 0x77

Q3x, Q3x ETH

0x00 ≤ n ≤ 0x07

0x10 ≤ n ≤ 0x17

0x20 ≤ n ≤ 0x27

0x30 ≤ n ≤ 0x37

0x40 ≤ n ≤ 0x47

0x50 ≤ n ≤ 0x57

[Description]

Selects character height and width, as follows:

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

Q3

Table 1: Select Character Width

HEX	WIDTH
00	1 (normal)
10	2 (width = 2x)
20	3 (width = 3x)
30	4 (width = 4x)
40	5 (width = 5x)
50	6 (width = 6x)
60	7 (width = 7x)
70	8 (width = 8x)

Table 2: Select character height

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



Q3x, Q3x ETH

Table 1: Select Character Width

HEX	WIDTH
00	1 (normal)
10	2 (width = 2x)
20	3 (width = 3x)
30	4 (width = 4x)
40	5 (width = 5x)
50	6 (width = 6x)
-	-
-	-

Table 2: Select character height

HEX	HEIGHT
00	1 (normal)
01	2 (height = 2x)
02	3 (height = 3x)
03	4 (height = 4x)
04	5 (height = 5x)
05	6 (height = 6x)
06	7 (height = 7x)
07	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.
- [0x1B 0x21](#) can also be used to select character size. However, the setting of the last received command is the effective one.
- This command is effective on the x and y axes. In case of 90°/270° rotated characters, bit from 0 to 3 select character width and bit from 4 to 7 select character height.

[Default]

n = 0x00

[Reference]

[0x1B 0x21](#)

[Example]

For printing a character with 6x width and height the command sequence is:
0x1D 0x21 0x55

0x1D 0x42

<GS B>

Turn black and white reverse printing mode on or off

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1D	42	n
	ASCII	GS	B	n

[Range] 0x00 ≤ n ≤ 0xFF

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

- When the LSB of n is 0, black and white reverse printing is turned off.
- When the LSB of n is 1, black and white reverse printing is turned on.

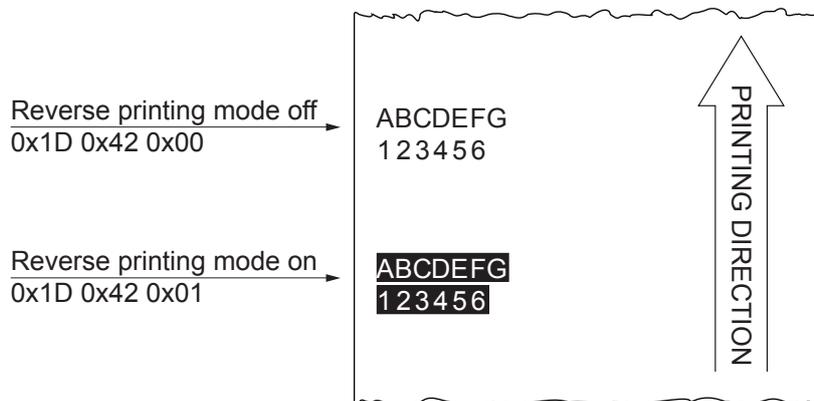
[Notes]

- 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, barcode, HRI characters and spacing skipped by 0x09, 0x1B 0x24 and 0x1B 0x5C.
- This command does not affect white space between lines.
- Black and white reverse mode has a higher priority than underline mode. Even if underline mode is on, it will be disabled (but not cancelled) when black and white reverse mode is selected.

[Default] n = 0x00

[Reference]

[Example]



PRINT POSITION COMMAND

0x09

<HT>

Horizontal tab

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	09
	ASCII	HT

[Range]

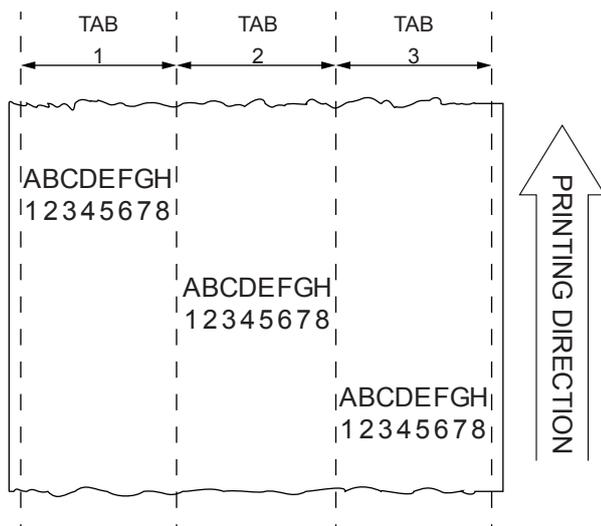
[Description] Moves the print position to the next horizontal tab position.

- [Notes]
- Horizontal tab positions are set using [0x1B 0x44](#).
 - 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 device executes print buffer full printing and horizontal tab processing from the beginning of the next line.

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

[Reference] [0x1B 0x44](#)

[Example]





0x1B 0x24

<ESC \$>

Set absolute print position

Valid for	Q3				
	Q3x				
	Q3x ETH				
[Format]	Hex	1B	24	nL	nH
	ASCII	ESC	\$	nL	nH
[Range]	0x00 ≤ nL ≤ 0xFF				
	0x00 ≤ nH ≤ 0xFF				
[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)].				
[Notes]	<ul style="list-style-type: none"> • Settings outside the specified printable area are ignored. • The horizontal and vertical motion unit are specified by 0x1D 0x50. • 0x1D 0x50 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. • 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. 				
[Default]					
[Reference]	0x1B 0x5C , 0x1D 0x50				
[Example]					



0x1B 0x44

<ESC D>

Set horizontal tab position

Valid for	Q3 Q3x Q3x ETH				
[Format]	Hex	1B	44	n1...nk	00
	ASCII	ESC	D	n1...nk	NUL
[Range]	0x01 ≤ n ≤ 0xFF 0x00 ≤ k ≤ 0x20				
[Description]	Sets horizontal tab positions <ul style="list-style-type: none"> • 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]	<ul style="list-style-type: none"> • The horizontal tab position is stored as a value of [character width* 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. • Up to 32 tab positions (k = 0x20) 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. • 0x1B 0x44 0x00 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, ...) when the right-side character spacing is 0.				
[Reference]	0x09				
[Example]	When setting n = 0x08, the print position is moved to column 9 sending 0x09.				



0x1B 0x5C

<ESC \>

Set relative print position

Valid for	Q3				
	Q3x				
	Q3x ETH				
[Format]	Hex	1B	5C	nL	nH
	ASCII	ESC	\	nL	nH
[Range]	0x00 ≤ nL ≤ 0xFF				
	0x00 ≤ nH ≤ 0xFF				
[Description]	Sets the print starting position based on the current position by using the horizontal or vertical motion unit.				
	Sets the distance from the current position to [(nL+ nH * 256) * horizontal or vertical motion unit].				
[Notes]	<ul style="list-style-type: none"> • 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 0x1D 0x50. • 0x1D 0x50 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. • Setting the right value, it's possible to print characters over the right edge. • It's possible to print further on the right margin set for every font. In this case the printing continues up to the maximum border of the printer mechanism and then begins a new row. 				
[Default]					
[Reference]	0x1B 0x24 , 0x1D 0x50				
[Example]					

0x1B 0x61

<ESC a>

Select justification

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1B 61 n
ASCII ESC a n

[Range] $0x00 \leq n \leq 0x02$
 $0x30 \leq n \leq 0x32$

[Description] This command selects the type of justification based on the value of n as follows:

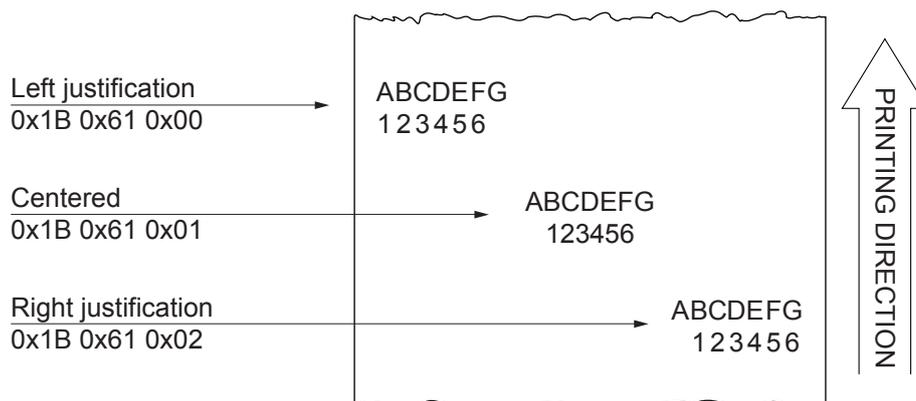
n	JUSTIFICATION
0x00, 0x30	Left justification
0x01, 0x31	Centered
0x02, 0x32	Right justification

- [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 0x09, 0x1B 0x24 and 0x1B 0x5C will be justified according to the previously-entered mode.

[Default] n = 0x00

[Reference]

[Example]



0x1D 0x4C

<GS L>

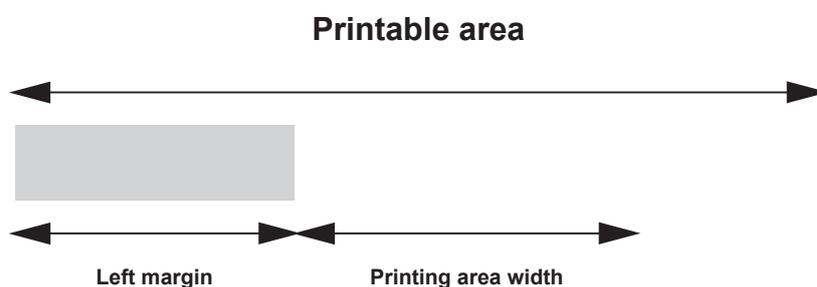
Set left margin

Valid for	Q3
	Q3x
	Q3x ETH

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

[Range]	$0x00 \leq nL, nH \leq 0xFF$
---------	------------------------------

[Description]	Sets the left margin to $[(nL + nH * 256) * \text{horizontal motion unit}]$.
---------------	---



- [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 [0x1D 0x50](#). Changing the horizontal or vertical motion unit does not affect the current left margin.
 - The [0x1D 0x50](#) 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.

[Default]

[Reference] [0x1D 0x50](#), [0x1D 0x57](#)

[Example]

0x1D 0x57

<GS W>

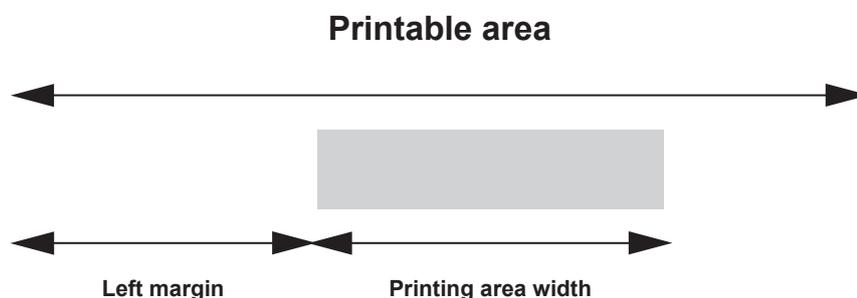
Set printing area width

Valid for Q3
Q3x
Q3x ETH

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

[Range] $0x00 \leq nL, nH \leq 0xFF$
 $0 \leq nL + nH * 256 \leq 832$

[Description] Sets the printing area width to the area specified by nL and nH.
The left margin is set to $[(nL + nH * 256) * \text{horizontal motion unit}]$.



- [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 [0x1D 0x50](#). Changing the horizontal or vertical motion unit does not affect the current left margin.
 - The [0x1D 0x50](#) 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.

