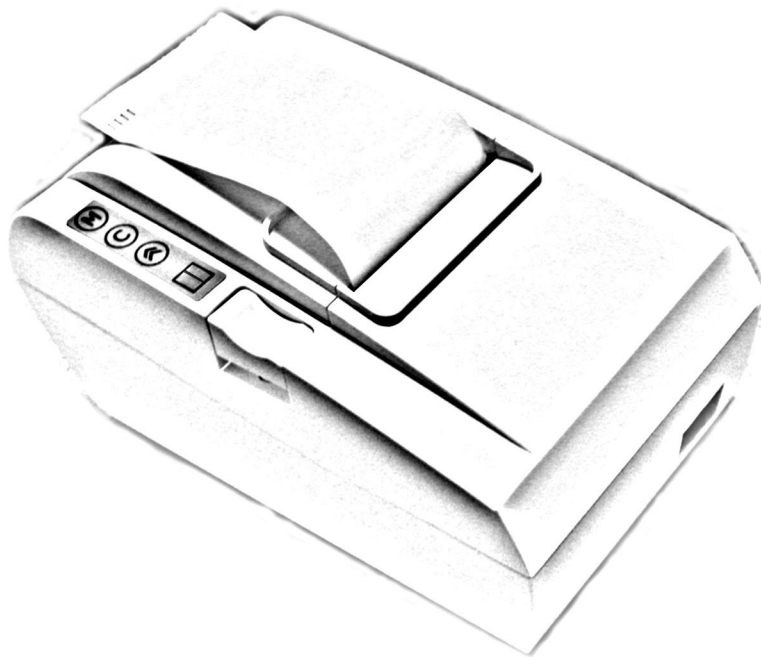


Daisy 1200

ESC/POS PRINTER

User's manual



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1 GENERAL OUTLINE

1.1 Features

The Daisy 1200 Printer is a line thermal printer which can be used in different applications like communication terminals, ESC/POS terminals & networks, and more.

- ESC/POS printer
- Compact design
- Low-noise printing
- Auto cutter mechanism provided as a standard unit
- Built-in input buffer
- Bar code printing
- High-speed printing at 150 mm/s max.
- Power supply - AC adapter
- Built-in Drawer Kick-out interface
- Optional Wireless Bluetooth communication feature

1.2 Unpacking

When unpacking the printer, confirm that the following items are provided:

- Printer 1 unit
- AC adapter 1 unit
- AC power cord 1 piece
- Sample paper roll 1 piece
- CD..... 1 piece

1.3 Specifications

Item	Specifications
Print Method	Line thermal print method
Printer	SEIKO CAP G247A
Print Width	54 mm, 432 dots
Dot Density	8 dots/mm (Horizontal/Vertical)
Paper Feed Pitch	0.125 mm
Print Speed	100 mm/sec, Max 150 mm/sec
Number of print columns	36 (Font A) 43 (Font B)
Character Size	Font A: 12x22 Font B: 10x20
Bar Code Types	EAN13, EAN8, UPC-A, UPC-E, Codebar, Interleaved 2 of 5, Code 39, Code 93, Code 128
Paper	Thermal roll: Max W57mm, ø55mm
Paper Thickness	60-65 µm
Interface	RS-232C Interface, max 115200 bps
Power Consumption	60W max
Adapter	Input: AC 100-240V, 1.0A, 50/60Hz Output: DC +24V, 2.5A
Weight	
External Dimensions	
Operating Temperature and Humidity	5 ÷ 40 °C, 30 ÷ 85% RH
Storage Temperature	-10 ÷ 60 °C, 10 ÷ 90% RH
Reliability	Print head life: 100 million pulses or 100 km print length. Auto Cutter life: 1 million cuts.

