# **DPT** 282 PLM **cordiess**

# DESK PRINTER

# USER'S MANUAL





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COD. DOME – DPT282PLM

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Custom Engineering Str. Berettine 2 - 43010 Fontevivo (PARMA) - Italy Tel. : +39 0521-680111 - Fax : +39 0521-610701 http: www.custom.it Email : support@custom.it



### SAFETY PRECAUTIONS

Read and keep the following instructions.

- • Observe all warnings and follow all instructions attached to the printer.
- • Before cleaning the printer, disconnect the feed cable.
- Clean the printer with a damp cloth. Do not use liquid or spray products.
- · Do not operate the printer near to water.
- • Do not place the printer on unsteady surfaces. It could fall and get seriously damaged.
- Do not place the printer on soft surfaces or in poorly ventilated environments.
- • Position the printer in such a way as to ensure that the cables connected to it will not be damaged.
- Use the type of electricity supply marked on the printer label. In the event of uncertainty, contact the seller.
- Ensure that the printer's electricity supply is grounded and that it is protected by a differential switch.
- If the printer is fed through an extension lead, ensure that the total absorption of the equipment connected to it does not exceed the maximum admissible current for that type of extension and that it does not, in any event, exceed 15 amperes.
- · Do not obstruct the vents.
- Do not put objects of any kind inside the printer as they could cause a short circuit or damage parts which could affect its performance.
- • Do not spill liquids on the printer.
- Do not carry out technical operations on the printer with the exception of the scheduled maintenance operations specifically indicated in the user's manual.
- Disconnect the printer from the electricity supply and have it repaired by a specialized technician should any of the following conditions occur:

- A. The feed connector has been damaged.
- B. liquid has penetrated to the inside of the printer;
- C. The printer has been exposed to rain or water;
- D. The printer is not operating normally despite the instructions in the user's manual having been followed.
- E. The printer has been dropped and its case damaged.
- F. The performance of the printer is poor.
- G. The printer does not work.

### **INSTALLATION PROCEDURE**

- Place the printer near the computer or the working station so that the connecting cable arrives easily;
- Before to connect the printer to the supply, check if the voltage and the feeding frequency correspond to those showed on the characteristics' label, the feeding system has the earthing and the switch is in OFF;
- It's necessary to have near the printer a sufficient place for a suitable space for ventilation and for standard printing operation and maintenance.



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# **1.1 INTRODUCTION**

The DPT282PLM has a wide range of uses in addition to the standard printing ones :

- High printing speed : 50mm/sec. (Draft mode)
- Easy paper change ( autoload ). .
- ESC/POS and CUSTOM DPT emulation.
- Bar code UPC-A. UPC-E. EAN13. EAN8. CODE39. ITF. CODABAR. CODE93. • CODE128 and CODE32.
- 6 standard and international characters fonts. •
- Font completely or partly programmable. .
- Double width-height, guadruple width-height, emphasized, script, inched 180°. •
- Reception buffer 2Kbytes. .
- Definition of macro function for automatic repetition of the operations. .
- Internal programmable counter. .
- Image mode. .
- Print density. .
- 1 programmable logo (448 x 292 dots). ٠

#### Options :

- Paper cutting. ٠
- Paper out of setting.
- Windows<sup>™</sup> Driver.

# **1.2 GENERAL FEATURES :**

Double height and width	3,4 x 6	2,4 x 6
Quadruple height	6,8 x 3	4,8 x 3
Quadruple width	1,7 x 12	1,7 x 12
Quadruple height and width	6,8 x 12	4,8 x 12
Print direction	Normal e Reverse	
Character's Set	2	
CUSTOM 24/42 Emulation:		
Columns number	24	42
Print speed		
Characters/sec	320	560
Lines/sec	13,3	13,3
Character		
Normal	2 x 3	1,2 x 3
Double height	4 x 3	2,4 x 3
Double width	2 x 6	1,2 x 6
Double height and width :	4 x 6	2,4 x 6
Quadruple height	8 x 3	4,8 x 3
Quadruple width	2 x 12	1,7 x 12
Quadruple height and width	8 x 12	4,8 x 12
Print direction	Normal e Reverse	
Character's Set	4	

### **1.3 FRONT PANEL**

The FEED and PRINT keys and a green indicator light are on the front panel.

- Pressing the FEED key, printer carries out paper feed which can be used to insert paper in printing mechanism. Pressing the key once gives double paper feed. During the switch on phase, if you hold the FEED key down the printer performs the FONT TEST.
- During the switch on phase, if you hold down PRINT, the printer carries out the GRAPHIC TEST with programmable logo.
- During the switch on phase, if you hold down the PRINT and FEED key, the printer goes in Print Setup, After printer setup report, the printer waits a button pressed, or characters from serial port ; every 10 chars, prints hex values and ASCII codes (if characters are underline, the receive buffer is in the full state), see Hexadecimal Dump.

With FEED button, the printer skips setup mode and ends Hexadecimal Dump function. With PRINT button, the printer goes into the parameters setting mode. The variables are:

- Printer ID : 1 63.
- Printer emulation : ESC/POS, CUSTOM DPT24 or CUSTOM DPT42.
- Baud Rate : 1200, 2400. .
- Autofeed : CR disabled or CR enabled.
- Print mode : Normal or Reverse.
- Height mode : x1, x2 or x4.



- Width mode : x1, x2 or x4.
- Justification : Left, Center or Right.

If ESC/POS :

- Font dimension : 14x24 32 cols. or 10x24 42 cols. If CUSTOM DPTxx :
- Font type : Font A or Font B.
- **Speed/Quality :** Normal, Draft or High Quality.
- Red Printing : Disabled, Enabled.
- Print Density : Normal, Light, Very light, Dark, Very dark or Double copy.
- The green led visualizes the hardware error state of the printer. Check is performed "on line", which is to say, in cases of malfunction the led will start to flash in accordance with the following table:

I ED state	Description
	Description
Always off	Printer OFF
Always on	Printer ON - no faults - receive mode
Slow flash (long on)	Paper out message
Slow flash (short on)	Head up
3 flash	Transmit mode
Fast flash	Over temperature

# 1.4 HEXADECIMAL DUMP

This function prints the data transmitted from the host computer in hexadecimal numbers and in their corresponding ASCII characters.

<Example printing from the Printer Setup>





#### DESCRIPTION 1.

#### 1.5 CHARACTER SET

The printer has six fonts of 224 characters (two font for each emulation).

ESC/POS Emulation (PC437 USA, Standard Europe)

# Font A ESC/POS

### 0123456789ABCDEF



# Font B FSC/POS 0123456789ABCDEF

!"#\$%&`()\*+.-./ 0123456789:::<=>? 3 **CABCDEFGHIJKLMNO** ۸ PORSTUVWXYZ[\]^\_ 5 `abcdeighijKimno 6 parstuvwxyz(1)~ 7 CüeāäaacêëeïiiĂA 8 EzelőödűúyÖÜ¢£¥Ptf 9 aiounN"25-XXI«» A ┊┊╡╡╢╖╕╣║╗╝╜╛┑ └┵┯┝╌┽┝╠╙╔┹┱╠═╡╞═ В ╨┯╥╙╘╒╓╢┿╵┍╫┈╢ n F αβΓπΣσμτΦθΩδ=ØεΛ

=<u>+</u>≥≤{|+≈°\*\*√<sup>n</sup>28

F



#### 2 0123456789:::<>>? 3 **CABCDEFGHIJKLMNO** PORSTUYWXYZ[\]^\_ 5 6 DabcdefghijKlmno pqrstuvwxyz°±µΩ≠ 7 8 CuéâäààcêëeïîìÀA Ealocouvy00cf§Pt/ 9 áióúñѪ°Ĺr¬XXI«» A ┊┊**╫**│┽┥╣╖┑╣║╔╝╜╛┑ └┵┑┾**╌┽╞╟╚╓┻╦╠═┥┝╧** R C ╨┯╥╙╘╒╓╢┿┙┍╋┻ n E αβΓπΣσυτΦθΩδαΦεΛ =±25[]+\*\*\* \/" 2At F

**Custom DPT42 Emulation** 

# Font B DPT42

#### 0123456789ABCDEF

2	!"#\$%&`()++,/
3	0123456789:;<->?
4	ØABCDEFGHI JKLMNO
5	PORSTUVWXYZI \1^_
6	`abcdefghijklano
7	pqrstuvwxyz{{}~o
8	ABBEILEN SMAKINHON
9	РСТУФХЦУШЬЫЬЗОЯ
A	абвглежзийклиноп
B	
С	┶┵┥╞╾┥┝╟╘╻╔╝╗╡╧┥
D	╨┯╥╙╘╒╓╬┿┘╷╉╻┨┣╹
Ë	РСТУФХЦУШНЫВ ЗЮЯ
F	[]±≥≤[]+≅°. √"*∎[

**Custom DPT24 Emulation** 

#### Font A DPT24 0123456789ABCDEF 2 !"#\$%&`()\*+,-,/ 3 0123456789:;<=>? 4 **GABCDEFGHIJKLMNO** PQRSTUVWXYZ[\]^\_ 5 6 Φabcdefghijk|mno 7 pqrstuvwxyz°±µΩ≠ 8 aaaçêeeîtiaa Çüéâ 9 澮ÓÖÓûûÿÖÜc£§Ptf a100000 \*2--%% . «» A ▓▓▋▎┥╡╢╖╕╣║╗╝╜╛┐ В └┸┯┝╧┽╞╠╚╔╩╦╠═╬╧ ╨╤╥╙╘╒╓╫╪┘┌**╢<sub>╔╏</sub>╏║** С D Ε αβΓπΣσμτΦ9Ωδ∞φεΛ F $=\pm \geq \leq (J + \approx^{\circ} \cdot \lambda \sqrt{n^2} \Delta \uparrow)$

#### Font B DPT24

0123456789ABCDEF

2	!"#\$%&`()*+,/
3	0123456789:;<=>7
4	<b>GABCDEFGHIJKLMNO</b>
5	PORSTUVWXYZ1\]^_
6	'abcdefghijklmno
7	pgrstuvwxyz{ }~△
8	АВВГПЕЖЗИЙКИМНОП
9	РСТУФХЦЧШШЬЫЬЗЮЯ
A	абвгдежЗИЙКЛМНОП
В	<b>░∰∰│┥╡╢╖╕╣╢╗╝╜╛┑</b>
С	كتب احمله والعار والعار والمساح
Ď	╩╤╦╙╘╒╓╫╪┚┌╬╩╝
Ē	РСТУФХЦЧШШЬЫБЗЮЯ
Ē	∐±≥≤∫∫+≃°, √ <sup>n</sup> ²∰↑



# 1.6 CHANGING THE PAPER ROLL (Autoload)

To change the paper roll in a printer without autocutter, proceed as follows :

1) open the upper cover and position the paper roll so that it rotates in the right direction;



Head lever raised

2) Raise the head lever to lift the print head ;

3) insert the end of the roll in the print mechanism opening and wait until the roll autoloads ;





4) Lower the head lever and press the FEED key so that a few centimetres of paper feeds out of the printer ;



6) Tear the paper off



To change the paper roll in a DPT281 printer with autocutter proceed as follows :

1) open the upper cover and position the paper roll so that it rotates in the right direction;





2) Raise the head lever to lift the print head ;



3) insert the end of the roll in the print mechanism opening and wait until the roll autoloads ;



4) Lower the head lever and press the FEED key so that a few centimetres of paper feeds out of the printer ;



5) Tear the paper off.





6) Close the cover.



7) The printer is ready to print.





# 2. ESC/POS<sup>™</sup> COMMAND DESCRIPTION

The following table lists all the commands for function management in ESC/POS Emulation of the DT282PLM printer. The commands can be transmitted to the printer at any moment, but they will only be carried out when the commands previously are executed. There are no commands with priority status; all the commands are carried out when the circular buffer is free to do so.

Command	Name
HT	Horizontal tab
LF	Print and line feed
BS	Back space
CR	Print and carriage return
CAN	Cancel print data in page mode
ESC SP	Set character right-side spacing
ESC !	Set print mode
ESC \$	Set absolute position
ESC %	Select/cancel user-defined character set
ESC &	Define user-defined characters
ESC *	Set bit image mode
ESC -	Turn underline mode on/off
ESC 0	Select 1/8-inch line spacing
ESC 2	Set 1/6-inch line spacing
ESC 3	Set line spacing using minimun units
ESC 4	Set/reset script mode
ESC =	Select device
ESC ?	Cancel user-defined characters
ESC @	Initialize printer
ESC D	Set horizontal tab positions
ESC E	Select emphasized mode
ESC G	Select double-strike mode
ESC J	Print and feed paper using minimum units
ESC R	Select international character set
ESC \	Set relative print position
ESC a	Select justification
ESC c 5	Enable/disable panel buttons
ESC d	Print and feed paper <i>n</i> lines
ESC i	Total cut
ESC m	Partial cut
ESC t	Select character code table
ESC x	Select speed/quality mode
ESC {	Set/cancel upside-down character printing
ESC ·	Print graphic bank
GS !	Select character size
GS :	Set starting/end of macro definition
GS B	Turn white/black reverse printing mode on/off
GS C 0	Select counter print mode
GSC1	Select count mode ( A )

GS C 2	Set counter
GSC;	Select count mode ( B )
GS H	Select printing position of HRI characters
GS L	Set left margin
GS P	Set horizontal and vertical motion units
GS W	Set printing area width
GS ^	Execute macro
GS c	Print counter
GS f	Select font for HRI characters
GS h	Select height of bar code
GS k	Print bar code
GS w	Select horizontal size (magnification) of bar code
GS ~	Set exponent/deponent
GS	Set printing density



# 2. ESC/POS<sup>™</sup> COMMAND DESCRIPTION

### **Description of the paths:**

#### XXX Command. [Name] Command name

[Format ]Codes sequence.