[Default]

[Reference] [0x1D 0x4C](#), [0x1D 0x50](#)

[Example]



BIT IMAGE COMMANDS

0x1B 0x2A

<ESC *>

Select image print mode

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	2A	m	nL	nH	d1...dk
	ASCII	ESC	*	m	nL	nH	d1...dk

[Range]

m = 0x00, 0x01, 0x20, 0x21
 0x00 ≤ nL ≤ 0xFF
 0x00 ≤ nH ≤ 0x03
 0x00 ≤ d ≤ 0xFF

[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. DATA (k)
0x00	8 dots single density	8	67	100	nL + nH * 256
0x01	8 dots double density	8	67	200	nL + nH * 256
0x20	24 dots single density	24	200	100	(nL + nH * 256) * 3
0x21	24 dots double density	24	200	200	(nL + nH * 256) * 3

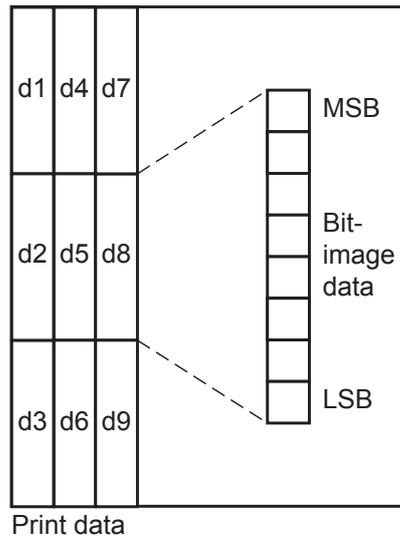
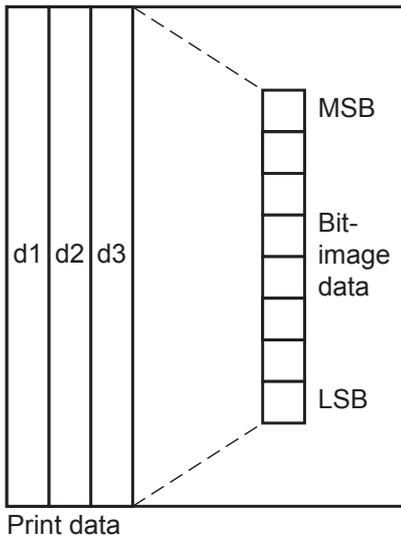
- [Notes]
- The nL and nH commands indicate the number of dots of the bit image in the horizontal direction. The number of dots is calculated using: nL + nH * 256.
 - If the bit image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
 - d indicates the bit image 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 0x1D 0x4C and 0x1D 0x57 is less than the width required by the data set using 0x1B 0x2A, the excess data are ignored.
 - To print the bit image use 0x0A, 0x0D, 0x1B 0x4A or 0x1B 0x64.
 - After printing a bit image, the printer returns to normal data processing mode.
 - This command is not affected by the bold, double-strike, underlined print modes, except for the upside-down mode.



- The relationship between the image data and the dots to be printed is as follows:

8 dots bit image

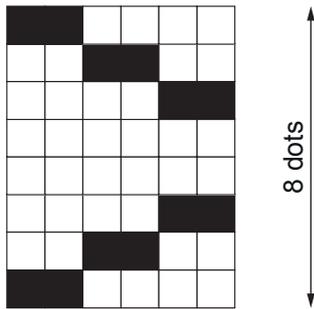
24 dots bit image



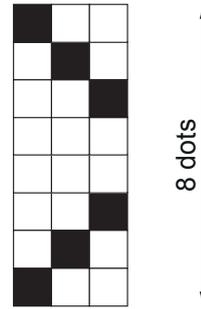
[Default]

[Reference]

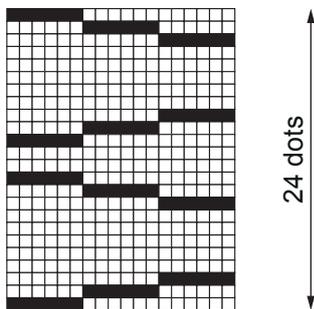
[Example]



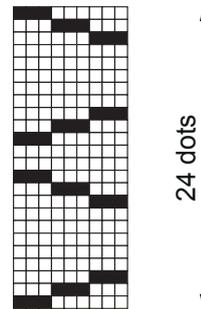
8 dots single density



8 dots double density



24 dots single density



24 dots double density

0x1C 0x70

<FS p>

Print NV bit image

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1C	70	n	m
	ASCII	FS	p	n	m

[Range]	0x01 ≤ n ≤ 0xFF
	0x00 ≤ m ≤ 0x03
	0x30 ≤ m ≤ 0x33

[Description] Prints a NV bit image n using the mode specified by m as follows:

m	MODE
0x00, 0x30	Normal
0x01, 0x31	Double width
0x02, 0x32	Double heighth
0x03, 0x33	Quadruple

n is the number of the NV bit image.

- [Notes]
- NV bit image means a bit image which is defined in a non-volatile memory by [0x1C 0x71](#) and printed by [0x1C 0x70](#).
 - This command is not effective when the specified NV bit image has not been defined.
 - This command is effective only when there is no data in the print buffer.
 - This command is not affected by print modes (bold, underline, character size, black and white reverse printing, etc.), except upside-down printing mode.
 - If the printing area width set by [0x1D 0x4C](#) and [0x1D 0x57](#) for the NV bit image is less than one vertical line, the following processing is executed only on the line in question. However, in NV bit image mode, one vertical line means 1 dot (one half dot for slip paper) in normal mode (m = 0x00 or 0x31) and in double height mode (m = 0x02 or 0x32), and it means 2 dots (two half dots for slip paper) in double width mode (m = 0x01 or 0x31) and in quadruple mode (m = 0x03 or 0x33).
 - 1) The printing area width is extended to the right in NV bit image mode up to one line vertically. In this case, printing does not exceed the printable area.
 - 2) If the printing area width cannot be extended by one line vertically, the left margin is reduced to accommodate one line vertically.
 - If the downloaded bit image to be printed exceeds one line, the excess data is not printed.



- This command feeds dots (for the height n of the NV bit image) in normal and double width modes, and (for the height $n \times 2$ of the VN bit image) in double height and quadruple modes, regardless of the line spacing specified by `0x1B 0x32` or `0x1B 0x33`.
- After printing the bit image, this command sets the print position to the beginning of the line and processes the data that follows as normal data.

[Default]

[Reference] `0x1C 0x71`

[Example]

0x1C 0x71

<FS q>

Define NV bit image

Valid for	Q3 Q3x Q3x ETH
[Format]	Hex 1C 71 n [xL xH yL yH d1...dk] 1...[xL xH yL yH d1...dk] n ASCII FS q n [xL xH yL yH d1...dk] 1...[xL xH yL yH d1...dk] n
[Range]	0x01 ≤ n ≤ 0xFF 0x00 ≤ xL ≤ 0xFF 0x00 ≤ xH ≤ 0x03 (when 1 ≤ (xL + xH * 256) ≤ 1023) 0x00 ≤ yL ≤ 0x01 (when 1 ≤ (yL + yH * 256) ≤ 288) 0x00 ≤ d ≤ 0xFF k = (xL + xH * 256) * (yL + yH * 256) * 8 Total defined data area = 3 Mbits (384 kB)
[Description]	Define an NV bit image. Its number is specified by n. • xL, xH specifies (xL + xH * 256) * 8 dots in the horizontal direction for the NV bit image you are defining. • yL, yH specifies (yL + yH * 256) * 8 dots in the vertical direction for the NV bit image you are defining.
[Notes]	<ul style="list-style-type: none"> • Frequent write command execution may cause damage the NV memory. Therefore, it is recommended to write the NV memory 10 times or less a day. • The device executes a hardware reset after the procedure to place the image into the non-volatile memory. Therefore, user-defined characters, downloaded bit images, and macros should be defined only after completing this command. The device clears the receive and print buffers and resets the mode to the mode that was in effect at power on. • During processing this command, the device is in BUSY when writing the data to the user NV memory and stops receiving data. Therefore it is prohibited to transmit the data including the real-time commands during the execution of this command. • This command cancels all NV bit images that have already been defined by this command. The device can not redefine only one of several data definitions previously defined. In this case, all data needs to be sent again. • From the beginning of the processing of this command till the finish of hardware reset, mechanical operations (including initializing the position of the printer head when the cover is open, paper feeding by using the PAPER FEED key, etc.) cannot be executed. • NV bit image means a bit image which is defined in a non-volatile memory by 0x1C 0x71 and printed by 0x1C 0x70. • This command is effective only when processed at the beginning of the line. • This command is effective when 7 bytes <FS~yH> is processed as a normal value. • When the amount of data exceeds the capacity left in the range defined by xL, xH, yL, yH, the printer processes xL, xH, yL, yH out of the defined range. • In the first group of NV bit images, when any of the parameters xL, xH, yL, yH is out of the definition range, this command is disabled.



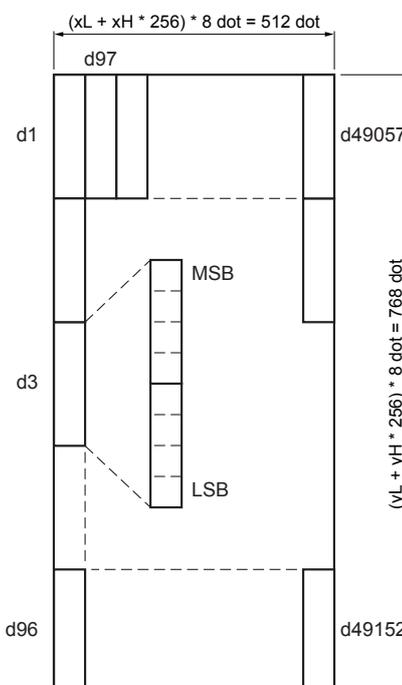
- In groups of NV bit images other than the first one, when the printer processes xL, xH, yL, yH out of the defined range, it stops processing this command and starts writing into the non-volatile images. At this time, NV bit images that haven't been defined are disabled (undefined), but any NV bit images before that are enabled.
- The d indicates the definition data. In data (d) a 1 bit specifies a dot to be printed and a 0 bit specifies a dot not to be printed.
- This command defines n as the number of a NV bit image. Numbers rise in order from NV bit image 0x01. Therefore, the first data group [xL xH yL yH d1...dk] is NV bit image 0x01, and the last data group [xL xH yL yH d1...dk] is NV bit image n. The total agrees with the number of NV bit images specified by command 0x1C 0x70.
- A definition data of a NV bit image consists of [xL xH yL yH d1...dk]. Therefore, when only one NV bit image is defined, n = 0x01.
- The device processes a data group [xL xH yL yH d1...dk] once.
- The device uses $([data: (xL + xH * 256) * (yL + yH * 256) * 8] + [header :4])$ byte of non-volatile memory.
- The definition area in this printer is a maximum of 3 Mbits (384 kB). This command can define several NV bit images, but cannot define a bit image data whose total capacity [bit image data + header] exceeds 3 Mbits (384 kB).
- The device is busy immediately before writing into non-volatile memory.
- When this command is received during macro definition, the device ends macro definition, and begins executing this command.
- Once a NV bit image is defined, it is not erased by executing 0x1B 0x40, reset, and power off.
- This command executes only definition of a NV bit image and does not execute printing. Printing of the NV bit image is executed by the 0x1C 0x70 command.

[Default]

[Reference] **0x1C 0x70**

[Example]

When xL = 64,
 xH = 0,
 yL = 96,
 yH = 0



0x1D 0x2A

<GS *>

Define downloaded bit image

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1D 2A x y d1...d(x * y * 8)
ASCII GS * x y d1...d(x * y * 8)

[Range] $0x01 \leq x \leq 0xFF$
 $0x01 \leq y \leq 0x30$
 $x * y \leq 1536$
 $0x00 \leq d \leq 0xFF$

[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.

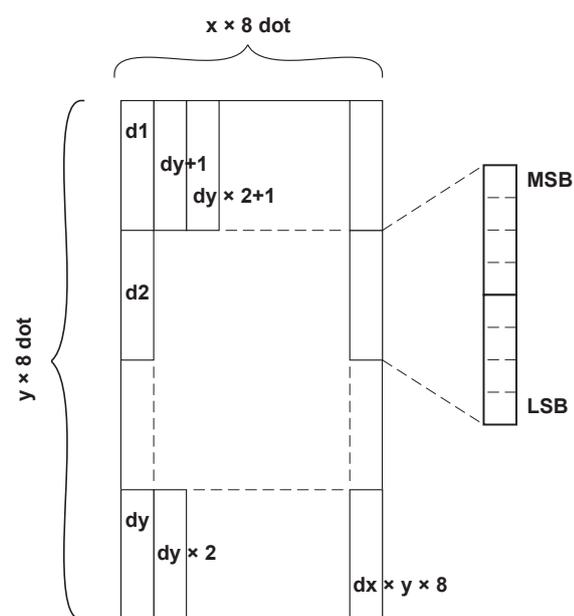
[Notes]

- 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) 0x1B 0x40 is executed.
 - 2) 0x1B 0x26 is executed.
 - 3) Device is reset or the power is turned off.