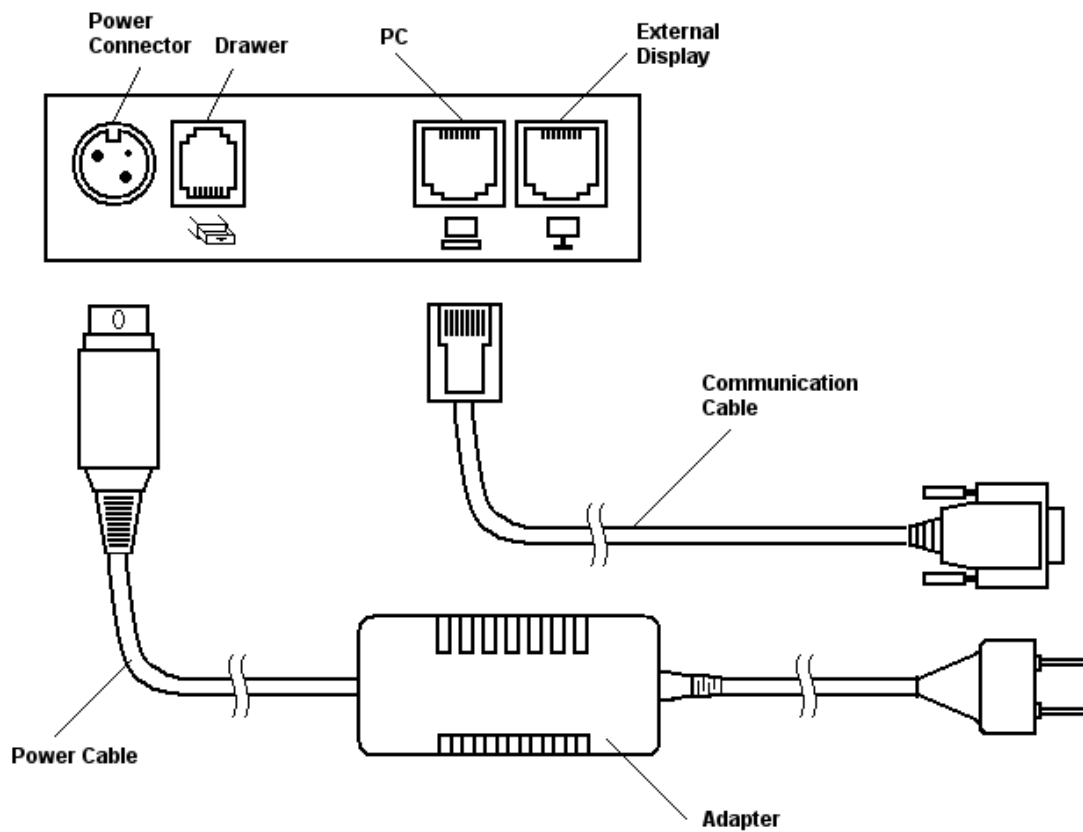
2 PREPARATION

2.1 *Connecting the AC adapter and AC power cord*

2.1.1 Switch the printer's power button off.

2.1.2 Insert the power cable connector into the power connector on the back side of the printer.

2.1.3 Connect the AC power cord to the AC adapter, and insert the AC-power cord plug into a suitable wall outlet.



2.2 *Connecting the interface cables*

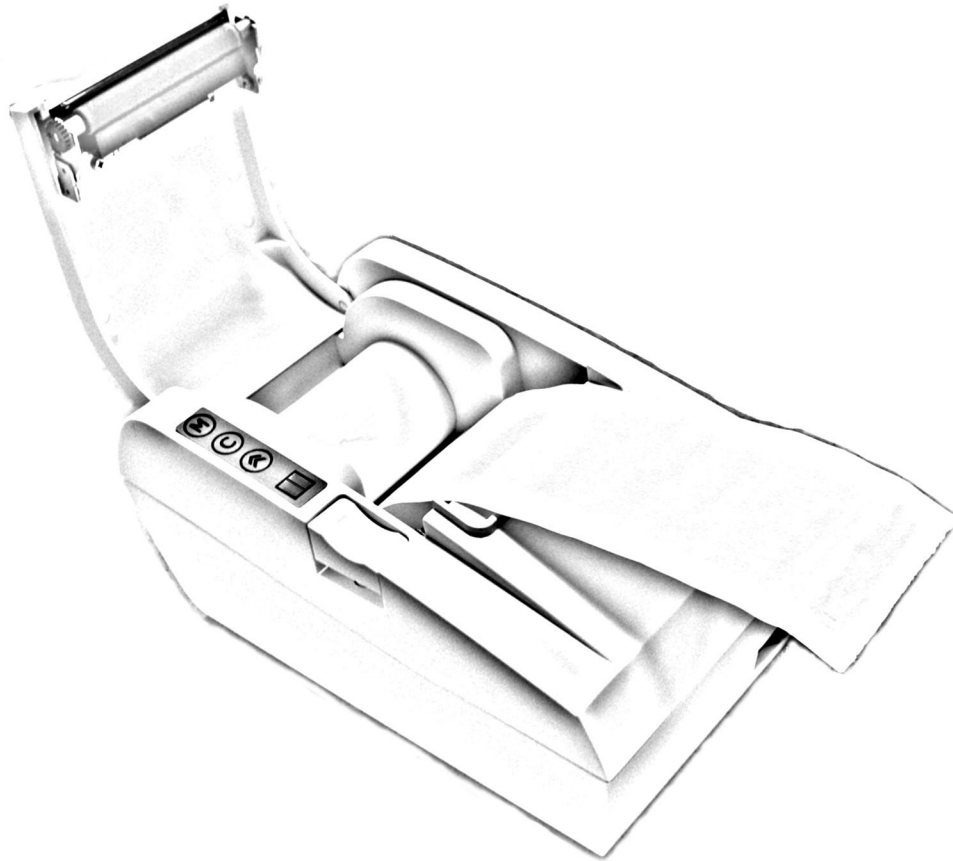
2.2.1 Turn the printer off.

2.2.2 Insert the RJ connector into the interface connector on the back panel.

2.2.3 Connect the other end of the interface cable to the host computer.

If the printer has a Bluetooth module you may not need to connect the interface cable. Refer to section 3.3 for details.

