

# PROGRAMMER'S MANUAL



**Bematech**

**KIOSK PRINTERS**

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## Introduction

The objective of this manual is to give to programmers all necessary information to properly program and integrate the kiosk printer into a system.

For further information refer to the documentation below available in our website:

[www.bematech.com](http://www.bematech.com)

**User's Manual** – Contains information referring to operation, features and specifications of the kiosk printer.

**Outline drawings** – Contains dimensions and assemblies.

**Service Manual** – Contains information necessary to identify and resolve kiosk printer problems.

# 1 Commands

The kiosk printer has a series of programming commands that may be used in the remote mode. Two types of commands can be sent:

## 1.1 Direct command

In this mode, a simple ASCII code is enough to command the printer. For example:

ASCII CODE	:	LF
DECIMAL	:	10
HEXADECIMAL	:	0A

This command causes the printer to perform a line feed.

## 1.2 Control sequence

In this mode, more than one code may be sent to command or program the printer. This "control sequence" always starts with the ASCII code "ESC" or "GS". For example:

ASCII CODE	:	ESC	W	1
DECIMAL	:	27	87	01
HEXADECIMAL	:	1B	57	01

This command switches the printing mode to "expanded".

Following is a summary of all commands accepted by the kiosk printer.

## 2 Using the command summary

The following section lists and describes all resident commands including command parameters. The command syntax is as follows:

- ♦**ESC P** is a command without parameters;
- ♦**ESC Q n** is a command with one parameter only;
- ♦**ESC K n1 n2** is a command with two parameters;
- ♦**ESC D n1...nk** is a command with a variable number of parameters.

A character 'h' following an alphanumeric string represents an hexadecimal number. A number with no 'h' following it, is in decimal mode.

**Note:** Some commands may be redundant. This is done to maintain compatibility with old command settings or different types of customized command settings.

### 2.1 Command Table

<b>Operation</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
1	ESC @	Initializes the kiosk printer	1B 40	8
2	ESC b n	Enable / disable paper near end	1B 62 n	8
3	ESC L	Enable paper status for presenter sensor	1B 4C	9
5	ESC M	Disable paper status for presenter sensor	1B 4D	9
6	ESC w	Performs a full paper cut	1B 77	10
7	ESC i	Performs a full paper cut	1B 69	10
8	ESC m	Performs a partial paper cut	1B 6D	10
9	ESC y n	Enable / disable panel keys	1B 79 n	11
10	ESC p n	Enable / disable retractable function.	1B 70 n	11
11	ESC s n	Set retractable time in seconds	1B 73 n	12
12	ESC x	Enable Dump Mode	1B 78	12
13	ESC z n	Enable / disable automatic line feed	1B 7A n	13
14	GS . n	Set Language	1D FA n	13
15	GS ° 2	Reset	1D F8 2	14
<b>Vertical positioning</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
16	ESC C n	Set page size in lines	1B 43 n	14
17	ESC c n1 n2	Set page size in millimeters	1B 63 n1 n2	14
18	ESC J n	Performs a fine line feed	1B 4A n	15
19	FF	Feeds one page	0C	15
20	LF	Feeds one line	0A	15
21	ESC 2	Line feed of 1/6 inch	1B 32	16
22	ESC 3 n	Line feed of n/144 inch	1B 33 n	16
23	ESC f 1 n	Vertical skipping	1B 66 31 n	16
24	ESC A n	Feeding paper (3*n-48)*0,125mm	1B 41 n	17

<b>Horizontal positioning</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
25	ESC f 0 n	Horizontal skipping	1B 66 30 n	17
26	ESC Q n	Set right margin	1B 51 n	18
27	ESC l n	Set left margin	1B 6c n	18
28	ESC a n	Aligning the characters	1B 61 n	19
<b>Character types</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
29	ESC - n	Enable / disable underlined print mode	1B 2D n	19
30	ESC 4	Enable italic print mode	1B 34	20
31	ESC 5	Disable italic print mode	1B 35	20
32	ESC E	Enable emphasized print mode	1B 45	20
33	ESC F	Disable emphasized print mode	1B 46	21
34	ESC t n	Select code page	1B 74 n	21
35	ESC S n	Enable superscript and / or subscript	1B 53 n	22
36	ESC T	Disable superscript and subscript modes	1B 54	22
37	ESC N n	Select Intensity Mode	1B 4E n	23
38	ESC ! n	Select print mode	1B 21 n	23
39	ESC } n	Enable / Disable inverted mode	1B 7D n	24
<b>Print width, character width and height</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
40	DC2	Disable condensed mode	12	24
41	DC4	Disable on-line expanded print	14	24
42	ESC d n	Enable / Disable double height print mode	1B 64 n	25
43	ESC H	Set default column per line	1B 48	25
44	ESC P	Set default column per line	1B 50	25
45	ESC SI	Set condensed mode	1B 0F	26
46	ESC SO	Set on-line expanded mode	1B 0E	26
47	ESC V	Set on-line double height mode	1B 56	26
48	ESC W n	Enable / Disable expanded mode	1B 57 n	27
49	SI	Set condensed mode	0F	27
50	SO	Set on-line expanded mode	0E	28
<b>Black mark</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
51	GS • . n	Enable / Disable black mark	1D F9 2E n	30
52	GS • / n	Set black mark size	1D F9 2F n	30
53	GS ≈ 2 0 – b1 b2	Sets the length of paper to feed between the black mark detection and the cut	1D F7 02 00 2D b1 b2	30
54	GS • 0 0	Feeds the receipt to the next black mark + additional feed	1D F9 30 30	31
55	GS ≈ . n1 n2	Triggers the printer to start looking for a black mark	1D F7 2E n1 n2	31
56	GS • 1 n	Set threshold of black mark sensor	1D F9 31 n	31
<b>Bit images and graphics</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
57	ESC \$ n1 n2	Fill in blank bit columns	1B 24 n1 n2	33
58	ESC * ! n1 n2 b1...bn	24-bit graphics	1B 2A 21 n1 n2 b1 ... bn	33
69	ESC K n1 n2 b1...bn	8-bit graphics	1B 4B n1 n2 b1 ... bn	34
<b>Communication</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
70	ENQ	Serial communication status inquiry	05	34

