USER MANUAL

VKP80III

CUSTOM®

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THE IMAGES USED IN THIS MANUAL ARE USED AS AN ILLUSTRATIVE EXAMPLES. THEY COULDN'T REPRODUCE THE DESCRIBED MODEL FAITHFULLY.

UNLESS OTHERWISE SPECIFIED, THE INFORMATION GIVEN IN THIS MANUAL ARE REFERRED TO ALL MODELS IN PRODUCTION AT THE ISSUE DATE OF THIS DOCUMENT.

GENERAL INSTRUCTIONS

CUSTOM S.p.A. declines all responsibility for accidents or damage to persons or property occurring as a result of tampering, structural or functional modifications, unsuitable or incorrect installations, environments not in keeping with the equipment's protection degree or with the required temperature and humidity conditions, failure to carry out maintenance and periodical inspections and poor repair work.

GENERAL SAFETY INFORMATION

Your attention is drawn to the following actions that could compromise the characteristics of the product:

- Read and retain the instructions which follow.
- Follow all indications and instructions given on the device.
- Make sure that the surface on which the device rests is stable. If it is not, the device could fall, seriously damaging it.
- Make sure that the device rests on a hard (non-padded) surface and that there is sufficient ventilation.
- Do not fix indissolubly the device or its accessories such as power supplies unless specifically provided in this manual.
- When positioning the device, make sure cables do not get damaged.
- [Only OEM equipment] The equipment must be installed in a kiosk or system that provides mechanical, electrical and fire protection.
- The mains power supply must comply with the rules in force in the Country where you intend to install the equipment.
- Make sure that there is an easily-accessible outlet with a capacity of no less than 10A closely to where the device is to be installed.
- Make sure the power cable provided with the appliance, or that you intend to use is suitable with the wall socket available in the system.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- Before any type of work is done on the machine, disconnect the power supply.
- Use the type of electrical power supply indicated on the device label.
- These devices are intended to be powered by a separately certified power module having an SELV, non-energy hazardous output. (IEC60950-1 second edition).
- [Only POS equipment] The energy to the equipment must be provided by power supply approved by CUSTOM S.p.A.
- Take care the operating temperature range of equipment and its ancillary components.
- Do not block the ventilation openings.
- Do not insert objects inside the device as this could cause short-circuiting or damage components that could jeopardize printer functioning.
- Do not carry out repairs on the device yourself, except for the normal maintenance operations given in the user manual.
- The equipment must be accessible on these components only to trained, authorized personnel.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- Do not touch the head heating line with bare hands or metal objects. Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.
- Use consumables approved by CUSTOM S.p.A.

CE

THE CE MARK AFFIXED TO THE PRODUCT CERTIFY THAT THE PRODUCT SATISFIES THE BASIC SAFETY REQUIREMENTS.

The device is in conformity with the essential Electromagnetic Compatibility and Electric Safety requirements laid down in Directives 2006/95/CE and 2004/108/CE inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55022 Class B *(Limits and methods of measurements of radio disturbance characteristics of Information Technology Equipment)*
- EN 55024 *(Information Technology Equipment – Immunity characteristics – Limits and methods of measurement)*
- EN 60950-1 *(Safety of information equipment including electrical business equipment)*

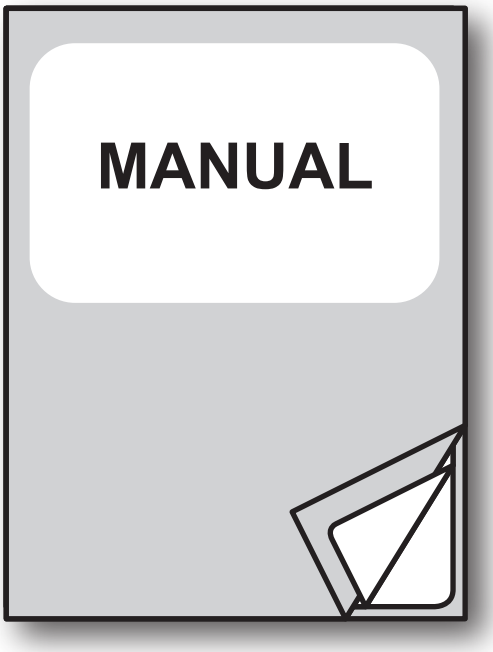
The device is in conformity with the essential requirements laid down in Directives 1999/05/CE about devices equipped with intentional radiators The Declaration of Conformity and other available certifications can be request to support@custom.it please providing the correct part number shown on product label or in the invoice.

GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

The crossed-out rubbish bin logo means that used electrical and electronic products shall NOT be mixed with unsorted municipal waste. For more detailed information about recycling of this product, refer to the instructions of your country for the disposal of these products.

- Do not dispose of this equipment as miscellaneous solid municipal waste, but arrange to have it collected separately.
- The re-use or correct recycling of the electronic and electrical equipment (EEE) is important in order to protect the environment and the wellbeing of humans.
- In accordance with European Directive WEEE 2002/96/EC, special collection points are available to which to deliver waste electrical and electronic equipment and the equipment can also be handed over to a distributor at the moment of purchasing a new equivalent type.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorised disposal of waste electrical and electronic equipment is punishable by law with the appropriate penalties.

The format used for this manual improves use of natural resources reducing the quantity of necessary paper to print this copy.



For details on the commands,
refer to the manual with code. **77200000000200**

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8 SPECIFICATION

9 CONSUMABLES

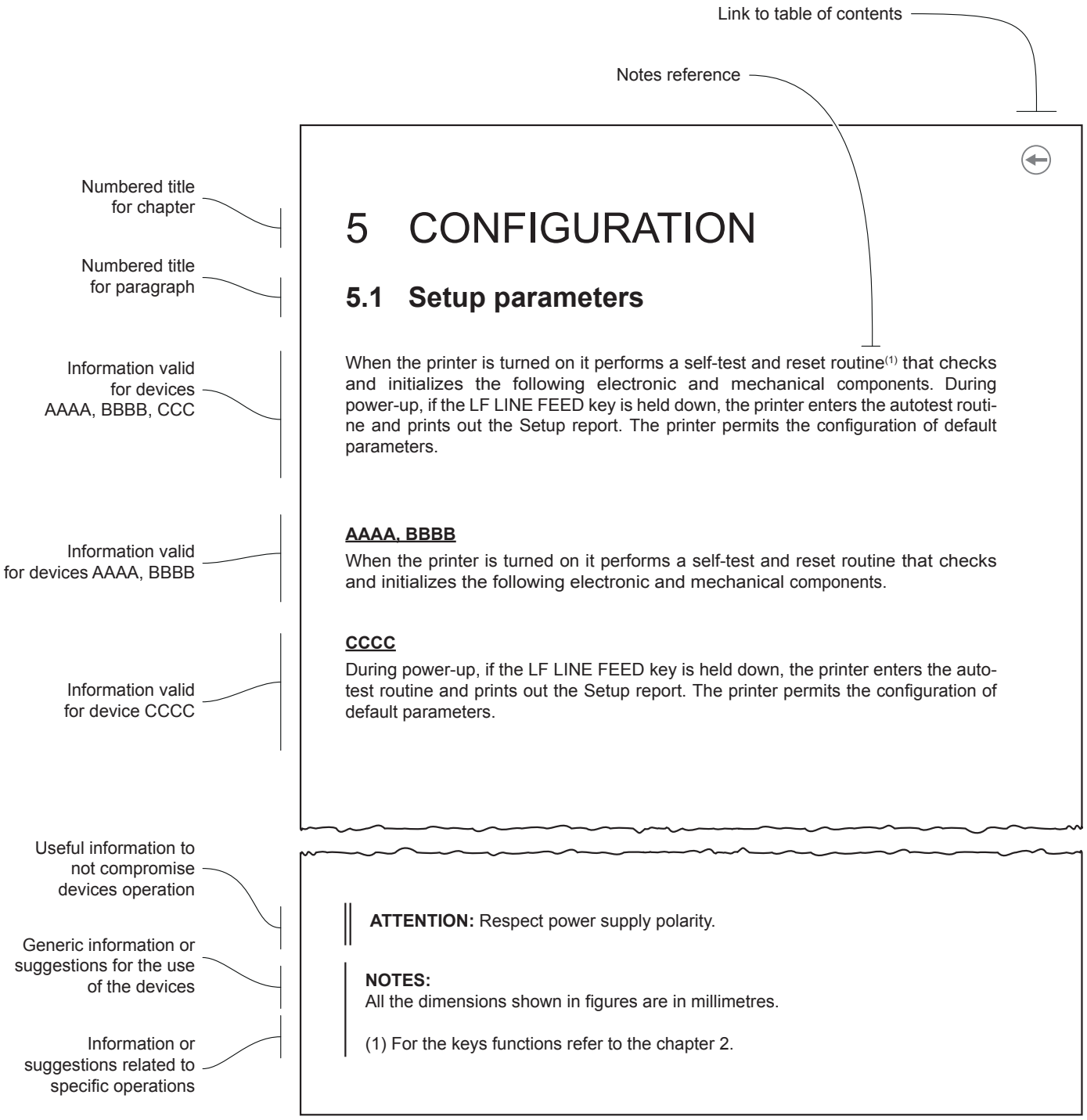
10 ACCESSORIES

11 ALIGNMENT

12 TECHNICAL SERVICE

1 INTRODUCTION

This document is divided into sections and chapters. Each chapter can be reached by the index at the beginning of this document. The index can be reached by the button on each page as shown in the diagram below.



2 IDENTIFICATION OF THE MODELS

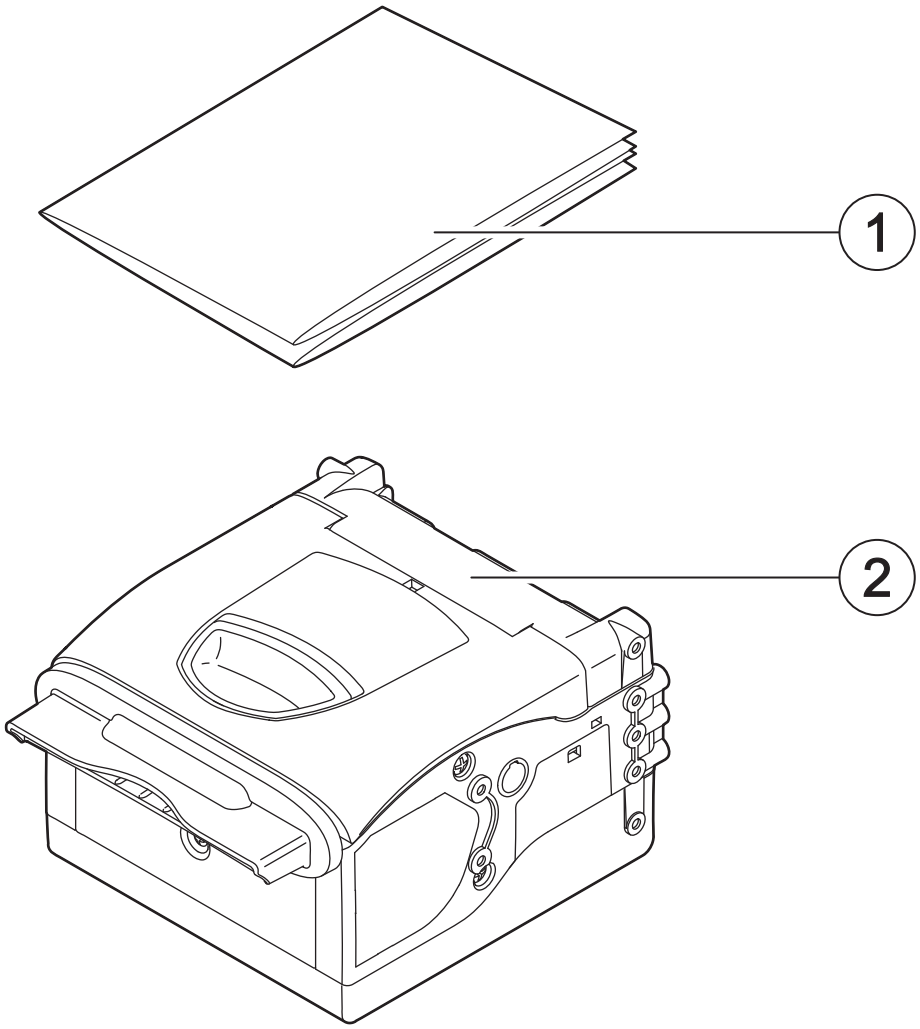
NOMENCLATURE	DESCRIPTION
VKP80III LAT	Model with lateral connectors (expansion connector and low paper connector on the rear side)
VKP80III REAR	Model with rear connectors

3 DESCRIPTION

3.1 Box content

Remove the device from its carton being careful not to damage the packing material so that it may be re-used if the printer is to be transported in the future.
Make sure that all the components illustrated below are present and that there are no signs of damage. If there are, contact Customer Service

1. Installation instruction sheet
2. Device

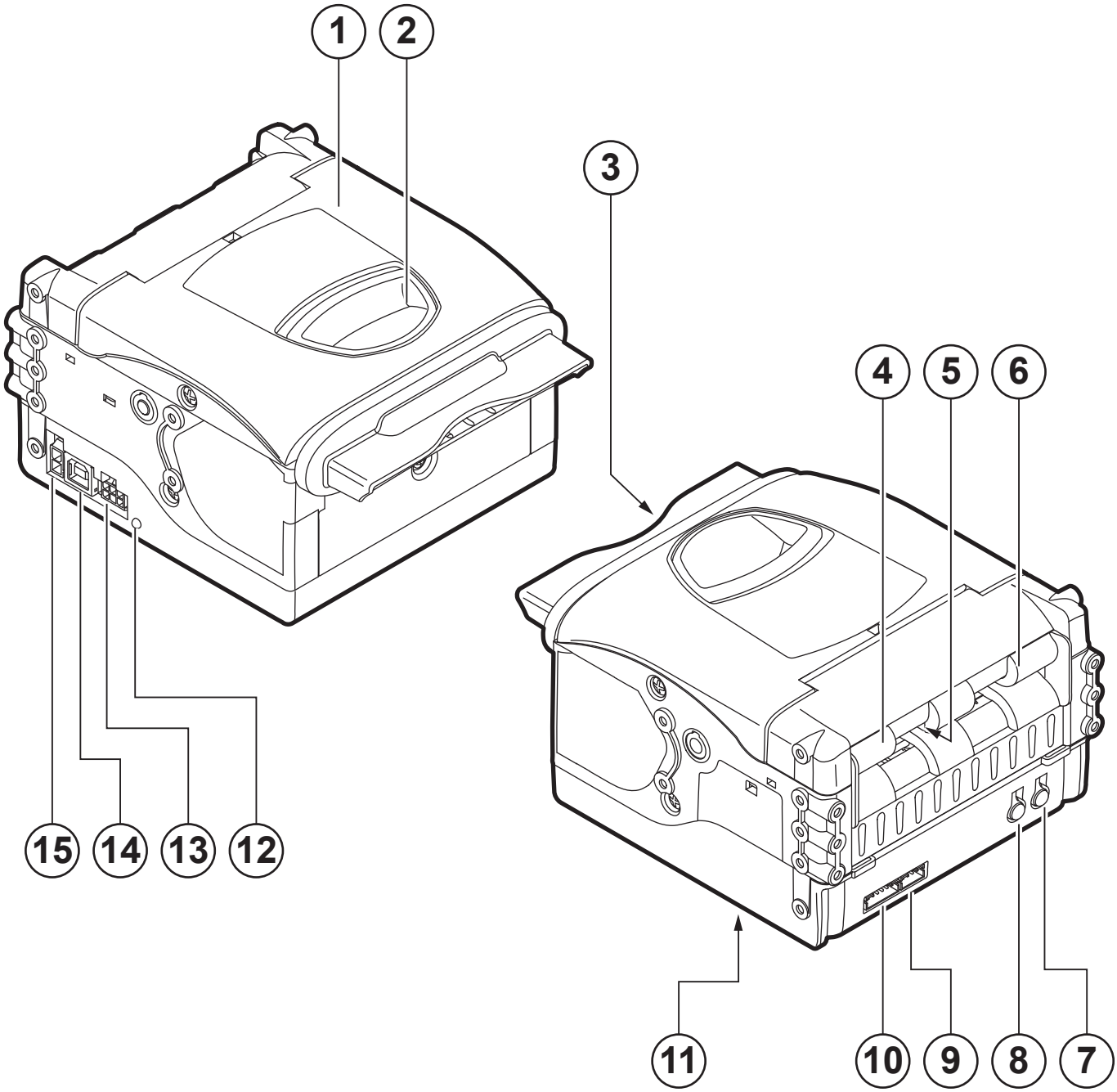


- Open the device packaging.
- Take out the device.
- Take out the rest of the content.
- Keep the box, trays and packing materials in the event the printer must be transported/shipped in the future.

3.2 Device components: external views

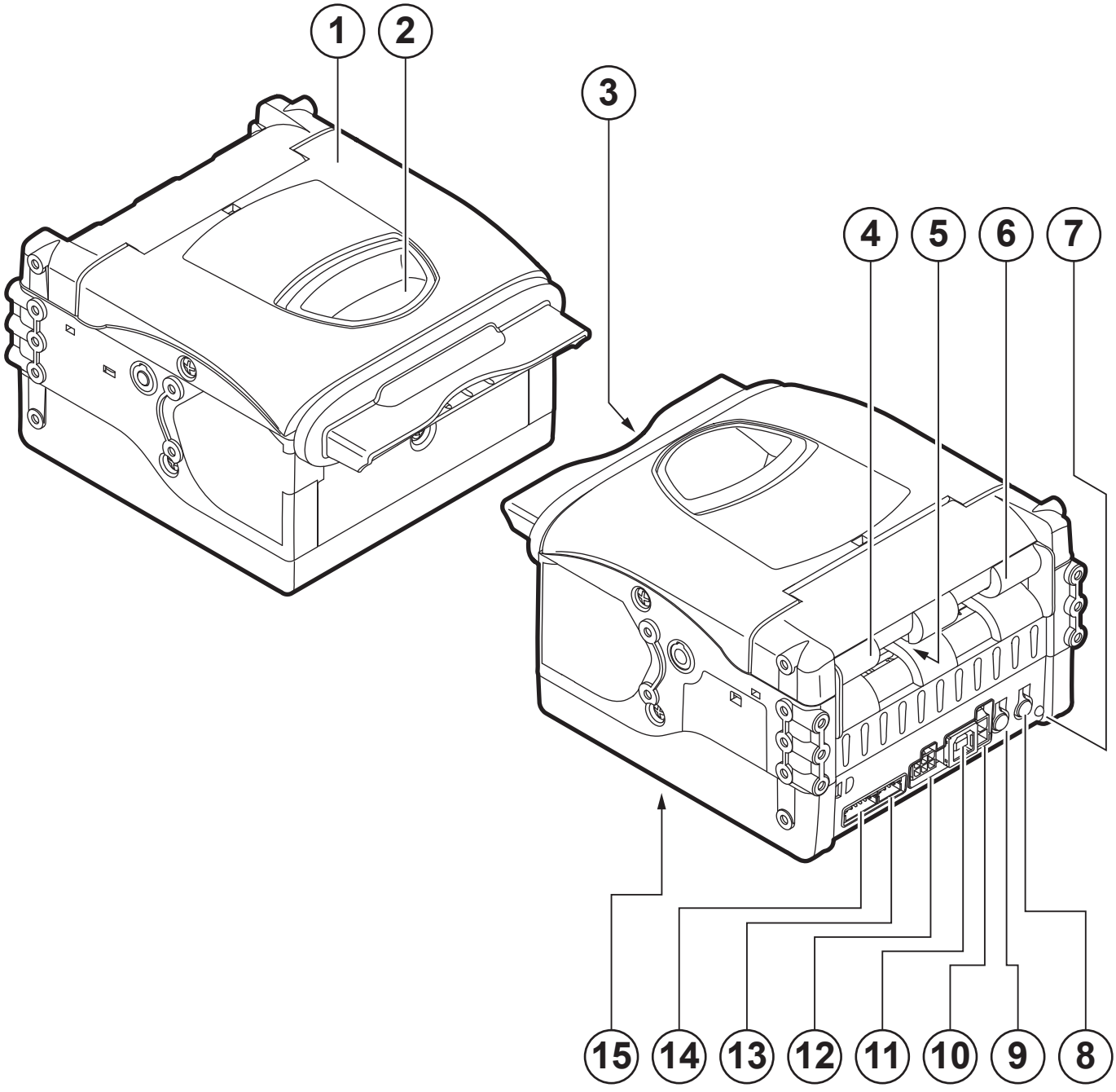
VKP80III LAT

1. Device cover
2. Opening lever
3. Paper output
4. Left cursor for paper input
5. Paper input
6. Right cursor for paper input
7. FORM FEED key
8. LINE FEED key
9. Port for low paper sensor (external)
10. Expansion port (for optional external device)
11. Product label
12. Status LED
13. RS232 interface port
14. USB interface port
15. Power supply port



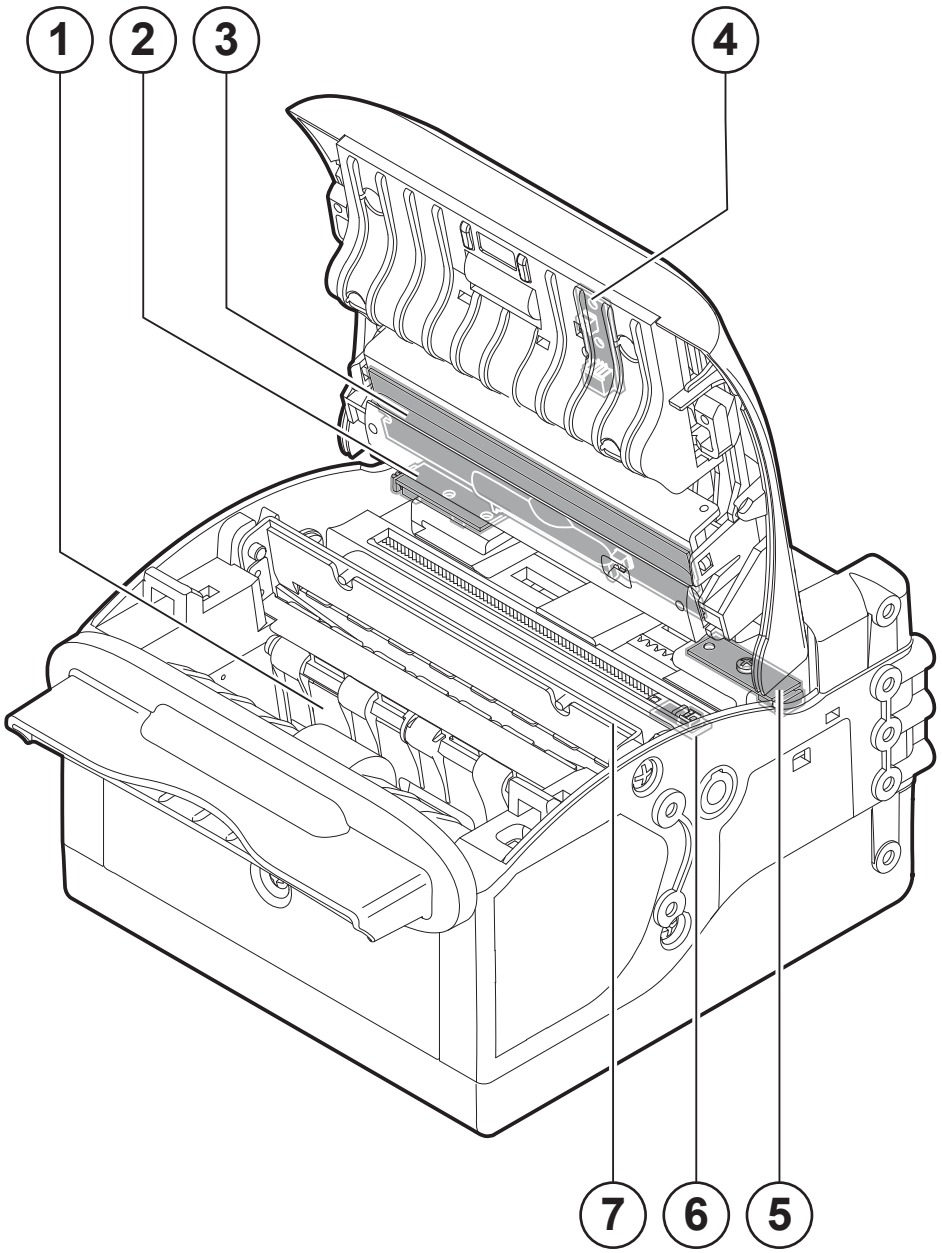
VKP80III REAR

1. Device cover
2. Opening lever
3. Paper output
4. Left cursor for paper input
5. Paper input
6. Right cursor for paper input
7. Status LED
8. FORM FEED key
9. LINE FEED key
10. Power supply port
11. USB interface port
12. RS232 interface port
13. Port for low paper sensor (external)
14. Expansion port (for optional external device)
15. Product label



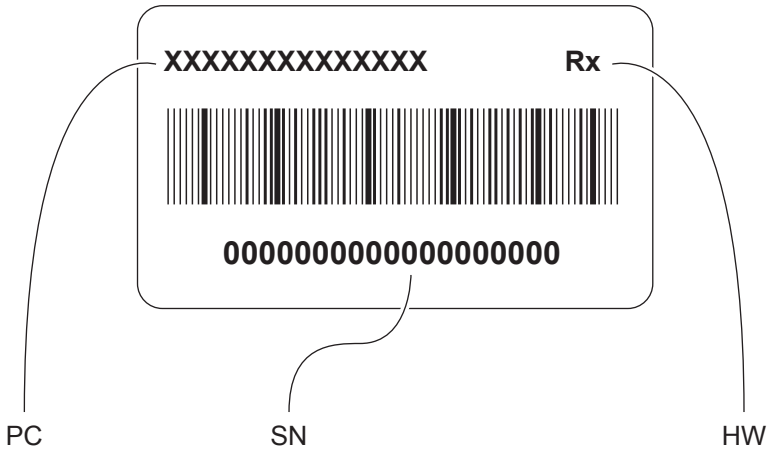
3.3 Device components: internal views

1. Ejector bulkhead
2. Upper left sensor for notch (optional)
3. Printing head with sensor for paper in presence (built-in)
4. Paper out presence sensor
5. Upper right sensor for notch (optional)
6. Lower mobile sensor for notch
7. Cutter

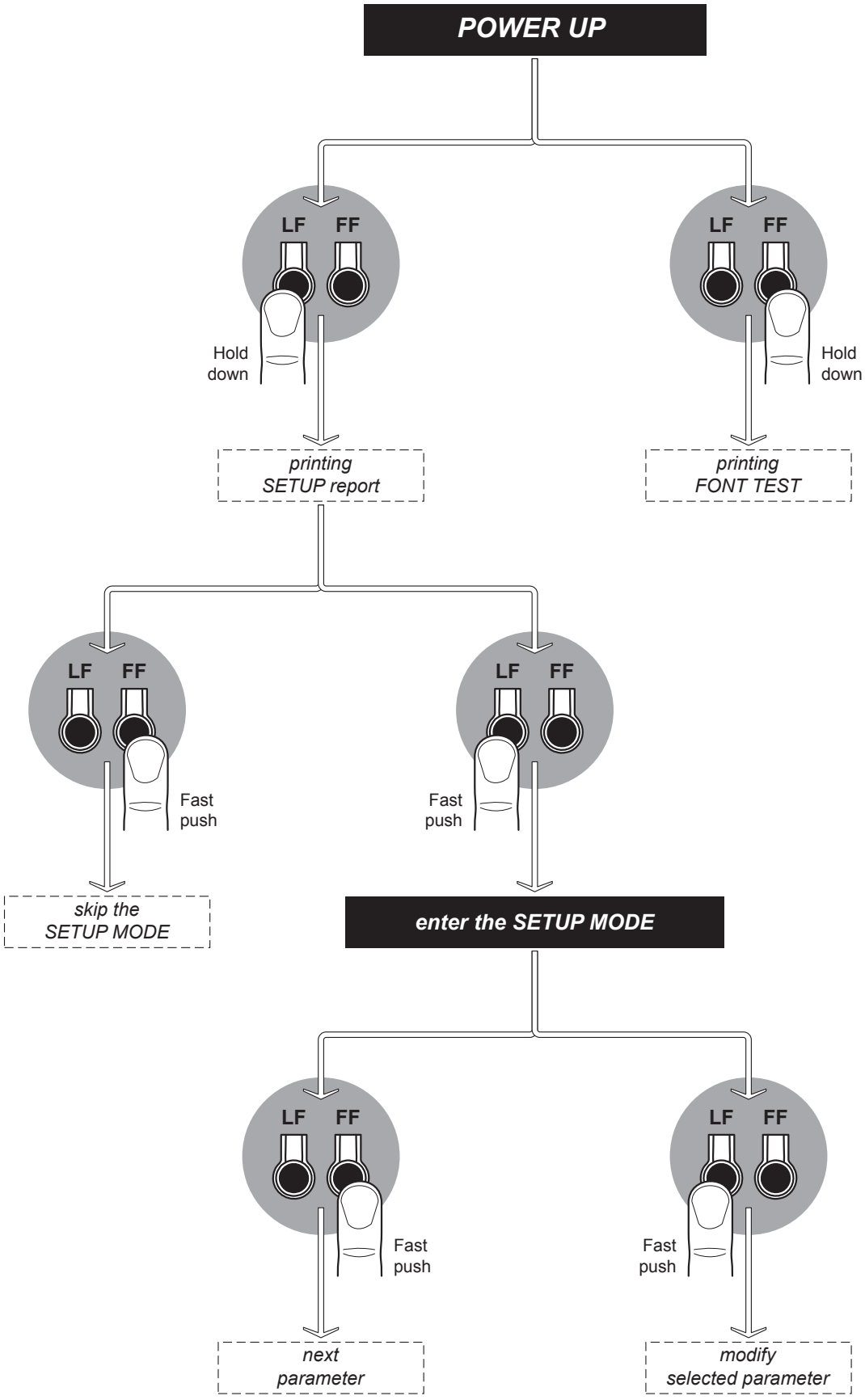


3.4 Product label

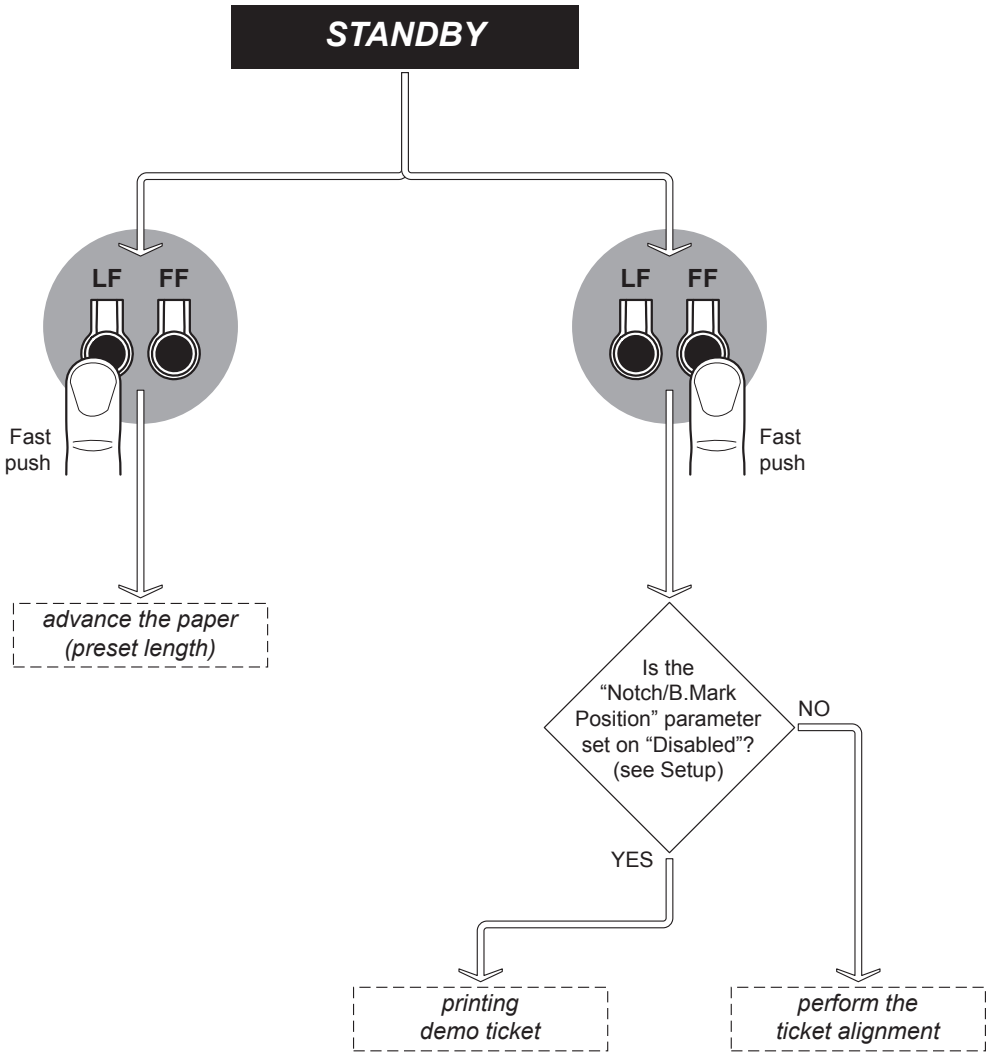
PC = Product code (14 digits)
SN = Serial number
HW = Hardware release



3.5 Key functions: power up



3.6 Key functions: standby



3.7 Status led flashes

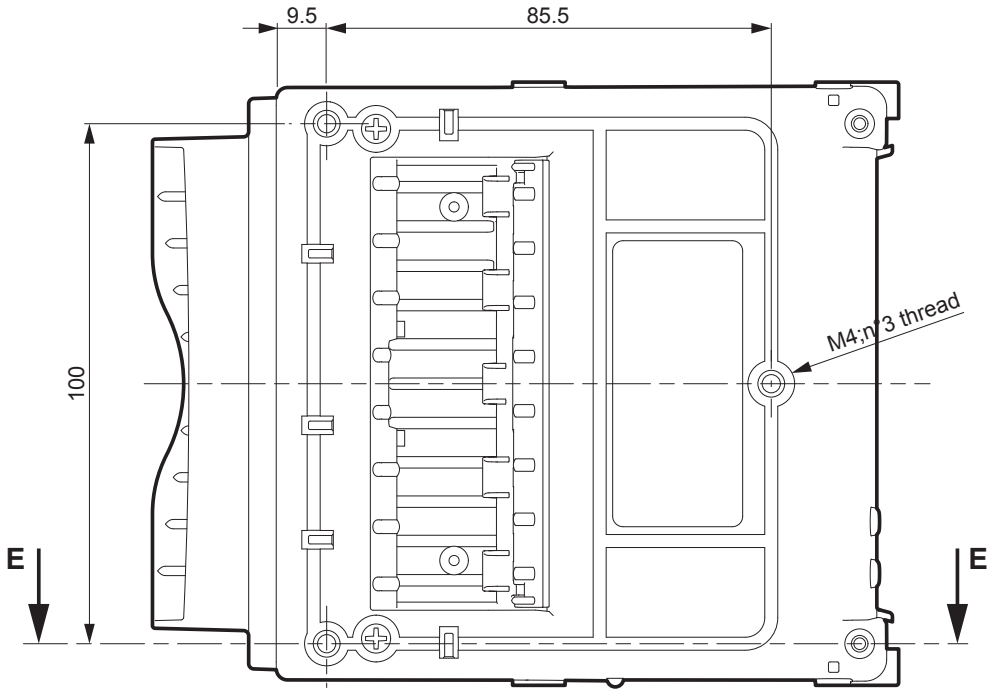
The Status led indicates hardware status of device. Given in the table below are the various led signals and the corresponding device status.

