USER MANUAL

KPM202
KPM203
TK202
TK203

CUSTOM®

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 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.
- When positioning the device, make sure cables do not get damaged.
- Use the type of electrical power supply indicated on the device label. If uncertain, contact your dealer.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- 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.
- 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.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- Before any type of work is done on the machine, disconnect the power supply.
- 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.

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.

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

POWER SUPPLY INFORMATION

The device is fed by a SELV power supply (Safety Extra Low Voltage).

When power supply unit is installed as accessory in the end-product, the following items must be considered:

- The power supply must be properly bonded to the main protective earthing termination.
- A suitable mechanical, electrical and fire enclosure must be provided.
- The power supply has been evaluated for use in a pollution degree 2 environment, overvoltage category II.
- An appropriate disconnect device must be provided.
- The power supply must be installed in compliance with the mounting, creepage, clearance, markings and segregation requirements of the end-use application.

WARNING: PRESENCE OF DANGEROUS VOLTAGES (POWER SUPPLY)

Risk of electric shock (accessory power supply).

WARNING: PRESENCE OF HAZARDOUS MOVING PARTS
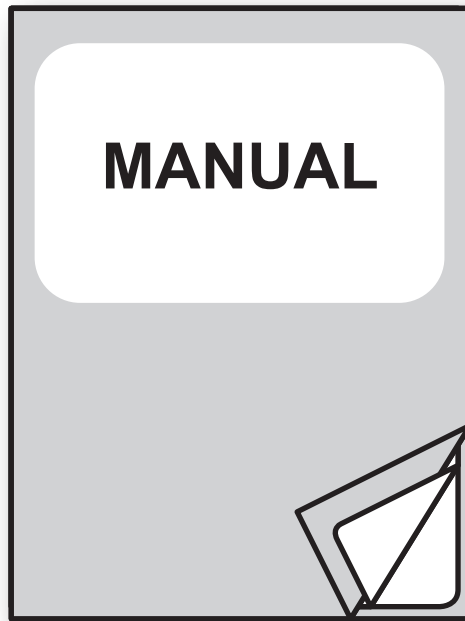
MANUAL

For details on the commands,
refer to the manual with code **77200000030600**

TABLE OF CONTENTS

7 SPECIFICATION

8 CONSUMABLES

9 ACCESSORIES

10 ALIGNMENT

11 TECHNICAL SERVICE

12 ADVANCED FUNCTIONS

1 INTRODUCTION

1.1 Document structure

This document includes the following chapters:

1	INTRODUCTION	information about this document
2	DESCRIPTION	general description of device
3	INSTALLATION	information required for a correct installation of the device
4	OPERATION	information required to make the device operative
5	CONFIGURATION	description of the configuration parameters of the device
6	MAINTENANCE	information for a correct periodic maintenance
7	SPECIFICATION	technical specification for the device and its accessories
8	CONSUMABLES	description and installation of the available consumables for the device
9	ACCESSORIES	description and installation of the available accessories for the device
10	ALIGNMENT	information required for managing the paper alignment
11	TECHNICAL SERVICE	information required for contacting the technical service
12	ADVANCED FUNCTIONS	information about special functions available with the device

1.2 Explanatory notes used in this manual

NOTE:	Gives important information or suggestions relative to the use of the device

ATTENTION:	Gives information that must be carefully followed to guard against damaging the device

DANGER:	Gives information that must be carefully followed to guard against operator injury or damage

2   DESCRIPTION

2.1   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 device 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.