71	GS ° 1	Serial / USB communication advanced status	1D F8 31	35
72	ETX	End buffer	03	37
73	STX	Clear buffer	02	38
<b>Data Control</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
74	CAN	Cancel last line	18	38
75	DEL	Cancel last character	7F	38
<b>Barcodes</b>				
	<b>Code</b>	<b>Function</b>	<b>Format hexadecimal</b>	<b>Page</b>
76	GS h n	Sets the height <i>n</i> of the barcode generated	1D 68 n	39
77	GS w n	Determines the width of the barcode	1D 77 n	39
78	GS H n	Choose the position of the human readable information (HRI) of the barcode	1D 48 n	39
79	GS f n	Sets the font used to print the human readable information (HRI)	1D 66 n	40
80	GS k 0 d <sub>1</sub> ...d <sub>11</sub> NUL	Prints an UPC-A barcode	1D 6B 00 d <sub>1</sub> ...d <sub>11</sub> 00	40
81	GS k 65 11 d <sub>1</sub> ...d <sub>11</sub>	Prints an UPC-A barcode	1D 6B 41 0B d <sub>1</sub> ...d <sub>11</sub>	40
82	GS k 1 d <sub>1</sub> ...d <sub>6</sub> NUL	Prints an UPC-E barcode	1D 6B 01 d <sub>1</sub> ...d <sub>6</sub> 00	41
83	GS k 66 6 d <sub>1</sub> ...d <sub>6</sub>	Prints an UPC-E barcode	1D 6B 42 06 d <sub>1</sub> ...d <sub>6</sub>	41
84	GS k 2 d <sub>1</sub> ...d <sub>12</sub> NUL	Prints an EAN-13 barcode	1D 6B 02 d <sub>1</sub> ...d <sub>12</sub> 00	41
85	GS k 67 12 d <sub>1</sub> ...d <sub>12</sub>	Prints an EAN-13 barcode	1D 6B 43 0C d <sub>1</sub> ...d <sub>12</sub>	42
86	GS k 3 d <sub>1</sub> ...d <sub>7</sub> NUL	Prints an EAN-8 barcode	1D 6B 03 d <sub>1</sub> ...d <sub>7</sub> 00	42
87	GS k 68 7 d <sub>1</sub> ...d <sub>7</sub>	Prints an EAN-8 barcode	1D 6B 44 07 d <sub>1</sub> ...d <sub>7</sub>	42
88	GS k 4 d <sub>1</sub> ...d <sub>n</sub> NUL	Prints a CODE 39 barcode	1D 6B 04 d <sub>1</sub> ...d <sub>n</sub> 00	43
89	GS k 69 n d <sub>1</sub> ...d <sub>n</sub>	Prints a CODE 39 barcode	1D 6B 45 n d <sub>1</sub> ...d <sub>n</sub>	43
90	GS k 5 d <sub>1</sub> ...d <sub>n</sub> NUL	Prints an ITF barcode	1D 6B 05 d <sub>1</sub> ...d <sub>n</sub> 00	44
91	GS k 70 n d <sub>1</sub> ...d <sub>n</sub>	Prints an ITF barcode	1D 6B 46 n d <sub>1</sub> ...d <sub>n</sub>	44
92	GS k 6 d <sub>1</sub> ...d <sub>n</sub> NUL	Prints a CODABAR barcode	1D 6B 06 d <sub>1</sub> ...d <sub>n</sub> 00	45
93	GS k 71 n d <sub>1</sub> ...d <sub>n</sub>	Prints a CODABAR barcode	1D 6B 47 n d <sub>1</sub> ...d <sub>n</sub>	45
94	GS k 72 d <sub>1</sub> ...d <sub>n</sub>	Prints a CODE 93 barcode	1D 6B 48 n d <sub>1</sub> ...d <sub>n</sub>	46
95	GS k 73 n d <sub>1</sub> ...d <sub>n</sub>	Prints a CODE 128 barcode	1D 6B 49 n d <sub>1</sub> ...d <sub>n</sub>	46
96	GS k 128 n <sub>1</sub> n <sub>2</sub> n <sub>3</sub> n <sub>4</sub> n <sub>5</sub> n <sub>6</sub> d <sub>1</sub> ...d <sub>n</sub>	Prints a PDF-417 barcode	1D 6B 80 n <sub>1</sub> n <sub>2</sub> n <sub>3</sub> n <sub>4</sub> n <sub>5</sub> n <sub>6</sub> d <sub>1</sub> ...d <sub>n</sub>	47
97	GS k 21 d <sub>1</sub> ...d <sub>9</sub> NUL	Prints an ISBN barcode	1D 6B 15 d <sub>1</sub> ...d <sub>9</sub> 00	47
98	GS k 22 d <sub>1</sub> ...d <sub>n</sub> NUL	Prints a MSI barcode	1D 6B 16 d <sub>1</sub> ...d <sub>n</sub> 00	48
99	GS k 130 n d <sub>1</sub> ...d <sub>n</sub>	Prints a MSI barcode	1D 6B 82 n d <sub>1</sub> ...d <sub>n</sub>	48
100	GS k 23 d <sub>1</sub> ...d <sub>n</sub> NUL	Prints a PLESSEY barcode	1D 6B 17 d <sub>1</sub> ...d <sub>n</sub> 00	49
101	GS k 131 n d <sub>1</sub> ...d <sub>n</sub>	Prints a PLESSEY barcode	1D 6B 83 n d <sub>1</sub> ...d <sub>n</sub>	49
102	GS k 132 n <sub>1</sub> n <sub>2</sub>	Programs barcode's left margin	1D 6B 84 n <sub>1</sub> n <sub>2</sub>	49

## 2.2 Operation Commands

The following section details each of the commands presented in the Command Table.

### ESC @

---

[Function]	Initializes the kiosk printer.	
[Format]	ASCII	ESC @
	Hexadecimal	1B 40
	Decimal	27 64
[Description]	All settings, including character font, line spacing, left margin, right margin, intensity and inverted mode are canceled.	

### ESC b n

---

[Function]	Enable / disable PNE.	
[Format]	ASCII	ESC b n
	Hexadecimal	1B 62 n
	Decimal	27 98
[Range]	n = 0, 1	
[Default]	n = 0	
[Description]	Disable PNE (paper near end) status when n=1 and enable PNE when n=0. The PNE status is reflected in the PE (Paper End) sign in the parallel interface. To disable the PNE status, n must be 01h or 31h. To enable PNE status, n must be 00h or 30h.	
[Notes]	PE is a signal from the parallel interface.	

**ESC L**

---

[Function]	Enable paper status for presenter sensor.	
[Format]	ASCII	ESC L
	Hexadecimal	1B 4C
	Decimal	27 76
[Description]	This command reflects if the paper is in the presenter sensor or not. It can be used to verify paper jam inside the presenter after printing is completed. The PE signal reflects paper in the presenter sensor for parallel interface and bit 2 from the serial interface status byte. During printing PE must reflect the PNE sensor. Use ESC b 0 or ESC M to disable paper status for presenter sensor.	
[Note]	This command is available only if presenter is activated. See Dip Switch chapter in User's Manual. PE is a signal from the parallel interface and bit 2 is read from the status byte.	

**ESC M**

---

[Function]	Disable paper status for presenter sensor.	
[Format]	ASCII	ESC M
	Hexadecimal	1B 4D
	Decimal	27 77
[Description]	The PE signal reflects the near end paper sensor for parallel interface and bit 2 for serial interface. If you lost control of which sensor is being reflected in PE signal, this command will set the PNE as a default.	
[Notes]	PE is a signal of parallel interface and bit 2 is a status bit number of serial interface status byte.	

## ESC w

---

[Function]	Performs a full paper cut.	
[Format]	ASCII	ESC w
	Hexadecimal	1B 77
	Decimal	27 119
[Description]	This command operates the auto cutter, performing a full cut in the paper.	
[Notes]	When presenter is activated there is a minimum receipt size (roughly 3.3 inches) to avoid paper jam inside the presenter. If the receipt size is less than the minimum, the full cut command will automatically add line feeds to perform the cut.	

## ESC i

---

[Function]	Performs a full paper cut.	
[Format]	ASCII	ESC i
	Hexadecimal	1B 69
	Decimal	27 105
[Description]	This command operates exactly as the command ESC w.	

## ESC m

---

[Function]	Performs a partial paper cut.	
[Format]	ASCII	ESC m
	Hexadecimal	1B 6D
	Decimal	27 109
[Description]	This command operates the auto cutter, performing a partial cut in the paper.	
[Notes]	This command is available only if presenter is not activated.	

**ESC y n**

---

[Function]	Enable / disable panel keys.	
[Format]	ASCII	ESC y n
	Hexadecimal	1B 79 n
	Decimal	27 121 n
[Range]	n = 0,1	
[Default]	n = 1	
[Description]	Enables or disables the panel key.	
	✓ When n is 0 (00h or 30h), the panel key is disabled.	
	✓ When n is 1 (01h or 31h), the panel key is enabled.	
[Notes]	When the panel key is disabled, no button on the panel is usable.	

**ESC p n**

---

[Function]	Enable / disable retractable function.	
[Format]	ASCII	ESC p n
	Hexadecimal	1B 70 n
	Decimal	27 112 n
[Range]	n = 0,1	
[Default]	n = 1	
[Description]	Enables or disables the retractable function.	
	✓ When n is 0 (00h or 30h), the retractable function is disabled.	
	✓ When n is 1 (01h or 31h), the retractable function is enabled.	
[Notes]	For more details regarding the retractable function, please refer to section Presenter Operation in the User's Manual.	

**ESC s n**

---

[Function]	Set retractable time in seconds.	
[Format]	ASCII	ESC s n
	Hexadecimal	1B 73 n
	Decimal	27 115 n
[Range]	n = 0 < n < 256	
[Default]	n = 10	
[Description]	This command sets the retractable time in n seconds. For more details regarding the retractable function, please refer to section Presenter Operation in the User's Manual.	
[Notes]	When n = 0, the presenter will retract the paper until the presenter sensor and the operation is considered completed. Using this option it is possible to verify if there is paper in the presenter even if your solution does not have an appropriate place to the pulled ticket.	
[Caution]	This command is not available for KB1800.	

**ESC x**

---

[Function]	Enable Dump Mode.	
[Format]	ASCII	ESC x
	Hexadecimal	1B 78
	Decimal	27 120
[Description]	Enables dump mode. In this mode advanced users and programmers can identify communication problems between the host and the printer or check if a certain programmed data is correctly being sent to the printer, thus being a debugging tool.	
[Note]	The dump mode is disabled just resetting the printer.	

**ESC z n**

---

[Function]	Enable / disable automatic line feed.	
[Format]	ASCII	ESC z n
	Hexadecimal	1B 7A n
	Decimal	27 122 n
[Description]	Enables automatic line feed.	
	✓ When n is 1 (01h or 31h), the automatic line feed is enabled.	
	✓ When n is 0 (00h or 30h), the automatic line feed is disabled.	
[Notes]	If automatic line feed is enabled, the printer will perform a LF if a CR is received.	

**GS . n**

---

[Function]	Select language.	
[Format]	ASCII	GS . n
	Hexadecimal	1D FA n
	Decimal	29 250 n
[Range]	n = 0, 1, 2	
[Default]	n = 0	
[Description]	Selects the language used to messages from printer.	
	✓ When n is 0 (30h), the language is selected to English.	
	✓ When n is 1 (31h), the language is selected to Portuguese.	
	✓ When n is 2 (32h), the language is selected to Spanish.	

