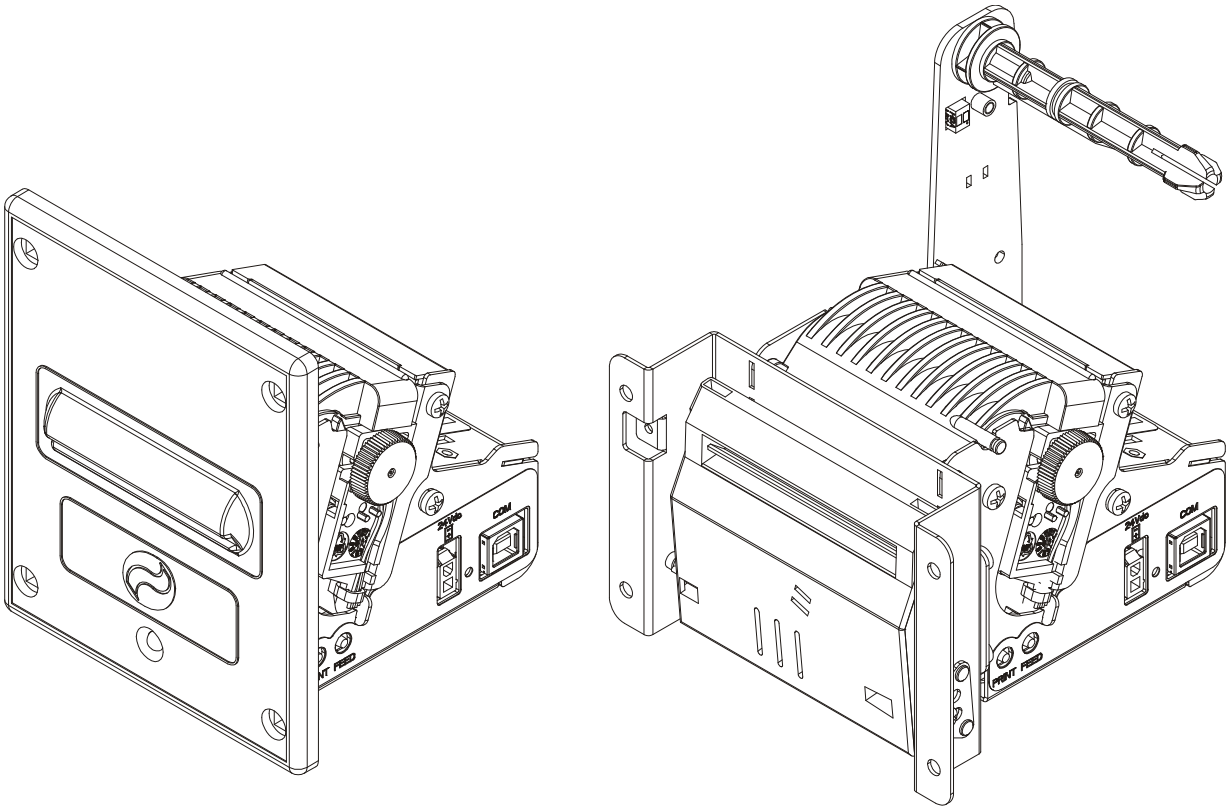
TICKET PRINTER

TG1260 series
TG2460 series
60 mm



User Manual

COD. DOME - TG2460 VERS. 1.40

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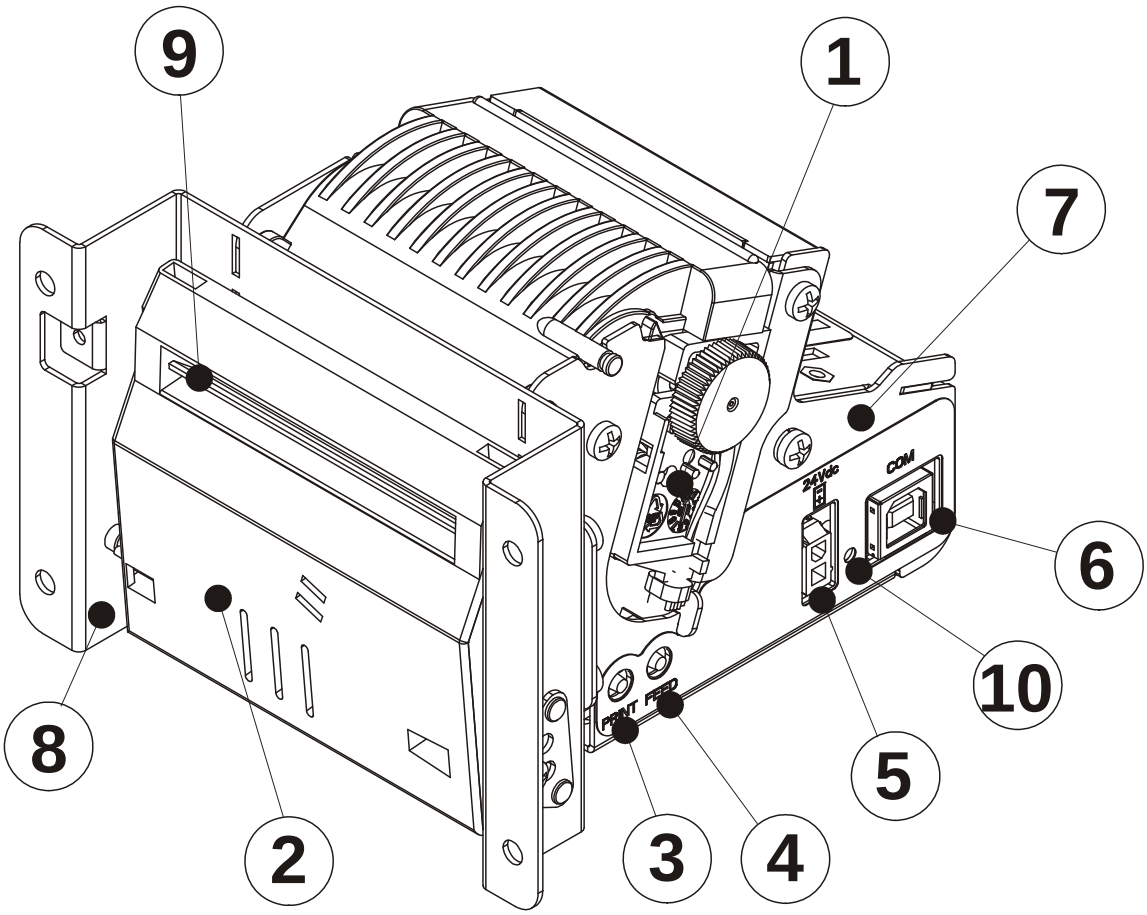
PRINTER COMPONENTS

The figures showed list printer parts with USB interface but the remarks are good for the RS232 interface printers too (apart from the connector).

A. TG1260/TG2460-x-A [1] External view

[1] *The **x** suffix indicates the following models :*
-TG1260/TG2460-U-A: USB interface, metal front panel and autocutter model.
-TG1260/TG2460-S-A: RS232 serial interface, metal front panel and autocutter model.

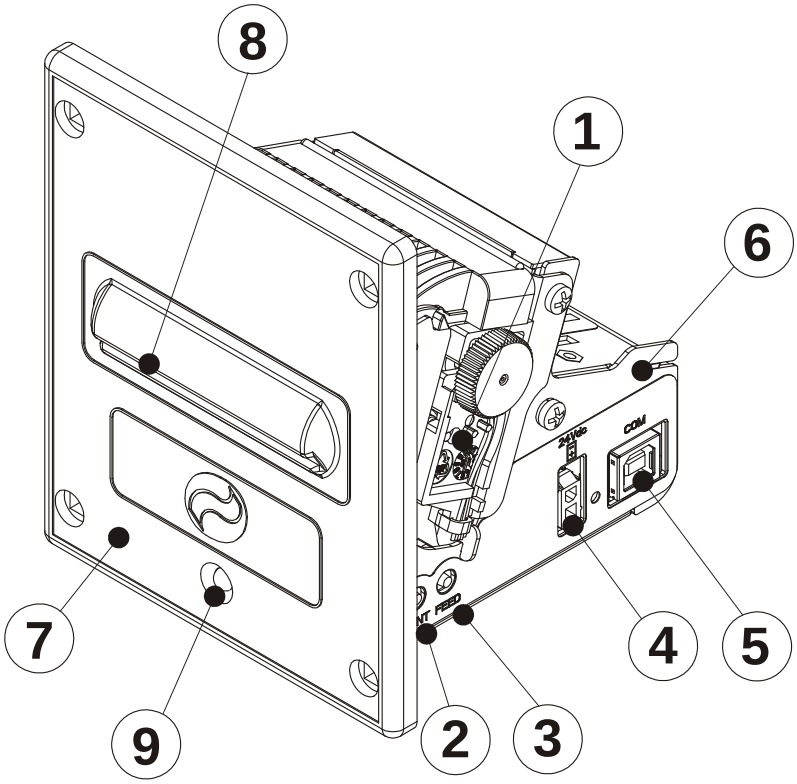
‘1- Printing mechanism
2- Autocutter
3- “Print” key
4- “Feed” key
5- Power supply connector
6- USB interface connector
7- Printer frame
8- Autocutter support plate
9- Paper output
10 - Status led



B. TG1260/TG2460-x-P [2] external view

[2] *The **x** suffix indicates the following models :*
- **TG1260/TG2460-U-P:** USB interface and plastic front panel.
- **TG1260/TG2460-S-P:** RS232 serial interface and plastic front panel.

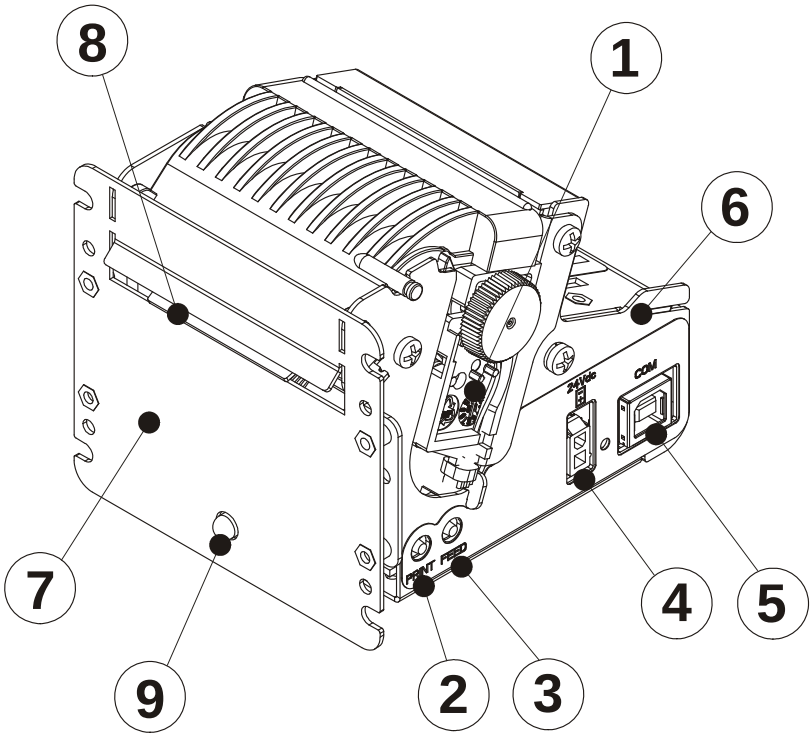
1- Printing mechanism
2- “Print” key
3- “Feed” key
4- Power supply connector
5- USB interface connector
6- Printer frame
7- Plastic front panel
8- Paper output
9- Status Led



C. TG1260/TG2460-x-M [3] external view

[3] *The **x** suffix indicates the following models :*
- **TG1260/TG2460-U-M:** USB interface and metal front panel without autocutter model.
- **TG1260/TG2460-S-M:** RS232 serial interface and metal front panel without autocutter model.

1- Printing mechanism
2- “Print” key
3- “Feed” key
4- Power supply connector
5- USB interface connector
6- Printer frame
7- Metal front panel
8- Paper output
9- Status Led



D. Back view [4]

[4] The back view is the same for all models available.

1- Paper input
2- Inspection cover for paper outlet

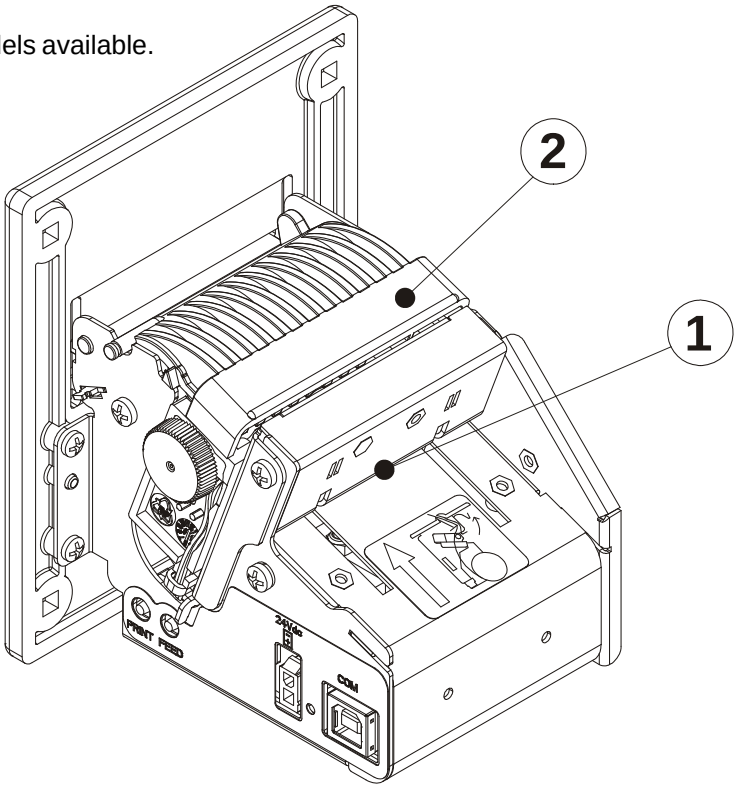


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TABLE OF CONTENTS

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MANUAL ORGANIZATION

In addition to the Introduction which contains information regarding the symbols used in the manual, general safety information, instructions for unpacking the printer and a brief description and main characteristics of the machine, this manual is divided into the following chapters:

Chapter 1: Contains the information required for correct printer installation and use

Chapter 2: Contains a description of printer controls

Chapter 3: Contains printer technical data

Chapter 4: Contains the character sets (fonts) used by the printer

Appendix: Contains the printer accessories and spare parts description

SYMBOLS USED IN THE MANUAL

NOTE
Gives important information or suggestions for printer use.

WARNING
Information indicated by this symbol must be followed carefully to avoid damaging the printer.

DANGER
Information indicated by this symbol must be followed carefully to avoid damage or operator injury.

GENERAL SAFETY INFORMATIONS

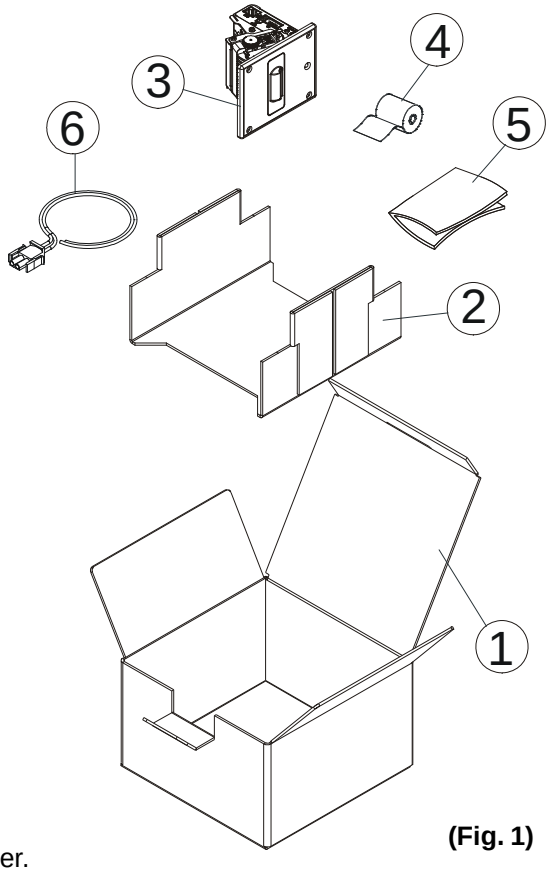
- Read and retain the instructions which follow.
- Before cleaning the printer, be sure to pull out the electrical cable.
- Use a damp cloth to clean the printer. Do not use liquid or spray products.
- Do not operate the printer near water.
- When positioning the printer, make sure its cables will not be damaged.
- Use the type of electrical power supply indicated on the printer label. If uncertain, contact your dealer.
- Do not insert objects inside the printer as this could cause short-circuiting or damage components that could jeopardize printer functioning.
- Do not spill liquids onto the machine.
- Do not carry out repairs on the machine yourself, except for the normal maintenance operations given in the user manual.
- Unplug the printer from the electrical mains and call a specialized repairman if any of the following conditions should arise:

  A. the power supply connector is damaged
  B. liquid has spilled into the printer
  C. the printer has been exposed to rain or water
  D. the printer is not functioning normally despite the fact that all instructions given in the user manual have been followed
  E. the printer has been dropped and the cover is damaged
  F. printer performance is noticeably reduced
  G. the printer is not working

UNPACKING THE PRINTER

Remove the printer from the carton, taking care not to damage the packing materials which should be retained for future shipping/moving.
Make sure all components listed below are present and not damaged. If any part is missing and/or damaged, contact customer service.

1. Box
2. Foam packing shell
3. Print
4. Paper roll
5. Manual (or CD-rom)
6. Electrical supply cable



(Fig. 1)

PRINTER DESCRIPTION

Ultra compact thermal printer (only 9cm deep) for dispensing 60 mm tickets width, easy to install (4 fastening holes and ticket presentation to user incorporated). Thanks to the exclusive **anti-paper-jam system**, the ticket will always be promptly dispensed to the user. Thanks to an innovative type of **paper roll holding bracket**, it is possible to accommodate up to 80 mm external diameter paper rolls, adapt the printer to the mechanical space requirements necessitated by the application (3 positions: upper, lower and rear) and manage the near paper end signal. It is equipped with a 204 dpi thermal print mechanism; it has the serial RS232 interface and the USB interface and it's also available a version equipped with fireproof plastic or metal front panel, with or without autocutter.

- When the "PRINT" key is pressed during printer power up, it prints the graphic test.
- When the "FEED" key is pressed during printer power up, it prints the font test.
- When both the "PRINT" and the "FEED" keys are pressed during printer power up, it prints the SETUP report. Pressing the "PRINT" key it's possible to change the parameters value and to print the parameter current value; pressing the "FEED" key it's possible to pass to the next parameter till the end of the SETUP.
- The green Status LED displays a printer hardware error status and the winnings. The check is carried out"on line", i.e. in the event of a malfunctioning, the LED will starts flashing as follows:

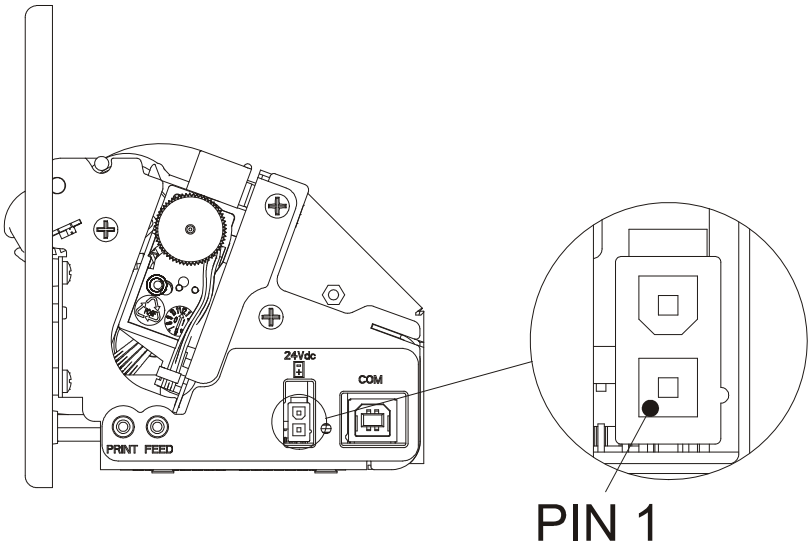
STATUS LED	DESCRIPTION
Always OFF	Printer OFF
Always ON	Printer ON: no faults
Slow flashing (on for a short period)	Tilting cover raised
Slow flashing (on for a long period)	Paper out message
Fast flashing	Temperature or voltage ERROR

MAIN APPLICATIONS

This printer is the ideal solution for :

- kiosks (internet, public offices, bookings, bank transactions);
- self-service;
- ticket dispensing (public/private transport, automatic payments);
- parking lots;
- queue management systems.
- instant lotteries;
- instruments;
- gaming machines;
- vending machines;

1.1 CONNECTIONS



(Fig.1.1)

1.1.1 Power supply (1260)

Every printer available is equipped with a 2 pin male molex connector serie 5569, for the power supply. The signals on the pins of the feed connector are as follows:

Model no. type : Header : 90° Molex serie 5569 (no. 39-30-1020)
Housing: Molex serie 5557 (no. 39-01-3022)

PIN	SIGNAL	DESCRIPTION
1	+ 12 V	POWER
2	GND	SIGNAL GROUND

(Tab.1.1)

WARNING:
Be sure to observe the correct polarity for the power supply.

1.1.2 Power supply (2460)

Every printer available is equipped with a 2 pin male molex connector serie 5569, for the power supply. The signals on the pins of the feed connector are as follows:

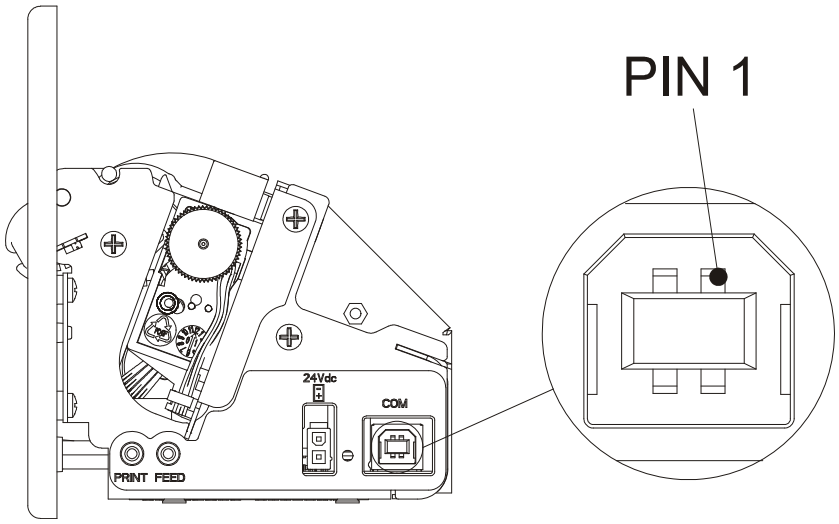
Model no. type : Header : 90° Molex serie 5569 (no. 39-30-1020)
Housing: Molex serie 5557 (no. 39-01-3022)

PIN	SIGNAL	DESCRIPTION
1	+ 24 V	POWER
2	GND	SIGNAL GROUND

(Tab.1.2)

WARNING:
Be sure to observe the correct polarity for the power supply.

1.1.3 USB connector



(Fig.1.2)

The printer with USB interface complies to USB 1.1 specifications that is:

- Communication speed equal to 12 Mbit/sec.
- Type of connector “Receptacle series B”.

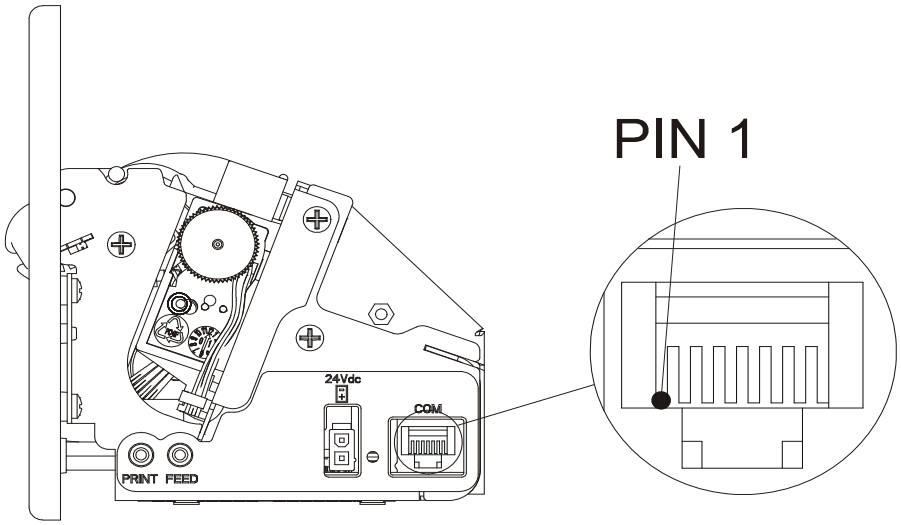
The signals on the pins of the USB connector are as follows:

PIN	SIGNAL	DESCRIPTION
1	VBUS	N.C.
2	D-	Data -
3	D+	Data +
4	GND	Ground signal
SHELL	SHIELD	Cable shielding

(Tab.1.3)

1.1.4 RS232 serial connector

The printer with serial RS232 interface is equipped with RJ45 connector. In the following table are described the signals on the RS232 connector pins:



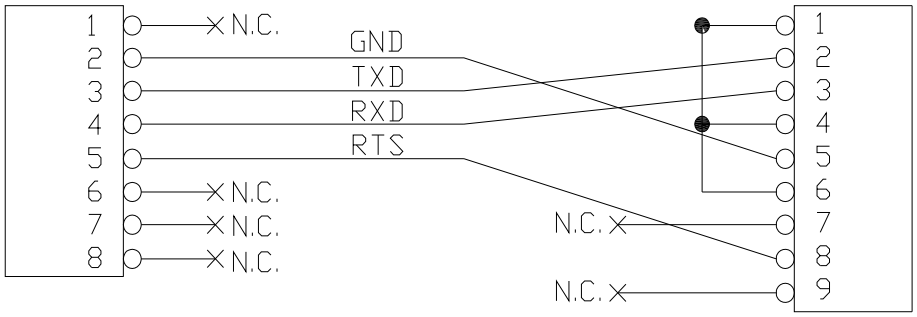
(Fig.1.3)

PIN	SIGNAL	DESCRIPTION
1	N. C.	Not Connected
2	GND	Ground signal
3	TXD	Data transmission
4	RXD	Data reception
5	RTS	Ready to send
6	N. C.	Not Connected
7	N. C.	Not Connected
8	N. C.	Not Connected

(Tab.1.4)

1.1.5 Connection Printer-PC

The diagrams below show a sample connection between printer and Personal Computer using a 8 pin male RJ45 connector by printer side and a 9 pin female connector by a PC side.



