80mm Series Printer

Command Set

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	GS \	Set relative vertical print position in page mode
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	GS P	Set horizontal and vertical motion unit

Control Commands

HT

[Name] Horizontal tab

[Format] ASCII HT
Hex 09
Decimal 9

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

[Notes]

- This command is ignored unless the next horizontal tab position has been set.
- If the next horizontal tab position exceeds the printing area, the printer sets the printing position to [printing area width + 1].
- Horizontal tab positions are set with **ESC D**.
- If this command is received when the printing position is at [printing area width + 1], the printer executes print buffer-full printing of the current line and horizontal tab processing from the beginning of the next line.

[Reference] **ESC D**

LF

[Name] Print and line feed

[Format] ASCII LF
Hex 0A
Decimal 10

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

[Note] This command sets the print position to the beginning of the line.

[Reference] **ESC 2**, **ESC 3**

CR

[Name] Print and carriage return

[Format] ASCII CR
Hex 0D
Decimal 13

[Description] When automatic line feed is enabled, this command functions the same as **LF**; when automatic line feed is disabled, this command is ignored.

[Notes]

- This command line feed is ignored with a serial interface model.
- Sets the print starting position to the beginning of the line.

[Reference] **LF**

DLE EOT n

[Name] Real-time status transmission

[Format]

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

[Range] 1 ≤ n ≤ 4

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

n = 1: Transmit printer status

n = 2: Transmit offline status

n = 3: Transmit error status

n = 4: Transmit paper roll sensor status

[Notes]

- The status is transmitted whenever the data sequence <10>H<04>H<n> (1 ≤ n ≤ 4) is received.

  Example:

  In **ESC m nL nH d1...dk**, d1=<10>H, d2=<04>H, d3=<01>H

- Do not use this command within another command that consists of 2 or more bytes.

  Example:

  If you attempt to transmit **ESC 3 n** to the printer, but DTR (DSR for the host computer) goes to MARK before n is transmitted and then **DLE EOT 3** interrupts before n is received, the code <10>H for **DLE EOT 3** is processed as the code for **ESC 3 <**10>H.

- The printer transmits the current status. Each status item is represented by one-byte of data.
- The printer transmits the status without confirming whether the host computer can receive data.
- The printer executes this command upon receiving it.
- This command is executed even when the printer is offline, the receive buffer is full, or there is an error status with a serial interface model.
- With a parallel interface model, this command cannot be executed when the printer is busy. This command is executed even when the printer is offline or in error status, with a parallel interface model.
- When Auto Status Back (ASB) is enabled using the **GS a** command, the status transmitted by the **DLE EOT** command and the ASB status must be differentiated.

n = 1: Printer status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Drawer open/close signal is LOW.(connector pin3)
	On	04	4	Drawer open/close signal is HIGH.(connector pin3)
3	-	-	-	Undefined.
4	On	10	16	Not used. Fixed to On.
5.6	--	--	--	Undefined.
7	Off	00	0	Not used. Fixed to Off.

n = 2: Offline status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Platen is closed.
	On	04	4	Platen is opened.
3	Off	00	0	Paper is not being fed by using the FEED button.
	On	08	8	Paper is being fed by the FEED button.
4	On	10	16	Not used. Fixed to On.
5	-	-	-	Undefined.
6	Off	00	0	No error.
	On	40	64	Error occurred.
7	Off	00	0	Not used. Fixed to Off.

n = 3: Error status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	--	--	--	Undefined.
3	Off	00	0	No auto cutter error.
	On	08	8	Auto cutter error occurred.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error occurred.
6	Off	00	0	No auto-recoverable error.
	On	40	64	Auto recoverable error occurred.
7	Off	00	0	Not used. Fixed to Off.

Bit 6: Bit 6 is On when printing is stopped due to high print head temperature until the print head temperature drops sufficiently or when the paper roll cover is opened during printing.

n = 4: Continuous paper sensor status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2.3	-	-	-	Undefined.
4	On	10	16	Not used. Fixed to On.
5.6	off	00	0	Paper roll sensor: Paper present.
	on	60	96	Paper roll end detected by paper roll sensor.
7	Off	00	0	Not used. Fixed to Off.

[Reference] **DLE ENQ**, **GS a**

DLE ENQ n

[Name] Real-time request to printer

[Format] ASCII DLE ENQ n

Hex 10 05 n

Decimal 16 5 n

[Range] 1 ≤ n ≤ 2

[Description] Responds to a request from the host computer. n specifies the requests as follows:

n	Request
1	Recover from an error and restart printing from the line where the error occurred
2	Recover from an error at clearing the receive and print buffers

[Notes]

- This command is effective only when an auto cutter error, a BM detecting error or a platen-open error occurs.
- The printer starts processing data upon receiving this command.
- This command is executed even when the printer is offline, the receive buffer is full, or there is an error status with a serial interface model.
- With a parallel interface model, this command can't be executed when the printer is busy.
- The status is also transmitted whenever the data sequence of <10>H<05>H<n> (1 ≤ n ≤ 2) is received.

  Example:

  In **ESC m nL nH dk**, d1 = <10>H, d2 = <05>H, d3 = <01>H
- This command should not be contained within another command that consists of two or more bytes.

  Example:

  If you attempt to transmit **ESC 3 n** to the printer, but DTR (DSR for

the host computer) goes to MARK before n is transmitted, and **DLE ENQ 2** interrupts before n is received, the code <10>H for **DLE ENQ 2** is processed as the code for **ESC 3** <10>H.

- **DLE ENQ 2** 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 **ESC !**, **ESC 3**, etc.) that were in effect when the error occurred. The printer can be initialized completely by using this command and **ESC @**. This command is enabled only for errors that have the possibility of recovery, except for print head temperature error.

[Reference] **DLE EOT**

DLE DC4 n m t

[Name] Generate pulse at real-time

[Format] ASCII DLE DC4 n m t
Hex 10 14 n m t
Decimal 16 20 n m t

[Range] n=1,m=0,1
1 ≤ t ≤ 8

[Description] Outputs the pulse specified by t to connector pin m as follows:

m	Connector pin
0	Drawer kick-out connector pin2
1	Drawer kick-out connector pin5

The pulse ON time is [t x 100 ms] and the OFF time is [t x 100 ms].

[Details]

- When the pulse is output to the connector pin specified while **ESC p** or **DEL DC4** is executed while this command is processed, this command is ignored.
- With a serial interface model, this command is executed even when the printer is receive the command.
- With a parallel interface model, this command is not executed even when the printer is receive the command.
- If printer 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 printer is disabled with **ESC =** (Select peripheral device).

[Reference] **ESC p**

ESC SP n

[Name] Set right-side character spacing

[Format] ASCII ESC SP n

Hex 1B 20 n

Decimal 27 32 n

[Range] 0 ≤ n ≤ 255

[Description] Sets the character spacing for the right side of the character to [n × 0.125 mm (n × 0.0049")].

[Notes]
- The right-side character spacing for double-width mode is twice the normal value. When characters are enlarged, the right-side character spacing is n times normal value.
- This command does not affect the setting of Kanji characters.
- This command sets values independently in standard mode.

[Default] n = 0

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character Font A (12×24).
	On	01	1	Character Font B (9×17).
1	-	-	-	Undefined.
2	-	-	-	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode not selected.
	On	20	32	Double-width mode selected.
6	-	-	-	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

[Notes]
- When both double-height and double-width modes are selected, quadruple-size characters are printed.
- The printer can underline all characters, but cannot underline the space set by **HT** or 90° clockwise rotated characters.
- The thickness of the underline is that selected by **ESC** -, regardless of the character size.
- When some characters in a line are double or more height, all the characters in the line are aligned at the baseline.
- **ESC M** can also select character font type. However, the setting of the last received command is effective.

[Notes] ¬ When both double-height and double-width modes are selected, quadruple-size characters are printed.
¬ The printer can underline all characters, but cannot underline the space set by **HT** or 90° clockwise rotated characters.
¬ The thickness of the underline is that selected by **ESC** -, regardless of the character size.
¬ When some characters in a line are double or more height, all the characters in the line are aligned at the baseline.
¬ **ESC M** can also select character font type. However, the setting of the last received command is effective.
¬ **ESC E** can also turn on or off emphasized mode. However, the setting of the last received command is effective.
¬ **ESC** - can also turn on or off underline mode. However, the setting of the last received command is effective.
¬ **GS !** can also select character size. However, the setting of the last received command is effective.
¬ Emphasized mode is effective for alphanumeric and Kanji. All print modes except emphasized mode are effective only for alphanumeric.

[Default] n = 0

[Reference] **ESC -**, **ESC E**, **GS !**

ESC $ nL nH

[Name] Set absolute print position

[Format]

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

[Range] 0 ≤ nL ≤ 255
0 ≤ nH ≤ 255

[Description] ¬ Sets the distance from the beginning of the line to the position at which subsequent characters are to be printed.
¬ The distance from the beginning of the line to the print position is [(nL + nH×256)×0.125 mm].

[Notes] ¬ Settings outside the specified printable area are ignored.
¬ In standard mode, the horizontal motion unit (x) is used.

[Reference] **ESC **, **GS $**, **GS **

ESC % n

[Name] Select/cancel user-defined character set

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

[Range] 0 ≤ n ≤ 255

[Description] Selects or cancels the user-defined character set.
- When the LSB of n is 0, the user-defined character set is canceled.
- When the LSB of n is 1, the user-defined character set is selected.

[Notes]
- When the user-defined character set is canceled, the built-in character set is automatically selected.
- n is available only for the least significant bit.

[Default] n = 0

[Reference] **ESC &**, **ESC ?**

ESC & y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]

[Name] Define user-defined characters

[Format] ASCII ESC & y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]
Hex 1B 26 y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]
Decimal 27 38 y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]

[Range] y = 3
32 ≤ c1 ≤ c2 ≤ 126
0 ≤ x ≤ 12 (when Font A (12×24) is selected)
0 ≤ x ≤ 9 (when Font B (9×17) is selected)
0 ≤ d1 ... d(y×xk) ≤ 255

[Description] Defines user-defined characters.
- y specifies the number of bytes in the vertical direction.
- c1 specifies the beginning character code for the definition, and c2 specifies the final code.
- x specifies the number of dots in the horizontal direction.

[Notes]
- The allowable character code range is from ASCII code <20>H to <7E>H (95 characters).
- It is possible to define multiple characters for consecutive character codes. If only one character is desired, use c1 = c2.
- d is the dot data for the characters. The dot pattern is in the horizontal direction from the left side. Any remaining dots on the right side are blank.
- The data to define user-defined characters is (y×x) bytes.
- Set a corresponding bit to 1 to print a dot or 0 not to print a dot.

- This command can define different user-defined character patterns for each font. To select a font, use **ESC !** or **ESC M**.
- User-defined characters and a downloaded bit image cannot be defined simultaneously. When this command is executed, the downloaded bit image is cleared.
- The user-defined character definition is cleared when:

1) **ESC @** is executed.
2) **GS ** is executed.
3) **ESC ?** is executed.
4) The power is turned off.

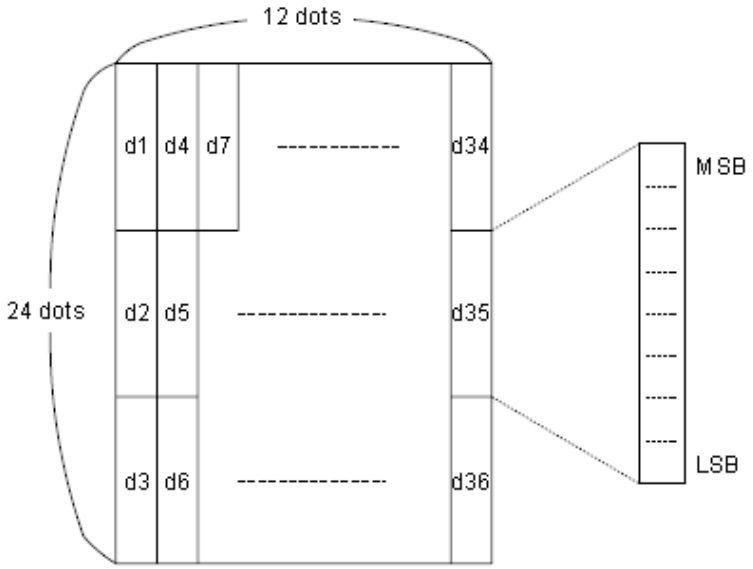
- When user-defined characters are defined in Font B (9 ◊ 17), only the most significant bit of the 3rd byte of data in vertical direction is effective.

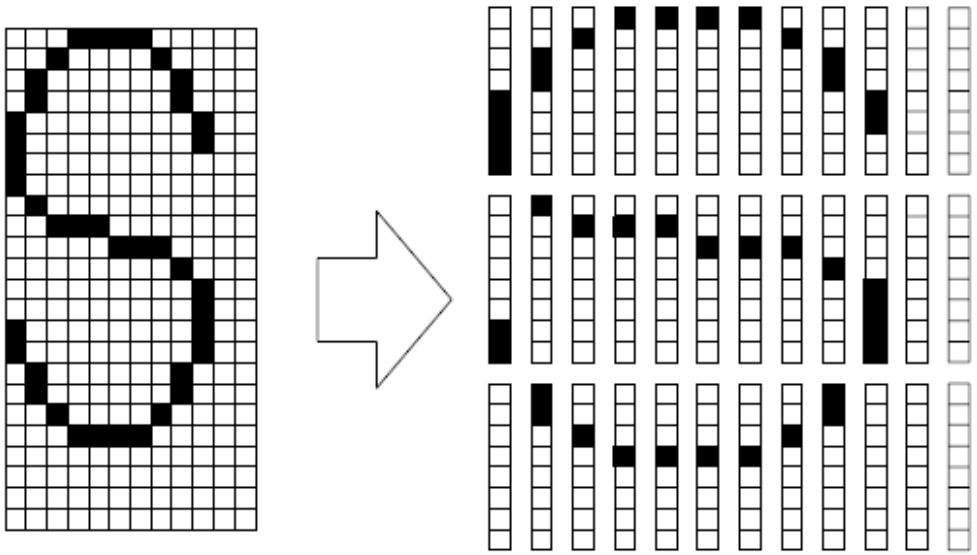
[Default] The internal character set

[Reference] **ESC %**, **ESC ?**

[Example]

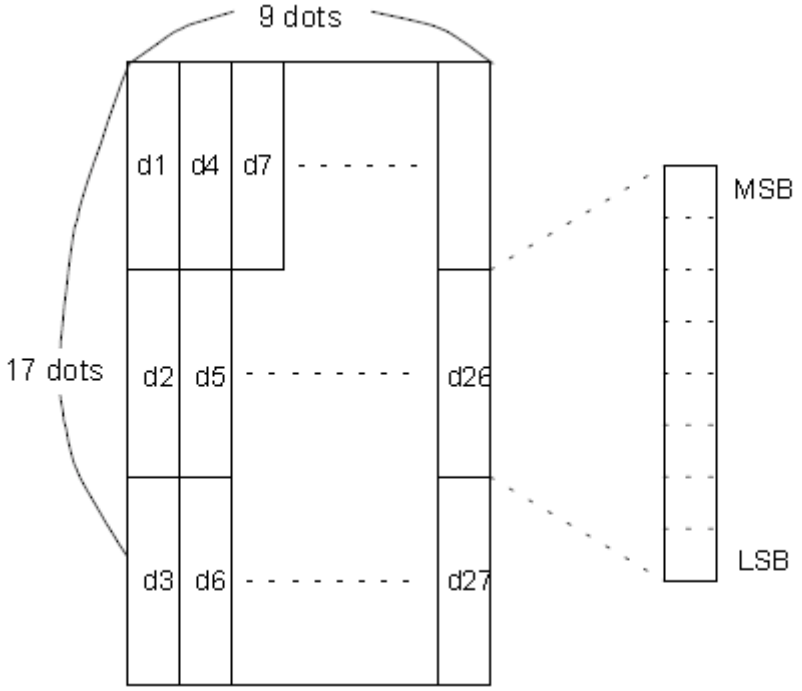
- When Font A (12¬ 24) is selected.

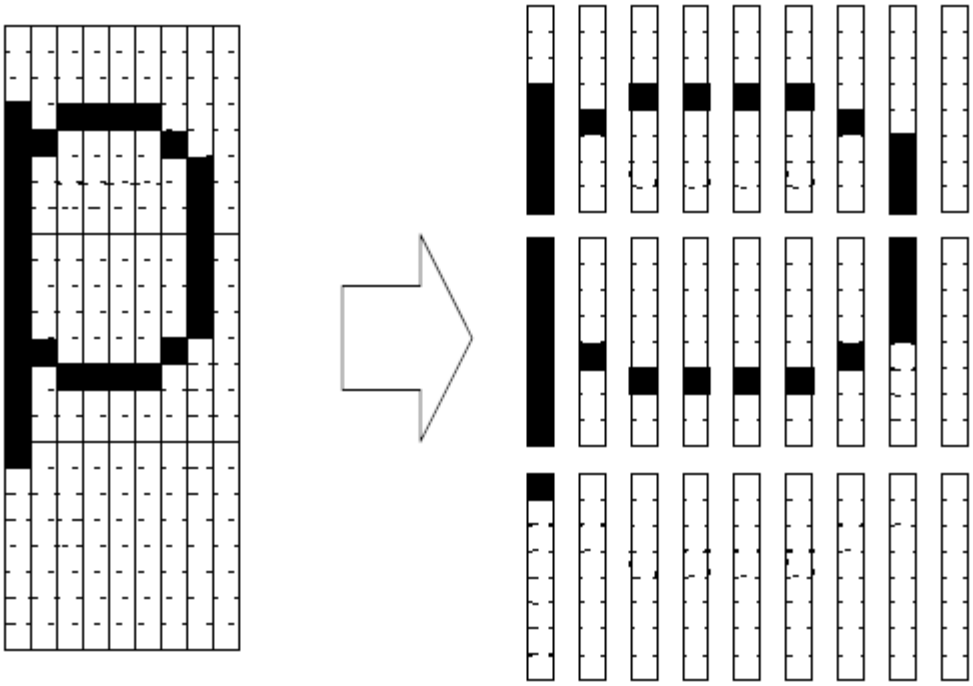




d1= <0F>H d4 = <30>H d7 = <40>H . .
. . d2 = <03>H d5 = <80>H d8 = <40>H
. . . .
d3 = <00>H d6 = <00>H d9 = <20>H . . . .