KPM202, KPM203

1.   Installation instruction sheet

2.   Power supply cable

3.   Spacer for paper width <40mm

4.   Additional fixing brackets

5.   Ruler

6.   Device
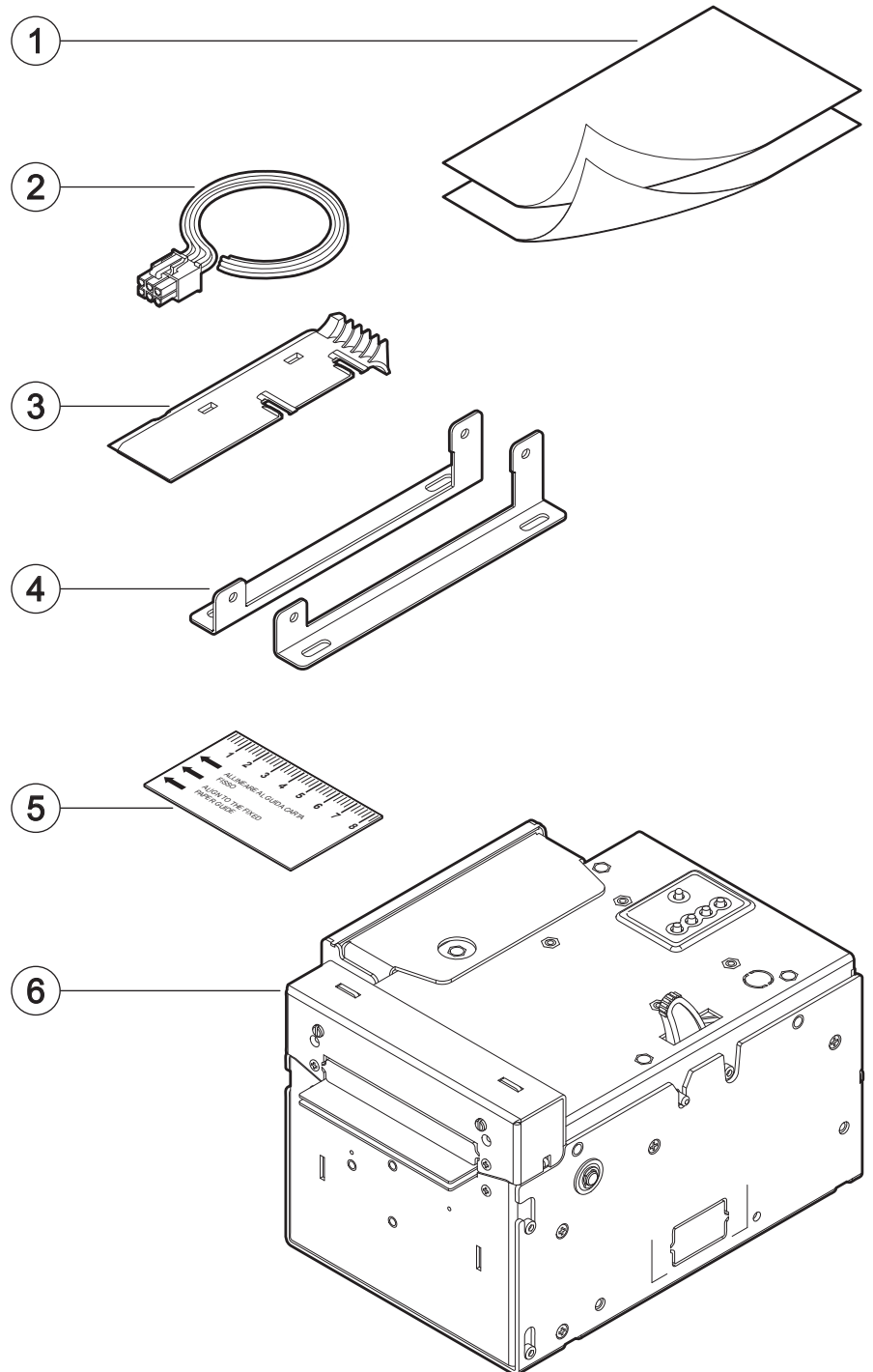
TK202, TK203

1. Power supply
2. Short guide
3. Power supply cable 220V
4. USB cable
5. Serial cable
6. Power supply cable 24V
7. Spacer for paper width <40mm
8. Ruler
9. Device
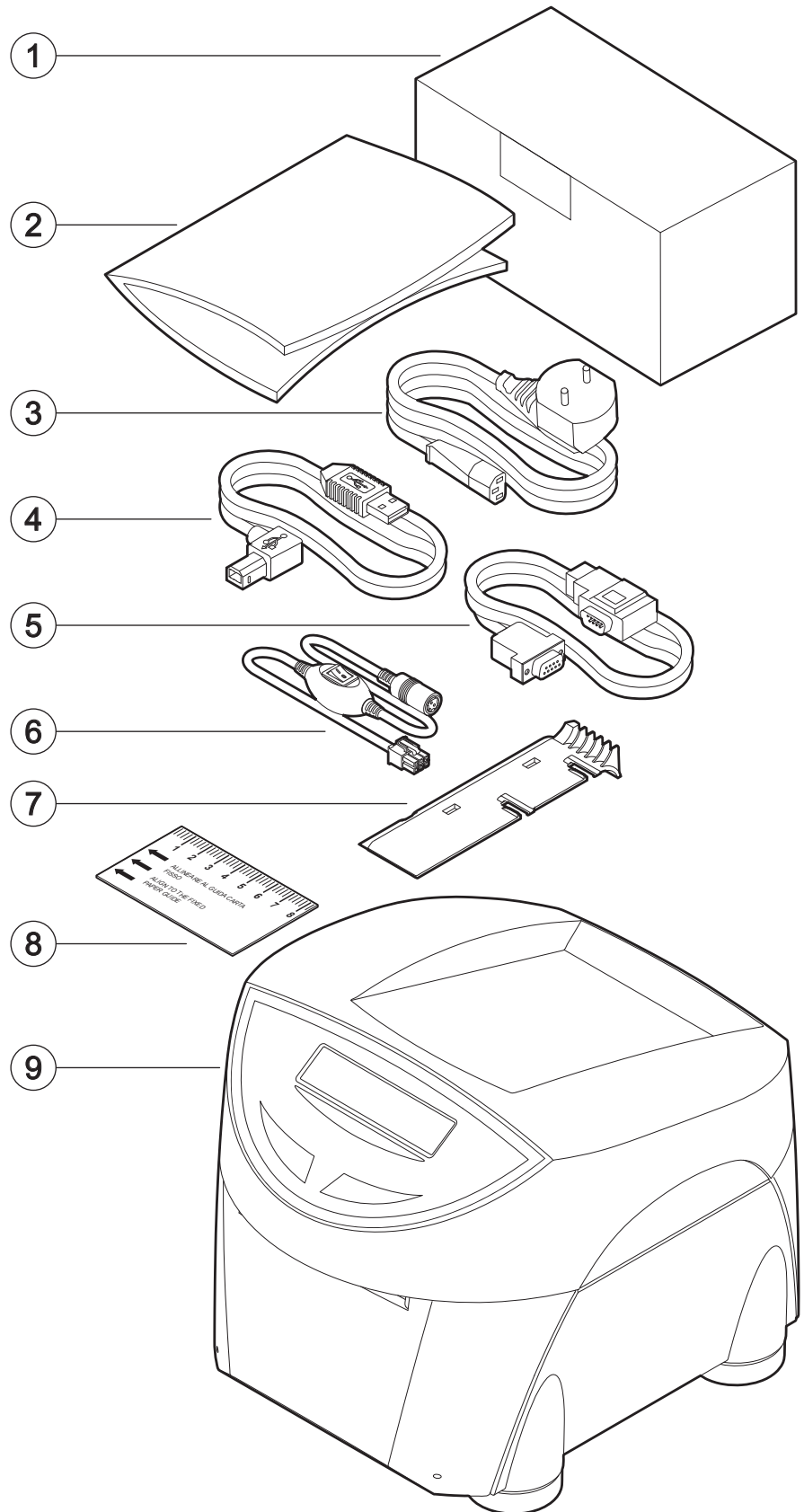
- Open the device packaging.
- Take out the device.
- Take out the rest of the content.
- Keep the box, trays and packing materials in the event the printer must be transported/shipped in the future.

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2.2 Device components: external views

KPM202, KPM203

1. Printing head group
2. Device chassis
3. External near paper end sensor connector
4. Paper out
5. Frontal cover
6. Opening lever for upper cover

7. Paper input
8. S2 key
9. Status led
10. S1 key
11. FORM FEED key
12. LINE FEED key
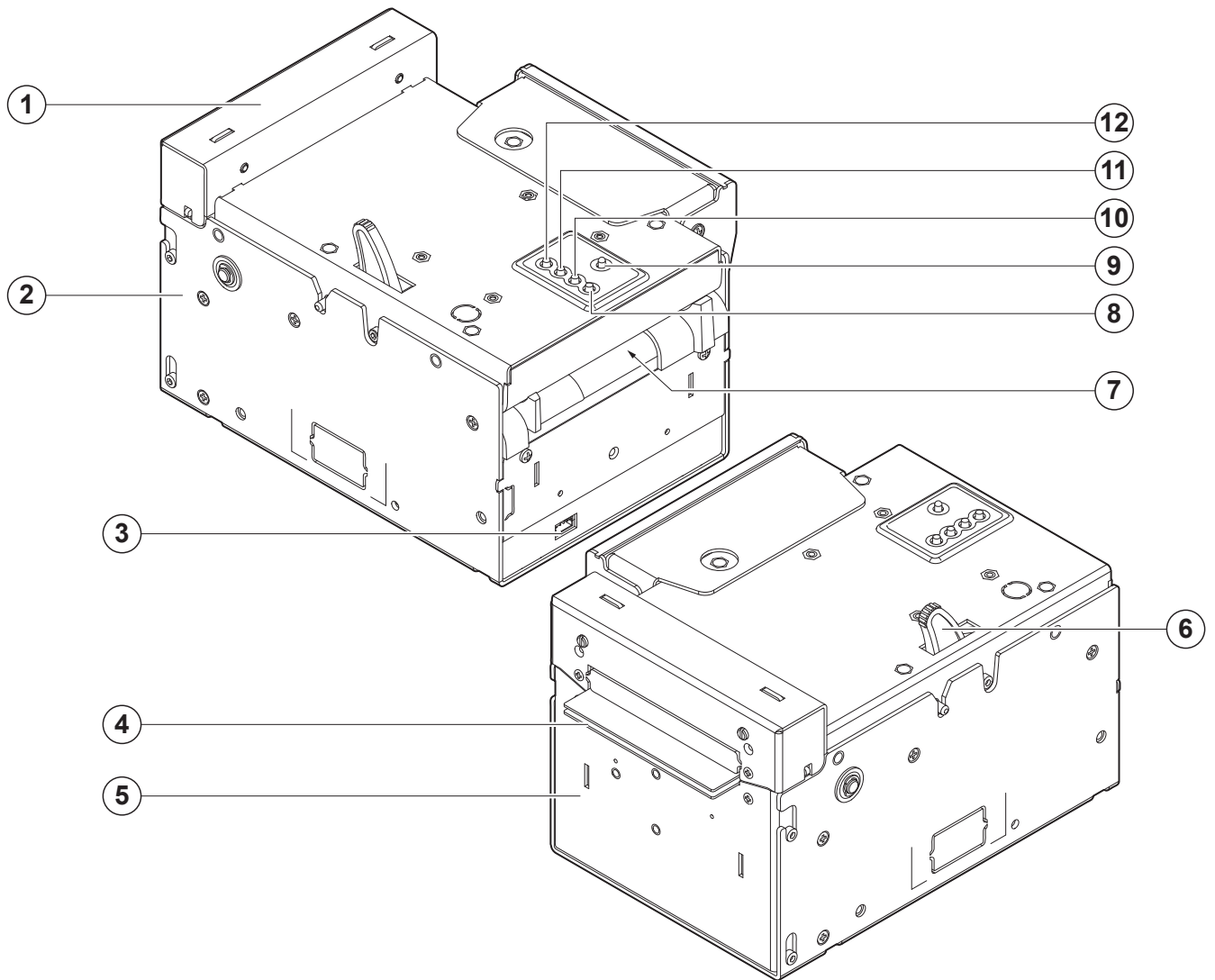
TK202, TK203