STATUS LED			DESCRIPTION
-	○	***OFF***	DEVICE OFF
GREEN	●	***ON***	DEVICE ON: NO ERROR
GREEN COMMUNICATION STATUS	●	***x 1***	RECEIVE DATA
		x 2	RECEPTION ERROR (PARITY, FRAME ERROR, OVERRUN ERROR)
		x 3	COMMAND NOT RECOGNIZED
		x 4	COMMAND RECEPTION TIME OUT
YELLOW RECOVERABLE ERROR	●	***x 2***	HEADING OVER TEMPERATURE
		x 3	PAPER END
		x 4	PAPER JAM
		x 5	POWER SUPPLY VOLTAGE INCORRECT
		x 6	COVER OPEN
RED UNRECOVERABLE ERROR	●	***x 1***	EJECTOR ROLLER ERROR
		x 2	EJECTOR BULKHEAD ERROR
		x 3	RAM ERROR
		x 4	EXTERNAL FLASH ERROR
		x 5	CUTTER ERROR

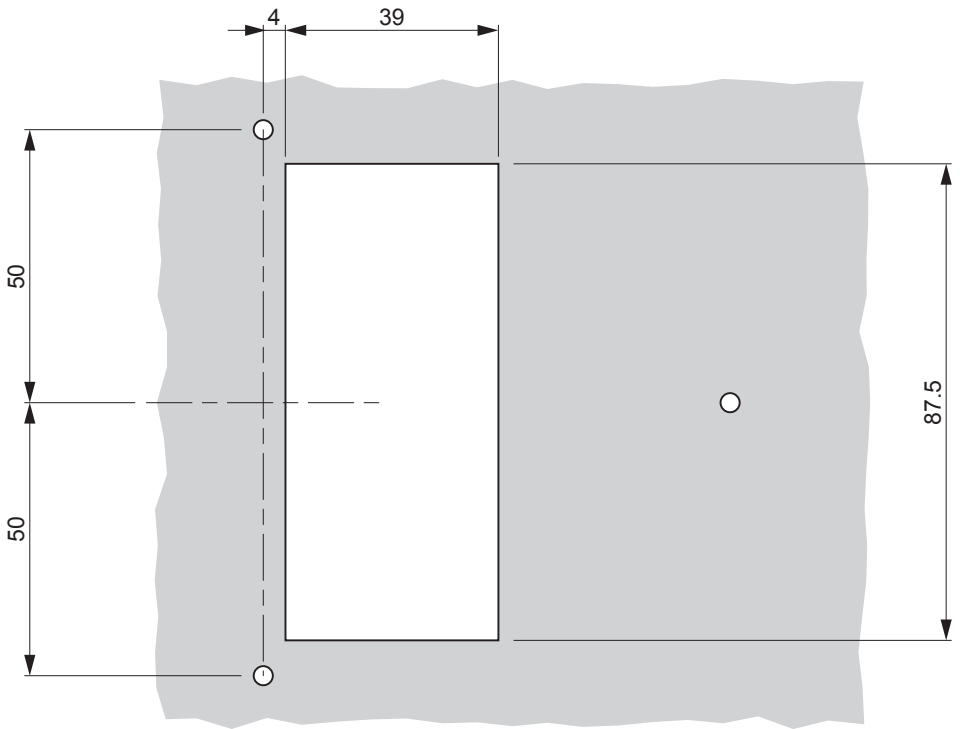
4 INSTALLATION

4.1 Fastening

The device is provided with three fixing holes on the bottom of device (see following figure). To fasten the device on a panel, use three M4 screws.

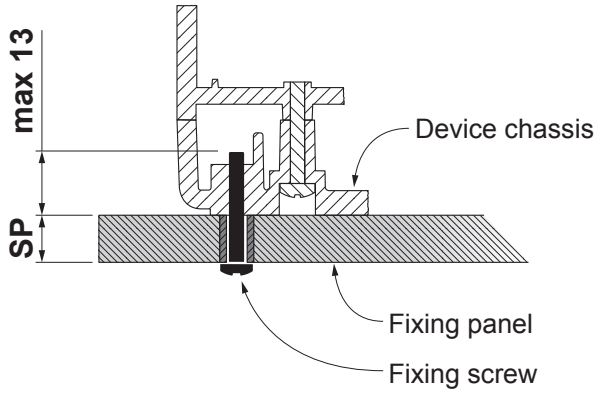


Furthermore, the panel must provide an opening for the paper handling that respects the measures (in millimeters) shown below:



It’s very important to consider the screws length not to damage the internal components placed near the fixing holes (see following figure).

Sezione E-E



The screw length (L) will be calculated according to the thickness of the panel (Sp) on which the device is fixed, as follows:

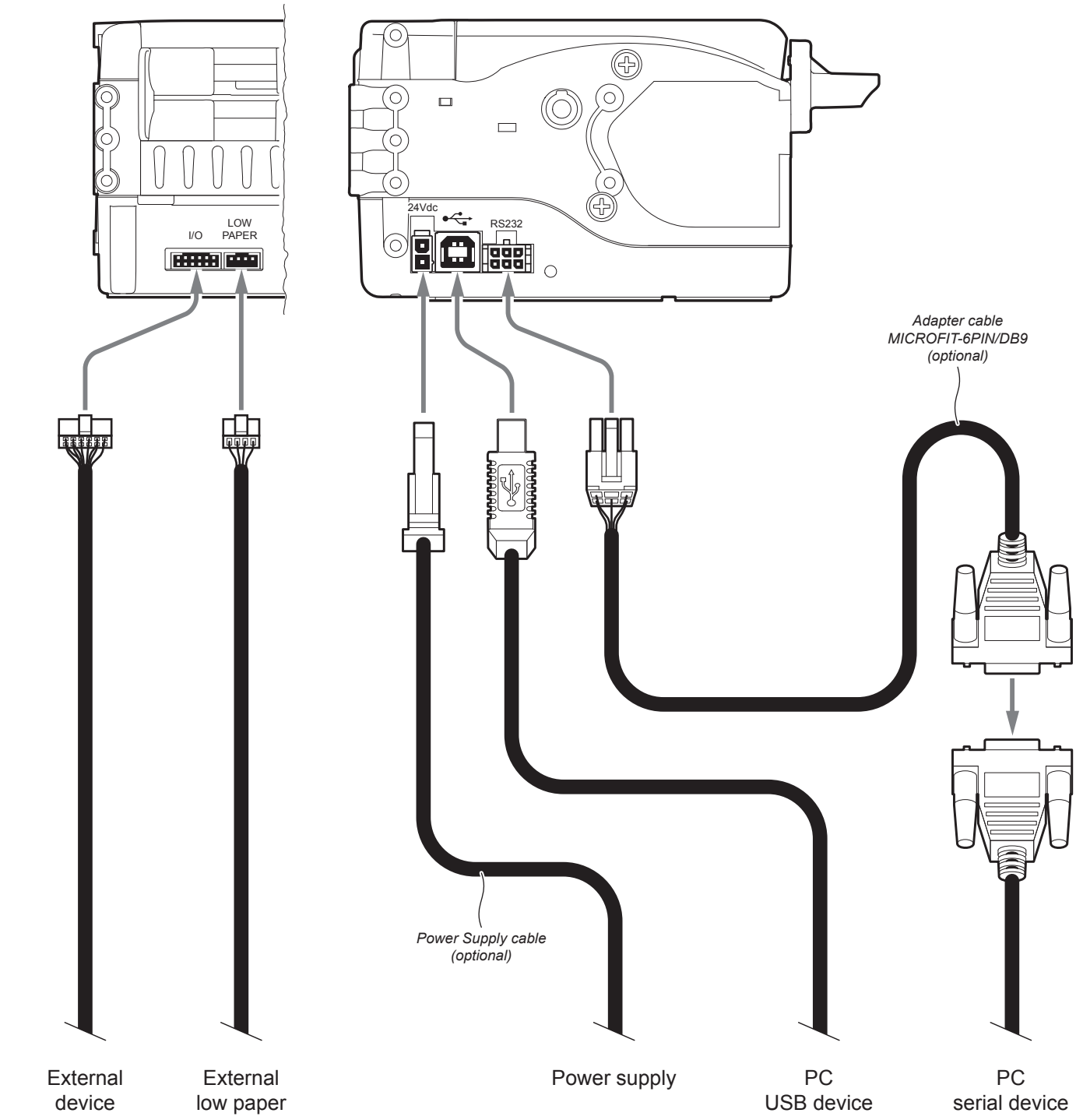
$$L \leq 13mm + Sp$$

For example, if panel thickness is 10mm (Sp = 10mm), the maximum length for screws will be 23mm.

4.2 Connections

The following figures show the possible connections for the device.

VKP80III LAT

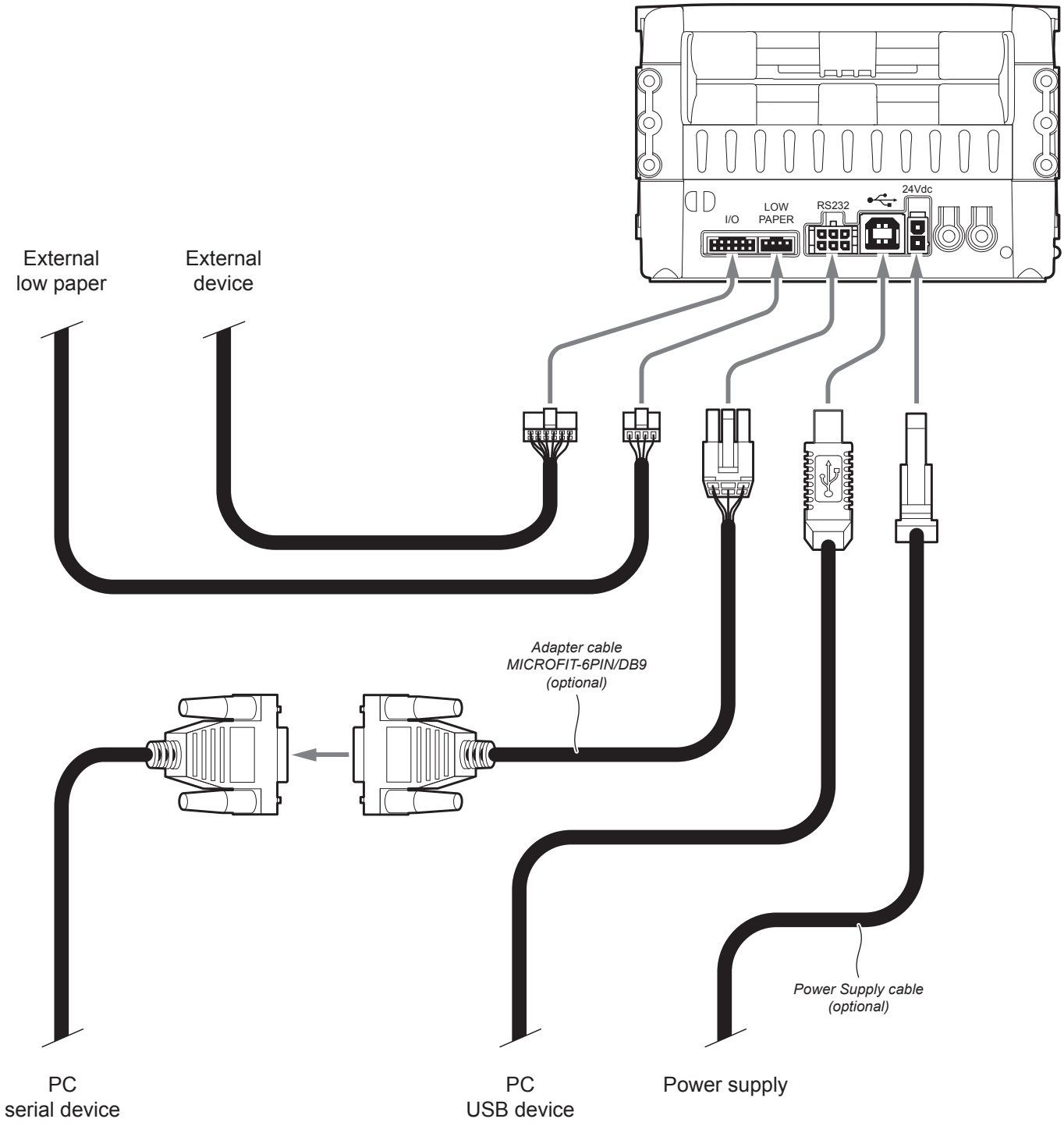


ATTENTION:
It is recommended to secure with a tie the adapter cable MICROFIT-6PIN/DB9 to a fixed support in order to prevent the connector on control board bears the weight of the cables.

In some using conditions, we recommend the installation of a ferrite core on the power supply cable.

NOTE: If RS232 and USB connectors are inserted, communication port is USB.

VKP80III REAR



ATTENTION:
It is recommended to secure with a tie the adapter cable MICROFIT-6PIN/DB9 to a fixed support in order to prevent the connector on control board bears the weight of the cables.

In some using conditions, we recommend the installation of a ferrite core on the power supply cable.

NOTE: When the RS232 and USB communication cables are connected to the printer at the same time, communication takes place via the USB port.

4.3 Pinout

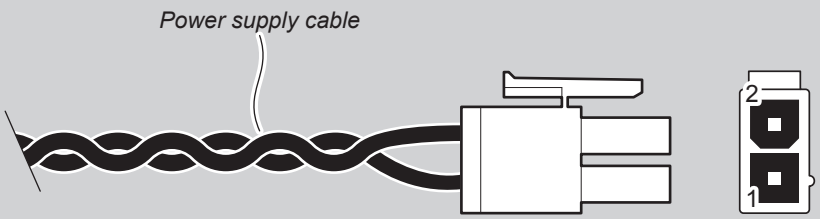
POWER SUPPLY

Male Molex connector series 5569 vertical (n° 39-30-1020)

J13	1	+24 Vdc
	2	GND

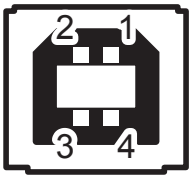
ATTENTION:
Respect power supply polarity.

NOTE: Power supply cable
The following figure shows the connector pinout of the power supply cable for the device:



Female Molex connector series 5557 (n.39-01-3022)

PIN	*Cable color*	*Signal*
1	*Red*	*+24V*
2	*Black*	*GND*



USB INTERFACE

Female USB type B connector

J2	1	USB0-VBUS	(in)
	2	D0 -	(in/out)
	3	D0 +	(in/out)
	4	GND	
	SH1	SHIELD	
	SH2	SHIELD	

SERIAL INTERFACE

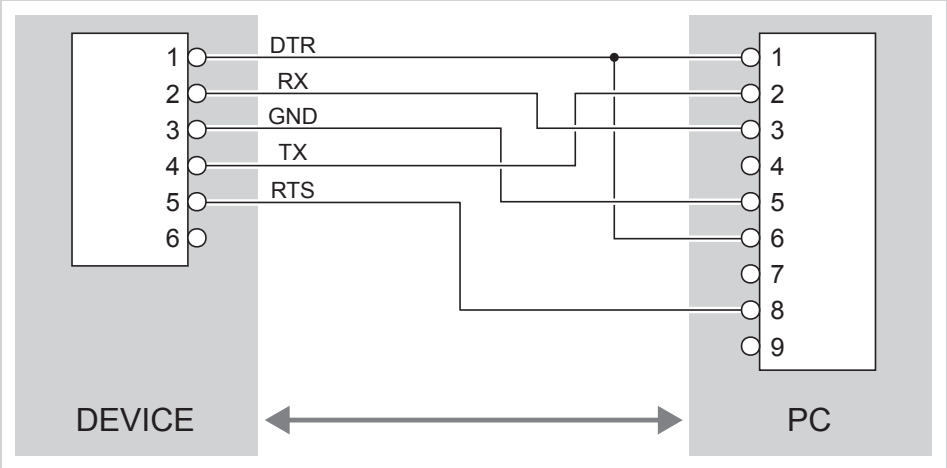
Female MICROFIT-6PIN connector *(cable insertion side)*

J1	1	DTR	(out)	When +VRS232, printer is ready
	2	RX	(in)	During reception, takes the value -VRS232 and +VRS232, depending on data
	3	GND		
	4	TX	(out)	During transmission, takes the value -VRS232 and +VRS232, depending on data
	5	RTS	(out)	When +VRS232, printer is ready to receive data
	6	n.c.		

NOTES

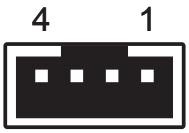
DEVICE > PC connection

Use the adapter cable MICROFIT-6PIN/DB9 and a RS232 serial cable to connect the printer to a personal computer. The following picture shows an example of connection between the device and a personal computer using a 9 pin serial connector.



When use a serial cable, we recommend the installation of a ferrite core on the power supply cable.

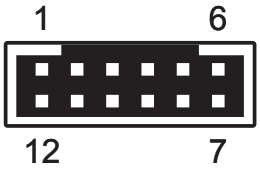
Given the presence of the RS232 standard, logic value “0” corresponds to the voltage value +VRS232 (voltage value between +3Vdc and +15Vdc) and logic value “1” corresponds to the voltage value -VRS232 (voltage value between -3Vdc and -15Vdc.



EXTERNAL LOW PAPER

Male JST-4pin connector series PH 90° (S4B-PH-K-S)

J5	1	+3.3V		
	2	NPE	(in)	When >3V the paper is low
	3	GND		
	4	VLED-SENS	(out)	Signal to turn on/off the infreared sensor LED



EXTERNAL DEVICE

Male JST-12pin connector series PHD 90° (S12B-PHDSS-B)

J17	1	SW-FF	(out)	When 0V the key is pressed
	2	GND		
	3	SW-LF	(out)	When 0V the key is pressed
	4	MR	(in)	Printer reset (0V)
	5	EX-LEDR	(out)	When 0V turns on the red LED
	6	RXD0/SCL1	(in/out)	Auxiliary serial reception/ i2c clock
	7	EX-LEDV	(out)	When 0V turns on the green LED
	8	TXD0/SDA1	(in/out)	Auxiliary serial transmission/ i2c data
	9	MOT-AUX+	(out)	Auxiliary motor
	10	+3,3V		
	11	MOT-AUX-	(out)	Auxiliary motor
	12	+24VM		

4.4 Driver and SDK

The drivers are available for the following operating system:

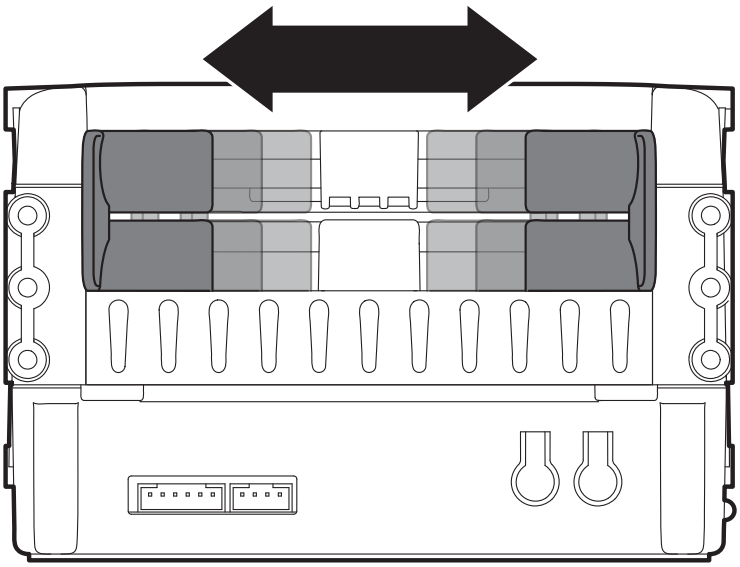
OPERATING SYSTEM	DESCRIPTION	INSTALLATION PROCEDURE
Windows	Driver for Windows XP	From the START menu, press Run and type-in the path where the SW was saved on your PC, then click OK. Follow the instructions that appear on the screen to install the driver.w
	Driver for Windows VISTA (32/64bit)	
	Driver for Windows 7 (32/64bit)	
	Driver for Windows 8 (32/64bit)	
	Driver for Opos	
Linux		Follow the instruction get back on the README.TXT file. You can find it in the software package downloaded in advance.
Android	Library for CustomAndroidAPI	Extract the zipped folder to the destination path desired. Follow the instructions present in the software package that you downloaded on how to install and use the library.
iOS	SDK for CustomiOSApi	Extract the zipped folder to the destination path desired. Follow the instructions present in the software package that you downloaded on how to install and use the SDK

NOTA:
All drivers can be found in the DOWNLOAD section of the web site www.custom.biz.

5 OPERATION

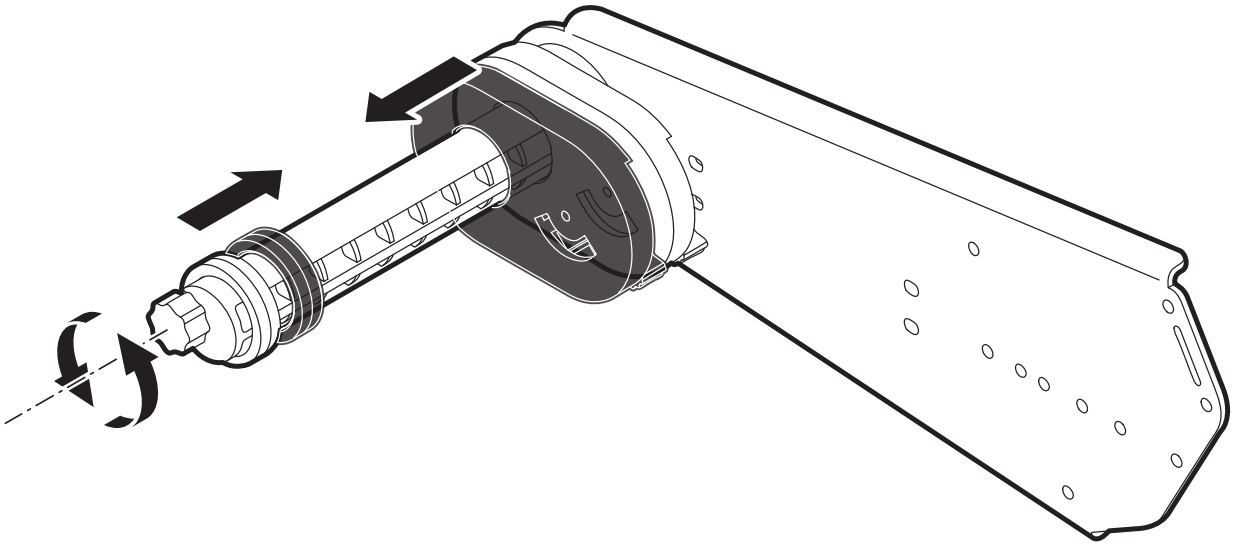
5.1 Adjusting paper width

Paper width may be adjusted from 50mm to 82.5mm by moving the adjustable cursors left and right located on the paper infeed.



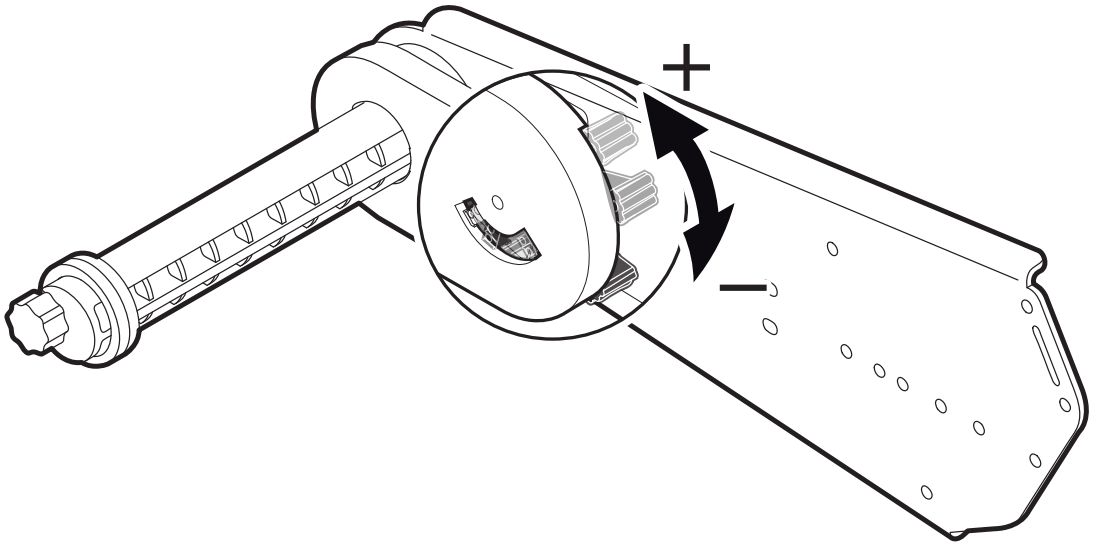
5.2 Adjusting paper width with the paper roll holder code 974DX010000001 (optional)

This accessory allows the use of paper roll width from 60mm to 82.5mm. To adjust the width of the paper roll case, rotate the knob as shown in the following figure.



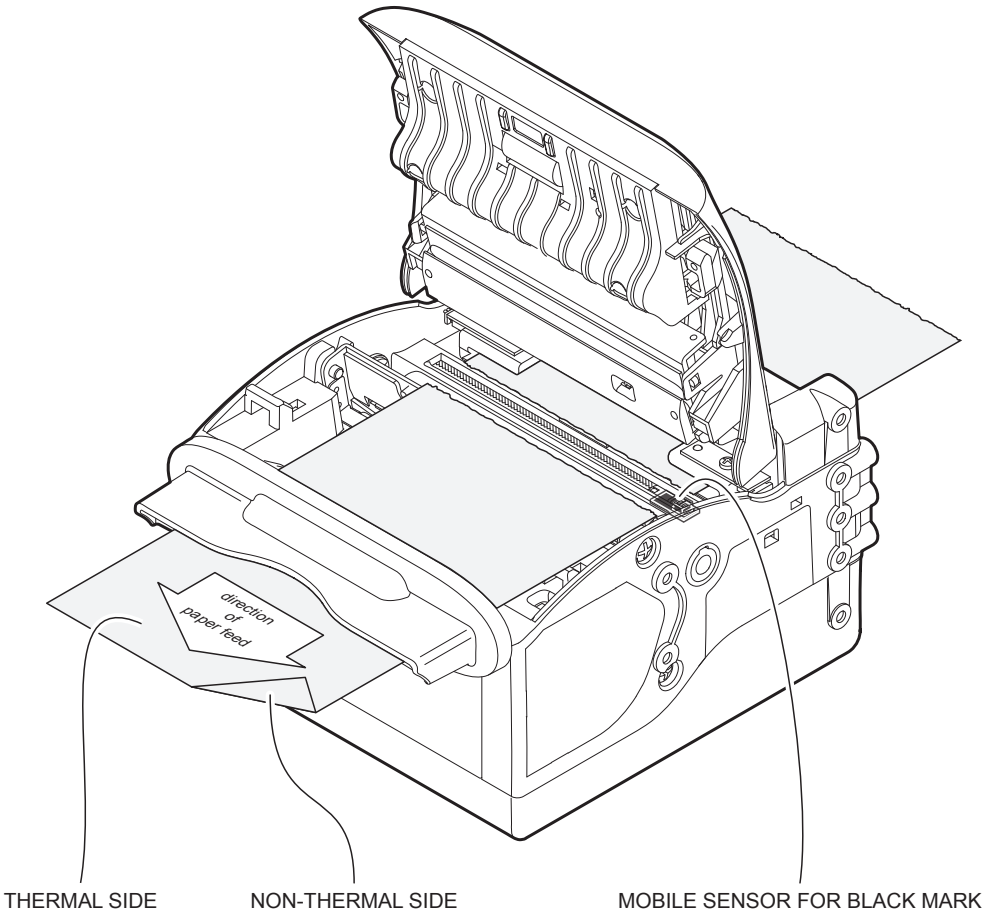
5.3 Adjusting the paper stock with the paper roll holder code 974DX010000001 (optional)

This accessory allows the move the position of the low paper sensor to adjust the amount of paper on the roll under which report the low paper.
Use the lever shown in figure to move the low paper sensor: move the lever up to increase the paper stock, move the lever down to decrease the paper stock.