In this description, <>H is for an hexadecimal number, <>A for an ASCII character, < > is for a decimal number and < >B a binary number.

[] k is for the contents of [] which can be repeated k times. [Range] Describes the range of the contents.

Description of the command function. [Description]

[Notes] (Included only if necessary).

[Default] Commands default value.

[Reference] References for linked commands. [Example] Example for use of command.

### HT

[Name]	Horizontal tab
[Format]	ASCII HT
	Hex 09
	Decimal 9
[Description]	Moves the print position to the next horizzontal tab position.
	This command is ignored unless the next horizzontal tab position has
	been set.
[Notes]	<ul> <li>Horizzontal tab positions are set using ESC D.</li> </ul>
	• If the command is received when the printing position is at right margin, the printer executes print buffer full printing and horizzontal tab processing from the beginning of the next line.
[Default]	
[Reference]	FSC D

[Reference] [Example]

#### LF [Name] Print and line feed ASCII LF [Format] 0A Hex Decimal 10 Prints the data in the buffer and feeds one line based on the current [Description] line spacing. [Notes] The command set the print position to the beginning of the line. [Default] [Reference] ESC 2, ESC 3 [Example]

### **BS**

[Name]	Back space
[Format]	ASCII BS
	Hex U8
	Decimal 8
[Description]	Moves print position to previous character.
[Notes]	This command can put two character at the same position.
[Default]	
[Reference]	
[Example]	

### CR

[Name]	Carriage return
[Format]	ASCII CR
	Hex 0D
	Decimal 13
[Description]	When autofeed is 'CR enabled', this command functions in the same way as <b>LF</b> , else it is disregarded.
[Notes]	The command set the print position to the beginning of the line.
[Default]	
[Reference]	LF
[Example]	

### CAN

[Name]	Cancel print data buffer
[Format]	ASCII CAN
	Hex 18
	Decimal 24
[Description]	Deletes all the print data in the current print buffer.
[Notes]	The command set the print position to the beginning of the line.
[Default]	
[Reference]	
[Example]	

### ESC SP n

[Name]	Set right-side character spacing
[Format]	ASCII ESC SP n
	Hex 1B 20 n
	Decimal 27 32 n
[Range]	$0 \le n \le 255$
[Description	Set the character spacing for the right side of the character to $[n \times horizonta]$
]	or vertical motion units].
[Notes]	• The right character spacing for double-width mode is twice the normal value.
	When the characters are enlarged, the right side character spacing is m (2



#### ESC/POS™ COMMAND DESCRIPTION 2.

or 4) times the normal value.

- The horizzontal and vertical motion unit are specified by GS P. Changing the horizzontal or vertical motion unit does not affect the current right side spacing.
- The GS P command can change the horizontal (and vertical) motion unit.
- However, the value cannot be less than the minimum horizontal movement amount.
- In standard mode, the horizontal motion unit is used.
- The maximum right side spacing is 255/200 inches.

```
[Default]
              n = 0
```

```
[Reference] GS P
```

[Example]

ESC ! n	
[Name]	Select print modes
[Format]	ASCII ESC ! n
	Hex IB 21 N Decimal 27 23 n
[Range]	0 < n < 255
[Description	Select print modes using <i>n</i> (see following tables):
[Notes]	• The printer can underline all characters, but can not underline the space set by <b>HT</b> , <b>ESC \$</b> , <b>ESC</b> \ and 90° clockwise rotated characters.
	•When characters are enlarged with different heights on one line, the characters are alligned at the baseline or topline (see <b>GS</b> ~).
	• The command reset left and right margin at default value (see GS L, GS W).
	• ESC E can also turn on/off emphasized mode. Howener, the setting of the last received command is effective.
	• ESC - can also turn on/off underline mode mode. Howener, the setting of the last received command is effective.
	• ESC 4 can also turn on/off script mode. Howener, 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.

[Default]

#### n = 0 [Reference] ESC -, ESC E, ESC 4, GS !

[Example]

				-
Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A (14x24) selected.
	On	01	0	Character font B (10x24) selected.
1	-	-	-	Undefined.
2	-	-	-	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double heigth mode not selected.

2 - 3



	On	10	16	Double heigth mode selected.
5	Off	00	0	Double width mode not selected.
	On	20	32	Double width mode selected.
6	Off	00	0	Script mode not selected.
	On	40	64	Script mode selected.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

# ESC \$ nL nH

[Name]	Set absolute print position
[Format]	ASCII ESC \$ nL nH
	Hex 1B 24 nL nH
	Decimal 27 36 nL nH
[Range]	$0 \le nL \le 255$
	$0 \le nH \le 255$
[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 $[(nL + nH \times 256) \times (vertical or horizontal motion unit)]$ inches.
[Notes]	• Settings outside the specified printable area are ignored.
	• The horizzontal and vertical motion unit are specified by GS P.
	• The <b>GS P</b> command can change the horizontal (and vertical) motion unit
	However, the value cannot be less than the minimum horizontal movement
	amount.
	<ul> <li>In standard mode, the horizontal motion unit (x) is used.</li> </ul>
	• If setting outside the printing area width, set absolute print position, but left or right margin is set at default value.
[Default]	
[Reference] [Example]	ESC  GS P

# ESC % n

[Name]	Select/Cancel us	ser-defir	ned char	acter se	t	
[Format]	ASCII	ESC	%	n		
	Hex	1B	25	n		
	Decimal	27	37	n		
[Range]	0 ≤ n ≤ 255					
[Description]	Selects or cance	els the u	ser-defi	ned char	racter set.	
	When the Least Significant Bit (LSB) of n is 0, the user-defined character					
	set is canceled.	-				
	When the LSB of	of n is 1,	the use	r-defined	d character set is selected.	
[Notes] • Only the LSB of n is effective.						
	• When the user-defined character set is canceled, the internal character					
	set is automatically selected.					
	With user-defined characters, ram bank is erased.					
[Default]	n=0					
[Reference]	ESC &, ESC ?					

#### ESC/POS<sup>™</sup> COMMAND DESCRIPTION 2.

[Example]									[Example]
ESC & y	<sup>,</sup> c1 c2 [x1	d1c	l(y ×	x1)]	.[xkd1	d(y	imes xk)]		
[Name] [Format] [Range]	Defined user-of ASCII Hex Decimal y = 3 $32 \le c1 \le c2 \le c2$	defined ch ESC 1B 27 126	aracters & 26 37	з. У У У	c1 c1 c1	c2 c2 c2			
	$0 \le x \le 14$ (For	$\leq$ x $\leq$ 14 (Font A( 14 $\times$ 24))							
	$0 \le x \le 10$ (For	nt B( 10 ×	24))						
[Description]	$0 \le d1 \dots d(y)$ k = c2 - c1 + 1 Defined user-o	× xk) ≤ 25 defined ch	5 aracters	s.					
	y specifies the C1 specifies specifies the fi	the begin nal code.	of byte in nning cl	the ver haracter	tical direc code fo	tion. r the de	efinition, a	nd c2	
[Notes]	• The allowabl 7EH (126) (9	e charact	er code ers).	the rang	ge is from	n ASCII d	ode 20H (	32) to	ESC *
	<ul> <li>It is possible to define multiple character for consecutive character codes.</li> <li>If only one character is desired, use c1 = c2.</li> </ul>					odes.	[Name] [Format]		
	<ul> <li>d is the dot direction from</li> </ul>	data for t n the left s	he chara ide. Any er-define	acters. 7 / remain	rhe dot p ing dots o cter is ( x	attern is n the rigi × v) byte	in the hori nt side are s.	zontal blank.	[Range]
	<ul> <li>set a corresponding bit to 1 to print a dot or 0 to no print a dot.</li> <li>this command can defined different user-defined character patterns by</li> </ul>							ns by	Descriptio
	<ul> <li>each tonts. To select the font, use <b>LSC</b> !.</li> <li>A user-defined character and a downloaded bit image cannot be defined simultaneously. When this command is executed, the downloaded bit</li> </ul>							efined ed bit	[Descriptio
	image is clear • The user-def	ared. ined chara	acter de	finitions	is cleared	when :			-
	GS * is execut	ed;							_
	ESC ? is exec	uted ;							
[Default]	The printer is I	reset or th naracter s	e power et.	is turne	d off.				

[Reference] ESC %, ESC ?



# \* m nL nH [d1... dk]

[Name]	Select bit image-	mode.				
[Format]	ASCII	ESC	*	m	nL	nH
	Hex	1B	2A	m	nL	nH
	Decimal	27	42	m	nL	nH
[Range]	m = 0, 1 ,32, 33					
	$0 \le nL \le 255$					
	$0 \le nH \le 1$					
	$0 \leq d \leq 255$					

iption] Selects a bit image-mode usin m for the number of dots specified by nL and *nH*, as follows :

		Vertical Di	irection	Horizontal Direction (* 1)		
m	Mode	N. Dots	DPI	DPI	Number of Data (k)	
0	8 dot single density	8	67	100	nL + nH × 256	
1	8 dot double density	8	67	200	nL + nH × 256	
32	24 dot single density	24	200	100	$(nL + nH \times 256) \times 3$	
33	24 dot double density	24	200	200	$(nL + nH \times 256) \times 3$	

[Notes]

- The *nL* and *nH* indicated the number of dots of the bit image in the horizontal direction. The number of dots is calculated by  $nL + nH \times 256$ .
- If the bit image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
- d indicates the bit image data. Set a corresponding bit to 1 to print dot or to 0 to not print dot.
- If the values of *m* is out of the specified range, *nL* and data following are



# 2. ESC/POS™ COMMAND DESCRIPTION

processed as normal data.

- If the width of the printing area set by **GS L** and **GS W** less then the widht required by the data sent width the **ESC** \* command, the exceed data are ignored.
- To print the bit image use LF, CR, ESC J or ESC d.
- After printing a bit image, the printer return to normal data processing mode.
- This command is not affected by prints mode emphasized, double-strike, and underline ( etc. ), except upside down mode.
- The relationship between the image data and the dots to be printed is as follows :



# ESC - n

[Default] [Reference] [Example]

[Name]	Turn underlir	e mode on	/off.	
[Format]	ASCII	ESC	-	n
	Hex	1B	2D	n
	Decimal	27	45	n
[Dongo]	0 < - < 0 10	< - < FO		

[Range]  $0 \le n \le 2, 48 \le n \le 50$ 

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

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

[Notes] • The printer can underline all characters, but cannot underline the space

set by  $\ensuremath{\text{HT}}$  and right-side character spacing.

- The printer cannot underline 90° clockwise rotate 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.
- 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** ! [Example]

### ESC 0

Name]	Select 1/8-inch line spacing.			
Format]	ASCII	ESC	0	
	Hex	1B	30	
	Decimal	27	48	
Description]	Selects 1/8-inch	line space	ing.	
Notes]				
Default]				
Reference]	ESC 2, ESC 3			
Example]				

### ESC 2

[Name]	Select 1/6-inch line spacing.			
[Format]	ASCII	ESC	2	
	Hex	1B	32	
	Decimal	27	50	
[Description]	Selects 1/6-inch	line spa	icing.	
[Notes]				
[Default]				
[Reference]	ESC 0, ESC 3			
[Example]				

### 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 spa	cing to [	n × (verti	al or horizontal	motion unit)] inches.
[Notes]	<ul> <li>The horizzontal the horizzontal spacing.</li> <li>The GS P common However, the variation amount.</li> <li>In standard model</li> </ul>	and ver or vertion mand car lue cann de, the ve	tical moti cal motion n change not be les ertical mo	on unit are spec n unit does no the horizontal (a s than the mini tion unit is used	ified by <b>GS P</b> . Changir t affect the current lir and vertical) motion unit mum vertical moveme



# 2. ESC/POS<sup>™</sup> COMMAND DESCRIPTION

• The maximum line spacing is n = 255 ( $\cong 32$ mm). [Default] n = 32 (1/6 inch) [Reference] **ESC 0**, **ESC 2**, **GS P** [Example]

# ESC 4 n

[Name]	Set / Reset s	Set / Reset script mode.								
[Format]	ASCII	. ESC	4	n						
	Hex	1B	34	n						
	Decimal	27	52	n						
[Range]	0 < n < 1 48	< n < 49								

[Description] Turn script mode on or off, based on the following values of *n* :

n	Function
0, 48	Turns off script mode
1, 49	Turns on script mode

[Notes] • The printer can print in script mode all characters.

• When script mode is turned off by setting the value of *n* to 0 or 48, the following data is printed in normal mode.

• Script mode can also be turned on or off by using **ESC** !. Note, however, that the last received command is effective.

n

n

n

 $\begin{bmatrix} Default \end{bmatrix} n = 0$ 

[Reference] ESC !