(Fig.1.4)

Printer side **PC side**

1.2 SETUP

The printer enables the configuration of the printer default parameters (see fig. 1.4) pressing both the “PRINT” and the “FEED” keys during the printer power up. The parameters affected during configuration are:

- **Printer emulation:** ESC/POS™ *D*, CUSTOM DPT24, CUSTOM DPT42 o CBM iDP560RS.
- **Baud Rate:** 115200, 57600, 38400, 19200*D*, 9600, 4800, 2400, 1200.
- **Data Lenght:** 7, 8*D* bits/chr.
- **Parity:** None*D*, even or odd.
- **Handshaking:** XON/XOFF*D* or Hardware.
- **Autofeed:** CR disabled*D* o CR enabled.
- **USB Address*(2)*:** 0*D*, 1, 2, 3, 4, 5, 6, 7, 8, 9.
- **USB Monitor*(2)*:** Disabled*D* or enabled.
- **Panel key:** Enabled*D* or Disabled.
- **Print mode:** Normal*D* o Reverse.
- **Font type**:

  “ESC/POS“ emulation:
  Chars / line: A=32 / B=42 col.*D* or A=42 / B=56 col.
  “DPT24” emulation:
  Font type : Font A*D* or Font B.
  “DPT42” emulation:
  Font type : Font A*D* or Font B.
  “CBM iDP560RS“ emulation:
  Font dimensions: 11x24*D* 40 col. or 18x24 24 col.

- **Speed/Quality:** Normal^{D}, Low.
- **Offline**[(1)]**:** Disabled^{D}, Enabled.
- **Print density:** Normal^{D}, Dark, Very Dark, Light, Very Light.

Notes: The parameters indicates with a ^{D} symbol are the default values.

[(1)] **NOTE:** Using this parameter, it is possible to select whether the Busy signal is activated when the printer is both in Off Line status and the buffer is full, or only if the reception buffer is full.

[(2)] **NOTE:** These parameters are shown only for the USB interface models.

The settings made are saved on the EEPROM (non volatile memory).
During the setup routine the printer prints out the setup report and will remain in standby until another key is pressed or characters are received through the printer communication port. After this, each time the “PRINT” key is pressed, the parameter is modified and its current value is printed. Once the required value has been obtained, press the “FEED” key to proceed to the next parameter, and so on. Once all the parameters have been run through, the printing of a message signals the end of the setting procedure.

1.3 AUTOTEST

To run the autotest, press the “FEED” key while switching on the printer. During the running of the autotest, the character fonts and logos stored inside the printer are printed.

```
* PRINTER SETUP *

PROGRAM MEMORY.....OK
PRINTER BUFFER.....OK
CUTTER.....OK
HEAD VOLTAGE.....[V]      =  24,00
HEAD TEMPERATURE [°C]     =  32,5


Printer Emul.          : ESC/POS (TM)
Baud Rate              : 115200 bps
Data length            : 8 bits/chr
Parity                 : None
Handshaking            : Xon/Xoff
Autofeed               : CR disabled
USB Address            : 0
USB Monitor            : Disabled
Panel key              : Enabled
Print Mode             : Normal
Chars / line           : A=32/B=42 col
Speed/Quality          : Normal
Offline                : Disabled
Print Density          : Normal

[PRINT] key to enter setup
[FEED]  key to skip setup
```

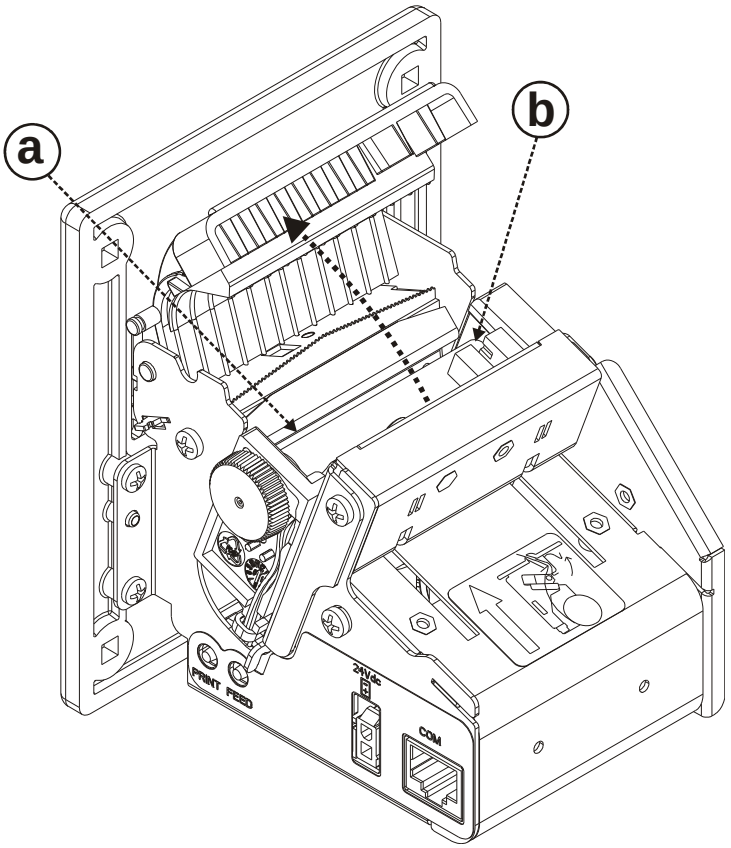
(Fig.1.5)

1.4 MAINTENANCE

1.4.1 Changing the paper roll

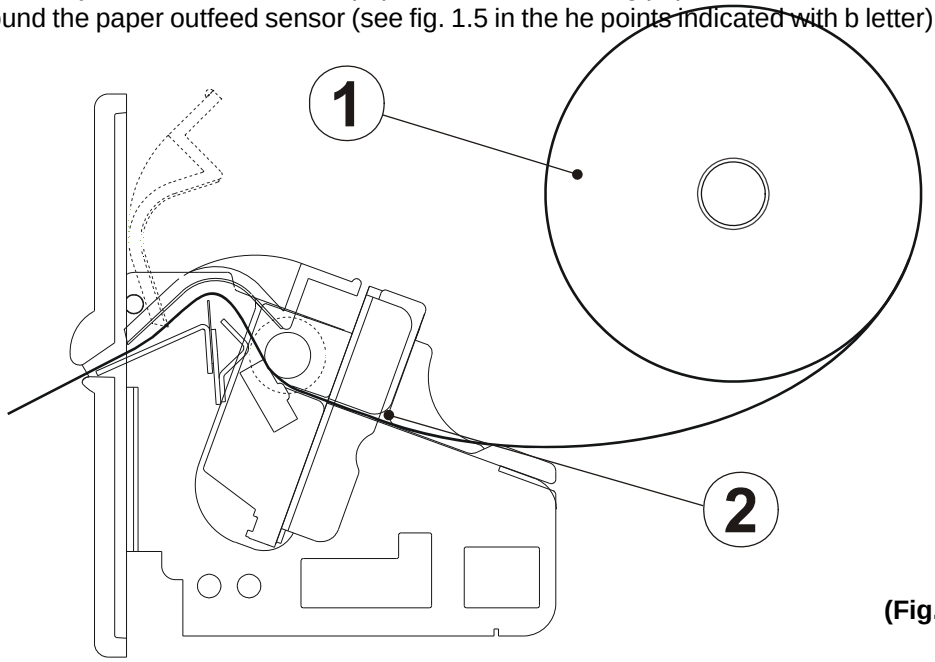
Every time you change the paper, referred to fig.1.5, need to check as follows :

• Lift the wicket relative to paper roll compartment, and check that there are no scraps of paper at the area indicated with a) letter near the printing head. If there are, remove the scraps before proceeding with any other operation.



(Fig.1.6)

WARNING: Periodically remove accumulated paper dust from the drag paper roll and the area around the paper outfeed sensor (see fig. 1.5 in the he points indicated with b letter).

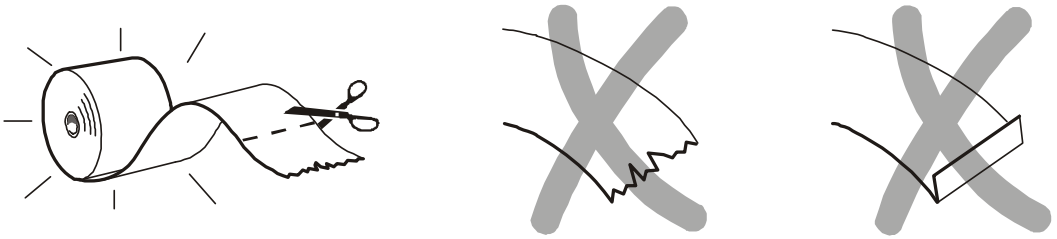


(Fig.1.7)

To clean, do not use harsh chemical solvents; the use of a soft, alcohol-moistened cloth is recommended.

To change the paper roll in the printer, proceed as follows:

1) Position the paper roll (1), so that it rotates in the direction shown in fig.1.6;
2) Insert the end of the paper roll in the print mechanism (2) and wait until the roll loads automatically;
3) Remove the ticket from the mouth paper output;



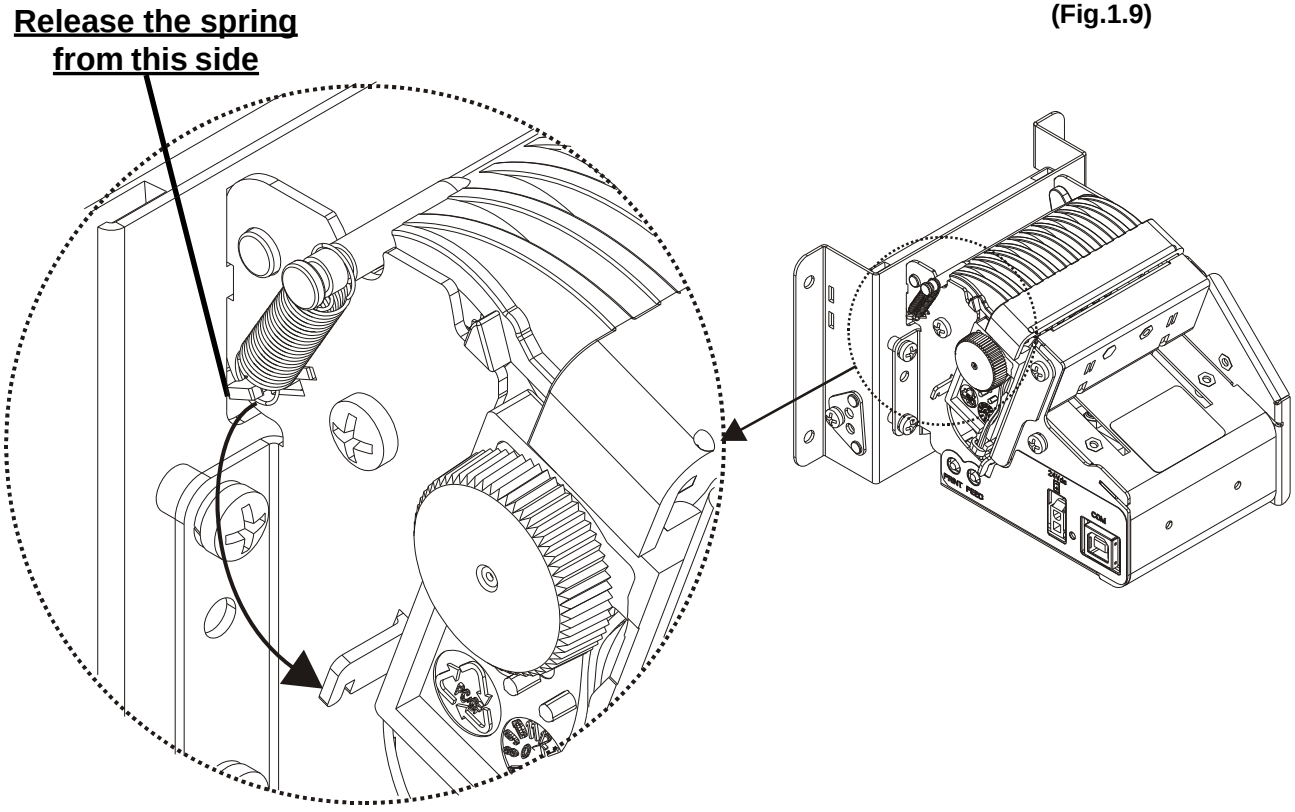
WARNING
Before inserting the paper, ensure that it is cut evenly.

(Fig.1.8)

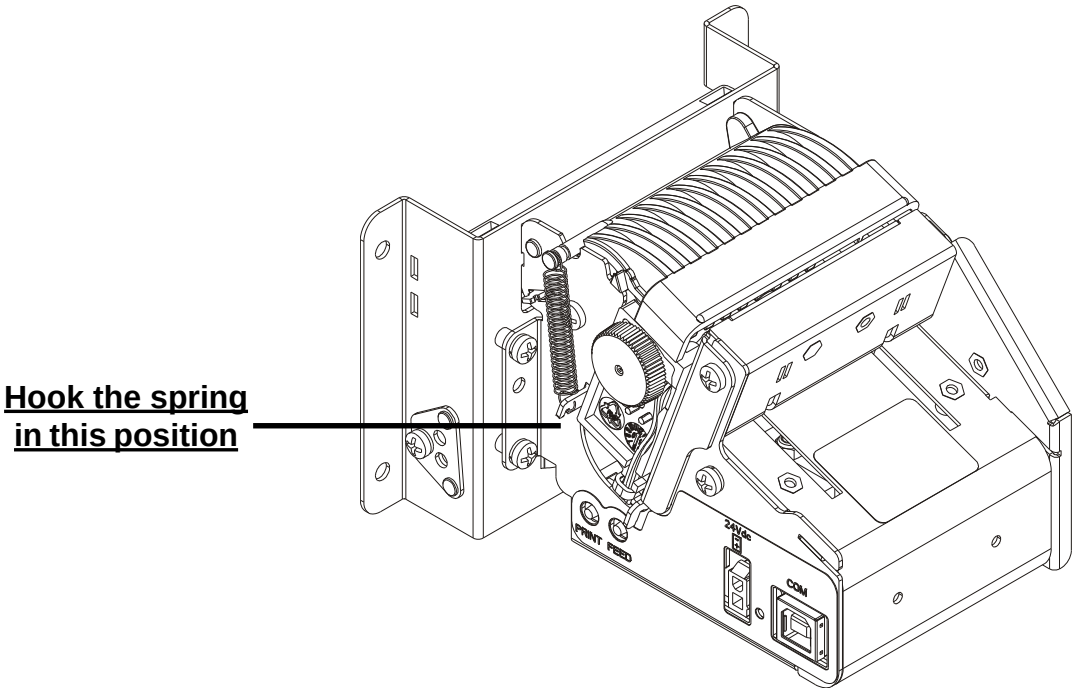
1.4.2 Notes for installation and using the printer in the upside down position

To install the printer in the upside down position proceed as follows :

(Fig.1.9)

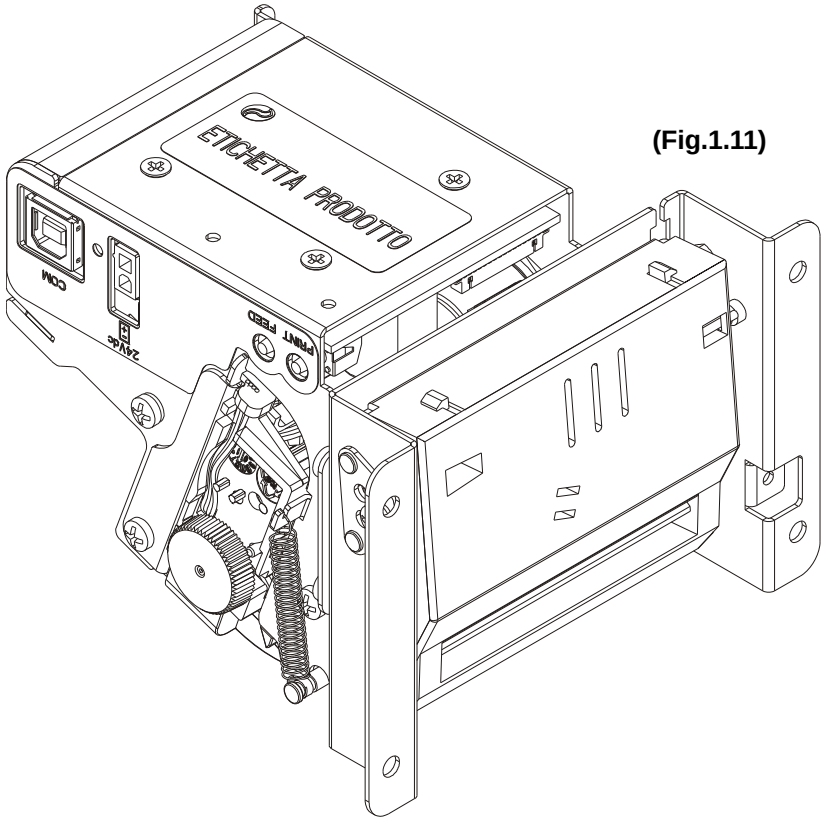


1) Release the spring as indicated in fig. 1.8 and placed it in the new position as indicated in fig. 1.9;



(Fig.1.10)

2) The printer is ready to be installed in the upside down position.



(Fig.1.11)

(3) **NOTE:** The operations described are valid for all models.

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2.1 CONTROL CHARACTERS

2.1.1 ESC/POS Emulation

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

(Tab.2.1) COMMAND TABLE

HEX Com.	ASCII Com.	Description
$08	BS	Moving back of one character
$09	HT	Horizontal tabs
$0A	LF	Print and line feed
$0D	CR	Print and line feed
$10 $04 n	DLE EOT n	Real-time status transmission
$18	CAN	Cancel print data
$1B $20 n	ESC SP n	Set character right-side spacing
$1B $21 n	ESC ! n	Set print mode
$1B $24 nL nH	ESC $ nL nH	Set absolute position
$1B $2A m nL nH d1...dk	ESC * m nL nH d1...dk	Set bit image mode
$1B $2D n	ESC - n	Turn underline mode on/off
$1B $30	ESC 0	Select 1/8-inch line spacing
$1B $32	ESC 2	Select 1/6-inch line spacing
$1B $33 n	ESC 3 n	Set line spacing using minimum units
$1B $34 n	ESC 4 n	Set / reset script mode
$1B $3D n	ESC = n	Select device
$1B $40	ESC @	Initialize printer
$1B $44 n1...nk 00	ESC D n1...nk NUL	Set horizontal tab position
$1B $45 n	ESC E n	Select bold mode
$1B $47 n	ESC G n	Select double-strike mode
$1B $4A n	ESC J n	Print and feed paper
$1B $52 n	ESC R n	Select international character set
$1B $56 n	ESC V n	Set print mode rotated by 90°
$1B $5C nL nH	ESC \ nL nH	Set relative print position
$1B $61 n	ESC a n	Select justification
$1B $63 $35 n	ESC c 5 n	Enable / disable panel keys
$1B $64 n	ESC d n	Print and feed paper n lines
$1B $69	ESC i	Total cut
$1B $74 n	ESC t n	Select character code table
$1B $76	ESC v	Transmit printer status
$1B $78 n	ESC x n	Select speed / quality mode
$1B $7B n	ESC { n	Set / cancel upside-down character printing
$1B $FA n xH xL yH yL	ESC · n xH xL yH yL	Print graphic bank
$1B $FF nL nH d0...dn	ESC { } nL nH d0...dn	Receive logo and memory in flash
$1C $C0 $34	FS { } 4	Total cut and automatic paper moving back
$1D $21 n	GS ! n	Select character size
$1D $3A	GS :	Set starting / end of macro definition

HEX Com.	ASCII Com.	Description
$1D $42 n	GS B n	Turn white/black reverse printing on/off
$1D $43 $30 n m	GS C 0 n m	Select counter print mode
$1D $43 $31 aL aH bL bH n r	GS C 1 aL aH bL bH n r	Select count mode(A)
$1D $43 $32 nL nH	GS C 2 nL nH	Select counter
$1D $43 $3B sa $3B sb $3B sn $3B sr $3B sc $3B	GS C ; sa ; sb ; sn ; sr ; sc ;	Select count mode (B)
$1D $48 n	GS H n	Select printing position of HRI characters
$1D $49 n	GS I n	Transmit printer ID
$1D $4C nL nH	GS L nL nH	Set left margin
$1D $50 x y	GS P x y	Set horizontal and vertical motion units
$1D $57 nL nH	GS W nL nH	Set printing area width
$1D $5E r t m	GS ^ r t m	Execute macro
$1D $63	GS c	Print counter
$1D $66 n	GS f n	Select font for HRI characters
$1D $68 n	GS h n	Select height of bar code
$1D $6B m 00	GS k m NUL	Print bar code
$1D $72 n	GS r n	Transmit status
$1D $77 n	GS w n	Select horizontal size (magnification) of) bar code
$1D $7E n	GS ~ n	Set superscript / subscript
$1D $7C n	GS | n	Set printing density

NOTE: in “Note” column where the model is not specified, the command is valid for all models.

The following pages provide a more detailed description of each command.

$08

[Name] **Moving back of one character**

[Format] ASCII BS
Hex 08
Decimal 8

[Description] Moves print position to previous character.

[Notes] This command can put two characters at the same position.

[Default]

[Reference]

[Example]

$09

[Name] **Horizontal tabs**

[Format] ASCII HT
Hex 09
Decimal 9

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

[Notes]
- This command is ignored if the next horizontal tab position has not been set.
- If the next horizontal tab is outside the print area, the printer will print the entire contents of the print buffer, then proceed with the processing of the horizontal tabs from the beginning of the following line.
- The horizontal tabs are set through the command $1B $44.

[Default]

[Reference] **$1B $44**

[Example]

$0A

[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] • This command sets the print position at the beginning of the line.

[Default]

[Reference] **$1B $32, $1B $33**

[Example]

$0D

[Name] **Print and line feed**

[Format] ASCII CR

Hex 0D

Decimal 13

[Description] When autofeed is $0D enabled, this command functions in the same way as $0A, otherwise it is ignored.

[Notes] • This command sets the print position at the beginning of the line.

[Default] See autofeed parameter on Setup.

[Reference] **$0A**

[Example]

$10 $04 n

[Name] **Transmission of status in real time**

[Format]

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

[Range] $1 \le n \le 4$, $n = 17$, $20 \le n \le 21$

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

n = 1 transmit printer status
n = 2 transmit off-line status
n = 3 transmit error status
n = 4 transmit paper roll sensor status
n = 17 transmit paper status
n = 20 transmit Full Status
n = 21 transmit printer ID ($6D)

[Notes] • This command is executed even when the reception buffer is full.
The status is transmitted whenever the data sequence $10 $04 n is received.

[Default]

[Reference]

[Example]

n=1: Printer status

Bit	Off/On	Hex	Decimal	Function
0	-	-	-	RESERVED.
1	-	-	-	RESERVED. .
2	-	-	-	RESERVED.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	-	-	-	RESERVED.
5	-	-	-	RESERVED.
6	-	-	-	RESERVED.
7	-	-	-	RESERVED.

n=2: Off-line status

Bit	Off/On	Hex	Decimal	Function
0	-	-	-	RESERVED.
1	-	-	-	RESERVED.
2	Off	00	0	Print head down (no paper jam).
	On	04	4	Print head up (paper jam).
3	Off	00	0	Paper is not being fed by FEED button.
	On	08	8	Paper is being fed by FEED button.
4	-	-	-	RESERVED.
5	Off	00	0	No paper end stop.
	On	20	32	Printing stops due to paper end.
6	Off	00	0	No error
	On	40	64	Error
7	-	-	-	RESERVED.

n=3: Error status

Bit	Off/On	Hex	Decimal	Function
0	-	-	-	RESERVED.
1	-	-	-	RESERVED.
2	-	-	-	RESERVED.
3	Off	00	0	No autocutter error.*
	On	08	8	Autocutter error.*
4	-	-	-	RESERVED. .
5	Off	00	0	No irreversible error.
	On	20	32	Irreversible error.
6	Off	00	0	No auto-recoverable error.
	On	40	64	Auto-recoverable error.
7	-	-	-	RESERVED.

n=4: Paper roll sensor status

Bit	Off/On	Hex	Decimal	Function
0	-	-	-	RESERVED
1	-	-	-	RESERVED
2, 3	Off	00	0	Paper is detected by the near paper end sensor.
	On	0C	12	Paper end sensor not presentor near paper end.
4	-	-	-	RESERVED
5, 6	Off	00	0	Paper is detected by the paper end sensor.
	On	60	96	Paper end is detected by the paper end sensor.
7	-	-	-	RESERVED

n=17: Paper status

Bit	Off/On	Hex	Decimal	Function
0	-	-	-	RESERVED
1	-	-	-	RESERVED
2	Off	00	0	Motor not running.
	On	04	8	Motor running.
3	-	-	-	RESERVED
4	-	-	-	RESERVED
5	Off	00	0	Paper in.
	On	20	32	Paper end.
6	-	-	-	RESERVED.
7	-	-	-	RESERVED

n=20: Full Status (6 bytes)

1° Byte = $10 (DLE)

2° Byte = $0F

3° Byte = Paper Status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper in.
	On	01	1	Paper end.
1	-	-	-	RESERVED.
2	Off	00	0	Paper in.
	On	04	4	Near paper end.
3	-	-	-	RESERVED.
4	-	-	-	RESERVED.
5	Off	00	0	Ticket out sensor free
	On	20	32	Ticket out sensor busy
6	-	-	-	RESERVED.
7	-	-	-	RESERVED.