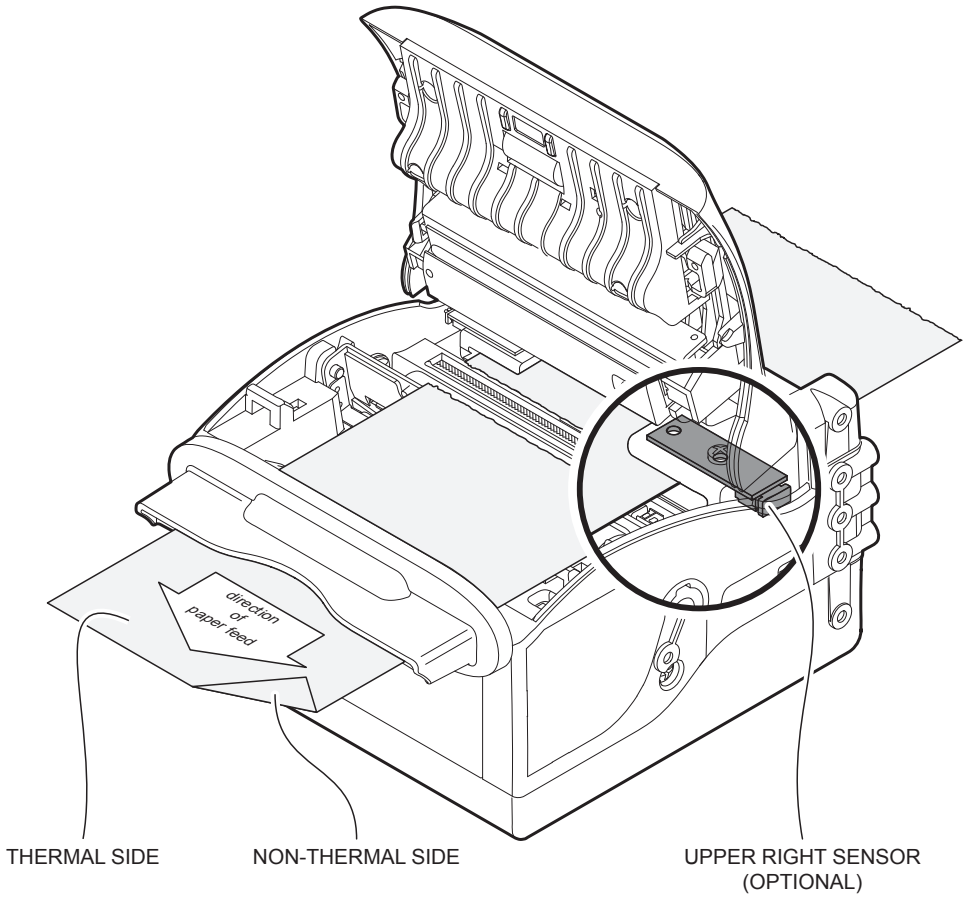


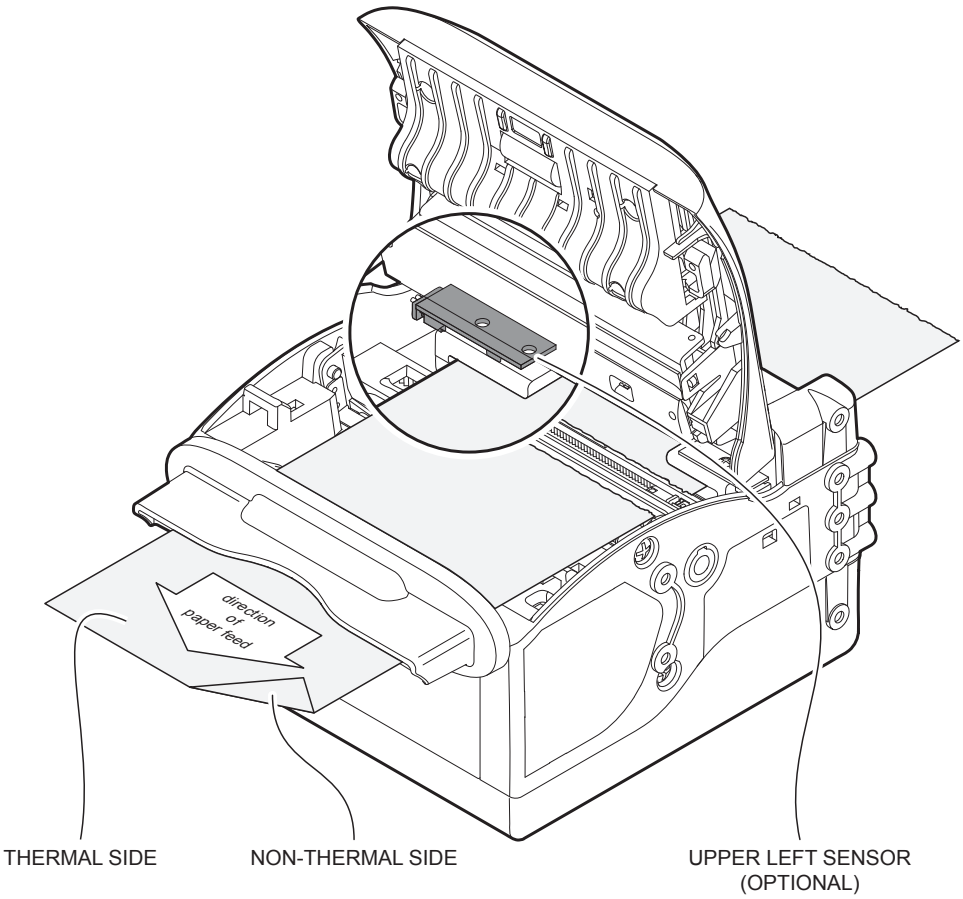
5.4 Adjusting the alignment sensors

The device is equipped with a mobile sensor for the detection of the alignment black mark placed on the non-thermal side of paper (located lower than the plane of the paper inside the device).
The device user will need to manually move these mobile sensor according to the position of the black mark on the paper (see next paragraphs).
To use this sensor, you must set the “Notch/B.Mark Position” setup parameter on the “Bottom” value (see chapter 6).

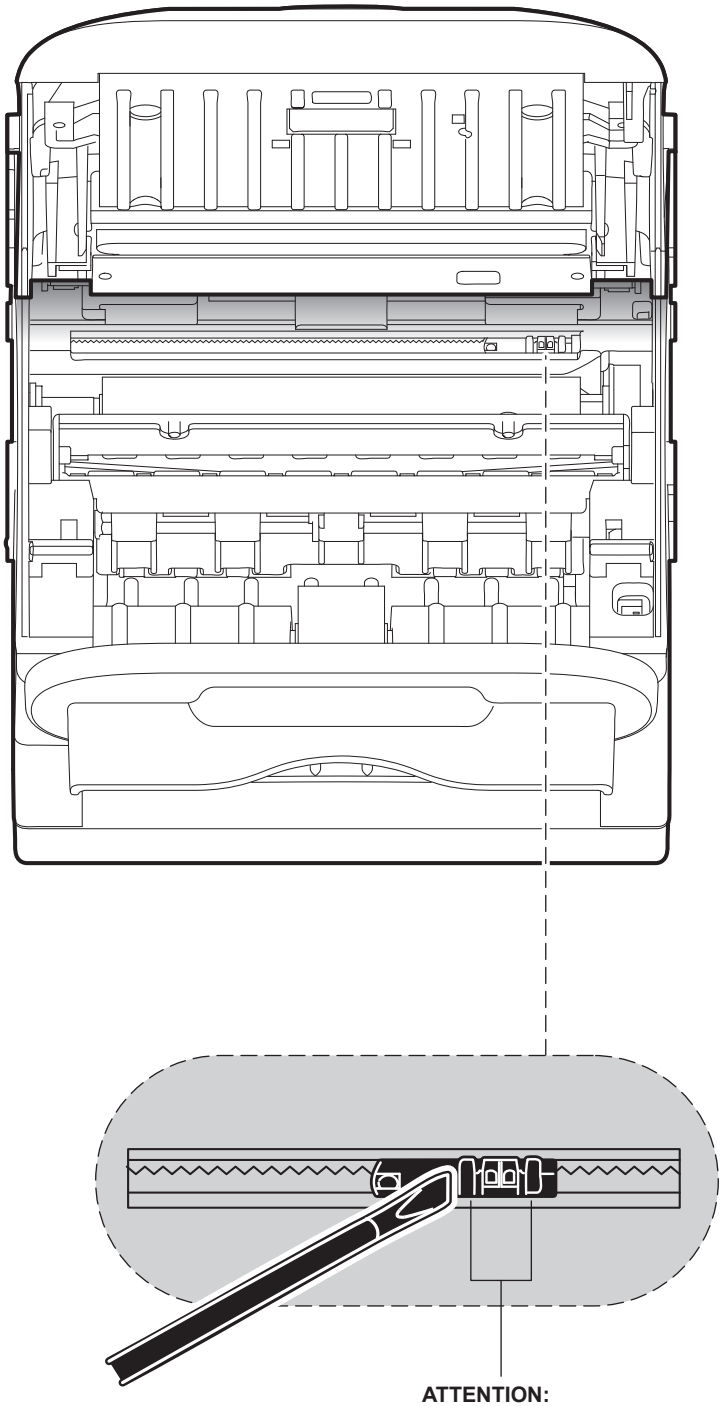


In addition, the printer can be optionally equipped with a sensor for alignment notch placed on the thermal side of paper (located upper than the plane of the paper inside the printer).
This optional sensor can be placed on the left cursor or on the right cursor of the paper infeed. The sensor position is adjusted by moving the paper infeed cursors during the paper width adjusting.
To use this sensor for notch detection, you must set the “Notch/B.Mark Position” setup parameter on the “Top Side” value (see chapter 6).


direction
of
paper feed
THERMAL SIDE
NON-THERMAL SIDE
UPPER RIGHT SENSOR
(OPTIONAL)


direction
of
paper feed
THERMAL SIDE
NON-THERMAL SIDE
UPPER LEFT SENSOR
(OPTIONAL)

To adjust the mobile sensor position according to the black mark position on paper, first adjust the paper width (see par.5.1), then open the device cover (see par. 5.6) and move the sensor to the desired using a small screwdriver or a pointed object.

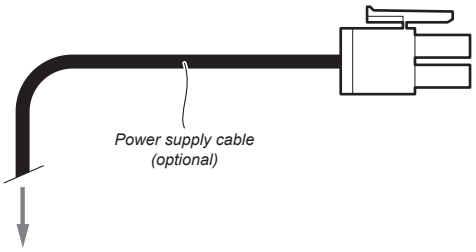


ATTENTION:
To avoid damaging the sensor, use the plastic tabs as foothold for the screwdriver to push the sensor in the desired position.

5.5 Switch the device ON

VKP80III LAT

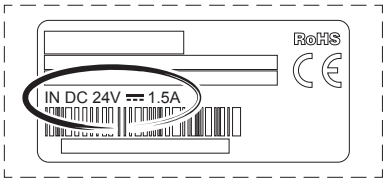
1

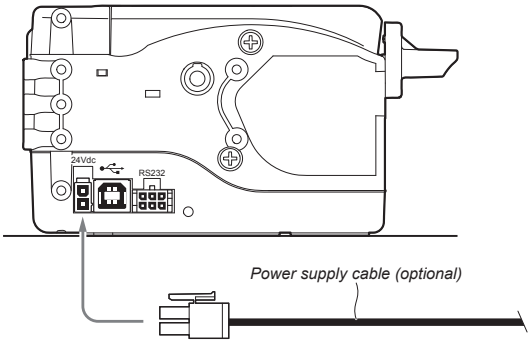


**EXTERNAL POWER SUPPLY
(OPTIONAL)**

Connect the power supply cable
to an external power supply unit.

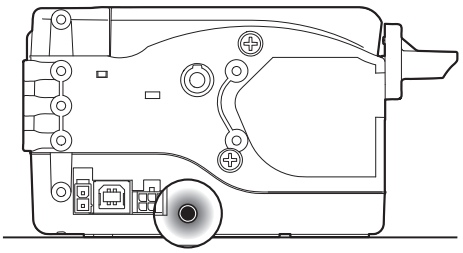
2





Connect the power supply cable to the device.
Use the type of electrical power supply
indicated on the label.

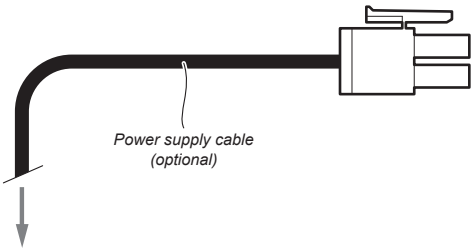
3



The green status LED turn on
and the device is ready.

VKP80III REAR

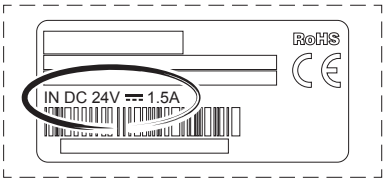
1

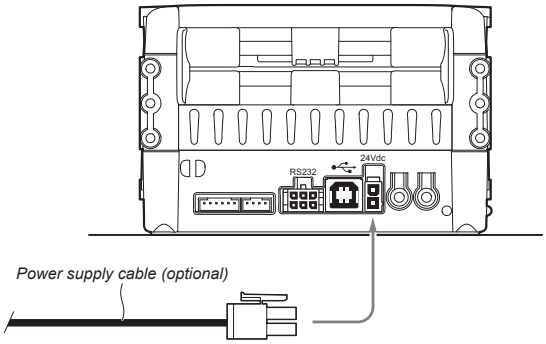


**EXTERNAL POWER SUPPLY
(OPTIONAL)**

Connect the power supply cable
to an external power supply unit.

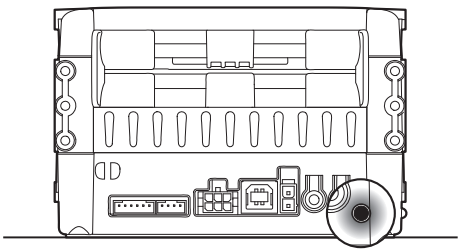
2





Connect the power supply cable to the device.
Use the type of electrical power supply
indicated on the label.

3

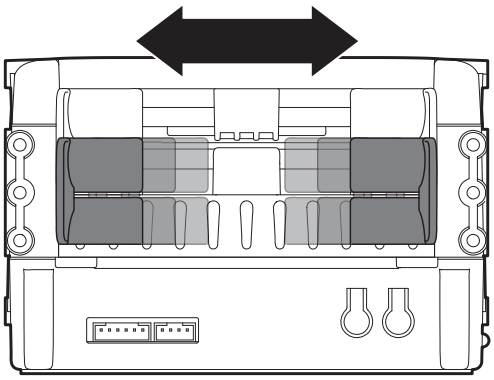


The green status LED turn on
and the device is ready.

5.6 Loading the paper roll

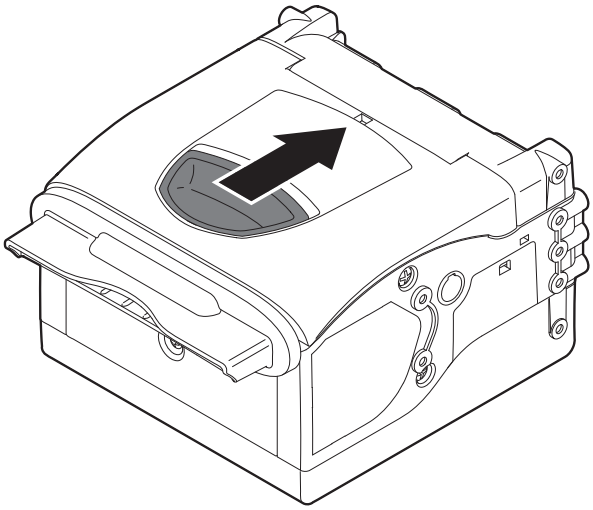
At every change of paper, check inside the device. To change the paper proceed as follows.

1



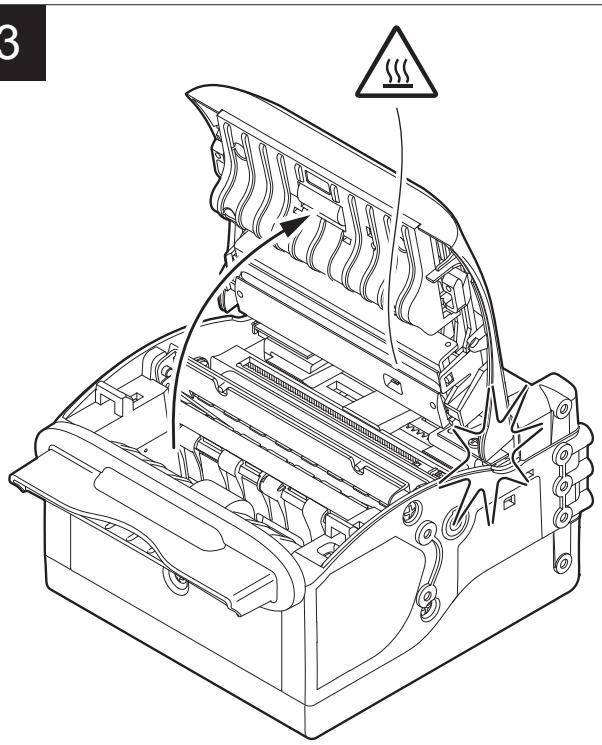
Adjust the paper width
(see previous paragraphs).

2



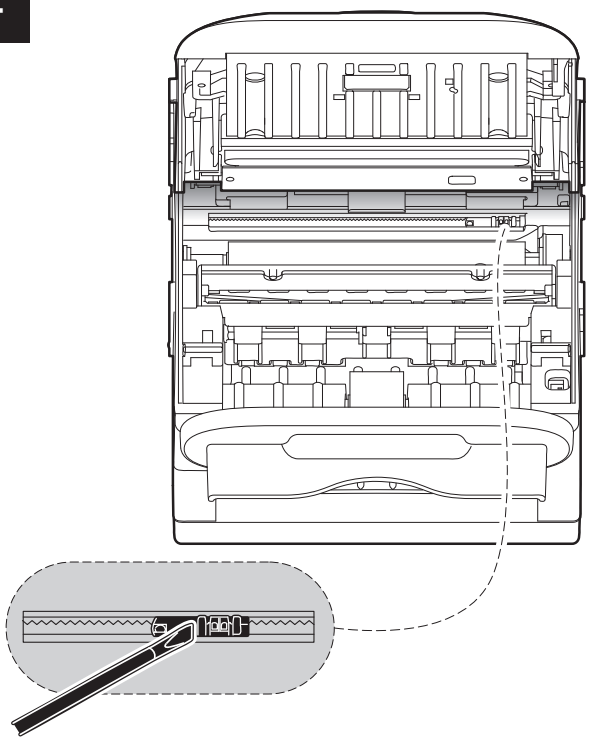
Unhook the printer cover
by using the opening lever.

3



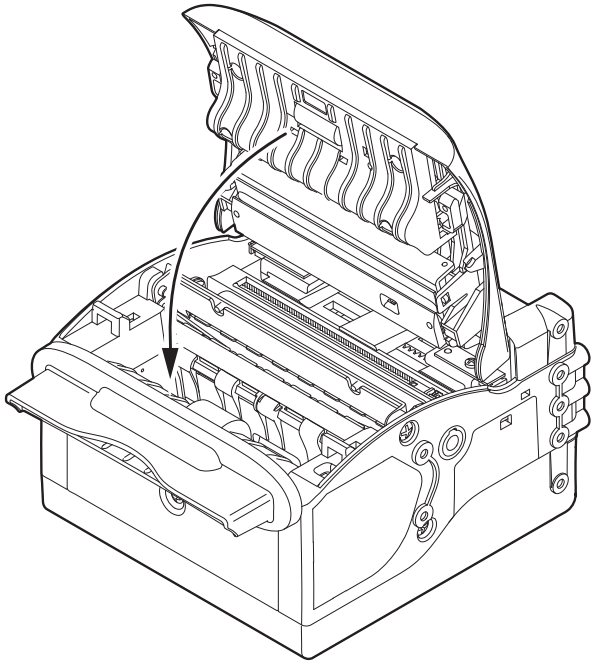
Open the device cover
to the lock position.

4



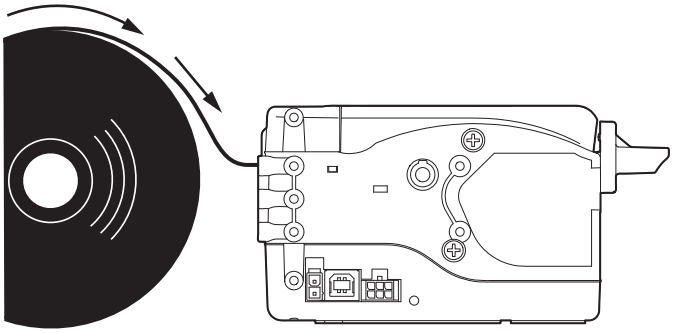
Adjust the mobile sensor position
(see previous paragraphs).

5



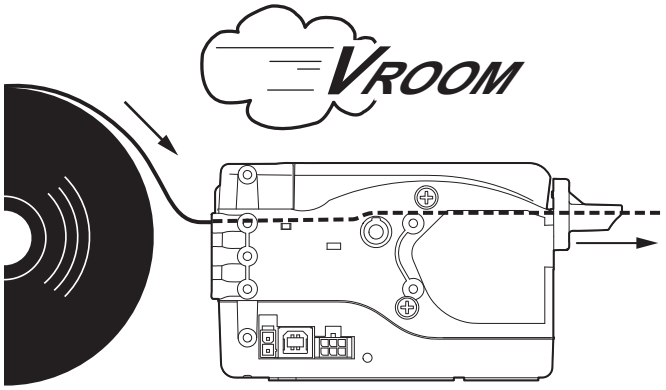
Close the
device cover.

6



Insert the paper into the input mouth so that it unrolls correctly. Be sure that the paper is correctly positioned into paper guides.

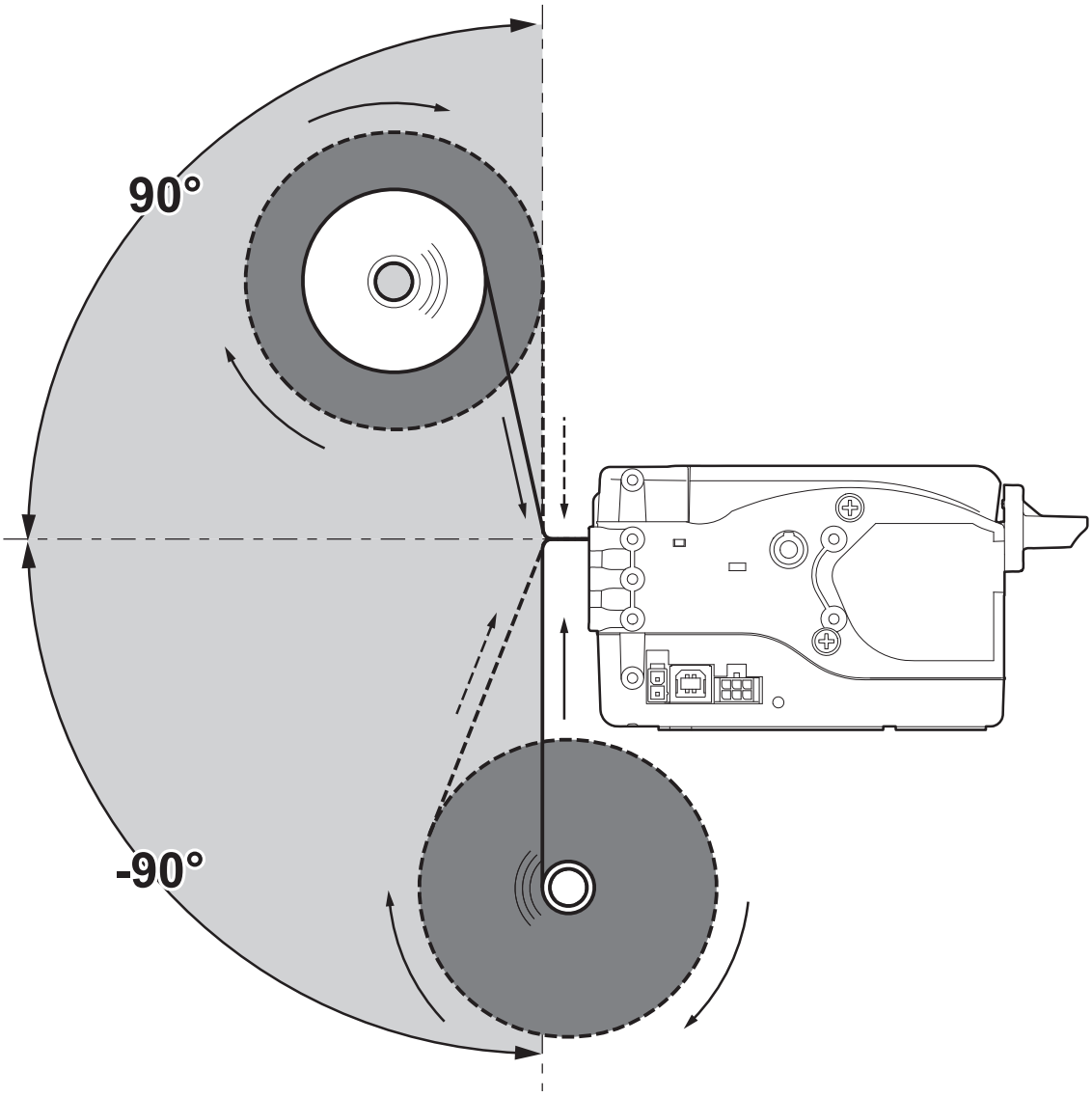
7



Wait until the paper is
automatically loaded.

The following figure gives the limit positions of the paper roll related to the printer for a correct paper loading without a paper roll holder support.

The direction of the paper will always form a maximum angle of 90 ° or -90 ° with the insertion plane of paper inside the printer.

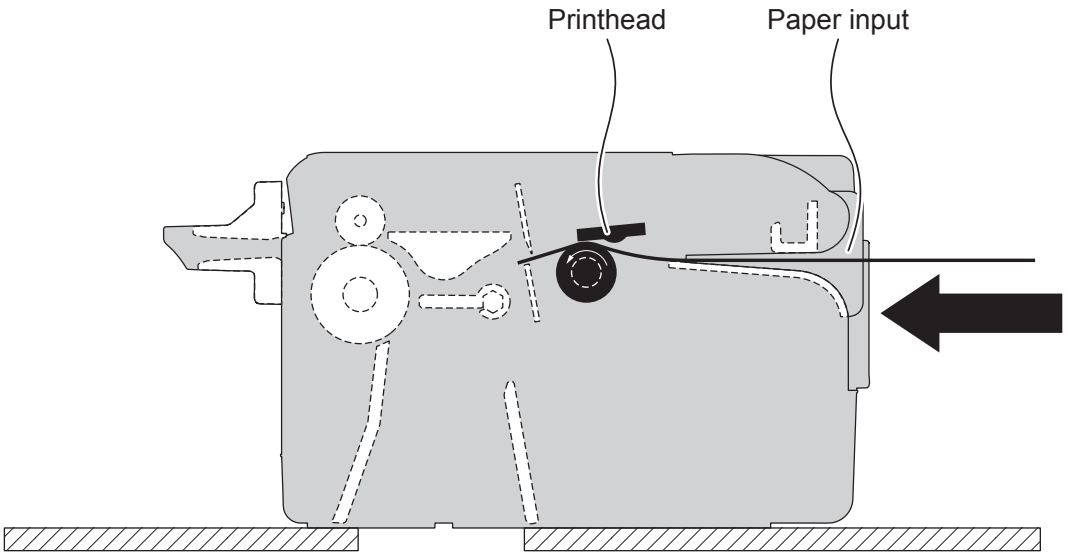


5.7 Issuing ticket

The device allows you to choose between different operating modes for the issuance of printed tickets.
The operating modes shown in the following images, depend on the settings of the configuration parameters and commands sent to the device.

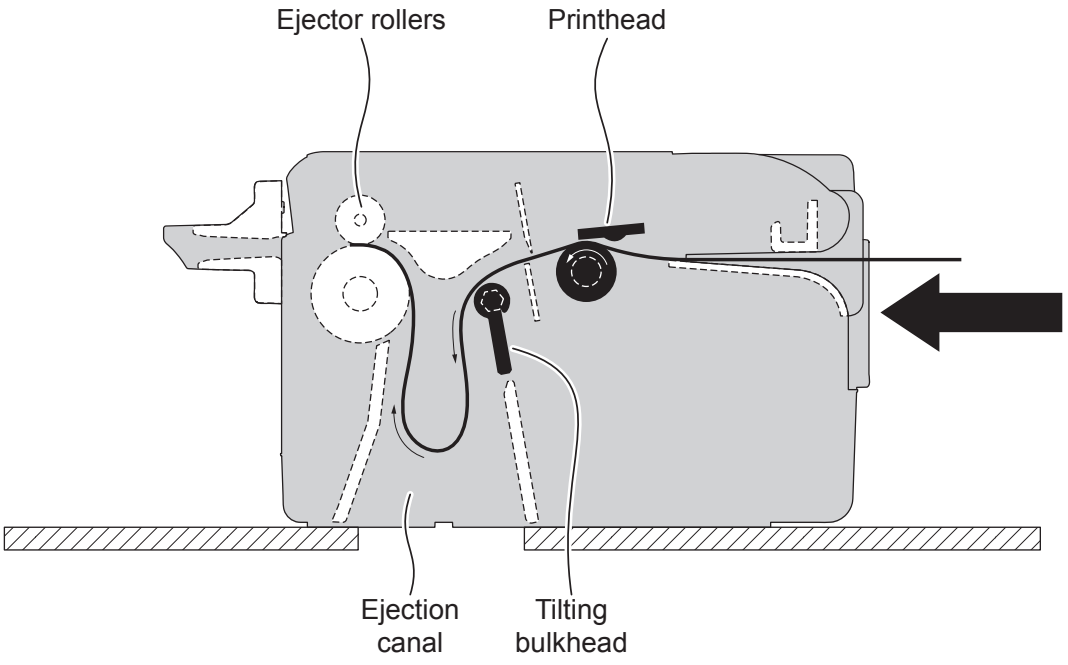
“EJECT” mode

1



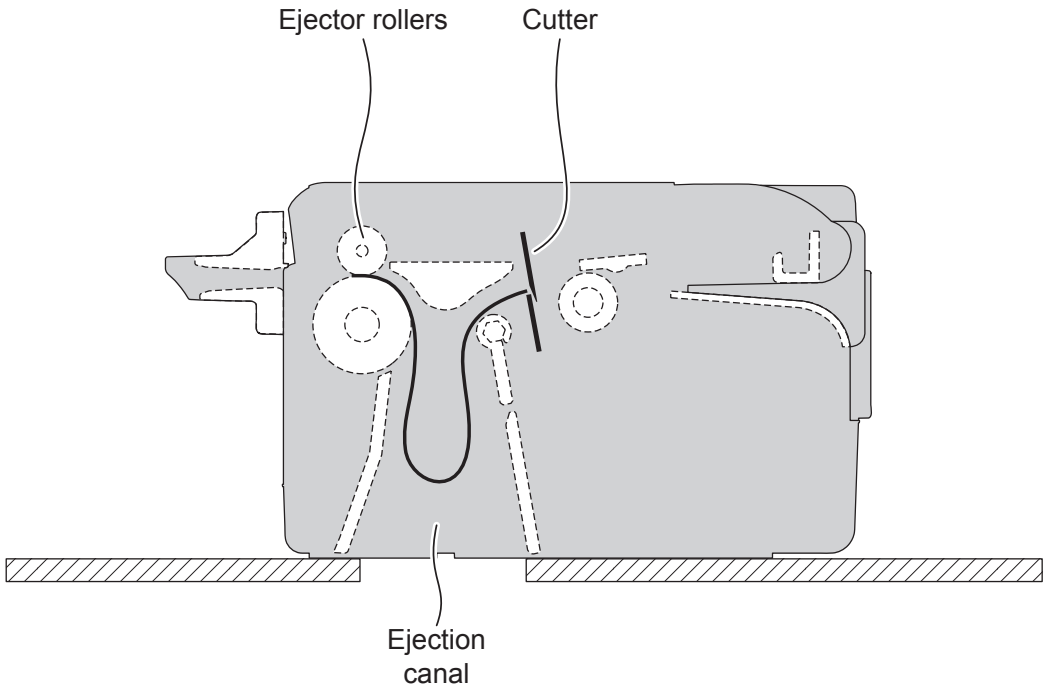
The device starts the ticket printing.