1. Paper out
2. FORM FEED key
3. LINE FEED key
4. Display
5. Connectors cover
6. Internal printer (see previous pages)
7. Paper input

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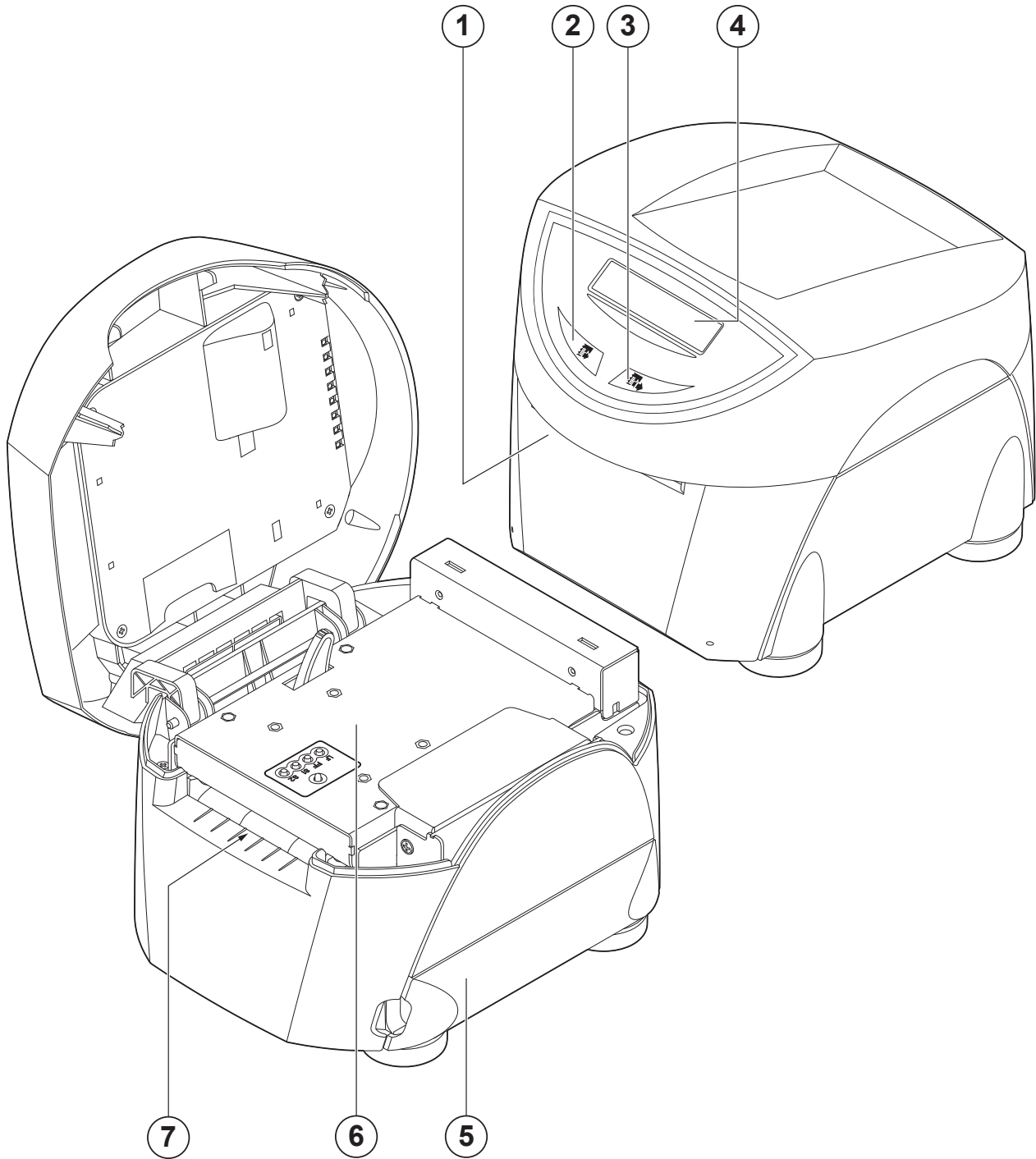
2.3 Device components: connector view

1. USB port
2. RS232 serial port
3. Power supply port
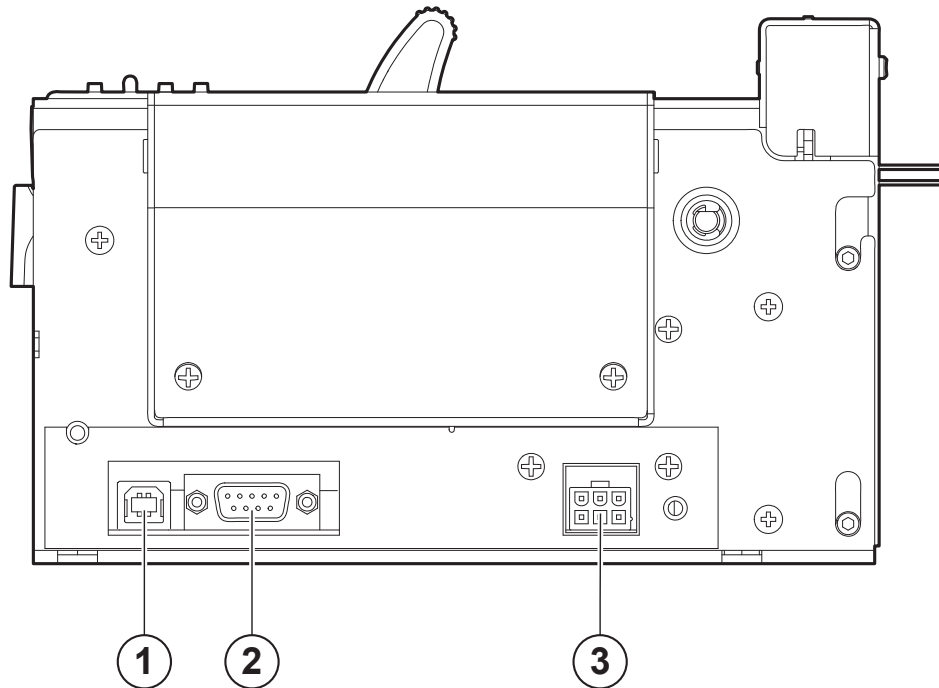
NOTE:
For ease of reference, for some models is represented only the internal printer group without the external plastic chassis.