When font B (9¬17) is selected.





d1 = <1F>H d4 = <08>H d7 = <10>H... d2 = <FF>H d5 = <08>H d8 = <04>H...
d3 = <80>H d6 = <00>H d9 = <00>H...

ESC * m nL nH d1...dk

[Name] Select bit-image mode

[Format] ASCII ESC * m nL nH d1...dk

Hex 1B 2A m nL nH d1...dk

Decimal 27 42 m nL nH d1...dk

[Range] m = 0, 1, 32, 33

0 ≤ nL ≤ 255

0 ≤ nH ≤ 3

0 ≤ d ≤ 255

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

m	Mode	Vertical Direction		Horizontal Direction	
		Number of Dots	Dot Density	Dot Density	Number of Data (K)
0	8-dot single-density	8	67.7 dpi	101.6 dpi	nL + nH ×256
1	8-dot double-density	8	67.7 dpi	203.2 dpi	nL + nH × 256
32	24-dot single-density	24	203.2 dpi	101.6 dpi	(nL + nH × 256) ×3
33	24-dot double-density	24	203.2 dpi	203.2 dpi	(nL + nH × 256) ×3

[Notes]

- If the value of m is out of the specified range, nL and the data following are processed as normal data.
- The nL and nH indicate the number of dots in the bit image in the horizontal direction. The number of dots is calculated by nL + nH × [redacted].
- 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 not to print a dot.
- If the width of the printing area set by **GS L** and **GS W** less than the width required by the data sent with the **ESC *** command, the following will be performed on the line in question (but the printing cannot exceed the maximum printable area):

① The width of the printing area is extended to the right to accommodate the amount of data.

② If step①does not provide sufficient width for the data, the left margin is reduced to accommodate the data.
For each bit of data in single-density mode (m = 0, 32), the printer prints two dots: for each bit of data in double-density mode (m = 1, 33), the printer prints one dot. This must be considered in calculating the amount of data that can be printed in one line.

- After printing a bit image, the printer returns to normal data processing mode.
- This command is not affected by print modes (emphasized, double-strike, underline, character size, or white/black reverse printing), except upside-down printing mode.
- The relationship between the image data and the dots to be printed is described in Figure 3.11.3.

- When 8-dot bit image is selected:

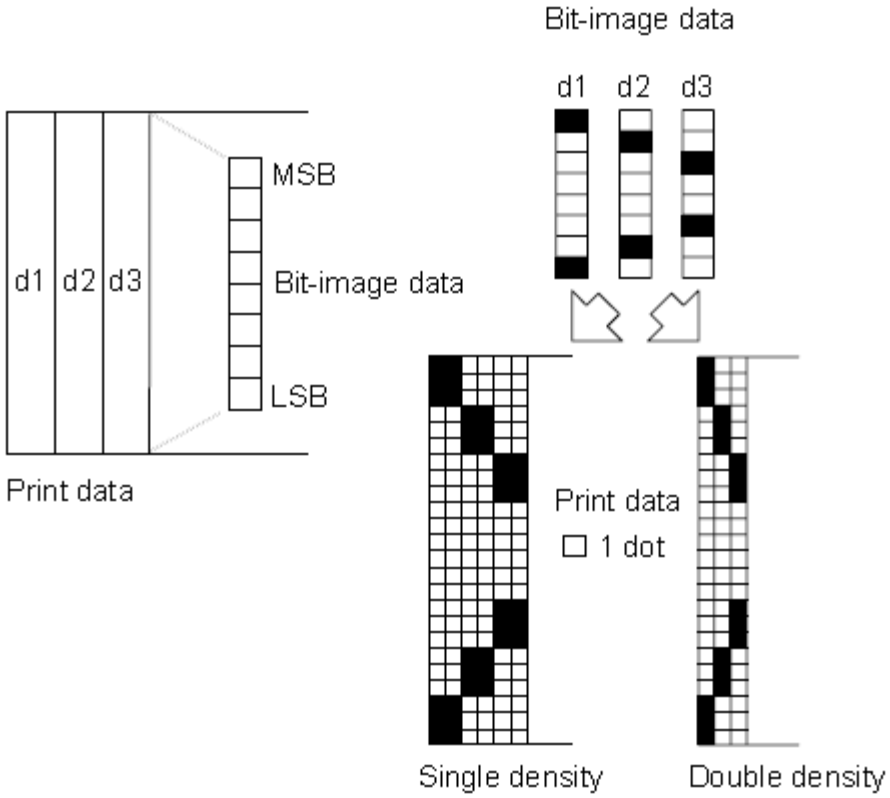


Figure 3.11.3.

When 24-dot bit image is selected:

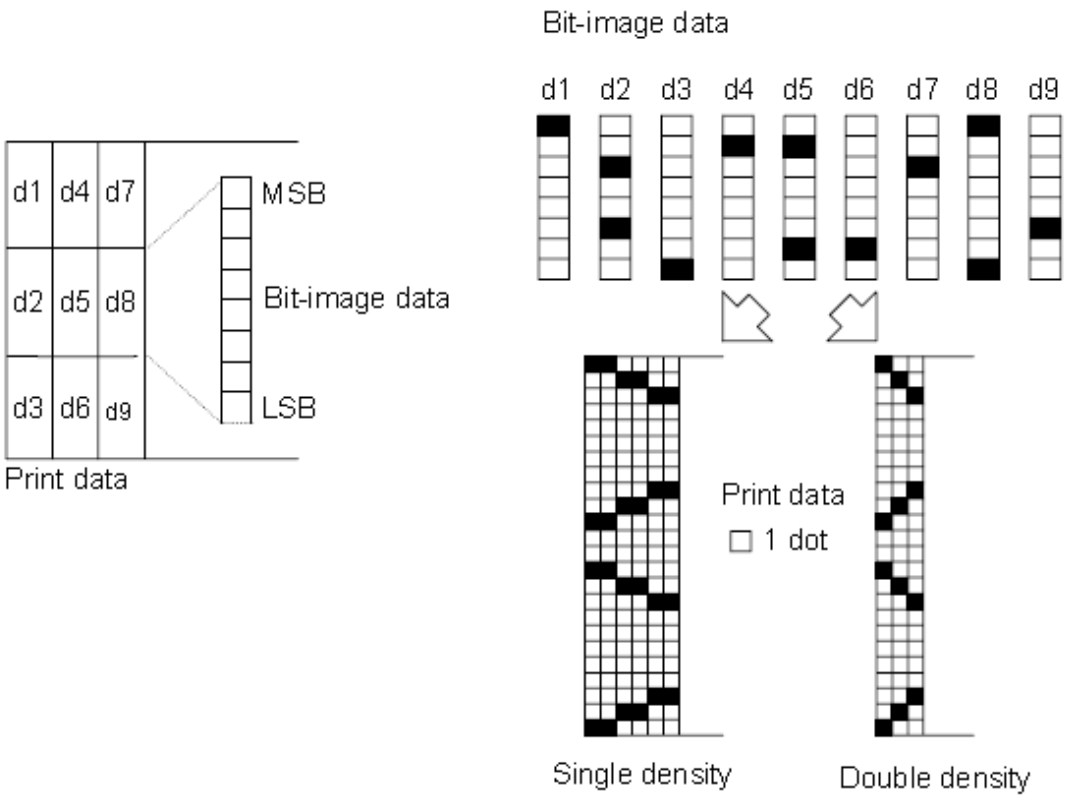


Figure 3.11.3.

ESC - n

[Name] Turn underline mode on/off

[Format] ASCII ESC – n

Hex 1B 2D n

Decimal 27 45 n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 50

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

n	Function
0, 48	Turns off underline mode
1, 49	Turns on underline mode (1 dot thick)
2, 50	Turns on underline mode (2 dots thick)

[Notes]
- The printer can underline all characters (including right-side character spacing), but cannot underline the space set by **HT.**
- The printer cannot underline 90° clockwise rotated characters and white/black inverted characters.
- When underline mode is turned off by setting the value of n to 0 or 48, the following data is not underlined, and the underline thickness set before the mode is turned off does not change. The default underline thickness is 1 dot.
- Changing the character size does not affect the current underline thickness.
- Underline mode can also be turned on or off by using **ESC !**. Note, however, that the last received command is effective.

[Default] n = 0

[Reference] **ESC !**

ESC 2

[Name] Select default line spacing

[Format] ASCII ESC 2

Hex 1B 32

Decimal 27 50

[Description] Selects 3.75 mm (30×0.125 mm) line spacing.

[Notes]
- The line spacing can be set independently in standard mode.

[Reference] **ESC 3**

ESC 3 n

[Name] Set line spacing

[Format] ASCII ESC 3 n

Hex 1B 33 n

Decimal 27 51 n

[Range] 0 ≤ n ≤ 255

[Description] Sets the line spacing to [n×0.125 mm].

[Notes] ● The line spacing can be set independently in standard mode.

● In standard mode, the vertical motion unit (y) is used.

[Default] n = 30

[Reference] **ESC 2**

ESC ? n

[Name] Cancel user-defined characters

[Format] ASCII ESC ? n

Hex 1B 3F n

Decimal 27 63 n

[Range] 32 ≤ n ≤ 126

[Description] Cancels user-defined characters.

[Notes] ● This command cancels the patterns defined for the character codes specified by n. After the user-defined characters are canceled, the corresponding patterns for the internal characters are printed.

● This command deletes the pattern defined for the specified code in the font selected by **ESC !**.

● If a user-defined characters have not been defined, the printer ignores this command.

[Reference] **ESC &**, **ESC %**

ESC @

[Name] Initialize printer

[Format] ASCII ESC @

Hex 1B 40

Decimal 27 64

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

[Notes] ● The DIP switch settings are not checked again.

● The data in the receive buffer is not cleared.

● The macro definition is not cleared.

ESC B n t(Only for page mode and general 347)

[Name] Set beep tone

[Format]

ASCII	ESC	B	n	t
Hex	1B	42	n	t
Decimal	27	66	n	t

[Range] 1<=n<=9，1<=t<=9

[Description] Set printer beep tone.

- n specifies the number of the beep tone.
- t specifies the time of beep tone .

ESC D n1...nk NUL

[Name] Set horizontal tab positions

[Format]

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

[Range] 1 ≤ n ≤ 255

0 ≤ k ≤ 32

[Description] Sets horizontal tab positions.

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

[Notes]

- The horizontal tab position is stored as a value of [character width × 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 the previous horizontal tab settings.
- When setting n = 8, the print position is moved to column 9 by sending **HT**.
- Up to 32 tab positions (k = 32) can be set. Data exceeding 32 tab positions is processed as normal data.
- Transmit [n]k in ascending order and place a NUL code 0 at the end. When [n]k is less than or equal to the preceding value [n]k-1, tab setting is finished and the following data is processed as normal data.
- **ESC D NUL** cancels all horizontal tab positions.
- The previously specified horizontal tab positions do not change, even if the character width changes.
- The character width is memorized for each standard mode.

[Default] The default tab positions are at intervals of 8 characters (columns 9, 17, 25,...) for Font A (12×24).

[Reference] **HT**

ESC E n

[Name] Turn emphasized mode on/off

[Format]

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

[Range] 0 ≤ n ≤ 255

[Description] Turns emphasized mode on or off
When the LSB of n is 0, emphasized mode is turned off.
When the LSB of n is 1, emphasized mode is turned on.

[Notes]
- Only the least significant bit of n is enabled.
- This command and **ESC !** turn on and off emphasized mode in the same way. Be careful when this command is used with **ESC !**.

[Default] n = 0

[Reference] **ESC !**

ESC G n

[Name] Turn on/off double-strike mode

[Format]

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

ESC M n

[Name] Select character font

[Format] ASCII ESC M n

Hex 1B 4D n

Decimal 27 77 n

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

[Description] Selects the character font.

n	Function
0, 48	Character Font A (12×24) selected.
1, 49	Character Font B (9×17) selected.

[Notes] **ESC !** can also select character font types. However the setting of the last received command is effective.

[Reference] **ESC !**

ESC R n

[Name] Select an international character set

[Format] ASCII ESC R n

Hex 1B 52 n

Decimal 27 82 n

[Range] 0 ≤ n ≤ 13

[Description] Selects international character set n from the following table:

n	Character set
0	U.S.A
1	France
2	Germany
3	U.K
4	Denmark I
5	Sweden
6	Italy
7	Spain I
8	Japan
9	Norway
10	Denmark II
11	Spain II
12	Latin America
13	Korea
14	Slovenia/Croatia
15	China

[Default] n = 0

ESC V n

[Name] Turn 90° clockwise rotation mode on/off

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

[Range] 0 ≤ n ≤ 1, 48 ≤ n ≤ 49

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

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

[Notes]
- This command affects printing in standard mode. However, the setting is always effective.
- When underline mode is turned on, the printer does not underline 90° clockwise-rotated characters.
- 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 = 0

[Reference] **ESC !, ESC** *

ESC \ nL nH

[Name] Set relative print position

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

[Range] 0 ≤ nL ≤ 255
0 ≤ nH ≤ 255

[Description] Sets the print starting position based on the current position using horizontal or vertical motion units.
- This command sets the distance from the current position to [(nL + nH × 256) ×0.125 mm]

[Notes]
- Any setting that exceeds the printable area is ignored.
- When pitch N is specified to the right:
  nL+ nH × 256 = N
  When pitch N is specified to the left (the negative direction), use the complement of 65536.
  When pitch N is specified to the left:
  nL+ nH × 256 = 65536 - N
- In standard mode, the horizontal motion unit is used.

[Reference] **ESC $**

ESC a n

[Name] Select justification

[Format] ASCII ESC a n

Hex 1B 61 n

Decimal 27 97 n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 50

[Description] Aligns all the data in one line to the specified position.

n selects the justification as follows:

n	Justification
0,48	Left justification
1, 49	Centering
2, 50	Right justification

[Notes]
- The command is enabled only when processed at the beginning of the line in standard mode.
- This command executes justification in the printing area.
- This command justifies the space area according to **HT, ESC $** or **ESC **.

[Default] n = 0

[Example]

Left justification	Centering	Right justification
ABC	**ABC**	**ABC**
ABCD	**ABCD**	**ABCD**
ABCDE	**ABCDE**	**ABCDE**

ESC c 5 n

[Name] Enable/disable panel buttons

[Format] ASCII ESC c 5 n

Hex 1B 63 35 n

Decimal 27 99 53 n

[Range] 0 ≤ n ≤ 255

[Description] Enables or disables the panel buttons.
- When the LSB of n is 0, the panel buttons are enabled.
- When the LSB of n is 1, the panel buttons are disabled.

[Notes]
- Only the lowest bit of n is valid.
- When the panel buttons are disabled, none of them are usable when the printer cover is closed.
- In this printer, the only panel buttons is the FEED button.
- When in macro execution standby, the FEED button is enabled regardless of the setting of this command. However, the paper cannot be feed.

[Default] n = 0

ESC d n

[Name] Print and feed n lines

[Format]

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

[Range] 0 ≤ n ≤ 255

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

[Notes]

- This command sets the print starting position to the beginning of the line.
- This command does not affect the line spacing set by **ESC 2** or **ESC 3**.
- The maximum paper feed amount is 1016 mm (40 inches). If the paper feed amount (n × line spacing) of more than 1016 mm (40 inches) is specified, the printer feeds the paper only 1016 mm (40 inches).
- Even when the set value exceeds the maximum with the BM sensor enabled in standard mode, this command is effective. (BM = black mark.)

[Reference] **ESC 2**, **ESC 3**

ESC p m t 1 t 2

[Name] Generate pulse

[Format]

ASCII	ESC	p	m	t1	t2
Hex	1B	70	m	t1	t2
Decimal	27	112	m	t1	t2

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

0 ≤ t1 ≤ 255

0 ≤ t2 ≤ 255

[Description] Outputs the pulse specified by t1 and t2 to connector pin m as follow :

On time= t1 x 2 millisecond

Off time= t2 x 2 millisecond

m =0/48 Drawer kick –out connector pin 2 ;

m=1/49 Drawer kick –out connector pin 5.

ESC t n

[Name] Select character code table

[Format] ASCII ESC t n

Hex 1B 74 n

Decimal 27 116 n

[Range] 0 ≤ n ≤ 5, 16 ≤ n ≤ 19, n = 255

[Description] Selects page n from the character code table.

N	Code Page	N	Code Page
0	CP437 [U.S.A., Standard Europe]	26	Thai
1	Katakana	27	CP720[Arabic]
2	CP850 [Multilingual]	28	CP855
3	CP860 [Portuguese]	29	CP857[Turkish]
4	CP863 [Canadian-French]	30	WCP1250[Central Europe]
5	CP865 [Nordic]	31	CP775
6	WCP1251 [Cyrillic]	32	WCP1254[Turkish]
7	CP866 Cyrilliec #2	33	WCP1255[Hebrew]
8	MIK[Cyrillic /Bulgarian]	34	WCP1256[Arabic]
9	CP755 [East Europe，Latvian 2]	35	WCP1258[Vietnam]
10	Iran	36	ISO-8859-2[Latin 2]
11	reserve	37	ISO-8859-3[Latin 3]
12	reserve	38	ISO-8859-4[Baltic]
13	reserve	39	ISO-8859-5[Cyrillic]
14	reserve	40	ISO-8859-6[Arabic]
15	CP862 [Hebrew]	41	ISO-8859-7[Greek]
16	WCP1252 Latin I	42	ISO-8859-8[Hebrew]
17	WCP1253 [Greek]	43	ISO-8859-9[Turkish]
18	CP852 [Latina 2]	44	ISO-8859-15 [Latin 3]
19	CP858 Multilingual Latin ▮ +Euro)	45	Thai2
20	Iran II	46	CP856
21	Latvian	47	Cp874
22	CP864 [Arabic]		
23	ISO-8859-1 [West Europe]		
24	CP737 [Greek]		
25	WCP1257 [Baltic]		

[Default] n = 0

ESC { n

[Name] Turns on/off upside-down printing mode

[Format]

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

[Range] 0 ≤ n ≤ 255

[Description] Turns upside-down printing mode on or off.