[Default]

[Reference]

[Example] The following figure shows the relationship between the downloaded bit image and the printed data.





0x1D 0x2F

<GS />

Print downloaded bit image

Valid for	Q3
	Q3x
	Q3x ETH

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

[Range]	0x00 ≤ m ≤ 0x03
	0x30 ≤ m ≤ 0x33

[Description] Prints a downloaded bit image using the mode specified by m as follows:

m	MODE
0x00, 0x30	Normal
0x01, 0x31	Double width
0x02, 0x32	Double height
0x03, 0x33	Quadruple

- [Notes]
- This command is ignored if a downloaded bit image has not been defined.
 - This command is effective only when there is no data in the print buffer.
 - This command has no effect in the print modes (bold, 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 [0x1D 0x4C](#) and [0x1D 0x57](#) 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] [0x1D 0x2A](#)

[Example]



0x1D 0x76 0x30

<GS v 0>

Print raster image

Valid for	Q3
	Q3x
	Q3x ETH

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

[Range]

0x00 ≤ m ≤ 0x03, 0x30 ≤ m ≤ 0x31
 0x00 ≤ xL ≤ 0xFF
 0x00 ≤ xH ≤ 0xFF (1 ≤ xL + xH * 256 ≤ 65535)
 0x00 ≤ yL ≤ 0xFF
 0x00 ≤ yH ≤ 0x08 (1 ≤ yL + yH * 256 ≤ 2047)
 0x00 ≤ d ≤ 0xFF
 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
0x00, 0x30	Normal
0x01, 0x31	Double width
0x02, 0x32	Double height
0x03, 0x33	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]
- 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, bold, 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 0x1B 0x32 or 0x1B 0x33.
 - 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]



STATUS COMMANDS

0x10 0x04

<DLE EOT>

Real-time status transmission

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	10	04	n
	ASCII	DLE	EOT	n

[Range] 0x01 ≤ n ≤ 0x04, n = 0x11, n = 0x14, n = 0x15

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

- n = 0x01 transmit device status
- n = 0x02 transmit off-line status
- n = 0x03 transmit error status
- n = 0x04 transmit paper roll sensor status
- n = 0x11 transmit print status
- n = 0x14 transmit FULL STATUS
- n = 0x15 transmit device ID

n = 0x01: Device status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Not used. Fixed to Off
1	On	02	Not used. Fixed to On
2	Off	00	Drawer kick-out signal level Low (pin 3)
	On	04	Drawer kick-out signal level High (pin 3)
3	Off	00	On-line
	On	08	Off-line
4	On	10	Not used. Fixed to On
5	-	-	RESERVED
6	Off	00	FEED key released
	On	40	FEED key pressed
7	-	-	Undefined



n = 0x02: Off-line status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Not used. Fixed to Off
1	On	02	Not used. Fixed to On
2	Off	00	Cover close
	On	04	Cover open
3	Off	00	Paper isn't fed by FEED key
	On	08	Paper is fed by FEED key
4	On	10	Not used. Fixed to On
5	Off	00	Paper present
	On	20	Printing stop due to paper end
6	Off	00	No error
	On	40	Error
7	Off	00	Not used. Fixed to Off

n = 0x03: Error status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Not used. Fixed to Off
1	On	02	Not used. Fixed to On
2	On	00	Not used. Fixed to Off
3	Off	00	Autocutter ok
	On	08	Autocutter error
4	On	10	Not used. Fixed to On
5	Off	00	No unrecoverable error
	On	20	Unrecoverable error
6	Off	00	No auto-recoverable error
	On	40	Auto-recoverable error
7	Off	00	Not used. Fixed to Off



n = 0x04: Paper roll sensor status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Not used. Fixed to Off
1	On	02	Not used. Fixed to On
2, 3	Off	00	Paper present
	On	0C	Near paper end (*)
4	On	10	Not used. Fixed to On
5, 6	On	60	Fixed to On. Paper end is detected by the paper end sensor
7	Off	00	Not used. Fixed to Off

(*): Only for Q3 model

n = 0x11: Print status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Not used. Fixed to Off
1	On	02	Not used. Fixed to On
2	Off	00	Paper drag motor off
	On	04	Paper drag motor on
3	-	-	RESERVED
4	On	10	Not used. Fixed to On
5	Off	00	Paper present
	On	20	Printing stop due to paper end
6	-	-	RESERVED
7	Off	00	Not used. Fixed to Off



n = 0x14: FULL status (6 bytes)

1st byte = 0x10 (DLE)

2nd byte = 0x0F

3rd byte = Paper status

BIT	OFF/ON	HEX	FUNCTION
0	OFF	00	Paper present
	ON	01	Paper not present
1	-	-	RESERVED
2	OFF	00	Paper present
	ON	04	Low paper (*)
3	-	-	RESERVED
4	-	-	RESERVED
5	-	-	RESERVED
6	-	-	RESERVED
7	-	-	RESERVED

(*): Only for Q3 model

4th byte = User status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Printing head down
	On	01	Printing head up
1	Off	00	Cover closed
	On	02	Cover opened
2	Off	00	No spooling
	On	04	Spooling
3	Off	00	Drag paper motor off
	On	08	Drag paper motor on
4	-	-	RESERVED
5	Off	00	FEED key released
	On	20	FEED key pressed
6	-	-	Undefined
7	-	-	RESERVED



5th byte = Recoverable error status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Head temperature ok
	On	01	Head temperature error
1	Off	00	No COM error
	On	02	RS232 COM error
2	-	-	RESERVED
3	Off	00	Power supply voltage ok
	On	08	Power supply voltage error
4	-	-	RESERVED
5	Off	00	Acknowledge command
	On	20	Not acknowledge command error
6	-	-	RESERVED
7	Off	00	Black mark aligned
	On	80	Black mark not aligned

6th byte = Unrecoverable error status

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Autocutter ok
	On	01	Autocutter error
1	-	-	RESERVED
2	Off	00	RAM ok
	On	04	RAM error
3	Off	00	EEPROM ok
	On	08	EEPROM error
4	-	-	RESERVED
5	-	-	RESERVED
6	-	-	RESERVED
7	-	-	RESERVED

n = 0x15: transmit device ID

1st byte = 0x8E (refer to command [0x1D 0x49](#))

[Notes]

Immediately executed even when the data buffer is full.

[Default]

[Reference]

[Example]



0x10 0x05

<DLE ENQ>

Real-time request to printer

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	10	05	n
	ASCII	DLE	ENQ	n

[Range] 0x01 ≤ n ≤ 0x02

[Description] Responds to a request from the host computer based on the value of n as follows:

n	REQUEST
0x01	Recover from an error and restart printing from the line where the error occurred
0x02	Recover from an error after clearing the receive and print buffers

- [Notes]
- This command is effective only when an auto-cutter error occurs.
 - The printer starts processing data upon receiving this command.
 - This command can not be executed when the printer is busy.
 - The status is also transmitted whenever the data sequence of 0x10 0x05 n (0x01 ≤ n ≤ 0x02) is received.

Example:

0x1B 0x2A m nL nH dk, d1 = 0x10, d2 = 0x05, d3 = 0x01

- This command should not be contained within another command that consists of two or more bytes.

Example:

If you attempt to transmit 0x1B 0x33 n to the printer, but DTR (DSR for the host computer) goes to MARK before n is transmitted, and 0x10 0x05 0x02 interrupts before n is received, the code 0x10 for 0x10 0x05 0x02 is processed as the code for 0x1B 0x33 0x10.

- 0x10 0x05 0x02 enables the printer to recover from an error after clearing the data in the receive buffer and the print buffer. The printer retains the settings (by 0x1B 0x21, 0x1B 0x33, etc.) that were in effect when the error occurred. The printer can be initialized completely by using this command and 0x1B 0x40. This command is enabled only for errors that have the possibility of recovery, except for print head temperature error.

- When the printer is disabled with 0x1B 0x3D, the error recovery functions 0x10 0x05 0x01 and 0x10 0x05 0x02 are enabled, and the other functions are disabled.

[Default]

[Reference] [0x10 0x04](#)

[Example]



0x1B 0x76

<ESC v>

Transmit printer status

Valid for Q3
 Q3x
 Q3x ETH

[Format] Hex 1B 76
 ASCII ESC v

[Range]

[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	FUNCTION
0, 1	Off	00	Low paper sensor: paper present (*)
	On	03	Low paper sensor: paper not present (*)
2, 3	Off	00	Paper-end sensor: paper present
	On	(0C)	Paper-end sensor: paper not present
4	Off	00	Not used. Fixed to Off
5	-	-	Undefined
6	-	-	Undefined
7	Off	00	Not used. Fixed to Off

(*): Only for Q3 model

[Notes] This command is executed immediately, even when the data buffer is full (Busy).

[Default]

[Reference] [0x10 0x04](#)

[Example]



0x1D 0x61

<GS a>

Enable or disable Automatic Status Back (ASB)

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1D	61	n
	ASCII	GS	a	n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Enable or disable basic Automatic Status Back (ASB) based on the value of n as follows:

BIT	OFF/ON	n	FUNCTION
0	Off	00	Disable drawer connector status
	On	01	Enable drawer connector status
1	Off	00	Disable cover open + FEED button status
	On	02	Enable cover open + FEED button user status
2	Off	00	Disable autocutter, recoverable error, unrecoverable and online status
	On	04	Enable autocutter, recoverable error, unrecoverable and online status
3	Off	00	Disable low paper + paper end status
	On	08	Enable low paper + paper end status
4, 5	-	-	Undefined
6	Off	00	Disable FEED button status
	On	40	Enable FEED button status
7	-	-	Undefined

- [Notes]
- ASB is the function that transmit the status of cover open or close and Online or offline from the device automatically. If you use ASB, application can acquire the device change in a real-time and passively.
 - Select any status enabled (except n = 0x00) and basic ASB starts. Then transmit the current basic ASB status. After that, while ASB is active the selected enabled basic ASB status is transmitted whenever the status changes.
 - When n = 0x00, basic ASB is disabled. When ASB is disabled, basic ASB status is not transmitted.
 - Multiple status items can be selected.
 - When ASB is active, ASB status is transmitted whenever the status changes even if the device is disabled by [0x1B 0x3D](#).
 - Settings are effective until [0x1B 0x40](#) is executed or the device is reset or turned off.

[Default]

[Reference] [0x10 0x04](#)

[Example]

0x1D 0x72

Transmit status

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1D 72 n
ASCII GS r n

[Range] $0x01 \leq n \leq 0x02$

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

n	FUNCTION
0x01	Transmits paper sensor status
0x02	Transmits drawer connector status

Paper sensor status (n = 0x01)

BIT	OFF/ON	HEX	FUNCTION
0,1	Off	00	Not used. Fixed to Off
2,3	Off	00	Paper-end sensor: paper present
	On	(0C)	Paper-end sensor: paper not present
4	Off	00	Not used. Fixed to Off
5	-	-	Undefined
6	-	-	Undefined
7	Off	00	Not used. Fixed to Off

Drawer connector status (n = 0x02)

BIT	OFF/ON	HEX	FUNCTION
0,1	Off	00	Connector pin 3 at low level
	On	01	Connector pin 3 at high level
1	-	-	Undefined
2	-	-	Undefined
3	-	-	Undefined
4	Off	00	Not used. Fixed to Off
5	-	-	Undefined
6	-	-	Undefined
7	Off	00	Not used. Fixed to Off



[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] [0x10 0x04, 0x1B 0x76](#)

[Example]



0x1D 0xDE

Transmit head temperature

Valid for Q3x
 Q3x ETH

[Format] Hex 1D DE
 ASCII GS 0xDE

[Range]

[Description] Transmit the printing head temperature expressed in °C.

[Notes]

[Default]

[Reference]

[Example]



0x1D 0xDF

Transmit head voltage

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1D	DF
	ASCII	GS	0xDF

[Range]

[Description] Transmit the printing head voltage expressed in V.