2.4 Device components: internal view

1. Paper out presence

2. Opening/closing front cover sensor

3. Unlocking button for mobile paper guide

4. Mobile sensors for notch

5. Head temperature sensor

6. Sensor of paper presence

7. Opening/closing upper cover sensor
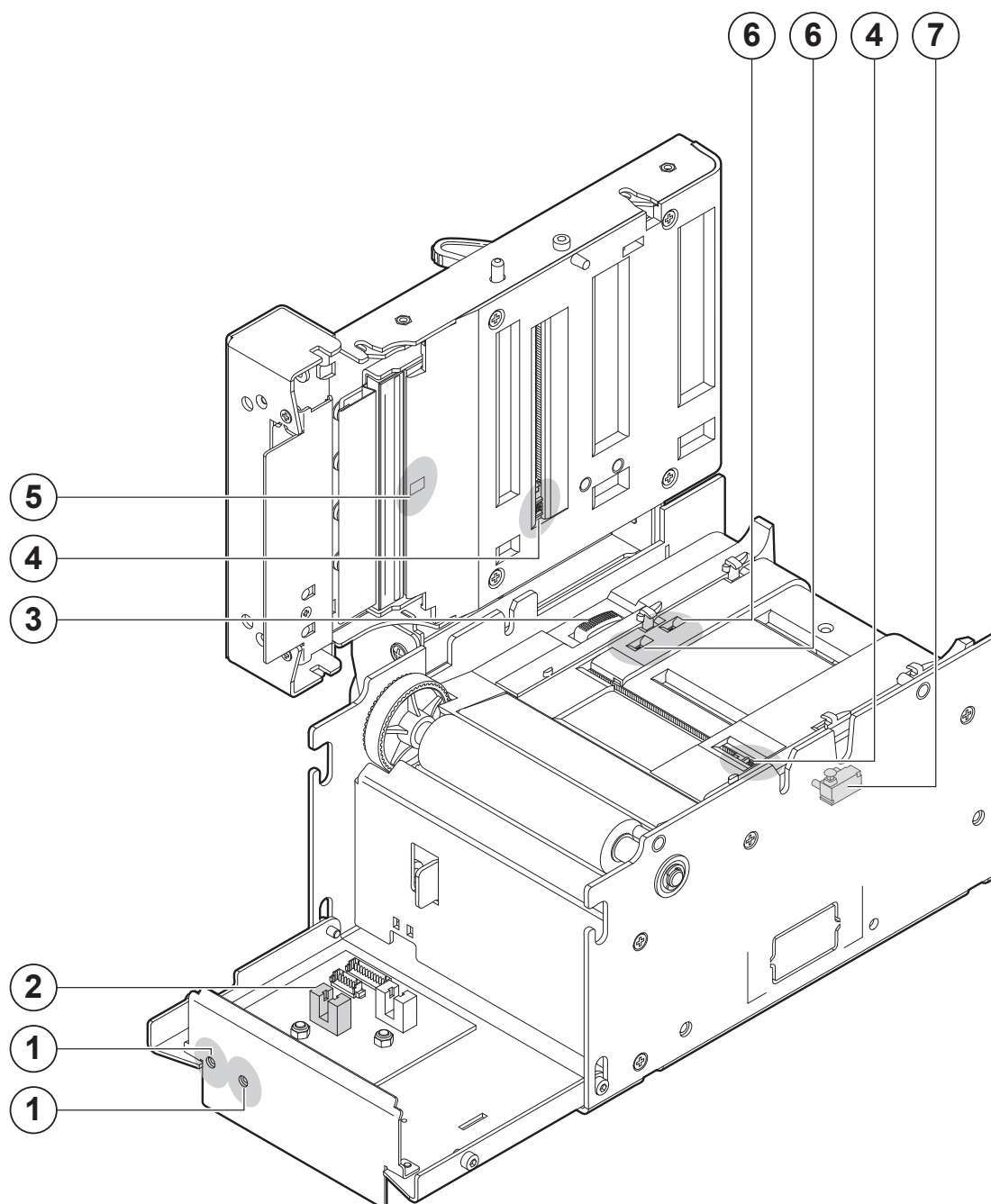
NOTE: For ease of reference, for some models is represented only the internal printer group without the external plastic chassis.

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2.5 Device labels

PC   = Product code (14 digits)
SN   = Serial number
HW   = Hardware release
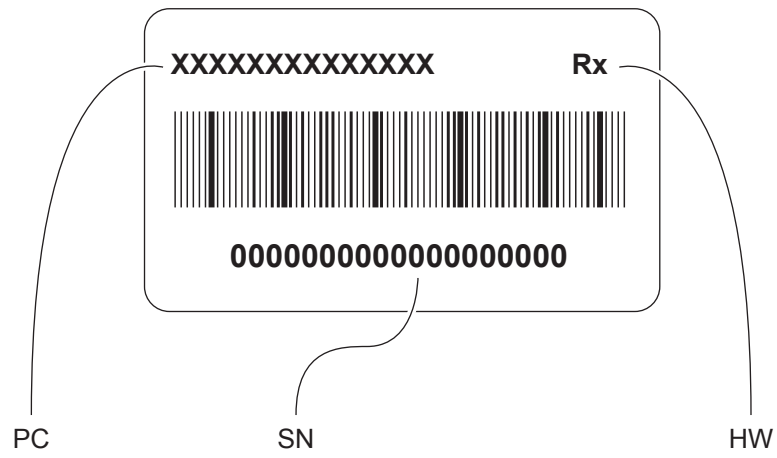
2.6 Key functions: power up

POWER UP

LF FF S1 S2 — Hold down	LF **FF** S1 S2 — Hold down	LF FF **S1** S2 — Hold down	LF FF S1 **S2** 🚫
print the SETUP report with printer parameters	perform the FONT TEST	initialize the notch sensor and characterizes the paper	

LF FF S1 S2 — Fast push	LF FF **S1** S2 — Fast push	LF FF S1 **S2** — Fast push
enter the SETUP MODE for the printer parameters	enter the CLOCK SETUP	skip the SETUP MODE

LF FF S1 S2 — Fast push	LF **FF** S1 S2 — Fast push	LF FF S1 **S2** — Fast push
modify selected parameter	next parameter	exit the SETUP MODE

NOTE:
During power-up, do not press the S2 key because the printer enter in a test modality that becomes unusable by keys; if this event occurs then turn off the device and turn on without pressing any key.