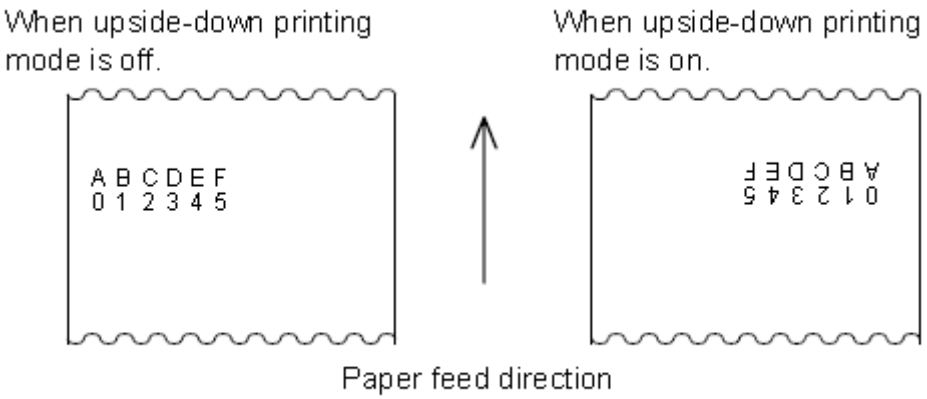
- When the LSB of n is 0, upside-down printing mode is turned off.
- When the LSB of n is 1, upside-down printing mode is turned on.

[Notes]

- Only the lowest bit of n is valid.
- This command is enabled only when processed at the beginning of a line in standard mode.
- This command does not affect printing in page mode.
- In upside-down printing mode, the printer rotates the line to be printed by 180° and then prints it.

[Default] n = 0

[Example]



ESC i (for cut)

[Name] partial cut paper
[Format] ASCII ESC i
Hex 1B 69
Decimal 27 105
[Description] ESC m select a paper cutting mode and then partial cut the paper.
ESC m (for cut)
[Name] partial cut paper
[Format] ASCII ESC m
Hex 1B 6d
Decimal 27 109
[Description] ESC m select a paper cutting mode and then partial cut the paper.
ESC 9 n
[Name] Select Chinese code format
[Format] ASCII ESC 9 n
Hex 1B 39 n
Decimal 27 57 n
[Description] Select Chinese code format, n from the character code table as follows：
0:GBK code
1:UTF-8 code
3:BIG5 code
NOTE：This version is not support English.

FS p n m

[Name] Print NV bit image
[Format] ASCII FS p n m
Hex 1C 70 n m
Decimal 28 112 n m
[Range] 1 ≤ n ≤ 255
0 ≤ m ≤ 3 , 48 ≤ m ≤ 51

[Description] Prints NV bit image n using the mode specified by m.

m	Mode	Vertical Dot Density	Horizontal Dot Density
0，48	Normal	203.2 dpi	203.2 dpi
1，49	Double-width	203.2 dpi	101.6 dpi
2，50	Double-height	101.6 dpi	203.2 dpi
3，51	Quadruple	101.6 dpi	101.6 dpi

- n is the number of the NV bit image (defined using the **FS q** command).
- m specifies the bit image mode.

[Detail]
- NV bit image is a bit image defined in non-volatile memory by **FS q** and printed by **FS p**.
- This command is not effective when the specified NV bit image has not been defined.
- In standard mode, this command is effective only when there is no data in the print buffer.
- This command is not affected by print modes (emphasized, underline, character size, white/black reverse printing, or 90° rotated characters, etc.), except upside-down printing mode.
- If the printing area width set by **GS L** and **GS W** for the NV bit image is less than one vertical line, the following processing is performed only on the line in question. However, in NV bit image mode, one vertical line means 1 dot in normal mode (m=0, 48) and in double-height mode (m=2, 50), and it means 2 dots in double-width mode (m=1, 49) and in quadruple mode (m=3, 51).

①The 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.

②If 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 × 2 of the NV bit image) in double height and quadruple modes, regardless of the line spacing specified by **ESC 2** or **ESC 3**.
- 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.

[References] **ESC ■, FS q, GS /, GS v 0**

FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n

[Name] Define NV bit image

[Format]

ASCII	FS	q	n	[xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n
Hex	1C	71	n	[xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n
Decimal	28	113	n	[xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n

[Range]

1 ≤ n ≤ 255

0 ≤ xL ≤ 255

0 ≤ xH ≤ 3 (when 1 ≤ (xL + xH × 256) ≤ 1023

0 ≤ yL ≤ 255

0 ≤ yL ≤ 1 (when 1 ≤ (yL + yH × 256) ≤ 288

0 ≤ d ≤ 255

k = (xL + xH × 256) × (yL + yH × 256) × 8

Total defined data area = 192K bytes

[Description] Define the NV bit image specified by n.

- n specifies the number of the defined NV bit image.
- 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]

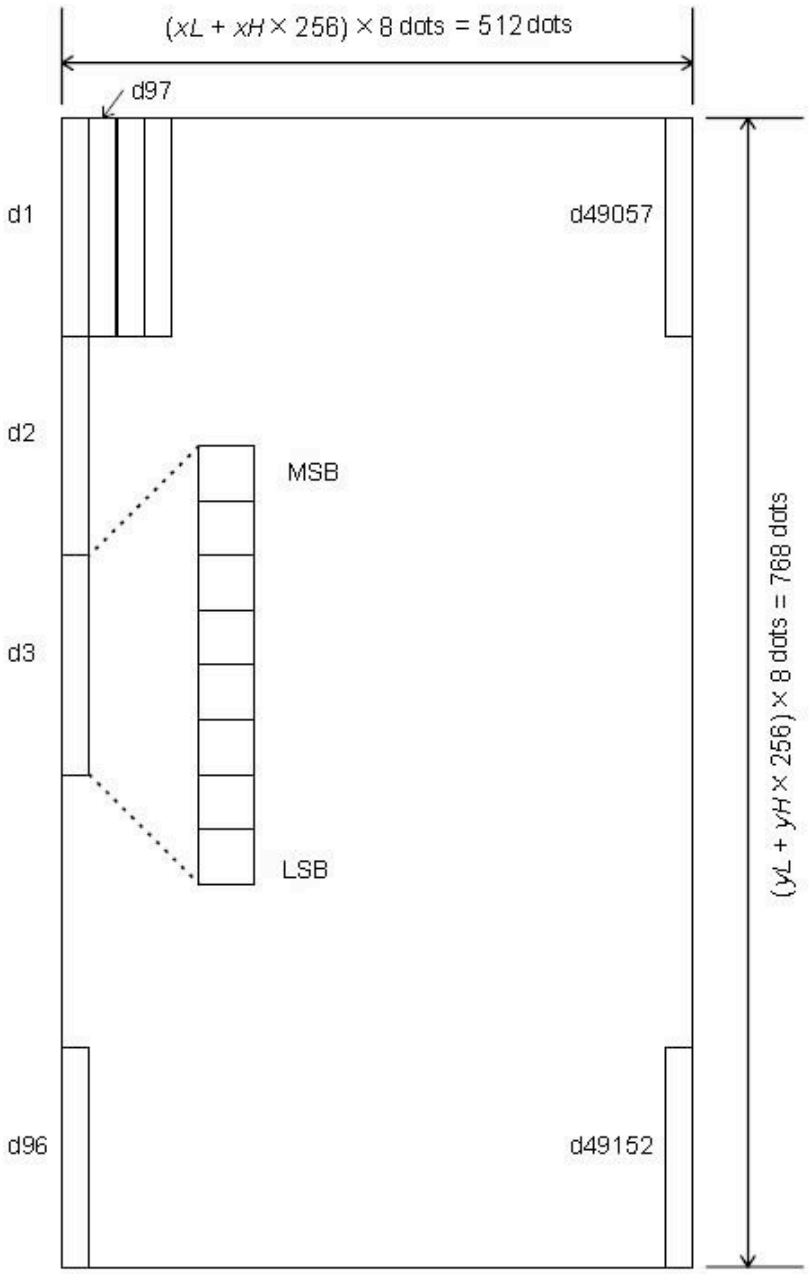
- Frequent write command executions may damage the NV memory. Therefore, it is recommended to write the NV memory 10 times or less a day.
- The printer performs a hardware reset after the procedure to place the image into the NV memory. Therefore, user-defined characters, downloaded bit images, and macros should be defined only after completing this command. The printer clears the receive and print buffers and resets the mode to the mode that was in effect at power on. At this time, DIP switch settings are checked again. (this version is not support hardware reset)
- This command cancels all NV bit images that have already been defined by this command.
- From the beginning of the processing of this command till the finish of hardware reset, mechanical operations (including initializing the position of the print head when the cover is open, paper feeding using the FEED button, etc.) cannot be performed.
- During processing of this command, the printer is BUSY when writing data to the user NV memory and stops receiving data. Therefore it is prohibited to transmit the data, including real-time commands, during the execution of this command.
- NV bit image is a bit image defined in non-volatile memory by **FS q**

and printed by **FS p**.

- In standard mode, this command is effective only when processed at the beginning of the line.
- This command is effective when 7 bytes <FS / yH> of the command are processed normally.
- 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 encounters xL, xH, yL, yH out of the defined range, it stops processing this command and starts writing into the NV 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 01H. Therefore, the first data group [xL xH yL yH d1...dk] is NV bit image 01H, 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 the command **FS p**.
- The definition data for an NV bit image consists of [xL xH yL yH d1...dk].Therefore, when only one NV bit image is defined n=1, the printer processes a data group [xL xH yL yH d1...dk] once. The printer uses ([data: (xL + xH × 256) × (yL + yH × 256) × 8] + [header :4]) bytes of NV memory.
- The definition area in this printer is a maximum of 192K bytes. This command can define several NV bit images, but cannot define bit image data whose total capacity [bit image data + header] exceeds 192K bytes.
- The printer does not transmit ASB status or perform status detection during processing of this command even when ASB is specified.
- When this command is received during macro definition, the printer ends macro definition, and begins performing this command.
- Once an NV bit image is defined, it is not erased by performing **ESC @**, reset, and power off.
- This command performs only definition of an NV bit image and does not perform printing. Printing of the NV bit image is performed by the **FS p** command.

[Reference] **FS p**

[Example] 当 xL = 64, xH = 0, yL = 96, yH = 0



GS ! n

[Name] Select character size

[Format] ASCII GS ! n

Hex 1D 21 n

Decimal 29 33 n

[Range] 0 ≤ n ≤ 255

Hex	Decimal	Width
00	0	1(normal)
01	1	2(double-height)
02	2	3
03	3	4
04	4	5
05	5	6
06	6	7
07	7	8

(1 ≤ vertical number of times ≤ 8, 1 ≤ horizontal number of times ≤ 8)

[Description] Selects the character height using bits 0 to 2 and selects the character width using bits 4 to 7, as follows:

Bit	Off/On	Hex	Decimal	Function
0	Character height selection. See Table 2.			
1				
2				
3				
4	Character width selection. See Table 1.			
5				
6				
7				

Table 1
Character Width Selection

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

Table 2
Character Height Selection

[Notes]
- This command is effective for all characters (alphanumeric and Kanji), except for HRI characters.
- If n is outside the defined range, this command is ignored.
- In standard mode, the vertical direction is the paper feed direction, and the horizontal direction is perpendicular to the paper feed direction. However, when character orientation changes in 90° clockwise-rotation mode, the relationship between vertical and horizontal directions is reversed.
- When characters are enlarged with different sizes on one line, all the characters on the line are aligned at the baseline.
- The **ESC !** command can also turn double-width and double-height modes on or off. However, the setting of the last received command is effective.

[Default] n = 0

[Reference] **ESC !**

GS * x y d1…d(x¬y¬8)

[Name] Define downloaded bit image

[Format]

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

[Range] 1 ≤ x ≤ 255

1 ≤ y ≤ 48 (where x¬y ≤ 1536)

0 ≤ d ≤ 255

[Description] Defines a downloaded bit image using the number of dots specified by x and y.

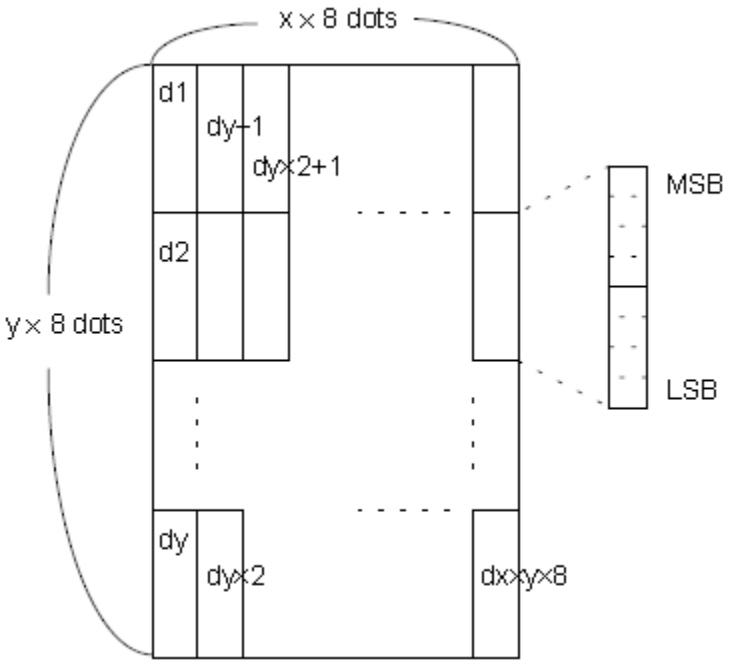
- x specifies the number of dots in the horizontal direction.
- y specifies the number of dots in the vertical direction.

[Notes]

- The number of dots in the horizontal direction is x¬8; in the vertical direction it is y¬8.
- If x¬y is out of the specified range, this command is disabled.
- The d indicates bit-image data. Data (d) specifies a bit printed as 1 and not printed as 0.
- The downloaded bit image definition is cleared when:

1) **ESC @** is executed.
2) **ESC &** is executed.
3) Printer is reset or the power is turned off.

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



[Reference] **GS /**

GS / m

[Name] Print downloaded bit image

[Format] ASCII GS / m

Hex 1D 2F m

Decimal 29 47 m

[Range] 0 ≤ m ≤ 3, 48 ≤ m ≤ 51

[Description] Prints a downloaded bit image using the mode specified by m.

m selects a mode from the table below:

m	Mode	Vertical Dot Density	Horizontal Dot Density
0, 48	Normal	203.2 dpi	203.2 dpi
1, 49	Double-width	203.2 dpi	101.6 dpi
2, 50	Double-height	101.6 dpi	203.2 dpi
3, 51	Quadruple	101.6 dpi	101.6 dpi

[Notes]

- This command is ignored if a downloaded bit image has not been defined.
- In standard mode, this command is effective only when there is no data in the print buffer.
- This command has no effect in the print modes (emphasized, double-strike, 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 width of the printing area set by **GS L** and **GS W** is less than the width required by the data sent with the **GS /** command; the following will be performed on the line in question (but the printing cannot exceed the maximum printable area)

①The width of the printing area is extended to the right to accommodate the amount of data.

②If step ① does not provide sufficient width for the data, the left margin is reduced to accommodate the data.

For each bit of data in normal mode (m = 0,48) and double-height mode (m = 2, 50), the printer prints one dot: for each bit of data in double-width mode (m = 1, 49) and quadruple mode (m = 3, 15), the printer prints two dots.

[Reference] **GS ***

GS B n

[Name] Turn white/black reverse printing mode

[Format] ASCII GS B n

Hex 1D 42 n

	Decimal	29	66	n

[Range] 0 ≤ n ≤ 255

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

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

[Notes]

- Only the lowest bit of n is valid.
- This command is available for built-in characters and user-defined characters.
- When white/black reverse printing mode is on, it also applies to character spacing set by **ESC SP**.
- This command does not affect bit images, user-defined bit images, bar codes, HRI characters, and spacing skipped by **HT**, **ESC $**, and **ESC **.
- This command does not affect the space between lines.
- White/black reverse mode has a higher priority than underline mode. Even if underline mode is on, it is disabled (but not canceled) when white/black reverse mode is selected.

[Default] n = 0

GS I n

[Name] Transmit printer ID

[Format] ASCII GS I n

Hex 1D 49 n

Decimal 29 73 n

[Range] n=1,2,49,50 [the printer ID]

65 ≤ n ≤ 69 [printer information B]

[Description] ➢ Transmit the printer ID or the information of the printer specified.

➢ the printer IDs that can be specified are as follows:

n	Type of printer ID	ID
1,49	Printer model ID	Hex:20/decimal:32
2,50	Type ID	See table[Type ID]

[Type ID]

Bit	Off/On	Hex	Decimal	Contents
0	Off	00	0	Multi-byte code characters not supported
	On	01	1	Multi-byte code characters supported
1	On	02	2	Auto cutter Installed.(Fixed)
2,3	-	-	-	Not used
4	Off	00	0	Fixed
5	-	-	-	Not used
6	-	-	-	Not used
7	Off	00	0	Fixed

➢ the information B that can be specified is as follows:

n	Type of printer information	Contents
65	Firmware version	Depends on firmware version
66	Manufacturer	“EPOSN”
67	Printer name	“TM-T88V”
68	Serial number	Depends on serial number
69	Type of mounted additional fonts	Japanese model: ”KANJI JAPANESE”
		Simplified Chinese model: ”CHINA GB18030”
		Traditional Chinese model: ”TAIWAN BIG-5”
		Korean model: ”KOREA C-5601C’
		South Asia model: ”THAI 1 PASS”

GS (H pl pH fn m d1 d2 d3 d4 (fn=48)

[Name] Set the process ID response

[Format]

ASCII	GS	(	H	pl	pH	fn	m	d1	d2	d3	d4
Hex	1D	28	48	pl	pH	fn	m	d1	d2	d3	d4
Decimal	29	40	72	pl	pH	fn	m	d1	d2	d3	d4

[Range] (pl+pH×256)=6 (pl=6,pH=0)
Fn=48,m=48
32≤ d ≤126

[Description]
- Saves the process ID specified by (d1,d2,d3,d4)for the data processed immediately before this function.