2



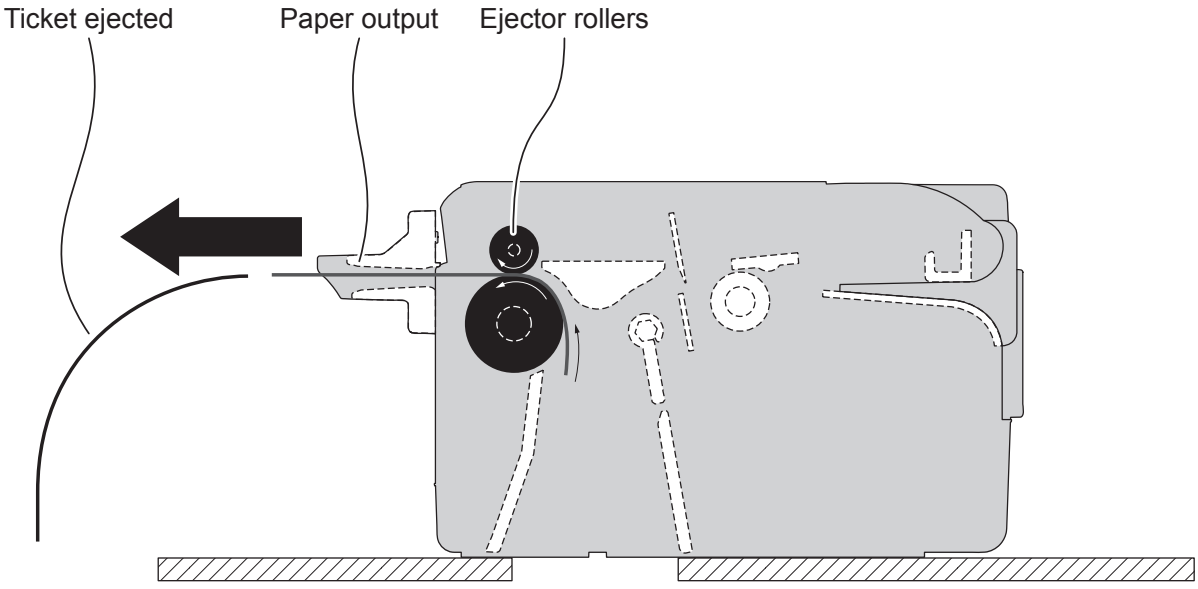
The ticket advances ahead to the ejector and is caught between the ejector rollers.
The tilting bulkhead is lowered to allow the ticket portion already printed
to be collected in the ejection channel while the device continues printing.

3



When printing ends, the device cuts the ticket printed

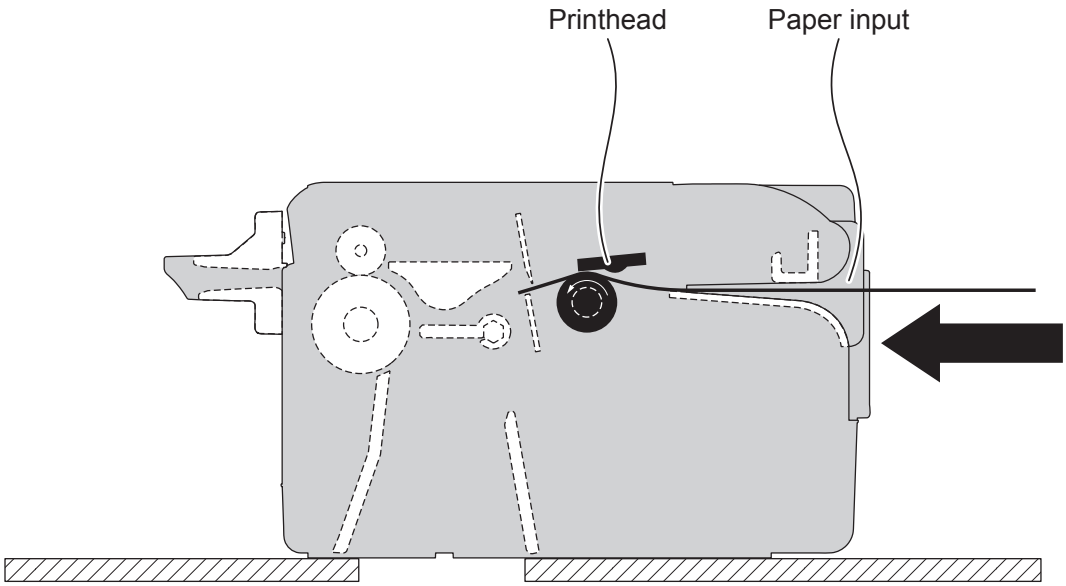
4



The device directly ejects the ticket

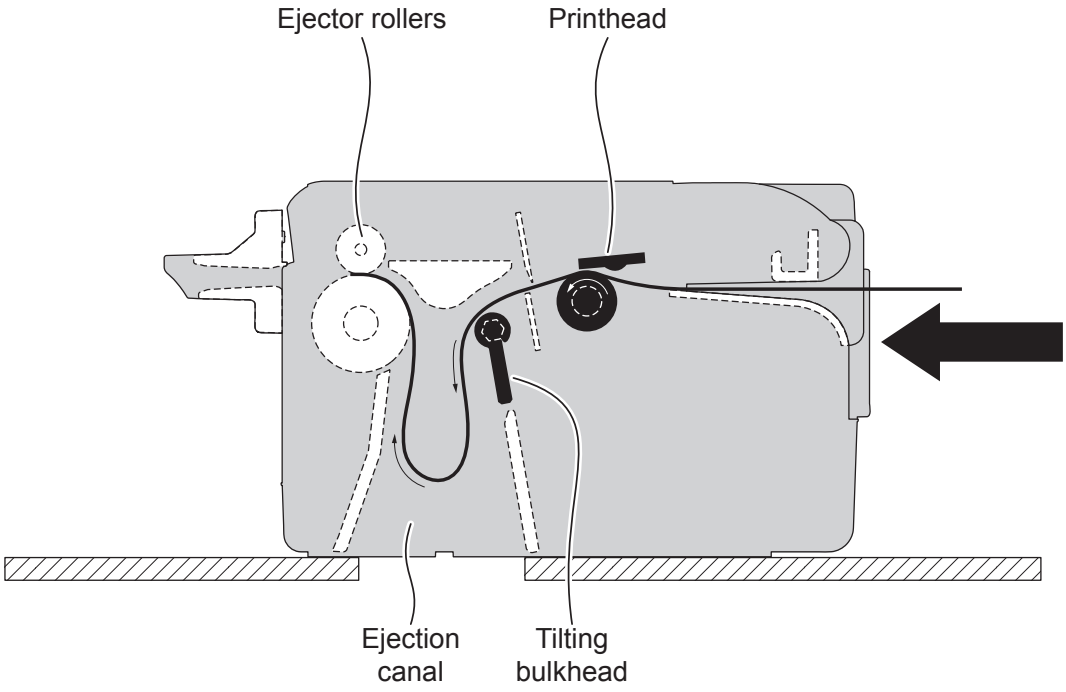
“PRESENT” mode

1



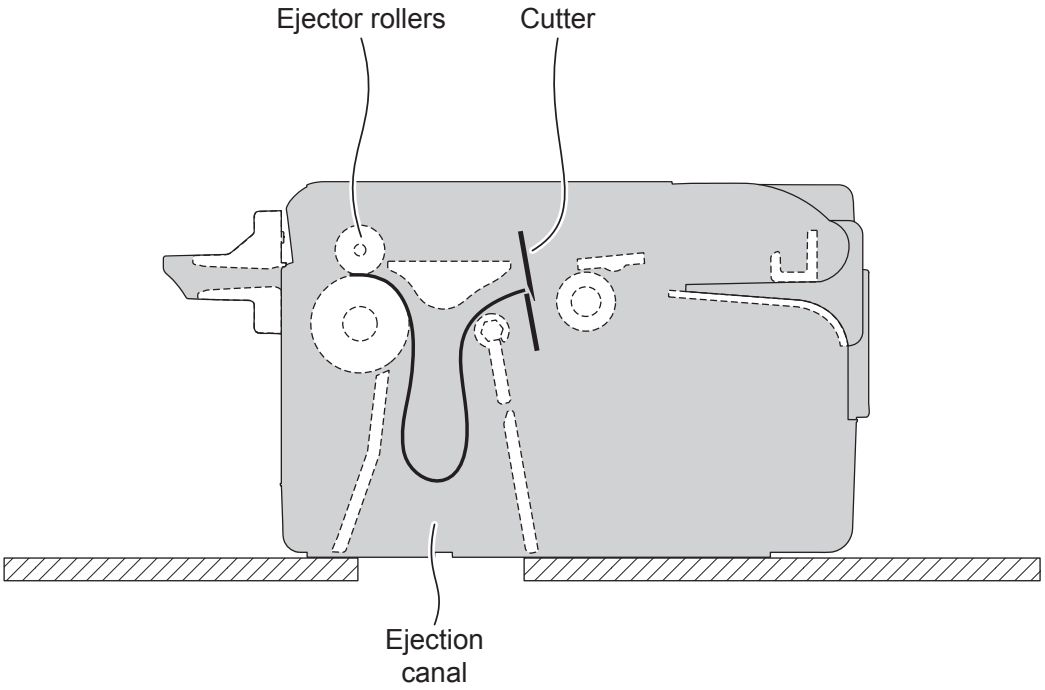
The device starts the ticket printing

2



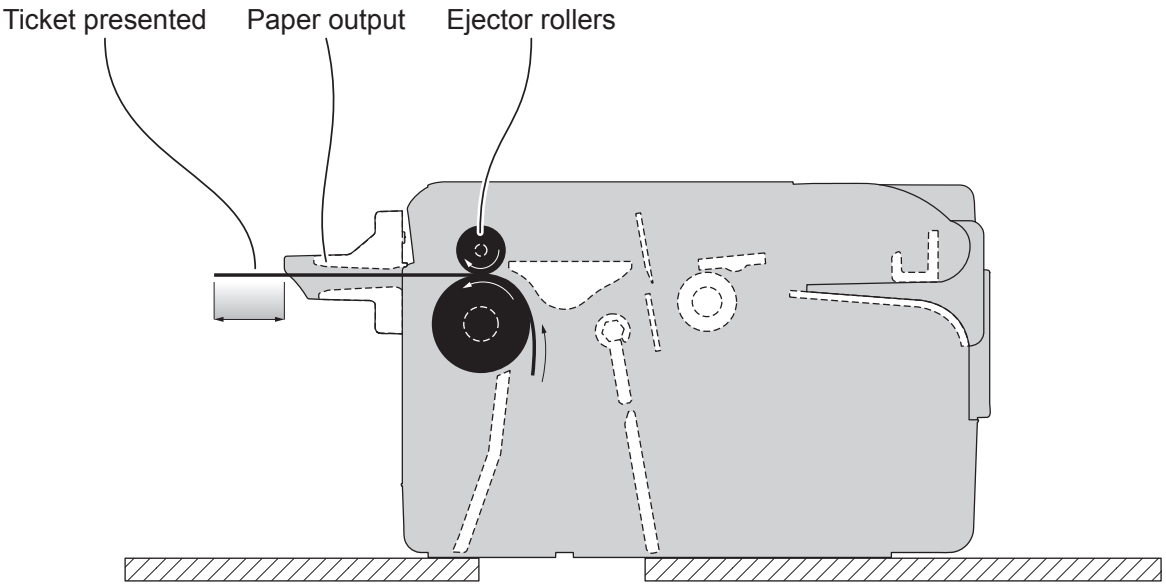
The ticket advances ahead to the ejector and is caught between the ejector rollers.
The tilting bulkhead is lowered to allow the ticket portion already printed
to be collected in the ejection channel while the device continues printing.

3



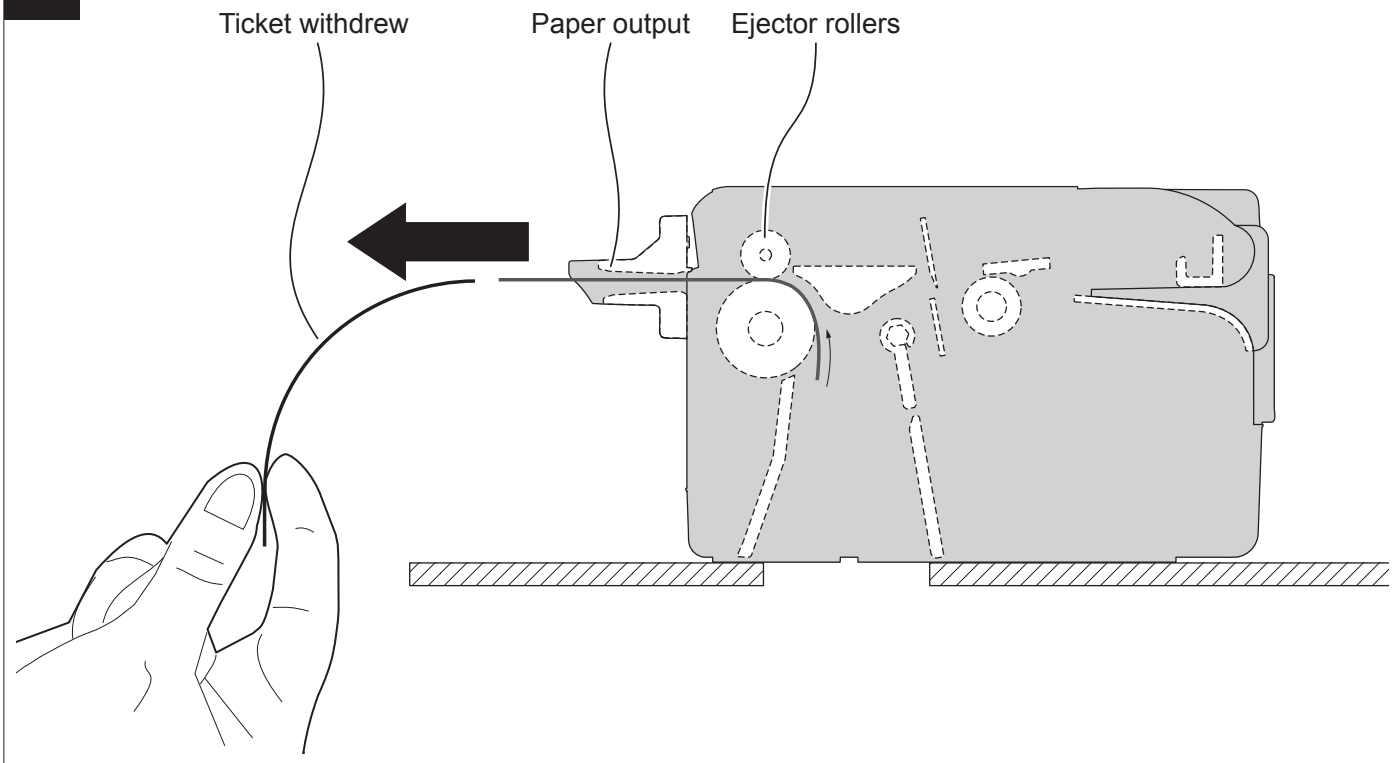
When printing ends, the device cuts the ticket printed.

4



The device presents a portion of the ticket printed on the paper mouth.

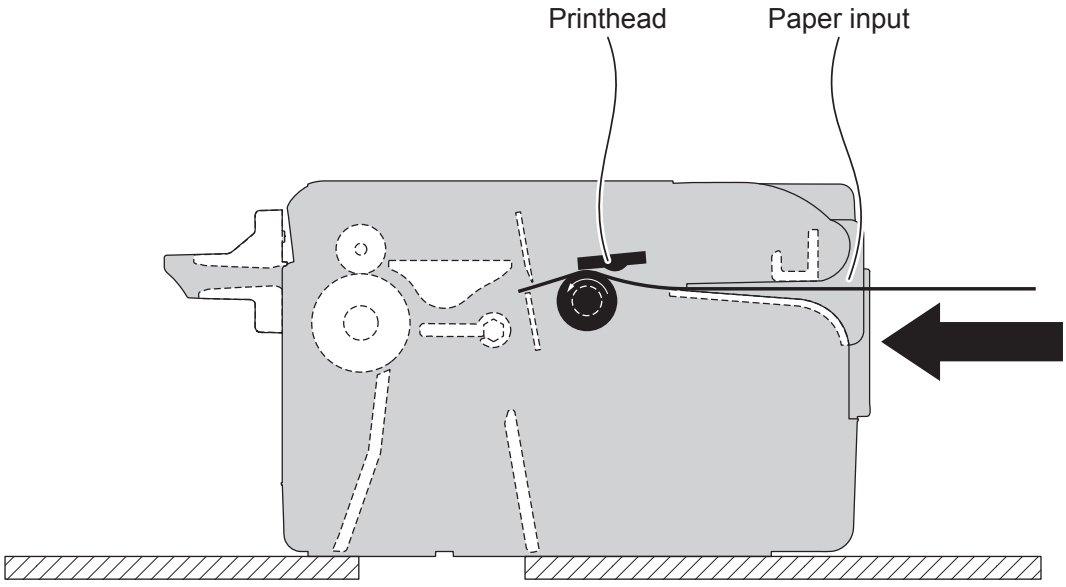
5



The user withdraw the ticket from the paper mouth

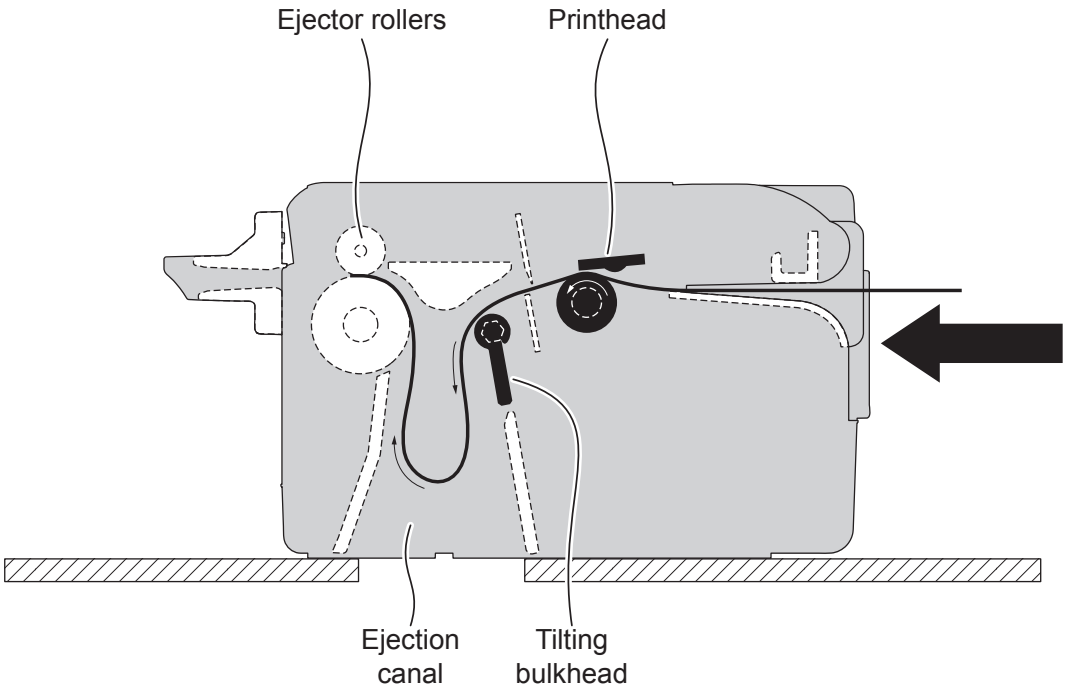
“PRESENT/RETRACT” mode

1



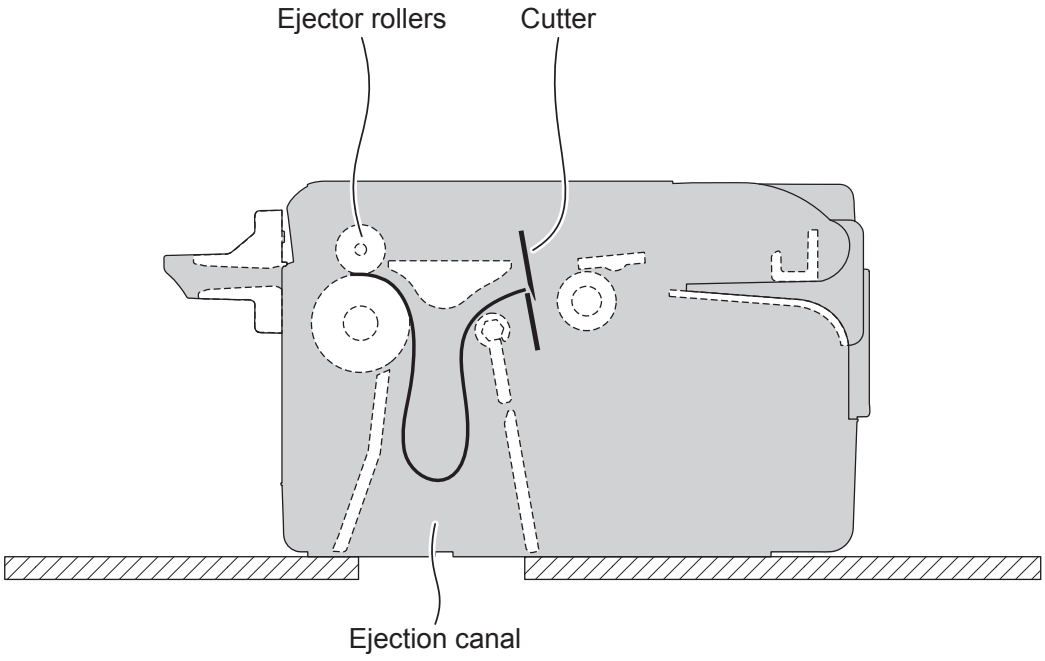
The device starts the ticket printing.

2



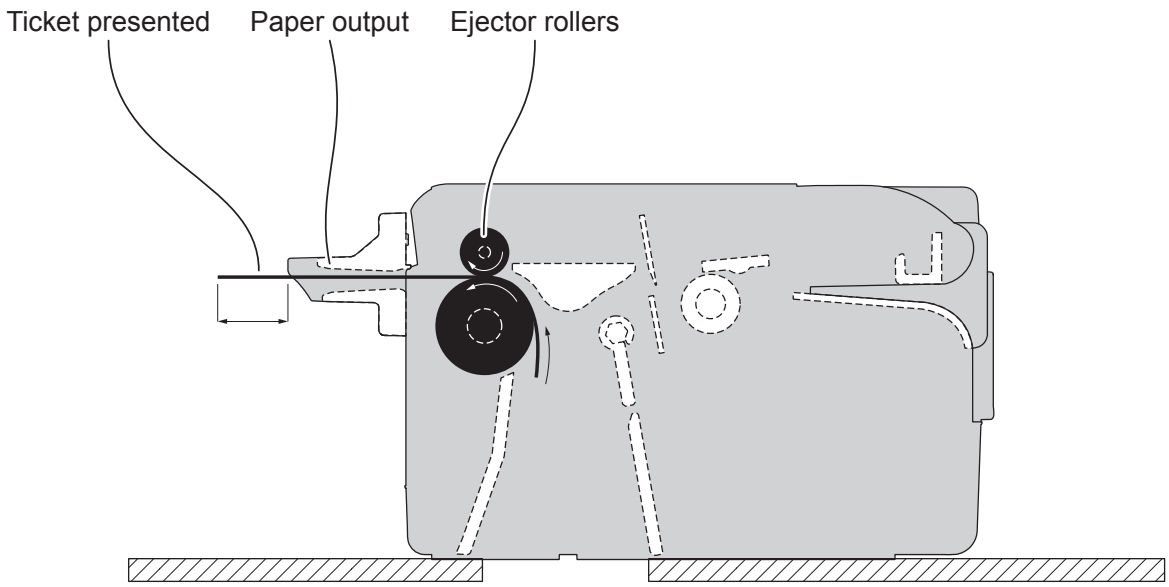
The ticket advances ahead to the ejector and is caught between the ejector rollers.
The tilting bulkhead is lowered to allow the ticket portion already printed
to be collected in the ejection channel while the device continues printing.

3



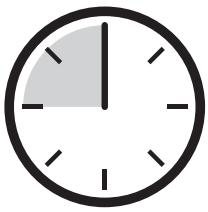
When printing ends, the device cuts the ticket printed.

4



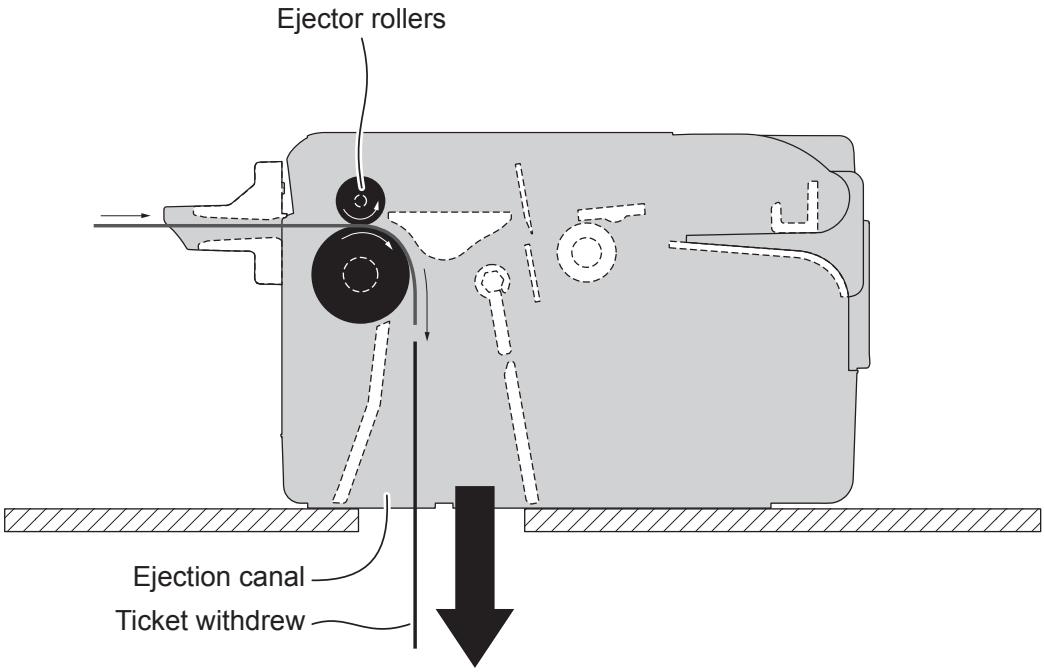
The device presents a portion of the ticket printed on the paper mouth

5



The ticket is waiting on the paper mouth for a preset period of time

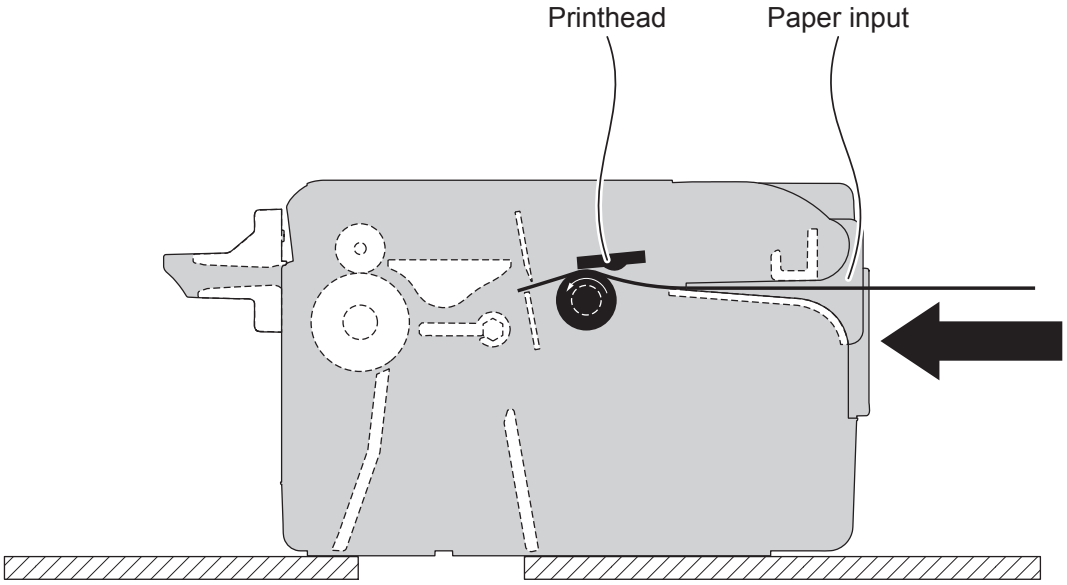
6



The device retracts and collects the ticket from the mouth paper

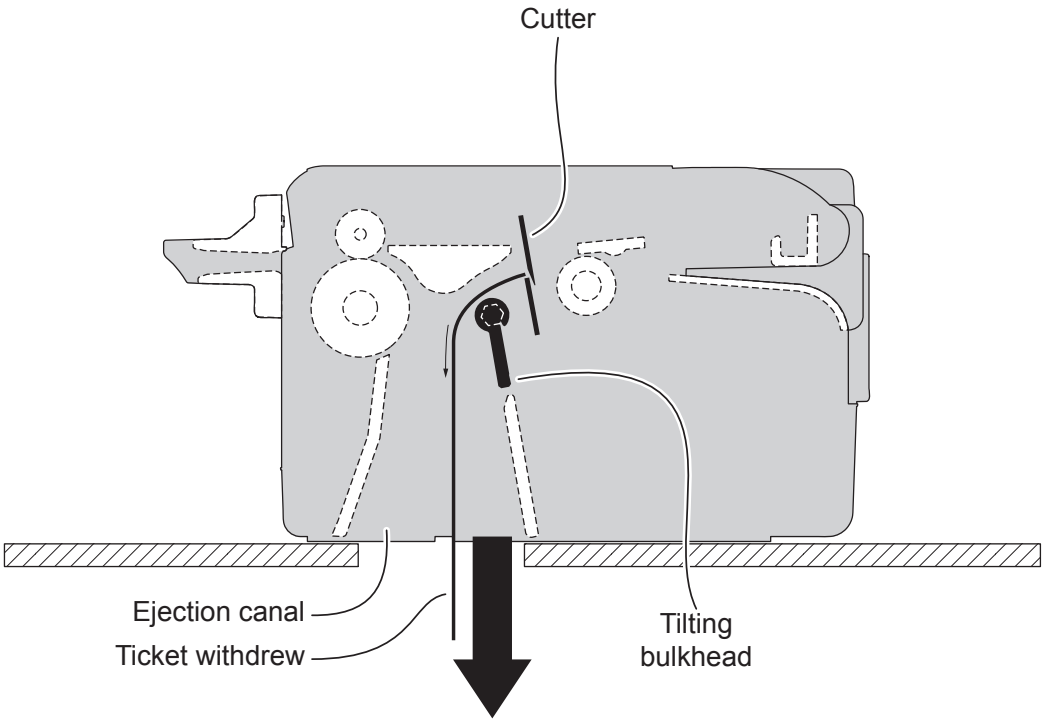
“COLLECT” mode

1



The device starts the ticket printing

2



When printing ends, the tilting bulkhead is lowered.
The device cuts and collects the ticket printed without presenting it on the paper mouth.