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2.7 Key functions: standby

| STANDBY |

LF FF S1 S2 — Fast push → advance the paper (manual feed)

LF FF S1 S2 — Fast push → present the paper for the manual tear
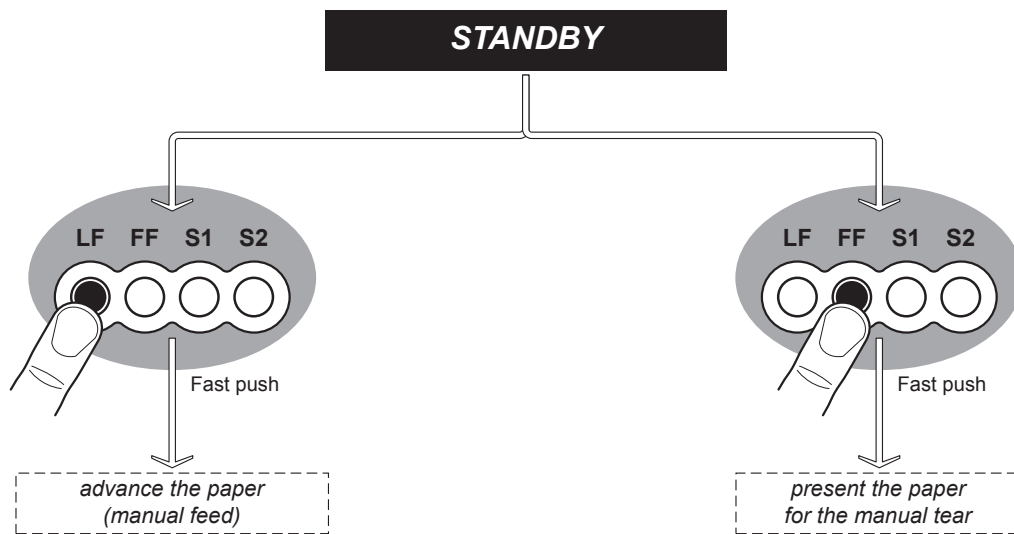
2.8 Status led flashes

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*	PRINTER OFF
GREEN	⬤	*ON*	PRINTER ON: NO ERROR
GREEN COMMUNICATION STATUS	⬤	*x 1*	RECEIVE DATA
		x 2	RECEPTION ERRORS (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	⬤	*3 x*	RAM ERROR
		4 x	EEPROM ERROR
		6 x	FRONTAL COVER OPEN

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2.9   Messages on display

The display indicates the hardware status of device. Given in the table below are the various display messages and the corresponding device status.

TK202, TK203

PRINTER READY 01/01/14 12:00:00 Device ON: no error	RECEIVING DATA SPOOLING..... Receive data
RS232 RX ERROR CHECK RS232 SETTINGS Reception errors (parity, frame error, overrun error)	COMMAND ERROR COMMAND NOT FOUND Command not recognized
COMMAND ERROR COMMAND NOT FINISH Command reception time out	PRINTHEAD OVERTEMP WAIT COOLING..... Heading over temperature
END PAPER PLEASE INSERT PAPER Paper end	PAPER JAM CLEAR PAPER PATH Paper jam
POWER VOLTAGE ERROR CHECK POWER SUPPLIER Power supply voltage incorrect	COVER ERROR CLOSE COVERS Cover open
RAM ERROR POWER ON AGAIN RAM error	EEPROM ERROR POWER ON AGAIN EEPROM error
PRINT TICKET ERROR! CHECK TICKETS PATH Notch alignment error	CUTTER ERROR CUTTER COVER OPEN! Cutter cover open

3 INSTALLATION

3.1 Fixing brackets

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The device includes a kit for the assembly of two additional fixing brackets (see following figure).

The kit contains:
1. Two fixing brackets;
2. No.4 fixing screws.

For the assembly procedure, proceed as follows:

1	2
Fix the bracket on the right side of the device.	Fix the bracket on the left side of the device.
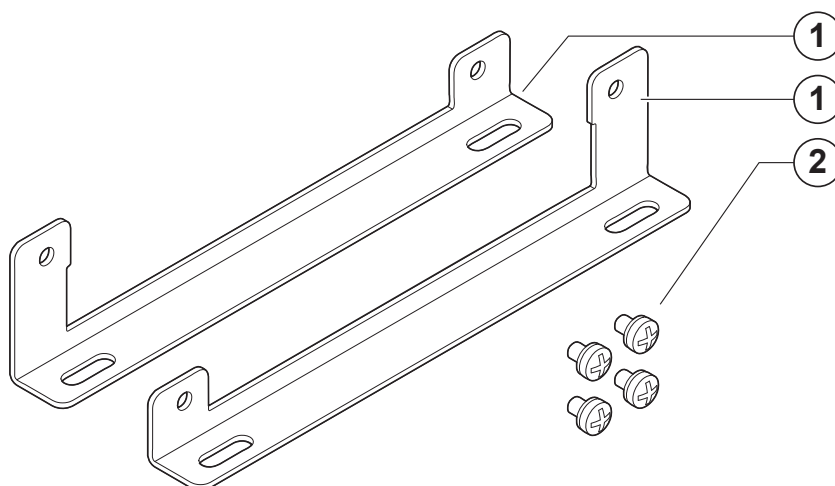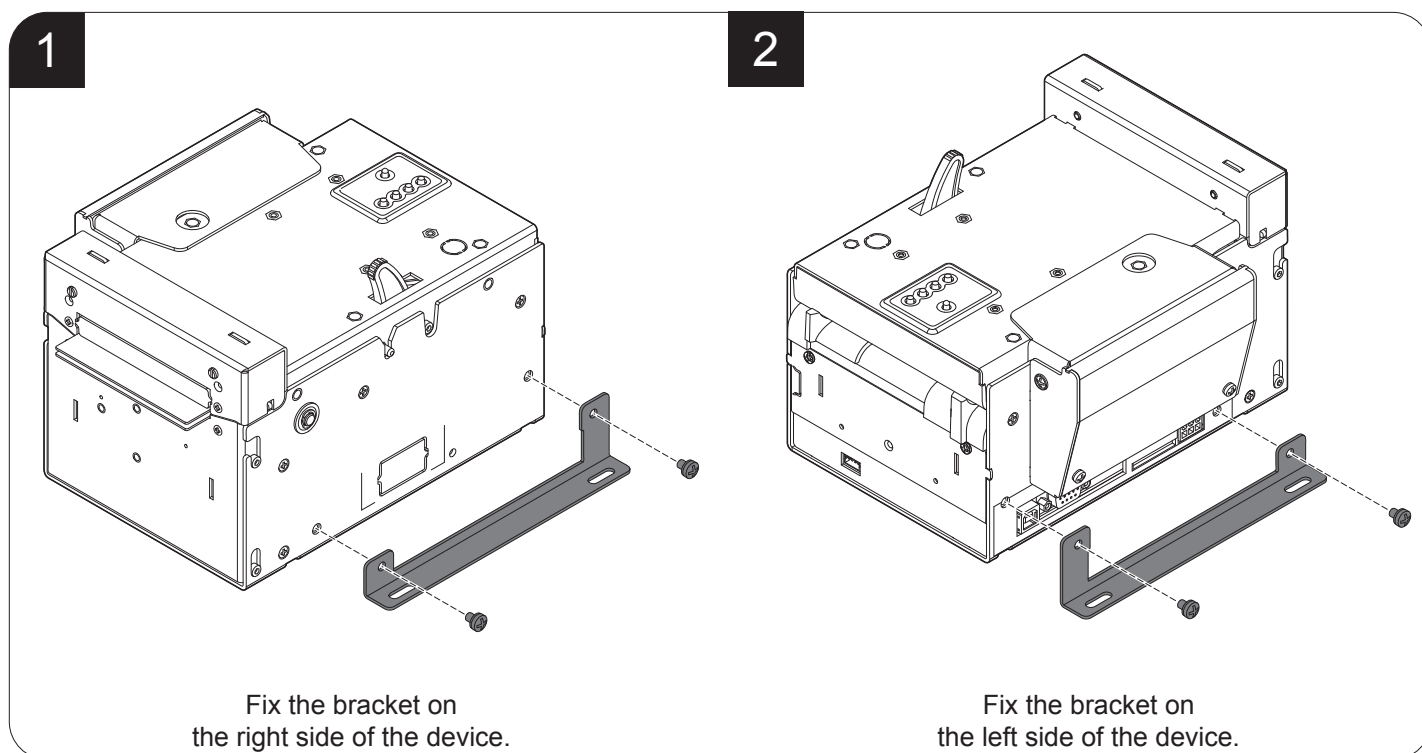
The following figure shows the device overall dimensions with the two additional brackets.
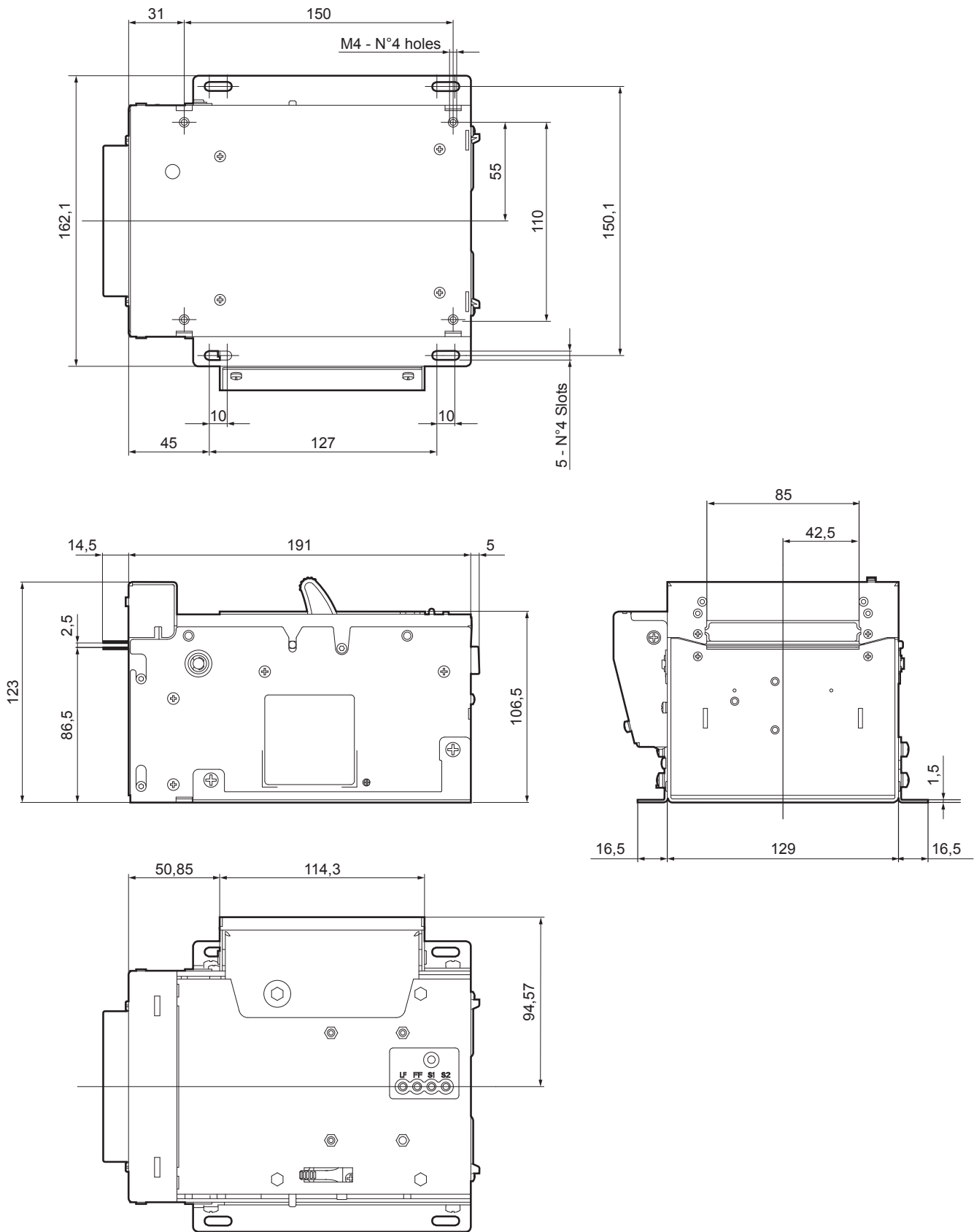
NOTE: All the dimensions shown in figures are in millimetres.

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3.2   Fixing slots

TK202, TK203

The device is provided with two slots for the mounting of the machine on desk.

The slots are placed at the bottom of the machine (see following figure)

SECTION D-D
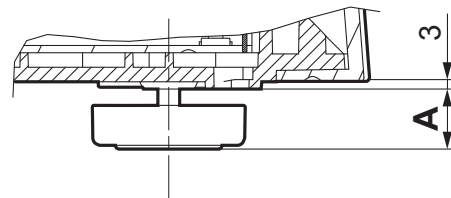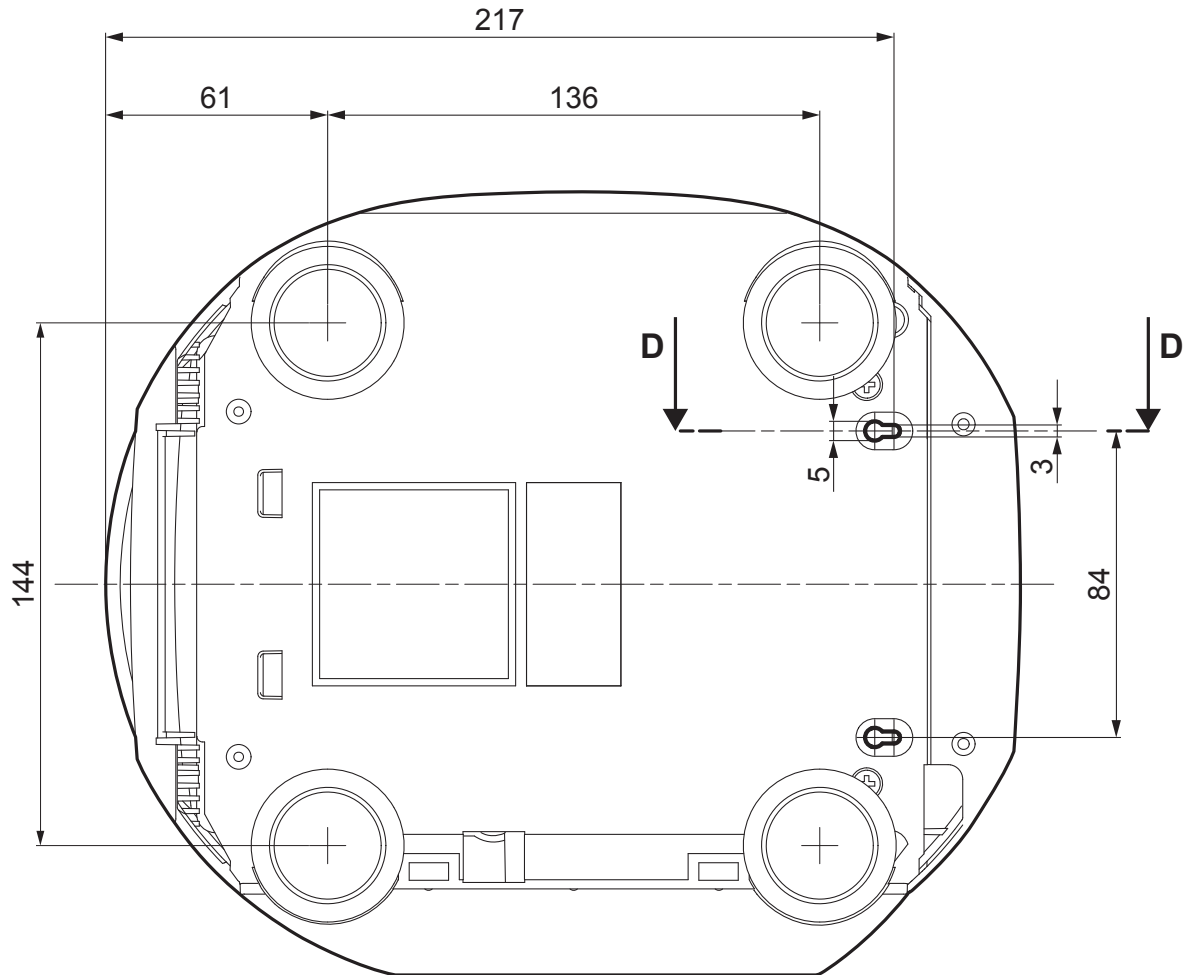
The height A shown in the previous figure varies according to the accessory mounted to the device (see Chapter 9).