4° Byte = User Status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Print head down.
	On	01	1	Print head up.
1	Off	00	0	Cover down.
	On	02	2	Cover up.
2	-	-	-	RESERVED
3	Off	00	0	Motor running (paper run)
	On	08	8	Motor not running (paper stand still)
4	-	-	-	RESERVED
5	Off	00	0	FEED key not pressed
	On	20	32	FEED key pressed
6	Off	00	0	PRINT key not pressed
	On	40	64	PRINT key pressed
7	-	-	-	RESERVED

5° Byte = Recoverable Error Status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Print head temperature normal.
	On	01	1	Print head overheated.
1	-	-	-	RESERVED
2	-	-	-	RESERVED
3	Off	00	0	Power supply voltage in range
	On	08	8	Power supply voltage out of range
4	-	-	-	RESERVED
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	-	-	-	RESERVED

6° Byte = Unrecoverable Error Status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	No autocutter error*
	On	01	1	Autocutter error*
1	-	-	-	RESERVED
2	Off	00	0	No RAM error
	On	04	4	RAM error
3	Off	00	0	No EEPROM error
	On	08	8	EEPROM error
4	-	-	-	RESERVED
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	-	-	-	RESERVED

Note(*): Only printer mudel with cutter

$18

[Name] **Cancel print data buffer.**

[Format] ASCII CAN

Hex 18

Decimal 24

[Description] Deletes all the print data in the current print buffer.

[Notes] This command sets the print position at the beginning of the line.

[Default]

[Reference]

[Example]

$1B $20 n

[Name] **Set character right-side spacing**

[Format]

ASCII	ESC	SP	n
Hex	1B	20	n
Decimal	27	32	n

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

[Description] Sets spacing to right of character at [n x horizontal or vertical motion units].

[Notes]
- The spacing to the right of the character for double width mode is double that used for normal mode. When the characters are enlarged, the spacing to the right of the character is m (2 or 4) times the normal value.
- The horizontal and vertical motion units are specified by the command **$1D $50**. Changing the horizontal or vertical motion does not affect the current right side spacing.
- The command **$1D $50** can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal spacing amount.
- In standard mode, the horizontal motion unit is used.
- The maximum right side spacing is 255/200 inches.

[Default] n = 0

[Reference] **$1D $50**

[Example]

$1B $21 n

[Name] **Select print modes.**

[Format]

ASCII	ESC	!	n	
Hex		1B	21	n
Decimal	27	33	n	

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

[Description] Selects the print mode using *n* (see following tables):

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A selected.
	On	01	1	Character font B selected.
1	-	-	-	RESERVED.
2	-	-	-	RESERVED.
3	Off	00	0	Bold mode not selected.
	On	08	8	Bold mode selected.
4	Off	00	0	Double height mode not selected.
	On	10	16	Double height mode selected.
5	Off	00	0	Double width mode not selected.
	On	20	32	Double width mode selected.
6	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.

[Notes]
- The printer can underline all the characters, but it cannot underline the space set by commands **$09, $1B $24, $1B $5C** and 90° clockwise rotated characters.
- When the characters on the same line are enlarged to different heights, they are either aligned at the baseline or topline (see **$1D $7E**).
- This command resets the left and right margin at the default value (see **$1D $4C, $1D $57**).
- The command **$1B $45** can also turn on/off bold mode. However, the setting of the last received command is effective.

• The command **$1B $2D** can also turn on/off underline mode. However, the setting of the last received command is effective
• The command **$1B $34** can also turn on/off script mode. However, the setting of the last received command is effective.
• The command **$1D $21** can select the character size. However,the setting of the last received command is effective.

[Default] n = 0

[Reference] **$1B $45, $1B $2D, $1B $34, $1D $21**

[Example]

$1B $24 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 in which the subsequent characters are to be printed.

The distance from the beginning of the line to the print position is [(nL + nH × 256) × (vertical or horizontal motion unit)] inches.

[Notes]
• Settings outside the specified printable area are ignored.
• The vertical and horizontal motion units are specified by **$1D $50**.
• The command **$1D $50** 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 (x) is used.
• If the setting is outside the printing area width, set absolute print position, but left or right margin is set at default value.

[Default]

[Reference] **$1B $5C, $1D $50**

[Example]

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

[Name] **Select bit image mode.**

[Format]

ASCII	ESC	*	m	nL	nH	d1...dk
Hex	1B	2A	m	nL	nH	d1...dk
Decimal	27	42	m	nL	nH	d1...dk

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

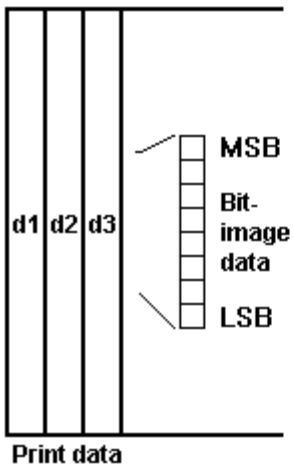
[Description] Selects a bit image-mode using *m* for the number of dots specified by *nL* and *nH*, as follows:

m	Mode	Vertical direction		Horizontal direction (*1)	
		N° dots	DPI	DPI	N° data (k)
0	8 dots single density	8	67	100	nL + nH x 256
1	8 dots double density	8	67	200	nL + nH x 256
32	24 dots single density	24	200	100	(nL + nH x 256) x 3
33	24 dots double density	24	200	200	(nL + nH x 256) x 3

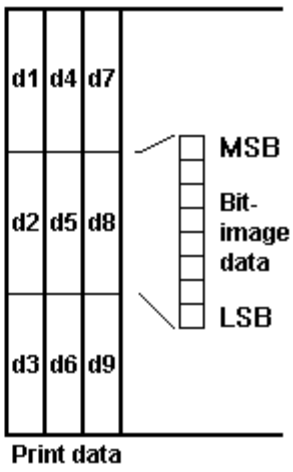
[Notes]

• The commands *nL* and *nH* indicate the number of horizontal dots in the graphic image. The nL and nH indicate 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 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 not to print dot.
• if the value of *m* is out of the specified range, *nL* and the data following are processed as normal data.
• If the width of the printing area set by the commands **$1D $4C** and **$1D $57** is less than the width required by the data sent with the command **$1B $2A** , the excess data is ignored.
• To print the bit image use commands **$0A, $0D, $1B $4A** or **$1B $64**.
• After printing a bit image, the printer returns to normal data processing mode.
• This command is not affected by bold, double-strike and underline (etc.) print modes, only by upside-down mode.
The relationship between the bit image and the dots to be printed is as follows:

8 dot image



24 dot image



[Default]

[Reference]

[Example]

$1B $2D n

[Name] **Turn underline mode on/off.**

[Format]

ASCII	ESC	-	n
Hex	1B	2D	n
Decimal	27	45	n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 50

[Description] Turns underline mode on or off, based on the following values of n:
n = 0, 48 Turns off underline mode

n = 1. 49 Turns on underline mode (1-dot thick)
n = 2. 50 Turns on underline mode (2-dot thick)

[Notes]
• The printer can underline all characters but cannot underline the space set by **$09** and right-side character spacing.
• The printer cannot underline 90° clockwise rotated characters and white/black inverted characters.
• When underline mode is turned off by setting the value of *n* at 0 or 48, the following data is not underlined.
• Underline mode can also be turned on or off by using **$1B $21.**Note, however, that the last command received is effective.

[Default] n=0

[Reference] **$1B $21**

[Example]

$1B $30

[Name] **Select 1/8-inch line spacing**.

[Format]

ASCII	ESC	0
Hex	1B	30
Decimal	27	48

[Description] Selects 1/8-inch line spacing.

[Notes]

[Default]

[Reference] **$1B $32, $1B $33**

[Example]

$1B $32

[Name] **Set line spacing at 1/6 inch**.

[Format]

ASCII	ESC	2
Hex	1B	32
Decimal	27	50

[Description] Selects 1/6 inch line spacing.

[Notes]

[Default]

[Reference] **$1B $30, $1B $33**

[Example]

$1B $33 n

[Name] **Set line spacing.**

[Format]

ASCII	ESC	3	n
Hex	1B	33	n
Decimal	27	51	n

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

[Description] Sets the line spacing at [*n*× (vertical or horizontal motion unit)] inches.

[Notes]
• Horizontal and vertical motion units are specified by the command **$1D $50**. Changing the horizontal or vertical motion unit does not affect the current line spacing.
• The command **$1D $50** can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum vertical movement amount.
• In standard mode, the vertical motion unit is used.
• The maximum line spacing is *n* = 255 (≅ 32mm).

[Default] n = 32 (1/6 inch)

[Reference] **$1B $30, $1B $32, $1D $50**

[Example]

$1B $34 n

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

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

[Notes]
- The printer can print all characters in script mode.
- When script mode is turned off by setting the value *n* at 0 or 48, the data that follows is printed in normal mode.
- Script mode can also be turned on or off by using **$1B $21**. Note, however, that the last command received is effective

[Default] n = 0

[Reference] **$1B $21**

[Example]

$1B $3D n

[Name] **Select peripheral device**

[Format]

ASCII	ESC	=	n
Hex	1B	3D	n
Decimal	27	61	n

[Range] 0 ≤ n ≤ 255

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

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

[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 @

[Name] **Inizialize the printer.**

[Format]

ASCII	ESC	@	
Hex		1B	40
Decimal	27	64	

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

[Notes]
- The data in the reception buffer is not cleared.
- The macro definitions are not cleared.

[Default]

[Reference]

[Example]

$1B $44 [n1...nk] $00

[Name] Set the horizontal tabs.

[Format]

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

[Range]
$1 \le n \le 255$
$0 \le k \le 32$

[Description] Sets the horizontal tabs.
- *n*specifies the number of columns for setting a horizontal tab from the beginning of the line.
- *k* indicates the total number of horizontal tabs to be set.

[Notes]
- The horizontal tab position is stored as a value of [character width x *n*] measured from the beginning of the line. The width of the character includes the space to the right of the character and double width characters are set with a width which is double that of normal characters.
- This command cancels the previous horizontal tab setting.
- When setting n = 8, the print position is moved to column 9 by sending **HT**.
- Up to 32 tab positions can be set (*k* = 32). Any data exceeding the 32 tabs is processed as normal data.
- Transmit [*n*] *k* in ascending order and put a code 0 NUL 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.
- This command cancels all horizontal tab positions.
- The previously specified horizontal tab positions do not change, even if the character width changes.

[Default] The default tabs are at intervals of 8 characters (columns 9, 17, 25, …) for the A Font when the space to the right of the character is 0.

[Reference] **$09**

[Example]

$1B $45 n

[Name] **Turn bold mode on/off.**

[Format]

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

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

[Description] Turns bold mode On or Off.
- When the LSB of *n* is 0, bold mode is turned off.

• When the LSB of *n* is 1, bold mode is turned on.

[Notes] • Only the LSB of *n* is effective.
• The command **$1B $21** also turns bold mode on and off. In any case, the last command received is enabled.

[Default] n = 0

[Reference]

[Example]

ESC G n

[Name] **Turn double strike mode On/Off**.

[Format]	ASCII	ESC	G	n
Hex	Hex	1B	47	n
Decimal	Decimal	27	71	n

[Range] 0 ≤ n ≤ 255

[Description] Turns double-strike mode On or Off.
• When the LSB of *n* 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.
• The printer output is the same in double-strike mode and bold mode.

[Default] n = 0

[Reference] **ESC E**

[Example]

ESC J n

[Name] **Print and feed paper.**

[Format]	ASCII	ESC	J	n
	Hex	1B	4A	n
	Decimal	27	74	n

[Range] 0 ≤ n ≤ 255

[Description] Prints the data in the print buffer and feeds the paper [n × (vertical or horizontal motion unit) inches.

[Notes] • After printing is over, this command sets the print starting position at the beginning of the line.
• The paper feed amount set by this command does not affect the values set by **ESC 2** or **ESC 3**.
• The horizontal and vertical motion unit are specified by **GS P**.
• The command **GS P** can change the vertical (and horizontal)motion unit. However, the value cannot be less than the minimum vertical movement amount.
• In standard mode, the vertical motion unit is used.
• The maximum paper feed amount is 31.8 mm.

[Default]

[Reference] **GS P**

[Example]

ESC R n

[Name] **Select the international character set**.

[Format]	ASCII	ESC	R	n
	Hex	1B	52	n
	Decimal	27	82	n

[Range] 0 ≤ n ≤ 12

[Description] Selects the international character set by setting *n* as in the following table :

	Hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
n	Character set												
0	U.S.A.	#	$	@	[	\	]	^	`	{	|	}	~
1	France	#	$	à	°	ç	§	^	`	è	ù	è	"
2	Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	β
3	Great Britain	£	$	@	[	\	]	^	`	{	|	}	~
4	Denmark I	#	$	@	Æ	∅	Å	^	`	æ	ϕ	å	~
5	Sweden	#	¤	È	Ä	Ö	Å	Ü	è	ä	ö	å	ü
6	Italy	#	$	@	°	\	è	^	ù	à	ò	è	ì
7	Spain 1	Pt	$	@	¡	Ñ	¿	^	`	"	ñ	}	~
8	Japan	#	$	@	[	¥	]	^	`	{	|	}	~
9	Norway	#	¤	È	Æ	∅	Å	Ü	è	æ	ϕ	å	ü
10	Denmark II	#	$	È	Æ	∅	Å	Ü	è	æ	ϕ	å	ü
11	Spain 2	#	$	à	¡	Ñ	¿	è	`	í	ñ	ö	ú
12	South America	#	$	à	¡	Ñ	¿	è	ù	í	ñ	ö	ú

[Notes]
[Default]
[Reference]
[Example]

$1B $56 n

[Name] **Set print mode rotated by 90°.**

[Format]

ASCII	ESC	V	n
Hex	1B	56	n
Decimal	27	86	n

[Range] 0 ≤ n ≤ 1
48 ≤ n ≤ 49

[Description] Enable / disable print mode rotated by 90°. n is used as follows :

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

[Notes]
- When underlined mode is turned on, the printer does not underline 90° rotated characters. All the same it's possible select the underline mode.
- Double-width and double-height commands in 90° rotation mode enlarge characters in the opposite directions from double-height *and* double-width commands in normal mode.
- This command is not available in Page mode.
- If this command is entered in Page mode, the printer all the same save the setting.

Default] n = 0

[Reference] **$1B $21** , **$1B $2D**

[Example]

$1B $5C nL nH

[Name] **Set relative print position**.

[Format]

ASCII	ESC	\	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 starting position based on the current position by using the horizontal or vertical motion unit.
This command sets the distance from the current position to [(nL+ nH × 256) × (horizontal or vertical motion unit)].

[Notes]
• Any setting that exceeds the printable area is ignored.
• When the starting position is specified by n motion units to the right :
nL + nH × 256 = n
When the starting position is specified by n motion units to the left (negative direction) use the complement of 65536 :
nL + nH × 256 = 65536 – n
• If setting exceeds printing area width, left or right margin is set to default value.
• The horizontal and vertical motion units are specified by **$1D $50**.
• The command **$1D $50** 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.

[Default]

[Reference] **$1D $24**, **$1D $50**

[Example]

$1B $61 n

[Name] **Select justification**.

[Format]

ASCII	ESC	a	n
Hex	1B	61	n
Decimal	27	97	n

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

[Description] Aligns all the data in one line in the position specified. *n* selects the type of justification as follows:

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

[Notes]
• This command is only enabled if input at the beginning of the line.
• The lines are justified within the specified printing area.
• The spaces set by the commands **$09, $1B $24** and **$1B $ 5C** remain justified as per the previously set mode.

[Default] n = 0

[Reference]

[Example]

Left justification

ABC
ABCD
ABCDE

Centering

ABC
ABCD
ABCDE

Right justification

ABC
ABCD
ABCDE

$1B $63 $35 n

[Name] **Enable or disable the front panel keys.**

[Format]

ASCII	ESC	c	5	n	
Hex		1B	63	35	n
Decimal	27	99	53	n	

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

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

[Notes]
- Only the LSB of *n* is effective.
- In the printer, the panel buttons are the FEED and PRINT keys.
- When the panel keys are disabled, the keys can only operate when reset.

[Default] n = 0

[Reference] See the “Panel key” parameter from Setup.

[Example]

$1B $64 n

[Name] **Print and feed paper n lines.**

[Format]

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

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

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

[Notes]
- This command sets the print starting position at the beginning of the line.
- This command does not affect the line spacing set by **$1B $32** or **$1B $33**.
- The maximum paper feed amount is 200 lines. Even if a paper feed exceeding 200 lines is set, the printer only feeds the paper by 200 lines.

[Default]

[Reference] **$1B $32, $1B $33**

[Example]

$1B $69

[Name] **Total cut**.

[Format]

ASCII	ESC	i	
Hex	1B	69	
Decimal	27	105	

[Description] This command enables cutter operation; if there is no cutter, a disabling flag is set any subsequent cutting commands will be ignored.

[Notes]
- The printer waits until all the paper movement commands have been completed before executing total cut

[Default]

[Reference]

[Example]

$1B $74 n

[Name] **Select the character code table.**

[Format]

ASCII	ESC	t	n
Hex	1B	74	n
Decimal	27	116	n

[Range] n = 0, 19, 255

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

n	Page
0	0 (PC437 [U.S.A., Standard Europe])
19	19 (PC858 for Euro symbol at position 213)
255	Page space

[Note]

[Default] n = 0

[Reference] See character code table

[Example] For printing Euro symbol (•), the command sequence is:
$1B, $74, $13, $D5

$1B $76

[Name] **Transmit paper sensor status**.

[Format]

ASCII	ESC	v
Hex	1B	76
Decimal	27	118

[Description] Transmits the current paper sensor status upon receiving this command.

[Notes] • This command is executed immediately, even when the reception buffer is full (Busy).
The status to be transmitted is shown in the table below :

Bit	Off/On	Hex	Decimal	Function
0,1	Off	00	0	Near paper end sensor Paper present
	On	03	3	Near paper end sensor Near paper end
2,3	Off	00	0	Paper end sensor Paper present
	On	0C	12	Paper end sensor Paper end
4	Off	00	0	Fixed to Off
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	Off	00	0	Fixed to Off

[Default]

[Reference] **$10 $04**

[Example]

$1B $78 n

[Name] Select speed / quality mode.

[Format]

ASCII	ESC	x	n	
Hex		1B	78	n
Decimal	27	120	n	

[Range] $0 \le n \le 2$

[Description] Selects speed / quality mode.

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

[Reference]

[Example]

$1B $7B n

[Name] **Turn upside-down printing mode on/off**.

[Format]

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

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

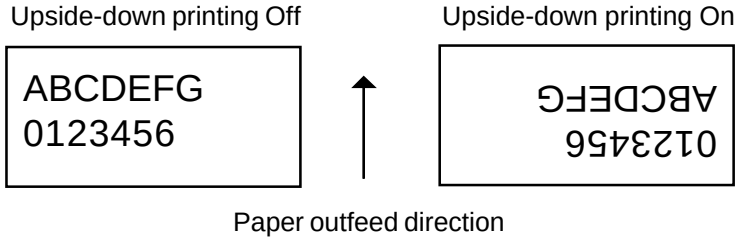
[Description] Turns upside-down printing mode on/off.
• When the LSB of *n* is 0, upside-down printing mode is turned off.
• When the LSB of *n* is 1, upside-down printing mode is turned on.

[Notes] • Only the LSB of *n* is effective.
• This command is only enabled when input at the beginning of a line.
• In upside-down printing mode, the printer rotates the line to be printed by 180° and then prints it.

[Default] n = 0

[Reference]

[Example]



$1B $FA n xH xL yH yL

[Name] **Print graphic bank (448 × 1170 dots).**

[Format]

ASCII	ESC	{ }	n	xH	xL	yH	yL	
Hex		1B	FA	n	xH	xL	yH	yL
Decimal	27	250	n	xH	xL	yH	yL	

[Range] $1 \le n \le 2$

$0 \le xH, xL, yH, yL \le 255$

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

n	Function
1	Print flash bank logo 1
2	Print flash bank logo 2

xL + *xH* × 256 specifies the starting dot line (1 ÷ 1170).
yL + y*H* × 256 specifies the number of lines to print.

[Notes] • If (*xL* + (*xH* × 256)) > 1170the printer does not execute the command.
• If (*xL* + (*xH* × 256) + *yL* +(y*H* × 256))> 1170the printer only prints 1170- *xL* + (*xH* × 256) +1 dotlines.

[Default]

[Reference]

[Example] To print logo 1 from flash bank dotline 100 to dotline 299, send:
$1B $FA $01 $00 $64 $00 $C7

$1B $FF m nL nH d0 dn

[Name] **Receive and store logos in flash.**

[Format]

ASCII	ESC	{ }	m	nL	nH	d0	dn
Hex	1B	FF	m	nL	nH	d0	dn
Decimal	27	255	m	nL	nH	d0	dn

[Range] $0 \le nL, nH \le 255$ $1 \le m \le 2$ $0 \le d0, dn \le 255$

[Description] • Received [*nL* + (*nH* x 256)] x 2 bytes and store in the flash.
• If [*nL* + (*nH* x 256)] exceeds 32768, the data following will be processed as normal data.
• Saved the graphics bank from flash. *m* selects the bank as follows:

m	Function
1	Save logotype into flash bank 1
2	Save logotype into flash bank 2

• d0, dn = value of bit stream image

[Default]

[Reference]

[Example] To store the logotype indicated below ,into flash bank 2, necessity execute the follows operation

1)Define the image dimensions.

The width of image is 448 horizontal pixel ; the height maximun of image is 1170 vertical pixel.

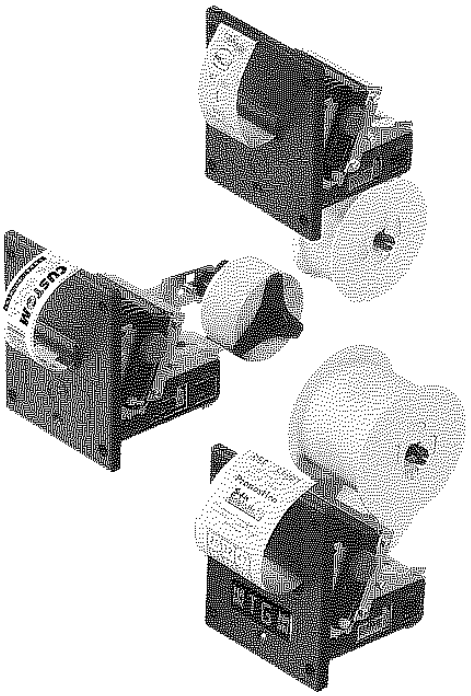
2) Calculate the number of bytes to send as (height pix*width pix)/16.

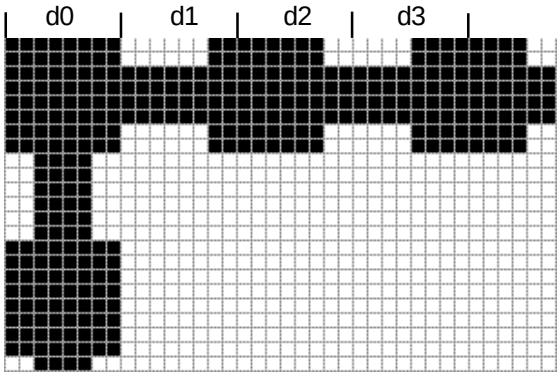
Bytes number in example is 448 x 1170/16=32760 in exadecimal resulting = 7FF8.

3) Bit stream image conversion.

In the following figure is reproduced the logotype enlargement in the zone indicated by the arrow to define d0...dn

TG2460
Kiosk Printers





In this example; d0=FF; d1=03; d2=FC; d3=0F

Then send this command to the printer

0x1B	0xFF	0x02	0xF8	0x7F	0xFF	0 x 03	0xFC	0x0F...
		N. logo	Dimension					

$1C $C0 $34

[Name] **Total cut and automatic paper moving back**.

[Format]

ASCII	FS	{ }	4
Hex	1C	C0	34
Decimal	28	192	52

[Description] This command enables cutter operation and executes a total cut and automatic paper moving back; if there is no cutter, a disabling flag is set any subsequent cutting commands will be ignored.

[Notes] • The printer waits until all the paper movement commands have been completed before executing total cut

[Default]

[Reference]

[Example]

$1D $21 n

[Name] **Select character size**.

[Format]

ASCII	GS	!	n
Hex	1D	21	n
Decimal	29	33	n

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

[Description] Selects character height and width, as follows:
- Bits 0 to 3 : character height selection (see table 2).
- Bits 4 to 7 : character width selection (see table 1).