2.3 Loading the paper



2.3.1 Turn the printer off.

2.3.2 Push the eject button and open the printer cover.

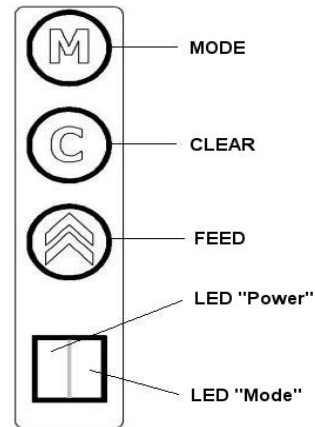
2.3.3 Place the paper roll into the the roll holder as shown on the picture above.

2.3.4 Push on the printer cover until a “click” is heard.

3 OPERATION PANEL

3.1 LED indicators

- **Power LED**
The LED is activated when printer's power is turned on.
- **Mode LED**
The LED is activated when the printer is printing. On error the LED is blinking until the error is cleared.



3.2 Buttons functions

- **FEED**
When FEED button is pressed the printer feeds one line of paper. When the FEED button is held down for 2-3 seconds the printer feeds the paper continuously.
- **CLEAR**
When an error occurs the user needs to press the CLEAR button to clear the error and to continue printing.
- **MODE**
There are two modes depending on the other buttons:

SELF-TEST mode.
Turn the printer off. Press simultaneously MODE and FEED buttons. Turn the printer on. Wait until it beeps three times, then release the buttons. The printer will print its current configuration.

RESET SETTINGS TO DEFAULTS mode.
Turn the printer off. Press simultaneously MODE, CLEAR and FEED buttons. Turn the printer on. Wait until it three times, then release the buttons. The printer will print a message:

“Restore default settings?”

“ press MODE for Yes”*

“ press FEED for No”*

Press MODE to restore the defaults settings or FEED to cancel the operation.

3.3 Wireless Bluetooth communication

If your printer has a Bluetooth module installed You will be able to establish connections to the host computer without communication cable. To enable the Bluetooth module You have to press and hold down MODE and CLEAR buttons simultaneously while the printer is powered (the Power LED is on). The following message will be printed:

“Bluetooth ON”

Press and hold down MODE and CLEAR buttons simultaneously once again to disable the Bluetooth module. The following message will be printed:

“Bluetooth OFF”

NOTE: The Bluetooth module is enabled and disabled by pressing buttons while the printer is on. For Self-test and Reset settings modes You have to turn the printer off before pressing and holding down any button.

NOTE: The Bluetooth module supports the following baud rates: 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps.

The baud rate is set by the application running on the PC.

4 COMMAND LIST

1	HT	Horizontal tab command
2	LF	Print and Line feed
3	CR	This command is ignored
4	ESC SP	Set character spacing
5	ESC \$	Set absolute position
6	ESC %	Select/cancel user character set
7	ESC &	Define user characters
8	ESC !	Print mode collective specification
9	ESC *	Set bit image mode
10	ESC -	Set/cancel underline mode
11	ESC .	Print diagnostic information
12	ESC 2	Set 1/6-inch line spacing
13	ESC 3	Set n/256-inch line spacing
14	ESC =	Data input control
15	ESC @	Initialize printer
16	ESC D	Set horizontal tab position
17	ESC E	Set/cancel highlighting
18	ESC G	Set/cancel double printing
19	ESC J	Print and feed paper n/256 inch
20	ESC M	Select character font A or B
21	ESC R	Set international character set
22	ESC T	Print short diagnostic information
23	ESC t	Set encoding table
24	ESC X	Set maximum print speed
25	ESC Y	Set intensity level (1st variant)
26	ESC Z	Transmit identification string
27	ESC \	Set relative position
28	ESC a	Set text alignment
29	ESC d	Print and feed the paper n lines
30	ESC i	Cut paper (full cut)
31	ESC m	Cut paper (partial cut)
32	ESC p	Generate a drawer-kick pulse

33	ESC v	Transmit printer's status
34	ESC s	Save configuration to the non-volatile memory
35	GS D n	Set intensity level (2nd variant)
36	GS (A	Print a self-test
37	GS L	Set left print margin
38	GS V	Cut paper
39	GS W	Set width of printable area
40	GS k	Print barcode
41	GS w	Set barcode horizontal size (scale factor)
42	GS h	Set barcode height
43	GS H	Set HRI code printing position
44	GS f	Select HRI code font
45	GS v 0	Print raster bit image
46	GS *	Download bit image
47	GS /	Print downloaded bit image
48	GS T	Turn Bluetooth module on/off
49	GS B	Set communication speed

1. HT

Horizontal Tab command

[Code] **[09h]**

[Outline] Shifts the printing position to the next horizontal tab position.

- Ignored when the next horizontal tab position has not been set.
- The horizontal tab position is set by ESC D.
- Initial setting of the horizontal tab position is each 8 characters in 9th, 17th, 25th columns.

[See Also] ESC D

2. LF

Print and feed the paper

[Code] **[0Ah]**

[Outline] Prints data contained in the input buffer.

[See Also] ESC 2, ESC 3

3. CR

Print command

[Code] **[0Dh]**

This command is ignored.

4. ESC SP n

Set character spacing

[Code] **[1Bh] + [20h] + n**

[Range] {0 <= n <= 0Fh}

[Outline] The rightward spacing is set in dot units (1/203 inch unit).