GS H n

[Name] Select printing position for HRI characters

[Format]

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

[Range] 0 ≤ n ≤ 3, 48 ≤ n ≤ 51

[Description] Selects the printing position of HRI characters when printing a bar code. n selects the printing position as follows:

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

- HRI indicates Human Readable Interpretation.

[Notes]
- HRI characters are printed using the font specified by **GS f**.

[Default] n = 0

[Reference] **GS f**, **GS k**

GS L nL nH

[Name] Set left margin

[Format]

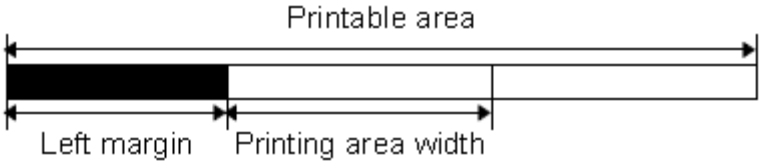
ASCII	GS	L	nL	nH
Hex	1D	4C	nL	nH
Decimal	29	76	nL	nH

[Range] 0 ≤ nL ≤ 255

0 ≤ nH ≤ 255

[Description] Sets the left margin using nL and nH.

- The left margin is set to [(nL + nH × 256) × 0.125 mm].



[Notes]

- This command is effective only when processed at the beginning of the line in standard mode.
- If the setting exceeds the printable area, the maximum value of the printable area is used.

[Default] nL = 0, nH = 0

[Reference] **GS W**

①GS V m ② GS V m n

[Name] Select cut mode and cut paper

[Format]

①ASCII	GS	V	m	
Hex	1D	56	m	
Decimal	29	86	m	
②ASCII	GS	V	m	n
Hex	1D	56	m	n
Decimal	29	86	m	n

[Range] ①m = 1, 49

②m = 66, 0 ≤ n ≤ 255

[Description] Selects a mode for cutting paper and executes paper cutting. The value of m selects the mode as follows:

m	Print mode
1, 49	Partial cut (one point left uncut)
66	Feeds paper (cutting position + [n × 0.125 mm]), and cuts the paper partially (one point left uncut).

[Notes for ① and ②]

- Cutting status is different, depending on the installed auto cutter type.
- This command is effective only when processed at the beginning of a line.

[Note for ①] - Only the partial cut is available; there is no full cut.

[Notes for ②] - When n = 0, the printer feeds the paper to the cutting position and cuts it.
- When n ≠0, the printer feeds the paper to (cutting position + [n × 0.125 mm (0.0049")]) and cuts it.
- When the BM sensor is set to be effective with DIP switch 1-1, [(Value which is set by **GS (F**) + 0.125mm] is applied.

GS W nL nH

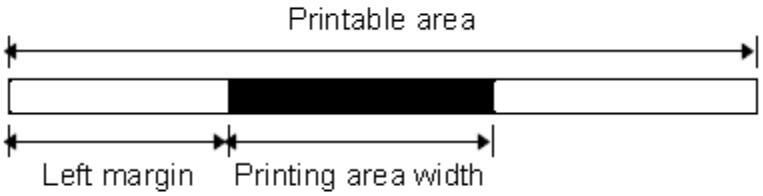
[Name] Set printing area width

[Format]

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

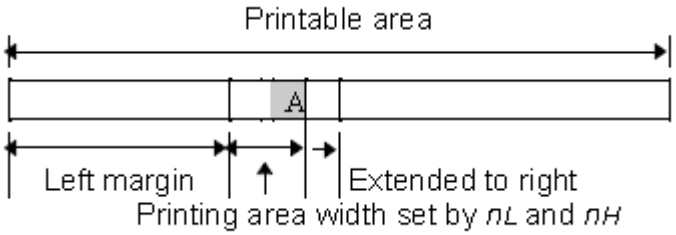
[Range] 0 ≤ nL ≤ 255
0 ≤ nH ≤ 255

[Description] Sets the printing area width to the area specified by nL and nH.
- The printing area width is set to [(nL + nH ×256) ×0.125mm (0.0049")].

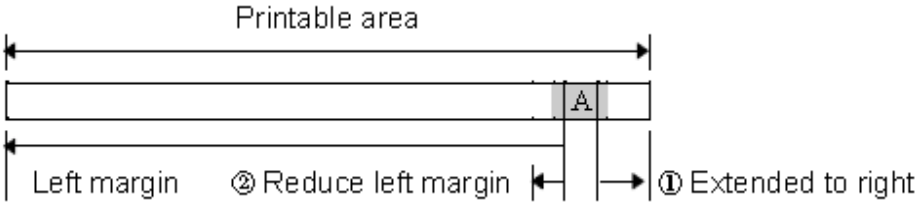


[Notes]
- This command is effective only when processed at the beginning of the line.
- If the setting exceeds the printable area, the maximum value of the printable area is used.
- The setting by **GS L** takes precedence over the setting by **GS W**. If the [left margin + printing area width] exceeds the printable area, the printer uses [Printable area width - left margin]. However, the setting by **GS W** is still reserved, even when it is not used in the current printing..
- If the width set for the printing area is less than the width of one character,
  when the character data is developed, the following processing is performed:

① The printing area width is extended to the right to accommodate one character.



If the printing area width cannot be extended sufficiently, the left margin is reduced to accommodate one character.



If the printing area width cannot be extended sufficiently, the right space is reduced.

- If the width set for the printing area is less than one vertical line, the following processing is performed only on the line in question when data other than character data (e.g., bit image, user-defined bit image) is developed:

①The printing area width is extended to the right to accommodate one line vertical for the bit image within the printable area.

②If the printing area width cannot be extended sufficiently, the left margin is reduced to accommodate one vertical line.

[Default]

Selected model type	Number of dots in horizontal	Default value
82.5 mm paper-width model	640 dots	nL = 128, nH = 2
79.5 mm paper-width model	576 dots	nL = 64, nH = 2
60 mm paper-width model	448 dots	nL = 192, nH = 1
58 mm paper-width model	432 dots	nL = 176, nH = 1

[Reference] **GS L**

GS :

[Name] Start/end macro definition

[Format] ASCII GS :

Hex 1D 3A

Decimal 29 58

[Description] Starts or ends macro definition.

[Notes]

- Macro definition starts when this command is received during normal operation. Macro definition ends when this command is received during macro definition.

- When **GS ^** is received during macro definition, the printer ends macro definition and clears the definition.
- Macro is not defined when the power is turned on.
- The defined contents of the macro are not cleared by **ESC @**. Therefore, **ESC @** can be included in the contents of the macro definition.
- **GS :** again immediately after previously receiving **GS :** , the printer remains in the macro undefined state.
- The contents of the macro can be defined up to 2048 bytes. If the macro definition exceeds 2048 bytes, excess data is not stored.

[Reference] **GS ^**

GS ^ r t m

[Name] Execute macro

[Format]

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

[Range] 0 ≤ r ≤ 255

0 ≤ t ≤ 255

m = 0, 1

[Description] Executes a macro.

- r specifies the number of times to execute the macro.
- t specifies the waiting time for executing the macro.
- m specifies macro executing mode.

When the LSB of m = 0:

The macro executes r times continuously at the interval specified by t.

When the LSB of m = 1:

After waiting for the period specified by t, the PAPER OUT LED indicators blink 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]

- The waiting time is t×100ms for every macro execution.
- If this command is received while a macro is being defined, the macro definition is aborted and the definition is cleared.
- If the macro is not defined or if r is 0, nothing is executed.
- When the macro is executed (m = 1), paper cannot be fed by using the FEED button.

[Reference] **GS :**

GS a n

[Name] Enable/Disable Automatic Status Back (ASB)

[Format]

ASCII	GS	a	n
Hex	1D	61	n
Decimal	29	97	n

[Range] 0 ≤ n ≤ 255

[Description] Enables or disables ASB and specifies the status items to include, using n as follows:

Bit	Off/On	Hex	Decimal	Status for ASB
0	-	-	-	Undefined .
1	-	-	-	Undefined .
2	Off	00	0	Error status disabled.
	On	04	4	Error status enabled.
3	Off	00	0	Paper roll sensor status disabled.
	On	08	8	Paper roll sensor status enabled.
4-7	-	-	-	Undefined.

[Notes]

- If any of the status items in the table above are enabled, the printer transmits the status when this command is executed. The printer automatically transmits the status whenever the enabled status item changes. The disabled status items may change, in this case, because each status transmission represents the current status.
- If all status items are disabled, the ASB function is also disabled.
- If the ASB is enabled as a default, the printer transmits the status when the printer data reception and transmission are possible at the first time from when the printer is turned on.
- The following four status bytes are transmitted without confirming whether the host is ready to receive data. The four status bytes must be consecutive, except for the XOFF code.
- Since this command is executed after the data is processed in the receive buffer, there may be a time lag between data reception and status transmission.
- When using **DLE EOT**, or **GS r**, the status transmitted by these commands and ASB status must be differentiated.
- The status items to be transmitted are as follows:

GS f n

[Name] Select font for Human Readable Interpretation (HRI) characters

[Format]

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

[Range] n = 1, 48, 49

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

n	Font
0,48	Font A (12×24)
1,49	Font B (9×17)

[Notes]
- HRI indicates Human Readable Interpretation.
- HRI characters are printed at the position specified by **GS H**.

[Default] n = 0

[Reference] **GS H**, **GS k**

GS h n

[Name] Select bar code height

[Format]

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

[Range] 1 ≤ n ≤ 255

[Description] Selects the height of the bar code.
n specifies the number of dots in the vertical direction.

[Default] n = 162

[Reference] **GS k**

① GS k m d1...dk NUL② GS k m n d1...dn

[Name] Print bar code

[Format]

①ASCII	GS	k	m	d1...dk	NUL
Hex	1D	6B	m	d1...dk	00
Decimal	29	107	m	d1...dk	0
②ASCII	GS	k	m	n	d1...dn
Hex	1D	6B	m	n	d1...dn
Decimal	29	107	m	n	d1...dn

[Range] ① 0 ≤ m ≤ 6 (k and d depend on the bar code system used)

② 65 ≤m ≤ 73 (n and d depend on the bar code system used)

[Description] Selects a bar code system and prints the bar code.

m selects a bar code system as follows:

m		Bar Code System	Number of Characters	Remarks
①	0	UPC-A	11 ≤ k ≤ 12	48 ≤ d ≤ 57
	1	UPC-E	11 ≤ k ≤ 12	48 ≤ d ≤ 57
	2	JAN13 (EAN13)	12 ≤ k ≤ 13	48 ≤ d ≤ 57
	3	JAN 8 (EAN8)	7 ≤ k ≤ 8	48 ≤ d ≤ 57
	4	CODE39	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d ≤ 90, 32, 36, 37, 43, 45, 46, 47
	5	ITF	1 ≤ k (even number)	48 ≤ d ≤ 57
	6	CODABAR	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d ≤ 68 , 36,
				43, 45, 46, 47, 58
	65	UPC-A	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	66	UPC-E	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	67	JAN13 (EAN13)	12 ≤ n ≤ 13	48 ≤ d ≤ 57
	68	JAN 8 (EAN8)	7 ≤ n ≤ 8	48 ≤ d ≤ 57
	69	CODE39	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d
	70	ITF	1 ≤ n ≤ 255 (even	48 ≤ d ≤ 57
	71	CODABAR	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d ≤ 68
	72	CODE93	1 ≤ n ≤ 255	0 ≤ d ≤ 127
	73	CODE128	2 ≤ n ≤ 255	0 ≤ d ≤ 127

[Notes for ①]

- This command ends with a NUL code.
- When the bar code system used is UPC-A or UPC-E, the printer prints the bar code data after receiving 12 bytes of bar code data and processes the following data as normal data.
- When the bar code system used is JAN13 (EAN13), the printer prints the bar code after receiving 13 bytes of bar code data and processes the following data as normal data.
- When the bar code system used is JAN8 (EAN8), the printer prints the bar code after receiving 8 bytes of bar code data and processes the following data as normal data.
- The number of data for the ITF bar code must be even numbers. When an odd number of bytes of data is input, the printer ignores the last received data.

[Notes for ②]

- n indicates the number of bar code data bytes, and the printer processes n bytes from the next character data as bar code data.
- If n is outside the specified range, the printer stops command processing and processes the following data as normal data.

[Notes in standard mode]

- If d is outside the specified range, the printer only feeds paper and processes the following data as normal data.
- If the horizontal size exceeds printing area, the printer only feeds the paper.
- This command feeds as much paper as is required to print the bar code,
  regardless of the line spacing specified by **ESC 2** or **ESC 3**.
- This command is enabled only when no data exists in the print buffer. When data exists in the print buffer, the printer processes the data following m as normal data.
- After printing the bar code, this command sets the print position to the beginning of the line.
- This command is not affected by print modes (emphasized, double-strike, underline, character size, white/black reverse printing, or 90° rotated character, etc.), except for upside-down printing
  mode.

Specific character	Transmit data		
	ASCII	Hex	Decimal

Control character			HRI character	Control character			HRI character
ASCII	Hex	Decimal		ASCII	Hex	Decimal	
NUL	00	0	■U	DEL	10	16	■P
SOH	01	1	■A	DC1	11	17	■Q
STX	02	2	■B	DC2	12	18	■R
ETX	03	3	■C	DC3	13	19	■S
EOT	04	4	■D	DC4	14	20	■T
ENQ	05	5	■E	NAK	15	21	■U
ACK	06	6	■F	SYN	16	22	■V
BEL	07	7	■G	ETB	17	23	■W
BS	08	8	■H	CAN	18	24	■X
HT	09	9	■I	EM	19	25	■Y
LF	0A	10	■J	SUB	1A	26	■Z
VT	0B	11	■K	ESC	1B	27	■A
FF	0C	12	■L	FS	1C	28	■B
CR	0D	13	■M	GS	1D	29	■C
SO	0E	14	■N	RS	1E	30	■D
SI	0F	15	■O	US	1F	31	■E
				DEL	7F	127	■T

[Example] Printing **GS k** 72 7 67 111 100 101 13 57 51

When CODE128 (m = 73) is used:

- When using CODE128 in this printer, take the following points into account for data transmission:

①The top of the bar code data string must be the code set selection character (CODE A, CODE B, or CODE C), which selects the first code set.

②Special characters are defined by combining two characters "{" and one character. The ASCII character "{" is defined by transmitting "{" twice consecutively.

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

[Example] Example data for printing "No. 123456"

In this example, the printer first prints "No." using CODE B, then prints the following numbers using CODE C.

GS k 73 10 123 66 78 111 46 123 67 12 34 56

- If the top of the bar code data is not the code set selection character, the printer stops command processing and processes the following data as normal data.
- If the combination of "{" and the following character does not apply any special character, the printer stops command processing and processes the following data as normal data.
- If the printer receives characters that cannot be used in the special code set, the printer stops command processing and processes the following data as normal data.
- The printer does not print HRI characters that correspond to the shift characters or code set selection characters.
- HRI character for the function character is space.
- HRI characters for the control character (<00>H to <1F>H and <7F>H) are space.

<Others> Be sure to keep spaces on both right and left sides of a bar code. (Spaces are different depending on the types of the bar code.)

[Reference] **GS H**, **GS f**, **GS h**, **GS w**

GS r n

[Name] Transmit status

[Format] ASCII GS r n

Hex 1D 72 n

Decimal 29 114 n

[Range] n = 1, 49

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

n	Function
1, 49	Transmits paper sensor status

[Notes]
- When using a serial interface
  When DTR/DSR control is selected, the printer transmits only 1 byte after confirming the host is ready to receive data (DSR signal is SPACE). If the host computer is not ready to receive data (DSR signal is MARK), the printer waits until the host is ready.
  When XON/XOFF control is selected, the printer transmits only 1 byte without confirming the condition of the DSR signal.
- This command is executed when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the status, depending on the receive buffer status.
- When Auto Status Back (ASB) is enabled using **GS a**, the status transmitted by **GS r** and the ASB status must be differentiated using.
- The status types to be transmitted are shown below:

Paper sensor status (n = 1, 49):

Bit	Off/On	Hex	Decimal	Status for ASB
0,1	-	-	-	Undefined.
2,3	Off	00	0	Paper roll end sensor: paper adequate.
	On	(0C)	(12)	Paper roll end sensor: paper near end.
4	Off	00	0	Not used. Fixed to Off.
5,6	-	-	-	Undefined.
7	Off	00	0	Not used. Fixed to Off.

Bits 2 and 3: When the paper end sensor detects a paper end, the printer goes offline and does not execute this command. Therefore, bits 2 and 3 do not transmit the status of paper end.

[Reference] **DLE EOT**, **GS a**

GS v 0 m xL xH yL yH d1....dk

[Name] Print raster bit image

[Format]

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

[Range]
0 ≤ m ≤ 3, 48 ≤ m ≤ 51
0 ≤ xL ≤ 255
0 ≤ xH ≤ 255 where 1 ≤ (xL + xH×256) ≤ 128
0 ≤ yL ≤ 255
0 ≤ yH ≤ 8 where 1 ≤ (yL + yH×256) ≤ 4095
0 ≤ d ≤255
k = (xL + xH×256) ×(yL + yH× 256) (k ≠0)

1	2	3	**** *	62	63	64
65	66	67	**** *	126	127	128
			**** *			

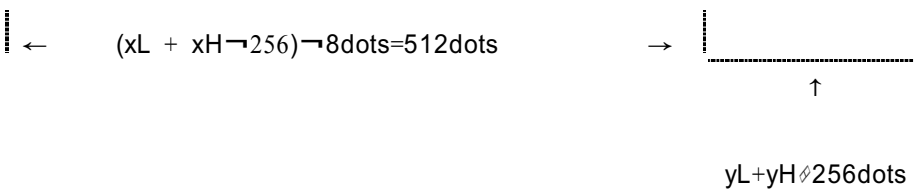
[Description] Selects raster bit-image mode. The value of m selects the mode, as follows:

m	**Mode**	**Vertical Dot Density**	**Horizontal Dot Density**
0, 48	Normal	203.2 dpi	203.2 dpi
1, 49	Double-width	203.2 dpi	101.6 dpi
2, 50	Double-height	101.6 dpi	203.2 dpi
3, 51	Quadruple	101.6 dpi	101.6 dpi

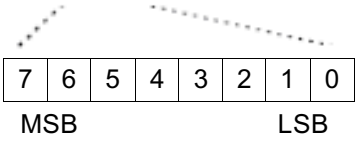
- xL, xH, select the number of data bytes (xL+xH¬256) in the horizontal direction for the bit image.
- yL, yH, select the number of data bits (yL+yH¬256) in the vertical direction for the bit image.