[Notes]

[Default]

[Reference]

[Example]



0x1D 0xE0

Enable or disable automatic full status back

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1D	E0	n
	ASCII	GS	0xE0	n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Enable or disable automatic full status back. n specifies the composition of full status as follows:

BIT	OFF/ON	n	FUNCTION
0	Off	00	Disable paper status
	On	01	Enable paper status
1	Off	00	Disable user status
	On	02	Enable user status
2	Off	00	Disable recoverable error status
	On	04	Enable recoverable error status
3	Off	00	Disable unrecoverable error status
	On	08	Enable unrecoverable error status
4	-	-	RESERVED
5	-	-	RESERVED
6	-	-	RESERVED
7	-	-	RESERVED

[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:

1st Byte = 0x10

2nd Byte = n

[Default]

[Reference] [0x10 0x04](#)

[Example]



0x1D 0xE2

Reading number of cuts performed by the autocutter

Valid for

- Q3
- Q3x
- Q3x ETH

[Format]

Hex	1D	E2
ASCII	GS	0xE2

[Range]

[Description] Reading the number of cuts performed by the autocutter.

[Notes] The command returns a string indicating how many cuts are performed by the autocutter.

[Default]

[Reference]

[Example] If the autocutter has performed 785 cuts, the answer will be '785cuts'



0x1D 0xE3

Reading of length of printed paper

Valid for	Q3		
	Q3x		
	Q3x ETH		

[Format]	Hex	1D	E3
	ASCII	GS	0xE3

[Range]

[Description] Reading of length expressed in centimetre of printed paper.

[Notes] The command returns a string indicating how much paper is printed.

[Default]

[Reference]

[Example] If the device has printed about 388.9 m, the answer will be '38890cm'



0x1D 0xE5

Reading number of power up

Valid for Q3
 Q3x
 Q3x ETH

[Format] Hex 1D E5
 ASCII GS 0xE5

[Range]

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

[Notes] The command returns a string indicating the number of device power ups.

[Default]

[Reference]

[Example] If the printer is turned on 512 times, the answer will be
 '512on'



BARCODE COMMANDS

0x1D 0x28 0x6B

<GS (>

Print two-dimensional barcode

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1D	28	6B	pL	pH	cn	fn
	ASCII	GS	(	k	pL	pH	cn	fn

[Range]	Q3
	cn = 0x30
	0x41 ≤ fn ≤ 0x45
	fn = 0x50, 0x51
	Q3x, Q3x ETH
	cn = 0x30, 0x31
	0x41 ≤ fn ≤ 0x45
	fn = 0x50, 0x51

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

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

cn	fn	FUNCTION	
0x30	0x41	Function 065	PDF417: Specify the number of columns
0x30	0x42	Function 066	PDF417: Specify the number of rows
0x30	0x43	Function 067	PDF417: Specify the width of module
0x30	0x44	Function 068	PDF417: Specify the module height
0x30	0x45	Function 069	PDF417: Specify the error correction level
0x30	0x50	Function 080	PDF417: Store the received data in the barcode save area
0x30	0x51	Function 081	PDF417: Print the barcode data in the barcode save area
0x31	0x41	Function 065	QRcode: Specify encoding scheme
0x31	0x42	Function 066	QRcode: Specify dot size of the module
0x31	0x43	Function 067	QRcode: Specify size of barcode
0x31	0x45	Function 069	QRcode: Specify the error correction level
0x31	0x50	Function 080	QRcode: Store the received data in the barcode save area
0x31	0x51	Function 081	QRcode: Print the barcode data



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

[Default]

[Reference]

[Example]



0x1D 0x28 0x6B [fn 065]

<GS (>

Specify the number of columns of PDF417 barcode

Valid for	Q3 Q3x Q3x ETH								
[Format]	Hex	1D	28	6B	pL	pH	30	41	n
	ASCII	GS	(	k	pL	pH	0	A	n
[Range]	(pL+pH * 256) = 3 (pL = 0x03, pH = 0x00) 0x00 ≤ n ≤ 0x1E								
[Description]	<p>Specifies the number of columns of PDF417 barcode.</p> <ul style="list-style-type: none"> • pL and pH specify the number of successive bytes to be sent. • n = 0x00 specifies auto processing. • When n is not 0x00, specifies the number of columns of the data area as n code word. • When auto processing (n = 0x00) is specified, the maximum number of columns in the data area is 30 columns. 								
[Notes]	<ul style="list-style-type: none"> • The following data is not included in the number of columns: <ul style="list-style-type: none"> - start pattern and stop pattern - indicator code word of left and right • Settings are effective until 0x1B 0x40 is executed or the device is reset or turned off. 								
[Default]	n = 0x00								
[Reference]									
[Example]	To define 3 columns, the command sequence is: 0x1D 0x28 0x6B 0x03 0x00 0x30 0x41 0x03								



0x1D 0x28 0x6B [fn 066]

<GS (>

Specify the number of rows of PDF417 barcode

Valid for	Q3 Q3x Q3x ETH								
[Format]	Hex	1D	28	6B	pL	pH	30	42	n
	ASCII	GS	(	k	pL	pH	0	B	n
[Range]	(pL+pH * 256) = 3 (pL = 0x03, pH = 0x00) n = 0x00 0x03 ≤ n ≤ 0x14								
[Description]	Specifies the number of rows of PDF417 barcode. <ul style="list-style-type: none"> • pL and pH specify the number of successive bytes to be sent. • n = 0x00 specifies auto processing. • When n is not 0x00, specifies the number of rows of the data area as n rows. • When auto processing (n = 0x00) is specified, the maximum number of rows is 90. 								
[Notes]	Settings are effective until 0x1B 0x40 is executed or the device is reset or turned off.								
[Default]	n = 0x00								
[Reference]									
[Example]	To define 3 rows, the command sequence is: 0x1D 0x28 0x6B 0x03 0x00 0x30 0x42 0x03								



0x1D 0x28 0x6B [fn 067]

<GS (>

Specify the width of a module of PDF417 barcode

Valid for	Q3								
	Q3x								
	Q3x ETH								

[Format]	Hex	1D	28	6B	pL	pH	30	43	n
	ASCII	GS	(	k	pL	pH	0	C	n

[Range] (pL + pH * 256) = 3 (pL = 0x03, pH = 0x00)
0x02 ≤ n ≤ 0x08

[Description] Specifies the width of a module of PDF417 barcode.
• pL and pH specify the number of successive bytes to be sent.

[Notes] Settings are effective until **0x1B 0x40** is executed or the device is reset or turned off.

[Default] n = 0x03

[Reference]

[Example] To set width = 4, the command sequence is:
0x1D 0x28 0x6B 0x03 0x00 0x30 0x43 0x04



0x1D 0x28 0x6B [fn 068]

<GS (>

Specify the height of PDF417 barcode

Valid for	Q3								
	Q3x								
	Q3x ETH								

[Format]	Hex	1D	28	6B	pL	pH	30	44	n
	ASCII	GS	(	k	pL	pH	0	D	n

[Range] (pL + pH * 256) = 3 (pL = 0x03, pH = 0x00)
0x02 ≤ n ≤ 0x08

[Description] Specifies the height of the module of the PDF417 barcode.
• pL and pH specify the number of successive bytes to be sent.

[Notes] Settings are effective until **0x1B 0x40** is executed or the device is reset or turned off.

[Default] n = 0x03

[Reference]

[Example] To set height = 4, the command sequence is:
0x1D 0x28 0x6B 0x03 0x00 0x30 0x44 0x04



0x1D 0x28 0x6B [fn 069]

<GS (>

Specify the error correction level of PDF417 barcode

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1D	28	6B	pL	pH	30	45	m	n
	ASCII	GS	(	k	pL	pH	0	E	m	n

[Range]	(pL + pH * 256) = 4	(pL = 0x04, pH = 0x00)
	m = 0x30	0x30 ≤ n ≤ 0x38
	m = 0x31	0x01 ≤ n ≤ 0x28

[Description]	Specifies the error correction level of PDF417 barcode.
	<ul style="list-style-type: none"> • pL and pH specify the number of successive bytes to be sent. • The error correction level is specified by “level” when m = 0x30. • The error correction level is specified by “ratio” when m = 0x31 [n * 10%].

[Notes]	<ul style="list-style-type: none"> • Error correction level is specified by either “level” or “ratio”. • Error correction level specified by “level” (m = 0x30) 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
0x30	Error correction level 0	2
0x31	Error correction level 1	4
0x32	Error correction level 2	8
0x33	Error correction level 3	16
0x34	Error correction level 4	32
0x35	Error correction level 5	64
0x36	Error correction level 6	128
0x37	Error correction level 7	256
0x38	Error correction level 8	512



- Error correction level specified by “ratio” (m = 0x31) 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 **0x1B 0x40** is executed or the device is reset or turned off.

[Default] m = 0x31, n = 0x01 [ratio: 10%]

[Reference]

[Example] To set error correction = 0.2, the command sequence is:
0x1D 0x28 0x6B 0x03 0x00 0x30 0x45 0x30 0x02



0x1D 0x28 0x6B [fn 080]

<GS (>

Store the PDF417 barcode data in the barcode save area

Valid for	Q3 Q3x Q3x ETH									
[Format]	Hex	1D	28	6B	pL	pH	30	50	30	d1...dk
	ASCII	GS	(	k	pL	pH	0	P	0	d1...dk
[Range]	<p>$0x00 \leq d \leq 0xFF$ $k = (pL + pH * 256) - 3$</p> <ul style="list-style-type: none"> PDF417 barcode only with ASCII characters: $4 \leq (pL + pH * 256) \leq 1112$ ($0x00 \leq pL \leq 0xFF$, $0x00 \leq pH \leq 0x04$) PDF417 barcode only with alphanumeric characters: $4 \leq (pL + pH * 256) \leq 1854$ ($0x00 \leq pL \leq 0xFF$, $0x00 \leq pH \leq 0x07$) PDF417 barcode only with numeric characters: $4 \leq (pL + pH * 256) \leq 2729$ ($0x00 \leq pL \leq 0xFF$, $0x00 \leq pH \leq 0x0A$) 									
[Description]	Store the PDF417 barcode data (d1...dk) in the barcode save area.									
[Notes]	<ul style="list-style-type: none"> 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 0x1B 0x40 is executed, the device is reset or turned off. 									
[Default]										
[Reference]										
[Example]										



0x1D 0x28 0x6B [fn 081]

<GS (>

Encodes and prints the PDF417 barcode data in the barcode save area

Valid for	Q3 Q3x Q3x ETH								
[Format]	Hex	1D	28	6B	pL	pH	30	51	30
	ASCII	GS	(	k	pL	pH	0	Q	0
[Range]	(pL+pH × 256) = 3 (pL = 0x03, pH = 0x00)								
[Description]	Encodes and prints the PDF417 barcode data in the barcode save area. • pL and pH specify the number of successive bytes to be sent.								
[Notes]	<ul style="list-style-type: none"> • In standard mode, use this function when printer is at the beginning of a line or there is no data in the print buffer. • 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 printed. <ul style="list-style-type: none"> - 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]									
[Example]	To print the PDF417 barcode data the command sequence is: 0x1D 0x28 0x6B 0x03 0x00 0x30 0x51 0x30								

0x1D 0x28 0x6B [fn 065]

<GS (k>

Specify encoding scheme of QRcode barcode

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1D	28	6B	pL	pH	31	41	n
	ASCII	GS	(	k	pL	pH	1	A	n

[Range] (pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)
0x00 ≤ n ≤ 0x01

[Description] Specifies encoding type of QRcode barcode.

n	ENCODING
0x00	QRcode
0x01	MicroQR

- [Notes]
- QRcode encodes 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 is a miniature version of the QRcode barcode for short message. MicroQR encodes all numbers from 0 to 9 up to a maximum length of 35 characters.

[Default] n = 0x00

[Reference]

[Example]



QRcode



MicroQR

0x1D 0x28 0x6B [fn 066]

<GS (k>

Specify dot size of the module of the QRcode barcode

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1D	28	6B	pL	pH	31	42	n
	ASCII	GS	(	k	pL	pH	1	B	n

[Range] (pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)
 0x02 ≤ n ≤ 0x18

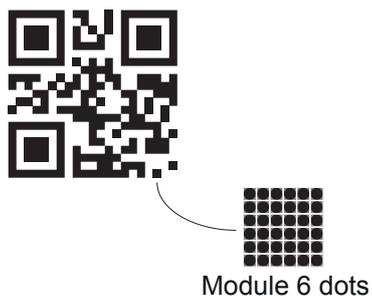
[Description] Specifies numbers of dot for each pixel of QRcode barcode.