[Example]

# ESC = n

[Name] Select peripheral device. [Format] ASCII ESC Hex 1B Decimal 27

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

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

=

3D

61

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Printer disabled
	On	01	1	Printer enabled
1	-	-	-	Undefined
2	-	-	-	Undefined
3	-	-	-	Undefined
4	-	-	-	Undefined
5	-	-	-	Undefined
6	-	-	-	Undefined
7	-	-	-	Undefined



[Notes] • When the printer is disabled, it ignores all transmitted data until the printer is enabled by this command.

[Default] n = 1 [Reference] [Example]

### ESC?n

[Name]	Cancel user-defi	ned char	acters.	
[Format]	ASCII	ESC	?	n
	Hex	1B	3F	n
	Decimal	27	63	n
[Range]	$32 \le n \le 126$			
[Description]	Cancels user-de	fined cha	racters.	
[Notes] [Default]	<ul> <li>This command specified by r corresponding</li> <li>This command code in the font</li> <li>If user-defined code, the printer</li> </ul>	d cancel After pattern fo deletes t selecteo characte r ignores	s the p the us or the inte the pat by <b>ESC</b> r has not this con	attern defined for the character code er-defined characters is canceled, the ernal character is printed. tern defined for the specified character !. been defined for the specified character mand.
[Reference] [Example]	ESC &, ESC %			
ESC @				

Initialize printer.			
ASCII	ESC	@	
Hex	1B	40	
Decimal	27	64	
Clears the data	in the pri	nt buffer and	reset the printer mode to the mode
that was in effect	t when th	e power was to	urned on.
• The data in the	receive l	ouffer is not cle	eared.
• The macro defi	nitions ar	e not cleared.	
	Initialize printer. ASCII Hex Decimal Clears the data that was in effect • The data in the • The macro defi	Initialize printer. ASCII ESC Hex 1B Decimal 27 Clears the data in the pri that was in effect when th • The data in the receive I • The macro definitions ar	Initialize printer. ASCII ESC @ Hex 1B 40 Decimal 27 64 Clears the data in the print buffer and that was in effect when the power was the • The data in the receive buffer is not cleared.

# ESC D [n1...nk] NUL

[Name]	Set horizontal tab positions.								
[Format]	ASCII	ÉSC	D	NUL					
	Hex	1B	44	00					
	Decimal	27	68	0					
[Range]	1 ≤ n ≤ 255								
	$0 \le K \le 32$								
[Description]	Sets horizontal t	ab positi	ons.	r aatting a baringstal ta					

 $\boldsymbol{n}$  specifies the column number for setting a horizontal tab position from the

#### ESC/POS<sup>™</sup> COMMAND DESCRIPTION 2.

beginning of the line.

k indicates the total number of horizontal tab positions to be set.

- The horizontal tab position is stored as a value of [character width  $\times n$ ] measured from the beginning of the line. The character width includes the righh-side character spacing, and double-width characters are set width twice the width of normal character.
  - This command cancel the previous horizontal tab setting.
  - When setting n = 8, the print position is moved to column 9 by sending HT.
  - Up to 32 tab position ( k = 32) can be set. Data exceeding 32 tab positions is processed has 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 position.
  - The previously specified horizontal tab position do not change, even if the
  - character width changes.
- The default tab positions are at intervals of 8 characters ( columns 9, 17, [Default] 25, ...) for Font A when the right-side character spacing is 0.

[Notes]

[Reference]

HT

[Example]

# ESC E n

[N I a use a ]	Turne enclosed		2-104					
[IName]	i urn emphasized	a mode C	Jn/Oπ.					
[Format]	ASCII	ESC	E	n				
	Hex	1B	45	n				
	Decimal	27	69	n				
[Range]	$0 \le n \le 255$							
[Description]	Turns emphasize	ed mode	On or O	ff.				
	When the LSB	of <i>n</i> is 0,	emphas	sized m	ode is tu	rned off.		
	When the LSB	of <i>n</i> is 1.	emphas	ized m	ode is tu	rned on.		
[Notes]	Only the LSB o	f n is effe	ective.					
[]	• ESC Lalso turr	ns on an	d off em	nhasize	ed mode	Hower	the last r	eceived
	command is eff	fective.		pridoize	sa mouo.	. Hower,		0001100
[Default]	n = 0							
[Reference]	ESC !							
[Fxample]								
[Description] [Notes] [Default] [Reference] [Example]	Turns emphasize • When the LSB • When the LSB o • Only the LSB o • ESC ! also turn command is eff n = 0 ESC !	ed mode of <i>n</i> is 0, of <i>n</i> is 1, f <i>n</i> is effe is on and fective.	On or O emphas emphas ective. d off em	ff. sized m sized m phasize	ode is tui ode is tui ed mode.	rned off. rned on. . Hower,	the last r	eceive

# ESC G n

[Name]	Turn double-strike mode On/Off.								
[Format]	ASCII	ESC	G	n					
	Hex	1B	47	n					
	Decimal	27	71	n					
[Range]	0 ≤ n ≤ 255								
[Description]	Turns double-str	ike mode	e On or (	Off.					
	When the LSB	of <i>n</i> is 0	, double-	strike mode is turned off.					

• When the LSB of *n* is 1, double-strike mode is turned on.

[Notes] • Only the LSB of *n* is effective.

• Printer uotput is the same in double-strike mode and emphasized mode. n = 0

[Reference] ESC E [Example]

### ESC J n

[Default]

[Name]	Print and feed p	aper.									
[Format]	ASCII	ESC	J	n							
	Hex	1B	4A	n							
	Decimal	27	74	n							
[Range]	$0 \le n \le 255$										
[Description]	Prints the data	in the p	rint buf	fer and fe	eeds the paper [ n $ imes$ ( vertical or						
	horizontal motio	n unit)] i	nches.								
[Notes]	<ul> <li>After printing i</li> </ul>	s compl	eted, thi	is comma	and sets the print starting position						
	to the beginnir	to the beginning of the line.									
	• The paper fee	d amour	nt set by	y this con	nmand does not affect the values						
	set by ESC 2 o	or ESC 3	•								
	<ul> <li>The horizzonta</li> </ul>	al and ve	rtical mo	otion unit	are specified by <b>GS P</b> .						
	• The GS P com	mand ca	an chang	ge the ve	rtical (and horizontal) motion unit.						
	However, the vanishing amount.	alue car	inot be	less than	the minimum vertical movemen						
	<ul> <li>In standard model</li> </ul>	ode, the	vertical	motion ur	nit is used.						
	• The maximum	paper fe	ed amo	unt 31.8 i	mm.						
[Default]		• •									
[Reference]	GS P										
[Example]											
ESC R n	1										
[Name]	Select an intern	ational c	haracte	r set.							
[Format]	ASCII	ESC	R	n							

linamej	Select an inte	rnational c	naracte	r set
[Format]	ASCII	ESC	R	r
	Hex	1B	52	r
	Decimal	27	82	r
[Range]	0 ≤ n ≤ 12			

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

	Hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
n	Character set												
0	U.S.A.	#	\$	@	[	١	]	۸	`	{		}	~
1	France	#	\$	à	0	Ç	§	۸	`	é	ù	è	"
2	Germany	#	\$	§	Ä	Ö	Ü	۸	`	ä	Ö	ü	β
3	U.K.	£	\$	@	[	١	]	۸	`	{		}	~
4	Denmark I	#	\$	@	Æ	Ø	Å	۸	`	æ	¢	å	~
5	Sweden	#	Ø	É	Ä	Ö	Å	Ü	é	ä	Ö	å	ü
6	Italy	#	\$	@	0	١	é	۸	ù	à	Ò	è	ì
7	Spain 1	Pt	\$	@	i	Ñ	j	۸	``	"	ñ	}	~



#### ESC/POS™ COMMAND DESCRIPTION 2.

8	Japan	#	\$	@	[	¥	]	۸	`	{		}	~
9	Norway	#	Ø	É	Æ	Ø	Å	Ü	è	8	¢	å	ü
10	Denmark II	#	\$	É	Æ	Ø	Å	Ü	è	8	¢	å	ü
11	Spain 2	#	\$	à	i	Ñ	j	é	`	Í	ñ	Ö	ü
12	South America	#	\$	à	i	Ñ	j	é	ù	í	ñ	Ö	ü

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

# ESC \ nL nH

[Name]	Set relative print position.								
[Format]	ASCII	ESC	١	nL	nH				
	Hex	1B	5C	nL	nH				
	Decimal	27	92	nL	nH				
[Range]	$0 \le nL \le 255$								
	$0 \le nH \le 255$								
[Description]	Sets the print sta	arting po	sition ba	sed on tl	he current position by using the				
	horizontal or vert	horizontal or vertical motion unit.							
	<ul> <li>This command</li> </ul>	sets the	distance	from the	current position to				
	$[(nL + nH \times 256)]$	$\phi$ ) × (horizontal or vertical motion unit)].							
[Notes]	<ul> <li>Any setting that</li> </ul>	t exceeds	the prin	table are	a is ignored.				
	When the starti	ng positio	on is spe	cified by	N motion unit to the right :				
	nL + nH × 256 =	= N							
	When the startin	g positio	n is spec	ified by N	I motion unit to the left (negative				
	direction), use i $nL + nH \times 256 =$	ne comp = 65536 -	iement o · N	1 65536 :					
	<ul> <li>If setting excee</li> </ul>	ds printir	ng area y	vidth. left	or right margin is set to default				
	value.	ao pinin	.9						
	<ul> <li>The horizzontal</li> </ul>	and vert	ical motio	on unit ar	re specified by <b>GS P</b> .				
	• The GS P command can change the horizontal (and vertical) motion uni								
	However, the val	ue canno	ot be less	than the	e minimum horizontal movement				
	amount.								
	<ul> <li>In standard mo</li> </ul>	de, the h	orizontal	motion u	nit is used.				

### [Default]

[Reference] ESC \$, GS P [Example]

# ESC a n

[Name]	Select justification	Select justification.					
[Format]	ASCII	ESC	а	n			
	Hex	1B	61	n			
	Decimal	27	97	n			
[Range]	$0 \le n \le 2, 48 \le n \le 50$						
[Description]	Aligns old the data in one line to the specified position. <i>n</i> selects the type of justification as follows :						

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

[Notes] • The command is enabled only when input at the beginning of the line.

• Lines are justified within the specified printing area.

• Spaces set by HT, ESC \$ and ESC \ are old justified.

n = 0 [Default]

[Reference]

[Example	e]
----------	----

Left justification	Centering	Rigth justification
ABC	ABC	ABC
ABCD	ABCD	ABCD
ABCDE	ABCDE	ABCDE

### ESC c 5 n

[Name]	Enable/disable p	Enable/disable panel buttons.						
[Format]	ASCII	ESC	С	5	n			
	Hex	1B	63	35	n			
	Decimal	27	99	53	n			
[Range]	0 ≤ n ≤ 255							
[Description]	Enables or disab	les the p	anel butt	ons.				
	When the LSB	of <i>n</i> is 0,	the pane	el buttons	are enabled.			
	• When the LSB of <i>n</i> is 1, the panel buttons are disabled.							
[Notes]	<ul> <li>Only the LSB o</li> </ul>	f <i>n</i> is effe	ective.					
	<ul> <li>In theprinter, th</li> </ul>	e panel b	outtons a	re the FE	ED and PRINT buttons.			
	• When the pane	butons	are disab	oled, only	at reset printer are available.			
[Default]	n = 0			, ,	·			
[Reference]								
[Example]								

### ESC d n

	[Name]	Print and feed pa	Print and feed paper <i>n</i> lines.				
	[Format]	ASCII	ESC	d	n		
		Hex	1B	64	n		
		Decimal	27	100	n		
	[Range]	0 ≤ n ≤ 255					
	[Description]	Prints the data ir	n the prin	t buffer a	and feeds the paper <i>n</i> lines.		
	[Notes]	• This comand se	ets print s	starting p	position at the beginning o fthe lines.		
		• This comand d	oes not a	ffect the	line spacing set by ESC 2 or ESC 3.		
<ul> <li>The maximum paper amount of more than lines.</li> </ul>				eed amo 10 lines is	ount is 200 lines. Even if a paper feed s set, the printer feeds the paper only 200		

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# 2. ESC/POS<sup>™</sup> COMMAND DESCRIPTION

### [Default]

[Reference] ESC 2, ESC 3 [Example]

### ESC i

[Name]	Total cut.					
[Format]	ASCII	ESC	i			
	Hex	1B	69			
	Decimal	27	105			
[Description]	This command e	enables	cutter	operation; if the	here is no c	utter, a disabling
	flag is set and ar	ny subse	quent	cut commands	s will be igno	red.
[Notes]	• The printer waiting to complete all paper movement commands, before executes total cut.					
[Default]						
[Reference]						
[Example]						

### ESC m

[Name]	Partial cut.					
[Format]	ASCII	ESC	m			
	Hex	1B	6D			
	Decimal	27	109			
[Description]	This command enables partial cutter operation; if there is no cutter, a disabling flag is set and any subsequent cut commands will be ignored.					
[Notes]	<ul> <li>The printer waiting to complete all paper movement commands, before executes partial cut.</li> </ul>					
[Default]						
[Reference] [Example]						

# ESC r n

[Name]	Set/Reset red printing mode.				
[Format]	ASCII	ESČ	r	n	
	Hex	1B	72	n	
	Decimal	27	114	n	
[Range]	$0 \le n \le 1, 48 \le n \le 49$				
Description]	Sets and resets negative mode				

n	Function
0, 48	Reset red printing mode
1, 49	Set red printing mode

[Notes] • The printer print red only complete line, not single character.