**GS ° 2**

---

[Function]	Reset.	
[Format]	ASCII	GS ° 2
	Hexadecimal	1D F8 32
	Decimal	29 248 2
[Description]	Resets the printer.	

**2.3 Vertical positioning****ESC C n**

---

[Function]	Set page size in lines.	
[Format]	ASCII	ESC C n
	Hexadecimal	1B 43 n
	Decimal	27 67 n
[Range]	0 < n < 256	
[Default]	n = 12	
[Description]	Sets the page size where <i>n</i> is the number of lines (single height).	

**ESC c n1 n2**

---

[Function]	Set page size in millimeters.	
[Format]	ASCII	ESC c n1 n2
	Hexadecimal	1B 63 n1 n2
	Decimal	27 99 n1 n2
[Range]	0 < n1 < 256; 0 < n2 < 256	
[Description]	Sets the page size in millimeters where size is 0,125mm*n1*n2.	

**ESC J n**

---

[Function]	Performs a fine line feed.	
[Format]	ASCII	ESC J n
	Hexadecimal	1B 4A n
	Decimal	27 74 n
[Range]	0 < n < 256	
[Description]	Performs the feeding of (n-48)*0,125mm of paper.	
[Notes]	This command is very useful in the graphic mode.	
[Caution]	For n < 48, the line feed done will be equal to zero. ** For compatibility purposes with other printers.	

**FF**

---

[Function]	Feeds one page.	
[Format]	ASCII	FF
	Hexadecimal	0C
	Decimal	12
[Description]	Performs a form feed to the top of the form.	
[Notes]	The form feed command can be disabled. Set the page size to zero.	

**LF**

---

[Function]	Feeds one line.	
[Format]	ASCII	LF
	Hexadecimal	0A
	Decimal	10
[Description]	Prints the contents of the buffer (if exists) and performs one paper feed using the default line spacing.	
[Notes]	The next character print position is on the left margin of the next line.	

**ESC 2**

---

[Function]	Line feed of 1/6".	
[Format]	ASCII	ESC 2
	Hexadecimal	1B 32
	Decimal	27 50
[Description]	Sets the line feed of 1/6 inch. The line feed rate per line is specified by 1/6 inch.	
[Notes]	This is the default value when printer performed a reset or ESC @ was received.	

**ESC 3 n**

---

[Function]	Line feed of n/144 inch.	
[Format]	ASCII	ESC 3 n
	Hexadecimal	1B 33 n
	Decimal	27 51 n
[Range]	$16 \leq n \leq 255$	
[Description]	The line feed rate per line is specified by n/144 inch.	
[Notes]	This command takes effect immediately.	

**ESC f 1 n**

---

[Function]	Vertical skipping	
[Format]	ASCII	ESC f 1 n
	Hexadecimal	1B 66 31 n
	Decimal	27 102 49 n
[Range]	$0 \leq n \leq 255$	
[Description]	Performs a vertical skipping of <i>n</i> characters.	
[Notes]	The command 1Bh 66h 01h n has the same effect.	

**ESC A n**

---

[Function]	Feeding paper $(3 \cdot n - 48) \cdot 0,125\text{mm}$ .	
[Format]	ASCII	ESC A n
	Hexadecimal	1B 41 n
	Decimal	27 65 n
[Range]	$0 < n < 256$	
[Description]	Performs the feeding of $(3 \cdot n - 48) \cdot 0,125\text{mm}$ .	
[Notes]	If $n < 17$ , the line feed will be equal to zero. For $n > 100$ , the line feed will be equal to 32mm. For other values, the line feed is equal to $(3 \cdot n - 48) \cdot 0,125\text{mm}$ .	

**2.4 Horizontal positioning****ESC f 0 n**

---

[Function]	Horizontal skipping	
[Format]	ASCII	ESC f 0 n
	Hexadecimal	1B 66 30 n
	Decimal	27 102 48 n
[Range]	$0 \leq n \leq 255$	
[Description]	Performs a horizontal skipping of $n$ characters.	
[Notes]	The command 1B 66 00 n has the same effect.	

**ESC Q n**

---

[Function]	Set right margin.	
[Format]	ASCII	ESC Q n
	Hexadecimal	1B 51 n
	Decimal	27 81 n
[Range]	0 < n < 256	
[Description]	Sets right margin in characters from the default left margin.	
[Notes]	If the right margin is set to the left of the current horizontal position, the new margin becomes valid in the next line.	

**ESC I n**

---

[Function]	Set left margin.	
[Format]	ASCII	ESC I n
	Hexadecimal	1B 6c n
	Decimal	27 108 n
[Range]	0 < n < 256	
[Description]	Sets left margin in characters from the default left margin.	
[Notes]	If the left margin is set to the right of the current horizontal position, the new margin becomes valid in the next line.	

**ESC a n**

---

[Function]	Aligning the characters	
[Format]	ASCII	ESC a n
	Hexadecimal	1B 61 n
	Decimal	27 97 n
[Range]	n = 0, 1	
[Default]	n = 0	
[Description]	This command sets the horizontal justification.	
	✓ When n is 0 (00h or 30h), align is left justified.	
	✓ When n is 1 (01h or 31h), align is center justified.	
[Notes]	The power on default is left justified.	

**2.5 Character Types****ESC - n**

---

[Function]	Enable / disable underlined print mode	
[Format]	ASCII	ESC - n
	Hexadecimal	1B 2D n
	Decimal	27 45 n
[Range]	n = 0,1	
[Default]	n = 0	
[Description]	Enables or disables the underlined print mode.	
	✓ When n is 1 (01h or 31h), underlined mode is enabled.	
	✓ When n is 0 (00h or 30h), underlined mode is disabled.	
[Notes]	All subsequent text and spaces are underlined.	

**ESC 4**

---

[Function]	Enable italic print mode	
[Format]	ASCII	ESC 4
	Hexadecimal	1B 34
	Decimal	27 52
[Description]	Enables italic print mode.	
[Notes]	Italic is available in all print modes.	

**ESC 5**

---

[Function]	Disable italic print mode	
[Format]	ASCII	ESC 5
	Hexadecimal	1B 35
	Decimal	27 53
[Description]	Disables italic print mode.	

**ESC E**

---

[Function]	Enable emphasized print mode	
[Format]	ASCII	ESC E
	Hexadecimal	1B 45
	Decimal	27 69
[Description]	Enables emphasized print mode.	
[Notes]	Emphasized print is bolder than normal print. Emphasized print is available in all print modes.	

**ESC F**

---

[Function]	Disable emphasized print mode	
[Format]	ASCII	ESC F
	Hexadecimal	1B 46
	Decimal	27 70
[Description]	Disables emphasized print mode.	

**ESC t n**

---

[Function]	Selects code page	
[Format]	ASCII	ESC t n
	Hexadecimal	1B 74 n
	Decimal	27 116 n
[Range]	n = 2, 3, 4, 5	
[Default]	n = 2	
[Description]	Selects character code page. <ul style="list-style-type: none"> <li>✓ When n is 2 (02h or 32h), CODEPAGE 850 is selected.</li> <li>✓ When n is 3 (03h or 33h), CODEPAGE 437 is selected.</li> <li>✓ When n is 4 (04h or 34h), CODEPAGE 860 is selected.</li> <li>✓ When n is 5 (05h or 35h), CODEPAGE 858 is selected.</li> </ul>	
[Notes]	CODEPAGE 850 is the default character code page.	

**ESC S n**

---

[Function]	Enable superscript and / or subscript	
[Format]	ASCII	ESC S n
	Hexadecimal	1B 53 n
	Decimal	27 83 n
[Range]	n = 0, 1	
[Description]	Enables superscript character and or subscript.	
	<ul style="list-style-type: none"> <li>✓ When n is 0 (00h or 30h), the superscript is enabled. The following characters are printed on the upper side of the print line.</li> </ul>	
	<ul style="list-style-type: none"> <li>✓ When n is 1 (01h or 31h), the subscript is enabled. The following characters are printed on the bottom side of the print line.</li> </ul>	

**ESC T**

---

[Function]	Disable superscript and subscript modes	
[Format]	ASCII	ESC T
	Hexadecimal	1B 54
	Decimal	27 84
[Description]	Disables both superscript and subscript print modes.	