NOTE:
For further information, refer to chapter 5 and to the Commands Manual.

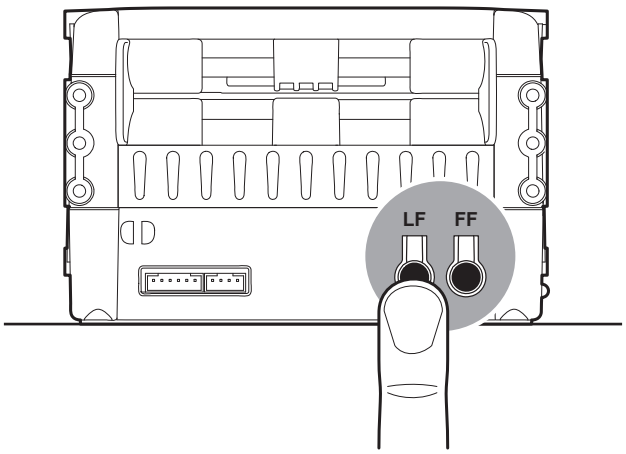
6 CONFIGURATION

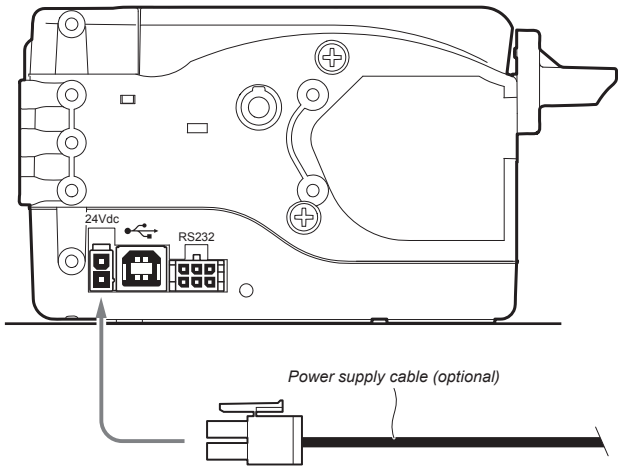
6.1 Configuration mode

To enter the configuration mode and print a SETUP report with the operating parameters of the device, proceed as follows.

VKP80III LAT

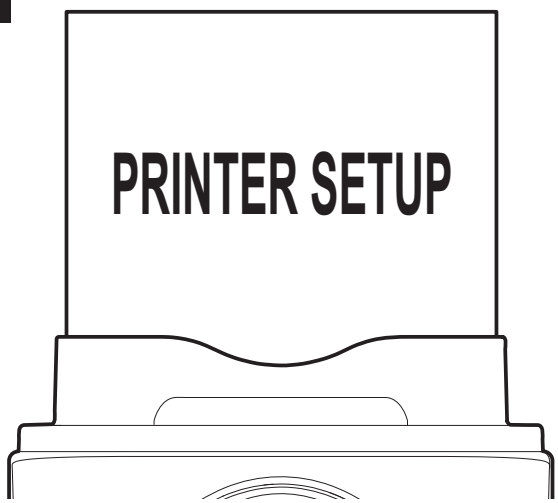
1





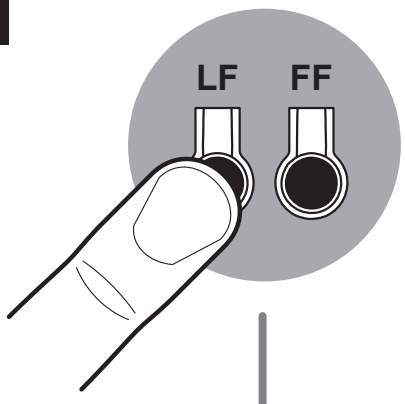
While pressing the LINE FEED key,
switch on the device by inserting the power supply cable.

2



The device prints the report with parameters for settings

3

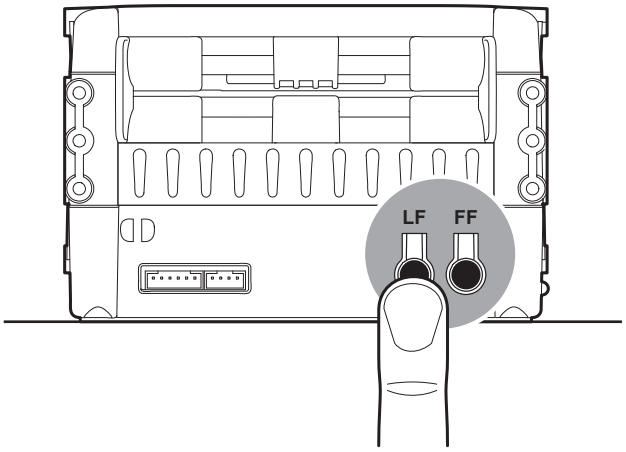


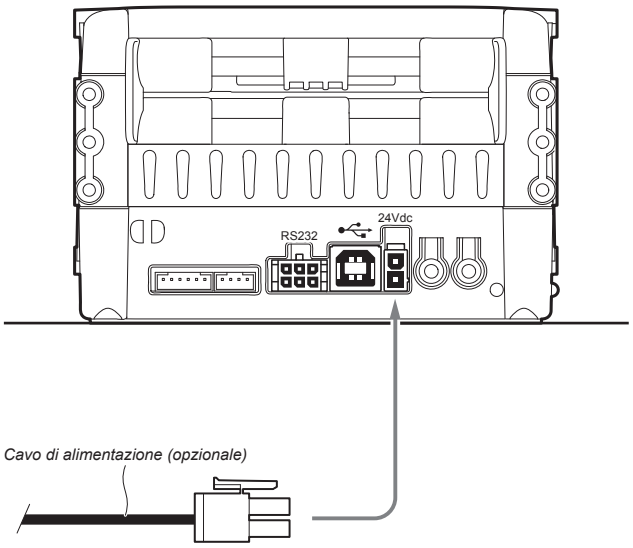
Enter setup

Press the LINE FEED key to enter the configuration mode

VKP80III REAR

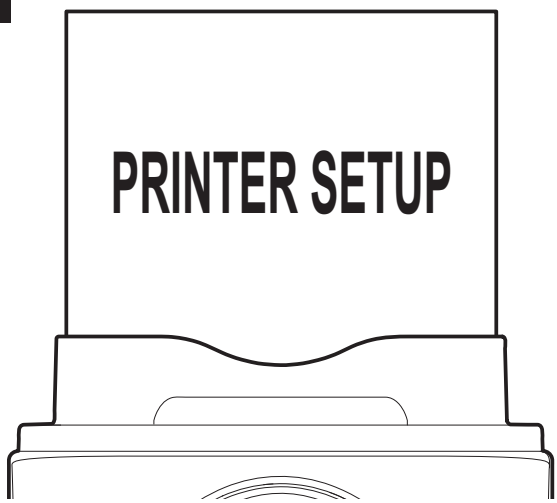
1





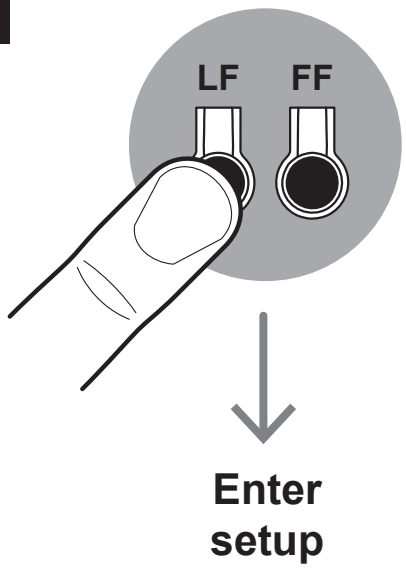
Mantenendo premuto il tasto LINE FEED, accendere il dispositivo inserendo il cablaggio di alimentazione.

2



Il dispositivo stampa la lista dei parametri di configurazione

3



Premere il tasto LINE FEED per entrare nella procedura di configurazione.

6.2 Setup report

The following figure shows the setup report of the device. The shown values for parameters are sample values; for the list and the description of device parameters see the following paragraphs.

PRINTER NAME and FIRMWARE MODULE RELEASE

PRINTHEAD STATUS

DEVICE STATUS

PRINTER PARAMETERS

KEYS FUNCTIONS

```
< Device name >
SCODE: <code>          -  rel  1.00
DCODE: <code>          -  rel  1.00
FCODE: <code>          -  rel  1.00

PRINTER SETTINGS

1 «••••••••» 640
--------------------------------------------------------------------------------

PRINTHEAD WORKING GOOD!

PRINTER TYPE .....VKP80III
Barcode Reader .....Not present
LED bar RGB (hardware) .....Not present
PRINTING HEAD TYPE .....T80
INTERFACE .....RS232
PROGRAM MEMORY TEST.....OK
DYNAMIC RAM TEST.....OK
EXTERNAL MEMORY TEST .....OK
CUTTER TEST.....OK
HEAD VOLTAGE          [V]   =  23,37
HEAD TEMPERATURE      [°C]  =  25
POWER ON COUNTER            =  4
PAPER PRINTED         [cm]  =  40
CUT COUNTER                 =  1
RETRACT COUNTER             =  0

Printer Emulation ..... :  VKP80 III
RS232 Baud Rate ..... :  115200 bps
RS232 Data Length..... :  8 bits/chr
RS232 Parity ..... :  None
RS232 Handshaking ..... :  Hardware
Busy Condition ..... :  RxFull
USB Class ..... :  Printer
USB Address Number ..... :  0
Print Mode ..... :  Normal
Autofeed ..... :  CR Disabled
Code Table [num] ..... :  0
Font Type..... :  International
Chars / inch ..... :  A=15  B=20 cpi
Speed / Quality..... :  Normal
Paper Retracting ..... :  Disabled
Print Width..... :  76mm
Paper Threshold..... :  40%
Notch/B.Mark Position..... :  Bottom
Notch Threshold ..... :  40%
Notch Distance [mm] ..... :  +00.0
PrintHead Test PowerOn ..... :  Disabled
Data Logger..... :  Disabled
Print Density..... :  0%

[ LF ]  enter Printer setup
[ FF ]  skip Setup
```

6.3 Printer status

The printer operating status is indicated in the configuration print-out in which, next to the name of the components displayed, the following information is given:

PRINTER TYPE	*device model*
BARCODE READER	*presence of barcode reader*
LED BAR RGB (hardware)	*presence of the board for managing the RGB led bar*
PRINTING HEAD TYPE	*print head model*
INTERFACE	*interface present*
PROGRAM MEMORY TEST	*OK appears if functioning and NOT OK if faulty*
DYNAMIC RAM TEST	*OK appears if functioning and NOT OK if faulty*
EXTERNAL MEMORY TEST	*OK appears if functioning and NOT OK if faulty*
CUTTER TEST	*OK appears if functioning and NOT OK if faulty*
HEAD VOLTAGE	*voltage of the head*
HEAD TEMPERATURE	*temperature of the head*
POWER ON COUNTER	*number of power-ups made*
PAPER PRINTED	*centimetres of paper printed*
CUT COUNTER	*number of cuts made*
RETRACT COUNTER	*number of “retracts” made*

6.4 Printer parameters

This printer allows the configuration of the parameters listed in the following table.
The parameters marked with the symbol [D] are the default values.
Settings remain active even after the printer has been turned off and they are stored in non-volatile memory.

PRINTER EMULATION	*Available emulations for the device:* *VKP80III [D]* *VKP80II*
RS232 BAUD RATE	*Communication speed of the serial interface:* *115200 [D] 38400 9600* *57600 19200* NOTE: Parameter valid only with serial interface.
RS232 DATA LENGTH	*Number of bit used for characters encoding:* *7 bits/car* *8 bits/car [D]* NOTE: Parameter valid only with serial interface.
RS232 PARITY	*Bit for the parity control of the serial interface:* *None [D] = parity bit omitted* *Even = even value for parity bit* *Odd = odd value for parity bit* NOTE: Parameter valid only with serial interface.
RS232 HANDSHAKING	*Handshaking:* *XON/XOFF = software handshaking* *Hardware [D] = hardware handshaking (CTS/RTS)* NOTES: Parameter valid only with serial interface. When the receive buffer is full, if handshaking is set to XON/XOFF, the printer sends the XOFF (0x13) on the serial port. When the receive buffer has cleared once again, if handshaking is set to XON/XOFF, the printer sends the XON (0x11) on the serial port.
BUSY CONDITION	*Activation mode for Busy signal:* *OffLine/ RXFull = Busy signal is activated when the printer is both in OffLine status and the buffer is full* *RXFull [D] = Busy signal is activated when the buffer is full* NOTE: Parameter valid only with serial interface.

USB CLASS

Setting the USB class of the device when connected to a PC:

Printer [D] = *The PC detects the device as a USB print device. Use the specific USB drivers (see paragraph 4.4)*
Mass storage = *The PC detects the device as a mass storage drive for file sharing.*
Virtual COM = *The PC detects the device as a virtual serial port. Use the specific USB drivers (see paragraph 4.4)*

NOTE: The parameter is printed only with VKP80III emulation enabled.

USB ADDRESS NUMBER

Numerical address code for the univocal identification of the USB device (in case of more than a USB device connected with the same PC):

0 [D] 2 4 6 8
1 3 5 7 9

PRINT MODE

Printing mode:

Normal [D] = enables printing in normal writing way
Reverse = enables printing rotated 180 degrees

AUTOFEED

Setting of the Carriage Return character:

CR disabled [D] = Carriage Return disabled
CR enabled = Carriage Return enabled

CODE TABLE [num]

Identifier number of the character code table to use.
The numeric value of the identifier is made up with the following two parameters for the setting of two digits for the tens and the units:

CODE TABLE [num x 10]

Setting the digit for tens:

0 [D] 2 4
1 3 5

CODE TABLE [num x 1]

Setting the digit for units:

0 [D] 2 4 6 8
1 3 5 7 9

NOTE:
See the paragraph 7.7 to learn about the character tables corresponding to the identification numbers set with this parameter.
The character tables set with this parameter are the same set with the command 0x1B 0x74 (refer to the Commands Manual of the device).

FONT TYPE

Setting of the font type:

International [D] = *Enables the use of the 256 characters font tables*
Chinese GB18030 = *Enables the use of the chinese extended font GB18030-2000*

NOTE: When the “INTERNATIONAL” font is enabled, you need to choose the character code table (parameter “CODE TABLE”). When the Chinese or Korean fonts is enabled, the selection of the character code table is suspended (parameter “CODE TABLE”).

CHARS / INCH

Font selection:

A = 11 cpi, B = 15 cpi
A = 15 cpi, B = 20 cpi [D]
A = 20 cpi, B = 15 cpi

NOTES: CPI = Characters Per Inch

SPEED / QUALITY

Setting of printing speed and printing quality:

High Quality
Normal [D]
High Speed

PAPER RETRACTING

Setting of the "retract" function of the paper, with paper presence on ejector during power-up:

Disabled [D] *= "retract" function disabled*
Enabled = "retract" function enabled

NOTE: The parameter is printed only with VKP80II emulation enabled.

PRINT WIDTH

Width of printing area:

48 mm	*58 mm*	*68 mm*	*78 mm*
50 mm	*60 mm*	*70 mm*	*80 mm*
52 mm	*62 mm*	*72 mm*	
54 mm	*64 mm*	*74 mm*	
56 mm	*66 mm*	*76 mm* [D]	

NOTE: The parameter is printed only with VKP80III emulation enabled. With VKP80II emulation enabled, the printing width is fixed to 76mm.

PAPER THRESHOLD

Threshold value (in percent) for the recognition of the presence of paper by the paper presence sensor:

30%	*70%*
40% [D]	*80%*
50%	*90%*
60%	

NOTCH/B.MARK POSITION

Position of the alignment notch and choice of appropriate notch sensor:

Disabled [D] *= the notch alignment is not performed*
Bottom = the notch position is detected by the lower mobile sensor (the notch can be positioned anywhere across the width of the non-thermal side of paper)
Top Side (*) = the notch position is detected by the upper optional sensor (the notch is located on the thermal side of paper and near the edge of the paper)

NOTE: (*) The "Top Side" value is printed only with VKP80III emulation enabled.

NOTCH THRESHOLD

Threshold value (in percent) for the recognition of the presence of notch by the notch sensor:

30%	*70%*
40% D	*80%*
50%	*90%*
60%	

NOTE: If the “Notch Position” parameter is disabled, this parameter is not printed.

NOTCH DISTANCE

“Notch Distance” is the minimum distance (in mm) between the upper edge of ticket and the notch (see chapter 11).
The numeric value of the distance is made up with the following four parameters for the setting of three digits (two for the integer part of the number and one for the decimal part) and of the sign:

NOTCH DISTANCE SIGN

Sign setting:

+ D = positive distance
- = negative distance

NOTCH DISTANCE [mm x 10]

Setting the digit for tens:

0 D	*2*	*4*	*6*	*8*
1	*3*	*5*	*7*	*9*

NOTCH DISTANCE [mm x 1]

Setting the digit for units:

0 D	*2*	*4*	*6*	*8*
1	*3*	*5*	*7*	*9*

NOTCH DISTANCE [mm x .1]

Setting the digit for decimals:

0 D	*2*	*4*	*6*	*8*
1	*3*	*5*	*7*	*9*

NOTES:
For example, to set the notch distance to 15 mm, modify the parameters as follows:

Notch Distance Sign	= +
Notch Distance [mm x 10]	= 1
Notch Distance [mm x 1]	= 5
Notch Distance [mm x .1]	= 0

If the “Notch/B.Mark Position” parameter is disabled, the parameters for the “Notch Distance” are not printed.

PRINTHEAD TEST POWERON

Setting of the performing of the print head test:

Disabled D = the test is performed only during the printing of the setup report
Enabled = the test is performed at each power on

DATA LOGGER

Setting of the data logger function on the LOG folder on the Flash memory:

Disabled [D] = data logger function disabled
Text = the printed text is stored in .txt file
Graphic = the printed graphic is stored in .bmp file
Text + Graphic = both text and graphic are stored in .txt and .bmp files

NOTES:
The parameter is printed only with VKP80III emulation enabled.

The name of the first text file stored will be 00000001.txt; the name of the first graphic file stored will be 00000001.bmp; the file number is incremented automatically, when there is no more space, the oldest files are deleted.

PRINT DENSITY

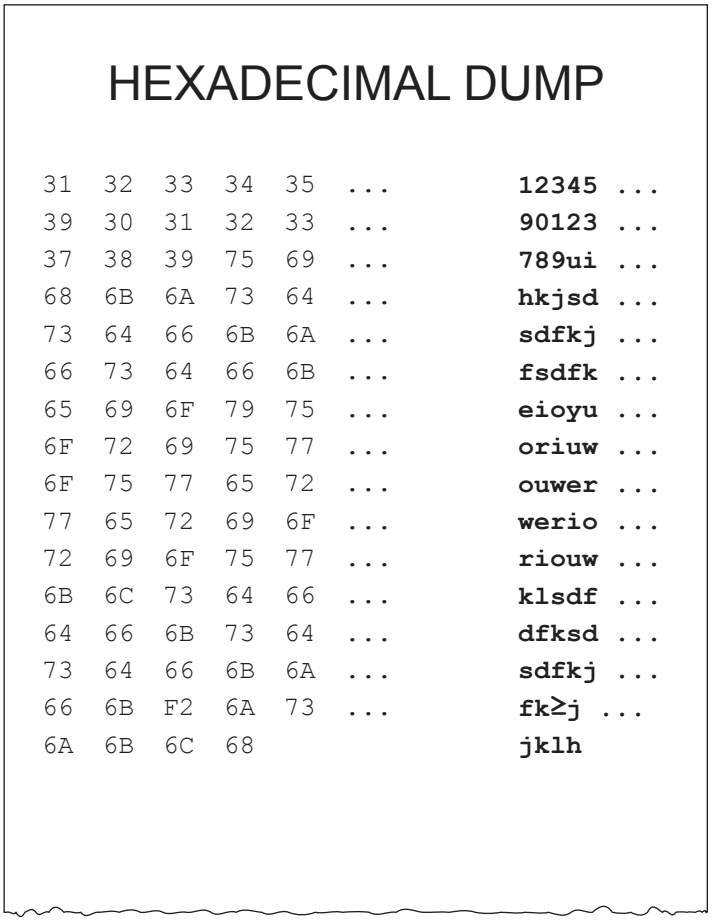
Adjusting the printing density:

-50%	*-12%*	*+25%*
-37%	*0 [D]*	*+37%*
-25%	*+12%*	*+50%*

6.5 Hexadecimal dump

This function is used for the diagnosis of the characters received from the communications port. Characters are printed as hexadecimal code and the corresponding ASCII code (see below). Each line is preceded by a counter in hexadecimal that indicates the number of bytes received.

During the startup, if you hold down the FEED key, the printer enters the self-test routine and print the setup report.
The printer remains in standby until a key is pressed or characters are received through the communication port (Hexadecimal Dump mode). For each character sent, the ticket shows the hexadecimal value and the ASCII codes (if the characters are underlined, the receive buffer is full). Shown below is an example of a Hexadecimal Dump:



7 MAINTENANCE

7.1 Planning of cleaning operations

The regular cleaning of the device keeps the print quality and extends its life. The following table shows the recommended planning for the cleaning operations.

EVERY PAPER CHANGE	
Printing head	Use isopropyl alcohol
Rollers	Use isopropyl alcohol
EVERY 5 PAPER CHANGES	
Cutter	Use compressed air
Cutter compartment	Use compressed air or tweezers
Paper path	Use compressed air or tweezers
Sensors	Use compressed air
EVERY 6 MONTHS OR AS NEEDED	
Printer case	Use compressed air or a soft cloth

For specific procedures, see the following pages.

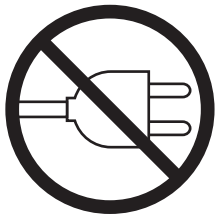
NOTE:
If you use the device in dusty environments, you must reduce the intervals between the cleaning operations.

7.2 Cleaning

For periodic cleaning of the device, see the instructions below

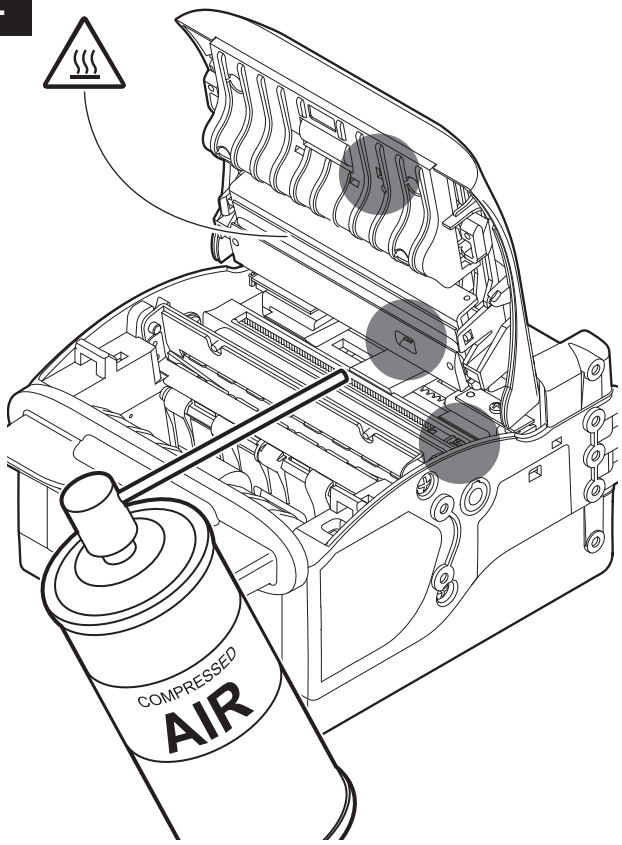
Sensors

1

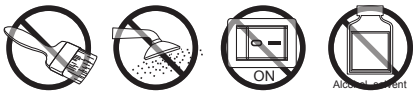


Disconnect the power supply cable and open the device cover (see par. 4.4).

2



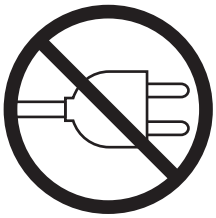
ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.



Clean the device sensors by using compressed air.

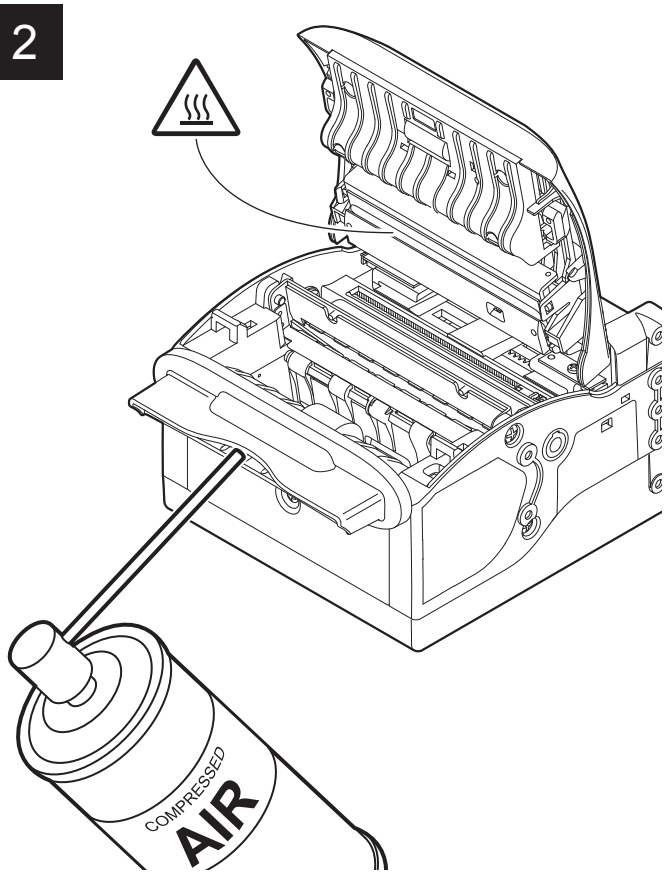
Paper path

1



Disconnect the power supply cable and open the device cover (see par. 4.4).

2

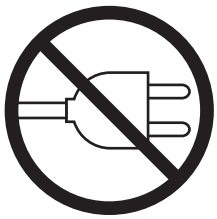


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Remove any scraps of paper and the accumulated paper dust on the paper mouths, on the printing roller, on the cutter and on the area around the sensors.

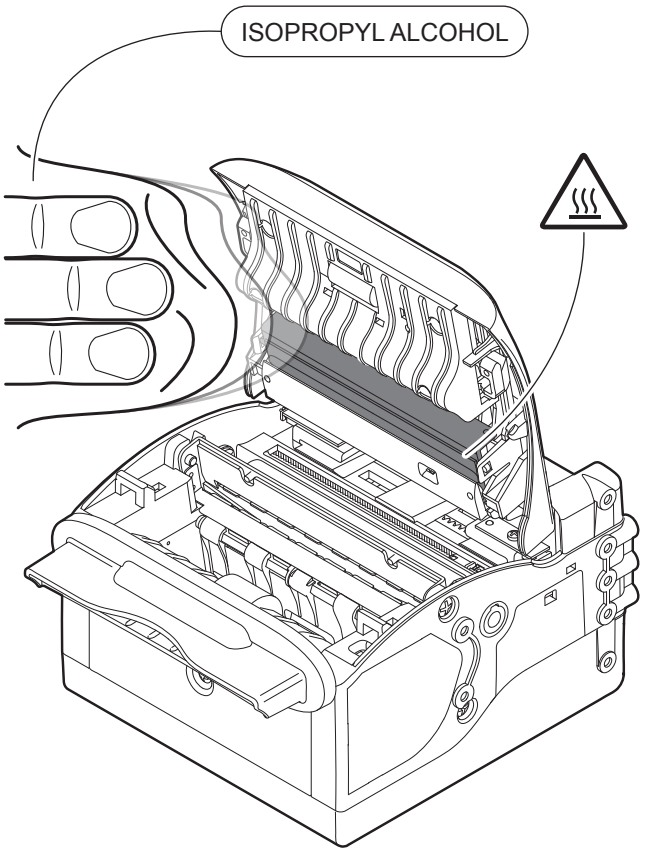
Printing head

1



Disconnect the power supply cable and open the device cover (see par. 4.4).

2

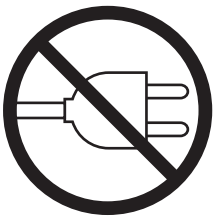


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the printing head by using a non-abrasive cloth moistened with isopropyl.

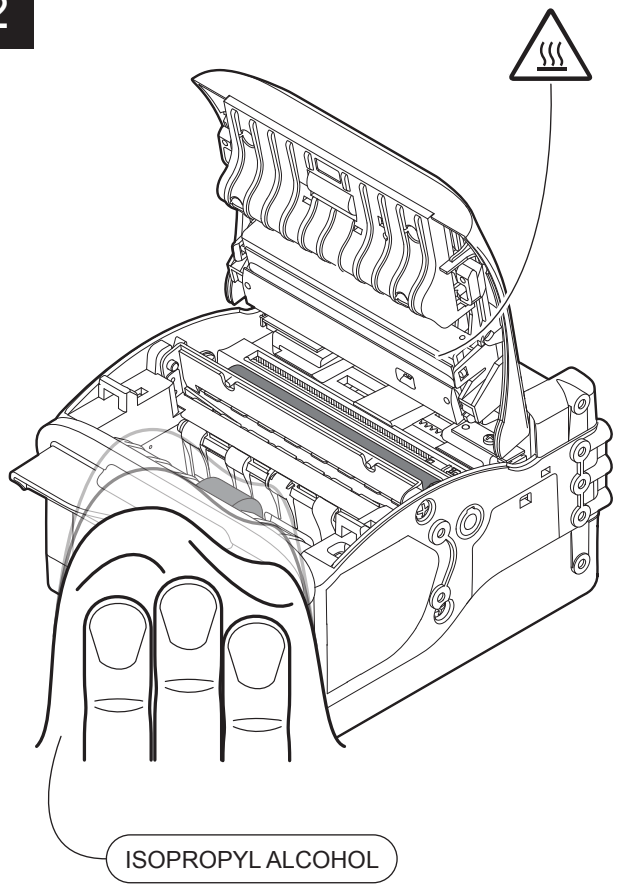
Platen roller

1



Disconnect the power supply cable and open the frontal cover of the device (see par. 4.4).