• The printer print red only if enabled by setup. n = 0

[Default] [Reference] [Example]



### 2 - 9

### ESC t n

					_
[Name]	Select chara	cter code ta	ble.		
[Format]	ASCII	ESC	t	n	
	Hex	1B	74	n	
	Decimal	27	116	n	
[Range]	<i>n</i> = 0, 255				
[Description]	Selects a page	ge <i>n</i> from th	e charad	cter code table, as follows	s
		-			
	n	Page			Γ
	0	0 (PC43)	7 [U.S.A.	, Standard Europe])	l
	255	Space pa	age	• •/	l

[Notes]•[Default]n = 0[Reference]See Character Code Tables.

#### [Example]

### ESC x n

[Name]	Select speed /qu	ality mod	de.	
[Format]	ASCII	ESC	Х	n
	Hex	1B	78	n
	Decimal	27	120	n
[Range]	0 ≤ <i>n</i> ≤ 2			
[Description]	Selects printing	speed /qı	uality mo	de.
	NI		Г	a ati a n

N	Function
0	Draft mode (High speed)
1	Normal mode
2	High quality (Low speed)

```
[Notes] • In high quality mode (n = 2), the printer may be noisy.
[Default] n = 1
```

```
[Default]
[Reference]
[Example]
```

### ESC { n

[Name]	Turns upside-d	lown print	ing mod	e on/off.	
[Format]	ASCII	ESC	{	n	
	Hex	1B	7B	n	
	Decimal	27	123	n	
[Range]	0 ≤ n ≤ 255				
[Description]	Turns upside-d	own print	ing mode	e on or o	ff.
	When the LS	B of <i>n</i> is C	), upside	-down pr	inting mode is turned to off.
	When the LS	B of <i>n</i> is 1	, upside	-down pr	inting mode is turned to on.
[Notes]	<ul> <li>Only the LSB</li> </ul>	of n is eff	fective.	•	
	• This comman	d is enab	led only	when inc	out of the beginning of a line.

### 2. ESC/POS™ COMMAND DESCRIPTION

• In upside-down printing mode, the printer rotates the line to be printed by

180° and then prints it. n = 0

[Default] [Example]

kampiej

When upside-down mode is Off

When upside-down mode is Off





Paper Feed direction

# ESC · n xH xL yH yL

[Name]	Print graphic I	bank ( 448	imes 292 d	ots).				
[Format]	ASCII	ESC	•	'n	хH	хL	yН	уL
	Hex	1B	FA	n	хH	хL	уН	уL
	Decimal	27	250	n	хH	xL	ÿН	уL
[Range]	0 ≤ <i>n</i> ≤ 3							
	0 < xH xI vH	$\frac{1}{1}$ vI < 255						

[Description] Print graphic bank from flash or ram. *n* selects the bank as follows :

n	Function
0	Print ram bank.
1	Print flash bank logo 1

 $xL + xH \times 256$  specifies the starting dot line (1 ÷ 292).

 $yL + yH \times 256$  specifies the lines number to print.

[Notes] • If  $(xL + (xH \times 256)) > 292$  the printer does not execute the command. • If  $(xL + (xH \times 256) + yL + (yH \times 256)) > 292$  the printer prints only 292 -  $xL + (xH \times 256) + 1$  dotlines.

[Default]

[Reference] ESC 3, ESC 2, ESC |

[Example] To print from ram bank dotline 100 to dotline 290, send :

1BH FAH 00H 00H 64H 00H BEH

# GS ! n

[Name]	Select characte	r size.			
[Format]	ASCII	GS	!	n	
	Hex	1D	21	n	
	Decimal	29	33	n	
[Range]	0 ≤ n ≤ 255				
[Description]	Selects charact	er heigh	t and wid	dth, as follows :	
	• Bits 0 to 3 : character height selction ( see table 2 ).				
	• Bits 4 to 7 : character height selction ( see table 1 )				

Table 1 Character Width selection

Hex	Decimal	Width
00	0	1 (normal)
10	16	2 (double width)
20	32	3 (quadruple width)
30	48	
40	64	
50	80	
60	96	
70	112	

#### Table 2 Character Height selection

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

[Notes]

- This command is effective for all characters ( except for HRI characters ).
- If *n* is outside of the defined range this command is ignored.
- •When characters are enlarged with different heights on one line, the characters are alligned at the baseline or topline (see **GS** ~).
- ESC ! can also select character size. However, the setting of the last received command is effective.

[Default] n = 0 [Reference] **ESC** !

[Example]

### **GS** :

Name]	Start/end macro definition.				
Format]	ASCII	GS	:		
	Hex	1D	3A		
	Decimal	29	58		
Description]	Starts or ends m	nacro defi	nition		

[Description] Starts or ends macro definition. [Notes] • Macro definition starts when this

- Macro definition starts when this command is receiving 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 definitions and clears all definitions.
  - 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 definitions.
  - If the orinter receives **GS** : again immediately after previously receiving **GS** :, the printer remains in the macro undefined state.
  - The contents of the macro can be deifned up to 1024 bytes. If the macro definition exceeds 1024 bytes excess data is not stored.

[Default] [Reference] GS ^

[Example]

### GS B n

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



# 2. ESC/POS<sup>™</sup> COMMAND DESCRIPTION

[Format]	ASCII Hex Decimal	GS 1D 29	B 42 66	n n n			
[Range] [Description]	$0 \le n \le 255$ Turns white/blac • When the LSB	ck reverse of <i>n</i> is 0	e printing , white/bl	mode or ack reve	n or off. rse printii	ng is turned off.	
	When the LSB	of <i>n</i> is 1	, white/bl	ack reve	rse printii	ng is turned on.	
[Notes]	<ul> <li>Only the LSB of</li> <li>This comman character.</li> </ul>	of <i>n</i> is effe id is av	ective. ailable f	or built-	in chara	acter and user-defined	
	This command HRI characters     This command	l does no s, and spa l does no	t affect b acing ski t affect th	it image, pped by l	downloa HT, ESC	aded bit image, barcode, <b>\$</b> and <b>ESC</b> \.	
	White/black re Even if under white/black rev	everse m line mod	ode has e is on, de is sele	a highe it's disa	er priority bled ( bu	y than underline mode. ut not canceled ) when	
[Default] [Reference] [Example]	n = 0						
GS C 0 r	ו m						
[Name]	Select counter p	print mode	э.				-
[Format]	ASCII	GS 1D	C 42	0	n	m	
	Decimal	29	43 67	30 48	n	m	
[Range]	$0 \le n \le 5$ m = 0, 1, 2, 48,	49, 50					
Description]	<ul> <li>Selects a print n</li> <li>n specifies the when n = 0, 1 value.</li> <li>When n = 1 to</li> </ul>	node for to number the printe 5 5, this c	the serial of digit to er prints ommand	number be print the actua sets the	counter. ed as foll al digits i number	ows : ndicated by the number of digits to be printed.	
	<ul> <li>m specifies th as follows :</li> </ul>	e printing	g positior	n within t	he entire	e range of printed digits,	

m	Printign 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 meanings.







□ indicates a space

# GS C 1 aL aH bL bH n r

[Name]	Select count mo	de (A).								
[Format]	ASCII	GŚ	С	1	aL	aН	bL	bH	n	r
	Hex	1D	43	31	aL	aН	bL	bH	n	r
	Decimal	29	67	49	aL	aН	bL	bH	n	r
[Range]	0 ≤ aL, aH ≤ 255	5								
	$0 \le bL, bH \le 255$	5								
	0 ≤ n, r ≤ 255									
[Description]	Selects a count	mode for	the s	seria	ıl nur	nber	cou	nter.		
	<ul> <li>aL, aH or bL, b</li> </ul>	H specify	y the	coui	nter	range	Э.			
	• n indicates the	stepping	amo	ount	whei	n cou	Inting	g up	or o	down.
	<ul> <li>r indicates the</li> </ul>	repetitior	า nun	nber	whe	n the	cou	nter	valı	ue is fixed.
[Notes]	Count-up mode	e is spec	ified	wher	า:					
	[aL + (aH × 256)	] < [b <i>L</i> +	(b <i>H</i> :	× 25	6)] a	nd <i>n</i>	≠ 0 a	and <i>r</i>	≠ (	)
	Count-down me	ode is sp	ecifie	ed w	hen	:				
	[aL + (aH × 256)	] > [b <i>L</i> +	(b <i>H</i> :	× 25	6)] a	nd <i>n</i>	≠ 0 a	and r	≠ (	)
	<ul> <li>Counting stops</li> </ul>	when :								
	[aL + (aH × 256)	] = [b <i>L</i> +	(b <i>H</i> :	× 25	6)] o	r <i>n</i> =	0 or	<i>r</i> = 0	)	
	<ul> <li>In setting count</li> </ul>	t-up mod	e, th	e mi	nimu	ım va	lue o	of the	e co	bunter is $[aL + (aH \times$
	256)] and the r	naximum	ı valu	ie is	[bL	+ (b <i>F</i>	1 × 2	56)].	lf c	counting up reaches
	a value exceed	ling the r	naxin	num	, it's	resu	ned	with	the	minimum value.
	<ul> <li>In setting cour</li> </ul>	nt-down r	node	, the	e ma	ximu	m va	alue	of t	the counter is [aL +
	(aH × 256)] and	d the mir	nimur	n va	lue i	s íb <i>L</i>	+ (b	жH	256	3)]. If counting down
	reaches a val	ue less	than	mir	nimu	m, it	's re	sum	ed	with the maximum
	value.									
	• When this cor	nmand i	s exe	ecute	ed, t	he ir	ntern	al co	oun	t that indicates the
	repetition numb	ber speci	fies b	by ro	clear	ed.				
[Default]	aL = 1, aH = 0, b	oL = 255,	bH =	25	5, n =	= 1, r	= 1			
[Reference]	GS C 0, GS C 2,	, GS C ;,	GS d	5						
[Example]										
GS C 2 1	nL nH									
[Name]	Set counter.									
[Format]	ASCII	GS	С		2		nL		nH	1
	Hex	1D	43		32		nL		nΗ	1
	Decimal	29	67		50		nL		nΗ	1

 $[Range] \qquad 0 \le nL, \, nH \le 255$ 

[Description] Sets the serial number counter value.

# 2. ESC/POS™ COMMAND DESCRIPTION

- *nL* and *nH* determine the value of the serial number counter set by  $[nL + (nH \times 256)]$ .
- [Notes] In count-up mode, if the counter value specified by this command goes out of the counter operation range specified by GS C 1 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 C 1 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 [Example]

# GSC; sa; sb; sn; sr; sc;



[Default] sa = 1, sb = 65535, sn = 1, sr = 1, sc = 1 [Reference] **GS C 0, GS C 2, GS C 1, GS c** [Example]

### GS H n

[Name]	Select printing per characters	osition o	f Huma	n Readabl	e Interpretation (HRI)
[Format]	ASCII	GS	Н	n	
	Hex	1D	48	n	
	Decimal	29	72	n	
[Range]	$0 \le n \le 3, 48 \le n$	≤ 51			
[Description]	Selects the printing position of HRI characters when printing bar code				
	n selects the prir	nting pos	sition as	follows :	

n	Function
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.

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

[Default] n = 0 [Reference] **GS f, GS k** 

[Example]

# 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, nH ≤ 255						
[Description]	Sets the left mar	gin.					
	• The left marging	n is set	to [(nL	+ nH >	< 256) ×	(horizontal	motion unit)]
	inches.						
	Printable area						
	•						•
•	l eft margin	Printi	ng area	width			
[Notes]	• This command	ie onabl	ad only	of the be	ainnina o	f the line	
[Notes]	• If the softing		tho pri	ntabla (	aroa tha	mavimum	value of the
	<ul> <li>In the setting</li> <li>printable area i</li> </ul>	e usod	uie pii	intable a	alea, ille	maximum	value of the
		s useu. L printing		width ie	areater t	han nrintak	le area then
			ע מוכמ ו			nan viintat	חכ מוכמ. נווכוו

- If left margin + printing area width is greater than printable area, then printing area width is set at maximum value.
- The horizzontal and vertical motion unit are specified by **GS P**. Changing the horizontal or vertical motion unit does not affect the current left



#### ESC/POS<sup>™</sup> COMMAND DESCRIPTION 2.

#### margin.

• The GS P command can change the horizontal (and vertical) motion unit.

nL = nH = 0

nL =14 nH = 0

• However, the value cannot be less than the minimum horizontal movement amount and it must be in even units of the minimum horizontal movement amount.