[Notes]
- In standard mode, this command is effective only when there is no data in the print buffer.
- This command is not affected by print modes (character size, emphasized, double-strike, upside-down, underline, white/black reverse printing, etc.) for raster bit image.
- If the printing area width set by **GS L** and **GS W** is less than the minimum width, the printing area is extended to the minimum width only on the line in question. The minimum width means 1 dot in normal (m=0, 48) and double-height (m=2, 50), 2 dots in double-width (m=1, 49) and quadruple (m=3, 51) modes.
- Data outside the printing area is read in and discarded on a dot-by-dot basis.
- The position at which subsequent characters are to be printed for raster bit image is specified by **HT** (Horizontal Tab), **ESC $** (Set absolute print position), **ESC ** (Set relative print position), and **GS L** (Set left margin). If the position at which subsequent characters are to be printed is a multiple of 8.
- The **ESC a** (Select justification) setting is also effective on raster bit images.
- When this command is received during macro definition, the printer ends macro definition, and begins performing this command. The definition of this command should be cleared.
- d indicates the bit-image data. Setting a bit to 1 prints a dot and setting it to 0 does not print a dot.

[Example] When xL+xH¬256=64



**** * K-2 K-1 K ↓



GS w n

[Name] Set bar code width

[Format] ASCII GS w n

Hex 1D 77 n

Decimal 29 119 n

[Range] 2 ≤ n ≤ 6

[Description] Sets the horizontal size of the bar code.

n specifies the bar code width as follows:

n	Module Width (mm) for Multi-level Bar Code	Binary-level Bar Code	
		Thin Element Width (mm)	Thick Element Width(mm)
2	0.250	0.250	0.625
3	0.375	0.375	1.000
4	0.560	0.500	1.250
5	0.625	0.625	1.625
6	0.750	0.750	2.000

- Multi-level bar codes are as follows:
  UPC-A, UPC-E, JAN13 (EAN13), JAN8 (EAN8), CODE93, CODE128
- Binary-level bar codes are as follows:
  CODE39, ITF, CODABAR

[Default] n = 3

[Reference] **GS k**

GS x n

[Name] Set barcode printing left space

[Format] ASCII GS x n

Hex 1D 78 n

Decimal 29 120 n

[Description] The print bar code staring positions is: 0→255

GS P x y

[Name] Set horizontal and vertical motion unit

[Format] ASCII : GS P x y

Hex : 1D 50 x y
Decimal : 29 80 x y

[Range] 0 ≤ x ≤ 255
0 ≤ y ≤ 255

[Description] This command sets the horizontal and vertical motion unit to 1 / x and 1 / y inches, respectively. The default value are x = 200 and y = 400. When x and y are set to 0, the default setting of each value is used.

DC2 T

[Name] Printing test page

[Format] ASCII DC2 T
Hex 12 54
Decimal 18 94

[Description] Printing test page

Kanji Control Commands

FS ! n

[Name] Set print mode(s) for Kanji characters

[Format] ASCII FS ! n
Hex 1C 21 n
Decimal 28 33 n

[Range] 0 ≤ n ≤ 255

[Description] Sets the print mode for Kanji characters, using n as follows:

Bit	Off/On	Hex	Decimal	Function
0	-	-	-	Undefined.
1	-	-	-	Undefined.
2	Off	00	0	Double-width mode is OFF.
	On	04	4	Double-width mode is ON.
3	Off	00	0	Double-height mode is OFF.
	On	08	8	Double-height mode is ON.
4	-	-	-	Undefined.
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	Off	00	0	Underline mode is OFF.
	On	80	128	Underline mode is ON.

[Notes] ✍ When both double-width and double-height modes are set (including right- and left-side character spacing), quadruple-size characters are printed.

- The printer can underline all characters (including right- and left-side character spacing), but cannot underline the space set by **HT** and 90°clockwise-rotated characters.
- The thickness of the underline is that specified by **FS** -, regardless of the character size.
- When some of the characters in a line are double or more height, all the characters on the line are aligned at the baseline.
- It is possible to emphasize the Kanji character using **GS !**; the setting of the last received command is effective.
- It is possible to turn underline mode on or off using **FS** -, and the setting of the last received command is effective.

[Default] n = 0

[Reference] **FS** -, **GS !**

FS &

[Name] Select Kanji character mode

[Format]

ASCII	FS	&
Hex	1C	26
Decimal	28	38

[Description] Selects Kanji character mode.

[Notes] For Kanji model:

- When the Kanji character mode is selected, the printer processes all Kanji code as two bytes each.
- Kanji codes are processed in the order of the first byte and second byte.
- Kanji character mode is not selected when the power is turned on.

[Reference] **FS .**

FS - n

[Name] Turn underline mode on/off for Kanji characters

[Format]

ASCII	FS	-	n
Hex	1C	2D	n
Decimal	28	45	n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 50

[Description] Turns underline mode for Kanji characters on or off, based on the following values of n.

n	Function
0, 48	Turns off underline mode for Kanji characters
1, 49	Turns on underline mode for Kanji characters (1-dot thick)
2, 50	Turns on underline mode for Kanji characters (2-dot thick)

[Notes] - The printer can underline all characters (including right- and left-side

Character spacing), but cannot underline the space set by **HT** and 90° clockwise-rotated characters.

- After the underline mode for Kanji characters is turned off by setting n to 0, underline printing is no longer executed, but the previously specified underline thickness is not changed. The default underline thickness is 1 dot.
- The specified line thickness does not change even when the character size changes.
- It is possible to turn underline mode on or off using **FS !**, and the last received command is effective.

[Default] n = 0

[Reference] **FS !**

FS .

[Name] Cancel Kanji character mode

[Format]

ASCII	FS	.
Hex	1C	2E
Decimal	28	46

[Description] Cancels Kanji character mode.

[Notes] For Kanji model:

- When the Kanji character mode is not selected, all character codes are processed one byte at a time as ASCII code.
- Kanji character mode is not selected when the power is turned on.

[Reference] **FS &**

FS 2 c1 c2 d1...dk

[Name] Define user-defined Kanji characters

[Format]

ASCII	FS	2	c1	c2	d1...dk
Hex	1C	32	c1	c2	d1...dk
Decimal	28	50	c1	c2	d1...dk

[Range] c1 and c2 indicate character codes for the defined characters.

Model type	c1	c2
Chinese kanji supporting model	c1 = FEH	A1H ≤ c2 ≤ FEH

0 ≤ d ≤ 255

k = 32 (slip), k = 72 (paper roll)

[Description] Defines user-defined Kanji characters for the character codes specified by c1 and c2.

[Notes]

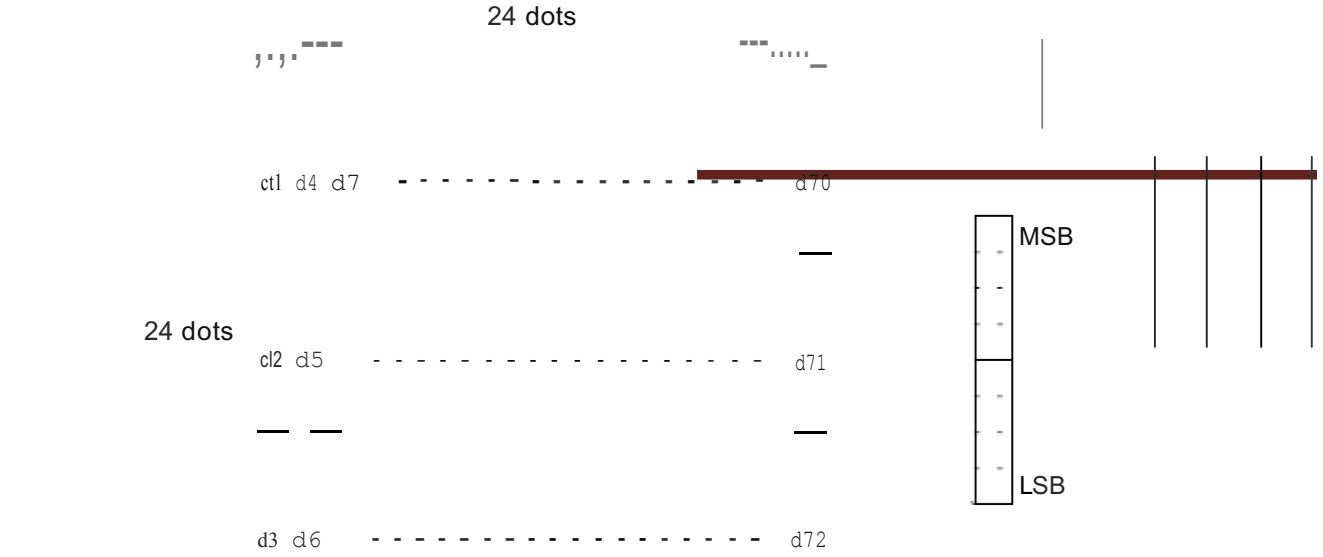
- c1 and c2 indicate character codes for the defined characters. c1 specifies for the first byte, and c2 for the second byte.
- d indicates the dot data. Set a corresponding bit to 1 to print a dot or to 0 to not print a dot.

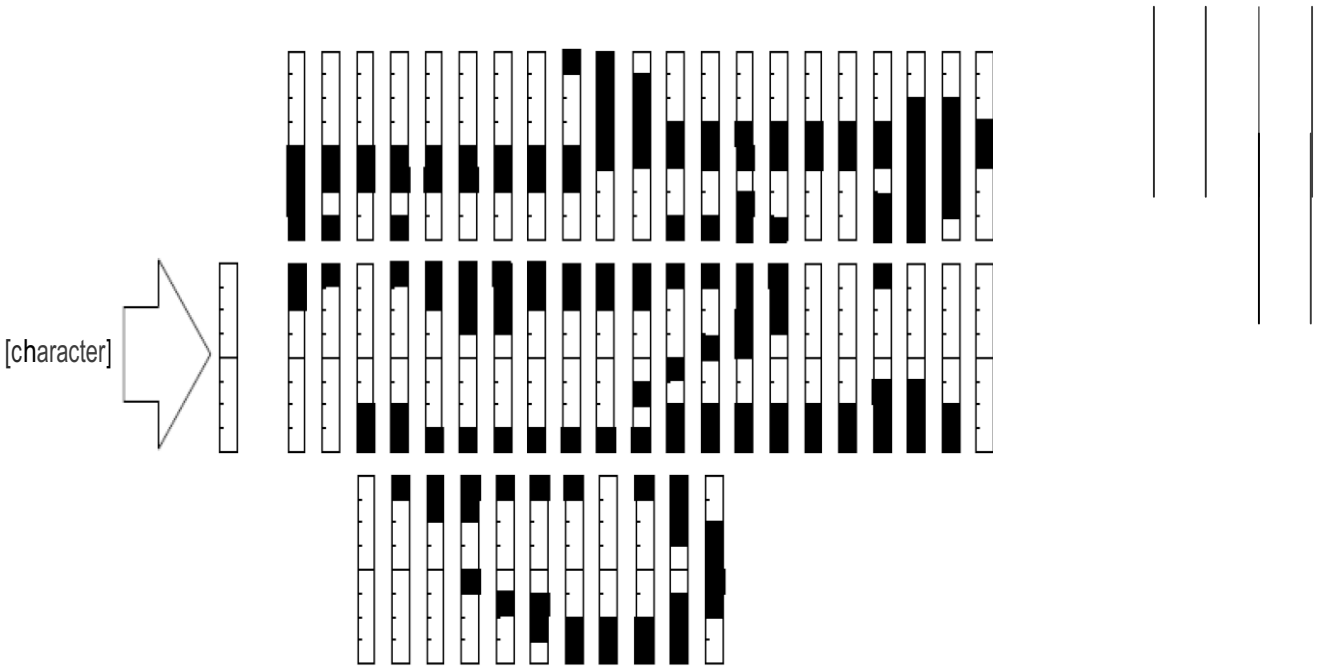
• The user-defined Kanji characters is printed on the selected paper set by the **ESC** c1 command.

[Default] All spaces.

[Reference] **ESCc 1**

[Example]





d1 = <00>H p4 = <03>H d7 = <OF>H ..d10 = <OD>H d13 = <0C>H d16 = <OD>H
d2 = <00>H p5 = <00>H dB = <00>H ..d11 = <80>H d14 = <03>H d17 = <83>H
d3 = <00>H p6 = <00>H d9 = <00>H ..d12 = <00>H d15 = <00>H d18 = <BO>H

ESC = n

[Name] Set peripheral device

[Format]

ASCII	ESC	=	n
Hex	1b	3d	n
Decimal	27	61	n

[Description] Set peripheral device:

bit0: 00 printer disable;

bit1-7: 01 printer enable.

undefine

FS S n1 n2

[Name] Set left- and right-side Kanji character spacing

[Format]

ASCII	FS	S	n1	n2
Hex	1C	53	n1	n2
Decimal	28	83	n1	n2

[Range] 0 ≤ n1 ≤ 255

0 ≤ n2 ≤ 255

[Description] Sets left- and right-side Kanji character spacing to n1 and n2, respectively.

- The left-side character spacing is [n1 × 0.125 mm], and the right-side character spacing is [n2 × 0.125 mm].

[Notes]

- This command sets the left- and right-side character spacing for normal-sized characters. When double-width mode is set, the left- and right-side character spacing is twice the normal value.
- The spacing which is set with this command can be set independently in standard mode.
- In standard mode, the horizontal motion unit is used.

[Default] n1 = 0, n2 = 0

Only for page mode:

FF

[Name] Print and return to standard mode in page mode

[Format]

ASCII	FF
Hex	0C
Decimal	12

[Description] Prints the data in the print buffer collectively and returns to standard mode.

[Notes]
- This command is enabled only in page mode.
- The buffer data is deleted after being printed.
- The printing area set by **ESC W** is reset to the default setting.
- This command sets the print position to the beginning of the line.

[Reference] **ESC FF**, **ESC L**, **ESC S**

ESC FF

[Name] Print data in mode page

[Format]

ASCII	ESC	FF
Hex	1B	0C
Decimal	27	12

[Description] When in page mode ESC FF prints all data in the print buffer in one time. The buffer data is not deleted after being printed.

ESC L

[Name] Select page mode

[Format]

ASCII	ESC	L
Hex	1B	4C
Decimal	27	76

[Description] Switches from standard mode to page mode.

[Notes]
- This command is enabled only when processed at the beginning of a line in standard mode.
- This command has no effect in page mode.
- After printing by **FF** is completed or by using **ESC S**, the printer returns to standard mode.
- This command sets the position where data is buffered to the position specified by **ESC T** within the printing area defined by **ESC W**.
- This command switches the settings for the following commands (in which the values can be set independently in standard mode and page mode) to those for page mode:
  - Set right-side character spacing: **ESC SP**
  - Select default line spacing: **ESC 2, ESC 3**
- Only valve settings is possible for the following commands in page mode; these commands are not executed.
  - ✓ Turn 90° clockwise rotation mode on/off: **ESC V**
  - ✓ Select justification: **ESC a**
  - ✓ Turn upside-down printing mode on/off: **ESC {**
  - ✓ Set left margin: **GS L**

a	Print Direction	Starting Position
0,48	Left to right	Upper left (A in the figure)
1,49	Bottom to top	Lower left (B in the figure)
2,50	Right to left	Lower right (C in the figure)
3,51	Top to bottom	Upper right

✓ Set printable area width: **GS W**

- The printer returns to standard mode when power is turned on, the printer is reset, or **ESC @** is used.

[Reference] **FF**, **CAN**, **ESC FF**, **ESC S**, **ESC T**, **ESC W**, **GS $**, **GS **

ESC S

[Name] Select standard mode

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

[Description] Switches from page mode to standard mode.

[Notes]
- This command is effective only in page mode.
- Data buffered in page mode is cleared.
- This command sets the print position to the beginning of the line.
- The printing area set by **ESC W** is initialized.
- This command switches the settings for the following commands (in which the values can be set independently in standard mode and page mode) to those for standard mode:
  - ✓ Set right-side character spacing: **ESC SP**
  - ✓ Select default line spacing: **ESC 2, ESC 3**

[Reference] **FF**, **ESC FF**, **ESC L**

ESC T n

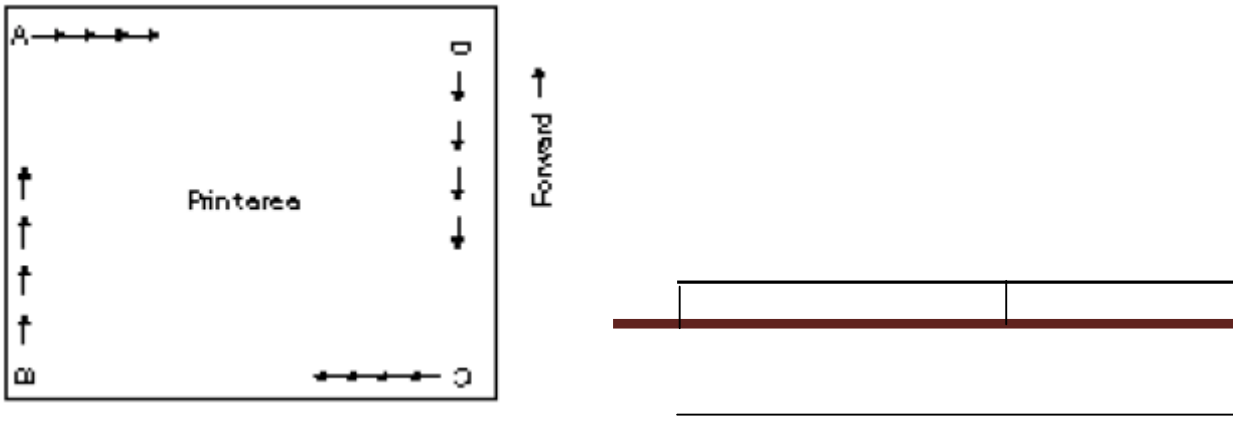
[Name] Select print direction in page mode

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

[Range] 0 ≤ n ≤ 3
48 ≤ n ≤ 51

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

(D in the figure)



[Notes] ¡ When the command is input in standard mode, the printer executes only internal flag operation. This command does not affect printing in standard mode.