2

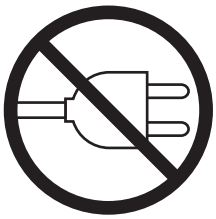


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the dragging roller and the ejector roller by using a non-abrasive cloth moistened with isopropyl.

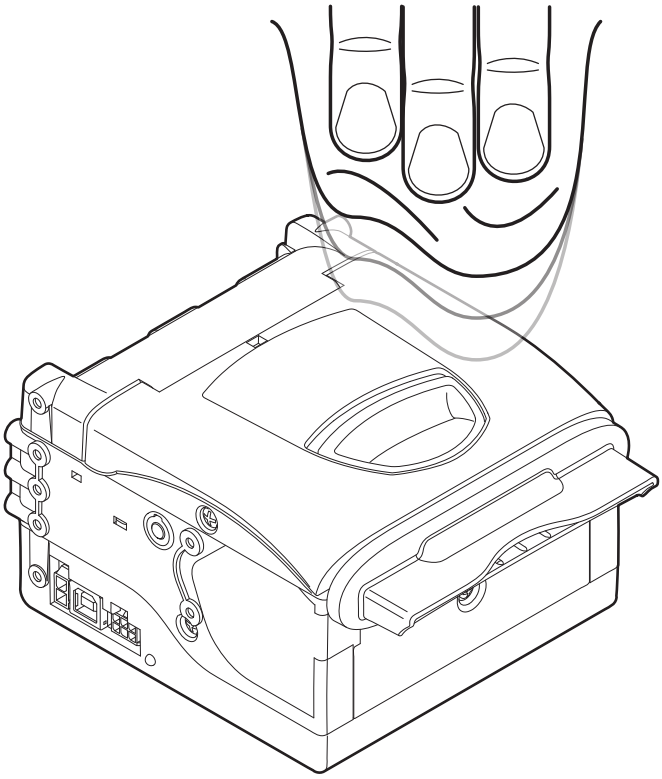
Case

1



Disconnect the
power supply cable.

2

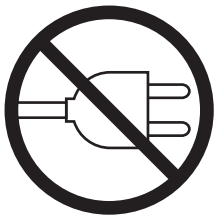


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

To clean the device,
use compressed air or a soft cloth.

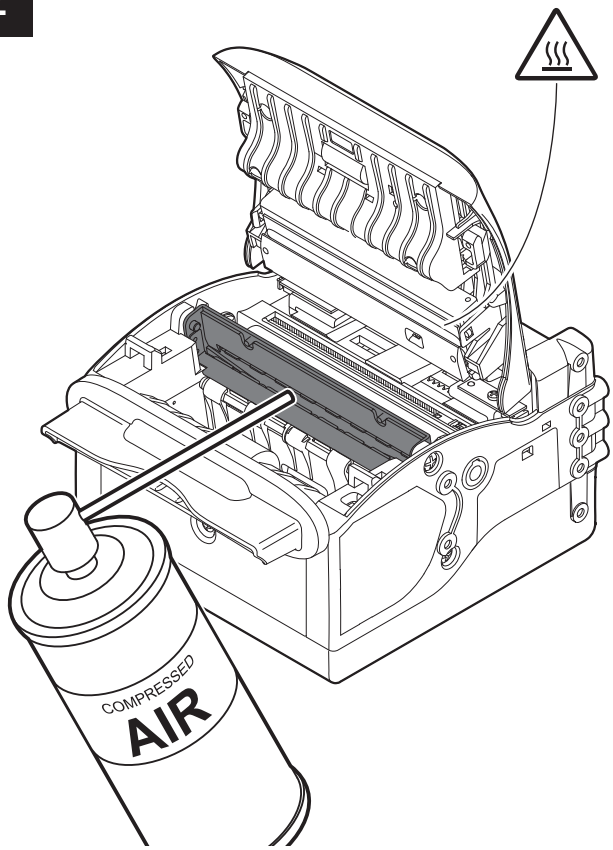
Cutter

1



Disconnect the power supply cable and
open the device cover (see par. 4.4).

2

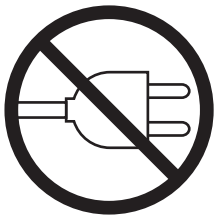


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the cutter by
using compressed air.

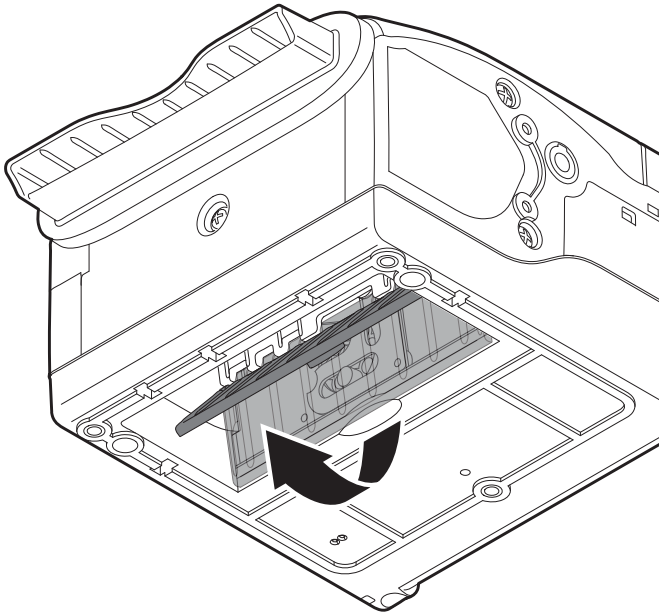
Cutter compartment

1



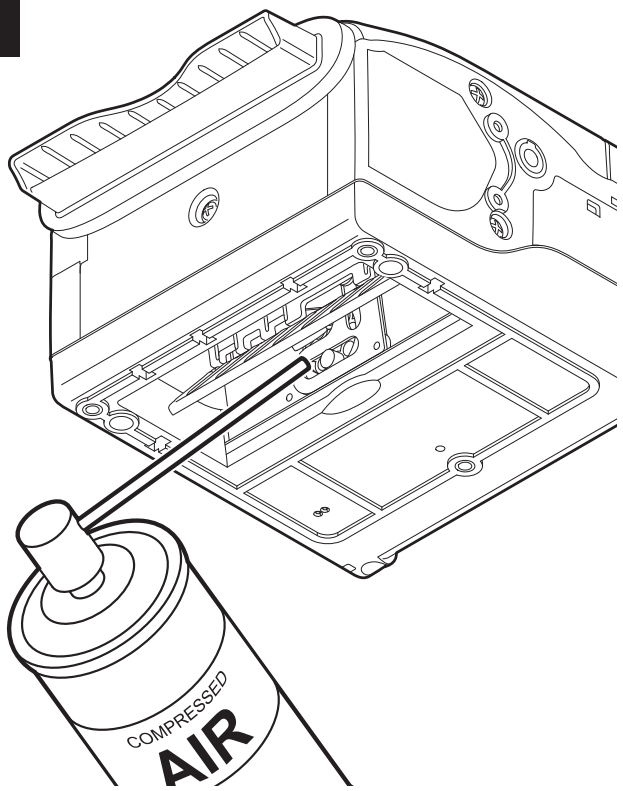
Disconnect the
power supply.

2



Lift the magnetic bulkhead
that closes the cutter compartment.

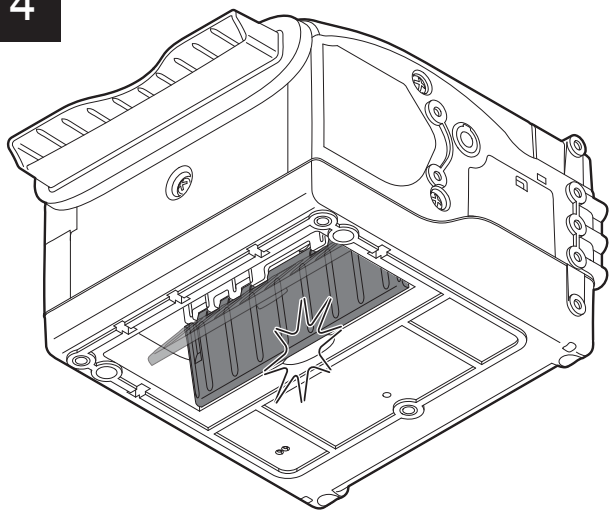
3



ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Remove any scraps of paper and the accumulated
paper dust from the cutter compartment.

4



Lower the bulkhead
to close the cutter compartment.

7.3 Upgrade firmware

WARNING: During communication between PC and device for the firmware update it is strictly forbidden to disconnect the communication cable or to remove the power supply of the devices not to endanger the proper functioning of the machine.

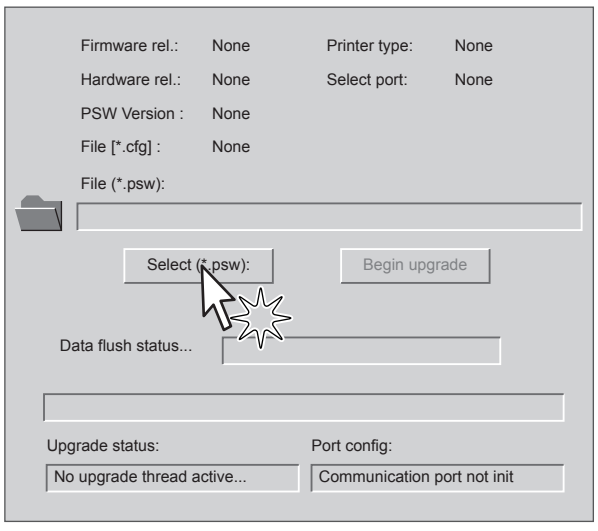
NOTES:
The latest firmware of the device is available in the download area of the web site www.custom.biz

Install on the PC used for printer upgrading the UPGCEPRN software available in the download area of the web site www.custom.biz.

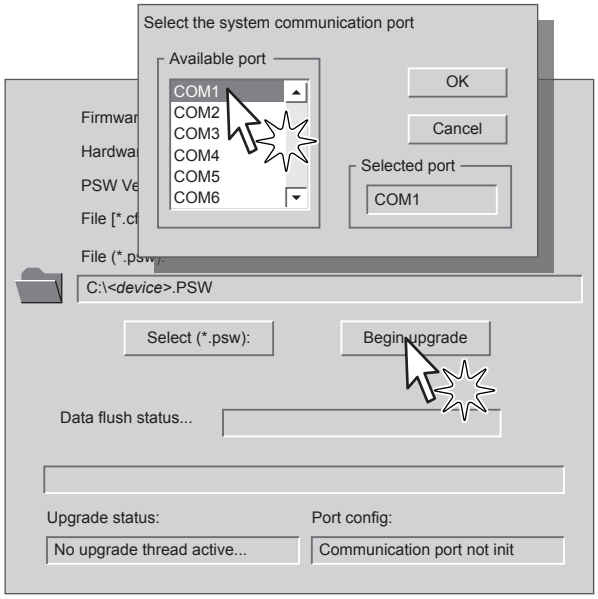
Update via serial interface

Proceed as follows:

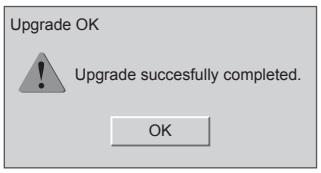
1. Write down the product code (14 digits) printed on the product label (see paragraph 3.4).
2. Go to the web site www.custom.biz and download the appropriate firmware release from the DOWNLOAD area.
3. Print the SETUP report (see chapter 6).
4. Switch OFF the device.
5. Connect the device to the PC using a serial cable (see paragraph 4.2).
6. Switch ON the device.
7. Launch the software UPGCEPRN.
8. Select the update file .PSW location:



9. Select the serial communication port (ex. COM1):



10. Detecting and setting of the parameters necessary for serial communication are performed automatically and then updating begins.
11. After a few minutes a message on the screen warns that the update is completed.



12. Print a new SETUP report to verify the new firmware release (see chapter 6).

Update via USB interface

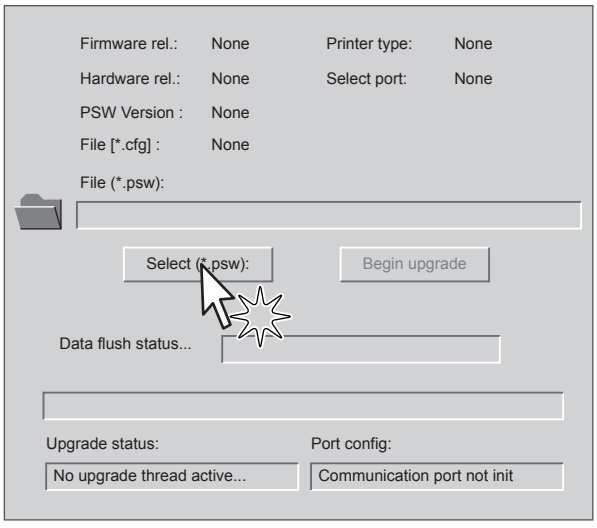
ATTENTION:
Only during the firmware update, the connection between PC and device must be direct, without the use of HUB device.

Only during the firmware update, do not connect or disconnect other USB devices.

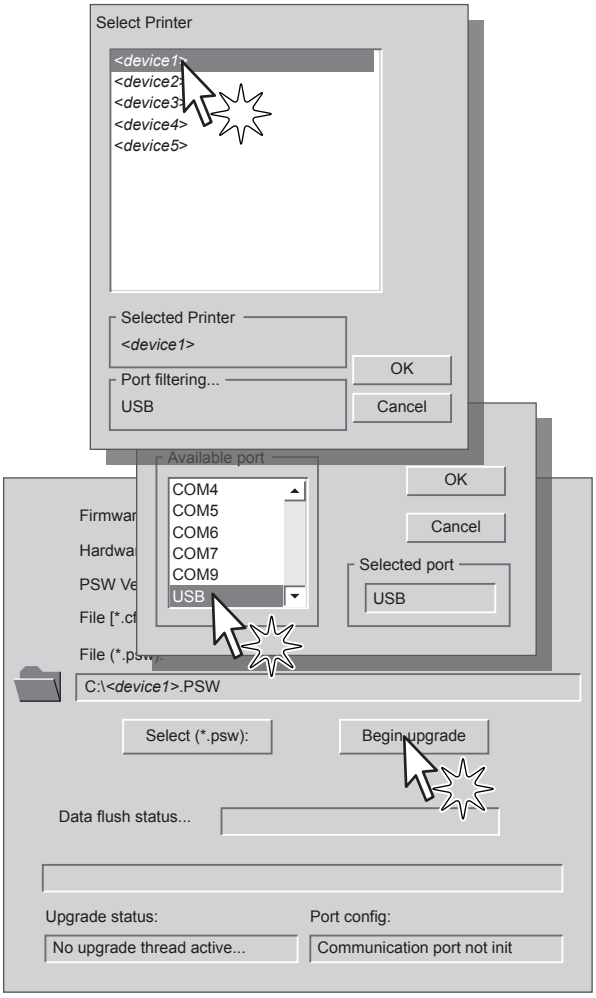
NOTE: For communication via USB you must install on PC the printer driver available in the download area of the web site www.custom.biz.

Proceed as follows:

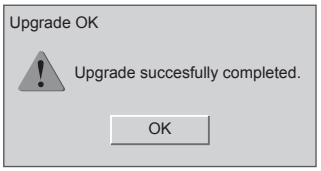
1. Write down the product code (14 digits) printed on the product label (see paragraph 3.4).
2. Go to the web site www.custom.biz and download the appropriate firmware release from the DOWNLOAD area.
3. Print the SETUP report (see chapter 6).
4. Switch OFF the device.
5. Connect the device to the PC using a USB cable (see paragraph 4.2).
6. Switch ON the device.
7. Launch the software UPGCEPRN.
8. Select the update file .PSW location:



9. Select item USB and then select the USB device among those proposed (e.g. VKP80III):



10. After a few minutes a message on the screen warns that the update is completed.



11. Print a new SETUP report to verify the new firmware release (see chapter 6).

8 SPECIFICATION

8.1 Hardware specifications

GENERAL	
Sensors	Paper presence in input, ticket paper presence in output, head temperature, ejector position, mobile detector for notch on the non-thermal side of paper, fixed detector for notch on the thermal side of paper (optional), printing unit open, tilting bulkhead position, low paper on external paper roll holder (optional)
MTBF (1)	147 823 h
Emulations	VKP80II, VKP80III
Printing driver	Windows XP, Windows VISTA (32/64bit), Windows 7 (32/64bit), Windows 8 (32/64bit), Opos, Linux, Android
INTERFACES	
RS232 serial connector	from 9600 to 115 200 bps
USB connector	12 Mbit/s (USB 2.0 full speed)
MEMORIES	
Receive buffer	2 Kbytes
Flash memory	1 Mbytes internal + 4 Mbytes external (of which 1 Mbytes available)
RAM memory	128 Kbytes internal + 8 Mbytes external
PRINTER	
Resolution	203 dpi (8 dot/mm)
Printing method	Thermal, fixed head
Head life (2)	
Abrasion resistance (3)	150 Km (with recommended paper)
Pulse durability	100 M (12.5% duty cycle)

Printing width	from 48 mm to 80 mm (2 mm step)
Printing mode	normal, 90°, 180°, 270°
Printing format	Height/width from 1 to 8, bold, reverse, underlined, italic
Character fonts	
VKP80II emulation	55 character code tables (see par. 8.9) Extended chinese GB18030-2000
VKP80III emulation (4)	55 character code tables (see par. 8.9) Extended chinese GB18030-2000 2 TrueType font
Printable barcode (5)	UPC-A. UPC-E, EAN13, EAN8, CODE39, ITF, CODABAR, CODE93, CODE128, CODE32, PDF417, DATAMATRIX, AZTEC, QRCODE
Printing speed (2) (6)	High Quality = 100 mm/s Normal = 150 mm/s High Speed = 200 mm/s
PAPER	
Type of paper	Thermal rolls, heat-sensitive side on outside of roll
Paper width	
Without paper roll holder support	from 50 mm to 82.5 mm
With paper roll holder support (optional)	from 60 mm to 82.5 mm
With “shutter” device (optional)	from 60 mm to 82.5 mm
Paper weight	from 60 g/m^2 to 110 g/m^2
Recommended types of paper	KANZAN KF50, KP460 and KP390 MITSUBISHI PF5075, TL4000 and TF1067
Minimum ticket length	70 mm (using the command 0x1D 0xE8 it can be decreased up to 54 mm)
Paper end	Not attached to roll core
External roll diameter (7)	max. 150 mm
External roll core diameter	25 mm
Core type	Cardboard or plastic

CUTTER	
Paper cut	Total
Estimated life (2)	1 000 000 cutter number
DEVICE ELECTRICAL SPECIFICATIONS	
Power supply	24 Vdc ±10% (optional external power supply)
Typical consumption (6)	1 A
Medium consumption (8)	1.5 A
Standby consumption	0,04 A
ELECTRICAL SPECIFICATIONS POWER SUPPLY cod.963GE020000003	
Power supply voltage	from 100 Vac to 240 Vac
Frequency	from 50 Hz to 60 Hz
Current (output)	2.5 A
Power	60 W
ENVIRONMENTAL CONDITIONS	
Operating temperature	from -20 °C to +70 °C
Relative humidity	from 10% Rh to 80% Rh
Storage temperature	from -20 °C to +70 °C
Storage relative humidity	from 10% Rh to 90% Rh

NOTES:
(1) : Control board.
(2) : Respecting the regular schedule of cleaning for the device components.
(3) : Damages caused by scratches, ESD and electromigration are excluded.
(4) : “Veramono.ttf” and “Vera.ttf” are installed on device.
(5) : You can print the formats of bidimensional barcode (PDF417, DATAMATRIX, AZTEC, QRCODE) only with the VKP80III emulation enabled.
(6) : Referred to a standard CUSTOM receipt (L=10cm, Density = 12,5% dots on).
(7) : For external rolls diameter higher to Ø120mm it’s recommended to use a paper pretensioning device.
(8) : Referred to the UL measurements (Speed/Quality = High Speed, Print density = +50%, Ticket = 12.5% dot on).

8.2 Character specifications

Character set		3	
Character density	11 cpi	15 cpi	20 cpi
Number of columns	33	43	60
Chars / sec	2251	2895	4053
Lines / sec	66	66	66
Characters (L x H mm)-Normal	2.25 x 3	1.75 x 3	1.25 x 3

NOTA: Theoretical values.

8.3 Ejector specifications

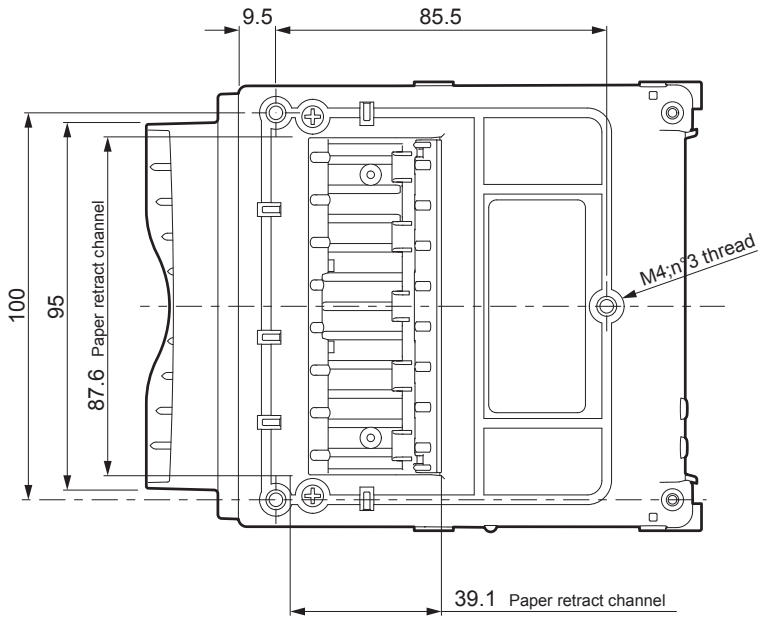
	Ticket length	Ticket presentation
"Retracting" function	70 mm	10 mm
	80 mm	10 mm - 60 mm (1)
	80 mm - 220 mm	10 mm - 60 mm (1)
	Ticket length	Ticket presentation
"Ejecting" function	70 mm	10 mm
	> 80 mm	10 mm - 60 mm (1)
	350 mm (2)	10 mm - 60 mm (1)

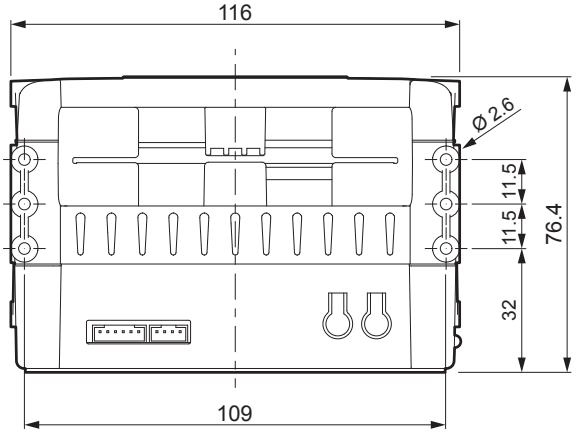
NOTES:
(1) : Maximum length of the ticket's part presented recommended to guarantee the device efficiency.
(2) : Maximum ticket length recommended to guarantee the device efficiency.

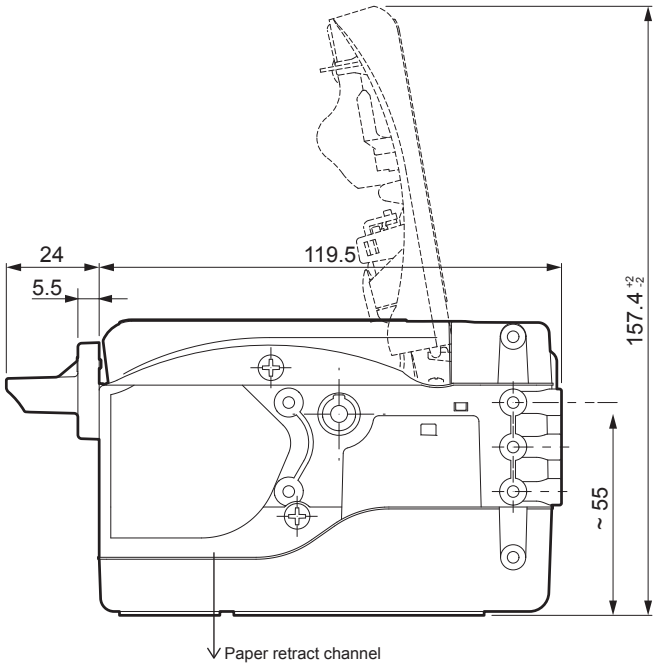
8.4 Device dimensions

Length	143,5 mm
Height	*(with printing unit closed)* 76,4 mm *(with printing unit open)* 157,4 mm
Width	116 mm
Weight	800 g

NOTE: All the dimensions shown in following figures are in millimetres.



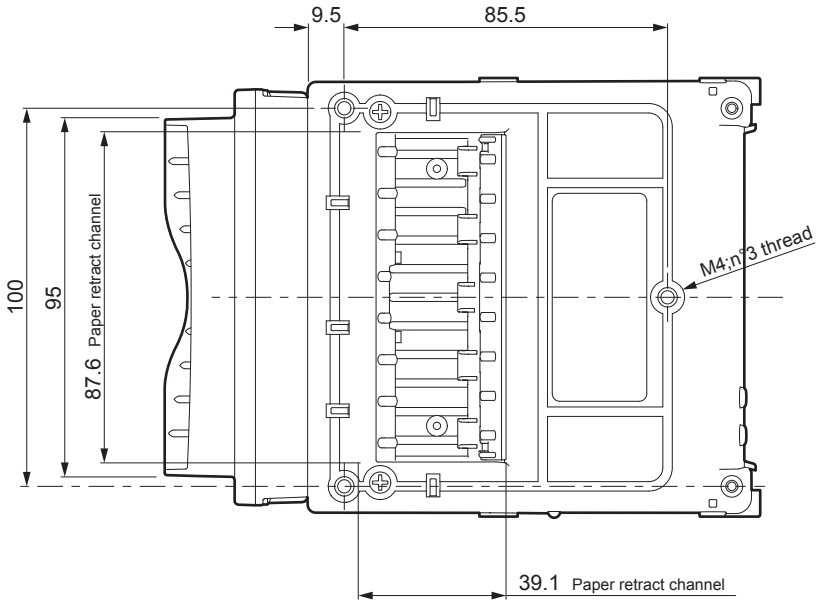


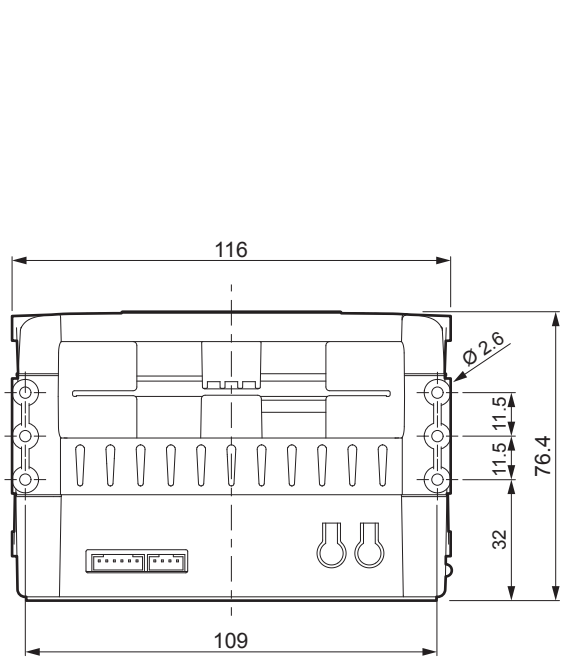


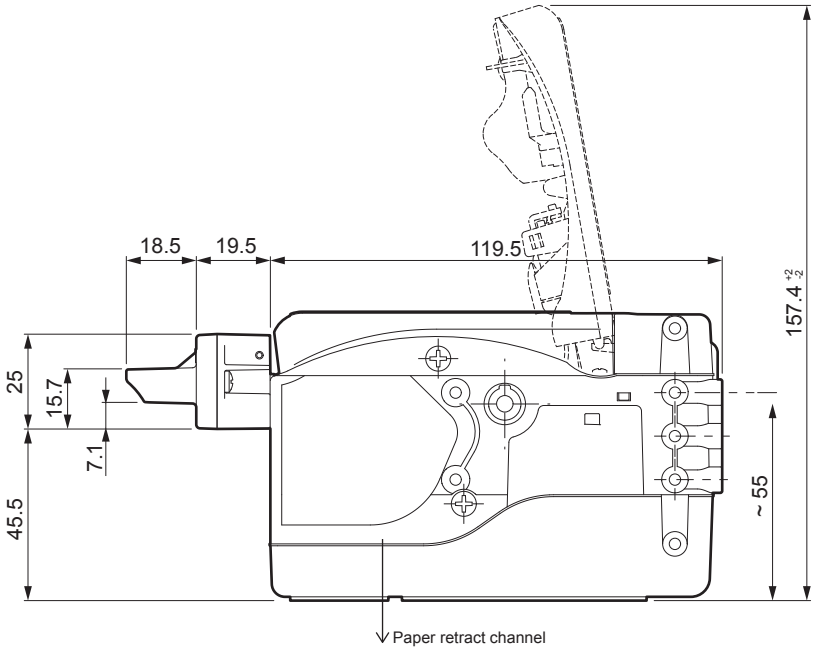
8.5 Device dimensions with “Shutter” device

Length	157.5 mm
Height	*(with printing unit closed)* 76.4 mm *(with printing unit open)* 157.4 mm
Width	116 mm
Weight	850 g

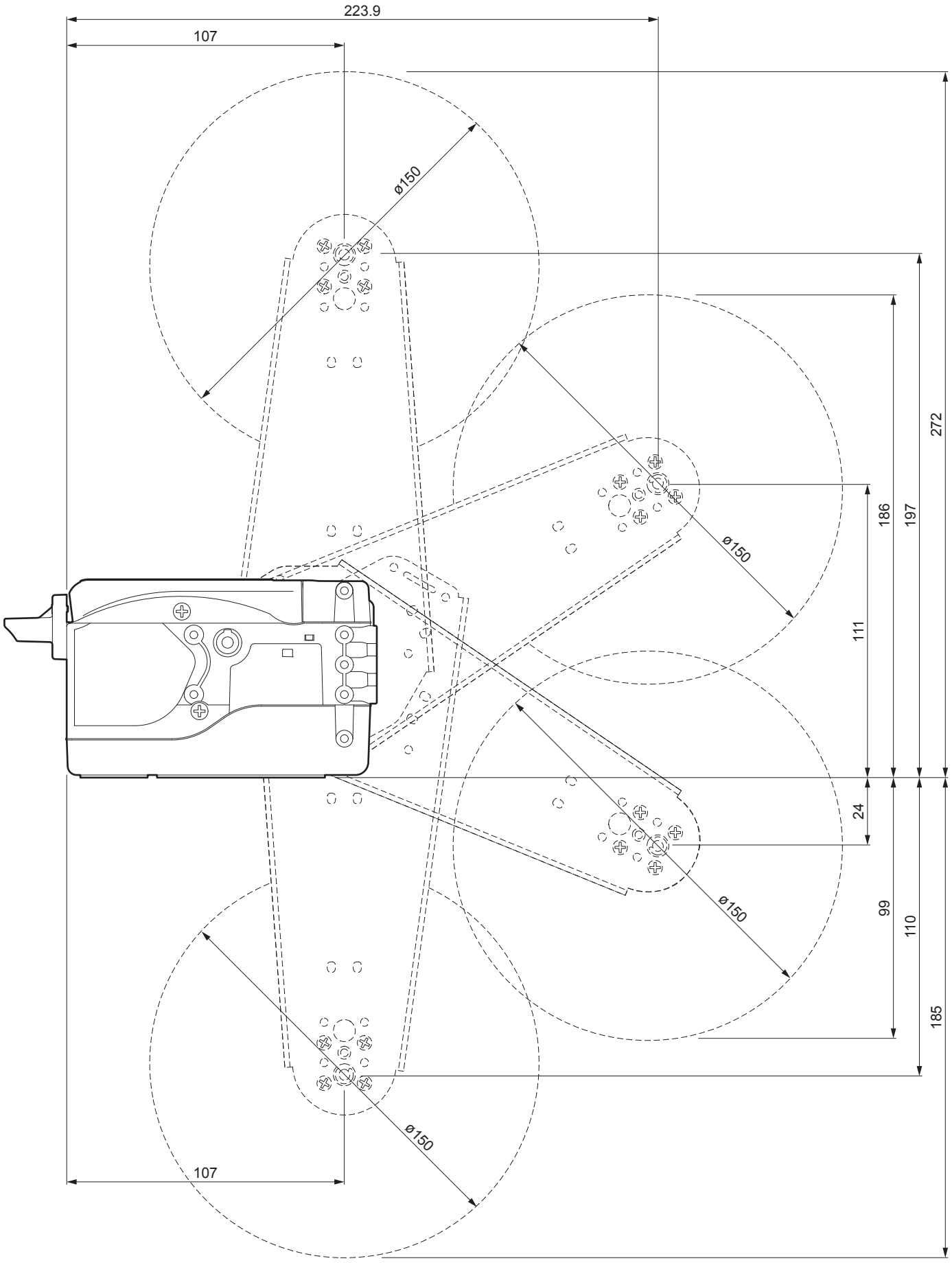
NOTE: All the dimensions shown in following figures are in millimetres.