[Default]	If Font A : If Font B :

[Reference] GS P, GS W [Example]

### GS P x y

[Name]	Set horizontal an	Set horizontal and vertical motion units.						
[Format]	ASCII	GS	Р	Х	У			
	Hex	1D	50	х				
	Decimal	29	80	х	У			
[Range]	x = 100, 200							
	y = 100, 200							
[Description]	Sets the horizon	ntal and	vertical	motion	units to	o 1/x inch a	and 1/y inch,	
	respectively.							
	When x is set to	0, the de	fault set	ting valu	e is use	ed.		
	When y is set to	0, the de	fault set	ting valu	e is use	ed.		
[Notes]	• The horizontal	direction	is perpe	ndicular	to the p	aper feed dir	ection.	
	<ul> <li>In standard me</li> </ul>	ode. the	followin	a comm	ands u	se x or v. i	regardless of	
	character rotati	on ( upsi	de-down	or 90° c	lockwis	e rotation):	- 0	
	① Command	usina x:	ESC SP	. ESC \$	. ESC \.	GS L. GS W	Ι.	
	② Command	usina v :	ESC 3.	ESC J	, - ,	,		
	• This command	does not	affect th	ne nrevio	uelv en	acified values	2	
	• This command does not anect the previously specified values.							
	<ul> <li>The calculated result from combining this command with others is trungeted to the minimum value of the mechanical nitch or on event</li> </ul>							
	multiple of the	ute IIIIII at valuo	muni va		ie meci	nanical pitch		
[Defeult]		ai value.						
	x = 200, y = 200							

[Default]

[Reference] ESC SP, ESC \$, ESC \, ESC 3, ESC J, GS L, GS W [Example]

# 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, nH ≤ 255				
[Description]	Sets the printing area width to the area specified by <i>nL</i> and <i>nH</i> .				
	• The left margin is set to $[(nL + nH \times 256) \times (horizontal motion unit)]$ inches.				



[Notes] • This command is enabled only of the beginning of the line.

- If right margin is greater than printable area, then the printing area width is set at maximum value.
- If printing area width = 0, then is set at maximum value.
- The horizzontal and vertical motion unit are specified by GS P. Changing the horizontal or vertical motion unit does not affect the current left margin.
- The GS P command can change the horizontal (and vertical) motion unit.
- However, the value cannot be less than the minimum horizontal movement amount and it must be in even units of the minimum horizontal movement amount.

[Default]	If Font A :	nL = 192 nH = 1
	If Font B :	nL =164
[Reference] [Example]	GS L, GS P	1111 - 1

### CS Artm

[Name]	Execute macro.						
[Format]	ASCII	GS	۸	r	t	m	
	Hex	1D	5E	r	t	m	
	Decimal	29	94	r	t	m	
[Range]	0 ≤ r, t ≤ 255						
	$0 \le m \le 1$						
[Description]	Executes a maci	о.					
	• r specifies the r	number	of times	s to exec	ute the n	nacro.	
	• t specifies the v	vaiting	time for	executin	g the ma	cro.	
	The waiting tin	ne is t×	100 ms	ec. for e	every mad	cro executio	n.
	• m specifies ma	cro exe	cuting m	node :			
	When the LSE	8 of <i>m</i> =	0, the n	nacro ex	ecutes r	times contin	uosly at the
	interval specifi	ed by t.					
	When LSB of	m = 1, a	after wai	ting for t	he perio	d specified b	y <i>t</i> , the LED
	indicator blinks and the printer waits for the FEED button to be pressed.						
	After the butto	n is pre	ssed, th	e printer	execute	s the macro	once. The
	printer repeats	the op	eration I	r times.		-	
[Notes]	• This command	for a pe	eriod of (	$(t \times 100)$	msec.) a	fter a macro	is executed by
	t.						
	<ul> <li>If this commandefinitions is at</li> </ul>	id is re ported a	ceived wind the c	while a i lefinition	macro is s is cleai	being defin red.	ied, the macro
				ΓΡΊ	782	DIM	



#### 2. ESC/POS™ COMMAND DESCRIPTION

- If the macro is not defined or if *r* is 0, nothing is executed.
- When the macro is executed by pressing the FEED button (m = 1), paper can not be fed by using the FEED button.

[Default]

[Reference] GS:

[Example]

### GS c

[Name]	Print counter.			
[Format]	ASCII	GS	С	
	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 C 1 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 C 1 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 C 1 or GS C;, it is forced to convert to the maximum value.

[Default] [Reference]

#### GS C 0, GS C1, GS C 2, GS C ; [Example]

# GS f n

[Name]	Select font for	or HRI char	acters.	
[Format]	ASCII	GS	f	r
	Hex	1D	66	r
	Decimal	29	102	r

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

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

n	Font
0, 48	Font A (14 x 24).
1, 49	Font B (10 x 24).

[Notes] HRI character are printed at the position specified by GS H. [Default] n = 0 [Reference] GS H, GS k [Example]



## 2 - 14

### GS h n

[Name]	Set bar code he	ght		
[Format]	ASCII	GS	h	n
	Hex	1D	68	n
	Decimal	29	104	n
[Range]	1 ≤ n ≤ 255			
[Description]	Sets the heigth of n specifies the r	of the bar umber of	code. the dots	in the vertical direction.
[Notes]				
[Default]	n = 96 ( 12 mm	)		
[Reference] [Example]	GS k			

#### ① GS k m [d1...dk] NUL 2 GS k m n [d1...dn]

[Name]	Print	Print bar code.						
[Format]	1	ASCII Hex Decimal	GS 1D 29	k 6B 107	m m m	NUL 00 0		
	2	ASCII Hex Decimal	GS 1D 29	k 6B 107	m m m	n n n		
[Range]	① ②	0 ≤ m ≤ 6 65 < m < 73						

#### [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
	0	UPC-A	11 ≤ <i>k</i> ≤ 12	$48 \le d \le 57$
	1	UPC-E	11 ≤ <i>k</i> ≤ 12	48 ≤ <i>d</i> ≤ 57
	2	EAN13 (JAN)	12 ≤ <i>k</i> ≤ 13	48 ≤ <i>d</i> ≤ 57
	3	EAN8 ( JAN )	$7 \le k \le 8$	48 ≤ <i>d</i> ≤ 57
0	4	CODE39	1 ≤ <i>k</i>	$48 \le d \le 57, 65 \le d \le 90, 32,$ 36, 37, 43, 45, 46, 47
	5	ITF	1≤ <i>k</i> (even number)	$48 \le d \le 57$
	6	CODABAR	1 ≤ <i>k</i>	48 ≤ <i>d</i> ≤ 57, 65 ≤ <i>d</i> 1 ≤ 68, 36, 43, 45, 46, 47, 58
	7	CODE93	1 ≤ <i>k</i> ≤ 255	1 ≤ <i>d</i> ≤ 127
	8	CODE128	2 ≤ <i>k</i> ≤ 255	1 ≤ <i>d</i> ≤ 127
	20	CODE32	$8 \le k \le 9$	$48 \le d \le 57$

65	UPC-A	11 ≤ <i>n</i> ≤ 12	$48 \le d \le 57$
66	UPC-E	11 ≤ <i>n</i> ≤ 12	48 ≤ <i>d</i> ≤ 57
67	EAN13 (JAN)	12 ≤ <i>n</i> ≤ 13	48 ≤ <i>d</i> ≤ 57

# 2. ESC/POS™ COMMAND DESCRIPTION

68	EAN8 ( JAN )	7 ≤ <i>n</i> ≤ 8	48 ≤ <i>d</i> ≤ 57
69	CODE39	1 ≤ <i>n</i> ≤ 255	$48 \le d \le 57, 65 \le d \le 90, 32,$
			36, 37, 43, 45, 46, 47
70	ITF	1 ≤ <i>n</i> ≤ 255	$48 \le d \le 57$
71	CODABAR	1 ≤ <i>n</i> ≤ 255	$48 \le d \le 57, 65 \le d1 \le 68,$
			36, 43, 45, 46, 47, 58
72	CODE93	1 ≤ <i>n</i> ≤ 255	0 ≤ <i>d</i> ≤ 127
73	CODE128	2 ≤ <i>n</i> ≤ 255	0 ≤ <i>d</i> ≤ 127
90	CODE32	8 ≤ <i>n</i> ≤ 9	48 ≤ <i>d</i> ≤ 57
	68 69 70 71 72 73 90	68         EAN8 ( JAN )           69         CODE39           70         ITF           71         CODABAR           72         CODE93           73         CODE128           90         CODE32	68       EAN8 (JAN ) $7 \le n \le 8$ 69       CODE39 $1 \le n \le 255$ 70       ITF $1 \le n \le 255$ 71       CODABAR $1 \le n \le 255$ 72       CODE93 $1 \le n \le 255$ 73       CODE128 $2 \le n \le 255$ 90       CODE32 $8 \le n \le 9$

[Notes]

- If *d* is outside of the specified range, the printer prints the following message : "BAR CODE GENERATOR IS NOT OK !" and processing the following data as normal data.
- If the horizontal size exceeds printing area, the printre 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**.
- After printing bar code, this command sets the print position to the beginning of the line.
- This commnad is not affected by prints modes (emphasized, double stricke, underline or character size), except for upside-down mode and justification.

#### [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 11 ( without check digit ) or 12 ( with check digit ) bytes bar code data.
- When the bar code system used is EAN13, the printer prints the bar code after receiving 12 ( without check digit ) or 13 ( with check digit ) bytes bar code data.
- When *n* the bar code system used is EAN8, the printer prints the bar code after receiving 7 ( without check digit ) or 8 ( with check digit ) bytes bar code data.
- The number of data for ITF bar code must be even numbers. When an odd number of data is input, the printer ignores the last received data.
- [Notes for ②] If *n* is outside of the specified range, the printer stops command processing and processes the following data as normal data.
- When CODE93 The printer prints an HRI character (  $\Box$  ) as a start character at the beginning of the HRI character string.
  - The printer prints an HRI character (  $\Box$  ) as a stop character at the end of the HRI character string.
  - The printer prints an HRI characters ( ) as a control character ( 00H to 1FH and 7FH).
- When CODE128 When using the CODE128 in this printer, take the following points into account for data transmission :
  - The top of the bar code data string must be code set selection character ( any of CODE A, CODE B or CODE C ) which selects the

CUSTOM

first code set.

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

		Transmit data	
Specific character	ASCII	Hex	Decimal
SHIFT	{S	7B, 53	123, 83
CODE A	{A	7B, 41	123, 65
CODE B	{B	7B, 42	123, 66
CODE C	{C	7B, 43	123, 67
FNC1	{1	7B, 31	123, 49
FNC2	{2	7B, 32	123, 50
FNC3	{3	7B, 33	123, 51
FNC4	{4	7B, 34	123, 52
'{'	{{	7B, 7B	123, 123

[Default]

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

#### 2. ESC/POS<sup>™</sup> COMMAND DESCRIPTION

### GS w n

[Name]	Set bar code	Set bar code width.			
[Format]	ASCII	GS	W	n	
	Hex	1D	77	n	
	Decimal	29	119	n	
[Range]	$2 \le n \le 6$				

[Range]

[Description] Sets the horizontal size of the bar code. *n* specifies the bar code width as follows :

n	Module Width (mm)
2	0.25
3	0.375
4	0.5
5	0.625
6	0.75

#### [Notes]

[Default] n = 3 [Reference] GS k [Example]

## GS ~ n

[Name]	Set exponent / d	Set exponent / deponent.			
[Format]	ASCII	GS	~	n	
	Hex	1D	7E	n	
	Decimal	29	126	n	
[Range]	n = 0. 1. 48. 49				

[Description] Sets exponent or deponent character position. *n* specifies the position as follows :

n	Function
0, 48	Deponent character position.
1, 49	Exponent character position.

[Notes] • This command is executed if there are characters with different height on the same line.

[Default] n = 0 [Reference] ESC !, GS !

[Example]

### GS | n

[Name]	Set printing of	density.			
[Format]	ASCII	ĞS		n	
	Hex	1D	7C	n	
	Decimal	29	124	n	
[Range]	$0 \le n \le 4, 48$	≤ n ≤ 52			
[Description]	Sets the prin	ting density	/.		
	n specifies th	ne printing o	density as	s follow	's :

n	Printing density	
0, 48	Very light	
1, 49	Light	
2, 50	Normal	
3, 51	Dark	
4, 52	Very dark	

[Notes]

• The printing density is cleared at default value when the printer is reset or the power is turned off.

[Default] [Reference] n = 2 [Example]



The following table lists all the commands for function management in CUSTOM Emulation of the DT282 PLM printer. The commands can be transmitted to the printer at any moment, but they will only be carried out when the commands previously are executed. There are no commands with priority status; all the commands are carried out when the circular buffer is free to do so.

Command	Name
VT	Vertical tab
CRLF	
LF	Print and line feed
CR	Print and carriage return
00H	Print with small character.
01H	Printing with double width character
02H	Printing in double height character
03H	Printing with expanded character (double width and double height)
04H	Print with small character
11H	DP 24/40 Graphic mode
12H	Set/cancel red printing mode
ESC !	Set print mode
ESC \$	Set absolute position
ESC *	Set bit image mode
ESC 4	Set/reset script mode
ESC @	Initialize printer
ESC B	Select FONT 1
ESC C	Total cut
ESC J	Define programmable characters
ESC G	Set default parameters
ESC M	Set default parameters of print mode
ESC N	Set printing in NORMAL
ESC P	Partial cut
ESC R	Set printing in REVERSE
ESC a	Select justification
ESC b	Select FONT 2
ESC w	Write EEPROM location
ESC ·	Print graphic bank (448 x 292 dots)
GS FF	Print the buffer contents
GS :	Set starting/end of macro definition
GS C 0	Select counter print mode
GS C 1	Select count mode ( A )
GS C 2	Set counter
GS C ;	Select count mode ( B )
GS H	Select printing position of HRI characters
GS P	Set horizontal and vertical motion units
GS ^	Execute macro
GS c	Print counter
GS f	Select font for HRI characters

int counter	
elect font for HRI characters	

	١
11	

GS h	Select height of bar code
GS k	Print bar code
GS w	Select horizontal size (magnification) of bar code
GS	Set printing density

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### **Description of the paths:**

XXX Command.