Table1: 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	

Table2: Character height selection

Hex	Decimal	Height
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 HRI characters).
- If n is outside the defined range, this command is ignored.
- When characters are enlarged with different heights on one line, the are aligned at the baseline or topline (see **$1D $7E**).
- The character size can also be selected by the command **$1B $21**. However,the setting of the last received command is effective.

[Default] n = 0

[Reference] **$1B $21**

[Example]

$1D $3A

[Name] **Start / end macro definition**.

[Format]

ASCII	GS	:
Hex	1D	3A
Decimal	29	58

[Description] Starts or ends macro definition.

[Notes]
- Macro definition starts when this command is received during normal operation.
- When the command **$1D $5E** is received during macro definition, the printer ends the macro definitions and clears all definitions.
- Macro not defined when the power is turned on.
- The defined contents of the macro are not cleared by the command **$1B $40**. Therefore, **$1B $40** can be included in the contents of the macro definitions.
- If the printer receives the command **$1D $3A** again immediately after previously receiving **$1D $3A**, the printer remains in the macro undefined state.
- The contents of the macro can be defined up to 1024 bytes. If the macro definition exceeds 1024 bytes, the excess data is not not stored.

[Default]

[Reference] **$1D $5E**

[Example]

$1D $42 n

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

[Format]

ASCII	GS	B	n	
Hex	1D	42	n	
Decimal	29	66	n	

[Range] 0 ≤ n ≤ 255

[Description] Turns white/black reverse printing mode on or off.
• When the LSB of *n* is 0, white/black reverse printing is turned off.
• When the LSB of *n* is 1, white/black reverse printing mode is turned on.

[Notes]
• Only the LSB of *n*is effective.
• This command is available for built-in characters and user-defined characters.
• This command does not affect bit image, downloaded bit image, bar codes, HRI characters and spacing skipped by **$09, $1B $24** and **$1B $5C**.
• This command does not affect the space between lines.
• White/black reverse mode has a higher priority than underline mode. Even if underline mode is on, it is disabled (but not cancelled) when white/black reverse mode is selected.

[Default] n = 0

[Reference]

[Example]

$1D $43 $30 n m

[Name] **Select counter print mode.**

[Format]

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

[Range] 0 ≤ n ≤ 5
m = 0, 1, 2, 48, 49, 50

[Description] Selects a print mode for the serial number counter.
• *n* specifies the number of digits to be printed as follows:
when *n* = 0, the printer prints the actual digits indicated by the number value.
when *n* = 1 to 5, this command sets the number of digits to be printed.
• m specifies the printing position within the entire range of printed digits, as follows:

m	Printing position	Processing of digits less than those specified
0, 48	Align right	Adds spaces to the left.
1, 49	Align right	Adds '0' to the left.
2, 50	Align left	Adds spaces to the right

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

[Default] *n* = 0, *m* = 0

[Reference] **$1D $43 $31, $1D $43 $32, $1D $43 $3B, $1D $63**

[Example] n = 3,m = 0 n = 3, m = 1 n = 3, m=2
☐☐1 001 1☐☐

☐ indicates a space

$1D $43 $31 aL aH bL bH n r

[Name] **Select count mode (A)**.

[Format]

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

[Range] $0 \le aL, aH \le 255$

$0 \le bL, bH \le 255$

$0 \le n, r \le 255$

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

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

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

[Reference] **$1D $43 $30, $1D $43 $32, $1D $43 $3B, $1D $63**

[Example]

$1D $43 $32 nL nH

[Name] **Set counter**.

[Format]

ASCII	GS	C	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 number counter value.
• *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 **$1D $43 $31** or **$1D $43 $3B,** it is forced to convert to the minimum value by **$1D $63**.
• In count-down mode, if the counter value specified by this command goes out of the counter operation range specified by **$1D $43 $31** or **$1D $43 $3B**, it is forced to convert to the maximum value by **$1D $63**.

[Default] nL = 1, nH = 0

[Reference] **$1D $43 $30, $1D $43 $31**, **$1D $43 $3B, $1D $63**

[Example]

$1D $43 $3B sa $3B sb $3B sn $3B sr $3B sc $3B

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

[Notes]
- Count-up mode is specified when:
sa < *sb* and *sn* ≠ 0 and *sr* ≠ 0
- Count-down mode is specified when:
sa > *sb* and *sn* ≠ 0 and *sr* ≠ 0
- Counting stops when:
sa = *sb* or *sn* = 0 or *sr* = 0
- In setting count-up mode, the minimum value of the counter is sa and the maximum is sb. If counting up reaches a value exceeding the maximum, it is resumed with the minimum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the minimum value by executing **$1D $63**.
- 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 the minimum, it is resumed with the maximum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the maximum value by executing **$1D $63**.
- Parameters *sa* to *sc* can be omitted. If omitted, these values remain unchanged.
- Parameters *sa* to *sc* must not contain characters, with the exception of those from '0' to '9'.

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

[Reference] **$1D $43 $30, $1D $43 $31, $1D $43 $32, $1D $63**

[Example]

$1D $48 n

[Name] Select printing position of Human Readable Interpretation (HRI)

[Format]

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

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

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

n	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] **$1D $66, $1D $6B**

[Example]

$1D $49 n

[Name] **Transmit printer ID.**

[Format]

ASCII	GS	I	n
Hex	1D	49	n
Decimal	29	73	n

[Range] 1 ≤ n ≤ 3, 49 ≤ n ≤ 51

[Description] Transmits the printer ID specified by n as follows:

n	Printer ID	Specification
1, 49	Printer model ID	$6D (TG2460)
2, 50	Type ID	Refer to table below
3, 51	ROM version ID	Depends on ROM version (4 char)

n = 2, Identification Function

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	2-byte character codes not supported
1	Off	00	0	Autocutter not supplied
	On	02	2	Autocutter supplied
2	Off	00	0	Non-label thermal paper
	On	04	4	Label thermal paper
3	-	-	-	RESERVED
4	Off	00	0	Fixed to Off
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	Off	00	0	Fixed to Off

[Notes] • When the DTR/DSR control is selected, the printer only transmits 1 byte (Printer identification) after it has been given confirmation that the host is ready to receive data. If the host is not ready, the printer waits until it is.
• When the XON/XOFF control is selected, the printer only transmits 1 byte (Printer identification) if it has not been given confirmation that the host is ready to receive data.
• This command is carried out once the data has been processed in the reception buffer. There may therefore be a delay between the moment in which the command is received and that in which the data is transmitted, depending on the status of the reception buffer

.[Default]

[Reference]

[Example]

$1D $4C nL nH

[Name] **Set left margin.**

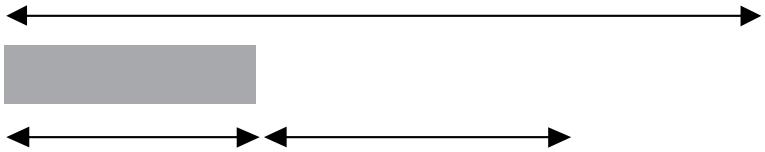
[Format]

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

[Range] 0 ≤ nL, nH ≤ 255

[Description] Sets the left margin.
• The left margin is set at [(nL + nH × 256) × (horizontal motion unit)] inches.

Printable area



[Notes]
- This command is enabled only at the beginning of the line.
- If the setting exceeds the printable area, the maximum value of the printable area is used.
- If left margin + printing area width is greater than printable area, then printing area width is set at maximum value.
- The horizontal and vertical motion units are specified by **$1D $50**. Changing the horizontal or vertical motion unit does not affect the current left margin.
- The command **$1D $50** can change the horizontal (and vertical) motion unit.
- However, the value cannot be less than the minimum horizontal movement amount and it must be expressed in even units of the minimum horizontal movement amount.

[Default] If Font A : nL = nH = 0
If Font B : nL =14
nH = 0

[Reference] **$1D $50, $1D $57**

[Example]

$1D $50 x y

[Name] **Set horizontal and vertical motion units.**

[Format]

ASCII	GS	P	x	y
Hex	1D	50	x	y
Decimal	29	80	x	y

[Range] x = 100, 200
y = 100, 200

[Description] Sets the horizontal and vertical motion units at 1/x inches and 1/y inches, respectively.
When *x* is set at 0, the default setting value is used.
When *y* is set at 0, the default setting value is used.

[Notes]
- The horizontal direction is perpendicular to the paper feed direction.
- In standard mode, the following commands use *x* or *y*, irrespective of character rotation (upside down or 90° clockwise rotation):
  ① **Commands using *x*** : $1B $20, $1B $24, $1B $5C, $1D $4C, $1D $57.
  ② **Commands using y** : $1B $33, $1B $4A.
- This command does not affect the previously specified values.
- The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch or an exact multiple of that value.

[Default] x = 200, y = 200

[Reference] **$1B $20, $1B 24, $1B $5C, $1B $33, $1B $4A, $1D $4C, $1D $57**

[Example]

$1D $57 nL nH

[Name] **Set printing area width.**

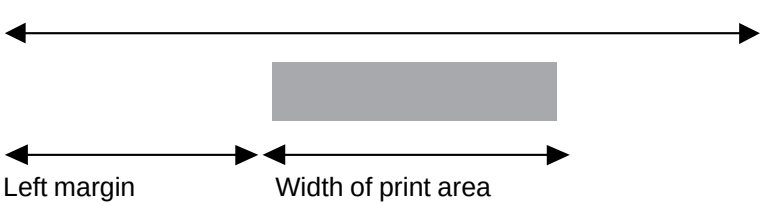
[Format]

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 *nL* and *nH*.

• The left margin is set at [(nL + nH × 256) × (horizontal motion unit)] inches.



[Notes]
• This command is only enabled at 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 it is set at maximum value.
• The horizontal and vertical motion unit are specified by **$1D $50**. Changing the horizontal or vertical motion unit does not affect the current left margin.
• The command **$1D $50** can change the horizontal (and vertical) motion unit.
• However, the value cannot be less than the minimum horizontal movement amount and it must be expressed in even units of the minimum horizontal movement amount.

[Default]
If Font A : nL = 192, nH = 1
If Font B : nL =164, nH = 1

[Reference] **$1D $4C, $1D $50**

[Example]

$1D $5E r t m

[Name] **Execute macro.**

[Format]

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

[Range] $0 \le r, t \le 255$

$0 \le m \le 1$

[Description]
Executes a macro.
• *r* specifies the number of times to execute the macro.
• *t* specifies the waiting time for executing the macro.
The waiting time is *t*× 100 msec. for every macro execution.
• *m* specifies macro executing mode:
When the LSB of *m* = 0, the macro executes *r* times continuously at the interval specified *t*.
When the LSB of *m* = 1, after waiting for the period specified by *t*, the LED indicator blinks and the printer waits for the FEED button to be pressed. After the button is pressed, the printer executes the macro once. The printer repeats the operation *r* times.

[Notes]
• This command lasts for a period of (*t* × 100 msec.) after a macro is executed by *t*.
• If this command is received while a macro is being defined, the macro definition is aborted and the definitions cleared.
• If the macro is not defined or if *r* is 0, nothing happens.
• When the macro is executed by pressing the FEED button (*m* = 1), the paper can not be fed by using the FEED button.

[Default]

[Reference] **$1D $3A**

[Example]

$1D $63

[Name] **Print counter.**

[Format]

ASCII	GS	c	
Hex	1D	63	
Decimal	29	99	

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

[Notes]
- After setting the current counter value in the print buffer as print data (a character string), the printer counts up or down based on the count mode set. The counter value in the print buffer is printed when the printer receives a print command or is in the buffer full state.
- The counter print mode is set by **$1D $43 $30**.
- The counter mode is set by **$1D $43 $31** or **$1D $43 $3B**.
- In count-up mode, if the counter value set by this command goes out of the counter operation range set by **$1D $43 $31** or **$1D $43 $3B**, 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 **$1D $43 $31** or **$1D $43 $3B**, it is forced to convert to the maximum value.

[Default]

[Reference] **$1D $43 $30, $1D $43 $31, $1D $43 $32, $1D $43 $3B**

[Example]

$1D $66 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 for the HRI characters used when printing a bar code.
n selects a font from the following table:

n	Font
0, 48	Font A.
1, 49	Font B.

[Notes] The HRI characters are printed at the position specified by the command **$1D $48.**

[Default] n = 0

[Reference] **$1D $48, $1D $6B**

[Example]

$1D $68 n

[Name] **Set bar code height**

[Format]

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

[Range] $1 \le n \le 255$

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

[Notes]

[Default] n = 96 (12 mm)

[Reference] **$1D $6B**

[Example]

❶ $1D $6B m [d1...dk] $00 ② $1D $6B m n [d1...dn]

[Name] **Print bar 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]

① $0 \le m \le 6$

② $65 \le m \le 73$

[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
❶	0	UPC-A	$11 \le k \le 12$	$48 \le d \le 57$
	1	UPC-E	$11 \le k \le 12$	$48 \le d \le 57$
	2	EAN13 (JAN)	$12 \le k \le 13$	$48 \le d \le 57$
	3	EAN8 (JAN)	$7 \le k \le 8$	$48 \le d \le 57$
	4	CODE39	$1 \le k$	$48 \le d \le 57$, $65 \le d \le 90$, 32, 36, 37, 43, 45, 46, 47
	5	ITF	$1 \le k$ (even number)	$48 \le d \le 57$
	6	CODABAR	$1 \le k$	$48 \le d \le 57$, $65 \le d1 \le 68$, 36, 43, 45, 46, 47, 58
	7	CODE93	$1 \le k \le 255$	$1 \le d \le 127$
	8	CODE128	$2 \le k \le 255$	$1 \le d \le 127$
	20	CODE32	$8 \le k \le 9$	$48 \le d \le 57$

②	65	UPC-A	$11 \le n \le 12$	$48 \le d \le 57$
	66	UPC-E	$11 \le n \le 12$	$48 \le d \le 57$
	67	EAN13 (JAN)	$12 \le n \le 13$	$48 \le d \le 57$
	68	EAN8 (JAN)	$7 \le n \le 8$	$48 \le d \le 57$
	69	CODE39	$1 \le n \le 255$	$48 \le d \le 57$, $65 \le d \le 90$, 32, 36, 37, 43, 45, 46, 47
	70	ITF	$1 \le n \le 255$	$48 \le d \le 57$
	71	CODABAR	$1 \le n \le 255$	$48 \le d \le 57$, $65 \le d1 \le 68$, 36, 43, 45, 46, 47, 58
	72	CODE93	$1 \le n \le 255$	$0 \le d \le 127$
	73	CODE128	$2 \le n \le 255$	$0 \le d \le 127$
	90	CODE32	$8 \le n \le 9$	$48 \le d \le 57$

[Notes]

- If *d* is outside the specified range, the printer prints the following message: “BAR CODE GENERATOR NON OK !” and processes the following data as normal data.
- If the horizontal size exceeds the printing area, the printer only feeds the paper.
- This command feeds as much paper as is required to print the bar code, irrespective of the line spacing specified by **$1B $32** or **$1B $33**.

• After printing the bar code, this command sets the print position at the beginning of the line.
• This command is not affected by print modes (bold, double strike, underline or character size), with the exception of upside-down mode and justification.

[Note for ①]

• This command ends with a $00 code.
• When the bar code 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) byte 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) byte bar code data.
• When the system used is EAN8, the printer prints the bar code after receiving 7 (without check digit) or 8 (with check digit) byte bar code data.
• The number of data for ITF bar code must be even. When an odd number of data is input, the printer ignores the last received data.

[Note for ②]

• If *n* is outside the specified range, the printer stops command processing and process the following data as normal data.

When to use CODE93:

• The printer prints an HRI character (o) as a start character at the beginning of the HRI character string.

• The printer prints an HRI character (o) as a stop character at the end of the HRI character string.

• The printer prints an HRI character (n) as a control character ($00 to $1F and $7F).

When to use 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 a code set selection character (CODE A , CODE B or CODE C) which selects the first code set.
• Special characters are defined by combining two characters “{“ and one character. The ASCII character “{” is defined by transmitting “{“ twice consecutively.

Specific character	Data transmission		
	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] **$1D $48, $1D $66, $1D $68, $1D $77**

[Example]

$1D $72 n

[Name] **Transmit status.**

[Format]

ASCII	GS	r	n
Hex	1D	72	n
Decimal	29	114	n

[Range] n = 1, n = 49

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

n	Function
1, 49	Transmits paper sensor status (same as $1B $76).

Bit	Off/On	Hex	Decimal	Function
0,1	-	-	-	RESERVED.
	-	-	-	RESERVED.
2,3	Off	00	0	Paper end sensor: paper present
	On	0C	12	Paper end sensor: paper not present
4	Off	00	0	Fixed to Off
5	-	-	-	RESERVED.
6	-	-	-	RESERVED.
7	Off	00	0	Fixed to Off

[Notes] • This command is executed when the data is processed in the reception buffer. There may therefore be a time lag between receiving the command and transmitting the status, depending on the status of the reception buffer.

[Default]

[Reference] **$10 $04, $1B $75, $1B $76**

[Example]

GS w n

[Name] **Set bar code width.**

[Format]

ASCII	GS	w	n
Hex	1D	77	n
Decimal	29	119	n

[Range] $2 \le n \le 6$

[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] **$1D $6B**

[Example]

$1D $7E n

[Name] Set superscript / subscript.

[Format]

ASCII	GS	{ }	n
Hex	1D	7E	n
Decimal	29	126	n

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

[Description] Sets superscript or subscript character position.

n specifies the position as follows:

n	Function
0, 48	Subscript character position.
1, 49	Superscript character position.

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

[Default] n = 0

[Reference] **$1B $21, $1D $21**

$1D $7C n

[Name] **Set printing density.**

[Format]

ASCII	GS	{ }	n
Hex	1D	7C	n
Decimal	29	124	n

[Range] 0 ≤ n ≤ 4, 48 ≤ n ≤ 52

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

[Default] n = 2

[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

[Reference]

[Example]

2.1.2 Custom emulation

The following table lists all the commands for the management of the Custom emulation. The commands can be transmitted to the printer at any moment, but they will only be carried out when the commands previously transmitted have been carried out. There are no priority commands; all commands are carried out when the circular buffer is free to do so.

COMMAND TABLE **(Tab.2.2)**

Com. HEX	Com. ASCII	Description
$00	NUL	Printing with small characters
$01	SOH	Printing with double width characters
$02	STX	Printing in double height characters
$03	ETX	Printing with expanded characters
$04	EOT	Restore printing with small characters
$0A	LF	Print and line feed
n $0B	n VT	Vertical tabs
$0D	CR	Print and feed
$0F	SI	Ignore $0D
$11	DC1	DP 24/40 graphic mode
$1B $21 n	ESC ! n	Set print mode
$1B $24 nL nH	ESC $ nL nH	Set absolute position
$1B $2A m nL nH d1...dk	ESC * m nL nH d1...dk	Set bit image mode
$1B $40	ESC @	Initialize printer
$1B $42	ESC B	Select FONT 1
$1B $43	ESC C	Total cut
$1B $4B $0D	ESC K [d] CR	Set characters to transmit on pressing "Print" key
dH dL $1B $47	dH dL ESC G	Set default parameters
dH dL $1B $4D	dH dL ESC M	Set default parameters of print mode
$1B $4E	ESC N	Set printing in NORMAL
$1B $52	ESC R	Set printing in REVERSE
$1B $56 n	ESC V n	Set print mode rotated by 90°
$1B $61 n	ESC a n	Select justification
$1B $62	ESC b	Set font 2
$1B $6D	ESC m	Read default parameters of print mode
$1B $70	ESC p	Read default parameters
aH aL $1B $72	aH aL ESC r	Read EEPROM location
$1B $74 n	ESC t n	Select character code table
$1B $76	ESC v	Transmit printer status
aH aL dH dL $1B $77	aH aL dH dL ESC w	Write EEPROM location
$1B $FA n xH xL yH yL	ESC · n xH xL yH yL	Print graphic bank
$1B $FF m nL nH d0...dn	ESC { } m nL nH d0...dn	Receive and store logos in Flash
$1C $C0 $34	FS { } 4	Total cut and automatic paper moving back
$1D $0C	GS FF	Print the buffer contents
$1D $3A	GS :	Set starting/end of macro definition
$1D $43 $30 n m	GS C 0 n m	Select counter print mode
$1C $C0 $34	FS { } 4	Total cut and automatic paper moving back
$1D $43 $31 aL aH bL bH n r	GS C 1 aL aH bL bH n r	Select count mode (A)
$1D $43 $32 nL nH	GS C 2 nL nH	Select counter

Com. HEX	Com. ASCII	Description
$1D $43 $3B sa $3B sb $3B sn $3B sr $3B sc $3B	GS C ; sa ; sb ; sn ; sr ; sc ;	Select count mode (B)
$1D $48 n	GS H n	Select printing position of HRI characters
$1D $49 n	GS I n	Transmit printer ID
$1D $50 x y	GS P x y	Set horizontal and vertical motion units
$1D $5E r t m	GS ^ r t m	Execute macro
$1D $63	GS c	Print counter
$1D $66 n	GS f n	Select font for HRI characters
$1D $68 n	GS h n	Select height of bar code
$1D $6B m 00	GS k m NUL	Print bar code
$1D $77 n	GS w n	Select horizontal size (magnification) of bar code
$1D $7C n	GS | n	Set printing density

NOTE: in “Note” column where the model is not specified, the command is valid for all models.

The following pages provide a more detailed description of each command.

[Name] **Print with small character**
[Format] ASCII NUL
Hex 00
Decimal 0
[Description] Character printing is executed in small format (normal)
[Notes] • Setting remains until the next set
[Default] Set up from front keys.
[Reference] **$01, $02, $03, $04**
[Example]

$01

[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] • Setting remains until next set
[Default] Set up from front keys.
[Reference] **$00, $02, $03, $04**
[Example]

$02

[Name] **Printing in double height character**
[Format] ASCII STX
Hex 02
Decimal 2
[Description] Printing of the character is executed in double height format

[Notes] • Setting remains until next set
[Default] Set up from front keys.
[Reference] **$00, $01, $03, $04**
[Example]

$03

[Name] **Printing with expanded character**
[Format] ASCII ETX
Hex 03
Decimal 3
[Description] Printing of the character is executed in expanded format
[Notes] • Setting remains until next set
[Default] Set up from front keys.
[Reference] **$00, $01, $02, $04**
[Example]

$04

[Name] **Print with small character**
[Format] ASCII EOT
Hex 04
Decimal 4
[Description] Character printing is executed in small format (normal)
[Notes] • Setting remains until next set
[Default] Set up from front keys.
[Reference] **$00, $01, $02, $03**
[Example]

$0A

[Name] **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] • The command sets the print position at the beginning of the line.
[Default]
[Reference] **$1B $32, $1B $33**
[Example]

(n) $0B

[Name] **Vertical tabs**
[Format] ASCII n VT
Hex n 0B
Decimal n 11
[Range] $0 < n \leq 9$
[Description] Runs as many feeds as are defined by ***n***.
[Notes] • This command zeroes the line buffer

[Default]
[Reference]
[Example]

$0D

[Name] **Print and line feed**

[Format]

ASCII	CR
Hex	0D
Decimal	13

[Description] This command prints the data in the buffer.

[Notes] • This command sets the print position at the beginning of the line.

[Default]

[Reference] **$0A**

[Example]

$0F

[Name] **Ignore CR**

[Format]

ASCII	SI
Hex	0F
Decimal	15

[Description] After this command the CR code is ignored.

[Notes] • To put the CR code back into operation, reset the printer.

[Default]

[Reference]

[Example]

$11

[Name] **Graphic mode DP24/40**

[Format]

ASCII	DC1
Hex	11
Decimal	17

[Description] Prints in graphic mode like the DP 24/40.
The command $11 enables the DP24-40 printer graphic mode, i.e. to print in graphic mode, transmit the command $11 at the beginning of each line. One line for the DP24-40 printer (24 column model) corresponds to 44 horizontal dots divided into 24 6-dot blocks. For the DP24-40 printer (40-column model) one line corresponds to 240 horizontal dots divided into 40 6-dot blocks.

[Notes] The size of the graphic dot and the number of dots per line vary depending on the number of columns.
To obtain a graphic printout, enter the command $11 at the beginning of each line. The graphic configuration byte format is as follows:

X	**R**	**P6**	**P5**	**P4**	**P3**	**P2**	**P1**
D7	D6	D5	D4	D3	D2	D1	D0

where:
X is not utilized (we recommend 0);
R must be set at 1;
P1, P6 are the data of the graphic dots (1 prints, 0 does not print).
The P6 bit of the string of dots 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 dots, transmit:
$11, n x $7F (where n is the number of characters per line), $0D.
To print an empty line, transmit:
$11, n x $40, $0D.

$1B $21 n

[Name] **Select print modes**.

[Format]

ASCII	ESC	!	n
Hex	1B	21	n
Decimal	27	33	n

[Range] 0 ≤ n ≤ 255

[Description] Selects the print mode using *n* (see following tables):

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A selected.
	On	01	1	Character font B selected.
1	-	-	-	RESERVED.
2	-	-	-	RESERVED.
3	Off	00	0	Bold mode not selected.
	On	08	8	Bold mode selected.
4	Off	00	0	Double height mode not selected.
	On	10	16	Double height mode selected.
5	Off	00	0	Double width mode not selected.
	On	20	32	Double width mode selected.
6	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.

[Notes]
• The printer can underline all the characters, but it cannot underline the space set by command **$1B $24** and 90° clockwise rotated characters.
• When the characters on the same line are enlarged to different heights, they are either aligned at the baseline or topline.
• This command resets the left and right margin at the default value.

[Default] n = 0

[Reference]

[Example]

$1B $24 nL nH

[Name] **Set absolute print position**

[Format]

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

[Range] 0 ≤ nL ≤ 255

$0 \le nH \le 255$

[Description] Sets the distance from the beginning of the line to the position in which the subsequent characters are to be printed.