[Caution] The rightward spacing is doubled if double width print mode is enabled.

[Default] n = 0

5. ESC \$ n1 n2

Set absolute position

[Code] **[1Bh] + [24h] + n1 + n2**

[Range] {0 <= n1 <= FFh}

 {0 <= n2 <= 2}

 {0 <= n1+n2*256 <= 216}

[Outline] The printing start position is specified by the number of dots (1/203 inch unit) from the beginning of line.

 The printing start position is equal to n1 + n2 x 256 from the beginning of line.

[Default] The initial value is not specified.

[See Also] ESC \

6. ESC % n

Select/cancel user character set

[Code] **[1Bh] + [25h] + n**

 Only bit 0 of n is significant

 Value 0: Selected

 Value 1: Not selected

[See also] ESC &

7. ESC & m n1 n2 [d] k

Define user characters

[Code] **[1Bh] + [26h] + m + n1 + n2 + D₁ + ... + D_{(m-n+1)k}**

[Range] {m = 0-3 Subcommand}

 {20h <= n1 <= FFh }

 {n1 <= n2 <= FFh }

 {k = (n2-n1+1)*44 when m=2 and k = (n2-n1+1)*40 when m=3 }

[Outline] Defines a group of user characters.

m=0: Copy internal character set A to user character set A
(Parameters n1, n2 and d are omitted)

m=1: Copy internal character set B to user character set B
(Parameters n1, n2 and d are omitted)

m=2: Define character group with ASCII codes between >=n1 and <=n2 for character set A (12x22). Every character is 44 bytes, two bytes for each line.

m=3: Define character group with ASCII codes between >=n1 and <=n2 for character set B (10x20). Every character is 40 bytes long.

n1 is the ASCII code of the first and **n2** is the ASCII code of the last of (n2-n1+1) consecutive symbols.

To define a single symbol choose n1=n2.

d is the data that defines the symbols. Every Font A symbol consists of 44 bytes while every Font B symbol consists of 40 bytes.

Every font symbol is defined left to right, top to bottom, two bytes for each horizontal line. Every bit denotes one dot. A bit set to '1' means black dot. The most significant bit is the starting one.

[See Also] ESC %

8. ESC ! n

Print mode collective specification

[Code] **[1Bh] + [21h] + n**

[Range] {0 <= n <= FFh}

[Outline] Each n bit sets a print modifier according to the table:

Bit	Function	Value "0"	Value "1"
0	Character Font	Font A	Font B
1	Quadruple Height	Canceled	Set
2	Quadruple Width	Canceled	Set
3	Condensed	Canceled	Set
4	Double Height	Canceled	Set
5	Double Width	Canceled	Set
6	Not Used		
7	Underlined	Canceled	Set

[Default] n = 0

[See Also] ESC E, ESC -

9. ESC * m n1 n2 [d] k

Set bit image mode

[Code] **[1Bh] + [2Ah] + m + n1 + n2 + D1+ ... + Dk**

[Range] {m= 0, 1, 32, 33 bit image mode (See the table below.)}

{0 <= n1 <= FFh}

{0 <= n2 <= 3}

{0 <= d <= FFh}

{k = n1 + 256 x n2 (m = 0, 1)}

{k = (n1+256 x n2) x 3} (m = 32, 33)

[Outline] Prints a graphic line.

According to the number of dots specified by n1, n2, specify the bit image of mode m.

- The total number of dots printed in the bit image is equal to n1 + (256 x n2).

- When bit image data has been sent in excess of dot position of one line (432 dots), the excess data is discarded.

- d is bit image data, the bits subject to printing are set ("1") and

those not – cleared (“0”).

- The bit image modes specified by m are as follows:

m	Mode	Vertical Direction		Horizontal Direction	
		Dots	Dot Density	Dot Density	Max. Dots
0	8-dot single density	8	67 dpi	101 dpi	216
1	8-dot double density	8	67 dpi	203 dpi	432
32	24-dot single density	24	203 dpi	101 dpi	216
33	24-dot double density	24	203 dpi	203 dpi	432

- [Caution]
- When the value of m (bit image mode) is out of the above range, the data following after n1 is processed as normal printing data.
 - After completion of a bit image printing, the printer returns to normal data processing mode.

The command has another variant with four new modes:

ESC * m n[d] k

ESC * m n a f [d] k

Specifying the Bit Image Mode (Sending graphics data horizontally)

[Code] **[1Bh] + [2Ah] + m + n + { a + [00h] } +D1 + ... +Dk**

[Range] {m = 16, 17, 18, 20 bit image mode}

{0 <= n <= 40h}

{0 <= d <= FFh}

{k = n * 24 * 48} (m = 16)

{k = n * 24 * 48} (m = 17) {After decompression}

{k = n * h * 48} (m = 18) {After decompression}

{k = n * 24 * 48} (m = 20) {After decompression}

{0 <= a <= 24 (Used only for mode 18.)}

{f = 0 (Used only for mode 18.)}

[Outline] In these graphics modes is sent a graphics block with variable width n*8 dots and height 24 dots for modes 16,17 and a dots for mode 18. In mode 17 data is compressed, and the bytes count specified is before the compression. In mode 16 the same data is without compression. Mode 20 is similar to mode 17, but every byte is mirrored before putting in the print buffer (bits 0 and 7, 1 and 6, 2 and 5, 3 and 4 change places). All modes are high resolution (203 x 203 DPI).