Arrange the desk with two fixing pins according to the measures shown in the previous page and the values of the height A listed in the table below.

CONFIGURATION	HEIGHT
Device	12.5 mm
Device with paper roll holder (cod.974BA010000312)	16 mm
Device with plastic ticket tray (cod.976BD010000001)	18 mm
Device with metallic ticket tray (cod.976BB010000003, cod.976BB010000002)	14.5 mm

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3.3 Connections

The following figures show the possible connections for the devices.

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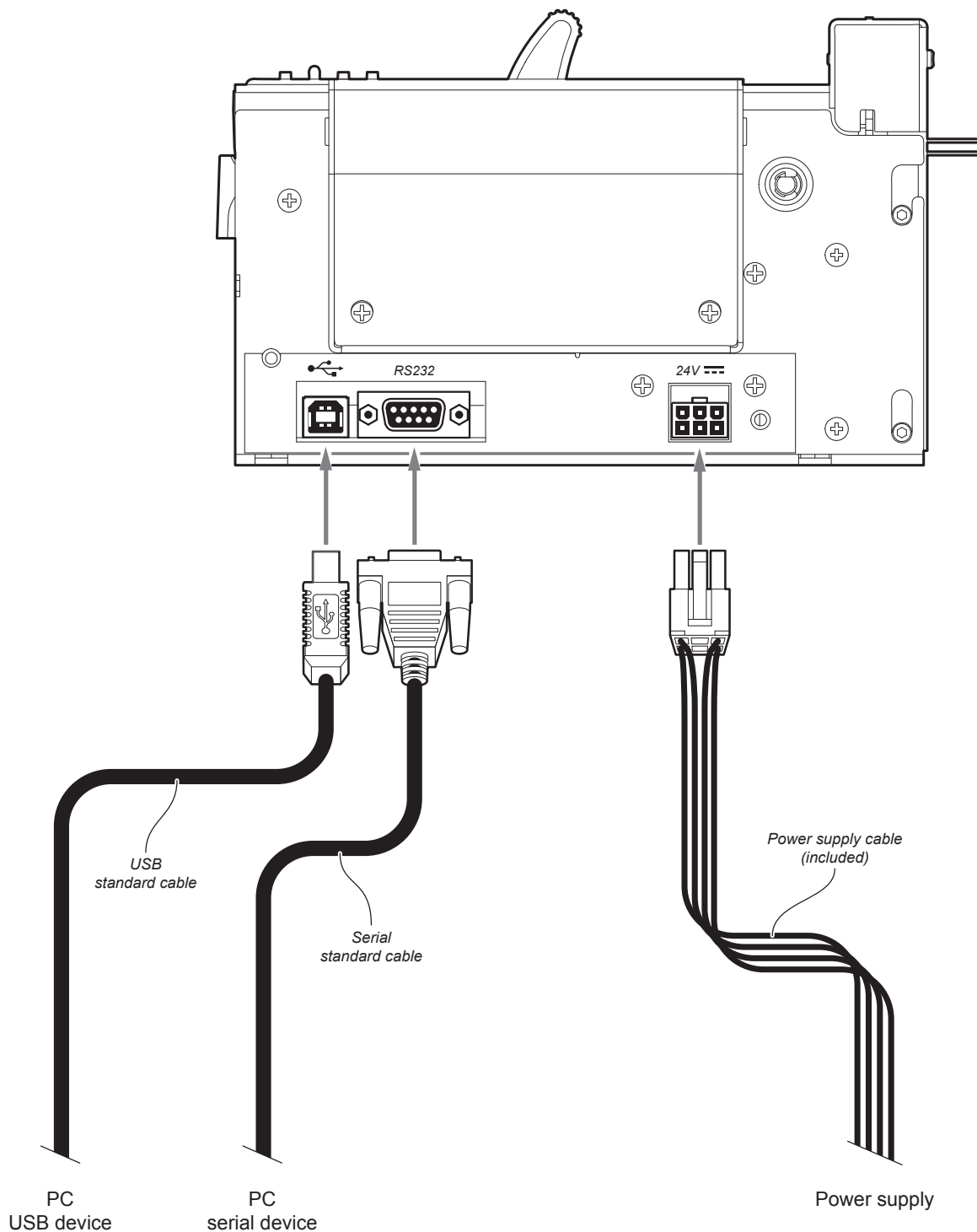
USB
standard cable

Serial
standard cable

Power supply cable
(included)

PC
USB device

PC
serial device

Power supply

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

NOTES: If serial and USB connectors are inserted, communication port is USB.

TK202, TK203

USB cable
(included)

Serial cable
(included)

Power supply cable
(included)

PC
USB device

PC
serial device

Power supply

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

NOTES: If serial and USB connectors are inserted, communication port is USB.