The distance from the beginning of the line to the print position is [(nL + nH × 256)× (vertical or horizontal motion unit)] inches.

[Notes]
- Settings outside the specified printable area are ignored.
- The vertical and horizontal motion units are specified by **$1D $50.**
- The command **$1D $50** 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 (x) is used.
- If the setting is outside the printing area width, set absolute print position, but left or right margin is set at default value.

[Default]

[Reference] **$1D $50**

[Example]

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

[Name] **Select bit image mode.**

[Format]

ASCII	ESC	*	m	nL	nH	d1...dk
Hex	1B	2A	m	nL	nH	d1...dk
Decimal	27	42	m	nL	nH	d1...dk

[Range]

m = 0, 1, 32, 33

$0 \le nL \le 255$

$0 \le nH \le 1$

$0 \le d \le 255$

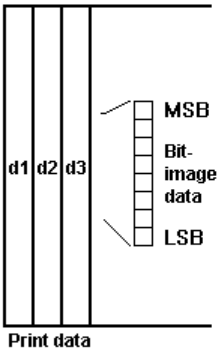
[Description] Selects a bit image-mode using m for the number of dots specified by nL and by nH, as follows:

m	Mode	Vertical direction		Horizontal direction (*1)	
		N° dot	DPI	DPI	N° of data (k)
0	8 dots single density	8	67	100	nL + nH x 256
1	8 dots double density	8	67	200	nL + nH x 256
32	24 dots single density	24	200	100	(nL + nH x 256) x 3
33	24 dots double density	24	200	200	(nL + nH x 256) x 3

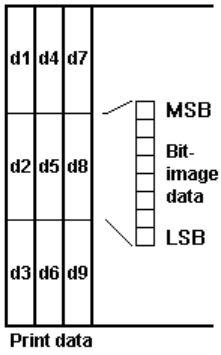
[Notes]
- The commands *nL* and *nH* indicate the number of horizontal dots in the graphic image. The nL and nH indicate the number of dots of the bit image in the horizontal direction. The number of dots is calculated by nL + nH × 256.
- If the bit image data exceeds the number of dots to be printed on a line, the excess data is ignored.
- *d* indicates the bit image data. Set a corresponding bit at 1 to print dot or at 0 not to print dot.
- If the value of *m* is outside the specified range, *nL* and the data following are processed as normal data.
- To print the bit-image, use the commands **$0A** or **$0D**.
- After printing a bit image, the printer reverts to normal data processing mode.
- This command is not affected by bold, double strike, underlining (etc.) modes, with the exception of upside down mode.

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

8 dot image



24 dot image



[Default]

[Reference]

[Example]

$1B $40

[Name] **Inizialize the printer.**

[Format]

ASCII	ESC	@
Hex	1B	40
Decimal	27	64

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

[Notes] • Same as hardware reset

[Default]

[Reference]

[Example]

$1B $42

[Name] **Select Font 1**

[Format]

ASCII	ESC	B
Hex	1B	42
Decimal	27	66

[Description] Select FONT 1

[Notes] • Setting remains until next set.

[Default] Set up from front keys.

[Reference] **$1B $62**

[Example]

$1B $43

[Name] **Total cut**

[Format]

ASCII	ESC	C
Hex	1B	43
Decimal	27	67

[Description] This command enables cutter operation; if there is no cutter, a disabling flag is set and any subsequent cutting commands will be ignored.

[Notes] • The printer waits until all the paper movement commands have been completed before executing total cut

[Default]

[Reference]

[Example]

$1B $4B [d] $0D

[Name] **Set the characters to transmit on pressing the Print key**.

[Format]

ASCII	ESC	K	CR
Hex	1B	4B	0D
Decimal	27	75	13

[Description] Saves characters to transmit on pressing Print key.
"*d*" is the ASCII string to transmit, terminating with **$0D**. To deactivate this function, transmit a **$00**.

[Notes] • The maximum number of characters to transmit is 24 (with **$0D** at the end).

[Default] *d* = 13

[Reference]

[Example]

dH dL $1B $47

[Name] **Set default parameters.**

[Format]

ASCII	dH	dL	ESC	G
Hex	dH	dL	1B	47
Decimal	dH	dL	27	71

[Range] $0 \le dH, dL \le 255$

[Description] Sets default parameters as indicated as follows :

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	NORMAL printing mode
	On	01	1	REVERSE printing mode
1	Off	00	0	$0D command executed
	On	02	2	$0D command ignored
2	Off	00	0	Horizontal printing
	On	04	4	Vertical printing
3	Off	00	0	doesn't execute centered printing
	On	08	8	executes centered printing
4	Off	00	0	Aligns print to left
	On	10	16	Align print to right
5	Off	00	0	Fixed to Off
6	Off	00	0	Deactivates underlining
	On	40	64	Activates underlining
7	Off	00	0	Deactivates bold printing
	On	80	128	Activates bold printing

[Notes] Setting is memorized in EEPROM.

[Default] Set up from front keys.

[Reference]

[Example] If *dH* = '4' and *dL* = 'D' the value of *d* is 77 ($4D)

dH dL $1B $4D

[Name] **Set default parameters of print mode**.

[Format]

ASCII	dH	dL	ESC	M
Hex	dH	dL	1B	4D
Decimal	dH	dL	27	77

[Description] Sets the default parameters of print mode as indicated as follows :
$00 : small print
$01 : double width printing
$02 : double height printing
$03 : bold printing

[Notes] Setting is memorized in EEPROM.

[Default] Set up from front keys.

[Reference]

[Example] If *dH* = 'A' and *dL* = '3' the value of *d* is 163 ($A3)

$1B $4E

[Name] **Set printing in NORMAL**

[Format]

ASCII	ESC	N
Hex	1B	4E
Decimal	27	78

[Description] Selects printing in NORMAL mode.

[Notes] • Setting remains until next set.

[Default] Set up from front keys.

[Reference] **$1B $52**

[Example]

$1B $52

[Name] **Set printing in REVERSE**

[Format]

ASCII	ESC	R
Hex	1B	52
Decimal	27	82

[Description] Set printing in REVERSE mode.

[Notes] • Setting remains until next set

[Default] Set up from front keys.

[Reference] **$1B $4E**

[Example]

$1B $56 n

[Name] **Set print mode rotated by 90°.**

[Format]

ASCII	ESC	V	n
Hex	1B	56	n
Decimal	27	86	n

[Range] $0 \le n \le 1$
$48 \le n \le 49$

[Description] Enable / disable print mode rotated by 90°. n is used as follows :

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

[Notes]
- When underlined mode is turned on, the printer does not underline 90° rotated characters. All the same it's possible select the underline mode.
- Double-width and double-height commands in 90° rotation mode enlarge characters in the opposite directions from double-height *and* double-width commands in normal mode.
- This command is not available in Page mode.
- If this command is entered in Page mode, the printer all the same save the setting.

Default] n = 0

[Reference] **$1B $21** , **$1B $2D**

[Example]

$1B $61 n

[Name] **Select justification**

[Format]

ASCII	ESC	a	n
Hex	1B	61	n
Decimal	27	97	n

[Range] 0 ≤ n ≤ 2, 48 ≤ n ≤ 50

[Description] Aligns all the data in one line in the position specified. *n* selects the type of justification as follows:

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

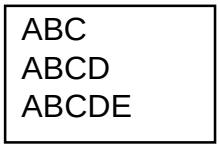
[Notes]
- This command is only enabled if input at the beginning of the line.
- The lines are justified within the specified printing area.
- The spaces set by the command **$1B $24** remain justified as per the previously set mode.

[Default] n = 0

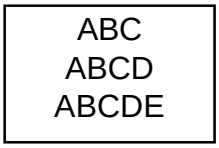
[Reference]

[Example]

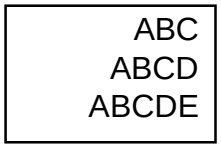
Left justification



Centering



Right justification



$1B $62

[Name] **Select FONT 2.**

[Format]

ASCII	ESC	b
Hex	1B	62
Decimal	27	98

[Description] Select FONT 2.

[Notes]
- Setting remains until next set

[Default] Set up from front keys.
[Reference] **$1B $42**
[Example]

$1B $6D

[Name] **Read default parameters of print mode**
[Format]

ASCII	ESC	m
Hex	1B	6D
Decimal	27	109

[Description] Reads default parameters of print mode.
[Notes] See ESC M.
[Default] Set up from front keys.
[Reference] **$1B $4D**
[Example]

$1B $70

[Name] **Read default parameters**
[Format]

ASCII	ESC	p
Hex	1B	70
Decimal	27	112

[Description] Reads default and “on line” parameters.
[Notes] See **$1B $47**.
[Default] Set up from front keys
[Reference] **$1B $47**
[Example]

aH aL $1B $72

[Name] **Read EEPROM position.**
[Format]

ASCII	aH	aL	ESC	r
Hex	aH	aL	1B	72
Decimal	aH	aL	27	114

[Range] $0 \le a \le 63$
‘0’ ≤ aH ≤ ‘9’, ‘A’ ≤ aH ≤ ‘F’
‘0’ ≤ aL ≤ ‘9’, ‘A’ ≤ aL ≤ ‘F’
[Description] Reads the location addressed by *a* where:
aH is the most significant nibble, expressed in ASCII, of *a*
aL is the least significant nibble, expressed in ASCII, of *a*
[Notes]
[Default]
[Reference] **$1B $77**
[Example] To read the position $12, transmit: $31 $32 $1B $72
The response will be the location value in hexadecimals expressed in two ASCII bytes.

$1B $74 n

[Name] **Select the character code table.**
[Format]

ASCII	ESC	t	n
Hex	1B	74	n
Decimal	27	116	n

[Range] n = 0, 19, 255

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

n	Page
0	0 (PC437 [U.S.A., Standard Europe])
19	19 (PC858 for Euro symbol at position 213
255	Page space

[Note]

[Default] n = 0

[Reference] See character code table

[Example] For printing Euro symbol (•), the command sequence is:
$1B, $74, $13, $D5

$1B $76

[Name] **Transmit paper sensor status**.

[Format]

ASCII	ESC	v
Hex	1B	76
Decimal	27	118

[Description] Transmits the current paper sensor status upon receiving this command.

[Notes] • This command is executed immediately, even when the reception buffer is full (Busy).
The status to be transmitted is shown in the table below :

Bit	Off/On	Hex	Decimal	Function
0,1	Off	00	0	Near paper end sensor Paper present
	On	03	3	Near paper end sensor Near paper end
2,3	Off	00	0	Paper end sensor Paper present
	On	0C	12	Paper end sensor Paper end
4	Off	00	0	Fixed to Off
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	Off	00	0	Fixed to Off

[Default]

[Reference] **$10 $04**

[Example]

aH aL dH dL $1B $77

[Name] **Write EEPROM position.**

[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 ≤ d ≤ 255
'0' ≤ dH ≤ '9', 'A' ≤ dH ≤ 'F'
'0' ≤ dL ≤ '9', 'A' ≤ dL ≤ 'F'

[Description] Writes, at the location addressed by *a*, data *d*where:
aH is the most significant nibble, expressed in ASCII, of *a*
aL is the least significant nibble, expressed in ASCII, of *a*
dH is the most significant nibble, expressed in ASCII, of *d*
dL is the least significant nibble, expressed in ASCII, of *d*

[Notes]

[Default]

[Reference] **$1B $72**

[Example] To write the value $34 in position $12, transmit: $31 $32 $33 $34 $1B $77

$1B $FA n xH xL yH yL

[Name] **Print graphic bank (448 × 1170 dots).**

[Format]

ASCII	ESC	{ }	n	xH	xL	yH	yL
Hex	1B	FA	n	xH	xL	yH	yL
Decimal	27	250	n	xH	xL	yH	yL

[Range] $1 \le n \le 2$

$0 \le xH, xL, yH, yL \le 255$

[Description] Prints the graphics bank from flash or ram.
n selects the bank as follows:

n	Function
1	Print flash bank logo 1
2	Print flash bank logo 2

xL + *xH* × 256 specifies the starting dot line (1 ÷ 1170).
yL + y*H* × 256 specifies the number of lines to print.

[Notes] • If (*xL* + (*xH* × 256)) > 1170 the printer does not execute the command.
• Se (*xL* + (*xH* × 256) + *yL* +(y*H* × 256))> 1170 the printer only prints 1170 - *xL* + (*xH* × 256) +1 dotlines.

[Default]

[Reference]

[Example] To print logo 1 from flash bank dotline 100 to dotline 299, send:
$1B $FA $01 $00 $64 $00 $C7

$1B $FF m nL nH d0...dn

[Name] **Receive and store logos in flash.**

[Format]

ASCII	ESC	{ }	m	nL	nH	d0	dn
Hex	1B	FF	m	nL	nH	d0	dn
Decimal	27	255	m	nL	nH	d0	dn

[Range] $0 \le nL, nH \le 255$ $1 \le m \le 2$ $0 \le d0, dn \le 255$

[Description] • Received [*nL* + (*nH* x 256)] x 2 bytes and store in the flash.
• If [*nL* + (*nH* x 256)] exceeds 32768, the data following will be processed as normal data.
• Saved the graphics bank from flash. *m* selects the bank as follows:

m	Function
1	Save logotype into flash bank 1
2	Save logotype into flash bank 2

• d0, dn = value of bit stream image

[Default]

[Reference]

[Example] To store the logotype indicated below ,into flash bank 2, necessity execute the follows operation

1)Define the image dimensions.

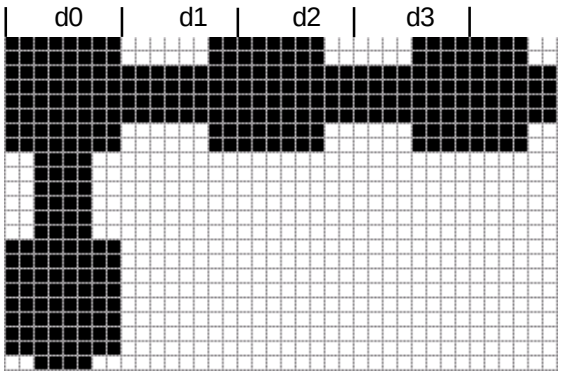
The width of image is 448 horizontal pixel ; the height maximun of image is 1170 vertical pixel.

2) Calculate the number of bytes to send as (height pix*width pix)/16.

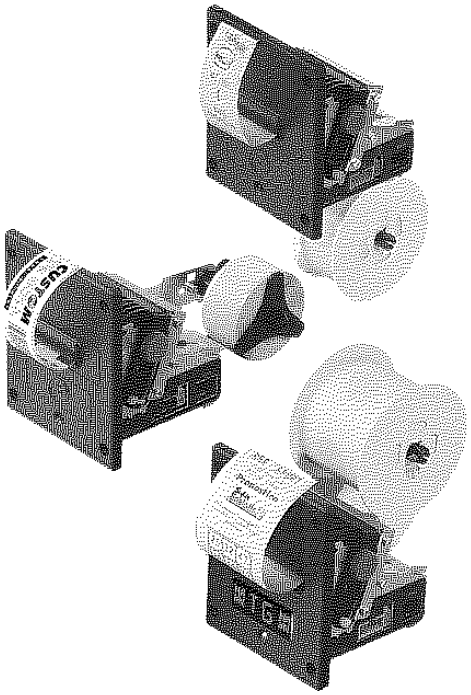
Bytes number in example is 448 x 1170/16=32760 in exadecimal resulting = 7FF8.

3) Bit stream image conversion.

In the following figure is reproduced the logotype enlargement in the zone indicated by the arrow to define d0...dn



In this example; d0=FF; d1=03; d2=FC; d3=0F



Then send this command to the printer

0x1B	0xFF	0x02	0xF8	0x7F	0xFF	0 x 03	0xFC	0x0F...
		N. logo	Dimension					

$1C $C0 $34

[Name] **Total cut and automatic paper moving back**.

[Format]

ASCII	FS	{ }	4
Hex	1C	C0	34
Decimal	28	192	52

[Description] This command enables cutter operation and executes a total cut and automatic paper moving back; if there is no cutter, a disabling flag is set any subsequent cutting commands will be ignored.

[Notes] • The printer waits until all the paper movement commands have been completed before executing total cut

[Default]

[Reference]

[Example]

$1D $0C

[Name] **Print the buffer contents.**

[Format]

ASCII	GS	FF
Hex	1D	0C
Decimal	29	12

[Description] Prints contents of buffer characters and executes a line feed.
Sets the printing start position at left margin.

[Notes]

[Default]

[Reference] **$0A**

[Example]

$1D $3A

[Name] **Start / end macro definition.**

[Format]

ASC	Ⅱ	GS	:
Hex		1D	3A
Decimal	29	58	

[Description] Starts or ends macro definition.

[Notes] • Macro definition starts when this command is received during normal operation.
• When the command **$1D $5E** is received during macro definition, the printer ends the macro definitions and clears all definitions.
• Macro not defined when the power is turned on.
• The defined contents of the macro are not cleared by the command **$1B $40**. Therefore, **$1B $40** can be included in the contents of the macro definitions.
• If the printer receives the command **$1D $3A** again immediately after previously receiving **$1D $3A**, the printer remains in the macro undefined state.
• The contents of the macro can be defined up to 1024 bytes. If the macro definition exceeds 1024 bytes, the excess data is not not stored.

[Default]

[Reference] **$1D $5E**

[Example]

$1D $43 $30 n m

[Name] **Set 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, 49, 50

[Description] Selects a print mode for the serial number counter.
• *n* specifies the number of digits to be printed as follows:
when *n* = 0, the printer prints the actual digits indicated by the number value.
when *n* = from 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	P	Processing of digits lower than those specified
0. 48	Right justification	Add spaces to left..
1. 49	Right justification	Add '0' to left.
2. 50	Left justification	Add spaces to right.

[Notes] • if *n* or *m* is outside the defined range, the previously set print mode is not changed.
• If *n* = 0, *m* has no meaning.

[Default] *n* = 0, *m* = 0

[Reference] **$1D $43 $31, $1D $43 $32, $1D $43 $3B, $1D $63**

[Example] n = 3, m = 0 n = 3, m = 1 n = 3, m=2

□□1 001 1□□

□ indicates a space

$1D $43 $31 aL aH bL bH n r

[Name] **Select count mode (A).**

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

[Range] $0 \le aL, aH \le 255$

$0 \le bL, bH \le 255$

$0 \le n, r \le 255$

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

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

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

[Reference] **$1D $43 $30, $1D $43 $32, $1D $43 $3B, $1D $63**

[Example]

$1D $43 $32 nL nH

[Name] **Set counter.**

[Format]

ASCII	GS	C	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 number counter value.
• *nL* and *nH* determine the value of the serial number counter set by [*nL* + (*nH* × 256)].

[Notes]
• In count-up mode, if the counter value specified by this command goes out of the counter operation range specified by GS 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 1or GS C ;, it is forced to convert to the maximum value by GS c.

[Default] nL = 1, nH = 0

[Reference] **$1D $43 $30, $1D $43 $31, $1D $43 $3B, $1D $63**

[Example]

$1D $43 $3B sa $3B sb $3B sn $3B sr $3B sc $3B

[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 of the counter.
• *sa*, *sb*, *sn*, *sr* and *sc* are all displayed in ASCII characters using the codes from ‘O’ to ‘9’.
• *sa* and *sb* specify the counter range.
• *sn* indicates the stepping amount for counting up or down.
• *sr* indicates the repetition number with the counter value fixed.
• *sc* indicates the counter value.

[Notes]
• Count-up mode is specified when:
$sa < sb$ and $sn \neq 0$ and $sr \neq 0$
• Count-down mode is specified when:
$sa > sb$ and $sn \neq 0$ and $sr \neq 0$
• Counting stops when:
$sa = sb$ or $sn = 0$ or $sr = 0$
• In setting count-up mode, the minimum value of the counter is sa and the maximum is sb. If counting up reaches a value exceeding the maximum, it is resumed with the minimum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the minimum value by executing **$1D $63**.

• 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 the minimum, it is resumed with the maximum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the maximum value by executing **$1D $63**.
• Parameters *sa* to *sc* can be omitted. If omitted, these values remain unchanged.
• Parameters *sa* to *sc* must not contain characters, with the exception of those from '0' to '9'.

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

[Reference] **$1D $43 $30, $1D $43 $32, $1D $43 $31, $1D $63**

[Example]

$1D $48 n

[Name] **Select printing position of Human Readable Interpretation (HRI)**

[Format]

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

[Range] 0 ≤ n ≤ 3, 48 ≤ n ≤ 51

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

n	Function
0, 48	Not printed
1, 49	Above the bar code.
2, 50	Underneath the bar code.
3, 51	Both above and underneath the bar code.

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

[Default] n = 0

[Reference] **$1D $66, $1D $6B**

[Example]

$1D $49 n

[Name] **Transmit printer ID.**

[Format]

ASCII	GS	I	n
Hex	1D	49	n
Decimal	29	73	n

[Range] 1 ≤ n ≤ 3, 49 ≤ n ≤ 51

[Description] Transmits the printer ID specified by n as follows:

n	Printer ID	Specification
1, 49	Printer mode identification	$6D (TG2460)
2, 50	Function identification	See table below
3, 51	ROM version identification	Depends on ROM version (4 char)

n = 2, Identification Function

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Non supported 2-byte character codes
1	Off	00	0	Autocutter not supplied
	On	02	2	Autocutter supplied
2	Off	00	0	Thermal paper without label
	On	04	4	Thermal paper with label
3	-	-	-	RESERVED
4	Off	00	0	Fixed at 0
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	Off	00	0	Fixed at 0

[Notes]
• When the DTR/DSR control is selected, the printer only transmits 1 byte (Printer identification) after it has been given confirmation that the host is ready to receive data. If the host is not ready, the printer waits until it is.
• When the XON/XOFF control is selected, the printer only transmits 1 byte (Printer identification) if it has not been given confirmation that the host is ready to receive data.
• This command is carried out once the data has been processed in the reception buffer. There may therefore be a delay between the moment in which the command is received and that in which the data is transmitted, depending on the status of the reception buffer.

[Default]

[Reference]

[Example]

$1D $50 x y

[Name] **Set horizontal and vertical motion units.**

[Format]

ASCII	GS	P	x	y	
Hex		1D	50	x	y
Decimal	29	80	x	y	

[Range]
x = 100, 200
y = 100, 200

[Description]
Sets the horizontal and vertical motion units at 1/x inches and 1/y inches, respectively.
When *x* is set at 0, the default setting value is used.
When *y* is set at 0, the default setting value is used.

[Notes]
• This command set the ESC/POS emulation and initialize the default values again.
• The horizontal direction is perpendicular to the paper feed direction.
• This command does not affect the previously specified values.
• The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch or an exact multiple of that value.

[Default] x = 200, y = 200

[Reference] $1B $24

[Example]

$1D $5E r t m

[Name] **Execute macro.**

[Format]

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

[Range] $0 \le r, t \le 255$

$0 \le m \le 1$

[Description] Executes a macro.
• *r* specifies the number of times to execute the macro.
• *t* specifies the waiting time for executing the macro.
The waiting time is $t \times 100$ msec. for every macro execution.
• *m* specifies macro executing mode:
When the LSB of *m* = 0, the macro executes *r* times continuously at the interval specified *t*.
When the LSB of *m* = 1, after waiting for the period specified by *t*, the LED indicator blinks and the printer waits for the FEED button to be pressed. After the button is pressed, the printer executes the macro once. The printer repeats the operation *r* times.

[Notes]
• This command lasts for a period of ($t \times 100$ msec.) after a macro is executed by *t*.
• If this command is received while a macro is being defined, the macro definition is aborted and the definitions cleared.
• If the macro is not defined or if *r* is 0, nothing happens.
• When the macro is executed by pressing the FEED button (*m* = 1), the paper can not be fed by using the FEED button.

[Default]

[Reference] **$1D $3A**

[Example]

$1D $63

[Name] **Print counter.**

[Format]

ASCII	GS	c	
Hex	1D	63	
Decimal	29	99	

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

[Notes]
• After setting the current counter value in the print buffer as print data (a character string), the printer counts up or down based on the count mode set. The counter value in the print buffer is printed when the printer receives a print command or is in the buffer full state.
• The counter print mode is set by **$1D $43 $30**.
• The counter mode is set by **$1D $43 $31** or **$1D $43 $3B**.
• In count-up mode, if the counter value set by this command goes out of the counter operation range set by **$1D $43 $31** or **$1D $43 $3B**, 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 **$1D $43 $31** or **$1D $43 $3B**, it is forced to convert to the maximum value.