- When bit image data have been input in excess of dot position of one line (432 dots) , the excess data are discarded.
- d is bit image data, the bits subject to printing are taken as “1” and those not as “0”.

[Caution] • When the values set in m (bit image mode) are out of the above range, the data following after n is processed as normal printing data.

- After completion of bit image printing, printer returns to normal data processing mode.

[Compression procedure for mode 17 and 18]

A simple RLE encoding like this in PCX files is used. If two most significant bits of the byte are set, the 6 LSB contain a repeat counter (1-63), and the next byte contains the data to be repeated. A single data byte with 2 MSB set must be sent as two bytes.

10. ESC – n

Set/cancel underline mode

[Code] **[1Bh] + [2Dh] + n**

[Range] {0 <= n <= 2}

[Outline] Set/cancel underline mode.

• Types of underlines by n value are shown below:

0 Cancel underline.

1 1-dot width underline.

2 2-dot width underline

[See Also] ESC !

11. ESC .

Self-test

[Code] **[1Bh] + [2Eh]**

[Outline] Prints the character table, character samples with different attributes and diagnostic information.

[See also] ESC ,

12. ESC 2

Set 1/6-inch line spacing

[Code] **[1Bh] + [32h]**

[Outline] The line spacing is specified in units of 1/6 inch.

13. ESC 3 n

Set n/256-inch line feed spacing

[Code] **[1Bh] + [33h] + n**

[Range] {0 <= n <= FFh}

[Outline] The line spacing is specified in units of 1/203 inch.

[Default] The initial value is n = 34 (1/6 inch) (22h), being 4.23 mm line spacing.

14. ESC = n

Data Input Control

[Code] **[1Bh] + [3D] + n**

[Range] {0 <= n <= FFh}

[Outline] Only bit 0 is significant:

Value 0: Selected

Value 1: Not selected

When the printer is not selected, it ignores all the received data until it is selected by this command.

[Caution] • Even when the printer has not been selected, it can enter BUSY state through printer operation.

[Default] • The initial value of n is "1".

15. ESC @

Reset printer

[Code] **[1Bh] + [40h]**

[Outline] Clears data stored in the print buffer and resets the following settings to their default values:

- remove all attributes from the printing mode;
- set the character spacing to 0;
- turn off the inverse mode;
- set the absolute position to 0;
- deselects User Font.

[See also] ESC ^ and ESC _

16. ESC D [n] k NUL

Set Horizontal Tab position

[Code] **[1Bh] + [44h] + n₁ + ... + n_k + [00h]**

[Range] {0 <= n <= 18h}

{0 <= k <= 20h}.

[Outline] Sets a horizontal tab position.

- “n” indicates the number of columns from the beginning to the horizontal tab position. For example, to set the position at 9-th column, n=8 is to be specified. The maximum value allowed to be set is 24.
- “k” denotes the number of horizontal tab positions you want to set. At most 32 tab positions can be set.
- <n> k denotes a list of setting positions in ascending order, terminated with <00h>.
- **ESC D NUL** clears all tab positions previously set.

[Caution] When n_k is equal to or smaller than n_{k-1}, it is assumed that tab setting is finished. If this is the case, the next data onward will be processed as normal data.

[Default] • Initial value is specified for each eight characters(9th, 17th, 25th column).

[See Also] HT

17. ESC E n

Set/cancel character highlighting

[Code] **[1Bh] + [45h] + n**

[Range] {0 <= n <= FFh}

[Outline] Set/cancel the highlighting characters.

Only bit 0 of n is significant:

0 Cancel highligh mode.

1 Set highlight mode.

[Caution] The print result of double printing and highlighted character printing is completely the same.

[See Also] ESC !

18. ESC G n

Set/cancel Double Printing

[Code] **[1Bh] + [47h] + n**

[Range] {0 <= n <= FFh}

[Outline] Set/cancel double printing mode.

Only bit 0 of n is valid:

0 Cancel double printing.

1 Specify double printing.

[Caution] The print result of double printing and highlighted character printing is completely the same.

[See Also] ESC E

19. ESC J n

Print and feed paper n/203 inch

[Code] **[1Bh] + [4Ah] + n**

[Range] {0 <= n <= FFh}

[Outline] Prints data contained in the print buffer and feeds paper by n/203 inches. Since the actual mechanical pitch is 1/203 inch, it is internally converted approximately to the value specified with this command.

20. ESC M n

Select character Font A or B

[Code] **[1Bh] + [4Dh] + n**

[Range] {0 <= n <= FFh}

[Outline] Selects character font.

Only bit 0 of n is significant:

0 Selects font A (12x22).

1 Selects font B (10x20).

[See also] ESC !