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

[Default] n = 0x00

[Reference]

[Example]





0x1D 0x28 0x6B [fn 067]

<GS (k>

Specify QRcode barcode size

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1D	28	6B	pL	pH	31	43	n
	ASCII	GS	(	k	pL	pH	1	C	n

[Range]	(pL + pH × 256) = 3	(pL = 0x03, pH = 0x00)
	0x00 ≤ n ≤ 0x28	

[Description] Specifies QRcode barcode eversion, as follows:

n	VERSION	n	VERSION	n	VERSION
0x00	AUTO	0x0E	V14	0x1C	V28
0x01	V1	0x0F	V15	0x1D	V29
0x02	V2	0x10	V16	0x1E	V30
0x03	V3	0x11	V17	0x1F	V31
0x04	V4	0x12	V18	0x20	V32
0x05	V5	0x13	V19	0x21	V33
0x06	V6	0x14	V20	0x22	V34
0x07	V7	0x15	V21	0x23	V35
0x08	V8	0x16	V22	0x24	V36
0x09	V9	0x17	V23	0x25	V37
0x0A	V10	0x18	V24	0x26	V38
0x0B	V11	0x19	V25	0x27	V39
0x0C	V12	0x1A	V26	0x28	V40
0x0D	V13	0x1B	V27		

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

[Default] n = 0x00

[Reference]

[Example]

0x1D 0x28 0x6B [fn 069]

<GS (k>

Specify the error correction level of the QRcode barcode

Valid for Q3x
Q3x ETH

[Format] Hex 1D 28 6B pL pH 31 45 n
ASCII GS (k pL pH 1 E n

[Range] $(pL + pH \times 256) = 3$ ($pL = 0x04, pH = 0x00$)
 $0x00 \leq n \leq 0x04$

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

n	ECC level	
0x00	AUTO	
0x01	ECC L = approx 20% of symbol	Recovery Capacity = approx 7%
0x02	ECC M = approx 37% of symbol	Recovery Capacity = approx 15%
0x03	ECC Q = approx 55% of symbol	Recovery Capacity = approx 25%
0x04	ECC H = approx 65% of symbol	Recovery Capacity = approx 30%

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

[Default] n = 0x00

[Reference]

[Example]



Level L



Level M



Level Q



Level H



Recover Capability

L	M	Q	H
			
7%	15%	25%	30%



0x1D 0x28 0x6B [fn 080]

<GS (k>

Store the QRcode barcode data in the barcode save area

Valid for	Q3x									
	Q3x ETH									
[Format]	Hex	1D	28	6B	pL	pH	31	50	31	d1...dk
	ASCII	GS	(	k	pL	pH	1	P	1	d1...dk
[Range]	<p>0x00 ≤ d ≤ 0xFF</p> <p>k = (pL + pH × 256) - 3</p> <ul style="list-style-type: none"> QRcode barcode only with binary characters (8 bit): 4 ≤ (pL + pH × 256) ≤ 2957 (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x0B) QRcode barcode only with alphanumeric characters: 4 ≤ (pL + pH × 256) ≤ 4300 (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x10) QRcode barcode only with numeric characters: 4 ≤ (pL + pH × 256) ≤ 7093 (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x1B) 									
[Description]	Store the QRcode barcode data (d1...dk) in the barcode save area.									
[Notes]	<ul style="list-style-type: none"> Data stored in the barcode save area by this function are processed by Function 081 and then reserved. 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]										



0x1D 0x28 0x6B [fn 081]

<GS (k>

Prints the QRcode barcode data

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1D	28	6B	pL	pH	31	51	31
	ASCII	GS	(	k	pL	pH	1	Q	1

[Range] (pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)

[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]



0x1D 0x48

<GS H>

Select printing position of Human Readable Interpretation (HRI) characters

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1D	48	n
	ASCII	GS	H	n

[Range]	$0x00 \leq n \leq 0x03$
	$0x30 \leq n \leq 0x33$

[Description] Selects the printing position of HRI characters when printing barcodes based on the value of n as follows:

n	FUNCTION
0x00, 0x30	Not printed
0x01, 0x31	Above the barcode
0x02, 0x32	Below the barcode
0x03, 0x33	Both above and below the barcode

[Notes] HRI characters are printed using the font specified by [0x1D 0x66](#).

[Default] n = 0x00

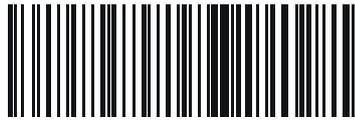


[Reference]

0x1D 0x66, 0x1D 0x6B

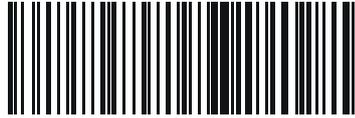
[Example]

Not printed



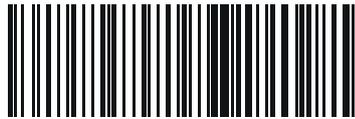
Above the barcode

ABCDEFGH123456



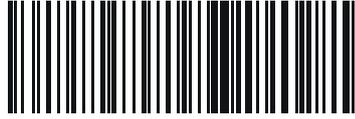
Below the barcode

ABCDEFGH123456



Both above and below
the barcode

ABCDEFGH123456



ABCDEFGH123456



0x1D 0x66

<GS f>

Select font for HRI characters

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1D	66	n
	ASCII	GS	f	n

[Range] n = 0x00, 0x01x 0x30, 0x31

[Description] Selects a font for the HRI characters used when printing a barcode based on the value of as follows:

n	FONT
0x00, 0x30	Font A
0x01, 0x31	Font B

[Notes] HRI characters are printed at the position specified by [0x1D 0x48](#).

[Default] n = 0x00

[Reference] [0x1D 0x48](#), [0x1D 0x6B](#)

[Example]



0x1D 0x68

<GS h>

Set barcode height

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1D 68 n
ASCII GS h n

[Range] $0x01 \leq n \leq 0xFF$

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

[Notes]

[Default] n = 0xA2 (20.25 mm)

[Reference] [0x1D 0x6B](#)

[Example] To print a barcode with height of 15 mm , the command sequence is:
0x1D 0x68 0x78

Where:

15 mm = 15 * 8 dots = 120 dots which converted in hexadecimal value = 0x78



0x1D 0x6B

<GS k>

Print barcode

Valid for	Q3
	Q3x
	Q3x ETH

[Format 1]	Hex	1D	6B	m	[d1..dk]	00
	ASCII	GS	k	m	[d1..dk]	NUL

[Format 2]	Hex	1D	6B	m	n	[d1..dn]
	ASCII	GS	k	m	n	[d1..dn]

[Range]	Format 1:	$0x00 \leq m \leq 0x08$ $m = 0x14$
	Format 2:	$0x41 \leq m \leq 0x49$ $m = 0x5A$

[Description] Selects a barcode system and prints the barcode based on the value of m as follows:

Format 1:

m	BARCODE SYSTEM	No. OF CHARACTERS	REMARKS
0x00	UPC-A	$0x0B \leq k \leq 0x0C$	$0x30 \leq d \leq 0x39$
0x01	UPC-E	$0x0B \leq k \leq 0x0C$	$0x30 \leq d \leq 0x39$
0x02	EAN13 (JAN)	$0x0C \leq k \leq 0x0D$	$0x30 \leq d \leq 0x39$
0x03	EAN8 (JAN)	$0x07 \leq k \leq 0x08$	$0x30 \leq d \leq 0x39$
0x04	CODE39	$0x01 \leq k$	$0x30 \leq d \leq 0x39$, $0x41 \leq d \leq 0x5A$, $0x20, 0x24, 0x25, 0x2B,$ $0x2D, 0x2E, 0x2F$
0x05	ITF	$0x01 \leq k$ (even number)	$0x30 \leq d \leq 0x39$
0x06	CODABAR	$0x01 \leq k$	$0x30 \leq d \leq 0x39$, $0x41 \leq d1 \leq 0x44$, $0x24, 0x2B, 0x2D,$ $0x2E, 0x2F, 0x3A$
0x07	CODE93	$0x01 \leq k \leq 0xFF$	$0x01 \leq d \leq 0x7F$
0x08	CODE128	$0x02 \leq k \leq 0xFF$	$0x01 \leq d \leq 0x7F$
0x14	CODE32	$0x08 \leq k \leq 0x09$	$0x30 \leq d \leq 0x39$



Format 2:

m	BARCODE SYSTEM	No. OF CHARACTERS	REMARKS
0x41	UPC-A	0x0B ≤ k ≤ 0x0C	0x30 ≤ d ≤ 0x39
0x42	UPC-E	0x0B ≤ k ≤ 0x0C	0x30 ≤ d ≤ 0x39
0x43	EAN13 (JAN)	0x0C ≤ k ≤ 0x0D	0x30 ≤ d ≤ 0x39
0x44	EAN8 (JAN)	0x07 ≤ n ≤ 0x08	0x30 ≤ d ≤ 0x39
0x45	CODE39	0x01 ≤ k ≤ 0xFF	0x30 ≤ d ≤ 0x39, 0x41 ≤ d ≤ 0x5A, 0x20, 0x24, 0x25, 0x2B, 0x2D, 0x2E, 0x2F
0x46	ITF	0x01 ≤ k ≤ 0xFF	0x30 ≤ d ≤ 0x39
0x47	CODABAR	0x01 ≤ k ≤ 0xFF	0x30 ≤ d ≤ 0x39, 0x41 ≤ d1 ≤ 0x44, 0x24, 0x2B, 0x2D, 0x2E, 0x2F, 0x3A
0x48	CODE93	0x01 ≤ k ≤ 0xFF	0x01 ≤ d ≤ 0x7F
0x49	CODE128	0x02 ≤ k ≤ 0xFF	0x01 ≤ d ≤ 0x7F
0x5A	CODE32	0x08 ≤ n ≤ 0x09	0x30 ≤ d ≤ 0x39

[Notes]

- If d is outside of the specified range, the printer prints the following message: “BARCODE 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 barcode, regardless of the line spacing specified by **0x1B 0x32** or **0x1B 0x33**.
- After printing the barcode, this command sets the print position to the beginning of the line.
- This command is not affected by print modes (bold, double-strike, underline or character size), except for upside-down and justification mode.

Format 1:

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



Format 2:

- 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 device prints an HRI character (o) as a start character at the beginning of the HRI character string
- The device prints an HRI character (o) as a stop character at the end of the HRI character string.
- The device prints an HRI character (n) as a control character (0x00 to 0x1F and 0x7F).

When CODE128 is used:

- When using CODE128 in this printer, please note the following regarding data transmission:
- The top part of the barcode 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
SHIFT	{S	7B, 53
CODE A	{A	7B, 41
CODE B	{B	7B, 42
CODE C	{C	7B, 43
FNC1	{1	7B, 31
FNC2	{2	7B, 32
FNC3	{3	7B, 33
FNC4	{4	7B, 34
{	{{	7B, 7B

When UPC-E is used: introducing the barcode characters, the device prints

TRANSMITTED DATA											PRINTING DATA					
d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d2	d3	d9	d10	d11	
0	0-9	0-9	0	0	0	0	0	0-9	0-9	0-9	d2	d3	d9	d10	d11	0
0	0-9	0-9	1	0	0	0	0	0-9	0-9	0-9	d2	d3	d9	d10	d11	1
0	0-9	0-9	2	0	0	0	0	0-9	0-9	0-9	d2	d3	d9	d10	d11	2
0	0-9	0-9	3-9	0	0	0	0	0	0-9	0-9	d2	d3	d4	d10	d11	3
0	0-9	0-9	0-9	1-9	0	0	0	0	0	0-9	d2	d3	d4	d5	d11	4
0	0-9	0-9	0-9	0-9	1-9	0	0	0	0	5-9	d2	d3	d4	d5	d6	d11



[Default]

[Reference] `0x1D 0x48, 0x1D 0x66, 0x1D 0x68, 0x1D 0x77`

[Example]

Format 1: Example of print the barcode 39:
`0x1D 0x6B 0x04 0x54 0x45 0x53 0x54 0x00`

Format 2: Example of print the barcode 39:
`0x1D 0x6B 0x45 0x04 0x54 0x45 0x53 0x54`

0x1D 0x77

<GS w>

Set barcode width

Valid for Q3
Q3x
Q3x ETH

[Format] Hex 1D 77 n
ASCII GS w n

[Range] $0x01 \leq n \leq 0x06$

[Description] Sets the horizontal size of the barcode.
n specifies the barcode width (referred to the narrow bar) as follows:

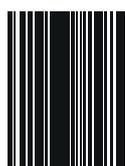
n	MODULE WIDTH (mm)
0x01	0.125
0x02	0.25
0x03	0.375
0x04	0.5
0x05	0.625
0x06	0.75

[Notes]

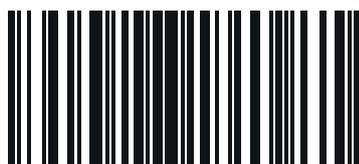
[Default] n = 0x03

[Reference] [0x1D 0x6B](#)

[Example]



n = 0x01



n = 0x03



MACRO FUNCTIONS

0x1D 0x3A

<GS :>

Set start or end of macro definition

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1D	3A
	ASCII	GS	:

[Range]

[Description] Starts or ends macro definition.