[Default]

[Reference] **$1D $43 $30, $1D $43 $31, $1D $43 $32, $1D $43 $3B**

[Example]

$1D $66 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 for the HRI characters used when printing a bar code.

n selects a font from the following table:

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

[Notes] The HRI characters are printed at the position specified by the command **GS H**.
[Default] n = 0
[Reference] **$1D $48, $1D $6B**
[Example]

$1D $68 n

[Name] **Set bar code height**

[Format]				
ASCII	GS	h	n
Hex	1D	68	n
Decimal	29	104	n

[Range] 1 ≤ n ≤ 255
[Description] Sets the height of the bar code. *n* specifies the number of dots in the vertical direction.
[Notes]
[Default] n = 96 (12 mm)
[Reference] **$1D $6B**
[Example]

❶ $1D $6B m [d1...dk] $00 ❷ $1D $6B m n [d1...dn]

[Name] **Print bar 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] ① 0 ≤ m ≤ 6
② 65 ≤ m ≤ 73
[Description] Selects a bar code system and prints the bar code. *m* selects a bar code sys

	m	Bar code system	Number of characters	Remarks
❶	0	UPC-A	11 ≤ k ≤ 12	48 ≤ d ≤ 57
	1	UPC-E	11 ≤ k ≤ 12	48 ≤ d ≤ 57
	2	EAN13 (JAN)	12 ≤ k ≤ 13	48 ≤ d ≤ 57
	3	EAN8 (JAN)	7 ≤ k ≤ 8	48 ≤ d ≤ 57
	4	CODE39	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d ≤ 90, 32, 36, 37, 43, 45, 46, 47
	5	ITF	1 ≤ k (even number)	48 ≤ d ≤ 57
	6	CODABAR	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d1 ≤ 68, 36, 43, 45, 46, 47, 58
	7	CODE93	1 ≤ k ≤ 255	1 ≤ d ≤ 127
	8	CODE128	2 ≤ k ≤ 255	1 ≤ d ≤ 127
	20	CODE32	8 ≤ k ≤ 9	48 ≤ d ≤ 57

②	65	UPC-A	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	66	UPC-E	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	67	EAN13 (JAN)	12 ≤ n ≤ 13	48 ≤ d ≤ 57
	68	EAN8 (JAN)	7 ≤ n ≤ 8	48 ≤ d ≤ 57
	69	CODE39	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d ≤ 90, 32, 36, 37, 43, 45, 46, 47
	70	ITF	1 ≤ n ≤ 255	48 ≤ d ≤ 57
	71	CODABAR	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d1 ≤ 68, 36, 43, 45, 46, 47, 58
	72	CODE93	1 ≤ n ≤ 255	0 ≤ d ≤ 127
	73	CODE128	2 ≤ n ≤ 255	0 ≤ d ≤ 127
	90	CODE32	8 ≤ n ≤ 9	48 ≤ d ≤ 57

[Notes]

- If *d* is outside the specified range, the printer prints the following message: “BAR CODE GENERATOR NON OK !” and processes the following data as normal data.
- If the horizontal size exceeds the printing area, the printer only feeds the paper.
- This command feeds as much paper as is required to print the bar code.
- After printing the bar code, this command sets the print position at the beginning of the line.
- This command is not affected by print modes (bold, double strike, underline or character size), with the exception of upside-down mode and justification.

[Notes for ①]

- This command ends with a $00 code.
- When the bar code 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) byte 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) byte bar code data.
- When the system used is EAN8, the printer prints the bar code after receiving 7 (without check digit) or 8 (with check digit) byte bar code data.
- The number of data for ITF bar code must be even. When an odd number of data is input, the printer ignores the last received data.

[Note for ②] • If *n* is outside the specified range, the printer stops command processing and process the following data as normal data.

When to use CODE93:

• The printer prints an HRI character (o) as a start character at the beginning of the HRIcharacter string.

• The printer prints an HRI character (o) as a stop character at the end of the HRI character string.

• The printer prints an HRI character (n) as a control character ($00 to $1F and $7F).

When to use 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 a code set selection character(CODE A , CODE B or CODE C) which selects the first code set.

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

Specific character	Data transmission		
	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] **$1D $48, $1D $66, $1D $68, $1D $77**

[Example]

$1D $77 n

[Name] **Set bar code width.**

[Format]

ASCII	GS	w	n
Hex	1D	77	n
Decimal	29	119	n

[Range] $2 \le n \le 6$

[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] **$1D $6B**
[Example]

$1D $7C n

[Name] **Set printing density.**

[Format]

ASCII	GS	{ }	n
Hex	1D	7C	n
Decimal	29	124	n

[Range] 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] n = 2
[Reference]
[Example]

2.1.3 CBM iDP560RS Emulation

The following table lists all the commands for function management in CBM iDP560RS Emulation. The commands can be transmitted to the printer at any moment, but they will only be carried out when the commands previously sent have been executed. There are no priority commands; all commands are carried out when the circular buffer is free to do. to

COMMAND TABLE

HEX Com.	ASCII Com.	Description
$00	NUL	Printing with small characters
$01	SOH	Printing with double width characters
$02	STX	Printing with double height characters
$03	ETX	Printing with expanded characters
$04	EOT	Printing with small characters
$0A	LF	Print and line feed
$0C	FF	Carries out form feed after printing
$0D	CR	Print and carriage return
$0E	SO	Improved character designation (same as RS)
$0F	SI	Standard character designation (same as US)
$11	DC1	Makes the printer SELECT state (ON LINE)
$13	DC3	Makes the printer DESELECT state (OFF LINE)
$18	CAN	Clears the print data in the buffer
$1E	RS	Enhanced character designation (one line)
$1F	US	Standard character designation
$1B $31	ESC 1	3 mm line spacing
$1B $32	ESC 2	5.5 mm line spacing
$1B $40	ESC @	Initialize printer
$1B $43 (n)	ESC C n	Page length designation and page formatting
$1B $4B (n1 n2)	ESC K n1 n2	Graphic print mode
$1B $4F	ESC O	Page formatting off
$1B $69	ESC i	Total cut
$1B $FA n xH xL yH yL	ESC · n xH xL yH yL	Print graphic bank
$1C $C0 $34	FS { } 4	Total cut and automatic paper moving back
$1D $49 (n)	GS I n	Transmit printer ID
$1D $50 x y	GS P x y	Set horizontal and vertical motion unit
$1D $7C (n)	GS { } n	Set printing density

NOTE: in “Note” column where the model is not specified, the command is valid for all models.

The following pages provide a more detailed description of each command.

$00

[Name]	**Print with small character**	
[Format]	ASCII	NUL
	Hex	00
	Decimal	0
[Description]	Character printing is executed in small format (normal)	
[Notes]	• Setting remains until next set	
[Default]	Set up from front keys	
[Reference]	**$1E, $1F, $0F, $0E, $01, $02, $03, $04**	
[Example]		

$01

[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] • Setting remains until next set

[Default] Set up from front keys

[Reference] **$00, $02, $03, $04**

[Example]

$02

[Name] **Printing in double height character**

[Format] ASCII STX
Hex 02
Decimal 2

[Description] Printing of the character is executed in double height format

[Notes] • Setting remains until next set

[Default] Set up from front keys

[Reference] **$00, $01, $03, $04, $0E, $0F, $1E, $1F**

[Example]

03H

[[Name] **Printing with expanded character**

[Format] ASCII EXT
Hex 03
Decimal 3

[Description] Printing of the character is executed in expanded format

[Notes] • Setting remains until next set

[Default] Set up from front keys

[Reference] **$00, $01, $02, $04, $0E, $0F, $1E, $1F**

[Example]

04H

[Name] **Print with small character**

[Format] ASCII EOT
Hex 04
Decimal 4

[Description] Character printing is executed in small format (normal)

[Notes] • Setting remains until next set

[Default] Set up from front keys

[Reference] **$00, $01, $02, $03, $0E, $0F, $1E, $1F**

[Example]

$0A

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

[Default]

[Reference] **$1B $31, $1B $32**

[Example]

$0C

[Name] **Carries out form feed after printing.**

[Format] ASCII FF
Hex 0A
Decimal 10

[Description] Prints the data in the buffer and feeds in accordance with the page length specified by the command ESC C n.

[Notes] This command sets the print position at the beginning of the line.

[Default]

[Reference] **$1B $43**

[Example]

$0D

[Name] **Print and line feed**

[Format] ASCII CR
Hex 0D
Decimal 13

[Description] When autofeed is "$0D enabled", this command functions in the same way as $0A, otherwise, it is ignored.

[Notes] This command sets the print position at the beginning of the line.

[Default] See the "autofeed" parameter from Setup.

[Reference] **$0A**

[Example]

$0E

[Name] **Improved character designation (same as $1E)**

[Format] ASCII SO
Hex 0E
Decimal 14

[Description] Printing of the character is executed in expanded format.

[Notes] • The command SO is automatically launched after printing.
• Same as $1E

[Default] Set up from front keys

[Reference] **$01, $02, $03, $04, $0F, $1E, $1F**

[Example]

$0F

[Name] **Standard character designation (same as $1F)**

[Format] ASCII SI
Hex 0F
Decimal 15

[Description] Printing of the character is executed in small format (normal).

[Notes] • Same as $1F

[Default] Set up from front keys

[Reference] **$01, $02, $03, $04, $0E, $1E, $1F**

[Example]

$11

[Name] **Places the printer ON LINE.**

[Format] ASCII DC1
Hex 11
Decimal 17

[Description] Places the printer ON LINE.

[Notes] • Only this code can be accepted independently of the status OFF LINE.

[Default]

[Reference] **$13**

[Example]

$13

[Name] **Places the printer OFF LINE.**

[Format] ASCII DC3
Hex 13
Decimal 19

[Description] Places the printer OFF LINE.

[Notes]

[Default]

[Reference] **$11**

[Example]

$18

[Name] **Cancel print data buffer.**

[Format] ASCII CAN
Hex 18
Decimal 24

[Description] Deletes all the print data in the current print buffer.

[Notes] This command sets the print position at the beginning of the line.

[Default]

[Reference]

[Example]

$1E

[Name] **Enhanced character designation.**

[Format] ASCII RS
Hex 1E
Decimal 30

[Description] Printing of the character is executed in expanded format.

[Notes] • The command RS is automatically launched after printing.

[Default] Set up from front keys

[Reference] **$01, $02, $03, $04, $0E, $0F, $1F**

[Example]

$1F

[Name] **Standard character designation.**

[Format] ASCII US
Hex 1F
Decimal 31

[Description] Printing of the character is executed in small format (normal).

[Notes]

[Default] Set up from front keys

[Reference] **$01, $02, $03, $04, $0E, $0F, $1E**

[Example]

$1B $31

[Name] **Set 3 mm. line spacing**

[Format] ASCII ESC 1
Hex 1B 31
Decimal 27 49

[Description] Sets 3 mm line spacing

[Notes]

[Default]

[Reference] **$1B $32**

[Example]

$1B $32

[Name] **Set 5.5 mm line spacing.**

[Format] ASCII ESC 2
Hex 1B 32
Decimal 27 50

[Description] Set 5.5 mm line spacing.

[Notes]

[Default]

[Reference] **$1B $31**

[Example]

$1B $40

[Name] **Inizialize the printer.**

[Format]

ASCII	ESC	@	
Hex	1B	40	
Decimal	27	64	

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

[Notes] • Same as hardware reset

[Default]

[Reference]

[Example]

$1B $43 n

[Name] **Page length designation and page formatting.**

[Format]

ASCII	ESC	C	n
Hex	1B	43	n
Decimal	27	67	n

[Range] $14 \leq n \leq 120$

[Description] This command sets the length (number of lines) of the page, and paging formatting begins.
A space of three lines is left at both the top and bottom of the page.

[Notes] • Page formatting can be cleared through the command $1B $4F.

[Default] n = 66

[Reference] **$0C, $1B $4F**

[Example]

$1B $4B n1 n2

[Name] **Graphic mode printing**

[Format]

ASCII	ESC	K	n1	n2
Hex	1B	4B	n1	n2
Decimal	27	75	n1	n2

[Range] $1 \leq n1 \leq 240$; n2 = mute data

[Description] This command prints n1 bytes of data in graphic mode. The data bytes are arranged vertically starting from the left margin, but only the first seven LSBs are significant.

[Notes] After the last data byte, the printer prints, forward feeds the paper (by 21 dots per line) and graphic mode printing is cleared.

[Default]

[Reference]

[Example]

$1B $4F

[Name] **Page formatting off**

[Format]

ASCII	ESC	O	
Hex	1B	4F	
Decimal	27	79	

[Description] Cancel page formatting mode

[Notes]

[Default]

[Reference] **$1B $43**

[Example]

$1B $69

[Name] **Total cut.**

[Format]

ASCII	ESC	i	
Hex	1B	69	
Decimal	27	105	

[Description] This command enables cutter operation; if there is no cutter, a disabling flag is set any subsequent cutting commands will be ignored.

[Notes] • The printer waits until all the paper movement commands have been completed before executing total cut

[Default]

[Reference]

[Example]

$1B $FA n xH xL yH yL

[Name] **Print graphic bank (448 × 1170 dots).**

[Format]

ASCII	ESC	{ }	n	xH	xL	yH	yL
Hex	1B	FA	n	xH	xL	yH	yL
Decimal	27	250	n	xH	xL	yH	yL

[Range] $1 \le n \le 2$

$0 \le xH, xL, yH, yL \le 255$

[Description] Prints the graphics bank from flash. *n* selects the bank as follows:

n	Function
1	Print flash bank logo 1
2	Print flash bank logo 2

$xL + xH \times 256$ specifies the starting dot line (1 ÷ 1170).
$yL + yH \times 256$ specifies the number of lines to print.

[Notes] • If $(xL + (xH \times 256)) > 1170$ the printer does not execute the command.
• Se $(xL + (xH \times 256) + yL + (yH \times 256)) > 1170$ the printer only prints $1170 - xL + (xH \times 256) + 1$ dotlines.

[Default]

[Reference]

[Example] To print logo1 from flash bank dotline 100 to dotline 299, send:
$1B $FA $01 $00 $64 $00 $C7

$1C $C0 $34

[Name] **Total cut and automatic paper moving back**.

[Format]

ASCII	FS	{ }	4
Hex	1C	C0	34
Decimal	28	192	52

[Description] This command enables cutter operation and executes a total cut and automatic paper moving back; if there is no cutter, a disabling flag is set any subsequent cutting commands will be ignored.

[Notes] • The printer waits until all the paper movement commands have been completed before executing total cut

[Default]
[Reference]
[Example]

$1D $49 n

[Name] **Transmit printer ID.**

[Format]

ASCII	GS	I	n
Hex	1D	49	n
Decimal	29	73	n

[Range] 1 ≤ n ≤ 3, 49 ≤ n ≤ 51

[Description] Transmits the printer ID specified by n as follows:

n	Printer ID	Specification
1, 49	Printer model identification	$6D (TG2460)
2, 50	Function identification	See following table
3, 51	ROM version identification	Depending on the ROM version (4 char)

n = 2, Function identification

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	2-byte character codes not supported
1	Off	00	0	Autocutter not supplied
	On	02	2	Autocutter supplied
2	Off	00	0	Non-label thermal paper
	On	04	4	Label thermal paper
3	-	-	-	RESERVED
4	Off	00	0	Fixed at 0
5	-	-	-	RESERVED
6	-	-	-	RESERVED
7	Off	00	0	Fixed at 0

[Notes] • This command is executed when the data is processed in the reception buffer. There may therefore be a time lag between receiving the command and transmitting the data, depending on the status of the reception buffer.

[Default]
[Reference]
[Example]

$1D $7C n

[Name] **Set printing density.**

[Format]

ASCII	GS	{ }	n
Hex	1D	7C	n
Decimal	29	124	n

[Range] 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] n = 2

[Reference]

[Example]

3.1 TECHNICAL SPECIFICATIONS

Table 3.1 gives the main technical specifications of the printer. Tables 3.2, 3.3, 3.4 give specifications of every emulation available.

(Tab.3.1)

Description	TG1260	TG2460
Print method	Thermal fixed head (8 dot/mm)	
Resolution	204DPI (8 dot/mm)	
Paper specifications		
Type of paper	Thermal rolls heat sensitive side on outside of roll	
Recommended type of paper	KANZAN KF50 (55g/m^2) or MITSUBISHI PG5075	
Paper thickness	0.063 ± 0.005 mm (KF 50)	
Paper width	60 mm ± 0.5 mm	
External roll diameter	Max 100 mm (with external paper holder support)	
Internal roll core diameter	13 mm	
Core thickness	2mm (+1mm)	
Core type	Cardboard or plastic	
Sensor	Head temperature, paper end, paper jam, ticket presence on output OPTIONAL: external near paper end.	
Print direction	Normal, 180°	
Print format	Height/ width from 1 to 4, bold, negative, uderlined, italic.	
Character fonts	ASCII standard, EPSON, International.	
Standard interfaces	Serial RS232. USB	
Baude rate	From 1200 to 115200 bps	
Printing speed	45 mm/sec (normal) 36 mm/sec (low)	140 mm/sec (normal) 110 mm/sec (low)
Power supply	12 V ± 10%	24 V ± 10%
Current absorption		
Operating absorption	2,5 A	3 A
Peak absorption	3 A	4 A
Stand by	0,05 A	0,1 A
Environmental conditions		
Operating temperature	-20 ÷ +70°C	
Operating humidity	10% - 80% w/o condensation	
Storage temperature/ humidity	-20 ÷ +70°C / 10% ÷ - 90% Rh	
Weight	625 gr	
Options	- Adjustable paper holder support with near paper end sensor - Paper dispenser unit (only for autocutter model)	

Note (1) : Referred without paper roll and model with plastic front panel.

(Tab.3.2)

ESC/POS™ EMULATION			
Number of columns	**32**	**42**	**56**
Printing speed			
Characters / sec	960	1260	1680
Lines / sec	30	30	30
Character (L x H mm)			
Normal	1,7 x 3	1,2 x 3	1 x 3
Print direction	Normal e Reverse		
Character set	3		

(Tab.3.3)

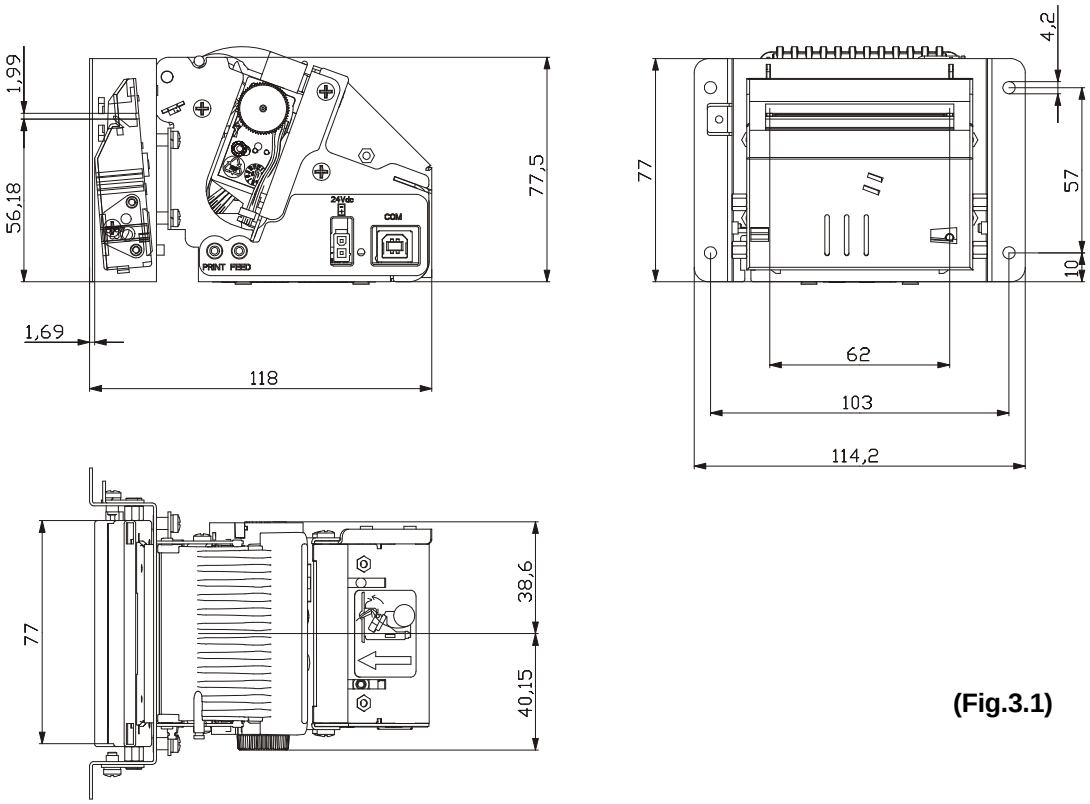
CUSTOM 24/42 EMULATION		
Number of columns	**24**	**42**
Printing speed		
Characters/sec	520	910
Lines/sec	21,6	21,6
Character (L x H mm)		
Normal	2 x 3	1.2 x 3
Print direction	Normal and Reverse	
Character set	4	

(Tab.3.4)

CITIZEN EMULATION		
Number of columns	**24**	**40**
Printing speed		
Characters/sec	520	867
Lines / sec	21.6	21.6
Character (L x H mm)		
Normal	2 x 3	1.2 x 3
Print direction	Normal and Reverse	
Character set	2	

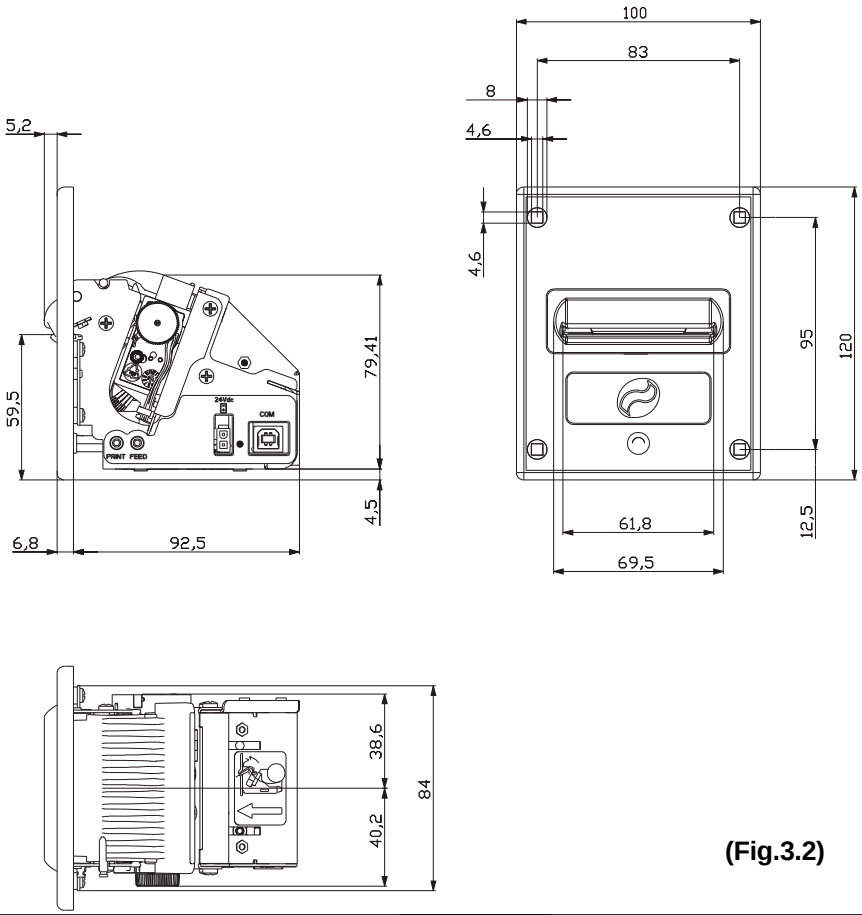
3.2 DIMENSIONS

3.2.1 TG2460-U-A



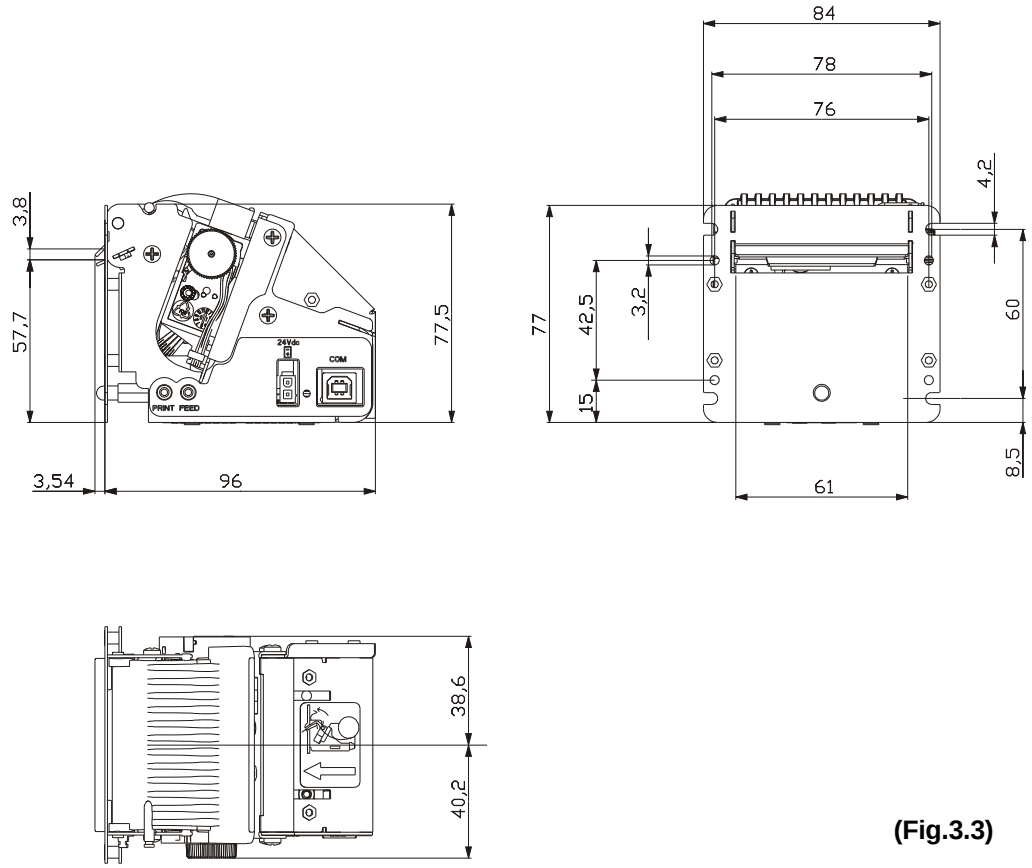
(Fig.3.1)

3.2.2 TG2460-U-N



(Fig.3.2)

3.2.3 TG2460-U-M



(Fig.3.3)

NOTE: the figures in this part show the USB interface model but the dimensions are the same even for the serial RS232 interface model.