¡ This command sets the position where data is buffered within the printing are aset by **ESC W**.

[Default] n = 0

[Reference] **ESC $**, **ESC L**, **ESC W**, **ESC **, **GS $**, **GS **

ESC W xL xH yL yH dxL dxH dyL dyH

[Name] Set printing area in page mode

[Format]

ASC II	ESC	W	xL	xH	yL	yH	dxL	dxH	dyL	dyH
Hex	1B	57	xL	xH	yL	yH	dxL	dxH	dyL	dyH
Decimal	27	87	xL	xH	yL	yH	dxL	dxH	dyL	dyH

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

[Description] ¡ The horizontal starting position, vertical starting position, printing area width, and printing area height are defined as x0, y0, dx (inch), dy (inch), respectively. Each setting for the printing area is calculated as follows:

x0 = [(xL + xH×256) × 0.125 mm]

y0 = [(yL + yH × 256) × 0.125 mm]

dx = [(dxL + dxH× 256) ×0.125 mm]

dy = [(dyL + dyH × 256) ×0.125 mm]

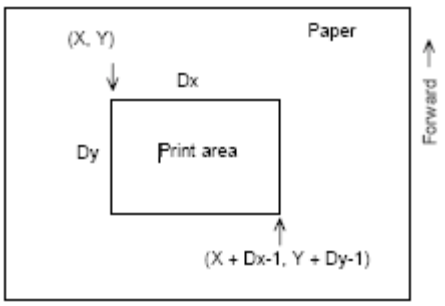
[Notes] ¡ If this command is input in standard mode, the printer executes only internal flag operation. This command does not affect printing in standard mode.

¡ If the horizontal or vertical starting position is set outside the printable area, the printer stops command processing and processes the following data as normal data.

¡ If the printing area width or height is set to 0, the printer stops

command processing and processes the following data as normal data.

- This command sets the position where data is buffered to the position specified by **ESC T** within the printing area.
- If (horizontal starting position + printing area width) exceeds the printable area, the printing area width is automatically set to (horizontal printable area -horizontal starting position).
- If (vertical starting position + printing area height) exceeds the printable area, the printing area height is automatically set to (vertical printable area – vertical starting position).
- Use 0.125 mm (0.0049”) pitch for setting the horizontal starting position and printing area width, and use 0.125 mm pitch for setting the vertical starting position and printing area height.
- When the horizontal starting position, vertical starting position, printing area width, and printing area height are defined as X, Y, Dx, and Dy respectively, the printing area is set as shown in the figure below.



[Reference] **CAN**, **ESC L**, **ESC T**

ESC Z m n k dL dH d1…dn

[Name] Print 2D barcode

[Format]

ASC II	ESC	Z	m	n	k	dL	dH	d1…dn
Hex	1B	5A	m	n	k	dL	dH	d1…dn
Decimal	27	90	m	n	k	dL	dH	d1…dn

[Application] M16C/ARM version printers.

M37702 version printer is applied PDF417 barcode only.

[Description] ①PDF417:barcode type0

m specifies column number of 2D barcode.(1≤m≤30)

n specifies security level to restore when barcode image is damaged.(0≤n≤8) k is used for define horizontal and vertical ratio.(2≤k≤5)

d is the length of data and it is consist of 2byte.

dL:1st byte is lower number.

dH:2nd byte is upper number.

d1…dn is barcode data.

- The size of PDF417 is influenced by barcode width command(GS w n).

②QR-CODE: barcode type2

m specifies version of the symbol. (1~40,0:auto size)

n specifies EC level. (L:7%,M:15%,Q:25%,H:30%)

k specifies module size.(1~8)

d is the length of data and it is consist of 2 byte.

dL:1st byte is lower number.

dH:2nd byte is upper number.

d1…dn is barcode data.

- When m is 0,the printer selects the barcode size automatically.

The auto sized method are recommended.

《Table for QR-CODE size(version)》

Version	Capacity(Code words)by EC level			
	L(7%)	M(15%)	Q(25%)	H(30%)
1	19	16	13	9
2	34	28	22	16
3	55	44	34	26
4	80	64	48	36
5	108	86	62	46
6	136	108	76	60
7	156	124	88	66
8	194	154	110	86
9	232	182	132	100
10	274	216	154	122
11	324	254	180	140
12	370	290	206	158
13	428	334	244	180
14	461	365	261	197
15	523	415	195	223
16	589	453	325	253
17	647	507	367	283
18	721	563	397	313
19	795	627	445	341

FS W n

[Name] Turn quadruple-size mode on/off for Kanji characters

[Format] ASCII FS W n

Hex 1C 57 n

Decimal 28 87 n

[Range] 0 ≤ n ≤ 255

[Description] Turns quadruple-size mode on or off for Kanji characters.

- When the LSB of n is 0, quadruple-size mode for Kanji characters is turned off.
- When the LSB of n is 1, quadruple-size mode for Kanji characters is turned on.

[Notes]
- Only the lowest bit of n is valid.
- In quadruple-size mode, the printer prints the same size characters as when double-width and double-height modes are both turned on.
- When quadruple-size mode is turned off using this command, the following characters are printed in normal size.
- When some of the characters on a line are different in height, all the characters on the line are aligned at the baseline.
- When characters are enlarged in the horizontal direction, they are enlarged to the right, based on the left side of the character.
- **FS !** or **GS !** can also select and cancel quadruple-size mode by selecting double-height and double-width modes, and the setting of the last received command is effective.

[Default] n = 0

[Reference] **FS !**, **GS !**

GS FF

[Name] Feed marked paper to print starting position

[Format]

ASCII	GS	FF
Hex	1D	0C
Decimal	29	12

[Description] Feeds the marked paper to the print starting position.

[Notes:]
- This command is enabled only when the BM sensor is set to be effective.
- This command sets the next print position to the beginning of the line.
- Even if this command is executed at the print starting position of the marked paper, the printer does not feed the marked paper to the next print starting position.

[Reference] **GS (F, FF**,

GS $ nL nH

[Name] Set absolute vertical print position in page mode

[Format]

ASCII	GS	$	nL	nH
Hex	1D	24	nL	nH
Decimal	29	36	nL	nH

[Range] 0 ≤ nL ≤ 255, 0 ≤ nH ≤ 255

[Description]
- Sets the absolute vertical print starting position to buffer character data in page mode.

- This command sets the absolute print position to [(nL + nH 256) ¬ 0.125 mm].

[Notes]
- This command is effective only in page mode.
- If the [(nL + nH¬ 256) ¬ (vertical or horizontal motion units)] exceeds the specified printing area, this command is ignored.
- The horizontal starting buffer position does not move.
- The reference starting position is that specified by **ESC T**.
- This command operates as follows, depending on the starting position of the printing area specified by **ESC T**:

✓ When the starting position is set to the upper left or lower right, this command sets the absolute position in the vertical direction.

✓ When the starting position is set to the upper right or lower left, this command sets the absolute position in the horizontal direction.

[Reference] **ESC $**, **ESC T**, **ESC W, ESC **, **GS **

GS (A pL pH n m

[Name] Execute test print

[Format]

ASCII	GS	(	A	pL	pH	n	m
Hex	1D	28	41	pL	pH	n	m
Decimal	29	40	65	pL	pH	n	m

[Range] (pL+(pH¬256))=2 (where pL=2, pH=0)

0 ≤ n ≤ 2, 48 ≤ n ≤ 50

1 ≤ m ≤ 3, 49 ≤ m ≤ 51

[Description]
- Executes a test print with a specified test pattern on a specified paper.
- pL and pH set the number of parameters so that (pL + (pH ¬ 256)) bytes.

n specifies the paper to be tested.

n	Paper
0,48	Basic sheet (paper roll)
1,49 2,50	paper roll

m specifies a test pattern.

n	Test pattern
1,49	Hexadecimal dump
2,50	Printer status print
3,51	Rolling pattern print

[Description]
- This command has enabled only when processed at the beginning of a line in standard mode.
- This command is no effect in page mode.
- When this command is received during macro definition, the printer

ends macro definition and begins performing this command.

- After the test print is finished, the printer resets itself automatically. Therefore, data already defined before this command is executed, such as user-defined characters, downloaded bit image, and macro, becomes undefined;
- The printer cuts the paper at the end of the test print.
- The printer goes BUSY while this command is executed.

GS C 0 n m

[Name] Select counter print mode

[Format]

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

[Range] 0 ≤ n ≤ 5

0 ≤ m ≤ 2, 48 ≤ m ≤ 50

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

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

n	Printing Position	Processing of digits less than those specified
0,48	Align right	Adds spaces to the left
1,49	Align right	Adds 0 to the left
2,50	Align left	Adds spaces to the right

[Notes]

- If n or m is out of the defined range, the previously set print mode is not changed.
- If n = 0, m does not have any meaning.

[Default] n = 0, m = 0

[Reference] **GS C 1, GS C 2, GS C ;, GS c**

[Examples]

n=3,m=0 n=3,m=1 n=3,m=2

▲▲1 001 1▲▲

▲ Indicates a space

GS C 1 aL aH bL bH n r

[Name] Select count mode (A)

[Format]

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

[Range]
0 ≤ aL ≤ 255
0 ≤ aH ≤ 255
0 ≤ bL ≤ 255
0 ≤ ≤ 255
0 ≤ n ≤ 255
0 ≤ r ≤ 255

[Description] Selects a count mode for the serial number counter.
- aL, aH or bL, bH specify the counter range.
- n indicates the stepping amount when counting up or down.
- r indicates the repetition number when the counter value is fixed.

[Notes]
- Count-up mode is specified when:
  [aL + aH × 256] < [bL + bH × 256] and n ≠ 0 and r ≠ 0
- Count-down mode is specified when:
  [aL + aH × 256] > [bL + bH × 256] and n ≠ 0 and r ≠ 0
- Counting stops when:
  [aL + aH × 256] = [bL + bH × 256] and n = 0 or r = 0
- In setting count-up mode, the minimum value of the counter is [aL + aH × 256] and the maximum value is [bL + bH × 256]. If counting up reaches a value exceeding the maximum, it is resumed with the minimum value.
- In setting count-down mode, the maximum value of the counter is [aL + aH × 256] and the minimum value is [bL + bH× 256]. If counting down reaches a value less than the minimum, it is resumed with the maximum value.
- When this command is executed, the internal counter that indicates the repetition number specified by r is cleared.

[Defaults] aL = 1, aH = 0, bL = 255, bH = 255, n =1, r = 1

[Reference] **GS C 0, GS C 2, GS C ;, GS c**

GS C 2 nL nH

[Name] Set counter

[Format]

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

[Range]
0 ≤ nL ≤ 255
0 ≤ nH ≤ 255

[Description] Sets the serial number counter value.

- nL and nH determine the value of the serial number counter set by [nL + nH ¬256].

[Notes]
- In count-up mode, if the counter value specified by this command goes out of the counter operation range specified by **GS C1** or **GS C ;**, it is forced to convert to the minimum value by **GS c**.
- In count-down mode, if the counter value specified by this command goes out of the counter operation range specified by **GS C1** or **GS C ;**, it is forced to convert to the maximum value by **GS c**.

[Default] nL = 1, nH = 0

[Reference] **GS C 0, GS C 1, GS C ; GS c**

GS C ; sa ; sb ; sn; sr; sc;

[Name] Select count mode (B)

[Format]

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

[Range] “0” ≤ sa ≤ “65535”
“0” ≤ sb ≤ “65535”
“0” ≤ sn ≤ “255”
“0” ≤ sr ≤ “255”
“0” ≤ sc ≤ “255”
These values are all character strings.

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

- sa, sb, sn, sr and sc are all displayed in ASCII characters, using the codes for “0” to “9.”
- sa and sb specify the counter range.
- sn indicates the stepping amount for counting up or down.
- sr indicates the repetition number with the counter value fixed.
- sc indicates the counter value.

[Notes]
- Count-up mode is specified when:
  sa < sb and sn ≠ 0 and sr ≠ 0
- Count-down mode is specified when:
  sa > sb and sn ≠ 0 and sr ≠ 0
- Counting stops when:
  sa = sb or sn = 0 or sr = 0
- When count-up mode is specified, sa is the minimum counter value and sb is the maximum counter value. If counting up reaches a value exceeding the maximum, it is resumed with the minimum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the minimum value by executing **GS c**.

- When count-down mode is specified, sa is the maximum counter value and sb is the minimum counter value. If counting down reaches a value less than the minimum, it is resumed with the maximum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the maximum value by executing **GS c**.
- Parameters sa to sc can be omitted. If omitted, these argument values are unchanged.
- Parameters sa to sc must not contain characters, except 0 to 9.
- If an incorrect syntax is used, the corresponding parameter setting has no effect, and the data after that is processed as normal data.

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

[Reference] **GS C 0, GS C 1, GS C 2, GS c**

GS Z n

[Name] Select 2D barcode type

[Format]

ASCII	GS	Z	n
Hex	1D	5A	n
Decimal	27	90	n

[Range] n=0 : PDF417(default)
n=1 : QR-CODE

[Application] M16C/ARM version printers

GS \ nL nH

[Name] Set relative vertical print position in page mode

[Format]

ASCII	GS	\	nL	nH
Hex	1D	5C	nL	nH
Decimal	29	92	nL	nH

[Range] 0 ≤ nL ≤ 255
0 ≤ nH ≤ 255

[Description] Sets the relative vertical print starting position from the current position in page mode.
- This command sets the distance from the current position to [(nL + nH × 256)× 0.125 mm (0.0049")].

[Notes]
- This command is ignored unless page mode is selected.
- When pitch N is specified for the movement downward:
  nL + nH ×256 = N
  When pitch N is specified for the movement upward (the negative direction),use the complement of 65536.
  When pitch N is specified for the movement upward:
  nL + nH× 256 = 65536 - N

- Any setting that exceeds the specified printing area is ignored.
- This command functions as follows, depending on the print starting position set by **ESC T**:
  - ✓ When the starting position is set to the upper left or lower right of the printing, the vertical motion unit (y) is used.
  - ✓ When the starting position is set to the upper right or lower left of the printing area, the horizontal motion unit (x) is used.

[Reference] **ESC $**, **ESC T**, **ESC W**, **ESC **, **GS $**

GS c

[Name] Print counter

[Format]

ASCII	GS	c
Hex	1D	63
Decimal	29	99

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

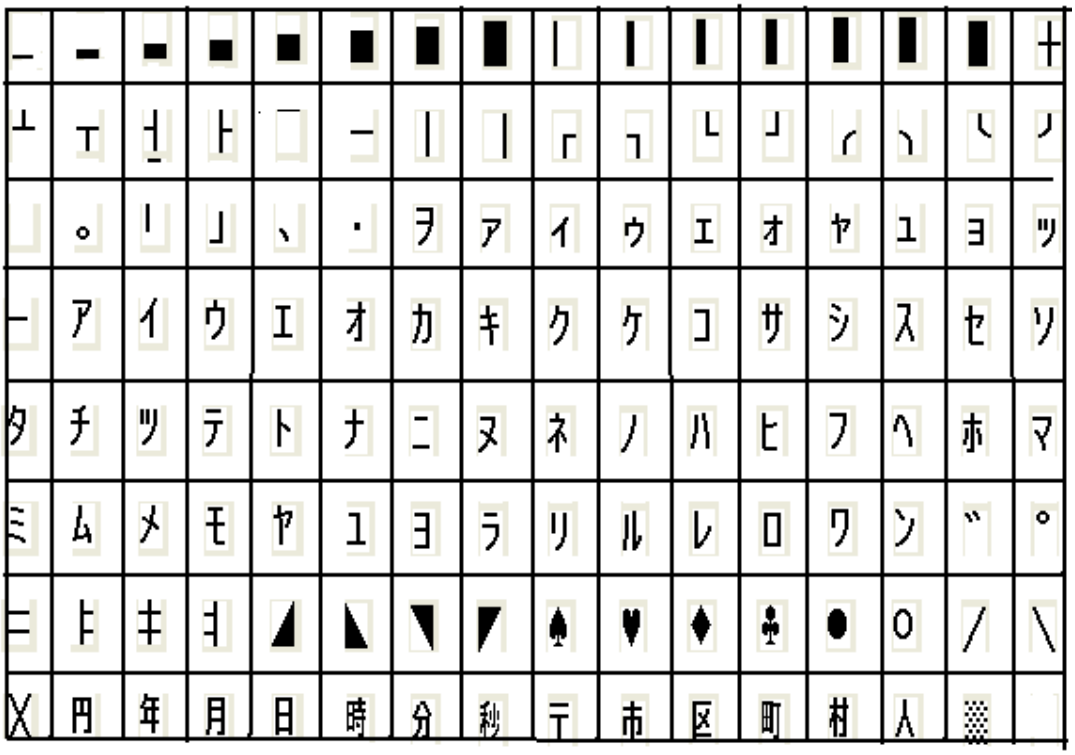
[Notes]
- After setting the current counter value in the print buffer as print data (a character string), the printer counts up or down based on the count mode set. The counter value in the print buffer is printed when the printer receives a print command or is in the buffer-full state.
- The counter print mode is set by **GS C 0**.
- The counter mode is set by **GS C1** or **GS C**.
- In count-up mode, if the counter value set by this command goes out of the counter operation range set by **GS C1** or **GS C ;**, it is forced to convert to the minimum value.
- In count-down mode, if the counter value set by this command goes out of the counter operation range set by **GS C1** or **GS C ;**, it is forced to convert to the maximum value.