- [Notes]
- Macro definition starts when this command is received during normal operation.
 - When [0x1D 0x5E](#) 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 [0x1B 0x40](#) command. Therefore, [0x1B 0x40](#) may be included in the content of macro definitions.
 - If the printer receives [0x1D 0x3A](#) a second time after previously receiving [0x1D 0x3A](#), 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] [0x1D 0x5E](#)

[Example]



0x1D 0x5E

<GS ^>

Execute macro

Valid for	Q3 Q3x Q3x ETH
[Format]	Hex 1D 5E r t m ASCII GS ^ r t m
[Range]	0x00 ≤ r, t ≤ 0xFF 0x00 ≤ m ≤ 0x01
[Description]	Executes a macro. <ul style="list-style-type: none"> • 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 ms for each macro execution. • m specifies macro executing mode: When the LSB of m = 0, the macro is executed r times continuously at the interval specified by t. When the LSB of m = 1, after waiting for the period specified by t, the LED indicator blinks and the printer waits for the FEED button to be pressed. After the button is pressed, the printer executes the macro once. The printer repeats the operation r times.
[Notes]	<ul style="list-style-type: none"> • This command has an interval of (t * 100 ms) 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 0x00, nothing is executed. • When the macro is executed by pressing the FEED button (m = 0x01), the paper cannot be fed using the FEED button.
[Default]	
[Reference]	0x1D 0x3A
[Example]	



MECHANISM CONTROL

0x1B 0x69

<ESC i>

Total cut

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	69
	ASCII	ESC	i

[Range]

[Description] This command enables autocutter operation and executes a total cut.

[Notes]

- The device waits to complete all paper movement commands before executing the total cut.
- Q3 model executes a total cut. The Q3x and Q3x ETH models execute a partial cut.

[Default]

[Reference]

[Example]



0x1B 0x6D

<ESC m>

Total cut

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	6D
	ASCII	ESC	m

[Range]

[Description] This command enables autocutter operation and executes a partial cut.

[Notes] The device waits to complete all paper movement commands before executing the partial cut.

[Default]

[Reference]

[Example]



0x1D 0x56

<GS V>

Select cut mode

Valid for
 Q3
 Q3x
 Q3x ETH

[Format 1] Hex 1D 56 m
 ASCII GS V m

[Format 2] Hex 1D 56 m n
 ASCII GS V m n

[Range] Format 1: m = 0x30

 Format 2: m = 0x41
 0x00 ≤ n ≤ 0xFF

[Description] Selects cut mode and executes the cut command based on the value of m as follows:

m	FUNCTION
0x30	Cut
0x41	Form feed (cut position + [n * vertical motion unit]) and cut

- [Notes]
- This command is only enabled if set at the beginning of the line.
 - The horizontal and vertical motion units are specified by [0x1D 0x50](#).
 - Q3 model execute a total cut. The Q3x and Q3x ETH models execute a partial cut.

[Default]

[Reference] [0x1B 0x69](#)

[Example]



MISCELLANEOUS COMMANDS

0x10 0x14

<DLE DC4>

Generate pulse at real-time

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	10	14	n	m	t
	ASCII	DLE	DC4	n	m	t

[Range]	n = 0x01
	0x00 ≤ m ≤ 0xFF
	0x01 ≤ t ≤ 0x08

[Description] Outputs the pulse specified by the J5 drawer connector pin 2 as follows.
The pulse ON time is [t * 100 ms] and the OFF time is [t * 100 ms].

- [Notes]
- When the device is in an error status when this command is processed, this command is ignored.
 - When the pulse is output to the connector pin specified while [0x1B 0x70](#) or [0x10 0x14](#) is executed while this command is processed, this command is ignored.
 - The device executes this command upon receiving it.
 - This command is executed even when the device is offline, the receive buffer is full, or there is an error status.
 - This command cannot be executed when the device is busy.
 - If print data includes the same character strings as this command, the printer performs the same operation specified by this command. The user must consider this.
 - This command should not be used within the data sequence of another command that consists of 2 or more bytes.
 - This command is effective even when the device is disabled with command [0x1B 0x3D](#).

[Default]

[Reference] [0x1B 0x70](#)

[Example]



0x1B 0x3D

<ESC =>

Select peripherals device

Valid for	Q3
	Q3x
	Q3x ETH

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

[Range] 0x01 ≤ n ≤ 0x03

[Description] Select the device to which the host computer sends data, using n as follows:

n	FUNCTION
0x01, 0x03	Device enabled
0x02	Device disabled

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

[Default] n = 0x01

[Reference]

[Example]



0x1B 0x40

<ESC @>

Initialize device

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	40
	ASCII	ESC	@

[Range]

[Description] Clears the data in the print buffer and sets the device to its default settings.

[Notes]

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

[Default]

[Reference]

[Example]



0x1B 0x63 0x35

<ESC c>

Enables or disables front key

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	63	35	n
	ASCII	ESC	c	5	n

[Range] n = 0x00, 0x01

[Description] Enables or disables the front key:

n	FUNCTION
0x00	Enables front key
0x01	Disables front key

[Notes]

[Default] n = 0x00

[Reference]

[Example]



0x1B 0x70

<ESC p>

Generate pulse on drawer connector

Valid for Q3
 Q3x
 Q3x ETH

[Format] Hex 1B 70 m t1 t2
 ASCII ESC p m t1 t2

[Range] m = 0x00, 0x01, 0x30, 0x31
 0x00 ≤ t1 ≤ 0xFF
 0x00 ≤ t2 ≤ 0xFF

[Description] Outputs the pulse specified by t1 and t2 to J5 drawer connector pin 2 m as follows:

m	CONNECTOR PIN
0x00, 0x30	Drawer connector pin 2 (cash drawer 2)
0x01, 0x31	Drawer connector pin 2 (cash drawer 1)

[Notes] • The pulse ON time is (t1 * 2 ms) and the OFF time is (t2 * 2 ms).
 • If t2 < t1, the OFF time is (t1 * 2 ms).

[Default]

[Reference]

[Example]



0x1B 0xFA

Print graphic (576x910)

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	FA	n	xH	xL	yH	yL
	ASCII	ESC	0xFA	n	xH	xL	yH	yL

[Range] n = 0x00, 0x01
 $0x00 \leq xH, xL, yH, yL \leq 0xFF$

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

n	FUNCTION
0x00	Print graphic page from RAM (used at the moment)
0x01	Print logo 1 from flash

Printable maximum vertical dimension is 910 dot.
 $xL + xH * 256$ specifies the starting dotline ($1 \div 910$).
 $yL + yH * 256$ specifies the number of lines to print.

[Notes]

- If $[xL + (xH * 256)] > 910$ the printer does not execute the command.
- If $[xL + (xH * 256) + yL + (yH * 256)] > 910$ the printer prints only $910 - xL + (xH * 256) + 1$ dotline.

[Default]

[Reference]

[Example]



0x1B 0xFB

Transmit graphic page to communication port

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	FB	nL	nH
	ASCII	ESC	0xFB	nL	nH

[Range] 0x00 ≤ nL, nH ≤ 0xFF

[Description] Transmits [nL + (nH * 256)] word of graphic page used at the moment to the communication port.

[Notes]

[Default]

[Reference] [0x1B 0xFC](#), [0x1B 0xFD](#), [0x1B 0xFE](#)

[Example]



0x1B 0xFC

Transfer flash bank into RAM

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	FC	n
	ASCII	ESC	0xFC	n

[Range] n = 0x01

[Description] Transfers flash bank into RAM used at the moment (65536 bytes) based on the value of n as follows:

n	FUNCTION
0x01	Transfers flash bank logo 1 into RAM

[Notes]

[Default]

[Reference] [0x1B 0xFA](#), [0x1B 0xFD](#), [0x1B 0xFE](#)

[Example]



0x1B 0xFD

Receive graphic page from communication port

Valid for	Q3
	Q3x
	Q3x ETH

[Format]	Hex	1B	FD	nL	nH
	ASCII	ESC	0xFD	nL	nH
[Range]	0x00 ≤ nL, nH ≤ 0xFF				
[Description]	Receives [nL + (nH * 256)] words from the port and puts them into the RAM bank.				
[Notes]	<ul style="list-style-type: none">• The number of data bytes received is [nL + (nH * 256)] * 2.• Each word is first received as MSB and then as LSB.• If [nL + (nH * 256)] is greater than 32768, the data which follows is processed as normal data.• The flash bank dimensions for the graphic print are 576 horizontal dots (72 bytes/dot line) × 910 verticals dots (65520 bytes).				
[Default]					
[Reference]	0x1B 0xFA , 0x1B 0xFC , 0x1B 0xFE				
[Example]					



0x1B 0xFE

Transfer RAM into flash bank

Valid for Q3
 Q3x
 Q3x ETH

[Format] Hex 1B FE n
 ASCII ESC 0xFE n

[Range] n = 0x01

[Description] Transfers the RAM used at the moment into the flash bank (65536 bytes).

[Notes]

[Default]

[Reference] [0x1B 0xFA](#), [0x1B 0xFC](#), [0x1B 0xFD](#)

[Example]



0x1C 0xB0

Transfer n bytes on the drawer connector serial

Valid for	Q3x
	Q3x ETH

[Format]	Hex	1C	B0	n	d1...dn
	ASCII	FS	0xB0	n	d1...dn

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Transfers n bytes on the drawer connector J5 serial.

[Notes]

[Default]

[Reference]

[Example]



0x1D 0x49

<GS I>

Transmit device ID

Valid for
 Q3
 Q3x
 Q3x ETH

[Format] Hex 1D 49 n
 ASCII GS I n

[Range] 0x01 ≤ n ≤ 0x03
 0x31 ≤ n ≤ 0x33, n = 0xFF

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

n	PRINTER ID	SPECIFICATION
0x01, 0x31	Device model ID (1 byte)	0x8E
0x02, 0x32	Type ID	See table below
0x03, 0x33	ROM version ID (4 bytes)	Depends on ROM version
0xFF	Device model ID (2 bytes)	Q3x = 0x02 0x29 Q3x ETH = 0x02 0x4F

n = 0x02, 0x32 Type ID

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	2 bytes characters codes not supported
1	Off	00	Autocutter not supplied
	On	02	Autocutter supplied
2	Off	00	Thermal paper w/o label
	On	04	Thermal paper label
3	-	-	Undefined
4	Off	00	Not used. Fixed to off
5, 6	-	-	Undefined
7	Off	00	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]



0x1D 0x50

<GS P>

Set horizontal and vertical motion units

Valid for	Q3 Q3x Q3x ETH
[Format]	Hex 1D 50 x y ASCII GS P x y
[Range]	0x00 ≤ x, y ≤ 0xFF
[Description]	Sets the horizontal and vertical motion units to 1/x inch and 1/y inch respectively. When x is set to 0, the default setting value is used. When y is set to 0, the default setting value is used.
[Notes]	<ul style="list-style-type: none"> • The horizontal direction is perpendicular to the paper feed direction. • The following commands use x or y, regardless of character rotation (upside-down or 90° clockwise rotation): <p>Commands using x: 0x1B 0x20, 0x1B 0x24, 0x1B 0x5C, 0x1D 0x4C, 0x1D 0x57 Commands using y: 0x1B 0x33, 0x1B 0x4A</p> <ul style="list-style-type: none"> • This command does not affect the previously specified values. • The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch or an exact multiple of that value.
[Default]	x = 204 y = 408
[Reference]	0x1B 0x20 , 0x1B 0x24 , 0x1B 0x5C , 0x1B 0x33 , 0x1B 0x4A , 0x1D 0x4C , 0x1D 0x57
[Example]	



0x1D 0xF8

Align the ticket with the autocutter

Valid for	Q3		
	Q3x		
	Q3x ETH		

[Format]	Hex	1D	F8
	ASCII	GS	0xF8

[Range]

[Description] This command aligns the edge of the black mark at the point of alignment (see chapter [ALIGNMENT](#) for further explanation).