**ESC N n**

[Function]	Select Intensity Mode	
[Format]	ASCII	ESC N n
	Hexadecimal	1B 4E n
	Decimal	27 78
[Range]	n = 0, 1, 2, 3	
[Default]	n = 2	
[Description]	Selects intensity mode. <ul style="list-style-type: none"> <li>✓ When n is 0 (30h), the intensity selected is VERY WEAK.</li> <li>✓ When n is 1 (31h), the intensity selected is WEAK.</li> <li>✓ When n is 2 (32h), the intensity selected is NORMAL.</li> <li>✓ When n is 3 (33h), the intensity selected is STRONG.</li> <li>✓ When n is 4 (34h), the intensity selected is VERY STRONG.</li> </ul>	

**ESC ! n**

[Function]	Select print mode	
[Format]	ASCII	ESC ! n
	Hexadecimal	1B 21 n
	Decimal	27 33 n
[Description]	Selects the print mode depending on byte n as shown in the table below:	

Bit	Function	Value	
		0	1
0	Undefined		
1	Undefined		
2	Undefined		
3	Emphasized	Canceled	Specified
4	Double height	Canceled	Specified
5	Double width	Canceled	Specified
6	Undefined		
7	Underlined	Canceled	Specified

**ESC } n**

---

[Function]	Enable / Disable Inverted mode	
[Format]	ASCII	ESC } n
	Hexadecimal	1B 7D n
	Decimal	27 125 n
[Range]	n = 0, 1	
[Default]	n = 0	
[Description]	Enables or disables inverted mode.	
	✓ When n is 1 (01h or 31h), the inverted mode is enabled.	
	✓ When n is 0 (00h or 30h), the inverted mode is disabled.	

**2.6 Print width, character width and height****DC2**

---

[Function]	Disable condensed mode	
[Format]	ASCII	DC2
	Hexadecimal	12
	Decimal	18
[Description]	Disables the condensed mod set by the ESC SI or SI command.	

**DC4**

---

[Function]	Disable on-line expanded print	
[Format]	ASCII	DC4
	Hexadecimal	14
	Decimal	20
[Description]	Disables the on-line expanded print set by ESC SO or SO command.	

**ESC d n**

---

[Function]	Enable / Disable double height print mode	
[Format]	ASCII	ESC d n
	Hexadecimal	1b 64 n
	Decimal	27 100 n
[Range]	n = 0, 1	
[Default]	n = 0	
[Description]	Enables or disables double height print mode.	
	<ul style="list-style-type: none"> <li>✓ When n is 1 (01h or 31h), the double height is enabled.</li> <li>✓ When n is 0 (00h or 30h), the double height is disabled.</li> </ul>	

**ESC H**

---

[Function]	Set default column per line	
[Format]	ASCII	ESC H
	Hexadecimal	1B 48
	Decimal	27 72
[Description]	Set the default cpl. All characters type can be set in this mode. See table 1 to know the number of cpl, according to your printer model.	

**ESC P**

---

[Function]	Set default column per line	
[Format]	ASCII	ESC P
	Hexadecimal	1B 50
	Decimal	27 80
[Description]	This command set the default cpl. All characters type can be set in this mode. See table 1 to know the number of cpl, according to your printer model. It is a copy of ESC H.	

**ESC SI**

---

[Function]	Set condensed mode	
[Format]	ASCII	ESC SI
	Hexadecimal	1B 0F
	Decimal	27 15
[Description]	This command set the ESC SI cpl. All characters type can be set in this mode. See table 1 to know the number of cpl, according to your printer model.	

**ESC SO**

---

[Function]	Set on-line expanded mode	
[Format]	ASCII	ESC SO
	Hexadecimal	1B 0E
	Decimal	27 14
[Description]	If this command is received in the beginning of the line, expanded is valid for all line. If already exist some characters in the line, next characters in this line (if any) will be in expanded mode. Next lines will be in normal mode.	

**ESC V**

---

[Function]	Set on-line double height mode	
[Format]	ASCII	ESC V
	Hexadecimal	1B 56
	Decimal	27 86
[Description]	If this command is received in the beginning of the line, double height is valid for all line. If already exist some characters in the line, next characters in this line (if any) will be in double height mode. Next lines will be in normal mode.	

**ESC W n**

---

[Function]	Enable / Disable expanded mode
------------	--------------------------------

[Format]	ASCII	ESC W n
	Hexadecimal	1B 57n
	Decimal	27 87 n
[Description]	Set expanded mode (double width).	
	✓ When n is 1 (01h or 31h), the expanded mode is enabled.	
	✓ When n is 0 (00h or 30h), the expanded mode is disabled.	
[Notes]	This command can be sent at any time, even in the middle of the line.	

## SI

---

[Function]	Set condensed mode	
[Format]	ASCII	SI
	Hexadecimal	0F
	Decimal	15
[Description]	This command set the ESC SI cpl. All characters type can be set in this mode. See table 1 to know the number of cpl, according to your printer model. It is a copy of ESC SI command.	

## SO

---

[Function]	Set on-line expanded mode	
[Format]	ASCII	SO
	Hexadecimal	0E
	Decimal	14
[Description]	If this command is received in the beginning of the line, expanded is valid for all line. If already exist some characters in the line, next characters in this line (if any) will be in expanded mode. Next lines will be in normal mode. It is a copy of ESC SO command.	

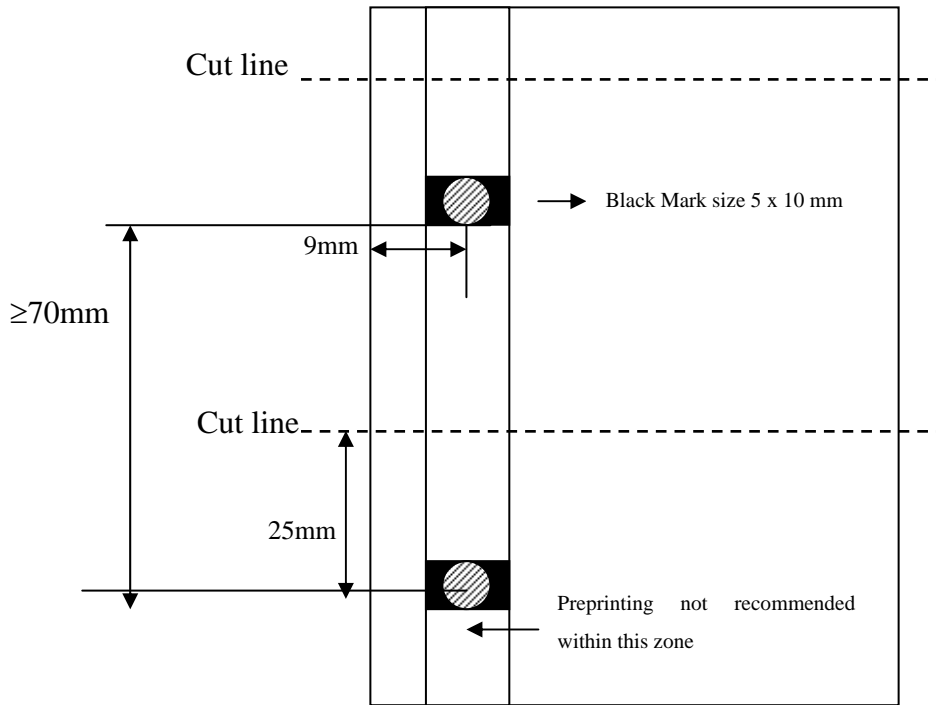
### 2.7 Black Mark

The printer can synchronize the cutting of the receipt with black marks printed on the back of the paper. You use this function when you have preprint on the receipt and you don't want a cut in the middle of that preprint, or text printed on top of the preprint.

The sensor used to detect the black-marks is the same sensor as used for paper end detection. Since the same sensor is used for both paper end and black-mark detection, the printer must know the length of the black mark to avoid signaling end-of-paper when it detects a black mark. The default setting accepts black marks in the range 3 – 16 mm, and works perfect with the recommended black mark length of 5mm. Marks longer than 16mm are interpreted as out-of-paper. You can change both these values with a printer command, changing the printer default settings in the flash PROM.

### 2.7.1 Position of the detecting mark for KC1800

When printing, the mark should be the width equal to or more than 3 mm and printed on the not thermo sensitive side, as shown below.



Black Mark is positioned 9mm from the left edge of the paper entry, and 25mm behind the cutter.

**GS • . n**

[Function]	Enable / Disable black mark
[Format]	ASCII                    GS • . n Hexadecimal            1D F9 2E n Decimal                    29 249 46 n
[Range]	n = 0 , 1
[Default]	n = 0
[Description]	Enables or Disables black mark. ✓ When n is 1 (31h), the black mark is enabled. ✓ When n is 0 (30h), the black mark is disabled.
[Notes]	With parameter n set to 31h the printer automatically synchronizes the cut with the black mark. When set to 30h the printer not synchronizes the cut with the black mark.
[Caution]	This command is only available for KC1800.

**GS • / n**

[Function]	Set black mark
[Format]	ASCII                    GS • / n Hexadecimal            1D F9 2F n Decimal                    29 249 47 n
[Range]	3 < n < 16
[Default]	n = 5
[Notes]	Where n is the max black mark length in mm.
[Caution]	This command is only available for KC1800.

**GS ≈ 2 0 – b1 b2**

[Function]	Sets the length of paper to feed between the black mark detection and the cut
[Format]	ASCII                    GS ≈ 2 0 – b1 b2 Hexadecimal            1D F7 02 00 2D b1 b2 Decimal                    29 247 2 0 45 b1 b2
[Range]	0 < b1 < 256; 0 < b2 < 256
[Default]	b1 = b2 = 0
[Notes]	Where b1 and b2 is LSB and MSB of the feed in mm, between the black mark detection and the cut.
[Caution]	This command is only available for KC1800.