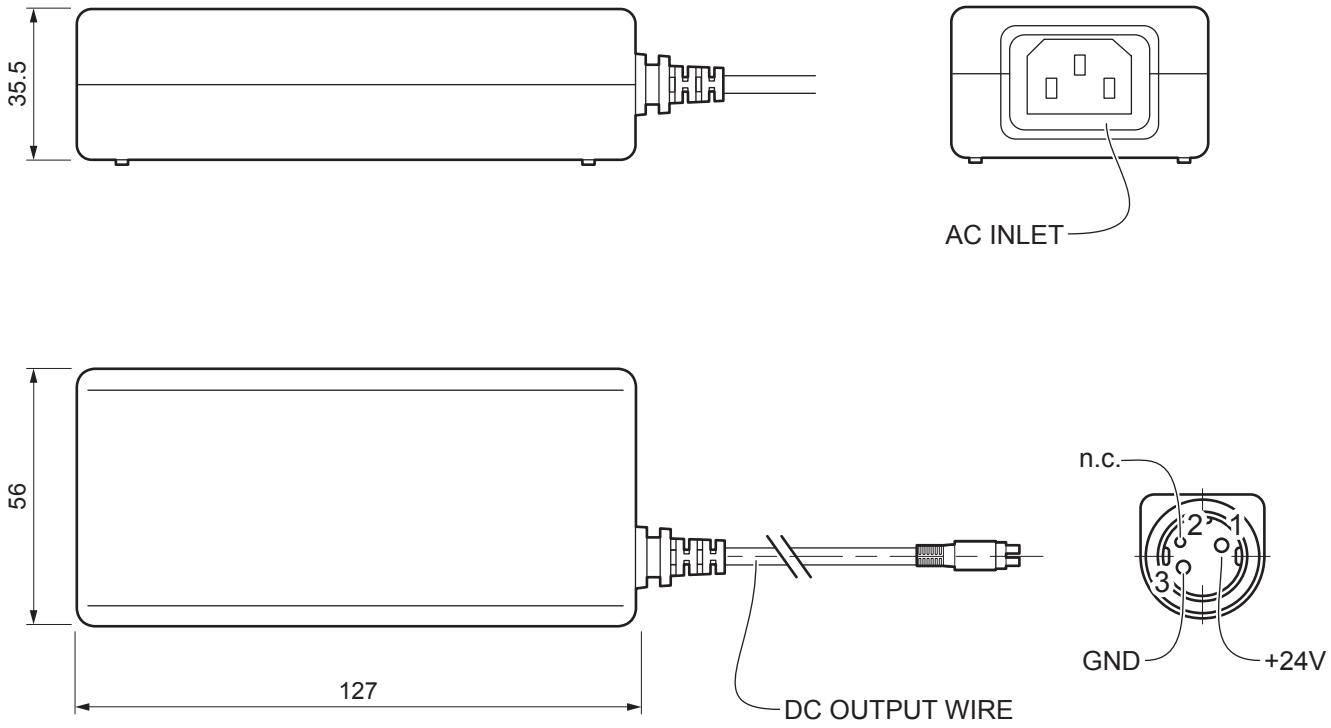
8.6 Device dimensions with adjustable paper roll holder



8.7 Power supply dimensions cod.963GE020000003 (optional)

Length	127 mm
Height	35.5 mm
Width	56 mm

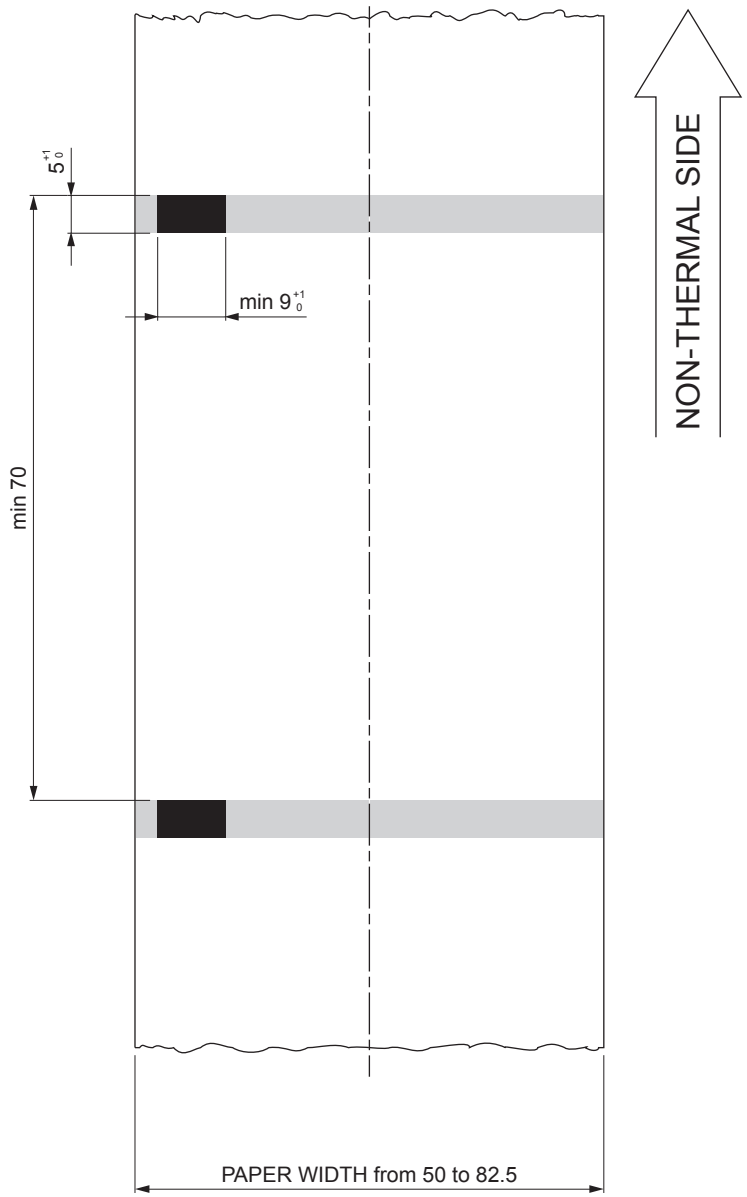
NOTE:
All the dimensions shown in following figures are in millimetres



8.8 Paper specification

Paper with black mark on the non-thermal side of paper

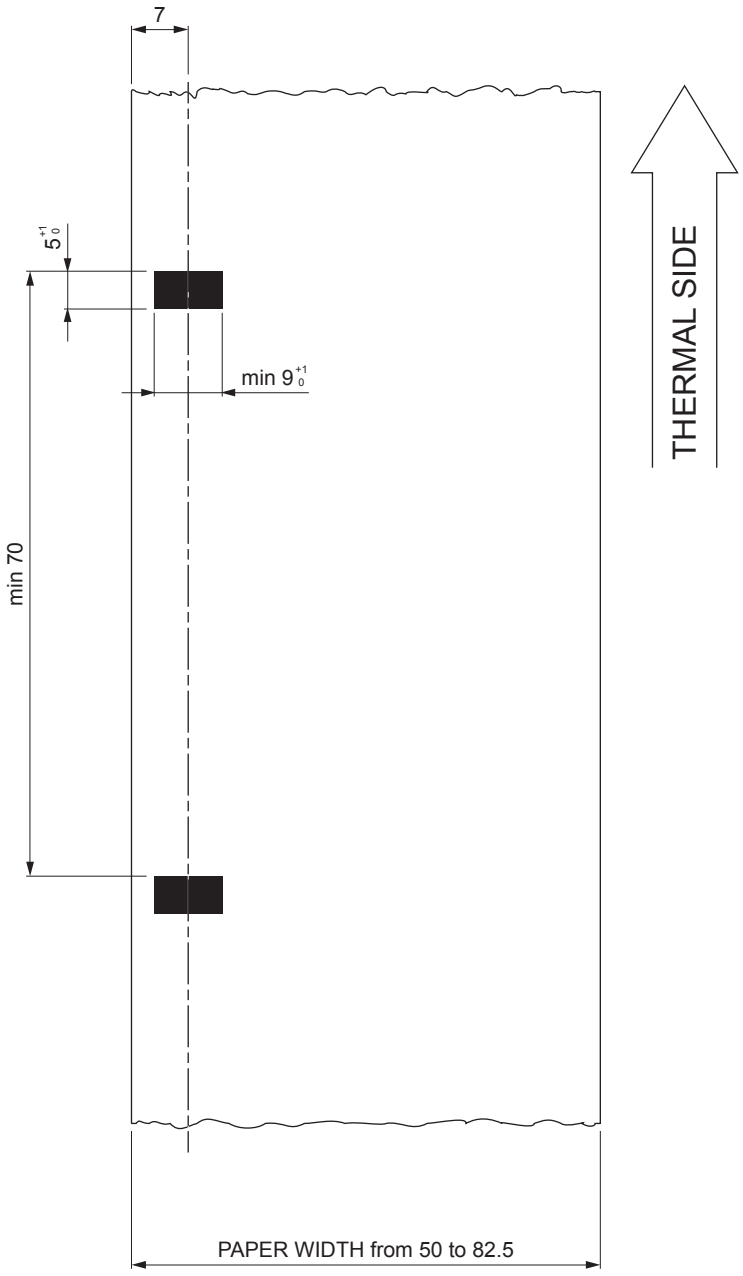
The following image shows the placement of the black mark on the non-thermal side of paper. Due to the adjustable mobile sensor, the notch can be placed anywhere on the whole width of the paper.
For more information about the use of paper with black mark see chapter 11.



NOTE:
All the dimensions shown in following figures are in millimetres.

Paper with black mark on the thermal side of paper (only with VKP80III emulation enabled)

The following image shows a sample of paper with the black mark printed on the thermal side. Use this kind of tickets if the upper notch sensor (optional) is installed on the right paper cursor.
For models with the upper notch sensor (optional) installed on the left cursor, the ticket will be symmetrical to its longitudinal axis.
For more information about the use of tickets with black mark see chapter 11.



NOTE:
All the dimensions shown in following figures are in millimetres.

8.9 Character sets

The device has 3 fonts of varying width (11, 15 and 20 cpi) which may be related one of the coding tables provided on the device.

To know the coding tables actually present on the device, you need to print the font test (see par. 3.5).

You can set font and coding table by using the commands (see the Commands Manual of the device) or using the “Code Table” and the “Chars / Inch” parameters during the Setup procedure (see par. 6.4).

The following is the full list of coding tables that can be installed on the device.

<CodeTable>	Coding table
0	PC437: Usa, Standard Europe
1	Katakana
2	PC850: Multilingual
3	PC860: Portuguese
4	PC863: Canadian-Frech
5	PC865: Nordic
7	Iran system
11	PC851: Greek
12	PC853: Turkish
13	PC857: Turkish
14	PC737: Greek
15	ISO8859-7: Greek
16	WPC1252
17	PC866: Cyrillic #2
18	PC852: Latin2
19	PC858: Euro
20	KU42: Thai
21	TIS11: Thai
26	TIS18: Thai
30	TCVN-3: Vietnamese
31	TCVN-3: Vietnamese
32	PC720: Arabic

<CodeTable>	Coding table
33	WPC775: Baltic Rim
34	PC855: Cyrillic
35	PC861: Icelandic
36	PC862: Hebrew
37	PC864: Arabic
38	PC869: Greek
39	ISO8859-2: Latin2
40	ISO8859-15: Latin9
41	PC1098: Farsi
42	PC1118: Lithuanian
43	PC1119: Lithuanian
44	PC1125: Ukrainian
45	WPC1250: Latin2
46	WPC1251: Cyrillic
47	WPC1253: Greek
48	WPC1254: Turkish
49	WPC1255: Hebrew
50	WPC1256: Arabic
51	WPC1257: Baltic Rim
52	WPC1258: Vietnamese
53	KZ-1048: Kazakhstan

8.10 True Type fonts

In VKP80III emulation, it is possible to use TrueType fonts. To be used, a TrueType font must be monospace type (every character of the font must have the same dimension). The check is made by the device when the font is selected.

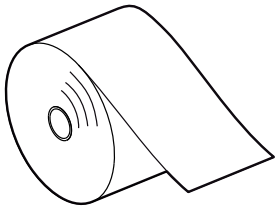
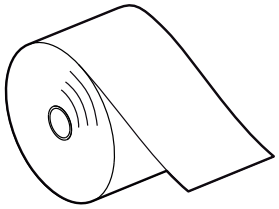
TrueType fonts will be automatically scaled by the device in order to obtain the same available width for the embedded fonts (11, 15 and 20 cpi).

The quality of TrueType fonts, the correct positioning into the printable area and the available code tables, will result from the font producers and the font implementation.

For the correct printing of the code tables, it is necessary that the selected TrueType font contains all the characters in the tables. Otherwise, the '□' symbol will be printed instead the missing character. All commands for printing configuration are usable both with TrueType fonts and with embedded fonts. It is possible to address the TrueType font respects the UNICODE™ standard (see www.unicode.org), by using UTF-8 or UTF-16 encoding.

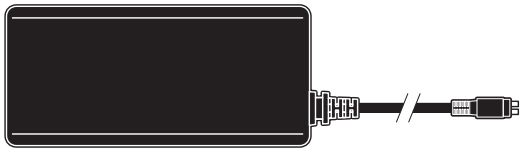
9 CONSUMABLES

The following table shows the list of available consumables for device:

DESCRIPTION	CODE
THERMAL PAPER ROLL WITH BACK SIDE PRE-PRINTED weight = 58 g/m^2 width = 80 mm Ø external = 48 mm Ø core = 25 mm	**67300000000395** 
THERMAL PAPER ROLL weight = 58 g/m^2 width = 80 mm Ø external = 130 mm Ø core = 25 mm	**67300000000380** 

10 ACCESSORIES

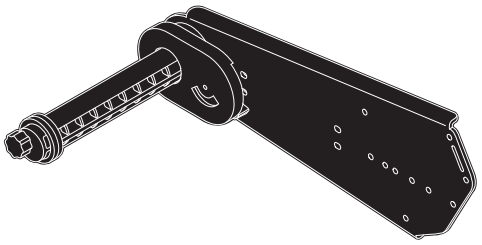
The following table shows the list of available accessories for device:

DESCRIPTION	CODE
POWER SUPPLY (for technical specifications, see the paragraph 8.1)	**963GE020000003** 
ADAPTER CABLE FOR POWER SUPPLY (see the paragraph 10.1)	**26900000000005** 
CABLES KIT POWER SUPPLY + ADAPTER FOR SERIAL INTERFACE	**976DX010000002** 
USB CABLE TYPE A-B Length = 1.8 m	**26500000000356** 
SERIAL CABLE DB9M-DB9F Length = 1.5 m	**26500000000352** 

974DX010000001

PAPER ROLL HOLDER WITH
LOW PAPER SENSOR
to assemble on the right or left side of the device

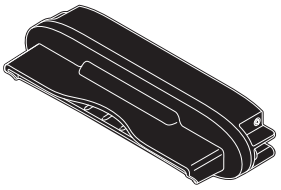
(see the paragraph 10.2)



976DX010000001

“SHUTTER” DEVICE

(see the paragraph 10.3)

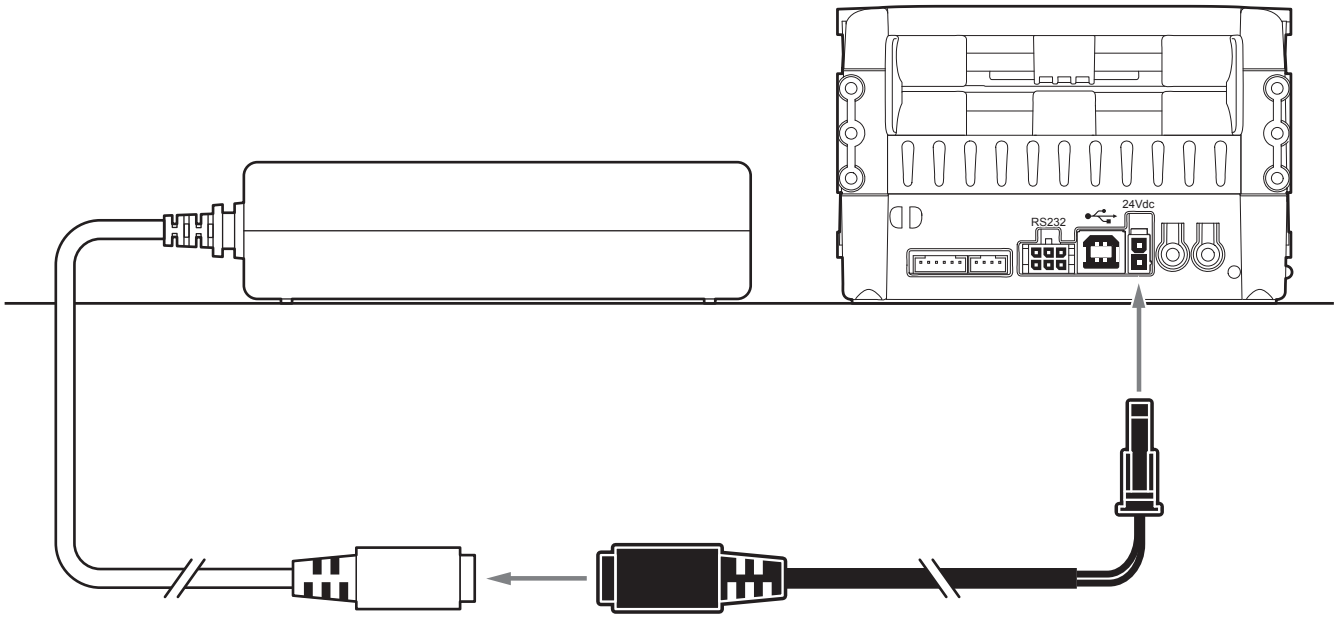


10.1 Adapter cable for power supply

For the device is available an adapter cable (cod. 26900000000005) supplied as an accessory, for connecting the device to the external power supply unit (cod. 963GE020000003 - optional).

Assembly instructions

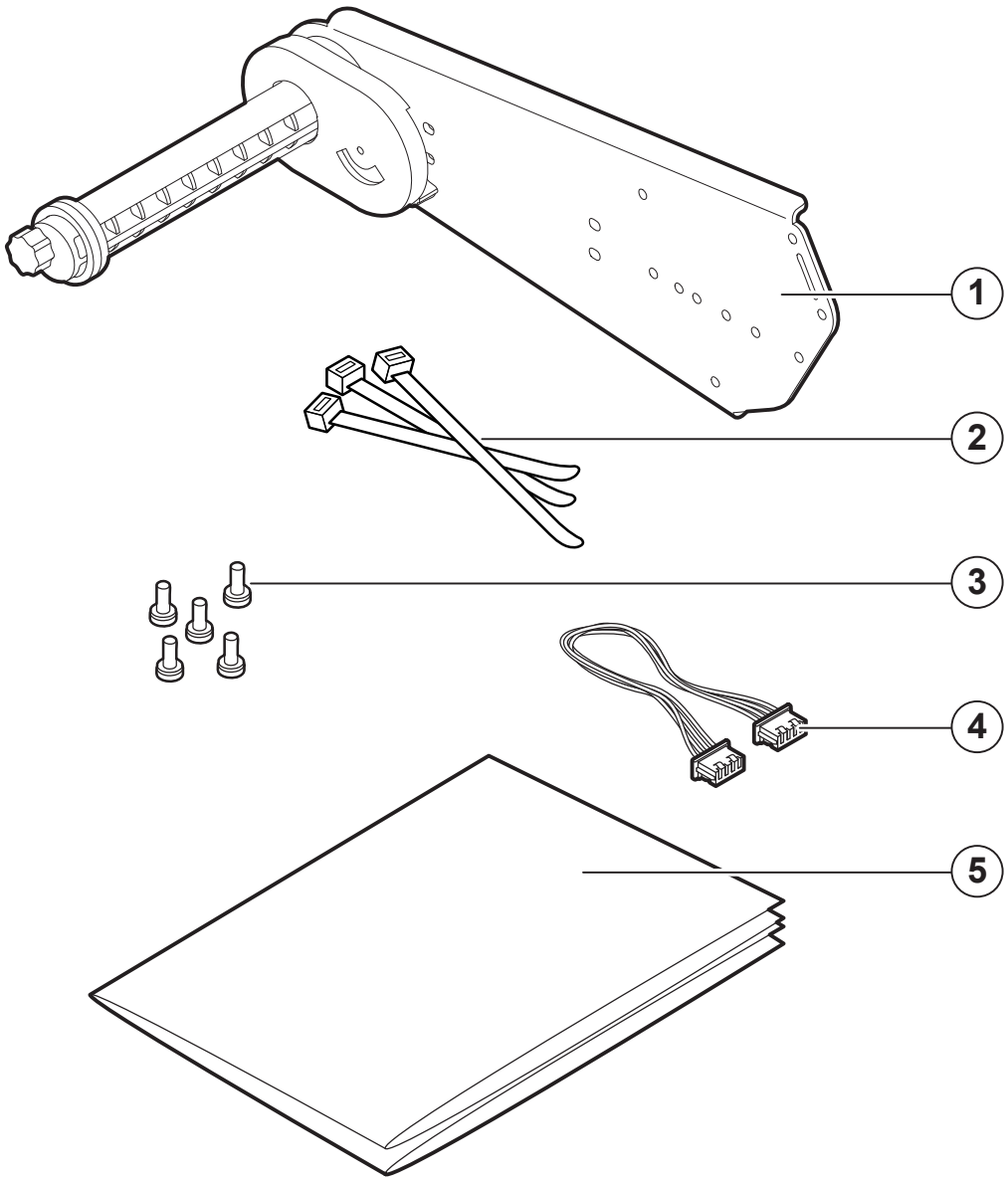
Connect the adapter cable to the power supply unit as follows:



10.2 Paper roll holder

A paper roll holder kit (code 974DX010000001) is available for the device to make it possible to use larger-width rolls of paper (max. Ø150 mm). The roll holder mounts rolls with width comprised between 60 mm and 82.5 mm.
The paper roll holder can be only assembled on the right side of the device as shown in the following figures.

The kit includes (see figure):
1. Paper holder support with low paper sensor and regulating system for paper width.
2. Cable ties (x3)
3. Fixing screws (x5)
4. Extension cable
5. Installation instruction

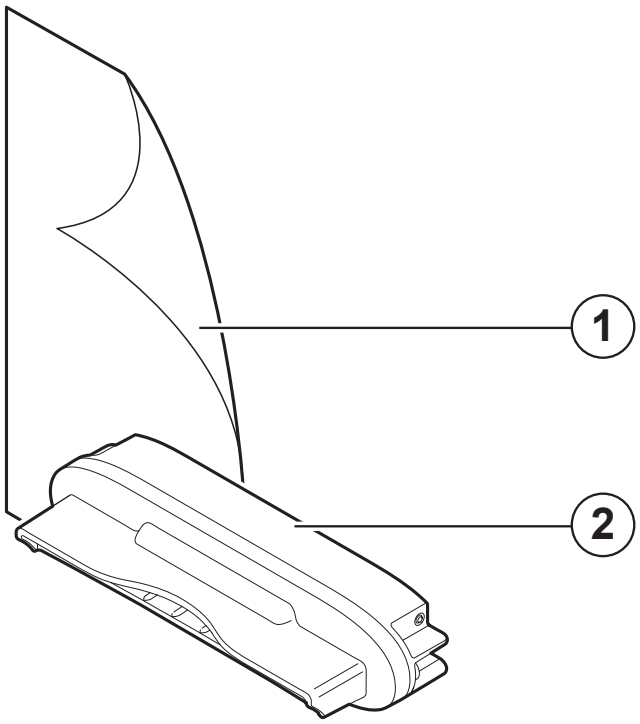


NOTE:
To assemble the kit refer to the instruction sheet enclosed with the kit.

10.3 “Shutter” device

A “shutter” device (cod.976DX010000001) is available for the machine. This device prevents the insertion of paper or foreign objects into the outlet of the paper. See paragraph 8.1 for the characteristics of the compatible paper.

The kit includes (see figure):
1. Instruction sheet
2. “Shutter” group



NOTE:
To assemble the kit refer to the instruction sheet enclosed with the kit.

11 ALIGNMENT

The device is provided with sensors for the use of alignment notch in order to handle rolls of tickets with pre-printed fields and a fixed length.

All alignment sensors are “reflection” sensors: this kind of sensor emits a band of light and detects the quantity of light reflected to it. The presence of the notch is therefore detected by the amount of light that returns to the sensor, considering that the light is reflected by the white paper and absorbed by the black mark.

The following paragraphs show how to correctly set the configuration parameters of device in order to assure the alignment.

11.1 Enable alignment

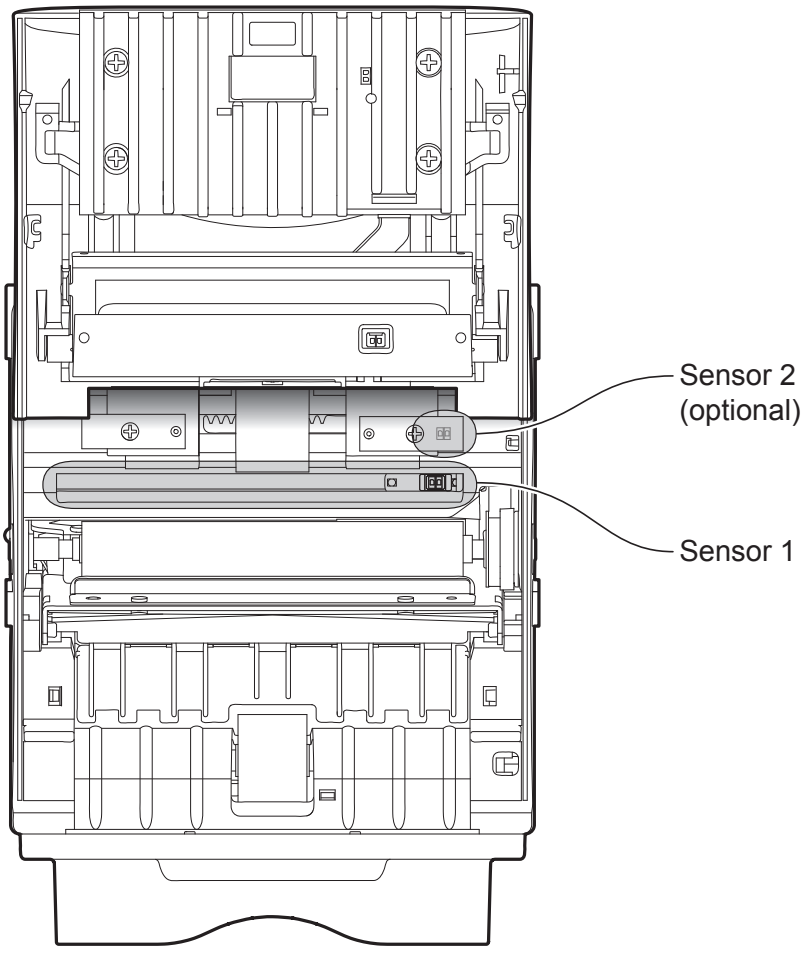
Device is provided with two sensors for alignment, placed as follows:

- one mobile sensor facing the non-thermal side of paper
- one fixed sensor (optional) facing the thermal side of paper.

To guarantee the alignment, it is necessary to correctly choose the sensor to use for the notch detection depending on the location of the notch on ticket.
To do this, you must enable the parameter “Notch/B.Mark Position” during the Setup procedure (see chapter 6) and set the correct value of this parameter as described in the following table.

SENSOR USED (see following figures)	VALUE OF THE “NOTCH/B.MARK POSITION” PARAMETER	USING MODE OF SENSORS	NOTCH TYPE
-	Disabled	-	Alignment disabled
1	Bottom	Reflection	Black mark printed on the non-thermal side of paper
2	Top Side *	Reflection	Black mark printed on the thermal side of paper

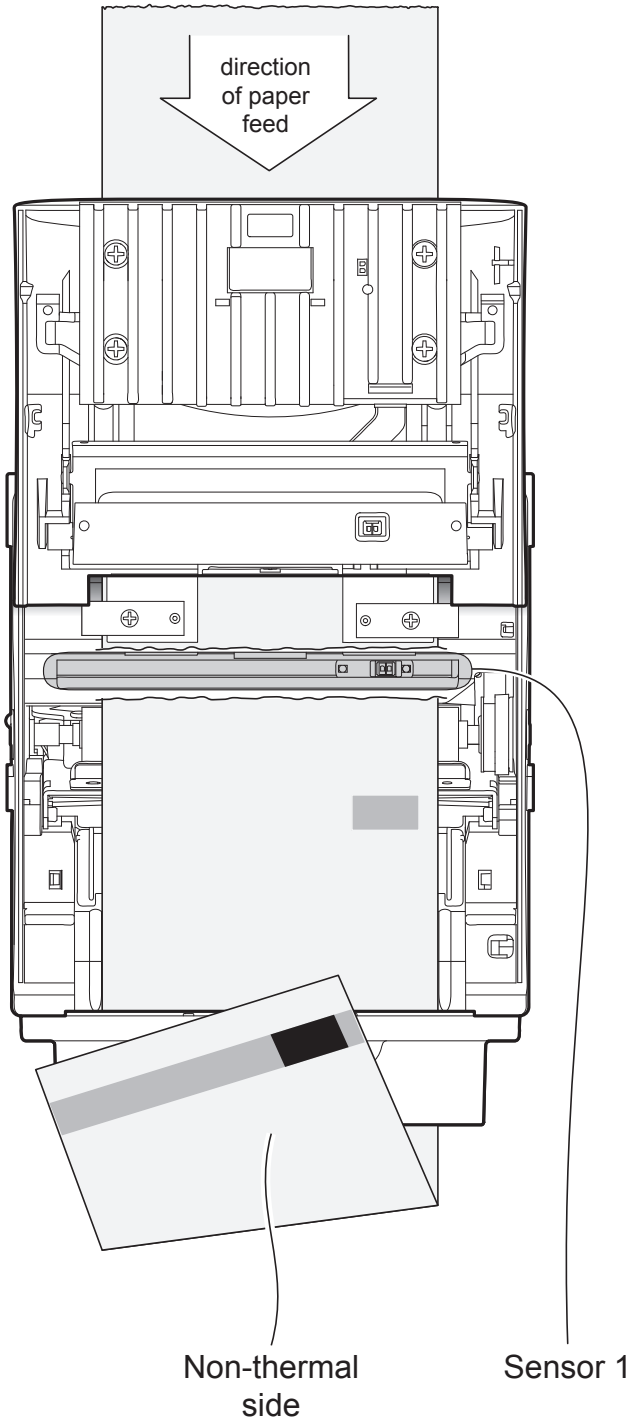
* only for models with upper notch sensor and with VKP80III emulation enabled.