[Notes]

- To work properly, the “Black Mark Alignment” parameter must be enabled during the setup procedure (see the user manual of the device).
- To work properly, you must send this command just before the cut command.

[Default]

[Reference] [0x1D 0xF6](#)

[Example]

0x1D 0xF6	Positioning ticket
<print ticket>	
0x1D 0xF8	Align ticket
0x1B 0x69	Cut





ALIGNMENT

1 ALIGNMENT COMMANDS 129





1 ALIGNMENT COMMANDS

The devices are equipped with a sensor that allows the use of alignment black mark to handle rolls of tickets with pre-printed and fixed length fields;

For further information, refer to the user manual of the device.

The commands available for managing the alignment of the ticket are `0x1D 0xF6` and `0x1D 0xF8` that perform the ticket alignment, which is advanced to align the first point of alignment available under the sensor.

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: `0x1D 0xF6`.
3. Ticket printout: printing text, logos or any graphic.
4. Alignment command: `0x1D 0xF8`.
5. Cut command: `0x1B 0x69`.

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

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



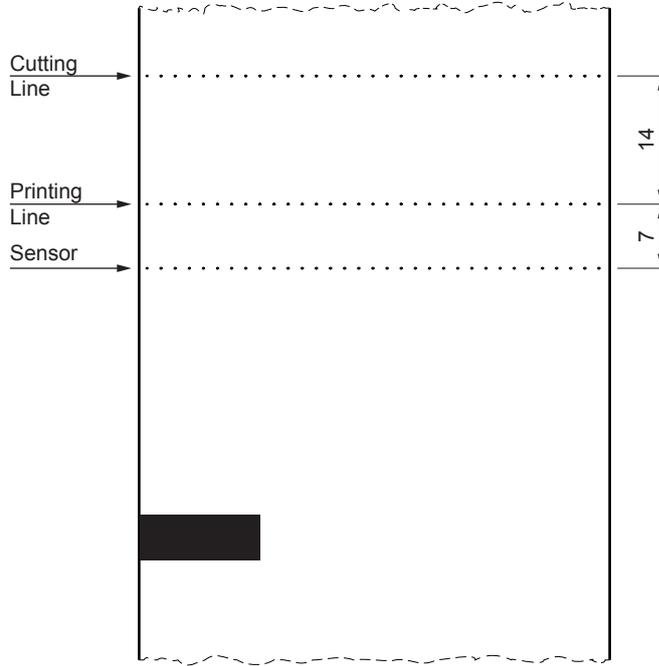
[Example 1]

Commands sequence to print tickets with “alignment point” over the edge of the black mark (“Black Mark Distance” = 0 mm set from setup).

All the dimensions shown in the figures are in millimetres

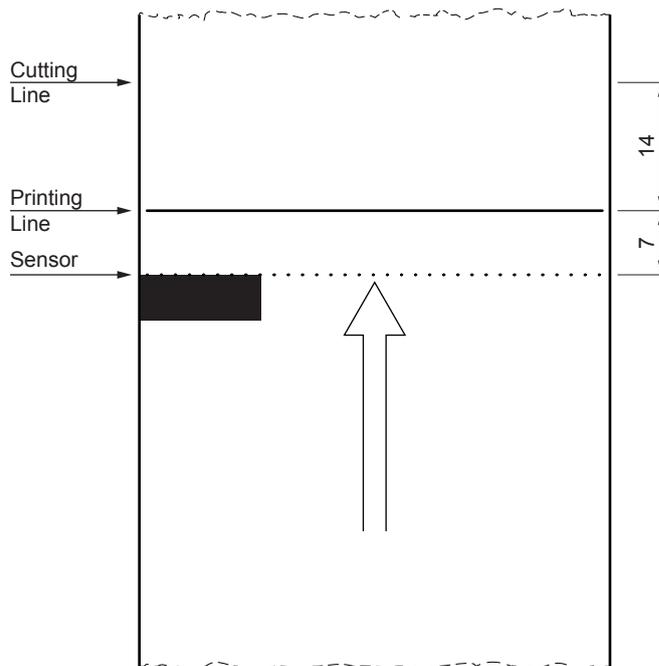
Start

Paper with black mark not aligned.



Alignment command `0x1D 0xF6`.

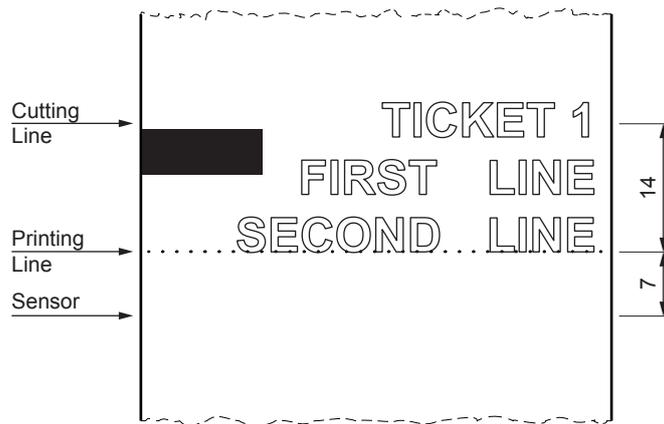
Paper is fed. The black mark is recognized by the sensor and aligned with the edge of the black mark.





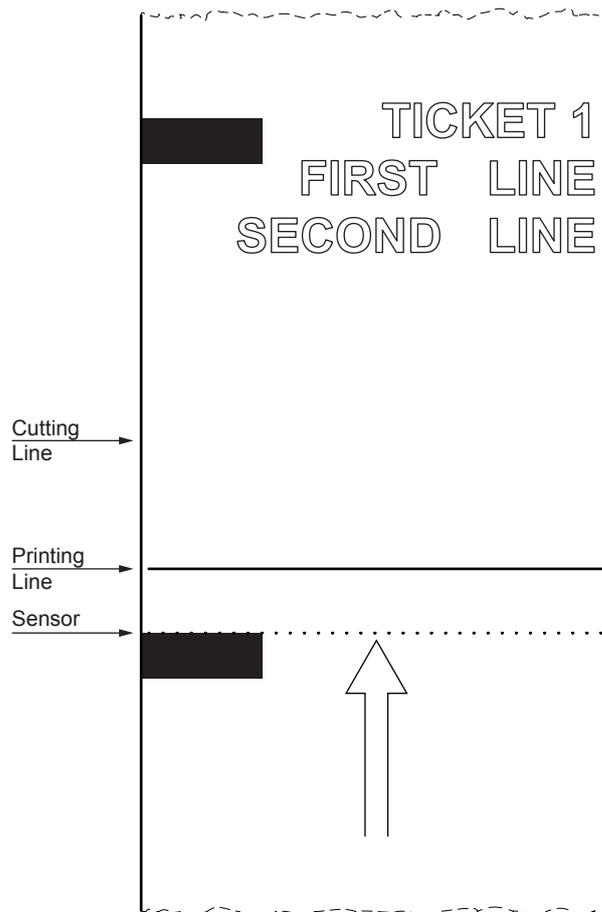
Command for text printing:

'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



Alignment command 0x1D 0xF8.

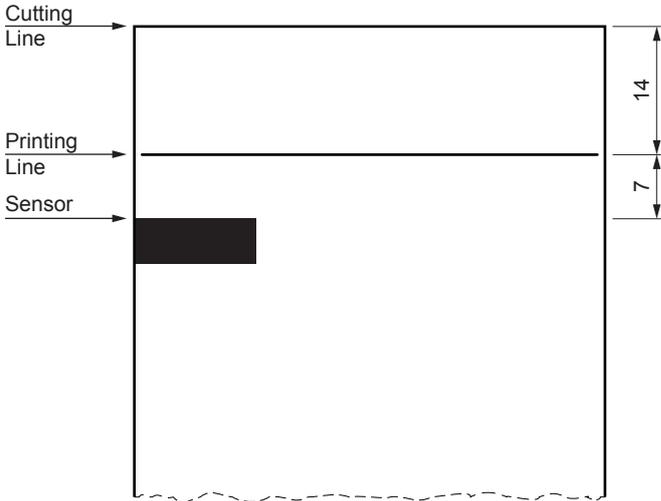
Paper is fed. The next black mark is recognized by the sensor and aligned under the printing line.





Cut command `0x1B 0x69`.

The paper is cut. The paper is already aligned and ready to be printed.

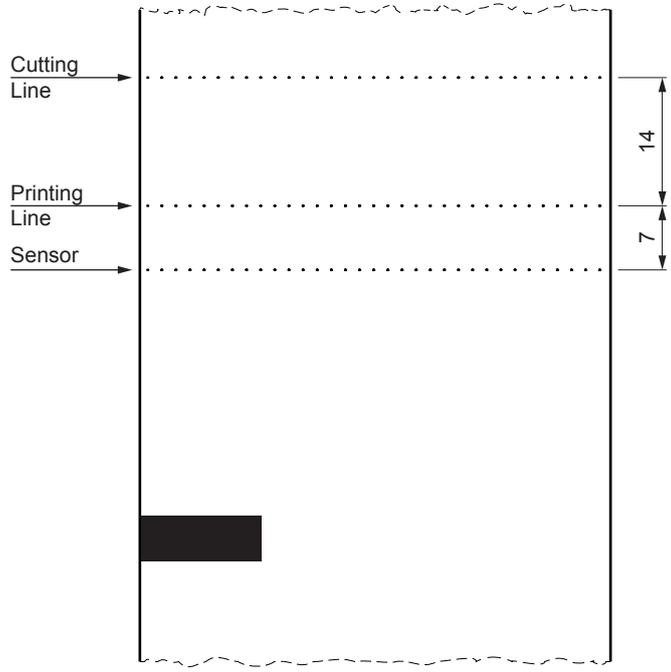




[Esempio 2]

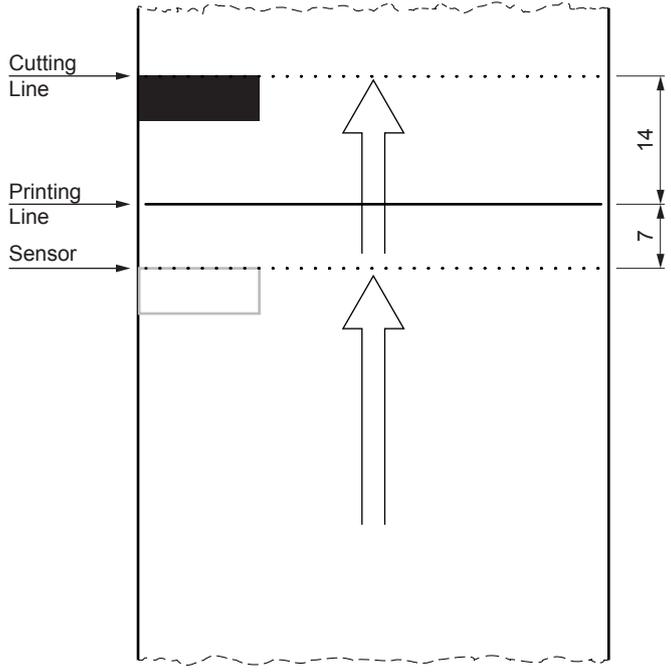
Commands sequence to print tickets with "alignment point" moved 5 mm compared to the edge of the black mark ("Black Mark Distance" = 21 mm set from setup).

Start
Paper with black mark not aligned.