[Reference] **GS C 0, GS C 1, GS C 2, GS C ;**

Page0 PC437 Page3 CP860 [Portuguese]

Code page 437																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	²	ù	ä	Þ	à	Ü	á	â	å	æ	ã	ï	î	ì	º	±
9_	´	Å	¿	ó	õ	ñ	ø	ö	û	Ö	Ú	¢	£	¤	Pts	ƒ
A_	Ý	í	ó	ú	ð	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»
B_	┼	┫	▓	┃	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	■	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	©	∙	·	√	n	2	■	

Page 1 Katakana



Page2 PC850[Multilingual]

Code page 850																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	²	ù	ä	Þ	à	Ü	á	â	å	æ	ã	ï	î	ì	°	±
9_	´	Å	¿	ó	õ	ñ	ø	ö	û	Ö	Ú	È	£	Â	Á	ƒ
A_	á	í	ó	ú	ð	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B_	†	⍐	▓	│	┤	-	®	¬	©	╣	║	╗	╝	¢	¤	┐
C_	└	┴	┬	├	─	┼	ß	-	╚	╔	╩	╦	╠	═	╬	¤
D_	Æ	À	µ	¶	³	I	Í	Î	Ï	┘	┌	█	▄	¦	Ì	⊥
E_	Ó	Ä	Ô	Ò	ô	Õ	ª	É	Ã	Ø	Ù	×	ú	Û	‾	´
F_	-	ª	ι	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	

Page3 PC860[Portuguese]

Code page 860																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ù	ä	Þ	ß	Ü	-	â	å	µ	ã	Í	Ô	ì	-	®
9_	´	¬	³	ó	ô	ñ	Ø	ö	Ì	Õ	Ú	¢	£	×	Pts	Ó
A_	Ý	í	ò	÷	ð	Ñ	ª	º	¿	Ò	¬	½	¼	¡	«	»
B_	†	⍐	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	ϕ	⊥
E_	Ω	Ä	Γ	π	▯	ς	ª	σ	Υ	Θ	Ψ	ά	∞	υ	έ	∩
F_	≡	ª	≣	≢	⌠	⌡	÷	≈	©	·	·	√	n	²	■	

Page4 PC863[Canadian-French]

Code page 863																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	²	ù	ä	Þ	®	Ü	μ	â	å	æ	ã	ï	î	—	¬	K
9_	´	³	μ	ó	¶	Ï	ø	ö	ι	Ô	Ú	¢	£	×	Ù	ƒ
A_	¦	´	ó	ú	¨	¸	³	¯	Î	⌐	¬	½	¼	¾	«	»
B_	⍏	⍐	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	⏀	⏊
E_	Ω	Ä	Γ	π	▯	ς	ª	σ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	a	≡	≢	⌠	⌡	÷	≈	©	·	·	√	ⁿ	²	■	

Page5 pc865[Nordic]

Code page 865																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	²	ù	ä	Þ	à	Ü	á	â	å	æ	ã	ï	î	ì	°	±
9_	´	Å	¿	ó	õ	ñ	ø	ö	û	Ö	Ú	È	£	Â	Pts	ƒ
A_	Ý	í	ò	÷	ð	Ñ	μ	º	¾	⌐	¨	¼	›	θ	§	ι
B_	⍏	⍐	⊤	‿	⟨	◎	⌿	▻	▻	⍀	⌀	⎵	⌺	⌻	⌸	⌥
C_	⌦	□	⟩	⌨	⌢	⌬	⌼	○	▯	⌖	⍆	⍃	⌽	⌮	⍉	⍄
D_	⍅	⍁	⍂	⌶	∨	÷	⍫	⍈	⍇	⌧	⍲	⍔	⍋	⍙	⏀	⏊
E_	Ω	Ä	Γ	π	▯	ς	ª	σ	Υ	Θ	Ψ	ά	∞	υ	έ	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	•	·	√	ⁿ	²	▮	

Page6 pc1251 [Cyrillic]

Code page 1251																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ϗ	ϐ	‖	A	„	„	“	”	€	‶	Љ	‹	Њ	Ќ	Ћ	Ў
9_	Џ	ʻ	ʼ	‚	`	•	–	—		™	љ	›	њ	ќ	ћ	џ
A_		Ѝ	ў	Ј	ι	Ѡ	¥	к	ω	¦	ϑ	§	¨	–	®	Ï
B_	°	±	I	i	ґ	ª	¶	·	ё	№	Б	«	j	ϒ	В	ї
C_	ϊ	ϋ	ό	ύ	ώ	Ϗ	ϐ	ϑ	ϒ	ϓ	ϔ	φ	ϖ	ϗ	Ϙ	ϙ
D_	Ϛ	ϛ	Ϝ	ϝ	Ϟ	ϟ	Ϡ	ϡ	Ϣ	ϣ	Ϥ	ϥ	Ϧ	ϧ	Ϩ	ϩ
E_	Ϫ	ϫ	Ϭ	ϭ	Ϯ	ϯ	ϰ	ϱ	ϲ	ϳ	ϴ	ϵ	϶	Ϸ	ϸ	Ϲ
F_	Ϻ	ϻ	ϼ	Ͻ	Ͼ	Ͽ	Ѐ	Ё	Ђ	Ѓ	Є	Ѕ	І	Ї	Ј	Љ

Page7 pc866 Cyrilliec #2

Code page 866																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	⍏	⍐	⍑	⌣	〈	◎	⌿	▻	⊳	⍀	⌀	␣	⌺	⌹	⌸	⌥
C_	⌦	□	〉	⌨	⌢	⌬	⌼	⌼	▯	⌖	⍆	⍃	⌽	⍉	⍉	⍄
D_	⍅	⍁	⍂	⌶	∨	÷	⫽	⍈	⍇	⌧	⍲	⍔	⍋	⍍	⏀	⏊
E_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
F_	Ё	è	Є	є	Ї	ї	Ў	ў	⬬	·	·	√	№	¤	■	

Page8 MIK[Cyrillic /Bulgarian]

Code page MIK

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
C_	└	┴	┬	├	─	┼	╣	║	╚	╔	╩	╦	╠	═	╬	┐
D_	†	↑	▒	▌	┤	№	§	╗	╝	┘	┌	▀	▄	▐	∅	⊥
E_	α	ß	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	2	∀	

Page9 CP755

Code page 755

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	┼	↑	┬	⌣	⟨	Ā	⁄	▻	▻	┼	⌀	␣	◈	⊡	⊟	⌥
C_	└	┴	┬	├	─	┼	ā	║	╚	╔	╩	╦	╠	═	╬	┴
D_	Š	┬	č	Č	╚	╔	ģ	Ī	ī	┘	┌	▀	▄	ū	Ū	▪
E_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
F_	Ē	ē	Ģ	К	К	ļ	Ļ	ž	Ž	∙	·	√	N	Š	■	

Page10 Iran

Code page Iran																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	۰	۱	۲	۳	۴	۵	۶	۷	۸	۹	،	ـ	؟	آ	ئـ	ء
9_	ا	ـا	ب	بـ	پ	پـ	ت	تـ	ث	ثـ	ج	جـ	چ	چـ	ح	حـ
A_	خ	خـ	د	ذ	ر	ز	ژ	س	سـ	ش	شـ	ص	صـ	ض	ضـ	ط
B_	↑	⍐	▓	│	┤	╡	╢	╖	╕	╣	║	╗		╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	⏀	⊥
E_	ظ	ع	ع	ـعـ	عـ	غ	غ	ـغـ	غـ	ف	فـ	ق	قـ	ک	کـ	گ
F_	گـ	ل	لا	لـ	م	مـ	ن	نـ	و	ه	ـهـ	هـ	ى	ی	يـ	

Page15 CP862 [Hebrew]

Code page 862																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן
9_	נ	ס	ע	ף	פ	ץ	צ	ק	ר	ש	ת	¢	£	¤	₧	ƒ
A_	Ý	í	ò	÷	ð	Ñ	µ	º	¾	⌐	¨	¼	»	θ	§	«
B_	↑	⍐	⊤	‿	⟨	◎	⌿	▻	▻	⍀	⌀	␣	⌺	⍠	⊟	⌥
C_	⌧	□	⟩	⌨	⁀	⌬	⌼	○	▯	⌖	⟶	⊲	⌽	⌭	⍉	⊳
D_	⟵	⍁	⍂	⌶	∨	∸	⫽	⇥	⇤	⌧	⌤	⍔	⍋	⍍	⌽	⊥
E_	α	ß	Γ	π	Σ	ζ	µ	η	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	⍒	

Page 16 PC1252 Latin 1

Code page 1252

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		‖	ƒ	„	…	†	‡	ˆ	‰	Ş	‹	Œ		Ž	
9_		‘	’	“	”	•	Ŕ	ŕ	˜	™	ş	›	œ		ž	Ÿ
A_		¡	¢	£	ı	¤	¥	ĸ	λ	¦	µ	§	¬	Ŕ	®	¯
B_	°	±	²	³	´	a	¶	·	¸	¹	º	»	¼	½	¾	¿
C_	¬	–	®	¯	º	±	¿	²	³	´	µ	¶	Ì	Í	Î	Ï
D_	À	Ñ	Ò	Ó	Ô	Õ	Ö	Á	Â	×	Ø	Ù	Ú	Û	Ã	ß
E_	Ü	Ý	Þ	ß	à	á	Å	â	ã	ä	å	æ	ì	í	î	ï
F_	Æ	ð	ñ	ò	ó	ô	õ	Ç	È	ö	÷	ø	ù	ú	É	û

Page 17 WCP1253 [Greek]

Code page 1253

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		‖	ƒ	„	…	†	‡		‰		‹				
9_		‘	’	“	”	•	–	—		™		›				
A_		΅	Ά	£	¤	¥	¦	§	¨	©		«	¬		®	―
B_	°	±	²	³	΄	µ	¶	·	Έ	Ή	Ί	»	Ό	½	Ύ	Ώ
C_	ΐ	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
D_	Π	Ρ		Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Ϊ	Ϋ	ά	έ	ή	ί
E_	ΰ	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
F_	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ϊ	ϋ	ό	ύ	ώ	

Page18 PC852

Code page 852

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ù	ä	Þ	à	ū	ć	â	ł	æ	Ő	ő	î	Ź	º	Ć
9_	´	ĸ	Í	ó	õ	Ľ	ľ	Ř	ř	Ö	Ú	Ţ	ţ	Ł	Á	Č
A_	Ý	í	ò	÷	Ą	ą	Ž	ž	Ę	ę		ź	Č	ŝ	«	»
B_	┼	╣	▓	┃	┤	-	®	Ě	Ŝ	╣	‖	╗	╝	ż	ż	⌥
C_	└	┴	┬	├	─	┼	Ă	ă	╚	╔	╩	╦	╠	═	╬	¤
D_	đ	Đ	Ď	¶	d′	Ń	Í	Î	ě	┘	┌	▉	▄	Š	Ū	▀
E_	Ó	Ä	Ô	Ł	ł	ń	Ş	ş	Ę	Ø	œ	Ŭ	ú	Û	š ´	η
F_	-	˝	˛	ˇ	˘	§	÷	¸	©	--	-	ű	Ř	ř	▄	

Page19 PC858 (Multilingual Latin ▮ +Euro)

Code page 858

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	²	ù	ä	Þ	à	Ü	á	â	å	æ	ã	ï	î	ì	º	±
9_	´	Å	¿	ó	õ	ñ	ø	ö	û	Ö	Ú	È	£	Â	Á	ƒ
A_	Ý	í	ò	÷	ð	Ñ	µ	º	¾	®	¨	¼	»	¡	«	»
B_	┼	╣	▓	┃	┤	-	®	¬	¦	╣	‖	╗	╝	¢	¤	┐
C_	└	┴	┬	├	─	┼	ß	-	╚	╔	╩	╦	╠	═	╬	¤
D_	Æ	À	µ	¶	³	€	Í	Î	Ï	┘	┌	▉	▄	¦	Ì	▏
E_	Ó	Ä	Ô	Ò	ô	Õ	ª	É	Ã	Ø	Ù	×	ú	Û	¯	´
F_	-	a	ı	¾	¶	§	÷	¸	º	¨	·	¹	³	²	▄	

Page20 Iran II

Code page Iran II																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	۰	۱	۲	۳	۴	۵	۶	۷	۸	۹	،	ـ	؟	آ	ئـ	ء
9_	ا	ـا	ب	بـ	پ	پـ	ت	تـ	ث	ثـ	ج	جـ	چ	چـ	ح	حـ
A_	خ	خـ	د	ذ	ر	ز	ژ	س	سـ	ش	شـ	ص	صـ	ض	ضـ	ط
B_	†	⍐	▓	│	┤	╡	╢	╖	╕	╣	║	╗		╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	ϕ	⊥
E_	ظ	ع	عـ	ـعـ	ـع	غ	غـ	ـغـ	ـغ	ف	فـ	ق	قـ	ک	کـ	گ
F_	گـ	ل	لا	لـ	م	مـ	ن	نـ	و	ه	ـهـ	هـ	ى	ی	یـ	

Page21 Latvian

Code page Latvian																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_						ï		ŋ						Ņ		
C_							ā									
D_	Ş		č	Č	Ī	ī								ŧ	Ŧ	
E_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
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Page22 CP864 [Arabic]

Code page 864

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9_	β	∞	Θ	±	½	¼	≈	«	»	لأ	لأ			لا	لا	
A_			آ	£	¤	أ			ا	ب	ت	ث	،	ج	ح	خ
B_	٠	١	٢	٣	٤	٥	٦	٧	٨	٩	ف	؛	س	ش	ص	؟
C_	¢	ء	آ	أ	ؤ	ع	ئ	ا	بـ	ة	تـ	ثـ	جـ	حـ	خـ	د
D_	ذ	ر	ز	س	ش	ص	ض	ط	ظ	ع	غ	¦	¬	÷	×	ع
E_	ـ	ف	ق	ك	ل	م	ن	ه	و	ى	يـ	ض	عـ	غ	غ	م
F_	سـ	س	ن	ه	ھ	ى	ي	غ	ق	لآ	لآ	ل	ك	ي	▒	

Page23 ISO-8859-1 [West Europe]

Code page 8859-1

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		Ⅱ	Ⅲ	Ⅳ		↑	↓		‰	Ş	<	Œ			
9_						Ⅴ	Ⅵ				Ş	>	œ			Ÿ
A_		¡	¢	£	ι	¤	¥	K	¨	©	ª	«	¬	-	®	¯
B_	°	±	²	³	’’	a	¶	·	¸	¹	º	»	¼	½	¾	¿
C_	¬	‗	®	¯	°	±	¿	2	3	´	µ	¶	Ì	Í	Î	Ï
D_	À	Ñ	Ò	Ó	Ô	Õ	Ö	Á	Â	×	Ø	Ù	Ú	Û	Ã	ß
E_	Ü	Ý	Þ	ß	à	á	Å	â	ã	ä	å	æ	ì	í	î	ï
F_	Æ	ð	ñ	ò	ó	ô	õ	Ç	È	ö	÷	ø	ù	ú	É	û

Page24 CP737 [Greek]

Code page 737																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π
9_	Ρ	□	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Ϊ	Ϋ	ά	έ	ή	ί	ΰ
A_	α	β	γ	δ	ε	ζ	η	π	ρ	ς	ς	σ	τ	υ	φ	χ
B_	⍏	⍐	⊤	‿	⟨	◎	⌿	▻	⊳	⍀	⌀	␣	⌺	⍠	⌸	⌥
C_	⌧	□	⟩	⌨	⁀	⌬	⌼	◯	▯	⌖	⍆	⍃	⌽	⍉	⍉	⍄
D_	⍅	⍁	⍂	⌶	∨	÷	⍫	⍈	⍇	⌧	⍲	⍔	⍋	⍍	⌽	⊥
E_	ψ	ά	έ	ή	ϊ	ί	ό	ύ	ϋ	ώ	Ά	Έ	Ή	Ί	Ό	Ύ
F_	Ώ	±	≥	≤	Ϊ	Ϋ	÷	≈	°	•	·	√	ⁿ	²	⍒	

Page25 WCP1257 [Baltic]