4. CHARACTER SET

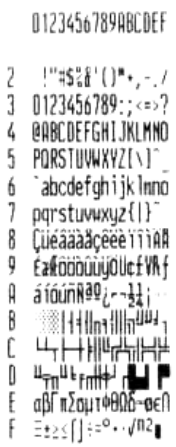
4.1 CHARACTER SET

The printer has seven sets of 224 character each one. In the following figures are shown the examples:

ESC/POS™ 32 columns

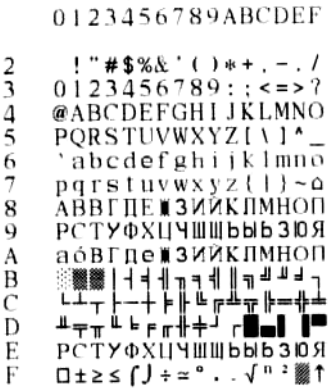
ESC/POS™ 42 columns

ESC/POS™ 56 columns

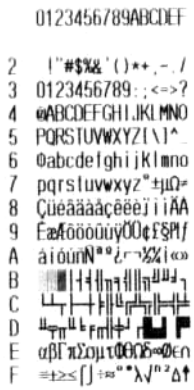


DPT 24 FONT A

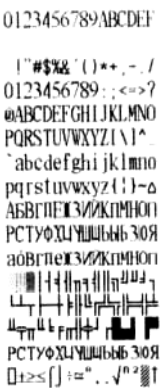
DPT 24 FONT B



DPT 42 FONT A



DPT 42 FONT B



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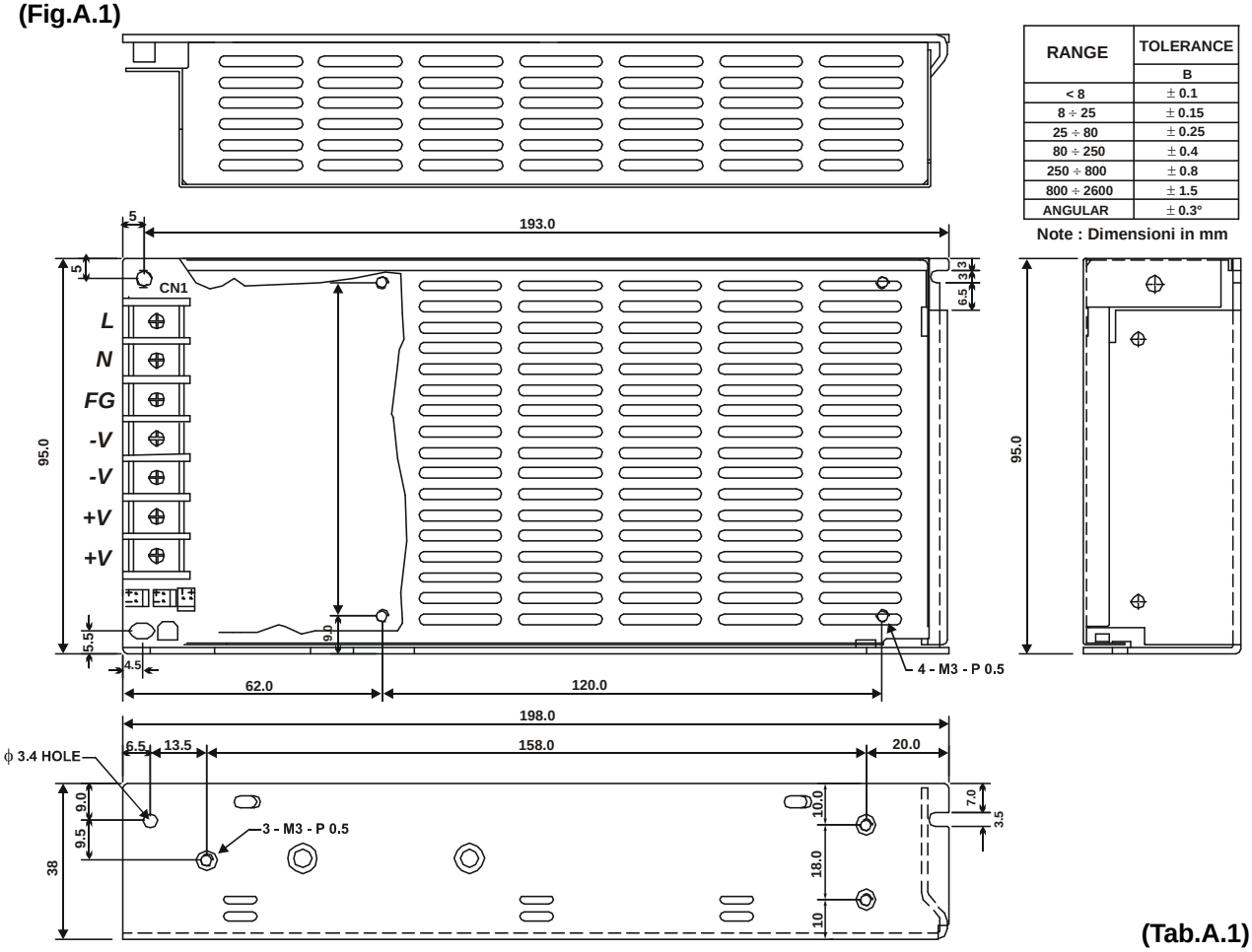
A.1 ACCESSORIES

A.1.1 Power supply

A.1.1.1 Power supply for TG2460

The figure below illustrates the power supply provided by Custom to be used for printer operation.

(Fig.A.1)



RANGE	TOLERANCE
	B
< 8	± 0.1
8 ÷ 25	± 0.15
25 ÷ 80	± 0.25
80 ÷ 250	± 0.4
250 ÷ 800	± 0.8
800 ÷ 2600	± 1.5
ANGULAR	± 0.3°

Note : Dimensioni in mm

(Tab.A.1)

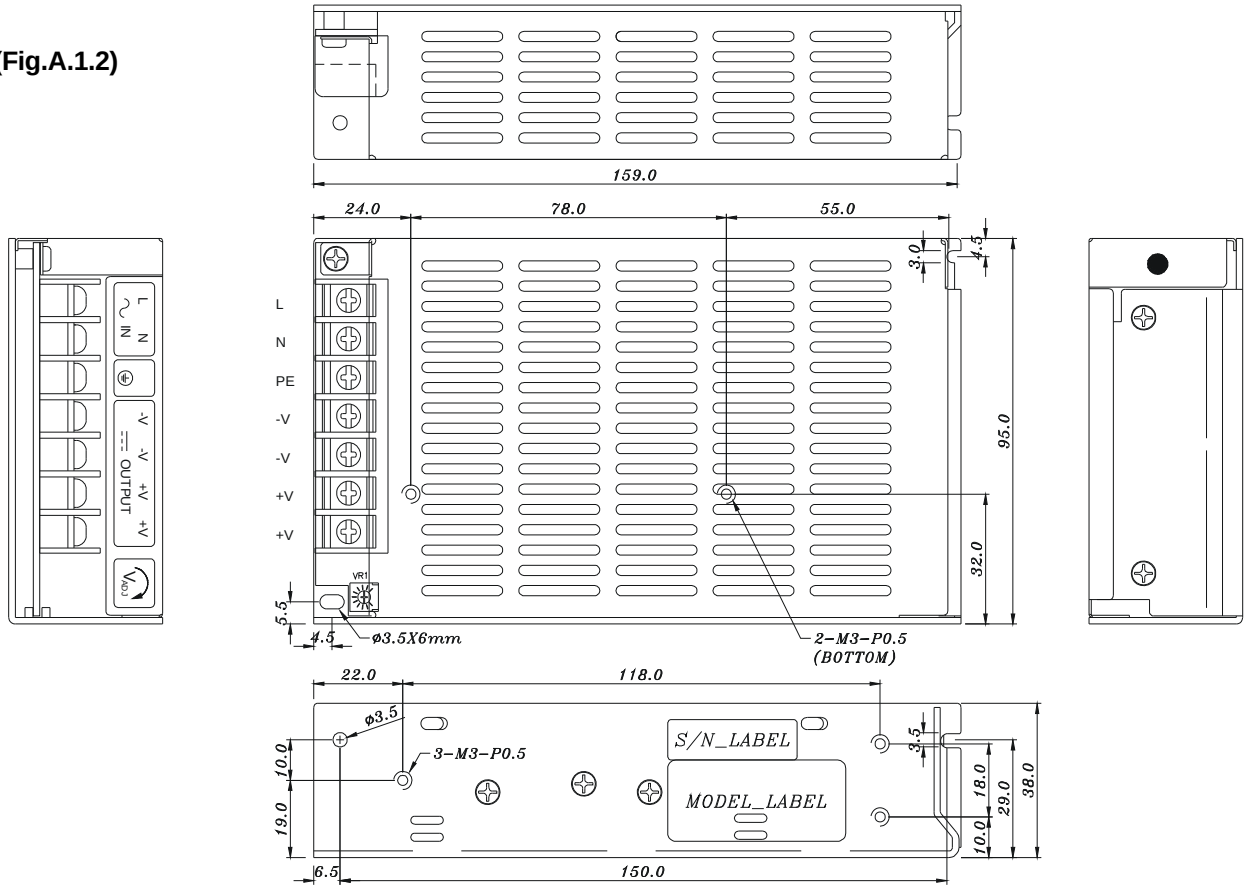
PPSPS-100-24V	**Switching power supply 24V÷100W**		
Imput specification	Input voltage		85V ÷ 264
	Current		0A ÷ 4,5A
	Input frequency		47 Hz ÷ 63 Hz
Output specifications	Output volatge		24V
	Output current	Min. Max.	0A ÷ 4,5A
	Efficiency	Min	80%
Enviromental conditions	Operating temperature		0°C ÷ 70°C
	Humidity		20% ÷ 85% Rh (w/o condensation)
	Storage temperature/ Humidity		-10°C ÷ 75°C/ 10% ÷ 95% Rh (w/o condensation)

Protection devices: Shortcircuit, overload and overvoltage.

A.1.1.1 Power supply for TG2460

The figure below illustrates the power supply provided by Custom to be used for printer operation.

(Fig.A.1.2)



(Tab.A.1.2)

PPSPS-070-12V	**Switching power supply 12V÷070W**	
Input specification	Input voltage	85V ÷ 264
	Current	0A ÷ 1,8A
	Inpout frequency	47 Hz ÷ 63 Hz
Specifiche di uscita	Output voltage	12V
	Output current Min. Max.	0A ÷ 6,0A
	Efficency Min	80%
Condizioni ambientali	Operating temperature	0°C ÷ 70°C
	Humidity	20% ÷ 85% Rh (w/o condensation)
	Storage temperature/ Humidity	-10°C ÷ 75°C/ 10% ÷ 95% Rh (w/o condensation)

Protection devices: Shortcircuit, overload and overvoltage.

A.1.2 Adjustable paper holder support kit

For the printer is available a swinging paper holder support kit (see fig. A.2). This accessory allows to use bigger diameter paper rolls (max 80mm).

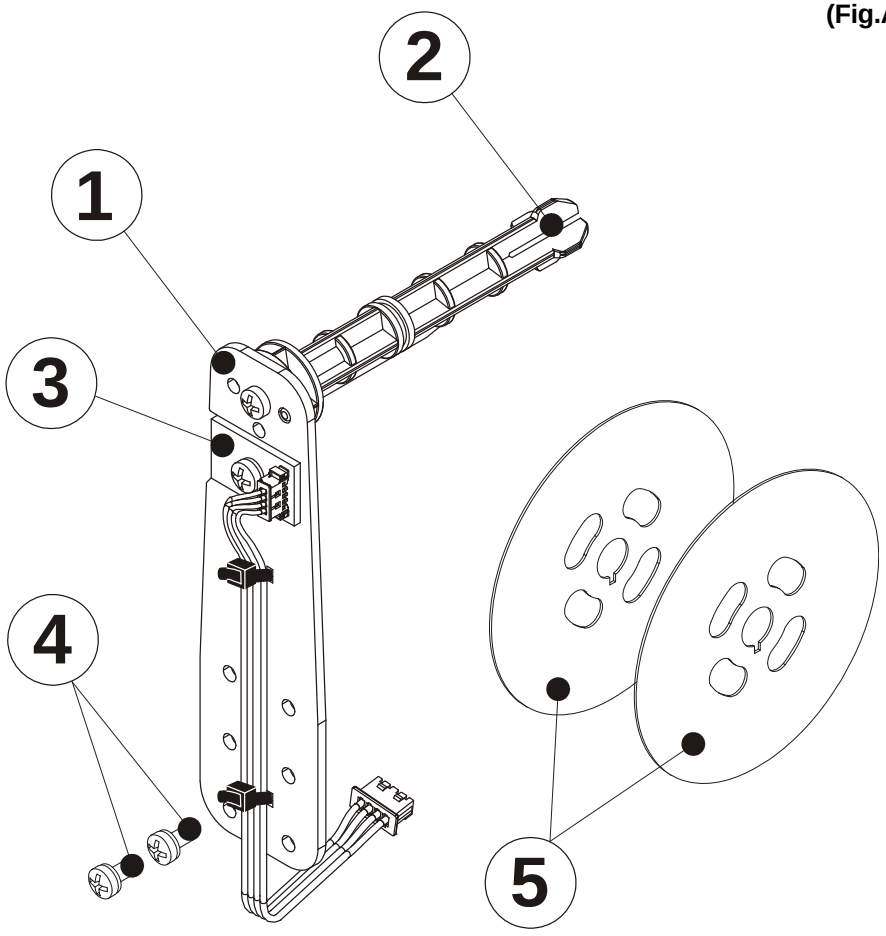
PCXSP-TG2460	**Paper holder support Kit and QFC sensor**

The kit is already assembled as shown in fig A.2.

Paper holder support kit:

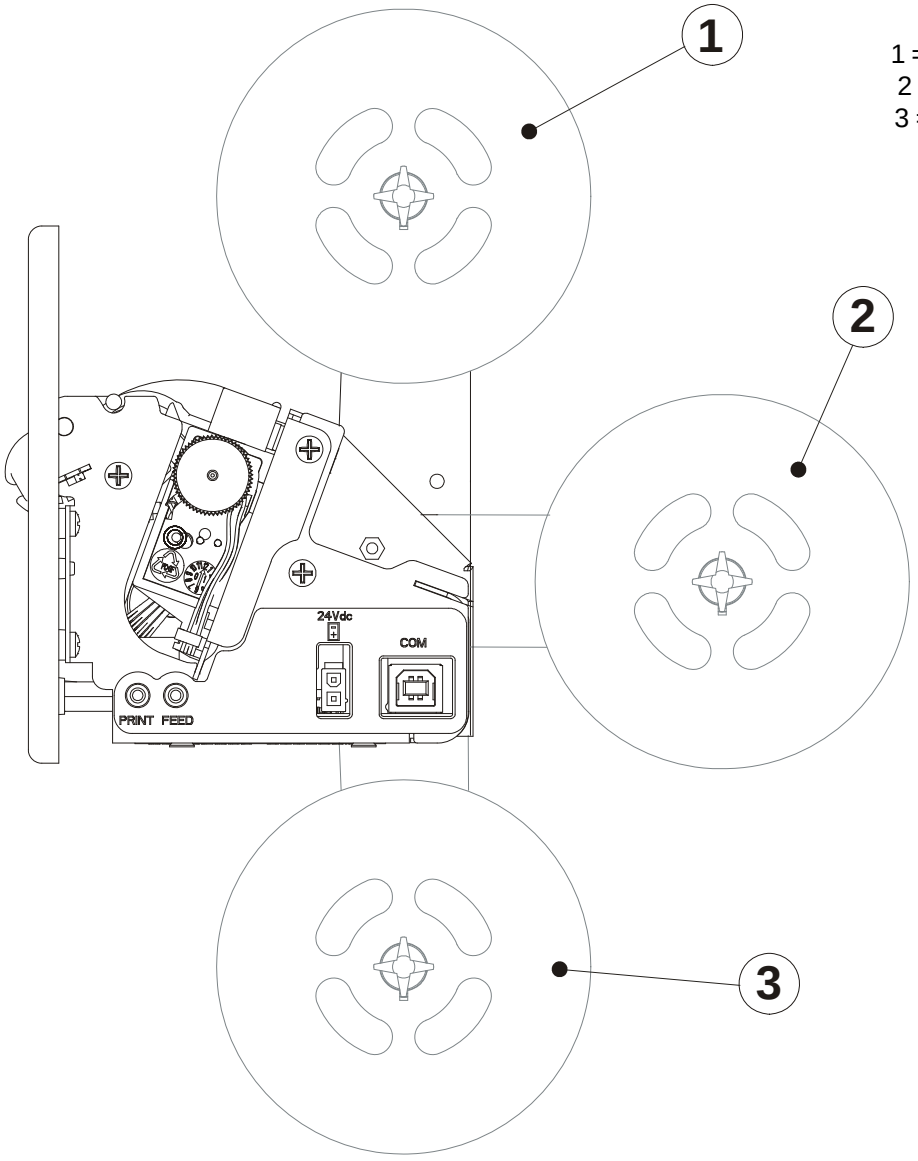
1- Paper holder support
2- Paper roll pin
3- Near paper end sensor board
4- Two fastening screws of the paper holder support to the printer frame (M3x6)
5- Two disks for the paper roll containment

(Fig.A.2)



Assembling instructions

The paper holder support positioning isn't fixed but adjustable on 3 different positions: back, lower and upper as shown in fig. A.3.



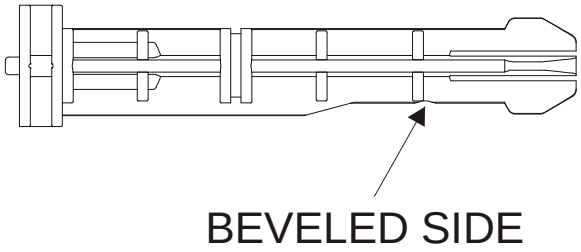
1 = Upper positioning
2 = Back positioning
3 = Lower positioning

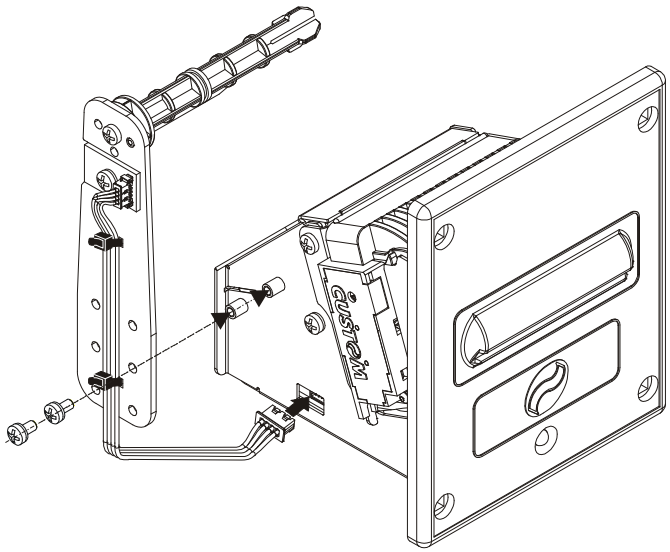
(Fig.A.3)

Fastening the paper holder support in upper position

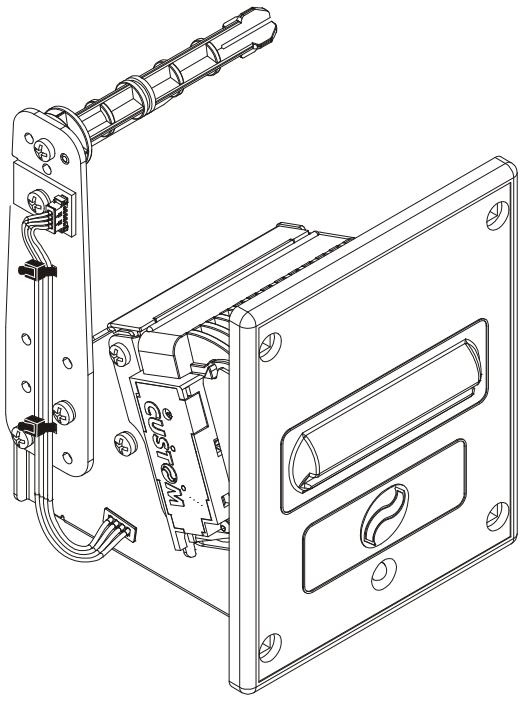
Fix the paper holder support to the printer frame by the two fastening screws on issue in the kit. Screw them where shown in fig. A.4 and connect the near paper end sensor cable to the printer connector.

WARNING: Check the paper roll pin is assembled with the beveled side turned in the low position (see the paper roll containment disks part). If this condition isn't verified, unloose the fastening screw of the pin to the paper holder support and locate it in the right position.





(Fig.A.4)

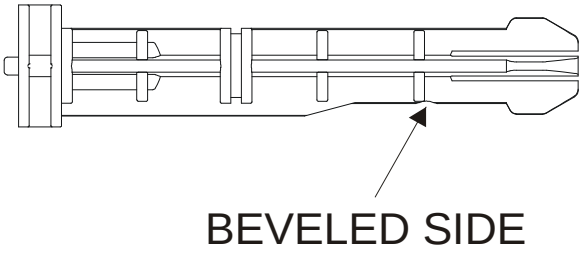


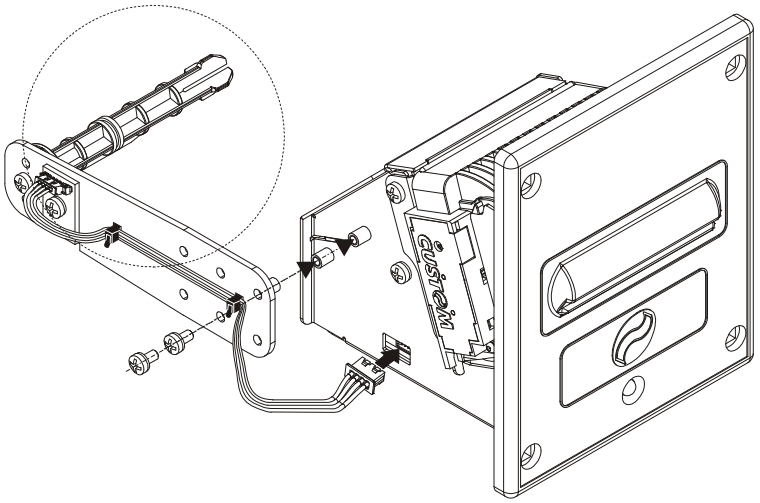
(Fig.A.5)

Fastening the paper holder support in back position

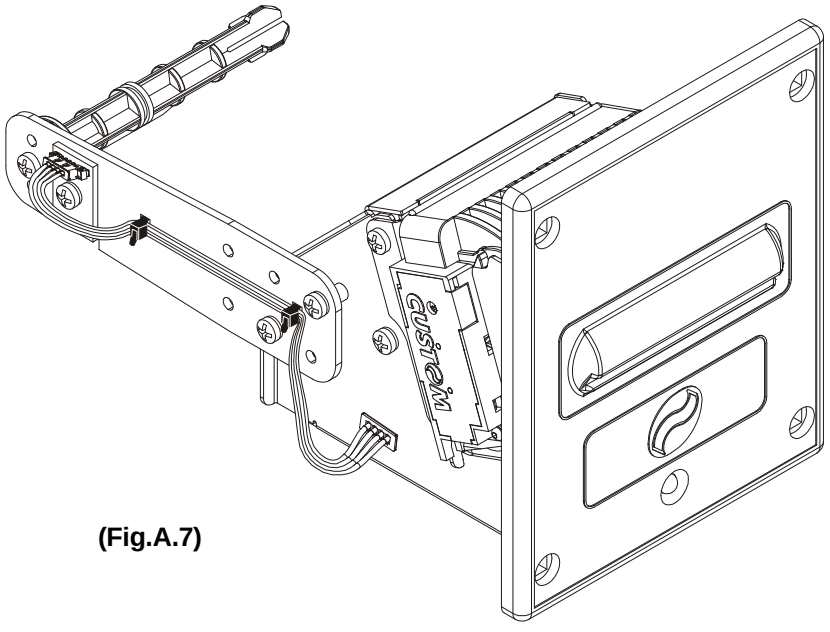
Fix the paper holder support to the printer frame by the two fastening screws on issue in the kit. Screw them where shown in fig. A.6 and connect the near paper end sensor cable to the printer connector.

WARNING: Check the paper roll pin is assembled with the beveled side turned in the low position (see the paper roll containment disks part). If this condition isn't verified, unloose the fastening screw of the pin to the paper holder support and locate it in the right position.