[Name] Command name

[Format ]Codes sequence.

In this description, <>H is for an hexadecimal number, <>A for an ASCII character, <> is for a decimal number and <>B a binary number. [] k is for the contents of [] which can be repeated k times.

[Range] Describes the range of the contents.

[Description] Description of the command function.

[Notes] (Included only if necessary). [Default] Commands default value.

[Reference] References for linked commands.

[Example] Example for use of command.

### VT

[Name]	Vertical tab			
[Format]	ASCII	n	VT	
	Hex	n	0B	
	Decimal	n	11	
[Range]	0 < n ≤ 9			
[Description] [Notes] [Default] [Reference] [Example]	Run as many f • This commar	eeds as nd zeroes	are defined by <i>n</i> . s the printing buffer.	

# CRLF

[Name]			
[Format]	ASCII	SI	
	Hex	0F	
	Decimal	15	
[Description]	After this co	nmand the CR code is ignored	
[Notes]	<ul> <li>To put the</li> </ul>	CR code back into operation, reset the printer.	
[Default]	·		
[Reference]			
[Example]			

## LF

[Name]	Print and line feed
[Format]	ASCII LF
	Hex 0A
	Decimal 10
[Description]	Prints the data in the buffer and feeds one line based on the current line spacing.
[Notes] [Default]	The command set the print position to the beginning of the line.
[Reference]	ESC 2. ESC 3

CR	
[Name]	Carriage return
[Format]	ASCII CR
	Hex 0D
	Decimal 13
[Description]	When autofeed is 'CR enabled', this command functions in the same way as <b>LF</b> , else it is disregarded.
[Notes] [Default]	The command set the print position to the beginning of the line.
[Reference] [Example]	LF

# 00H

Print with small cl	naracter.		
ASCII	NUL		
Hex	00		
Decimal	0		
Character printing	g is executed in small format (normal)		
<ul> <li>Setting remains until the next set</li> </ul>			
Setting by front ke	eys		
01H, 02H, 03H, 0	4H		
	Print with small cl ASCII Hex Decimal Character printing • Setting remains Setting by front ke 01H, 02H, 03H, 0		

### 01H

[Name]	Printing with double width character.			
[Format]	ASCII	SOH		
	Hex	01		
	Decimal	1		
[Description]	Printing of the character is executed in double width format.			
[Notes]	<ul> <li>Setting remains until next set.</li> </ul>			
[Default]	Setting by fro	ont keys.		
[Reference]	00H,02H,03I	1,04H		
[Example]				

### 02H

[Name]	Printing in double	height character.
[Format]	ASCII	STX
	Hex	02
	Decimal	2
[Description]	Printing of the cha	aracter is executed in double height format.
[Notes]	Setting remains u	ntil the next set
[Default]	Setting by front ke	eys
[Reference]	00H,01H,03H,04	4H
[Example]		



# 03H

[Name]	Printing with e	xpanded character (double width and double heigh	ht).
[Format]	ASCII	ETX	
	Hex	03	
	Decimal	3	
[Description]	Printing of the	character is executed in expanded format.	
[Notes]	<ul> <li>Setting remains</li> </ul>	ins until next set.	
[Default]	Setting by fror	it keys.	
[Reference]	00H,01H, 02H	, 04H	
[Example]			

### 04H

[Name]	Print with small of	character.
[Format]	ASCII	EOT
	Hex	04
	Decimal	4
[Description]	Character printin	ng is executed in small format (normal)
[Notes]	<ul> <li>Setting remains</li> </ul>	s until the next set
[Default]	Setting by front l	<eys< td=""></eys<>
[Reference]	00H,01H, 02H, 0	03H
[Example]		

# 11H

										[Example]
[Name]	DP 24/40 Gi	raphic r	mode.							[]
[Format]	ASCII	C	DC1							EQC Lm
	Hex	1	1							E20 i U
	Decimal	1	7							[Name]
[Description]	Prints in gra	phic mo	ode lik	e DP 2	24/40.					[Format]
	The comma	nd 11F	I enal	oles th	ne DP2	24-40	printe	r grap	hic mode, i.e. to print	
	in graphic n	node tr	ansmi	it the	comm	and 1	1H at	the be	eginning of each line.	
	One line for	r the D	P24-4	0 prin	iter (2	24 colu	umn n	nodel	) corresponds to 144	[Range]
	horizontal p	oints d	ivided	in 24	6-poir	nts blo	cks. F	or the	DP24-40 printer ( 40	[Description]
	column moc	del) one	e line (	corres	ponds	to 24	0 horiz	zontal	points divided into 40	[Notes]
	6-point bloc	ks.			-				-	[ ····]
[Notes]	• The size	of the	graph	nic po	int an	d the	numb	per of	points per line vary	
	depending	on the	numb	er of c	olumn	S.				
	To obtain	a grap	hic pri	intout,	enter	the c	omma	nd 11	H at the beginning of	
	each line.	•	-							
	The graphi	c config	guratio	on byte	e forma	at is as	s follov	vs :		
			_							
		Х	R	P6	P5	P4	P3	P2	P1	
		D7	D6	D5	D4	D3	D2	D1	D0	
	where :									
	X is not util	lized :								
	R must be	set at 1	1 ·							
	P1 P6 an	o data	of the	aranh	ic noin	te ( 1 r	orinte		s not print )	
	r 1,F <b>0</b> ar			graph		13(1)	511113,	0 0000		[Default]

The P6 bit of the string of points transmitted is printed on the left and the others (P5, P4, P3, P2, P1), follow from left to right, as shown :

1st byte 🛦	2nd byte 🔺	3rd byte 🛦
P6 P5 P4 P3 P2 P1	P6 P5 P4 P3 P2 P1	P6 P5 P4 P3 P2 P1

#### [Default] [Reference]

[Example]

To print a line of point transmit : **11H, N x 7FH** (where n is the number of character per line), **0DH** To print an empty line, transmit : **11H, 40H, 0DH.** 

### 12H

Name]	Set/cancel red pi	rinting mode.
Format]	ASCII	DC2
	Hex	12
	Decimal	18
Description]	Set/cancel (altern	native) red printing.
Notes]	• The printer prin	nt red only complete line, not single character.
	• The printer prin	nt red only if enabled by setup.
Default]		, , , ,
Reference]		
Example]		

[Name]	Select print mod	es		
[Format]	ASCII	ESC	!	n
	Hex	1B	21	n
	Decimal	27	33	n
[Range]	0 ≤ n ≤ 255			
[Description]	Select print mod	es using	n (see fo	ollowing tables):
[Notes]	• The printer car set by HT, ESC	underlir \$, <b>ESC</b>	ne all cha A and 90°	aracters, but can not underline the space ° clockwise rotated characters.
	<ul> <li>When character characters are</li> </ul>	ers are e alligned a	enlarged at the bas	with different heights on one line, the seline or topline (see <b>GS</b> ~).
	• The command <b>W</b> ).	reset left	and right	ht margin at default value (see GS L, GS
	• ESC E can also last received co	o turn on/ ommand	off emph	nasized mode. Howener, the setting of the ve.
	• ESC - can also the last receive	turn on/ d comma	off under and is eff	rline mode mode. Howener, the setting of fective.
	• ESC 4 can als received comm	o turn or and is ef	i/off scrip fective.	pt mode. Howener, the setting of the last
	• GS ! can also received comm	select of and is ef	character fective.	r size. However, the setting of the last
[Default]	n = 0			



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[Reference] ESC -, ESC E, ESC 4, GS ! [Example]

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A (14x24) selected.
	On	01	0	Character font B (10x24) selected.
1	-	-	-	Undefined.
2	-	-	-	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double heigth mode not selected.
	On	10	16	Double heigth mode selected.
5	Off	00	0	Double width mode not selected.
	On	20	32	Double width mode selected.
6	Off	00	0	Script mode not selected.
	On	40	64	Script mode selected.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

# ESC \$ nL nH

[Nimma]	
[iname]	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
	$\times$ 256) $\times$ (vertical or horizontal motion unit)] inches.
[Notes]	• Settings outside the specified printable area are ignored
[]	The herizzental and vortical mation unit are aposition by CS P
	• The nonzzontal and vertical motion unit are specified by GS P.
	• The <b>GS P</b> command can change the horizontal (and vertical) motion unit.
	However, the value cannot be less than the minimum horizontal movement
	anount.
	<ul> <li>In standard mode, the horizontal motion unit (x) is used.</li> </ul>
	<ul> <li>If setting outside the printing area width, set absolute print position, but</li> </ul>
	left or right margin is set at default value.
[Default]	
[Reference]	ESC  GS P
[Example]	·
r : .le.e1	

### ESC \* m nL nH [d1... dk]

[Name]	Select bit ima	age-mode.				
[Format]	ASCII	ESC	*	m	nL	nH
	Hex	1B	2A	m	nL	nH
	Decimal	27	42	m	nL	nH



- [Range] m = 0, 1, 32, 33
  - $0 \le nL \le 255$  $0 \le nH \le 1$

 $0 \le nH \le 1$ 

 $0 \leq d \leq 255$ 

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

		Vertical Di	irection	Ho	rizontal Direction (* 1)
m	Mode	N. Dots	DPI	DPI	Number of Data (k)

0	8 dot single density	8	67	100	nL + nH × 256
1	8 dot double density	8	67	200	nL + nH × 256
32	24 dot single density	24	200	100	$(nL + nH \times 256) \times 3$
33	24 dot double density	24	200	200	$(nL + nH \times 256) \times 3$

[Notes] • The *nL* and *nH* indicated the number of dots of the bit image in the horizontal direction. The number of dots is calculated by nL + nH × 256.

- If the bit image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
- *d* indicates the bit image data. Set a corresponding bit to 1 to print dot or to 0 to not print dot.
- If the values of *m* is out of the specified range, *nL* and data following are processed as normal data.
- If the width of the printing area set by **GS L** and **GS W** less then the widht required by the data sent width the **ESC** \* command, the exceed data are ignored.
- To print the bit image use LF, CR, ESC J or ESC d.
- After printing a bit image, the printer return to normal data processing mode.
- This command is not affected by prints mode emphasized, double-strike, and underline ( etc. ), except upside down mode.
- The relationship between the image data and the dots to be printed is as follows :

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IMMAGINE

[Default] [Reference] [Example]

### ESC 4 n

[Name]	Set / Reset scrip	t mode.		
[Format]	ASCII	ESC	4	n
	Hex	1B	34	n
	Decimal	27	52	n
[Range]	$0 \le n \le 1, 48 \le n$	≤49		
[Description]	Turn script mode	e on or of	f, based	on the following values of <i>n</i> :

n	Function
0, 48	Turns off script mode
1, 49	Turns on script mode

[Notes] • The printer can print in script mode all characters.

- When script mode is turned off by setting the value of *n* to 0 or 48, the following data is printed in normal mode.
- Script mode can also be turned on or off by using ESC !. Note, however, that the last received command is effective.
   n = 0

[Default] [Reference]

[Reference] ESC ! [Example]

# ESC @

[Name]	Initialize printer.						
[Format]	ASCII	ESC	@				
	Hex	1B	40				
	Decimal	27	64				
[Description]	Clears the data	in the pr	int buffe	r and res	set the prin	nter mode	to the mode
	that was in effect	t when th	ne power	was turr	ned on.		
[Notes]	• The data in the	receive	buffer is	not clear	red.		
	• The macro defi	nitions a	re not cle	eared.			
[Default]							
[Reference]							
[Example]							

# ESC B

[Name]	Select FONT 1.		
[Format]	ASCII	ESC	В
	Hex	1B	42
	Decimal	27	66
[Description]	Selects FONT 1.		
[Notes]	<ul> <li>Setting remains</li> </ul>	until ne>	t set.
[Default]	Set up from front	keys.	
[Reference]	ESC b, ESC 4		
[Example]			

# ESC C

[Name]	Total cut.						
[Format]	ASCII	ESC	С				
	Hex	1B	43				
	Decimal	27	67				
[Description]	This command e	enables	cutter	operation; if there is no cutter, a disabling			
	flag is set and ar	ny subse	quent	cut commands will be ignored.			
[Notes]	• The printer waiting to complete all paper movement commands, before						

executes total cut.