Code page 1257																
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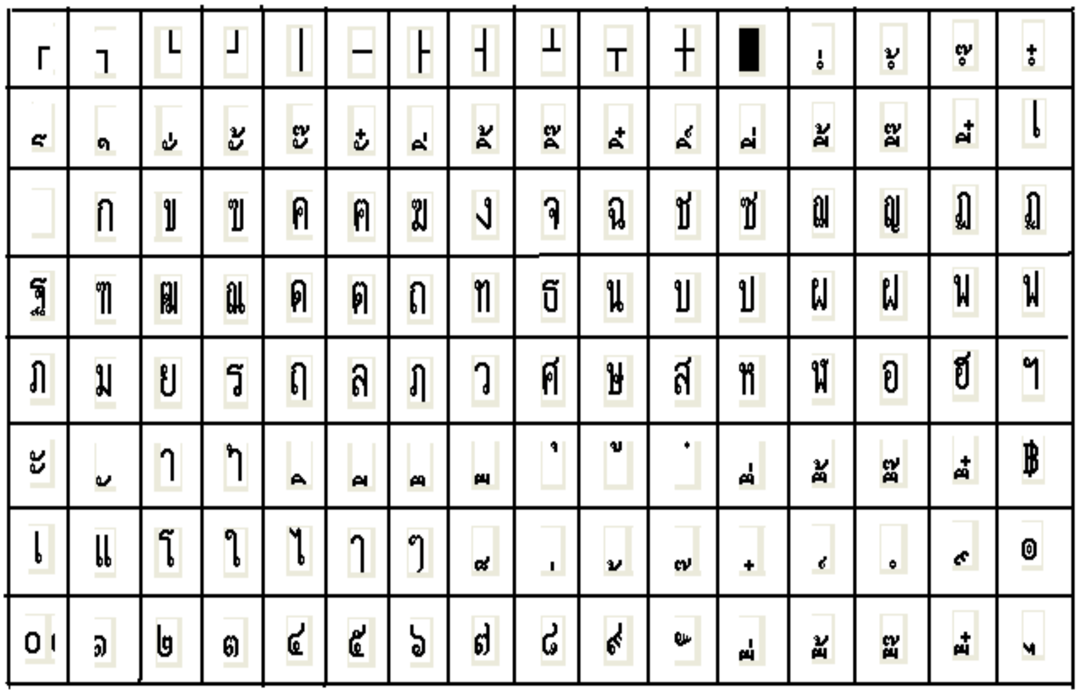
8_	€		‚		„	…	†	‡		‰		‹		¨	ˇ	¸
9_		‘	’	“	”	•	Ŕ	ŕ		™		›		¯	˛	
A_			¢	£	¤		¦	K	Ø	¦	Ŕ	§	¨	–	®	¿
B_	°	±	²	³	´	ª	µ	¶	È	¹	ŕ	«	»	¼	½	Å
C_	Ą	Į	Ā	Ć	º	±	Ę	đ	Č	´	Ź	Ė	Ģ	Ķ	Ī	Ļ
D_	Ş	Ŀ	Ł	Ó	Ņ	Õ	Ö	Á	Ů	Ŀ	Ř	Ŧ	Ú	Ż	Ž	Ä
E_	ą	į	ā	ć	à	á	ę	Ē	č	ä	ź	ė	ģ	ķ	ī	ļ
F_	ş	ŀ	ł	ò	ņ	ô	õ	Ç	ů	ł	ř	ŧ	ù	ż	ž	˙

Page26 Thai



Page27 CP720[Arabic]

Code page 720																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_			ä	Þ		Ü		â	å	æ	ã	ï	î			
9_		س	©	ô	¤	—	ø	ö	ء	آ	أ	ؤ	£	إ	ئ	ا
A_	ب	ة	ت	ث	ج	ح	خ	د	ذ	ر	ز	س	ش	ص	«	»
B_	[illegible]	[illegible]	[illegible]	‿	⟨	◎	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C_	[illegible]	□	⟩	[illegible]	⁀	⌬	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D_	[illegible]	⧄	⧅	⌶	∨	÷	[illegible]	[illegible]	[illegible]	⊠	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	⊥
E_	ض	ط	ظ	ع	غ	ف	µ	ق	ك	ل	م	ن	ه	و	ى	ي
F_	≡							≈	°	•	·	√	n	2	[illegible]	

Page28 CP855

Code page 855																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	ђ	Ђ	ѓ	Ѓ	ё	Ё	є	Є	ѕ	Ѕ	і	І	ї	Ї	ј	Ј
9_	љ	Љ	њ	Њ	ћ	Ћ	ќ	Ќ	ў	Ѝ	џ	Ў	ю	Ю	ъ	Ъ
A_	а	А	б	Б	ц	Ц	д	Д	е	Е	ф	Ф	г	Г	«	»
B_	†	⍐	⊤	⌣	⟨	х	Х	и	И	⍀	⌀	␣	⌺	й	Й	⌥
C_	⌧	□	⟩	⌨	⌢	⌬	к	К	▯	⌖	⇸	⍃	⌽	⌭	⍉	ɩ
D_	л	Л	м	М	н	Н	о	О	п	⌧	⌤	⍌	⍋	П	я	⍊
E_	Я	Р	р	с	С	т	Т	у	У	ж	Ж	в	В	ь	Ь	№
F_	Ŕ	ы	Ы	з	З	ш	Ш	э	Э	щ	Щ	ч	Ч	§	■	

Page29 PC857[Turkish]

Code page 857																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	²	ù	ä	Þ	à	Ü	á	â	å	æ	ã	ï	î	I	°	±
9_	É	æ	Æ	ó	õ	ñ	ø	ö	İ	Ö	Ú	È	£	Â	Ŝ	ŝ
A_	Ý	í	ò	÷	ð	Ñ	Ğ	ğ	¿	®	¬	½	¼	¡	«	»
B_	†	⍐	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C_	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D_	º	ª	Ê	Ë	È		Í	Î	Ï	┘	┌	█	▄	¦	Ì	‗
E_	Ó	Ä	Ô	Ò	ô	Õ	ª		¬	Ø	Ù	×	ì	û	¯	´
F_	-	a		¾	¶	§	÷	¸	©	¨	«	¹	³	²	■	

Page30 WCP1250[Central Eurpoe]

Code page-1250																
	–0	–1	–2	–3	–4	–5	–6	–7	–8	–9	–A	–B	–C	–D	–E	–F
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9_		‘	’	“	”	•	Ŕ	ŕ		™	ş	›	ř	ţ	ž	ź
A_		˘	˘	Ł	ι	Ą	¦	κ	λ	¦	Ŝ	§	¨	–	®	Ż
B_	°	±	˛	ł	´	ª	¶	·	¸	ą	ŝ	»	Ľ	˝	ľ	ż
C_	Ŕ	Á	Â	Ă	Ä	Ĺ	Ć	Ç	Č	É	Ę	Ë	Ě	Í	Î	Ď
D_	Đ	Ń	Ň	Ó	Ô	Ő	Ö	Á	Ŗ	Ů	Ú	Ű	Ü	Û	Ţ	ß
E_	œ	Ÿ	Þ	ă	à	ĺ	ć	â	č	ä	ę	æ	ě	í	î	ď
F_	đ	ŀ	ń	ò	ó	ő	õ	Ç	ŗ	ū	÷	ŭ	ù	Û	š	˙

Page31 CP775

Code page 775																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ć	ù	ä	ā	à	ģ	á	ć	Ł	Ē	Ŕ	ŕ	Ī	Ź	°	±
9_	´	Å	¿	ņ	õ	Ģ	¢	Ř	ř	Ö	Ú	È	£	Â	Á	ı
A_	Ā	Ī	ò	Ż	ż	ź	`	¥	¦	®	¨	¼	»	Ł	§	«
B_	⍏	⍐	⊤	⌣	⟨	Ą	Č	Ę	Ė	⍀	⌀	⌴	⍚	Ɨ	Š	⌥
C_	⌧	□	⟩	⌨	⌢	⌬	Ů	Ŧ	▯	⌽	⇸	⍃	⏀	⍥	⍉	Ž
D_	ą	č	ę	ė	į	ş	ů	ŧ	ž	⌧	⍲	⍔	⍋	⍍	⏁	⊥
E_	Ó	Ä	Ņ	Ŀ	ô	Õ	ª	ŀ	Ķ	ķ	Ļ	ļ	ł	đ	Ł	’
F_	Ŕ	±	Ŗ	¾	¶	§	÷	„	°	•	·	¹	³	²	⍒	

Page32 WCP1254[Turkish]

Code page-1254

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		‚	ƒ	„	…	†	‡	ˆ	‰	Ş	‹	Œ			
9_		‘	’	“	”	•	–	—	˜	™	ş	›	œ			Ÿ
A_		¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬		®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C_	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D_	Ğ	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	İ	Ş	ß
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F_	ğ	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ı	ş	ÿ

Page33 WCP1255[Hebrew]

Code page-1255

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		‚	ƒ	„	…	†	‡	ˆ	‰		‹				
9_		‘	’	“	”	•	–	—	˜	™		›				
A_		¡	¢	£	₪	¥	¦	§	¨	©	×	«	¬		®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	÷	»	¼	½	¾	¿
C_															־	
D_	׀			׃	ׄ	ׅ	׆	ׇ								
E_	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן
F_	נ	ס	ע	ף	פ	ץ	צ	ק	ר	ש	ת					

Page34 WCP1256[Arabic]

Code page-1256

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€	پ	‖	ƒ	„	…	†	‡	ˆ	‰	ٹ	‹	Œ	چ	ژ	ڈ
9_	گ	'	'	"	"	•	–	—	ک	™	ڑ	›	œ	‌	‍	ں
A_		،	¢	£	ι	¤	¥	ĸ	λ	¦	ھ	§	¨	–	®	©
B_	°	±	²	³	´	ą	µ	¶	·	¹	؛	«	»	¼	½	؟
C_	ہ	ء	آ	أ	ؤ	إ	ئ	ا	ب	ة	ت	ث	ج	ح	خ	د
D_	ذ	ر	ز	س	ش	ص	ض	×	ط	ظ	ع	غ	ـ	ف	ق	ك
E_	Ü	ل	Þ	م	ن	ه	و	Ç	ã	ä	å	æ	ى	ي	Î	ï
F_					Ô			÷		ö		ø	ù			ے

Page35 WCP1258[Vietnam]

Code page-1258

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		‖	ƒ	„	…	†	‡	ˆ	‰		‹	Œ			
9_		'	'	"	`	•	–	—	˜	™		›	œ			Ÿ
A_		θ	¢	£	ι	¤	¥	ĸ	λ	¦	µ	§	¨	–	®	©
B_	º	±	²	³	´	ą	µ	¶	·	¹	_	«	»	¼	½	¾
C_	¬	-	®	Ă	°	±	¿	²	³	´	µ	¶		Í	Î	Ï
D_	Đ	Ñ		Ó	Ô	Ơ	Ö	Á	Â	×	Ø	Ù	Ú	Ų		ß
E_	Ü	Ý	Þ	ă	à	á	Å	â	ã	ä	å	æ		í	î	ï
F_	đ	ð		ò	ó	ơ	õ	ç	è	ö	÷	ø	ù	ų	đ	û

Page36 ISO-8859-2[**Latin 2**]

Code page-8859-2																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_		Ą	˘	Ł	ι	Ľ	Ř	κ	λ	Ş	Ŝ	Ţ	Ź	–	Ž	Ż
B_	○	ą	˛	ł	´	ľ	ř	ˇ	•	ş	ŝ	ţ	ź	˝	ž	ż
C_	Œ	-	®	Ă	°	κ	Ć	²	Č	´	Ę	¶	Ě	Í	Î	Ď
D_	Đ	Ł	Ń	Ó	Ô	Ő	Ö	Á	Ŗ	Ū	Ø	Ŭ	Ú	Û	Š	Ä
E_	œ	Ý	Þ	ă	à	ĺ	ć	â	č	ä	ę	æ	ě	í	î	ď
F_	đ	ŀ	ń	ò	ó	ő	õ	Ç	ŗ	ū	÷	ŭ	ù	Û	š	˙

Page37 ISO-8859-3[**Latin 3**]

Code page-8859-3																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_		Ħ	˘	£	ι		Ĥ	κ	¨	İ	Ŝ	Ğ	Ĵ	Ŕ		Ż
B_	○	ħ	²	³	´	ª	ĥ	·	¸	ı	ŝ	ğ	ĵ	¼		ż
C_	¬	-	®		°	Ċ	Ĉ	²	³	´	μ	¶	Ì	Í	Î	Ï
D_		Ñ	Ò	Ó	Ô	Ġ	Ö	Á	Ĝ	×	Ø	Ù	Ú	Ũ	Ś	ß
E_	Ü	Ý	Þ		à	ċ	ĉ	â	ã	ä	å	æ	ì	í	î	ï
F_		ð	ñ	ò	ó	ġ	õ	Ç	ĝ	ö	÷	ø	ù	ũ	ś	˙

Page38 ISO-8859-4[Baltic]

Code page-8859-4

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
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9_																
A_		Ą	ĸ	Ŗ	¤	Ĩ	Ļ	κ	λ	Ş	đ	Ģ	Ŕ	–	Ž	¯
B_	°	ą	˛	ŗ	´	ĩ	ļ	ˇ	¸	ş	Ē	ģ	ŧ	Ŋ	ž	ŋ
C_	Ā	-	®	¯	°	±	¿	Į	Č	´	Ę	¶	Ė	Í	Î	Ī
D_	Đ	Ł	Ņ	Ķ	Ô	Õ	Ö	Á	Â	Ů	Ø	Ù	Ú	Ť	Ŧ	ß
E_	ā	Ý	Þ	ß	à	á	Å	į	č	ä	ę	æ	ė	í	î	ī
F_	đ	ł	ņ	ķ	ó	ô	õ	Ç	È	ů	÷	ø	ù	ť	ŧ	˙

Page39 ISO-8859-5[**Cyrillic**]

Code page-8859-5

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8_																
9_																
A_		ω	Ϗ	ϐ	ϑ	ϒ	I	Ï	J	Љ	Њ	Ћ	Ќ	Ŕ	Й	Ў
B_	ϊ	ϋ	ό	ύ	ώ	Ϗ	ϐ	ϑ	ϒ	ϓ	ϔ	ϕ	ϖ	ϗ	Ϙ	ϙ
C_	Ϛ	ϛ	Ϝ	ϝ	Ϟ	ϟ	Ϡ	ϡ	Ϣ	ϣ	Ϥ	ϥ	Ϧ	ϧ	Ϩ	ϩ
D_	Ϫ	ϫ	Ϭ	ϭ	Ϯ	ϯ	ϰ	ϱ	ϲ	ϳ	ϴ	ϵ	϶	Ϸ	ϸ	Ϲ
E_	Ϻ	ϻ	ϼ	Ͻ	Ͼ	Ͽ	Ѐ	Ё	Ђ	Ѓ	Є	Ѕ	І	Ї	Ј	Љ
F_	№	Њ	Џ	А	Б	В	і	ї	ј	љ	њ	ћ	ќ	к	ў	џ

Page40 ISO-8859-6[**Arabic**]

Code page-8859-6

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
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A_					¤								،	Ŕ		
B_												؛				؟
C_		ء	آ	أ	ؤ	إ	ئ	ا	ب	ة	ت	ث	ج	ح	خ	د
D_	ذ	ر	ز	س	ش	ص	ض	ط	ظ	ع	غ					؍
E_	ـ	ف	ق	ك	ل	م	ن	ه	و	ى	ي					◌
F_																

Page41 ISO-8859-7[**Greek**]

Code page-8859-7

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_		‘	’	£			¦	§	¨	©	ͺ	«	¬	Ŕ		―
B_	°	±	²	³	΄	΅	Ά	·	Έ	Ή	Ί	»	Ό	½	Ύ	Ώ
C_	ΐ	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
D_	Π	Ρ		□	Σ	Τ	Υ	Φ	Χ	Ψ	Ϊ	Ϋ	ά	έ	ή	ί
E_	ΰ	α	β	γ	δ	ε	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν
F_	‘’	ξ	ο	ζ	η	υ	θ	χ	ψ	ω	ί	ϋ	ό	ύ	ώ	

Page42ISO-8859-8**[Hebrew]**

Code page-8859-8

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_			¢	£	¤	¥	¦	§	¨	©	×	«	¬	Ŕ	®	¯
B_	°	±	²	³	´	a̲	¶	·	¸	¹	÷	»	¼	½	¾	
C_																
D_																ו
E_	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן
F_	נ	ס	ע	ף	פ	ץ	צ	ק	ר	ש	ת					

Page43 ISO-8859-9**[Turkish]**

Code page-8859-9

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_		¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	Ŕ	®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C_	¬	-	®	¯	°	±	¿	2	3	´	µ	¶	Ì	Í	Î	Ï
D_	Ğ	Ñ	Ò	Ó	Ô	Õ	Ö	Ā	Ă	×	Ø	Ù	Ú	İ	Ŝ	ß
E_	Ü	Ý	Þ	ß	à	á	Å	â	ã	ä	å	æ	ì	í	î	ï
F_	ğ	ð	ò	ó	ô	õ	ö	÷	ø	ö	÷	ø	ù	ı	ŝ	û

Page44 ISO-8859-15 **[Latin 3]**

Code page-8859-15

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_		¡	¢	£	€	¤	Ş	ĸ	ş	¦	ª	«	¬	Ŕ	®	¯
B_	°	±	²	³	ž	ą	¶	·	ž	¹	º	»	Œ	œ	Ÿ	¿
C_	¬	–	®	¯	°	±	¿	2	3	´	µ	¶	Ì	Í	Î	Ï
D_	À	Ñ	Ò	Ó	Ô	Õ	Ö	Á	Â	×	Ø	Ù	Ú	Û	Þ	ß
E_	Ü	Ý	Þ	ß	à	á	Å	â	ã	ä	å	æ	ì	í	î	ï
F_	ð	ð	ñ	ò	ó	ô	õ	Ç	È	ö	÷	ø	ù	ú	É	û

Page45 Thai2

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ฐ	ฑ	ฒ	ณ	ด	ต	ถ	ท	ธ	น	บ	ป	ผ	ฝ	พ	ฟ
ภ	ม	ย	ร	ฤ	ล	ฦ	ว	ศ	ษ	ส	ห	ฬ	อ	ฮ	ฯ
ะ	ั	า	ำ	ิ	ี	ึ	ื	ุ	ู	ฺ	฿	เ	แ	ๅ	ๆ
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Page46 CP856()

Code page 856																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
C_	└	┴	┬	├	─	┼	╣	║	╚	╔	╩	╦	╠	═	╬	┐
D_	†	⍐	⊤	┃	┤	№	§	╗	╝	┘	┌	█	▄	▌	⏀	⊥
E_	α	ß	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
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Page47 Cp874

Code page 874																
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8_	Ђ					…										
9_		‘	’	“	”	•	–	—								
A_		ก	ข	ฃ	ค	ฅ	ฆ	ง	จ	ฉ	ช	ซ	ฌ	ญ	ฎ	ฏ
B_	ฐ	ฑ	ฒ	ณ	ด	ต	ถ	ท	ธ	น	บ	ป	ผ	ฝ	พ	ฟ
C_	ภ	ม	ย	ร	ฤ	ล	ฦ	ว	ศ	ษ	ส	ห	ฬ	อ	ฮ	ฯ
D_	ะ	ั	า	ำ												฿
E_	เ	แ	โ	ใ	ไ	ๅ	ๆ							◦		๏
F_	๐	๑	๒	๓	๔	๕	๖	๗	๘	๙	๚	๛				