**GS • 0 0**

[Function]	Feeds the receipt to the next black mark + additional feed
------------	--

[Format]	ASCII	GS • 0 0
	Hexadecimal	1D F9 30 30
	Decimal	29 249 48 48

[Notes] Additional feed specified by the GS ≈ 2 0 – b1 b2 command.  
 [Caution] This command is only available for KC1800.

### GS ≈ . n1 n2

---

[Function] Triggers the printer to start looking for a black mark.

[Format]	ASCII	GS ≈ . n1 n2
	Hexadecimal	1D F7 2E n1 n2
	Decimal	29 247 46 n1 n2

[Range]  $0 < n1 < 256$ ;  $0 < n2 < 256$

[Default]  $n1 = n2 = 0$

[Notes] Where n1 and n2 is LSB an MSB of the search length in mm.

[Caution] This command is only available for KC1800.

### GS • 1 n

---

[Function] Set threshold of black mark sensor

[Format]	ASCII	GS • 1 n
	Hexadecimal	1D F9 31 n
	Decimal	29 249 49 n

[Range]  $50 < n < 200$

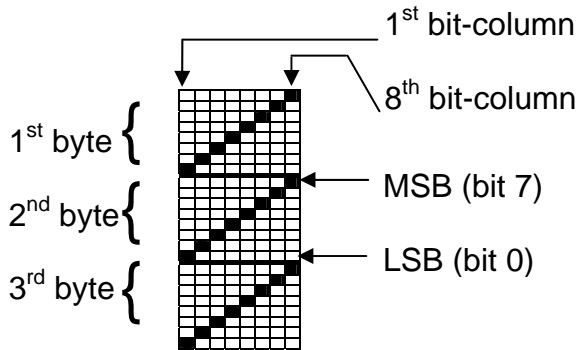
[Default]  $n = 180$  for KC1800

[Notes] This value depends of PCS.

[Caution] This command is only available for KC1800.

## 2.8 Bit images and graphics

### 2.8.1 24-bit graphics



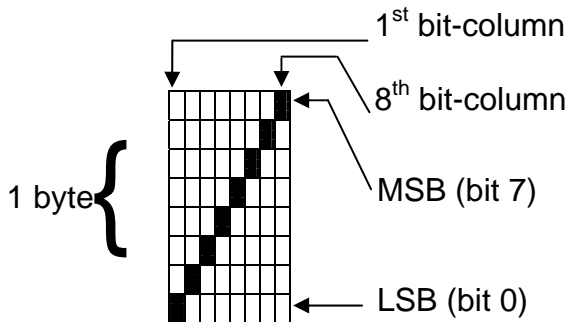
For this 24-bit graphic pattern we have eight bit-columns, each with a height of 3 bytes (24 bits). The printer must, after the command is stated, receive the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> bytes of the first bit-column, than the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> bytes of the second bit-column and so on, until the last bit-

The command sequence to print this graphic pattern would be (numbers in decimal):

ESC \* ! 8 0 1 1 1 2 2 2 4 4 4 8 8 8 16 16 16 32 32 32 64 64 64 128 128 128

Where you have  $8 + 0 * 256 = 8$  bit-columns to be filled, each with 3 bytes that will give us a total of 24 bytes to be sent (excluding the command sequence).

### 2.8.2 8-bit graphics



For this 8-bit graphic pattern we have eight bit-columns, each with a height of 1 byte (8 bits). The printer must, after the command is stated, receive the byte for the first bit-column, than the byte for the second bit-column and so on, until the last bit-column is filled. The resolution is lower but needs less bytes to be sent

The command sequence to print this graphic pattern would be (numbers in decimal):

ESC K 8 0 1 2 4 8 16 32 64 128

Where you have  $8 + 0 * 256 = 8$  bit-columns to be filled, each with 1 byte that will give us a total of 8 bytes to be sent (excluding the command sequence).

**ESC \$ n1 n2**

---

[Function]	Fill in blank bit columns	
[Format]	ASCII	ESC \$ n1 n2
	Hexadecimal	1B 24 n1 n2
	Decimal	27 36 n1 n2
[Description]	This command fills in blank bit columns, from the actual column until column number ( $n1+n2*256$ ), where $n1+n2*256 \leq N$ . See 'N' value in the table 2.	

**ESC \* ! n1 n2 b1...bn**

---

[Function]	24-bit graphics	
[Format]	ASCII	ESC * ! n1 n2 b1...bn
	Hexadecimal	1B 2A 21 n1 n2 b1 ... bn
	Decimal	27 42 33 n1 n2 b1 ... bn
[Description]	This command programs bit image for 24 bits, in double density where $n1+n2*256$ is the number of bit-columns that will be sent (see Bit images and graphics) and b1...bn are the bytes that compose the bit image. For each column one may need 3 bytes to complete. So, if you need to send an image with an 8-column width you may send 24 bytes to fill those columns. A full line has 'N' bit columns so a full line will need $N*3$ bytes. If the image you want to print has less than 'N' graphic columns, a LF must be sent to complete line printing. Text and graphic can be mixed in the same line. If the printer is used with programs that convert text to graphics, the printer is slower than if the printer is sent ASCII text. See N value in the Table 2.	

**ESC K n1 n2 b1...bn**

---

[Function]	8-bit graphics	
[Format]	ASCII	ESC K n1 n2 b1...bn
	Hexadecimal	1B 4B n1 n2 b1 ... bn
	Decimal	27 75 n1 n2 b1 ... bn
[Description]	<p>Selects the "8 pin" bit image (compatible with matrix printers) where you use <math>n1+n2*256</math> columns, with 1 byte per column thus using a lower resolution and up to 'N' columns. If the image you want to print has less than 'N' graphic columns, a LF must be sent to complete line printing. Text and graphic can be mixed in the same line. See 'N' value in the Table 2.</p>	

**2.9 Communication****ENQ**

---

[Function]	Serial communication status inquiry	
[Format]	ASCII	ENQ
	Hexadecimal	05
	Decimal	05
[Description]	<p>After this command is issued, the printer returns a status by the serial RS-232 communication port, defined below.</p>	

### 2.9.1 Serial interface status byte

The serial interface status byte is composed of 8 bits – 7 through 0 – the most significant bit is Bit 7 and the least significant bit is Bit 0.

Status bit number	Logic "0"	Logic "1"
0	Printer Off Line	Printer On Line
1	Printer has paper	Printer without paper
2	Paper roll full	Paper roll near end
2 (after ESC L command)	No paper in the presenter	Paper inside the presenter
3	Print head down	Print head raised
4 – 7	Not used (will always be logic "0")	

### GS ° 1

---

[Function] Serial / USB communication advanced status

[Format] ASCII GS ° 1  
 Hexadecimal 1D F8 31  
 Decimal 29 248 49

[Description] After this command is issued, the printer returns a status by the serial RS-232 communication port, defined below.

### 2.9.2 Serial / USB interface advanced status byte

The serial/usb interface status bytes is composed of 8 bits – 7 through 0 – the most significant bit is Bit 7 and the least significant bit is Bit 0.

#### 1) Printer Status

1	Buffer status	0	On / Off line	Error overrun	0	0
---	---------------	---	---------------	---------------	---	---

Bit 2: 0: data received will be printed  
 1: data received will be lost

Bit 3: 0: on-line  
 1: off-line

Bit 5&6: 00: buffer empty  
 01: buffer less 1/3 full  
 10: buffer more 1/3 full  
 11: buffer more ¾ full

#### 2) Off-line Status

1	Error	Paper	Presenter	Head-up	Paper	0	1
---	-------	-------	-----------	---------	-------	---	---

		Sensor	Sensor		near and sensor		
--	--	--------	--------	--	-----------------	--	--

Bit 2: 0: paper near and sensor with paper  
 1: paper near and sensor without paper

Bit 3: 0: head-up turn down  
 1: head-up turn up

Bit 4: 0: presenter sensor without paper  
 1: presenter sensor with paper

Bit 5: 0: paper sensor with paper  
 1: paper sensor without paper

Bit 6: 0: printer with error  
 1: printer without error

### 3) Error Status

1	Recoverable error	Non recoverable error	1	Paper cutter error	Cutter	0	0
---	-------------------	-----------------------	---	--------------------	--------	---	---

Bit 2: 0: cutter present  
 1: cutter absent

Bit 3: 0: cutter without error  
 1: cutter with error

Bit 5: 0: without error non-recoverable  
 1: with error non-recoverable

Bit 6: 0: without error recoverable  
 1: with error recoverable

### 4) Continuous Paper Sensor Status

1	0	Internal paper jam	1	Paper eject error	Head temperature	0	1
---	---	--------------------	---	-------------------	------------------	---	---

Bit 2: 0: normal temperature  
 1: temperature above the normal

Bit 3: 0: printer without eject error (after presenter sensor)  
 1: printer with eject error

Bit 5: 0: printer without internal paper jam error (before presenter sensor)  
 1: printer with internal paper jam error

### 5) Firmware Version

0	Major firmware version digit	Minor firmware version digit
---	------------------------------	------------------------------

It is not necessary to send any command to the printer to receive the status using the parallel interface. The parallel interface provides status using hardware pins as shown below.