21. ESC R n

Select international character set

[Code] **[1Bh] + [52h] + n**

[Range] {0 <= n <= 10}

[Outline] Depending on the value of „n“, one of the following character sets is selected:

n	COUNTRY	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	USA	#	\$	@	[\]	^	'	{		}	~
1	France	#	\$	à	°	Ç	§	^	'	é	ù	è	“
2	Germany	#	\$	§	Ä	Ö	Ü	^	'	å	ö	ü	ß
3	UK	£	\$	@	[\]	^	'	{		}	~
4	Denmark 1	#	\$	@	Æ	ı	Å	^	'	æ	ı	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain 1	Pt	\$	@	ı	Ñ	¿	^	'	"	ñ	}	~
8	Japan	#	\$	@	[¥]	^	'	{	ı	}	~
9	Norway	#	¤	É	Æ	ı	Å	Ü	é	æ	ı	å	ü
10	Denmark 2	#	\$	É	Æ	ı	Å	Ü	é	æ	ı	å	ü
11	Spain 2	#	\$	à	ı	Ñ	¿	é	'	ı	ñ	ó	ú
12	Latin Amer.	#	\$	à	ı	Ñ	¿	é	û	ı	ñ	ó	ú

22. ESC T

Print short diagnostic information

[Code]

[1Bh] + [54h]

[Outline]

Prints short diagnostic information.

[See also]

ESC .

23. ESC t n

Set encoding table

[Code]

[1Bh] + [74h] + n

[Outline]

Sets text encoding table

n	Text Encoding
0	CP1250
1	CP1251
2	CP1252
3	CP1253
4	DOS866
5	Daisy fiscal printers

24. ESC X n

Set maximum printing speed

[Code]

[1Bh] + [58h] + n

[Range]

{0 <= n <= 9}

{'0' <= n <= '9'}

[Outline] Selects the maximum printing speed according to the value of 'n':
 0 or '0' about 100 mm/s
 1 or '1' about 90 mm/s
 2 or '2' about 85 mm/s
 3 or '3' about 75 mm/s
 4 or '4' about 70 mm/s
 5 or '5' about 65 mm/s
 6 or '6' about 60 mm/s
 7 or '7' about 55 mm/s
 8 or '8' about 50 mm/s
 9 or '9' about 45 mm/s
 These values are approximate. The real maximum speed depends on the print intensity and the printing head's temperature.

[Default] The default value is 0 – maximum printing speed.

25. ESC Y n

Select the intensity level

[Code] **[1Bh] + [59h] + n**

[Range] {0 <= n <= 2}

[Outline] Set the intensity level.
0 or '0' Set low intensity;
1 or '1' Set middle intensity;
2 or '2' Set high intensity.

[Caution] Higher intensities lead to lower speed. There is another variant of this command (see GS commands).

[Default] The initial value of n is 1.

[See also] GS D

26. ESC Z

Transmit identification string.

[Code] **[1Bh] + [5Ah]**

[Outline] The printer transmits 32 bytes of information with the following structure:
 1 – 22: Printer name complemented(padded) with 'space' up to 22 symbols.
 23 – 25: Firmware version – 3 digits (in ASCII format).
 26 – 27: Language version – 2 letters.
 28 – 32: 5 bytes flags. Each bit describes a printer feature, as '1' means that the feature is present, while '0' means its absence. Bits are described as follows:
Bits Meaning:
 28.0 Supports IrDA mode
 28.1 Supports magnetic stripe card reader
 28.2 Supports simultaneous reading of three tracks from a magnetic stripe card
 28.3 ASCII codes above 127 contain Katakana symbols
 28.4 Supports JIS and Shift-JIS symbols
 28.5 Printer supports ESC . and ESC T commands
 28.6 Not Used
 28.7 Reserved – always 1
 29.0 Supports downloadable fonts and firmware

- 29.1 Korean support
- 29.2 Black mark support
- 29.3 Bar code reader support
- 29.4 USB A installed
- 29.5 USB B installed
- 29.6 Not Used
- 29.7 Reserved – always 1

Bytes 30, 31 and 32 are always 0x80

27. ESC \ n1 n2

Set Relative Position

[Code]	[1Bh] + [5Ch] + n1 + n2
[Range]	{0 <= n1 <= FFh} {0 <= n2 <= FFh}
[Outline]	The printing start position is defined as the number of dots (1/203 inch unit) from the current position. Rightward direction is taken as plus and leftward direction as minus. To specify N dot in minus (left) direction, use a complement of N for assignment (– N dots = 65536 – N). The number of dots is divided by 256, whose quotient is taken as n2 and the residual as n1.
[Caution]	If the resulting relative position is out of the printable area the command will be ignored.
[Default]	The initial value is not specified.
[See Also]	ESC \$

28. ESC a n

Aligning the characters

[Code]	[1Bh] + [61h] + n
[Range]	{0 <= n <= 2}
[Outline]	This command is extended and has the following format: 0 or ' 0 ' Text is left aligned; 1 or ' 1 ' Text is centered; 2 or ' 2 ' Text is right aligned.
[Default]	The initial value of n is 0.