[Default] [Reference] [Example]

# ESC J s n m [ a[p] s\*a ] m-n+1

[Name]	Define programm	hable cha	aracters.			
[Format]	ASCII	ESC	J	S	n	m
	Hex	1B	4A	S	n	m
	Decimal	27	74	S	n	m
[Range]	s = 3					
	$32 \le n \le m \le 255$					
	0 ≤ a ≤ 6					
	0 ≤ p1 ps * a ≤	255				
[Description]	Defines program	mable ch	aracters.			
	• "s" specifies nu	mber of b	oytes in ve	ertical d	lirection.	
	• "n" specifies as	cii code	of initial	prograr	nmable c	haracter and "m" the final
	code. If you wa	nt to prog	grammeoi	nly one	character	r set up n = m.
	Ascii character	range is	, from <20:	>Ĥ to <	FF>H, or	224 characters.
	• "a" specifies nu	mber of o	dots in ho	rizontal	direction	
	• "p" is the datum	n in dots	of the ch	aracter	s. Data o	o from left to right and the
	remaining dots	not spec	ified by th	e user	are force	d as blanks. The total data
	number corresp	onds to	s*a.			
	After the user h	nas defin	ed the ch	aracter	set they	remain active until a new
	definition or a h	ardware	or softwa	re rese	t.	
[Notes]	• The set of proo	irammab	le charac	ters an	d the bit i	image cannot be active at
	the same time:	if this cor	mmand is	execut	ted the bit	image will be cancelled.
[Default]	The programmat	ole chara	cter set is	the sa	me as the	internal one.
[Reference]	ESC 4					
[Example]		16 dots	(24 col)			
[]		10 dote				
		TO GOLS	(42 COI)			
	l l l l l l l l l l l l l l l l l l l	Ш				
	p1					
		111 ->		2		
		$\mathbf{H}^{-}$		J		
			Н			
			Ц			
			$H_{100}$			
		III ^				



# ESC G

[Name]	Set default parameters.						
[Format]	ASCII		dH	dL	ESC	G	
	Hex		dH	dL	1B	47	
	Decima	I	dH	dL	27	71	
[Range]	d :						
	bit 0=	0:	NORMA	L printing	)		
		1:	REVER	SE printir	ng		
	bit 1=	0:	CR com	mand ex	ecuted		
		1:	CR com	mand igr	nored		
	bit 2=	0:	horizont	al printing	3		
		1:	vertical	printing			
	bit 3=	0:	doesn't	execute c	centred p	rinting	
		1:	it executes centred printing				
	bit 4=	0:	aligns p	rint to left			
		1:	aligns p	rint to righ	nt		
	bit 5=:	fixed to	0				
	bit 6=	0:	deactiva	ates unde	rlining		
		1:	activate	s underlir	ning		
	bit 7=	0:	deactiva	ates empl	nasized p	rinting	
		1:	activate	s emphas	sized prin	ting	
[Description]	Sets de	fault and	"on line" p	oaramete	rs.		
[Notes]	Setting i	is memorized in eeprom.					
[Default]	Set up f	rom front	keys				
[Reference]							
[Example]	If $dH = 4$ and $dL = D$ the value of d is 77 (4DH)						

# ESC M

[Name]	Set default parameters of print mode.					
[Format]	ASCII	dH	dL	ESC	Μ	
	Hex	dH	dL	1B	4D	
	Decimal	dH	dL	27	77	
[Range]	d :					
	00H : small print					
	01H : double wid	th print				
	02H : double heig	ght print				
	03H : emphasize	d print				
[Description]	Sets default para	imeters o	f print mo	de.		
[Notes]	Setting is memor	ized in ee	eprom.			
[Default]	Set up from front keys.					
[Reference]	Reference]					
[Example] If $dH$ = 'A' and $dL$ = '3' the value of $d$ is 163 (A3H)						

# ESC N

[Name]	Set printing	Set printing in NORMAL.				
[Format]	ASCII	ESC	Ν			
	Hex	1B	4E			



3	-	6
---	---	---

	Decimal	27	78
Description]	Sets printing i	n NORMAL	_ mode.
Notes]	<ul> <li>Setting remains</li> </ul>	ains until ne	ext set.
Default]	Set up from fr	ont keys	
Reference]	ESC R		
Example]			

### ESC P

Ì	[Name]	Partial cut.							
	[Format]	ASCII	ESC	Р					
		Hex	1B	50					
		Decimal	27	80					
	[Description]	This command disabling flag is	enables set and a	partial any sub	cutter sequen	operation t cut cor	on; if the nmands	ere is no will be ign	cutter, a ored.
	[Notes]	• The printer waiting to complete all paper movement commands, before executes partial cut							
	[Default] [Reference] [Example]	·							

### ESC R

[Name]	Set printing in REVERSE.					
[Format]	ASCII	ESC	R			
	Hex	1B	52			
	Decimal	27	82			
[Description]	Sets printing in	REVERS	E mode.			
[Notes]	<ul> <li>Setting remai</li> </ul>	ins until ne	xt set.			
[Default]	Set up from fro	ont keys				
[Reference]	ESC N	-				
[Example]						

# ESC a n

[Name]	Select justification.					
[Format]	ASCII	ESC	а	n		
	Hex	1B	61	n		
	Decimal	27	97	n		
[Range]	0 ≤ n ≤ 2. 48 ≤ n ≤ 50					
[Description]	Aligns old the data in one line to the spe					
· · ·	n selects the type of justification as follo					

igns old the data in one line to the specified	position.
selects the type of justification as follows :	

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

ABC ABCD

ABCDE

[Notes]

• The command is enabled only when input at the beginning of the line.

• Lines are justified within the specified printing area.

• Spaces set by HT, ESC \$ and ESC \ are old justified. n = 0

[Default]

[Reference]

[Example]



# ESC b

Select FONT 2.			
ASCII	ESC	b	
Hex	1B	62	
Decimal	27	98	
Selects FONT 2.			
<ul> <li>Setting remains</li> </ul>	until ne	ext set.	
Set up from front	keys.		
ESC B, ESC 4	,		
,			
	Select FONT 2. ASCII Hex Decimal Selects FONT 2. • Setting remains Set up from front ESC B, ESC 4	Select FONT 2. ASCII ESC Hex 1B Decimal 27 Selects FONT 2. • Setting remains until ne Set up from front keys. ESC B, ESC 4	Select FONT 2.ASCIIESC bHex1B 62Decimal27 98Selects FONT 2.• Setting remains until next set.Set up from front keys.ESC B, ESC 4

# ESC w

[Name]	Write EEPROM	location.							
[Format]	ASCII	aH	aL	dH	dL	ESC	w		
	Hex	aH	aL	dH	dL	1B	77		
	Decimal	aH	aL	dH	dL	27	119		
[Range]	0 ≤ a ≤ 63								
	'0' ≤ aH ≤ '9', 'A'	≤aH ≤'F	,						
	'0' ≤ aL ≤ '9', 'A' :	≤ aL ≤ 'F'							
	$0 \le d \le 255$								
	'0' ≤ dH ≤ '9', 'A'	$\leq dH \leq F$	,						
	'0' ≤ dL ≤ '9', 'A' :	$\leq$ dL $\leq$ 'F'							
[Description]	Writes at the loca	ation add	ressed by	/ a, the d	ata d whe	ere :			
	aH is the more s	ignificant	nibble ex	pressed	in ASCII	of a			
	aL is the less sig	nificant n	ibble esp	ressed in	ASCII of	a			
	dH is the more s	ignificant	niddie ex	pressea					
[Nietoo]	aL is the less sig	nincant n	ibble esp	resseu in		a			
[Notes]									
[Reference]	ESC r								
[Example]	If user wants to write 34H value in 12H location he has to transmit :								
[b.o]	31H 32H 33H 34H 1BH 77H								

# ESC · n xH xL yH yL

-		1						
[Name]	Print graphic I	oank ( 448	imes 292 de	ots).				
[Format]	ASCII	ESC	•	'n	хH	хL	yН	уL
	Hex	1B	FA	n	хH	хL	ýН	уL
	Decimal	27	250	n	хH	xL	уH	уL
[Range]	0 ≤ <i>n</i> ≤ 1							
	$0 \leq xH, xL, yH$	l, yL ≤ 255						
[Description]	Print graphic I	bank from	flash or i	am.				
	n selects the l	bank as fol	llows :					
	n		F	unction				
	0	Print ram	bank.					
	1	Print flash	n bank lo	go 1				

[Notes]	$\begin{aligned} xL + xH &\times 256 \text{ specifies the starting dot line (} 1 \div 292 \text{ ).} \\ yL + yH &\times 256 \text{ specifies the lines number to print.} \\ \bullet \text{ If } (xL + (xH \times 256)) &> 292 \text{ the printer does not execute the command.} \\ \bullet \text{ If } (xL + (xH \times 256) + yL + (yH \times 256)) &> 292 \text{ the printer prints only} \\ xL + (xH \times 256) + 1 \text{ dotlines.} \end{aligned}$										
[Default] [Reference] [Example]	ESC <sup>3</sup> , ESC <sup>2</sup> , ESC <sup>1</sup> To print from ram bank dotline 100 to dotline 290, send :										
	1BH	FAH	00H	00H	64H	00H	BEH				

# **GS FF**

[Name]	Print the buffer co	ontents.		
[Format]	ASCII	GS	FF	
	Hex	1D	0C	
	Decimal	29	12	
[Description]	Prints contents of Sets the position	buffer ch	haracters and executes a line feed. t printing at the left margin.	
[Notes]	•			
[Default]				
[Reference] [Example]	LF, FF			

## GS:

[Name]	Start/end macro	definitior	۱.	
[Format]	ASCII	GS	:	
	Hex	1D	ЗA	
	Decimal	29	58	
[Description]	Starts or ends m	acro defi	nition.	
[Notes]	<ul> <li>Macro definitio operation. Mac macro definitior</li> </ul>	n starts ro definit n.	when tion er	this command is receiving during normal nds when this command is received during





- When GS ^ is received during macro definition, the printer ends macro definitions and clears all definitions.
- 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 definitions.
- If the orinter receives GS : again immediately after previously receiving **GS**:, the printer remains in the macro undefined state.
- The contents of the macro can be deifned up to 1024 bytes. If the macro definition exceeds 1024 bytes excess data is not stored.

#### [Default]

```
GS ^
[Reference]
```

[Example]

# GSC0nm

[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]	$0 \le n \le 5$									
	m = 0, 1, 2, 48,	m = 0, 1, 2, 48, 49, 50								
[Description]	Selects a print i	node for	the seria	al numbe	r counte	er. ollowe :				

• n specifies the number of digit 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 :

m	Printign 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.

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[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 meanings. n = 0, m = 0

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



□ indicates a space

[Default]



# GSC1al aHbl bHnr

[Name]	Select count mod	le (A).								
[Format]	ASCII	GS	С	1	aL	aН	bL	bH	n	r
	Hex	1D	43	31	aL	aН	bL	bH	n	r
	Decimal	29	67	49	aL	аΗ	bL	bH	n	r
[Range]	0 ≤ aL, aH ≤ 255									
	$0 \le bL, bH \le 255$									
	0 ≤ n, r ≤ 255									
[Description]	Selects a count r	node for	the s	seria	l nur	nber	coui	nter.		
	• aL, aH or bL, bl	H specify	the	cour	nter r	ange	э.			
	• n indicates the	stepping	amo	unt	wher	n cou	Inting	g up	or c	lown.
	• r indicates the r	epetition	num	nber	whe	n the	cou	nter	valu	ue is fixed.
[Notes]	Count-up mode	is specif	ied \	wher	ו :					
	$[aL + (aH \times 256)]$	<[bL+)	(bH)	< 25	6)] a	nd n	≠ 0 a	and r	≠ 0	)
	• Count-down mo	de is spe	ecifie	d wl	hen :					
	$[aL + (aH \times 256)]$	> [bL + (	(bH)	< 25	6)] a	nd n	≠ 0 a	and r	≠ 0	)
	Counting stops	when :	(		- /]					
	$[a] + (aH \times 256)]$	= [b/ + c]	(bH)	< 25	6)] oi	r n =	0 or	r = 0		
	• In setting count	-un mode	⇒ th	- mii	nimu	m va	ilue a	of the	م م د	unter is $[a] + (aH \times$
	256)] and the m	ap mout navimum	valu	e is	[h/ -	+ (h	1 × 2	56)1	lfr	ounting up reaches
	a value exceedi	ing the m	avin		it's i	resur	n A Z med	with	the	minimum value
	<ul> <li>In setting count</li> </ul>	t_down_m	nda	the	ma	vimu	m vs		of t	the counter is $[2] +$
	$(aH \times 256)$ and	the min	imur	, uic n va	luc i	a [h/	+ /h		256	110 counting down
		i une inimi ia lass f	han	min	imur	5 [ <i>DL</i> n if'	'e ro		∠JU ≏d	with the maximum
	value		inan		minui	, it	5 10	Sum	cu	
	• When this corr	mand is		cute	h ha	ha ir	ntorn	al co	hund	t that indicates the
	repetition numb	er snecif	ies h	v r	lear	ne n ed	nom		Jun	
[Default]	al = 1 aH = 0 b	1 = 255	bH =	25!	5 n =	= 1 r	= 1			

# [Example]

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

# GS C 2 nL nH

[Nomo]	Set counter									
[ivame]	Set counter.									
[Format]	ASCII	GS	С	2	nL	nH				
	Hex	1D	43	32	nL	nH				
	Decimal	29	67	50	nL	nH				
[Range]	$0 \le nL$ , $nH \le 255$									
[Description]	Sets the serial nu	imber co	unter val	Je.						
	• <i>nL</i> and <i>nH</i> dete ( <i>nH</i> × 256)].	rmine the	e value c	f the ser	ial numb	er counter set by [nL +				
[Notes]	• In count-up mode, if the counter value specified by this command goes out of the counter operation range specified by <b>GS C 1</b> or <b>GS C</b> ;, it is									
	torced to conve	rt to the r	ninimum	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 <b>GS C 1</b> or <b>GS C</b> ;, it is									