### 2.9.3 Parallel interface status byte

The table below shows the printer statuses obtained through the parallel interface, with the PC BIOS function "Get status printer" (Int 17h – Printer I/O):

Parallel Interface Status Byte									Description
/BUSY	/ACK	PE	SEL	ERROR	X	X	X	HEX	
1	0	0	1	0	0	0	0	90h	On Line (Remote mode)
1	0	1	0	1	0	0	0	A8h	Paper end
1	0	1	1	0	0	0	0	A0h/B0h	Near paper end or paper in the presenter if ESC L was sent.
1	0	x	1	1	0	0	0	88h/B8h	Head Up

## ETX

---

[Function]           End buffer

[Format]            ASCII                ETX  
                       Hexadecimal        03  
                       Decimal            03

[Description]       The printer will be BUSY while the printing is performed, changing status only when the buffer is empty. On serial interfaces DTR (RTS) will be low while the printing is performed.

## STX

---

[Function]           Clear buffer

[Format]            ASCII                STX  
                       Hexadecimal        02  
                       Decimal            02

[Description] This commands clears the print buffer and any un-printed information in the printer receive before it. This command does not restore default conditions.

## 2.10 Data Control

### CAN

---

[Function] Cancel last line

[Format]	ASCII	CAN
	Hexadecimal	18
	Decimal	24

[Description] This commands clears the last line sent to the printer. All other data is stored.

### DEL

---

[Function] Cancel last character

[Format]	ASCII	DEL
	Hexadecimal	7F
	Decimal	127

[Description] This commands clears the last character sent to the printer. All other data is stored.

## 2.11 Barcodes

### GS h n

---

[Function]	Sets the height $n$ of the barcode generated	
[Format]	ASCII	GS h n
	Hexadecimal	1D 68 n
	Decimal	29 104 n
[Description]	Each height unit corresponds to a dot of 0.125 mm, so the final height is $n \times 0.125$ mm where $1 \leq n \leq 255$ . The default is $n=162$ .	

### GS w n

---

[Function]	Determines the width of the barcode	
[Format]	ASCII	GS w n
	Hexadecimal	1D 77 n
	Decimal	29 119 n
[Description]	This command changes the barcode width where $n=2$ correspond to normal width, $n=3$ is double width and $n=4$ is quadruple width. The default is $n=3$ .	

### GS H n

---

[Function]	Choose the position of the human readable information (HRI) of the barcode	
[Format]	ASCII	GS H n
	Hexadecimal	1D 48 n
	Decimal	29 72 n
[Description]	$n=0$ : No HRI $n=1$ : On top of the barcode (default) $n=2$ : On the bottom of the barcode $n=3$ : Both on top and on the bottom of the barcode	

**GS f n**

---

[Function]	Sets the font used to print the human readable information (HRI)	
[Format]	ASCII	GS f n
	Hexadecimal	1D 66 n
	Decimal	29 102 n
[Description]	For a normal font ('N' characters per line), $n=0$ or $n=48$ . For a condensed font ('N' characters per line), $n=1$ or $n=49$ . The default is normal font. See N value in the Table 2.	

**GS k 0 d<sub>1</sub>...d<sub>11</sub> NUL**

---

[Function]	Prints an UPC-A barcode	
[Format]	ASCII	GS k 0 d <sub>1</sub> ...d <sub>11</sub> NUL
	Hexadecimal	1D 6B 00 d <sub>1</sub> ...d <sub>11</sub> 00
	Decimal	29 107 0 d <sub>1</sub> ...d <sub>11</sub> 0
[Description]	$d_1...d_{11}$ is a sequence of 11 bytes containing the barcode information with $48 \leq d \leq 57$ . A check sum digit will be added automatically.	

**GS k 65 11 d<sub>1</sub>...d<sub>11</sub>**

---

[Function]	Prints an UPC-A barcode	
[Format]	ASCII	GS k 65 11 d <sub>1</sub> ...d <sub>11</sub>
	Hexadecimal	1D 6B 41 0B d <sub>1</sub> ...d <sub>11</sub>
	Decimal	29 107 65 11 d <sub>1</sub> ...d <sub>11</sub>
[Description]	It is a copy of GS k 0 d <sub>1</sub> ...d <sub>11</sub> NUL command.	

**GS k 1 d<sub>1</sub>...d<sub>6</sub> NUL**

---

[Function]	Prints an UPC-E barcode	
[Format]	ASCII	GS k 1 d <sub>1</sub> ...d <sub>6</sub> NUL
	Hexadecimal	1D 6B 01 d <sub>1</sub> ...d <sub>6</sub> 00
	Decimal	29 107 1 d <sub>1</sub> ...d <sub>6</sub> 0
[Description]	<i>d<sub>1</sub>...d<sub>6</sub></i> is a sequence of 6 bytes containing the barcode information with $48 \leq d \leq 57$ . A check sum digit will be added automatically.	

**GS k 66 6 d<sub>1</sub>...d<sub>6</sub>**

---

[Function]	Prints an UPC-E barcode	
[Format]	ASCII	GS k 66 6 d <sub>1</sub> ...d <sub>6</sub>
	Hexadecimal	1D 6B 42 06 d <sub>1</sub> ...d <sub>6</sub>
	Decimal	29 107 66 6 d <sub>1</sub> ...d <sub>6</sub>
[Description]	It is a copy of GS k 1 <i>d<sub>1</sub>...d<sub>6</sub></i> NUL command.	

**GS k 2 d<sub>1</sub>...d<sub>12</sub> NUL**

---

[Function]	Prints an EAN-13 barcode	
[Format]	ASCII	GS k 2 d <sub>1</sub> ...d <sub>12</sub> NUL
	Hexadecimal	1D 6B 02 d <sub>1</sub> ...d <sub>12</sub> 00
	Decimal	29 107 2 d <sub>1</sub> ...d <sub>12</sub> 0
[Description]	<i>d<sub>1</sub>...d<sub>12</sub></i> is a sequence of 12 bytes containing the barcode information with $48 \leq d \leq 57$ . The printer generates automatically the 13 <sup>th</sup> digit.	

**GS k 67 12 d<sub>1</sub>...d<sub>12</sub>**

---

[Function]	Prints an EAN-13 barcode	
[Format]	ASCII	GS k 67 12 d <sub>1</sub> ...d <sub>12</sub>
	Hexadecimal	1D 6B 43 0C d <sub>1</sub> ...d <sub>12</sub>
	Decimal	29 107 67 12 d <sub>1</sub> ...d <sub>12</sub>
[Description]	It is a cop of command GS k 2 d <sub>1</sub> ...d <sub>12</sub> NUL.	

**GS k 3 d<sub>1</sub>...d<sub>7</sub> NUL**

---

[Function]	Prints an EAN-8 barcode	
[Format]	ASCII	GS k 3 d <sub>1</sub> ...d <sub>7</sub> NUL
	Hexadecimal	1D 6B 03 d <sub>1</sub> ...d <sub>7</sub> 00
	Decimal	29 107 3 d <sub>1</sub> ...d <sub>7</sub> 0
[Description]	d <sub>1</sub> ...d <sub>7</sub> is a sequence of 7 bytes containing the barcode information with $48 \leq d \leq 57$ . The printer generates automatically the 8 <sup>th</sup> digit.	

**GS k 68 7 d<sub>1</sub>...d<sub>7</sub>**

---

[Function]	Prints an EAN-8 barcode	
[Format]	ASCII	GS k 68 7 d <sub>1</sub> ...d <sub>7</sub>
	Hexadecimal	1D 6B 44 07 d <sub>1</sub> ...d <sub>7</sub>
	Decimal	29 107 68 7 d <sub>1</sub> ...d <sub>7</sub>
[Description]	It is a copy of GS k 3 d <sub>1</sub> ...d <sub>7</sub> NUL command.	

**GS k 4 d<sub>1</sub>...d<sub>n</sub> NUL**

---

[Function]	Prints a CODE 39 barcode	
[Format]	ASCII	GS k 4 d <sub>1</sub> ...d <sub>n</sub> NUL
	Hexadecimal	1D 6B 04 d <sub>1</sub> ...d <sub>n</sub> 00
	Decimal	29 107 4 d <sub>1</sub> ...d <sub>n</sub> 0
[Description]	<p><i>d<sub>1</sub>...d<sub>n</sub></i> is the sequence of <i>n</i> bytes containing the barcode information. The bytes that can be used in <i>d</i> are 32, 36, 37, 42, 43, 45 to 57 and 65 to 90 (upper case letters) or 97 to 122 (lower case letters). Lower case and upper case letters can't be combined in the same barcode. A check sum digit will be added automatically. Number of digits in the barcode limited by the print field as well as the configured barcode width.</p>	

**GS k 69 n d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints a CODE 39 barcode	
[Format]	ASCII	GS k 69 n d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 45 n d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 69 n d <sub>1</sub> ...d <sub>n</sub>
[Description]	It is a copy of the command GS k 4 <i>d<sub>1</sub>...d<sub>n</sub></i> NUL.	