(Fig.A.6)

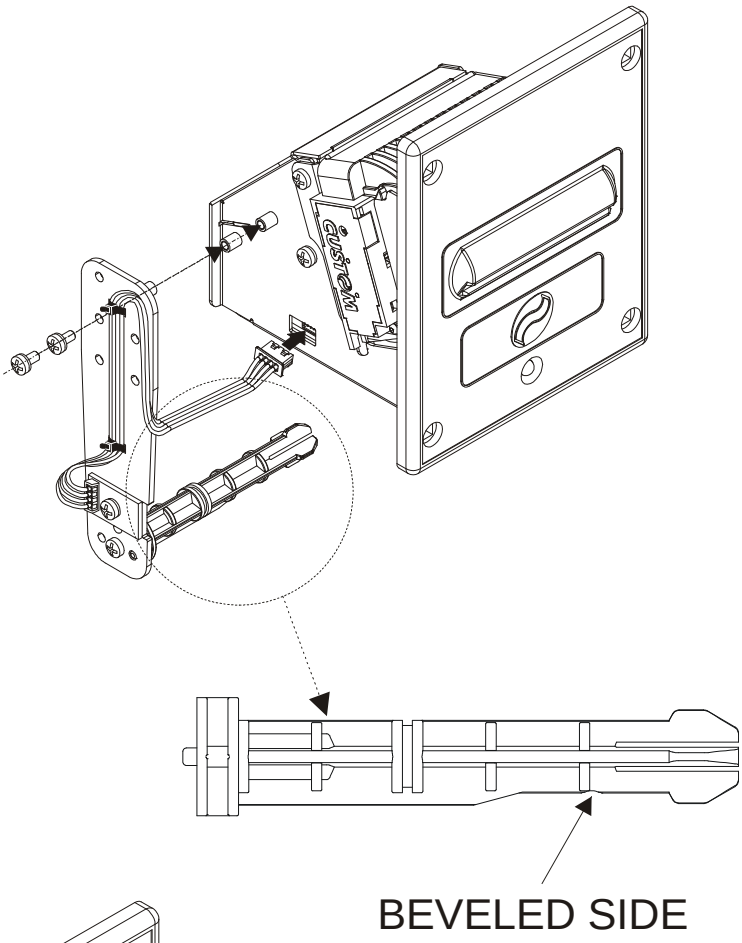


(Fig.A.7)

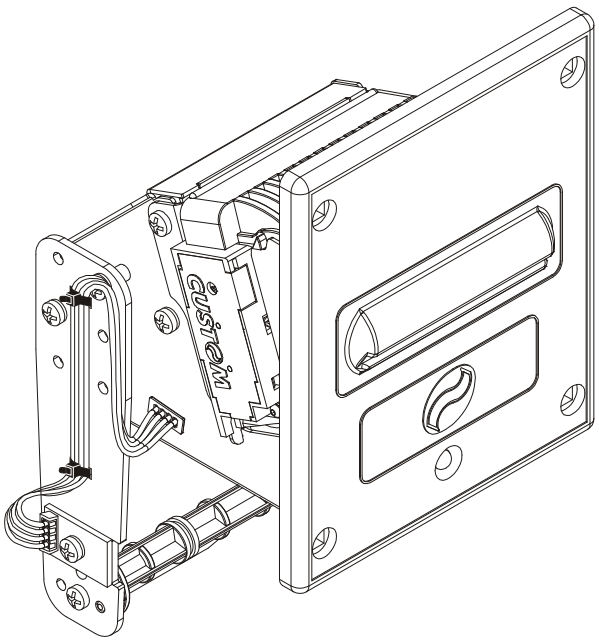
Fastening the paper holder support in lower position

Fix the paper holder support to the printer frame by the two fastening screws on issue in the kit. Screw them where shown in fig. A.8 and connect the near paper end sensor cable to the printer connector.

WARNING: Check the paper roll pin is assembled with the beveled side turned in the low position (see the paper roll containment disks part). If this condition isn't verified, unloose the fastening screw of the pin to the paper holder support and locate it in the right position.



(Fig.A.8)

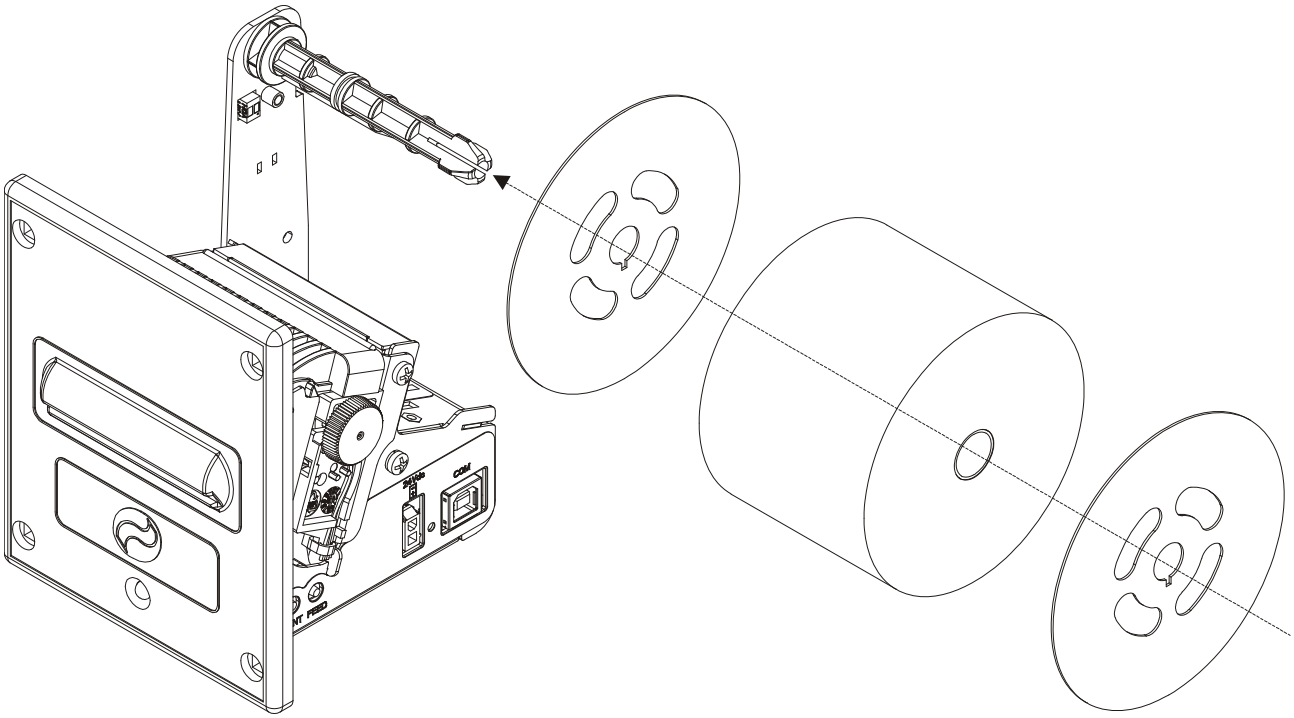


(Fig.A.9)

Using the paper roll containment disks

The paper holder support kit is equipped with two paper roll containment disks. The disks operates to keep the roll paper in the right position. They are realized with holes, which let the near paper end sensor on the paper holder support works correctly, and with a slot, which hinder the disks from rotating around their own axises . In this slot must be inserted the special paper roll pin feather, which has to be assembled turned toward the lower position to avoid paper jam. In the following figure A.10 is shown how to assemble the paper roll containment disks on the paper roll pin.

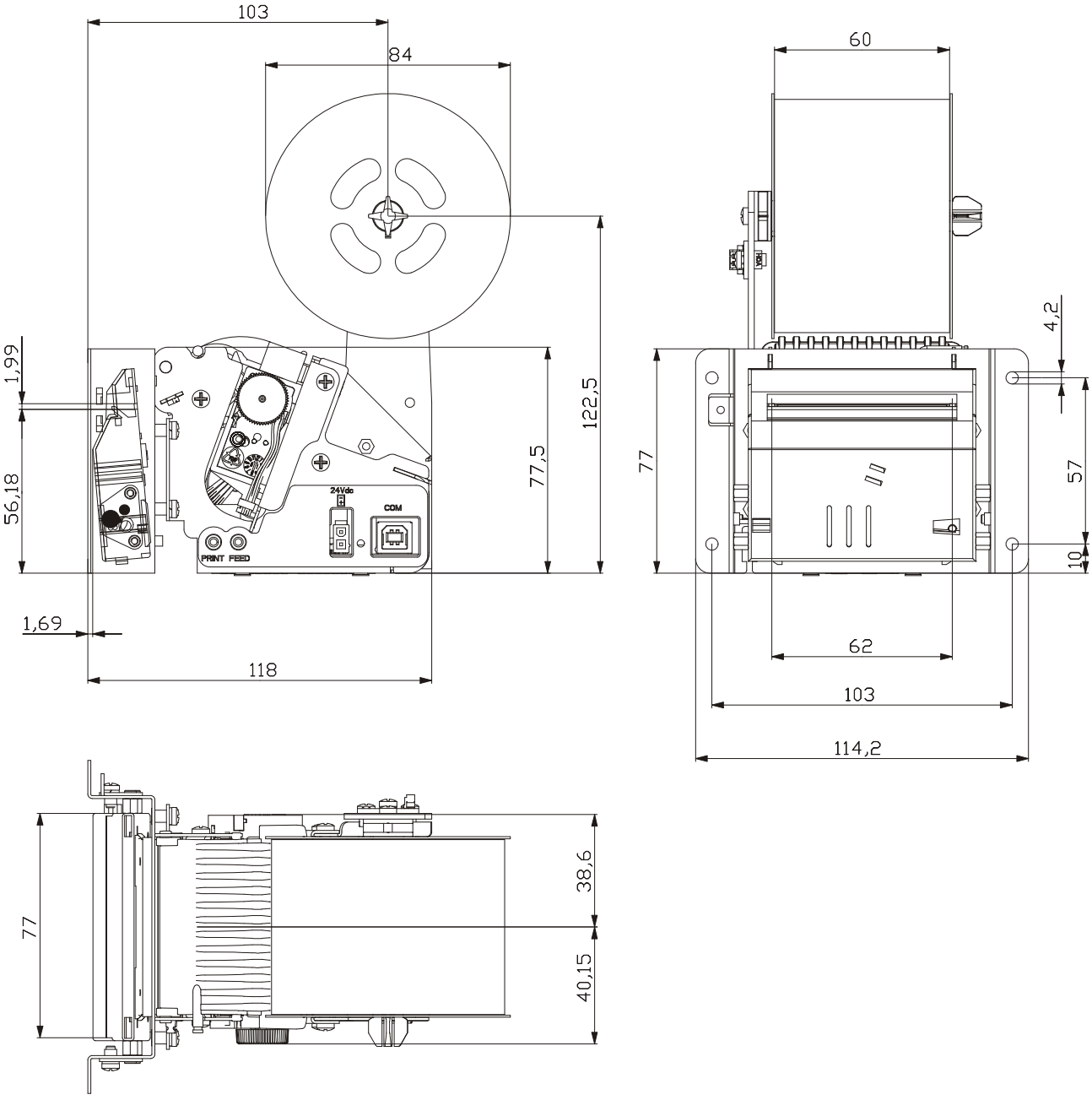
NOTE*:* These remarks are valid for all the printer models available.



(Fig.A.10)

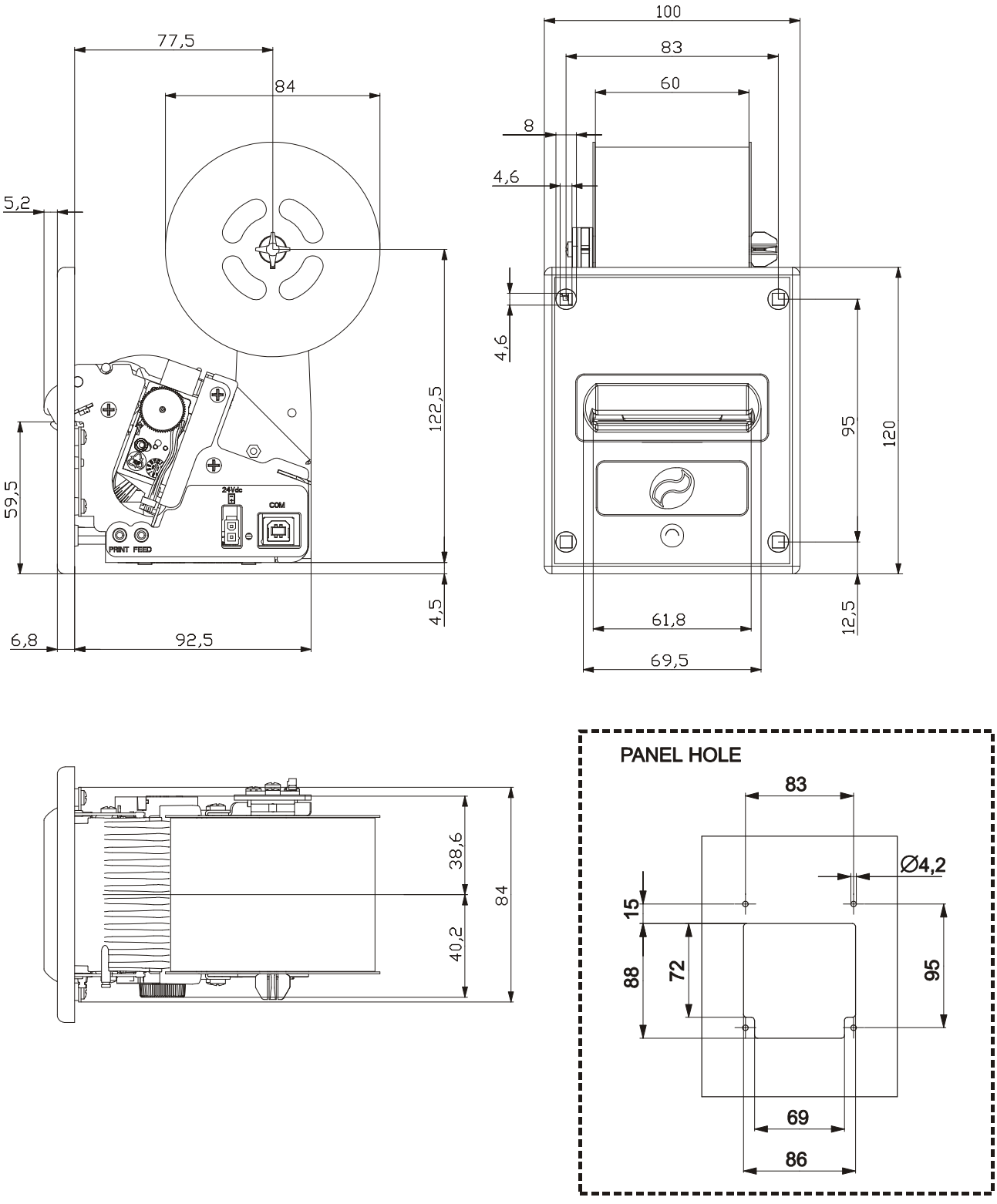
Dimensions of printer with paper holder support

TG2460-U-A model (USB interface, metal front panel and autocutter model)



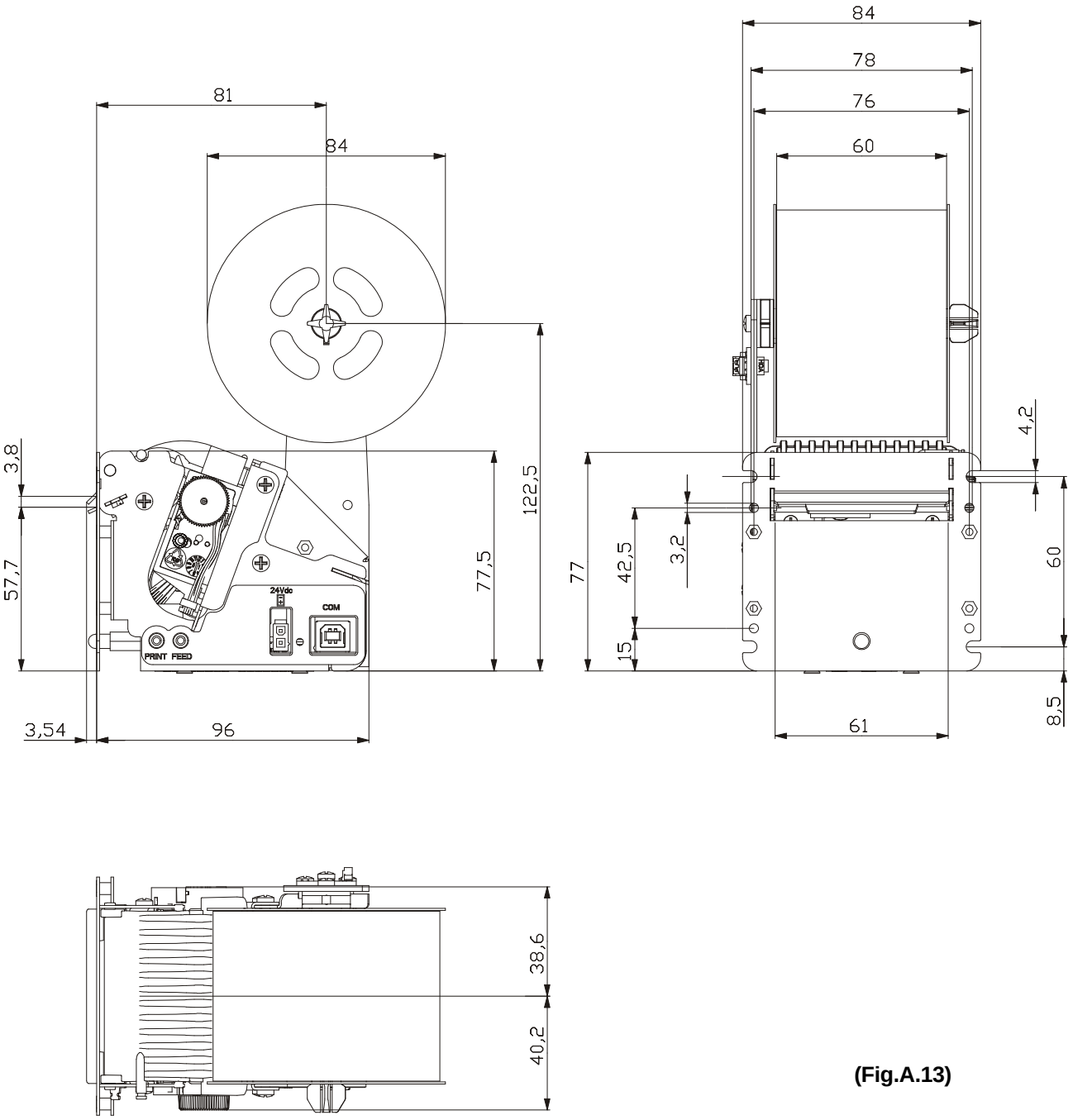
(Fig.A.11)

TG2460-U-N model *(*USB interface and plastic front panel)



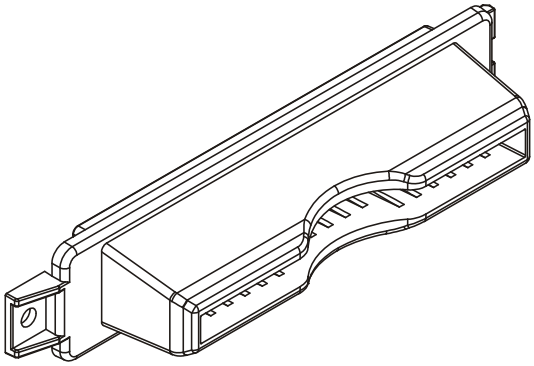
(Fig.A.12)

TG2460-U-M model (USB interface and metal front panel without autocutter)



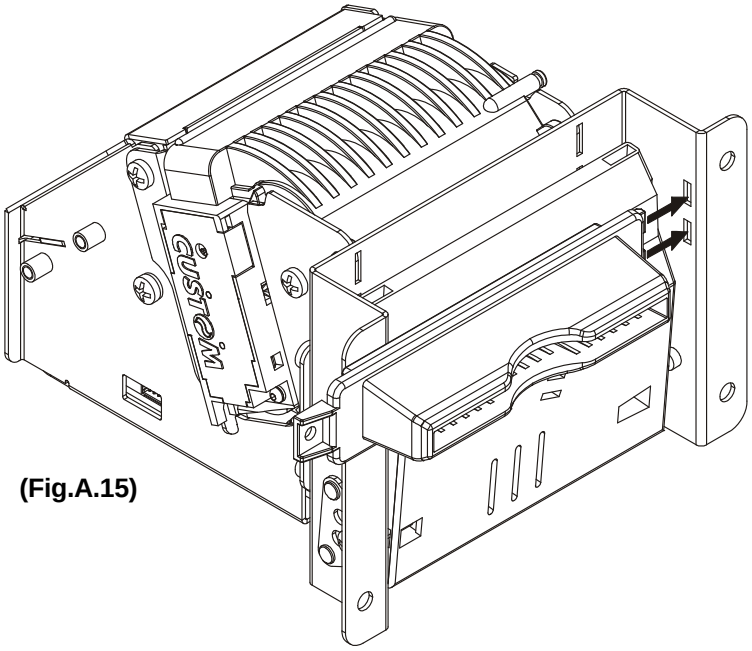
(Fig.A.13)

A.1.3 Paper dispenser unit



(Fig.A.14)

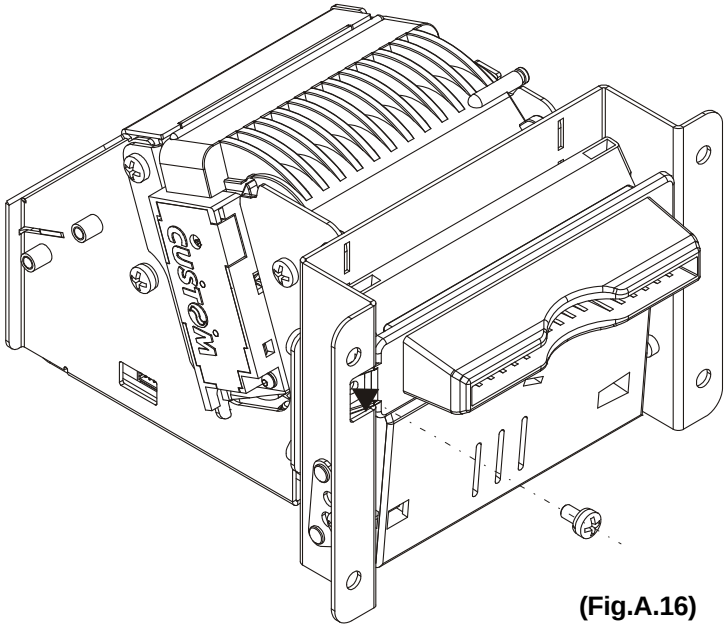
Assembling paper dispenser unit:



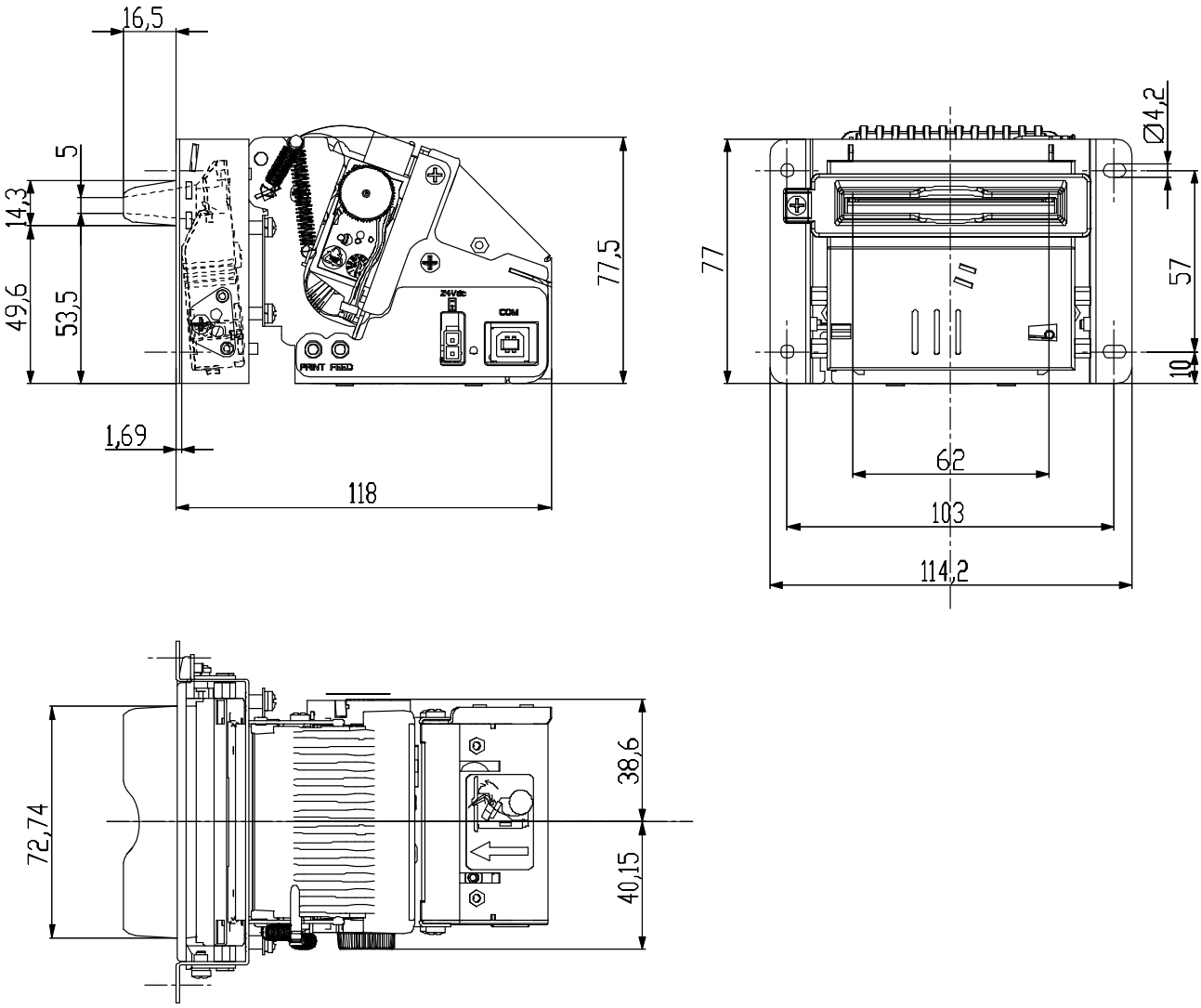
(Fig.A.15)

Insert the paper dispenser unit feathers in their seats on the plate which holds the autocutter.

Assemble the fastening screw of paper dispenser unit to the plate which holds the autocutter.



(Fig.A.16)



A.2 SPARE PARTS

Paper rolls

RCT60X55	60mm thermal paper roll

(Tab.A.4)

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