29. ESC d n

Print and feed the paper by n lines

[Code]	[1Bh] + [64h] + n
[Range]	{0 <= n <= FFh}
[Outline]	Prints data from the print buffer and feeds paper by n lines.
[Default]	The initial value is not defined.

30. ESC i

Cut the paper (full cut)

[Code]	[1Bh] + [69h]
[Outline]	The command performs a full cut. The command is valid only at the beginning of a line.

31. ESC m

Cut the paper (partial cut)

[Code] **[1Bh] + [6Dh]**

[Outline] The command performs a partial cut (one point remaining in the middle).

The command is valid only at the beginning of a line.

32. ESC p

Generate a drawer-kick pulse

[Code] **[1Bh] + [70h] + m + n1 + n2**

[Range] { 0 <= n1 <= 255 }

{ 0 <= n2 <= 255 }

[Outline] The value of **m** is ignored.

The printer generates a $2 \cdot n1$ milliseconds long pulse and $2 \cdot n2$ milliseconds long rest after the pulse. **n2** must be at least four times greater than **n1** or the command will be discarded.

33. ESC v

Transmit printer status

[Code] **[1Bh] + [76h]**

[Outline] Current printer status is transmitted over the serial interface.

Status sent out consists of 1 byte.

Bits Meaning:

Bit 0: Paper error = 1, otherwise = 0;

Bit 1: Reserved;

Bit 2: Printer's head temperature is too high = 1, otherwise = 0;

Bit 3: Reserved;

Bit 4: Printer is started = 1, otherwise = 0;

Bit 5: Printer is busy = 1, otherwise = 0;

Bit 6: Reserved;

Bit 7: Reserved.

34. ESC s

Save configuration

[Code] **[1Bh] + [73h]**

[Outline] Saves all printer configuration and User Font to non-volatile memory.

Next time printer will start with the saved configuration.

[Caution] There is a button sequence to reset all settings to defaults.

35. GS D n

Select the intensity level (2-nd variant)

[Code] **[1Dh] + [44h]**

[Range] {E2h <= n <= 1Eh}

[Outline] Set the intensity level to **n** percents

n is a signed byte value with range from -30 to +30%.

Negative value of **n** is represented as $256 - n$

[Caution] Higher intensities lead to lower print speed.

There is another variant of this command (see ESC commands).

[Default] The initial value of **n** is 0.

[See also] ESC Y

36. GS (A pL pH n m

Print a self-test

[Code] **[1Dh] + [28h] + [41h] + pL + pH + n + m**

[Range] { 0 <= pL <= 255 }

 { 0 <= pH <= 255 }

 { 0 <= n <= 255 }

 { 2 <= m <= 3 }

[Outline] This command is intended for compatibility purposes. A “short” or “long” test is printed depending on the value of m.

m = 2 – printing a “long” test (ESC .)

m = 3 – printing diagnostic information (“short” test) (ESC T)

37. GS L n1 n2

Set left margin

[Code] **[1Dh] + [4Ch] + n1 + n2**

[Range] {0 <= n1 <= FFh}

 {0 <= n2 <= FFh}

[Outline] Sets the position in dots (1/203 inches) from which each line starts.

This command works only if entered at the beginning of the line.

The start position is equal to **n1+256*n2** dots from the left end of the printable area.

[Default] Default value is n1=n2=0.

38. (1) GS V m

(2) GS V m n

Cutting the paper

[Code] **(1) [1Dh] + [56h] + m**

(2) [1Dh] + [56h] + m + n

[Range] (1) {m=1, m=49}

 (2) {m=66}

 {0 <= n <= 255}

[Outline] Depending on the value of m one of the following actions is performed:

case (1)

- if m=0 or m=48 ('0') a full cut is performed

- if m=1 or m=49 ('1') a partial cut is performed

case (2)

- if m=65 ('A') the paper is fed by n/8 mm and then a full cut is performed

- if m=66 ('B') the paper is fed by n/8 mm and then a partial cut is performed

In both cases the paper is first fed to the cut position so the last printed line remains after the cutter's edge. This means that in

case (2) the paper is fed by “cut position + n/8” millimeters prior to cutting.

39. GS W

Select printable area width

[Code] **[1Dh] + [57h] + n1 + n2**

[Outline] This command sets width of the printable area **n1+256*n2** dots.

If the width is longer than the left end of the printable area + $n1+256*n2$, the width is set to the width of the whole printable area minus the left end of the printable area. The printable area is expanded to right to hold the last symbol.

40. (1) GS k m [d] k NUL

(2) GS k m n [d] k

Print a bar code

[Code] **(1) [1Dh] + [6Bh] + m + Di + [00h]**

(2) [1Dh] + [6Bh] + m + n + Di

[Range] **(1) {0 <= m <= 6}**

(2) {65 <= m <= 73}

[Outline] Prints a bar code.

The beginning of line is considered as the next printing start position.