**GS k 5 d<sub>1</sub>...d<sub>n</sub> NUL**

---

[Function]	Prints an ITF barcode	
[Format]	ASCII	GS k 5 d <sub>1</sub> ...d <sub>n</sub> NUL
	Hexadecimal	1D 6B 05 d <sub>1</sub> ...d <sub>n</sub> 00
	Decimal	29 107 5 d <sub>1</sub> ...d <sub>n</sub> 0
[Description]	<i>d<sub>1</sub>...d<sub>n</sub></i> is the sequence of <i>n</i> bytes containing the barcode information with $48 \leq d \leq 57$ . Number of digits in the barcode limited by the print field as well as the configured barcode width.	

**GS k 70 n d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints an ITF barcode	
[Format]	ASCII	GS k 70 n d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 46 n d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 70 n d <sub>1</sub> ...d <sub>n</sub>
[Description]	It is a copy of the command GS k 5 d <sub>1</sub> ...d <sub>n</sub> NUL	

**GS k 6 d<sub>1</sub>...d<sub>n</sub> NUL**

---

[Function]	Prints a CODABAR barcode	
[Format]	ASCII	GS k 6 d <sub>1</sub> ...d <sub>n</sub> NUL
	Hexadecimal	1D 6B 06 d <sub>1</sub> ...d <sub>n</sub> 00
	Decimal	29 107 6 d <sub>1</sub> ...d <sub>n</sub> 0
[Description]	<p><i>d<sub>1</sub>...d<sub>n</sub></i> is the sequence of <i>n</i> bytes containing the barcode information. The bytes that can be used in <i>d</i> are 36, 43, 45 to 57 and 65 to 68 (upper case letters) or 97 to 100 (lower case letters). Lower case and upper case letters can't be combined in the same barcode. A check sum digit will be added automatically. Number of digits in the barcode limited by the print field as well as the configured barcode width. If the first character is a letter, the last character must also be a letter. Excluding these two characters (the first and the last one), any other character can be a letter.</p>	

**GS k 71 n d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints a CODABAR barcode	
[Format]	ASCII	GS k 71 n d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 47 n d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 71 n d <sub>1</sub> ...d <sub>n</sub>
[Description]	It is a copy of the command GS k 6 d <sub>1</sub> ...d <sub>n</sub> NUL	

**GS k 72 d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints a CODE 93 barcode	
[Format]	ASCII	GS k 72 d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 48 n d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 72 n d <sub>1</sub> ...d <sub>n</sub>
[Description]	<i>n</i> indicates the number of bytes that will be sent and <i>d<sub>1</sub>...d<sub>n</sub></i> is the sequence of <i>n</i> bytes containing the barcode information. This code can use all bytes from 0 to 127. A check sum digit will be added automatically. Number of digits in the barcode limited by the print field as well as the configured barcode width.	

**GS k 73 n d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints a CODE 128 barcode	
[Format]	ASCII	GS k 73 n d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 49 n d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 73 n d <sub>1</sub> ...d <sub>n</sub>
[Description]	<i>n</i> indicates the number of bytes that will be sent and <i>d<sub>1</sub>...d<sub>n</sub></i> is the sequence of <i>n</i> bytes containing the barcode information. This code can use all bytes from 0 to 127. The subset is automatically chosen by the printer based on the data received. A check sum digit will be added automatically. Number of digits in the barcode limited by the print field as well as the configured barcode width.	

**GS k 128 n<sub>1</sub> n<sub>2</sub> n<sub>3</sub> n<sub>4</sub> n<sub>5</sub> n<sub>6</sub> d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints a PDF-417 barcode	
[Format]	ASCII	GS k 128 n <sub>1</sub> n <sub>2</sub> n <sub>3</sub> n <sub>4</sub> n <sub>5</sub> n <sub>6</sub> d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 80 n <sub>1</sub> n <sub>2</sub> n <sub>3</sub> n <sub>4</sub> n <sub>5</sub> n <sub>6</sub> d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 128 n <sub>1</sub> n <sub>2</sub> n <sub>3</sub> n <sub>4</sub> n <sub>5</sub> n <sub>6</sub> d <sub>1</sub> ...d <sub>n</sub>
[Description]	<p><i>n</i><sub>1</sub> is the ECC level (from 0 to 8) (Error correction level).</p> <p><i>n</i><sub>2</sub> is the pitch height (from 1 to 8) where height=<i>n</i><sub>2</sub> x 0.125mm.</p> <p><i>n</i><sub>3</sub> is the pitch width (from 1 to 4) where width=<i>n</i><sub>3</sub> x 0.125mm.</p> <p><i>n</i><sub>4</sub> is the number of codewords per row – if <i>n</i><sub>4</sub> is 0, the maximum number of columns allowed for the pitch width informed will be used. If the barcode can't fit the print width the printer automatically adjusts it for the maximum permitted width within the line field.</p> <p><i>n</i><sub>5</sub> and <i>n</i><sub>6</sub> indicate the number of bytes that will be coded, where total=<i>n</i><sub>5</sub> + <i>n</i><sub>6</sub> x 256, and total must be less than 900.</p> <p><i>d</i><sub>1</sub>...<i>d</i><sub>n</sub> is the actual sequence of bytes that will be coded.</p>	

**GS k 21 d<sub>1</sub>...d<sub>9</sub> NUL**

---

[Function]	Prints an ISBN barcode	
[Format]	ASCII	GS k 21 d <sub>1</sub> ...d <sub>9</sub> NUL
	Hexadecimal	1D 6B 15 d <sub>1</sub> ...d <sub>9</sub> 00
	Decimal	29 107 21 d <sub>1</sub> ...d <sub>9</sub> 0
[Description]	<p><i>d</i><sub>1</sub>...<i>d</i><sub>9</sub> is the sequence of 9 bytes containing the barcode information. The bytes that can be used in <i>d</i> are 45, 48 to 57 and 88. If hyphens were included in the information as in the example below, they will not be computed as a byte received. After the ninth valid digit, an hyphen can be added followed by an "X" (58h) or any other digit (30h to 39h). In this case there are two options:</p> <ol style="list-style-type: none"> <li>1. Send the 00h and the barcode will be printed</li> <li>2. Send space (20h) and more 5 digits (30h to 39h)</li> </ol> <p>Example: 1-56592-292-X 90000</p>	

1-56592-292-1 90000

1-56592-292-X

1-56592-292-1

**GS k 22 d<sub>1</sub>...d<sub>n</sub> NUL**

---

[Function]	Prints a MSI barcode	
[Format]	ASCII	GS k 22 d <sub>1</sub> ...d <sub>n</sub> NUL
	Hexadecimal	1D 6B 16 d <sub>1</sub> ...d <sub>n</sub> 00
	Decimal	29 107 22 d <sub>1</sub> ...d <sub>n</sub> 0
[Description]	<i>d<sub>1</sub>...d<sub>n</sub></i> is the sequence of <i>n</i> bytes containing the barcode information. The bytes that can be used in <i>d</i> are 48 to 57. The limitation of size for this barcode is given by the print field as well as the configured bar width. A check sum digit will be added automatically.	

**GS k 130 n d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints a MSI barcode	
[Format]	ASCII	GS k 130 n d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 82 n d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 130 n d <sub>1</sub> ...d <sub>n</sub>
[Description]	It is a copy of the command GS k 22 d <sub>1</sub> ...d <sub>n</sub> NUL	

**GS k 23 d<sub>1</sub>...d<sub>n</sub> NUL**

---

[Function]	Prints a PLESSEY barcode	
[Format]	ASCII	GS k 23 d <sub>1</sub> ...d <sub>n</sub> NUL
	Hexadecimal	1D 6B 17 d <sub>1</sub> ...d <sub>n</sub> 00
	Decimal	29 107 23 d <sub>1</sub> ...d <sub>n</sub> 0
[Description]	<i>d<sub>1</sub>...d<sub>n</sub></i> is the sequence of <i>n</i> bytes containing the barcode information. The bytes that can be used in <i>d</i> are 48 to 57 plus 65 to 70 (upper case letters) or 97 to 102 (lower case letters). Lower case and upper case letters can't be combined in the same barcode. The limitation of size for this barcode is given by the print field as well as the configured bar width. A check sum digit will be added automatically.	