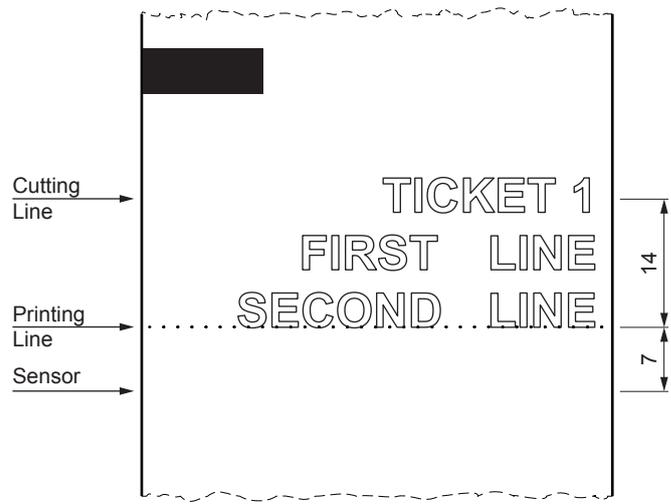
Alignment command `0x1D 0xF6`.

Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 21 mm ("Black Mark Distance") from the edge of the black mark.

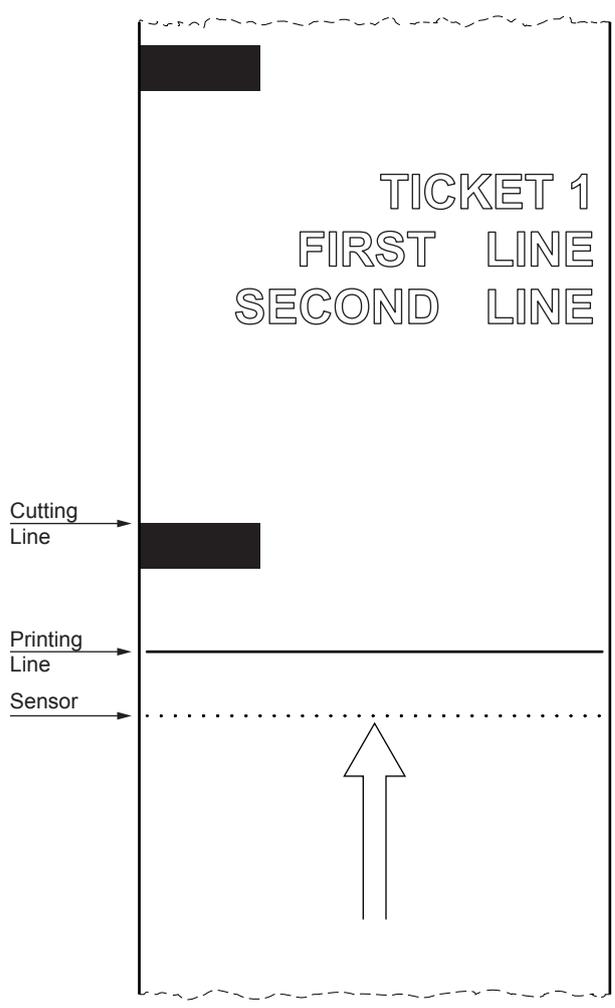




Command for text printing:
'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



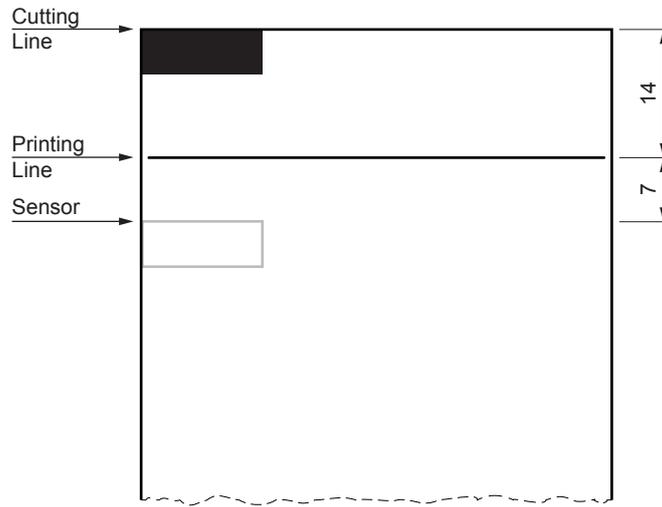
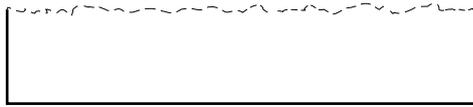
Alignment command 0x1D 0xF8.
Paper is fed. The next black mark is recognized by the sensor and aligned at a distance of 21 mm ("Black Mark Distance") from the edge of the black mark.





Cut command `0x1B 0x69`.

The paper is cut. The paper is already aligned and ready to be printed.

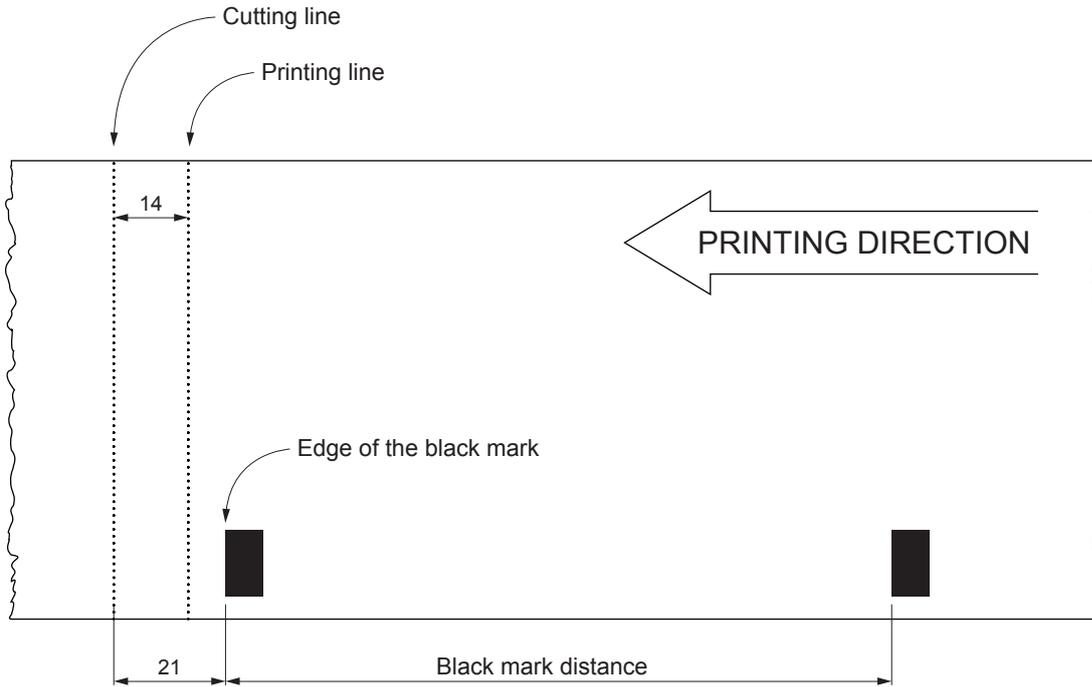




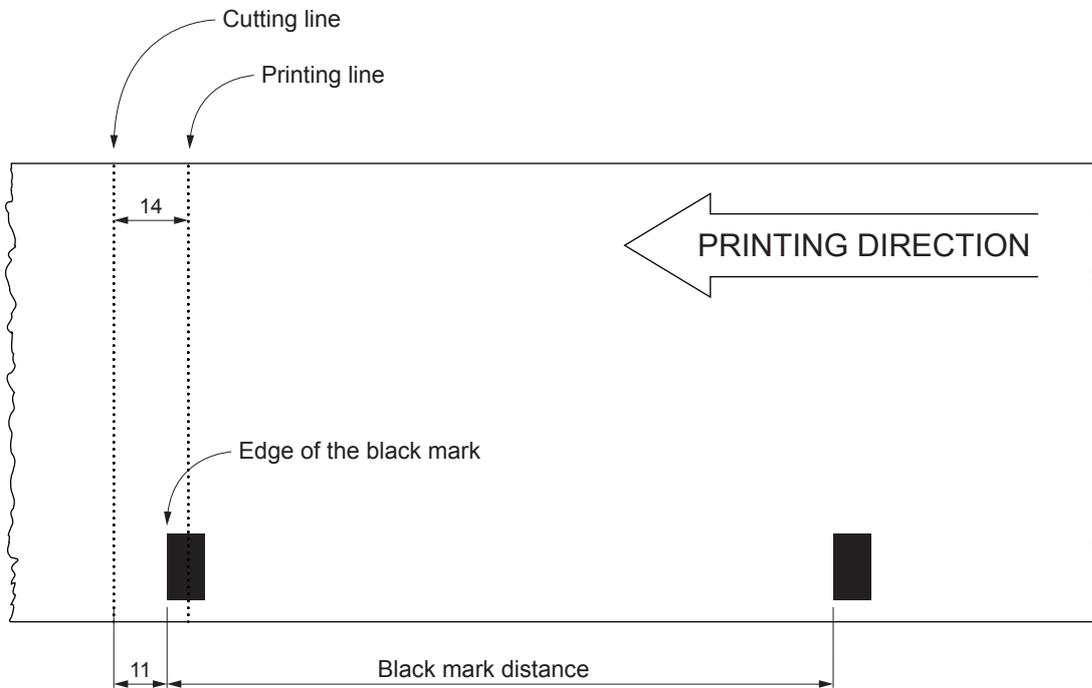
[Example 3]

In the following figures are shown tickets with alignment point positioned at 0 mm, 10 mm and 21 mm from the edge of the black mark. All the dimensions shown in the following figures are in millimetres.

Black Mark Distance 0 mm:

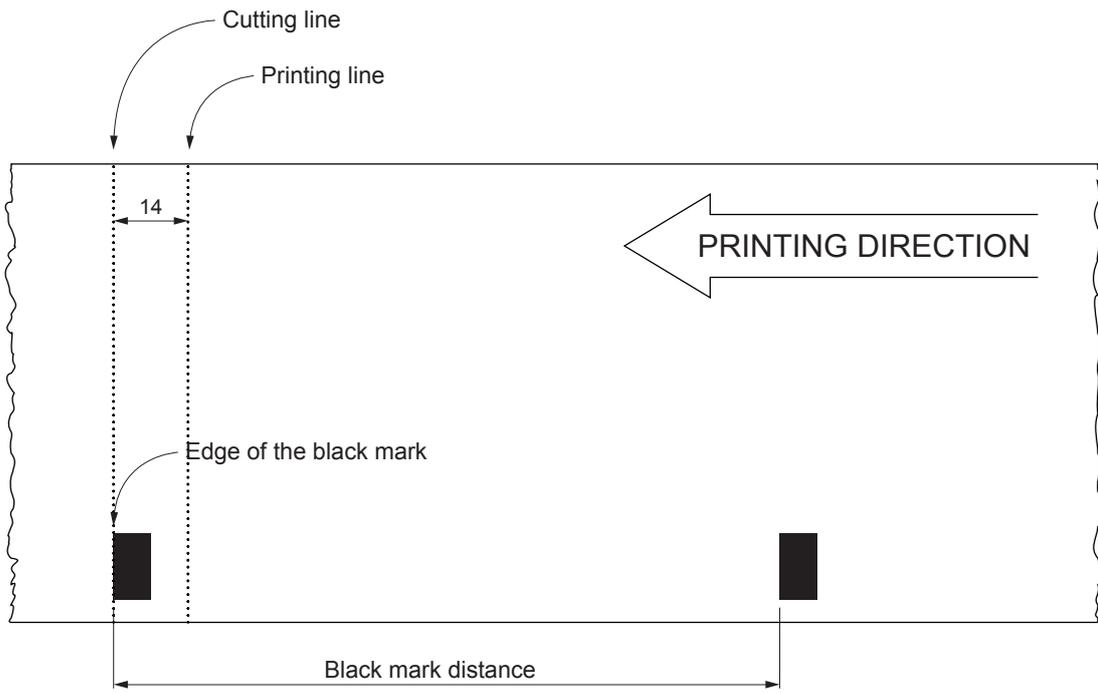


Black Mark Distance 10 mm:





Black Mark Distance 21 mm:



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