Depending on the value of m, the following bar code can be selected.

d id the bar code data to be printed and **k** indicates the number of characters to be printed.

n indicates number of characters when $65 \leq m \leq 73$.

m determines bar code type:

m (1)	Barcode Type
0	UPC-A
1	UPC-E
2	EAN 13 (JAN 13)
3	EAN 8 (JAN 8)
4	CODE 39
5	2OF5 INTERLEAVED
6	CODEBAR

m (2)	Barcode Type
65	UPC-A
66	UPC-E
67	EAN 13 (JAN 13)
68	EAN 8 (JAN 8)
69	CODE 39
70	2OF5 INTERLEAVED
71	CODEBAR
72	CODE 93
73	CODE 128 (AUTO)

41. GS w n

Select barcode horizontal size (scale factor)

[Code] **[1Dh] + [77h] + n**
[Range] {2 <= n <= 4}
[Outline] Select the bar code width.
 n denotes the number of dots in element width.
[Default] The initial value of this width is "3".

42. GS h n

Select barcode height

[Code] **[1Dh] + [68h] + n**
[Range] {1 <= n <= FFh}
[Outline] Select the barcode height.
 n denotes the number of dots in the vertical direction.
[Default] The initial value of n is "100".

43. GS H n

Set HRI code printing position

[Code] **[1Dh] + [48h] + n**
[Range] {0 <= n <= 3}
[Outline] Selecting printing position of HRI code when printing bar codes.
 "n" means the following:
 0 No printing;
 1 Above the bar code;
 2 Below the bar code;
 3 Both above and below the bar code.
 The HRI code refers to the bar code-turned characters so that you
 can read them.
[Caution] The HRI code is printed in the font selected with **GS f**. Specify
 before the **GS k** command.
[Default] The initial value of n is "0".
[See Also] GS f

44. GS f n

Select HRI code font

[Code] **[1Dh] + [66h] + n**
[Range] n = 0, 1
[Outline] Selecting the font of HRI code when printing bar code.
 The font type depends on n as follows:
 0 Font A;
 1 Font B.
 The HRI code refers to the bar code-turned characters so that you
 can read them.
[Caution] The HRI code is printed at the position specified with GS h.
[Default] The initial value of n is "1".
[See Also] GS H

45. GS v 0

Print raster bit image

[Code] **[1Dh] + [76h] + [30h] + m + xL + xH + yL + yH + D1 + ... + Dn**

[Range] {0 <= m <= 3; 48 <= m <= 51}

{0 <= xL <= 255}

{0 <= xH <= 255}

{0 <= yL <= 255}

{0 <= yH <= 255}

{0 <= Di <= 255}

[Outline] Prints a bit image.

The value of xH is ignored.

Although yH could be from 0 to 255 the high four bits are ignored, so yH can actually be from 0 to 15.

xL is the number of bytes in horizontal direction (xL*8 dots).

The number of dots in vertical direction is equal to yL+yH*256.

The number of data bytes k = xL * (yL+yH*256). However k must not be equal to 0 or the bit image will be discarded.

m defines the printing mode of the bit image according to the following table:

m	Mode
0	Normal
1	Double width
2	Double height
3	Quadruple

The bit image is defined line by line from left to right. The most significant bit of each byte is the leftmost dot and the least significant bit is rightmost dot.

The data that exceeds the printing width of the line is discarded.

The raster bit image can be positioned using the commands ESC \, ESC \$ and GS L.

46. GS *

Download a bit image

[Code] **[1Dh] + [2Ah] + n1 + n2 + D1 + ... + Dn**

[Range] {0 <= n1 <= 255}

{0 <= n2 <= 27}

[Outline] Downloads a bit image to the non-volatile memory.

This command defines a bit image with number of dots determined by n1 and n2.

n1 denotes the horizontal size of the bit image in bytes.

n2 denotes the vertical size of the bit image in bytes.

Dn – data for Bit Image

There are n1*n2*8 bytes of data in order from top to bottom and from left to right.

There are n1*8 dots in horizontal direction and n2*8 number of dots in vertical direction.

If n1, n2 is 0 the downloaded bit image is cleared.

47. GS / m

Print the downloaded bit image

[Code]

[1Dh] + [2Fh] + m

[Range]

{0 <= m <= 3}

[Outline]

Prints the downloaded bit image in a mode specified by **m**.

m	Mode
0	Normal
1	Double width
2	Double height
3	Double width & double height

[See Also] GS *

48. GS T n

Turn on/off Bluetooth module

[Code]

[1Dh] + [54h] + n

[Range]

{0 <= n <= 255}

[Outline]

Turns on/off the power of Bluetooth module.

Only bit 0 is defined:

Value 0: Bluetooth module is off;

Value 1: Bluetooth module is on.

On power-up Bluetooth module is turned on.

49. GS B n

Set communication speed

[Code]

[1Dh] + [42h] + n

[Range]

{0 <= n <= 255}

[Outline]

Sets communication speed.

Bit 7 controls flowcontrol:

Value 0: Flowcontrol is used (xon/xoff);

Value 1: Flowcontrol is not used.

Bits 3-0 select communication speed:

N	Speed [bauds]
0	1200
1	2400
2	4800
3	9600 (default)
4	19200
5	38400
6	57600
7	115200

[Note]

The Bluetooth module supports the following communication speeds: 9600, 19200, 38400, 57600, 115200 bps.