**GS k 131 n d<sub>1</sub>...d<sub>n</sub>**

---

[Function]	Prints a PLESSEY barcode	
[Format]	ASCII	GS k 131 n d <sub>1</sub> ...d <sub>n</sub>
	Hexadecimal	1D 6B 83 n d <sub>1</sub> ...d <sub>n</sub>
	Decimal	29 107 131 n d <sub>1</sub> ...d <sub>n</sub>
[Description]	It is a copy of the command GS k 23 d <sub>1</sub> ...d <sub>n</sub> NUL	

**GS k 132 n<sub>1</sub> n<sub>2</sub>**

---

[Function]	Programs barcode's left margin	
[Format]	ASCII	GS k 132 n <sub>1</sub> n <sub>2</sub>
	Hexadecimal	1D 6B 84 n <sub>1</sub> n <sub>2</sub>
	Decimal	29 107 132 n <sub>1</sub> n <sub>2</sub>
[Description]	Programs the position of the barcode's left margin position given by $n_1 + n_2 \times 256$ .	

## Appendix I – Tables

**Table 1 - Characters Per Line**

58 mm

Characters per line	Character per inch	Command (after ESC @)
32	17	default
42	22	ESC SI or SI
16	8	ESC W 1
21	11	ESC SI or SI plus ESC W 1

76 or 80 mm

Characters per line	Character per inch	Command (after ESC @)
48	17	default
64	22	ESC SI or SI
24	8	ESC W 1
32	11	ESC SI or SI plus ESC W 1

112 mm

Characters per line	Character per inch	Command (after ESC @)
69	17	default
92	22	ESC SI or SI
34	8	ESC W 1
46	11	ESC SI or SI plus ESC W 1

**Table 2 - Paper Width**

Paper width	58 mm	76 or 80mm	112 mm
N	384	576	832

## Appendix II – Character Tables

### ASCII

The codes from 00h up to 7Fh are shown below:

Code (Hex)	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL							BEL	BS	HT	LF	VT	FF	CR	SO	SI
1		DC1	DC2	DC3	DC4				CAN			ESC				
2	SP	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	A	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{		}	~	DEL

### Code Page 437

Code (Hex)	2_	3_	4_	5_	6_	7_	8_	9_	A_	B_	C_	D_	E_	F_
_0	(space)	0	@	P	`	p	Ç	É	á	█	Ł	⌌	ɑ	≡
_1	!	1	A	Q	a	q	ü	æ	í	█	⊥	⌌	β	±
_2	"	2	B	R	b	r	é	Æ	ó	█	⊥	⌌	Γ	≥
_3	#	3	C	S	c	s	â	ô	ú		⊥	⌌	π	≤
_4	\$	4	D	T	d	t	ä	ö	ñ	⊥	—	⌌	Σ	
_5	%	5	E	U	e	u	à	ò	Ñ	⊥	+	⌌	σ	]
_6	&	6	F	V	f	v	â	û	ä	⊥	⊥	⌌	μ	÷
_7	'	7	G	W	g	w	ç	ù	ö	⌌	⊥	⊥	τ	≈
_8	(	8	H	X	h	x	ê	ÿ	í	⊥	⌌	⊥	Φ	°
_9	)	9	I	Y	i	y	ë	Ö	⌌	⊥	⌌	⊥	Θ	.
_A	*	:	J	Z	j	z	è	Ü	⌌	⊥	⊥	⌌	Ω	.
_B	+	;	K	[	k	{	ï	ç	½	⌌	⌌	█	δ	√
_C	,	<	L	\	l	!	î	£	¼	⌌	⊥	█	∞	n
_D	-	=	M	]	m	}	ì	¥	ı	⌌	=	█	φ	²
_E	.	>	N	^	n	~	Ä	Pt	«	⊥	⊥	█	ε	■
_F	/	?	O	_	o		Å	f	»	⌌	⊥	█	ñ	

### Code Page 850

Code Page 850 character set is from 00h up to 7Fh and is the same characters as the ASCII table. Characters between 80h and FFh are available for use for international languages.

Code (Hex)	2_	3_	4_	5_	6_	7_	8_	9_	A_	B_	C_	D_	E_	F_
_0	(space)	0	@	P	`	p	Ç	É	á	☐	Ł	ǫ	Ó	-
_1	!	1	A	Q	a	q	ü	æ	í	☐	⊥	Đ	β	±
_2	"	2	B	R	b	r	é	Æ	ó	☐	⊥	Ê	Ô	=
_3	#	3	C	S	c	s	â	ô	ú		⊥	Ë	Ò	¾
_4	\$	4	D	T	d	t	ä	ö	ñ	⊥	-	È	õ	¶
_5	%	5	E	U	e	u	à	ò	Ñ	Á	⊥	ı	Ö	§
_6	&	6	F	V	f	v	â	û	ä	Â	ã	í	μ	÷
_7	'	7	G	W	g	w	ç	ù	ä	À	Ã	Î	þ	¸
_8	(	8	H	X	h	x	ê	ÿ	ı	©	Ł	İ	þ	°
_9	)	9	I	Y	i	y	ë	Ö	®	¶	Ł	ı	Ú	¨
_A	*	:	J	Z	j	z	è	Ü	¬		Ł	ı	Û	·
_B	+	;	K	[	k	{	ï	ø	½	¶	Ł	■	Ù	1
_C	,	<	L	\	l	!	î	£	¼	¶	Ł	■	Ý	3
_D	-	=	M	]	m	}	ì	Ø	ı	¢	=	ı	Ý	2
_E	.	>	N	^	n	~	Ä	X	«	¥	¶	ı	—	■
_F	/	?	O	_	o		Å	f	»	¬	×	■	'	

## Code Page 858

Code (Hex)	2_	3_	4_	5_	6_	7_	8_	9_	A_	B_	C_	D_	E_	F_
_0	(space)	0	@	P	`	p	Ç	É	á	☼	Ł	ǎ	Ó	-
_1	!	1	A	Q	a	q	ü	æ	í	☼	⊥	Đ	β	±
_2	"	2	B	R	b	r	é	Æ	ó	☼	⊥	Ê	Ô	=
_3	#	3	C	S	c	s	â	ô	ú		⊥	Ë	Ò	¾
_4	\$	4	D	T	d	t	ä	ö	ñ	⊥	-	È	õ	¶
_5	%	5	E	U	e	u	à	ò	Ñ	Á	+	€	Õ	§
_6	&	6	F	V	f	v	â	û	ä	Â	ã	í	μ	÷
_7	'	7	G	W	g	w	ç	ù	ä	À	Ã	î	ρ	¸
_8	(	8	H	X	h	x	ê	ÿ	ı	©	Ł	ï	ρ	°
_9	)	9	I	Y	i	y	ë	Ö	®	¶	ŕ	ĵ	Ú	¨
_A	*	:	J	Z	j	z	è	Ü	¬		⊥	ŕ	Û	·
_B	+	;	K	[	k	{	ï	ø	½	¶	⊥	■	Ù	1
_C	,	<	L	\	l	!	î	£	¼	¶	¶	■	Ý	3
_D	-	=	M	]	m	}	ì	Ø	ı	¢	=	!	Ý	2
_E	.	>	N	^	n	~	Ä	X	«	¥	¶	ì	—	■
_F	/	?	O	_	o		Å	f	»	¬	×	■	'	

Code Page 860

Code (Hex)	2_	3_	4_	5_	6_	7_	8_	9_	A_	B_	C_	D_	E_	F_
_0	(space)	0	@	P	`	p	Ç	É	á	☼	Ł	⋈	ɑ	≡
_1	!	1	A	Q	a	q	ü	À	í	☼	⊥	⌘	β	±
_2	"	2	B	R	b	r	é	È	ó	☼	⊥	⌘	Γ	≥
_3	#	3	C	S	c	s	â	ô	ú		⊥	⋈	π	≤
_4	\$	4	D	T	d	t	ã	õ	ñ	⊥	—	⋈	Σ	∫
_5	%	5	E	U	e	u	à	ò	Ñ	⊥	+	⌘	σ	∫
_6	&	6	F	V	f	v	Á	Ú	ä	⊥	⊥	⌘	μ	÷
_7	'	7	G	W	g	w	ç	ù	ö	⌘	⊥	⊥	τ	≈
_8	(	8	H	X	h	x	ê	î	ï	⌘	⋈	⊥	Φ	°
_9	)	9	I	Y	i	y	Ê	Ï	Ò	⊥	⌘	⊥	Θ	·
_A	*	:	J	Z	j	z	è	Ü	ÿ	⊥	⋈	⌘	Ω	·
_B	+	;	K	[	k	{	Í	Ç	½	⌘	⌘	■	δ	√
_C	,	<	L	\	l	!	Ô	£	¼	⋈	⊥	■	∞	∞
_D	-	=	M	]	m	}	ì	Ù	ì	⋈	=	■	φ	²
_E	.	>	N	^	n	~	Ã	Pt	«	⊥	⊥	■	ε	■
_F	/	?	O	_	o		Â	Ó	»	⊥	⊥	■	∩	



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