### GSC;sa;sb;sn;sr;sc;

[Name]	Select count mode.						
[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]	$0 \le sa, sb, sc \le 65535$						
	$0 \le sn, sr \le 255$						
	These values are all character strings.						
[Description]	Selects a count mode for the serial number counter and specifies the value	[Not					
	of the counter.	[Def					
	• <i>sa</i> , <i>sb</i> , <i>sn</i> , <i>sr</i> and <i>sc</i> are all dispalyed in ASCII character using the codes for 'O' to '9'.	[Ref					
	<ul> <li>sa and sb specify the counter range.</li> </ul>	[=//0					
	<ul> <li>sn indicates the stepping amount for counting up or down.</li> </ul>	G					
	• sr indicates the repetition number width the counter value fixed.	93					
	<ul> <li>sc indicates the counter value.</li> </ul>	[Nar					
[Notes]	Count-up mode is specified when :	[For					
	sa < sb and sn $\neq$ 0 and sr $\neq$ 0						
	<ul> <li>Count-down mode is specified when :</li> </ul>						
	$sa > sb$ and $sn \neq 0$ and $sr \neq 0$	Įnai					
	Counting stops when :	IDeg					
	sa = sb  or  sn = 0  or  sr = 0	[DCt					
	• In setting count-up mode, the minimum value of the counter is <i>sa</i> and the maximum value is <i>sb</i> . If counting up reaches a value exceeding the maximum, it's resumed with the minimum value. If the counter value set by <i>sc</i> is outside the counter operation range, the counter value is forced to convert to the minimum value by executing <b>GS</b> c	[Not					
	<ul> <li>In setting count-down mode, the maximum value of the counter is sa and the minimum value is sb. If counting down reaches a value less than minimum, it's 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.</li> <li>Parameter sa to sc can be omitted. If omitted, these argument values are unchanged.</li> </ul>						
	• Parameter sa to sc must not contain characters, exceept '0' to '9'.	ID -4					
[Default]	sa = 1, sb = 65535, sn = 1, sr = 1, sc = 1	[Def					
[Reference]	GS C 0, GS C 2, GS C 1, GS c						
[Example]		[ĽXa					

### GSHn [Name]

Select printing position of Human Readable Interpretation (HRI) characters



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[Format]	ASCII	GS	н	
	Hex	1D	48	
	Decimal	29	72	
[Dence]	0 < - < 0 10	< - < FA		

 $[Range] \qquad 0 \le n \le 3, \, 48 \le n \le 51$ 

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

n

n

n

n	Function
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.

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

 [Default]
 n = 0

 [Reference]
 GS f, GS k

 [Example]
 • HRI characters are printed using the font specified by GS f.

### GS P x y

[Name]	Set horizontal an	d vertica	I motion	units.					
[Format]	ASCII	GS	Р	х	у				
	Hex	1D	50	х					
	Decimal	29	80	х	У				
[Range]	x = 100, 200								
	y = 100, 200								
[Description]	Sets the horizor	ntal and	vertical	motion	units	to 1/x	k inch	and 1	/y inch,
	respectively.								
	When x is set to	0, the de	fault set	ting valu	e is us	sed.			
	When y is set to	0, the de	fault set	ting valu	e is us	sed.			
[Notes]	<ul> <li>The horizontal</li> </ul>	direction	is perpe	ndicular	to the	paper	feed di	rectior	n.
	<ul> <li>In standard me</li> </ul>	ode, the	followin	g comm	ands	use >	c or <i>y</i> ,	regard	dless of
	character rotati	on ( upsi	de-down	or 90° c	lockw	ise rot	ation ) :	-	
	① Command	using x:	ESC SF	, ESC \$	, ESC	GS	L, GŚ V	N.	
	② Command using v: ESC 3. ESC J.								
	• This command does not affect the previously specified values								
	• The calculated	l result	from co	mbinina	this	comn	nand w	vith of	thers is
	truncated to th	ne minim	um valı	ie of th	e mer	rhanic	al nitch	n or a	n evact
	multiple of that	value	ium vaic			sname			
	This command	chandes	the prin	tor omul	ation t	o ESC			
[Default]	v = 200 $v = 200$	changes	uic piin				<b>1 00</b> .		
[Default]					<u> </u>	e w			
[Evamplo]	LOC OP, EOC 9,	L00  E	.00 3, E	JU J, U	5 L, G	5 44			
[Example]									

### GS^rtm

[Name]	Execute macro.					
[Format]	ASCII	GS	۸	r	t	m

	Hex	1D	5E	r	t	m			
	Decimal	29	94	r	t	m			
[Range]	0 ≤ r, t ≤ 255								
	$0 \le m \le 1$								
[Description]	Executes a macr	0.							
	• r specifies the n	umber o	f times to	execute	the mac	ro.			
	• t specifies the w	aiting tin	ne for ex	ecuting th	ne macro				
	The waiting tim	ne is $t \times 1$	00 msec	. for ever	v macro	execution.			
	• <i>m</i> specifies may	• <i>m</i> specifies macro executing mode :							
	When the LSB of $m = 0$ , the macro executes <i>r</i> times continuosly at the								
	interval specified by t.								
	When LSB of $m = 1$ , after waiting for the period specified by t, the LED indicator blicks and the printer waits for the EED butten to be present								
	After the button is pressed, the printer executes the macro once. The								
	nrinter repeats the operation r times								
[Notes]	• This command	for a pori	ind of $(t_{\rm M})$	$\sqrt{100}$ meV	ac ) after	a macro is avacuted by			
	• This command for a period of $(t \times 100 \text{ msec.})$ after a macro is executed by								
	<ul> <li>If this command is received while a macro is being defined, the macro definitions is aborted and the definitions is cleared.</li> </ul>								

• If the macro is not defined or if *r* is 0, nothing is executed.

• When the macro is executed by pressing the FEED button (m = 1), paper can not be fed by using the FEED button.

[Default]

[Reference] GS:

[Example]

### GS c

[Name]	Print counter.			
[Format]	ASCII	GS	С	
	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 C 1 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 C 1 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 C 1 or GS C; it is forced to convert to the maximum value.

[Default] [Reference]

GS C 0, GS C1, GS C 2, GS C ; [Example]



### GS f n

[Name]	Select font for HRI characters.						
[Format]	ASCII	GS	f	n			
	Hex	1D	66	n			
	Decimal	29	102	n			
[Range]	n = 0, 1, 48, 49						
[Description]	Selects a font fo	Selects a font for the HRI characters i					

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

n	Font
0, 48	Font 1 (18 x 24).
1, 49	Font 2 (10 x 24).

[Notes]	HRI character are printed at the position specified by <b>GS H</b> .
[Default]	n = 0
[Reference] [Example]	GS H, GS k

### GS h n

[Name]	Set bar code he	ght				
[Format]	ASCII	GS	h	n		
	Hex	1D	68	n		
	Decimal	29	104	n		
[Range]	1 ≤ n ≤ 255					
[Description]	Sets the heigth of the bar code.					
[Notes]	•					
[Default]	n = 96 ( 12 mm )	)				
[Reference]	GS k					
[Example]						

① GS k m [d1dk] NUL				2	GS k	c m n [c	l1dn]
[Name]	Print ba	ar code.					
[Format]	1	ASCII	GS	k	m	NUL	
		Hex	1D	6B	m	00	
		Decimal	29	107	m	0	
	~						
	(2)	ASCII	GS	k	m	n	
		Hex	1D	6B	m	n	
		Decimal	29	107	m	n	
[Range]	$\bigcirc$	$0 \le m \le 6$					
	2	$65 \le m \le 73$					
[Description]	Selects a bar code system and prints the bar code. <i>m</i> selects a bar code system as follows :						

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m		Bar code system	Number of characters	Remarks
	0	UPC-A	11 ≤ <i>k</i> ≤ 12	48 ≤ <i>d</i> ≤ 57
	1	UPC-E	11 ≤ <i>k</i> ≤ 12	48 ≤ <i>d</i> ≤ 57
	2	EAN13 (JAN)	12 ≤ <i>k</i> ≤ 13	48 ≤ <i>d</i> ≤ 57
	3	EAN8 ( JAN )	$7 \leq k \leq 8$	48 ≤ <i>d</i> ≤ 57
	4	CODE39	$1 \leq k$	$48 \le d \le 57, 65 \le d \le 90, 32,$
-	_			36, 37, 43, 45, 46, 47
1	5	ITF	1≤ <i>k</i> (even number)	$48 \le d \le 57$
	6	CODABAR	1 ≤ <i>k</i>	$48 \le d \le 57,  65 \le d1 \le 68,$
				36, 43, 45, 46, 47, 58
	7	CODE93	1 ≤ <i>k</i> ≤ 255	1 ≤ <i>d</i> ≤ 127
	8	CODE128	$2 \le k \le 255$	1 ≤ <i>d</i> ≤ 127
	20	CODE32	$8 \le k \le 9$	48 ≤ <i>d</i> ≤ 57
	65	UPC-A	11 ≤ <i>n</i> ≤ 12	48 ≤ <i>d</i> ≤ 57
	66	UPC-E	11 ≤ <i>n</i> ≤ 12	48 ≤ <i>d</i> ≤ 57
	67	EAN13 ( JAN )	12 ≤ <i>n</i> ≤ 13	$48 \le d \le 57$
	68	EAN8 ( JAN )	7 ≤ <i>n</i> ≤ 8	48 ≤ <i>d</i> ≤ 57
	69	CODE39	1 ≤ <i>n</i> ≤ 255	$48 \le d \le 57, 65 \le d \le 90, 32,$
	=0			36, 37, 43, 45, 46, 47
(2)	70	IIF	1 ≤ <i>n</i> ≤ 255	$48 \le d \le 57$
	71	CODABAR	1 ≤ <i>n</i> ≤ 255	$48 \le d \le 57,  65 \le d1 \le 68,$
				36, 43, 45, 46, 47, 58
	72	CODE93	1 ≤ <i>n</i> ≤ 255	0 ≤ <i>d</i> ≤ 127
	73	CODE128	2 ≤ <i>n</i> ≤ 255	0 ≤ <i>d</i> ≤ 127
	90	CODE32	8 ≤ <i>n</i> ≤ 9	48 ≤ <i>d</i> ≤ 57

[Notes]

• If *d* is outside of the specified range, the printer prints the following message : "BAR CODE GENERATOR IS NOT OK !" and processing the following data as normal data.

- If the horizontal size exceeds printing area, the printre 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**.
- After printing bar code, this command sets the print position to the beginning of the line.
- This commnad is not affected by prints modes (emphasized, double stricke, underline or character size), except for upside-down mode and justification.

#### [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 11 ( without check digit ) or 12 ( with check digit ) bytes bar code data.
- When the bar code system used is EAN13, the printer prints the bar code after receiving 12 ( without check digit ) or 13 ( with check digit ) bytes bar code data.
- When *n* the bar code system used is EAN8, the printer prints the bar



code after receiving 7 ( without check digit ) or 8 ( with check digit ) bytes bar code data.

- The number of data for ITF bar code must be even numbers. When an odd number of data is input, the printer ignores the last received data.
- [Notes for ②] If *n* is outside of the specified range, the printer stops command processing and processes the following data as normal data.
- - The printer prints an HRI character (  $\Box$  ) as a stop character at the end of the HRI character string.
  - The printer prints an HRI characters (■) as a control character ( 00H to 1FH and 7FH).
- When CODE128 When using the CODE128 in this printer, take the following points into account for data transmission :
  - The top of the bar code data string must be code set selection character ( any of CODE A, CODE B or CODE C ) which selects the first code set.
  - Special characters are defined by combining two characters "{" and one character. The ASCII character "}" is defined by transmitting "{" twice consecutively.

	Transmit data			
Specific character	ASCII	Hex	Decimal	
SHIFT	{S	7B, 53	123, 83	
CODE A	{A	7B, 41	123, 65	
CODE B	{B	7B, 42	123, 66	
CODE C	{C	7B, 43	123, 67	
FNC1	{1	7B, 31	123, 49	
FNC2	{2	7B, 32	123, 50	
FNC3	{3	7B, 33	123, 51	
FNC4	{4	7B, 34	123, 52	
·{'	{{	7B, 7B	123, 123	

[Default] [Reference] GS H, GS f, GS h, GS w [Example]

### 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]	Description] Sets the horizontal size of the ba			r code.

n	Module Width (mm)
2	0.25
3	0.375
4	0.5
5	0.625
6	0.75

[Notes] [Default]

n = 3 [Reference] GS k [Example]

# GS | n

-					
[Name]	Set printing density.				
[Format]	ASCII	ĞS		n	
	Hex	1D	7C	n	
	Decimal	29	124	n	
[Range]	ae] 0 < n < 4, 48 < n < 52				

[Description] Sets the printing density. *n* specifies the printing density as follows :

n	Printing density
0, 48	Very light
1, 49	Light
2, 50	Normal
3, 51	Dark
4, 52	Very dark

[Notes]

• The printing density is cleared at default value when the printer is reset or the power is turned off.

[Default] [Reference] n = 2

[Example]