The following figures show the usable format of paper and the corresponding sensors used for alignment:

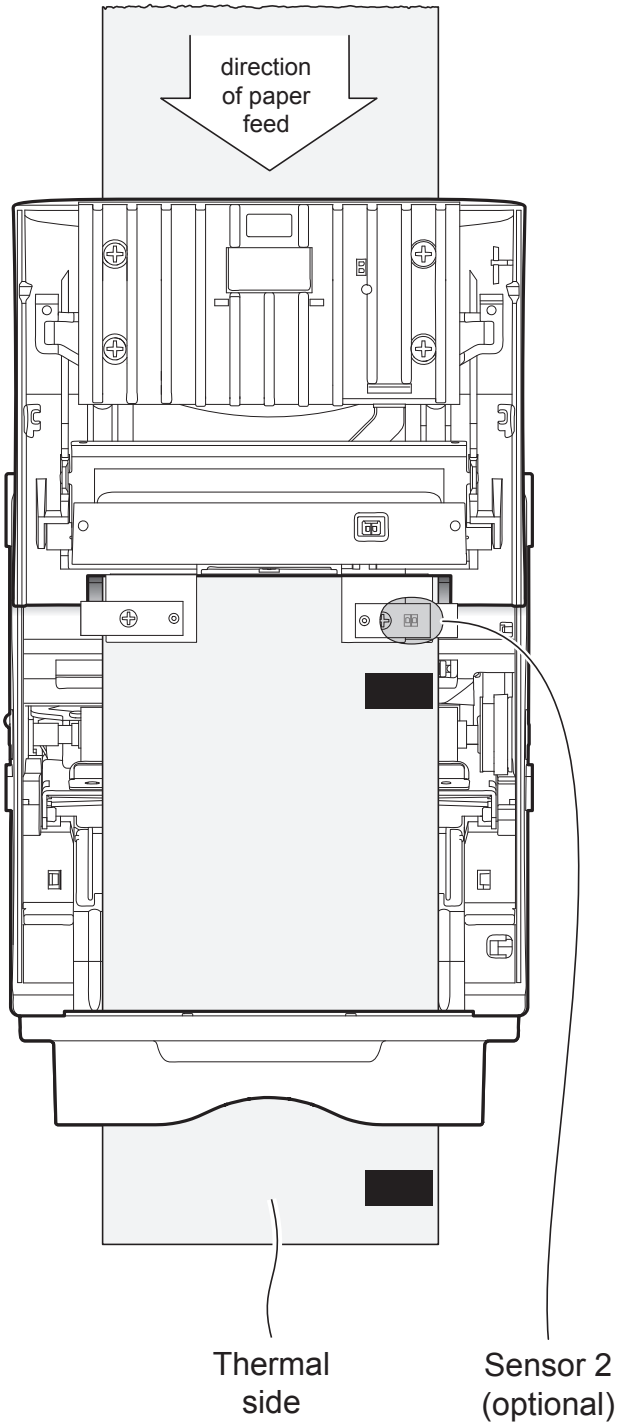
paper with black mark on the non-thermal side

In standard model, the detection of black mark is performed on the non-thermal side of paper by the mobile sensor.



paper with black mark on the thermal side

In model with optional sensor, the detection of black mark is performed on the thermal side of paper by the fixed sensor.



11.2 Calibration

The sensor calibration occurs automatically and consists in adjusting the quantity of light emitted to match the degree of whiteness of the paper used and the degree of black of the mark printed on paper.

The device automatically performs the self-calibration during the Setup procedure only if the “Notch/B.Mark Position” parameter is set to a value other than “Disabled” (see chapter 6).

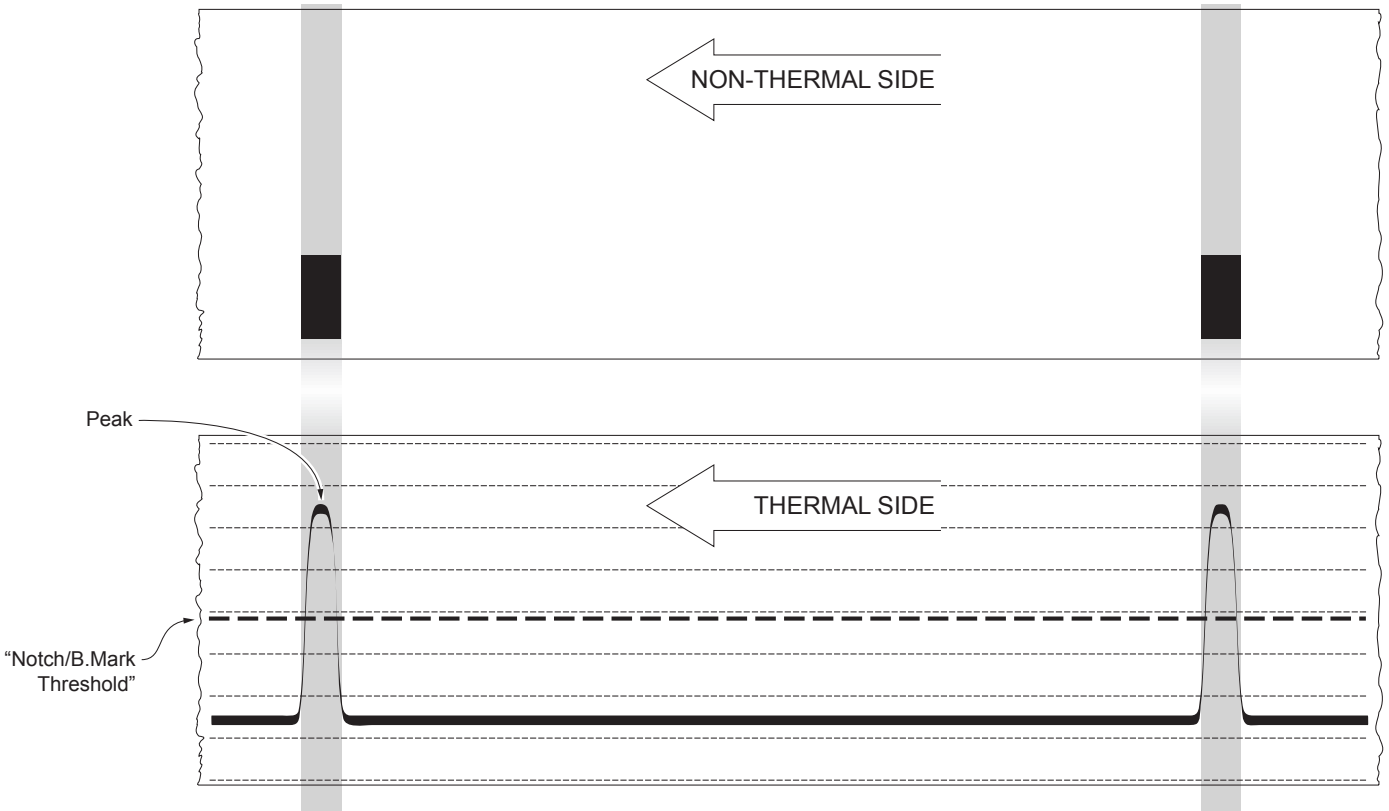
When self-calibration starts, the device performs some paper feeds and then it prints the calibration result and the value of the PWM duty-cicle (also expressed as a percentage) of the alignment sensor driver so that it can be perform an optimal notch detection:

Autosetting Notch : OK
PWM Duty Cycle : 2,7V [82%]

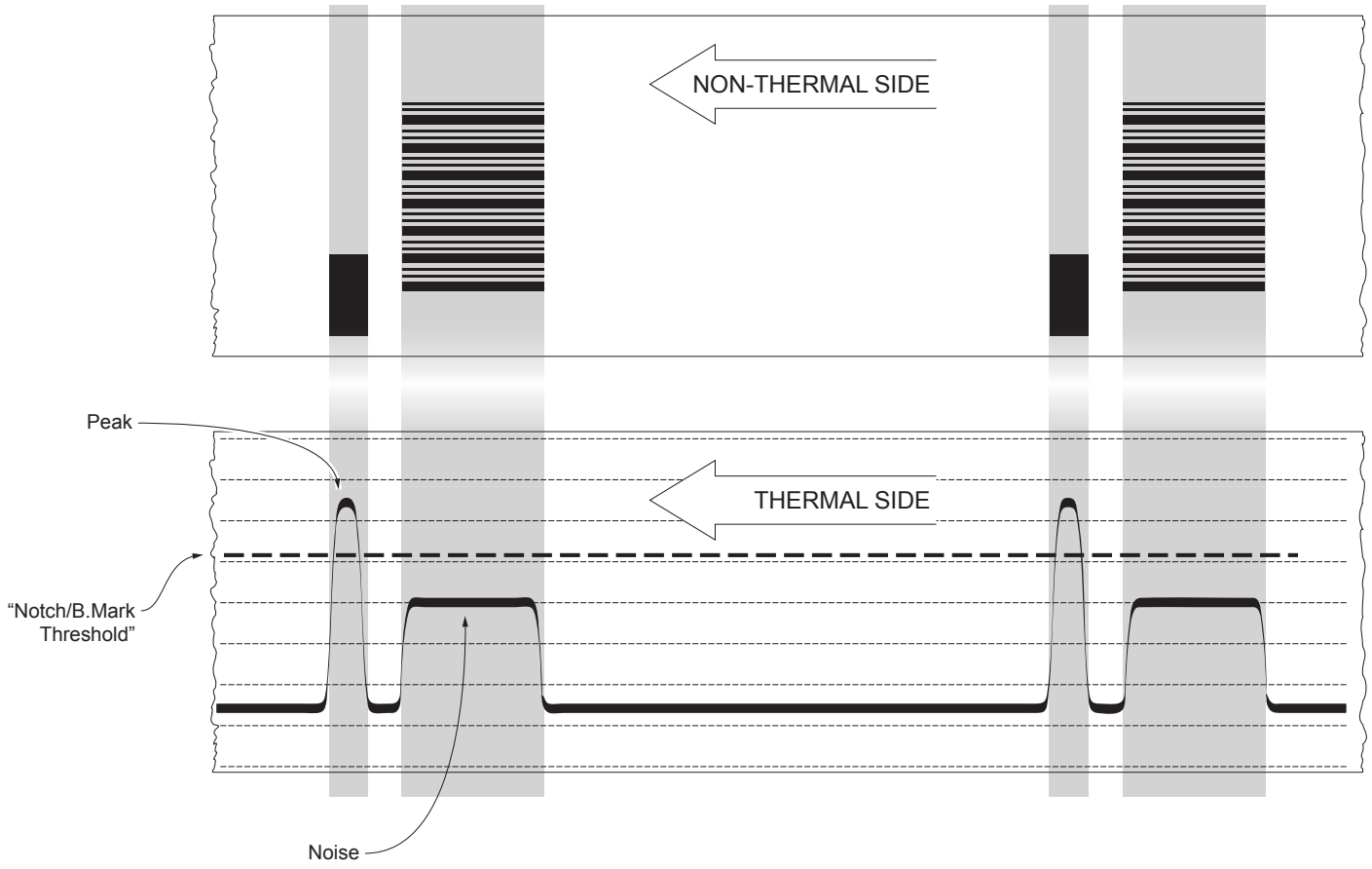
The “Autosetting Notch” parameter indicates the result of the self-calibration procedure; OK will appear if it has been successful, NOT OK will appear if the procedure has failed.

After the printing of the procedure result, the device offers the execution of the function of paper characterization “Characterize Paper” and the change of the “Notch/B.Mark Threshold” parameter which represents the detection threshold of the notch. Choosing the “Yes” value for the “Characterize Paper” parameter, the device prints a graphic representation (see following figures) of the outgoing voltage of the alignment sensor (expressed as a percentage) and the “Notch/B.Mark Threshold” value. This graphic representation is useful to set the most suitable value to assign to the “Notch/B.Mark Threshold” parameter and then to better identify the optimal threshold value which takes into account the variations of the signal and the small oscillations around zero.

The following figure shows an example of paper with the non-thermal paper printed with black marks: the outgoing voltage is constant while passing the white paper between two notches and presents a peak at each black mark.
In this case, the optimal value for the “Notch/B.Mark Threshold” parameter is placed about half of the peak.



The following figure shows an example of paper with the non-thermal paper printed with black marks and other graphics (for example, a barcode): the outgoing voltage is constant while passing the white paper between two notches, presents a peak at each black mark and presents some “noise” at each barcode. In this case, the optimal value for the “Notch/B.Mark Threshold” parameter is located about halfway between the peak value and the maximum value of the “noise”.



If the maximum value of “noise” read by the sensor is very close to the peak value, it might be difficult to place the value of the “Notch/B.Mark Threshold” at an intermediate point. In these cases, it is mandatory that the portion of paper between the point of printing end and the front notch is completely white (no graphics). In this way, the only next graphic detected by the sensor for alignment after the printing end will be the notch.

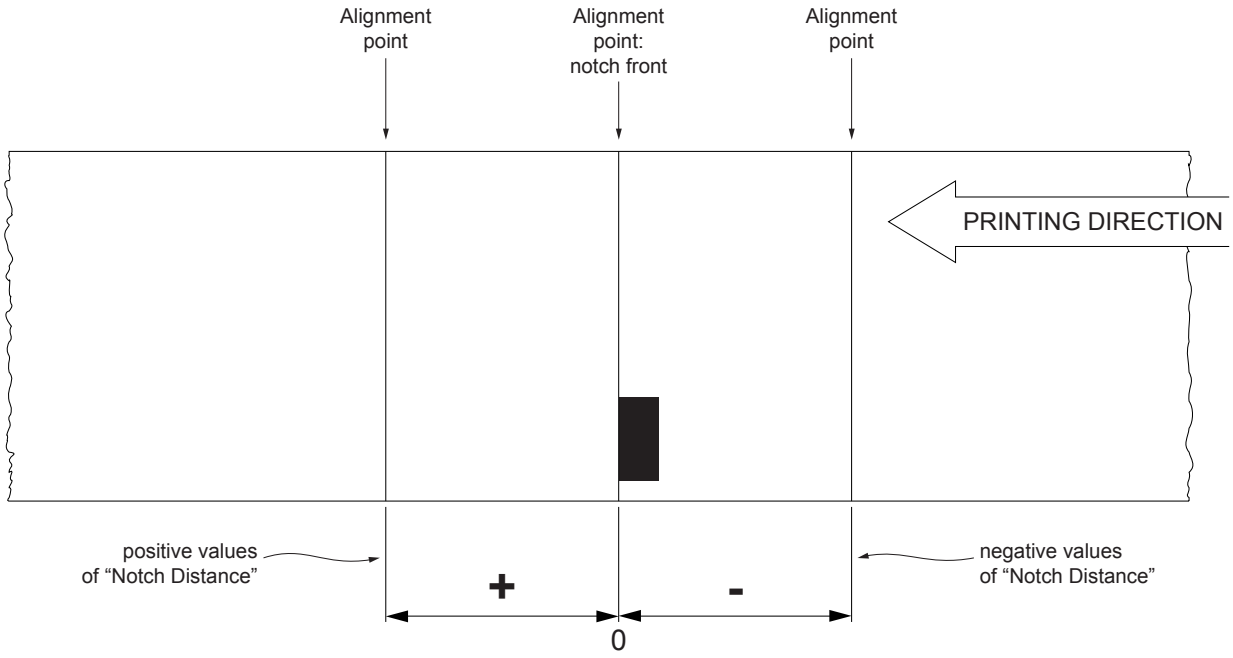
11.3 Alignment parameters

The “alignment point” is defined as the position inside the ticket to use for the notch alignment.
The distance between the notch edge and the alignment point is defined as “Notch Distance”.

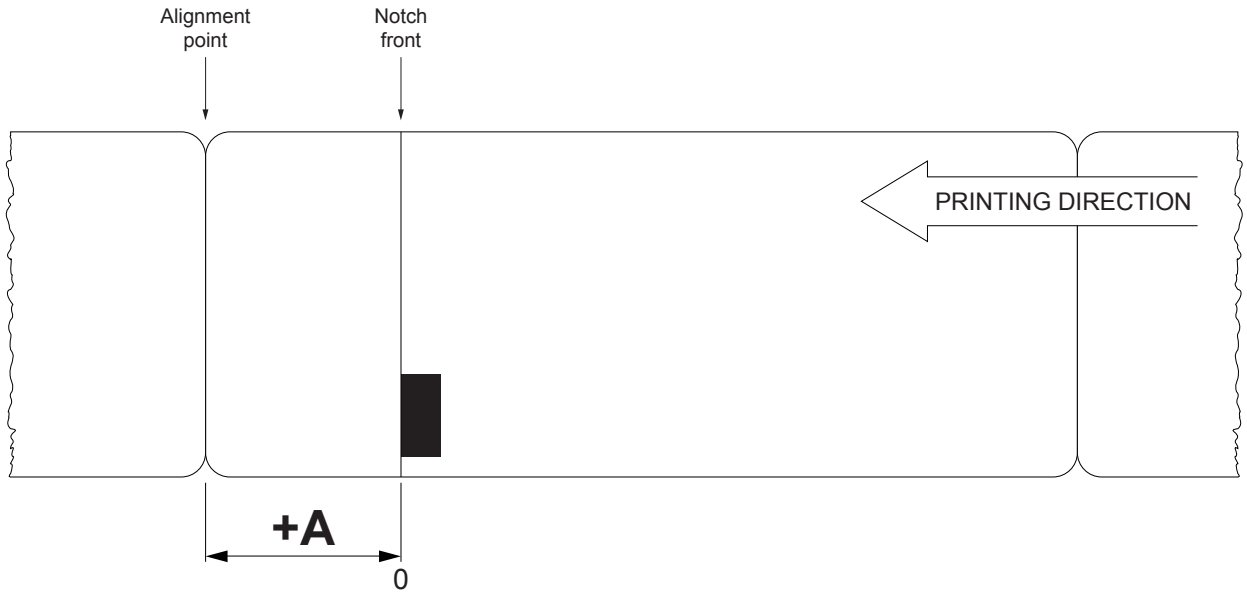
Referring to the front of the notch, the value of “Notch Distance” varies according to emulation set:

- VKP80III emulation: “Notch/Distance” value varies from -5 mm minimum and 99.9 mm maximum
- VKP80II emulation: “Notch/Distance” value varies from 0 mm minimum and 32 mm maximum.

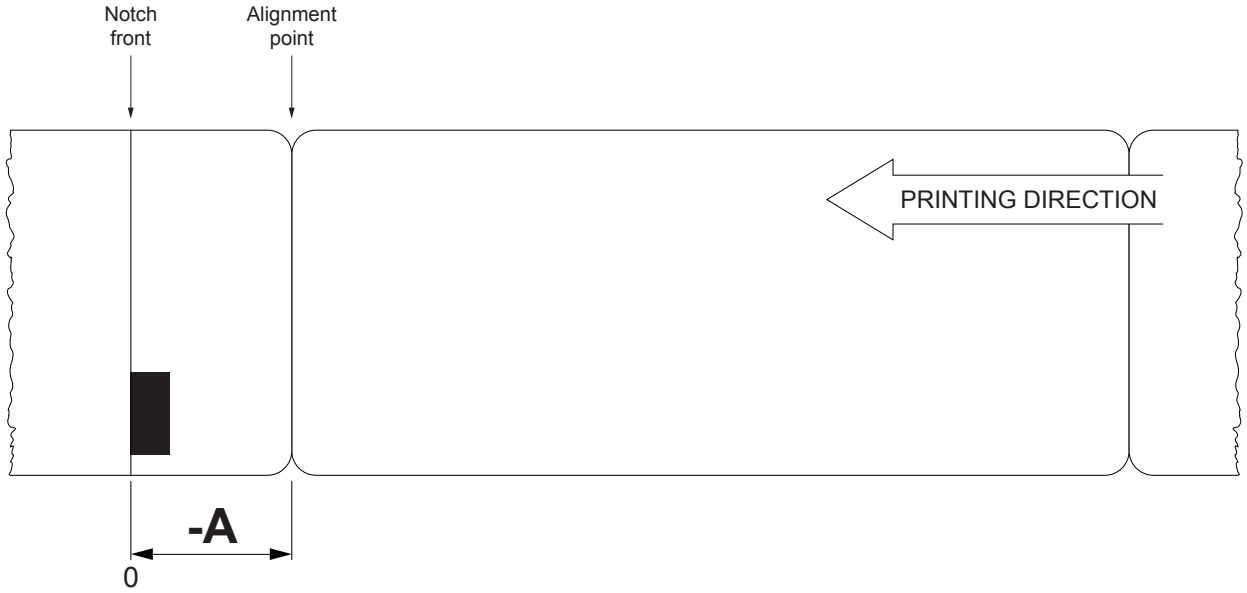
If the “Notch Distance” value is set to 0, the alignment point is set at the beginning of the notch.



The following figure shows an example of paper with alignment point set by a positive value of “Notch Distance” (“Notch Distance” = + A):

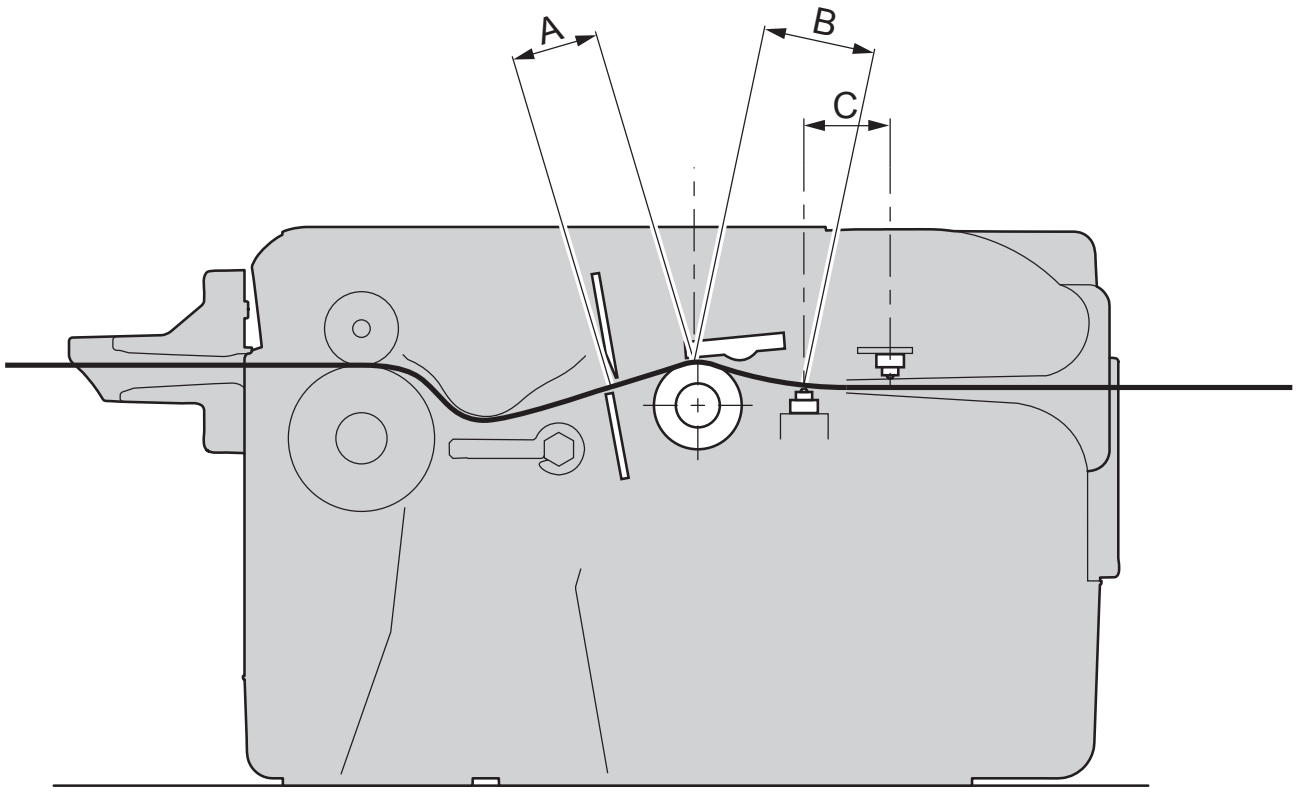


To set a negative value of the “Notch Distance” parameter is useful in cases where the alignment point refers to the notch printed on the previous ticket. In the following images, the value of “Notch Distance” parameter is set to -A.



The following figure shows a section of the device with the paper path and the distances between the alignment sensors, the printing head and the cutter (cutting line), where:

A = 11.9 mm = distance between the cutting line and the printing line on paper.
B = 15.3 mm = distance between the the printing line and the mobile alignment sensors (bottom).
C = 11.8 mm = distance between the mobile alignment sensor (bottom) and the upper alignment sensor (optional).



VKP80II, VKP80III emulation

To define the alignment point you need to set the device parameters that compose the numerical value of the “Notch Distance” parameter (see par. 6.4).
For example, to set a notch distance of 15mm between the notch and the alignment point, the parameters must be set on the following values:

Notch Distance Sign	: +
Notch Distance [mm x 10]	: 1
Notch Distance [mm x 1]	: 5
Notch Distance [mm x .1]	: 0

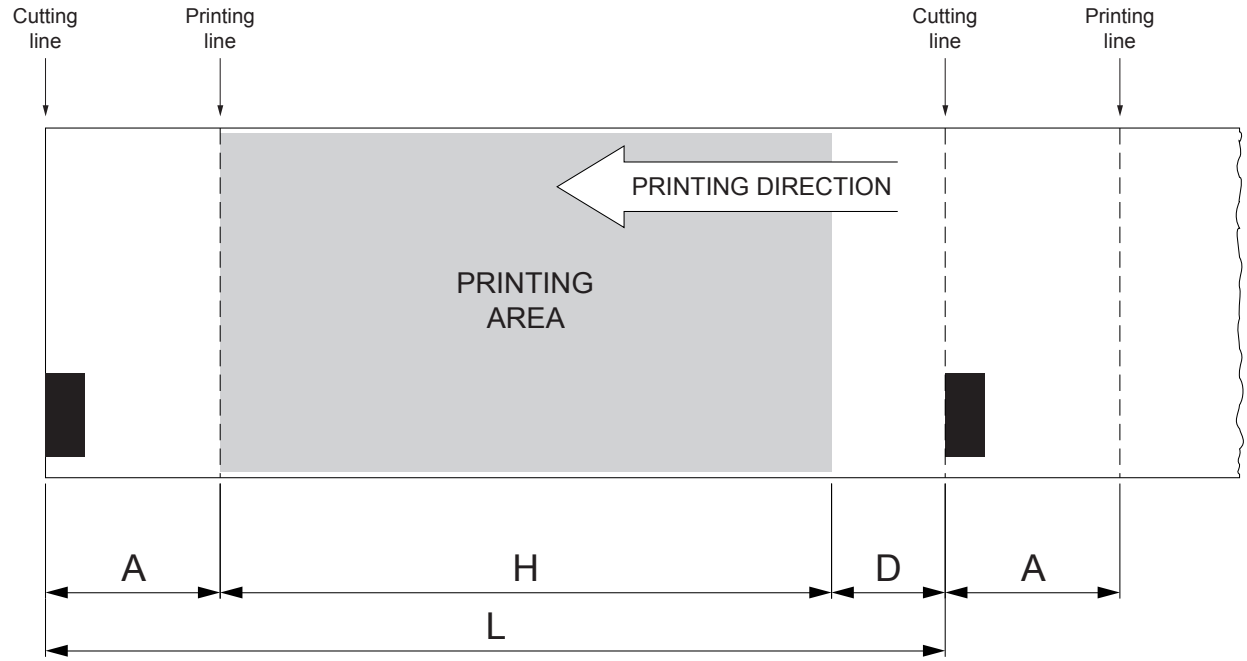
The “Notch Distance” parameter, may be modified as follows:
- during the Setup procedure of the device (see chapter 6).
- by using the 0x1D 0xE7 command (for more details, refer to the Commands Manual).
- by driver.

11.4 Printing area

In order to print ticket containing only one notch and to not overlay printing to a notch (that will make it useless for the next alignment), it is important to well calibrate:

- the length of the printing area of ticket according to the inter-notch distance;
- the value for the paper recovery after a cut (if present)

The following figure shows an example of tickets with “Notch Distance” set to 0:



A “Non-printable area” generated from:

“Distance between cutter/printing head” - “Value for the paper recovery after a cut”

where:
“Distance between cutter/printing head” = 11.9 mm (fixed distance)
“Value for the paper recovery after a cut” in VKP80II emulation= 0 mm,
“Value for the paper recovery after a cut” in VKP80III emulation = variable from 0 mm (default value) to 11.9 mm according to the settings of 0x1C 0xC1 command (see Command Manual)

H Distance between the first and the last print line, called “Height of the printing area”.

L Distance between an edge of the notch and the next one, called “Inter-notch distance”.

D Automatic feed for alignment at the next notch.

To use all the notches on the paper, you must comply with the following equation:

$$H + A \leq L$$

The height of the printing area H can be increased to make no progress on alignment D but no further.

12 TECHNICAL SERVICE

In case of failure, send the 4 pieces of information listed below to our support team:

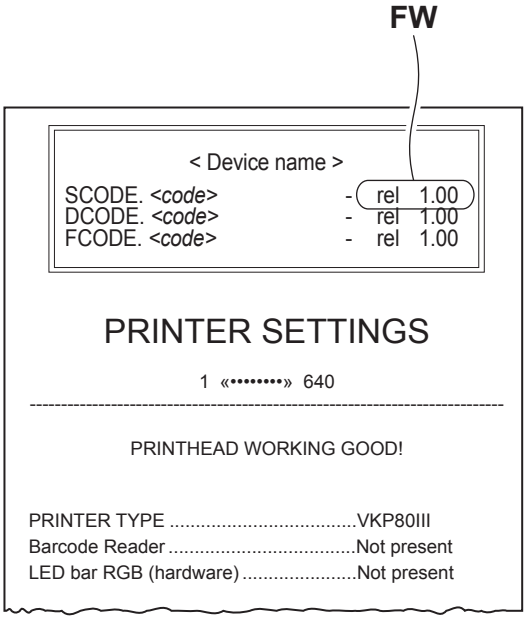
1. Product code
2. Serial number
3. Hardware release
4. Firmware release

To get the necessary data, proceed as follows:

1

Write down the data printed
on the product label (see paragraph 3.4).

2



Print a Setup report (see paragraph 6.1)
The Setup report shows
the firmware release.

3

Customer Service Department:

support@custom.it
(worldwide)

or

support@customamerica.com
(specific for North/South American customers)

Send an e-mail to the Technical Service,
with the data collected

Part Number : 76200000000300 Rev.2.10

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