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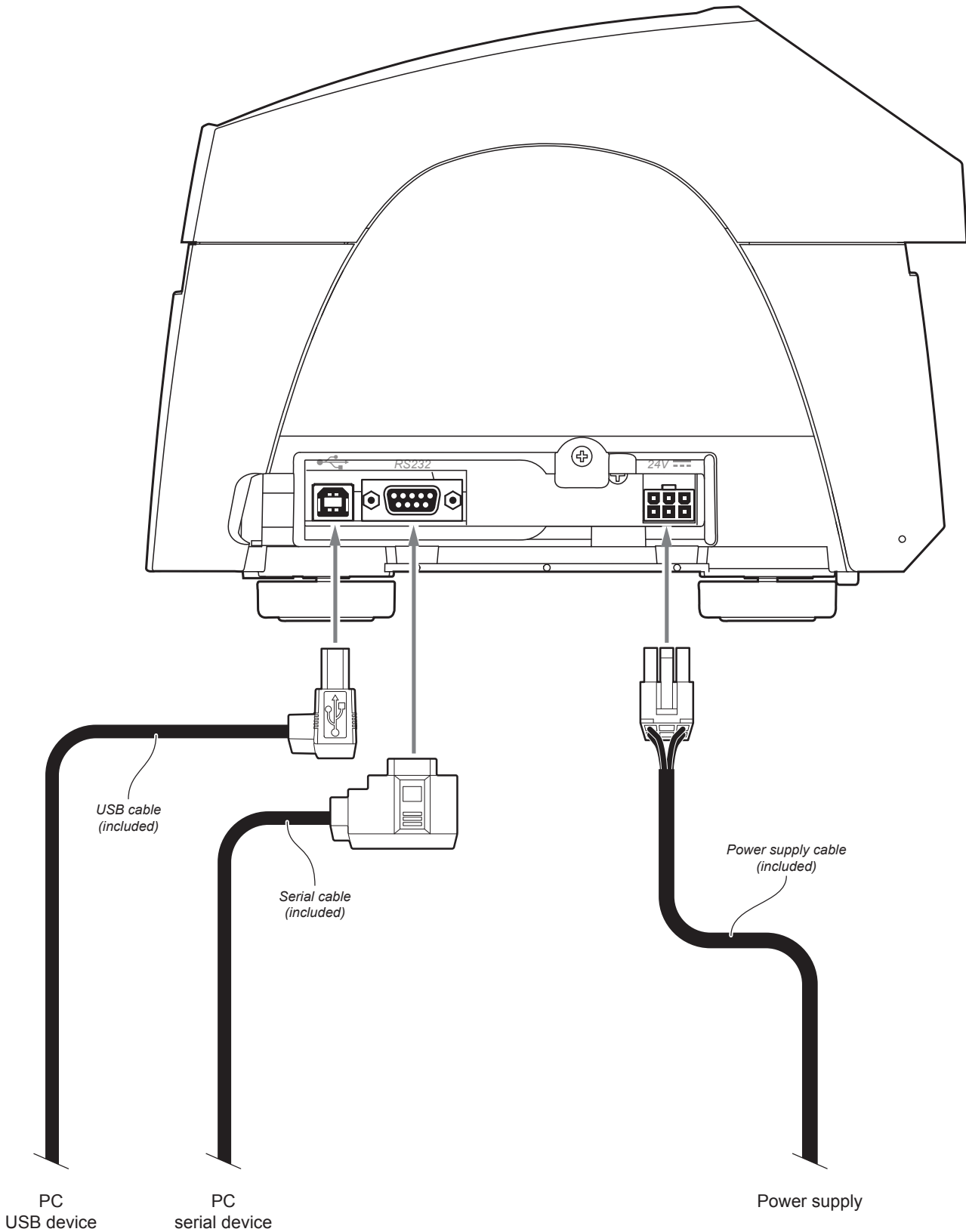
3.4 Pinout

POWER SUPPLY
Male Molex connector vertical (no. 39-30-0060)

J26		
	1	+24 Vdc
	2	+24 Vdc
	3	+24 Vdc
	4	GND
	5	GND
	6	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:

18 AWG cable

Female connector
Molex (n.39-01-2065)
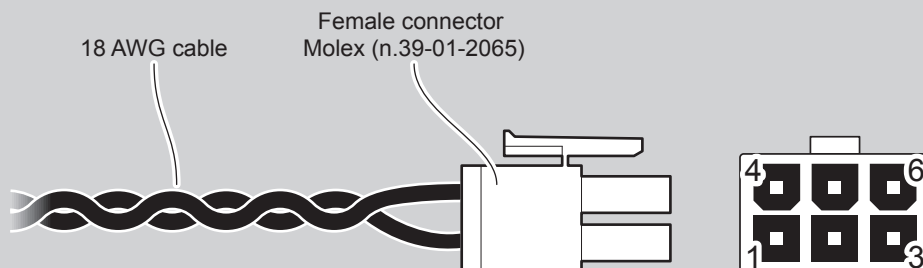
PIN	Cable color	Signal
1	Red	+24V
2	not connected	+24V
3	Red	+24V
4	Black	GND
5	not connected	GND
6	Black	GND
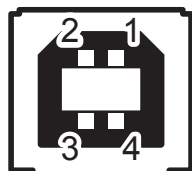
USB INTERFACE
Female USB type B connector

J13		
	1	USB-VBUS (out)
	2	PD -0
	3	PD +0
	4	GND

RS232 SERIAL INTERFACE
Female DB9 connector

J1			
	1	DCD	
	2	TX	During transmission, takes the values "0" and "1" depending on data
	3	RX	During reception, takes the values "0" and "1" depending on data
	4	DSR	
	5	GND	
	6	DTR	When "1", printer is power on
	7	CTS	
	8	RTS	When "1", printer is ready to receive data
	9	n.c.	

NOTES:
Given the presence of the RS232 standard, logic value "0" corresponds to a voltage level of between +3Vdc and +15Vdc and logic value "1" corresponds to a voltage level of between -3Vdc and -15Vdc.

DEVICE > PC connection
The following picture shows an example of connection between the device and a personal computer using a 9 pin RS232 serial connector:

DB9 (DEVICE)			DB9 (PC)
1	DTR	DCD	1
2	TXD	RXD	2
3	RXD	TXD	3
4	DSR	DTR	4
5	GND	GND	5
6	DTR	DSR	6
7	CTS	RTS	7
8	RTS	CTS	8
9			9

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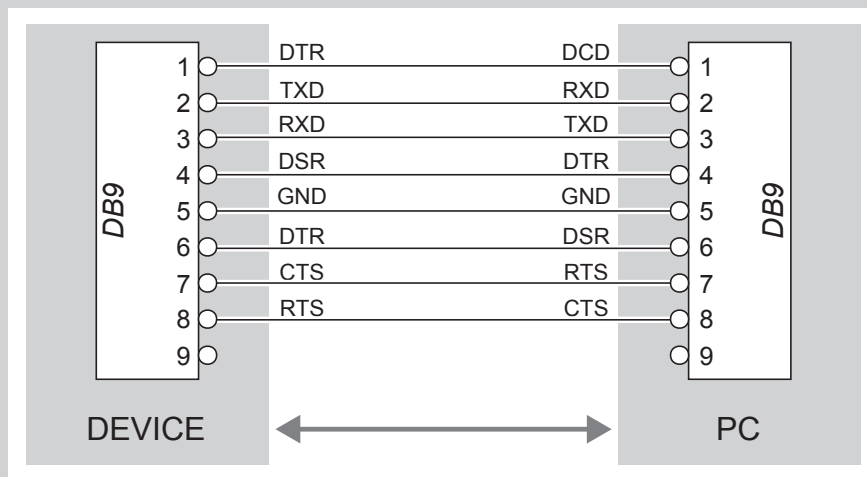
When use a serial cable, we recommend the installation of a ferrite core on the power supply cable.

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3.5 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.
	Driver for Windows VISTA (32/64bit)	
	Driver for Windows 7 (32/64bit)	
	Driver for Windows 8 (32/64bit)	
	Driver for Windows 8.1 (32/64bit)	
	Driver for OPOS	
Linux	Driver for Linux (32/64bit)	Follow the instruction get back on the README.TXT file. You can find it in the software package downloaded in advance.
Android	SDK 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 SDK.
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.

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

4 OPERATION

4.1 Adjusting paper width

Paper width may be adjusted from 40mm to 82.5mm by pressing the unlocking button and moving the adjustable paper guide as shown in the figure.
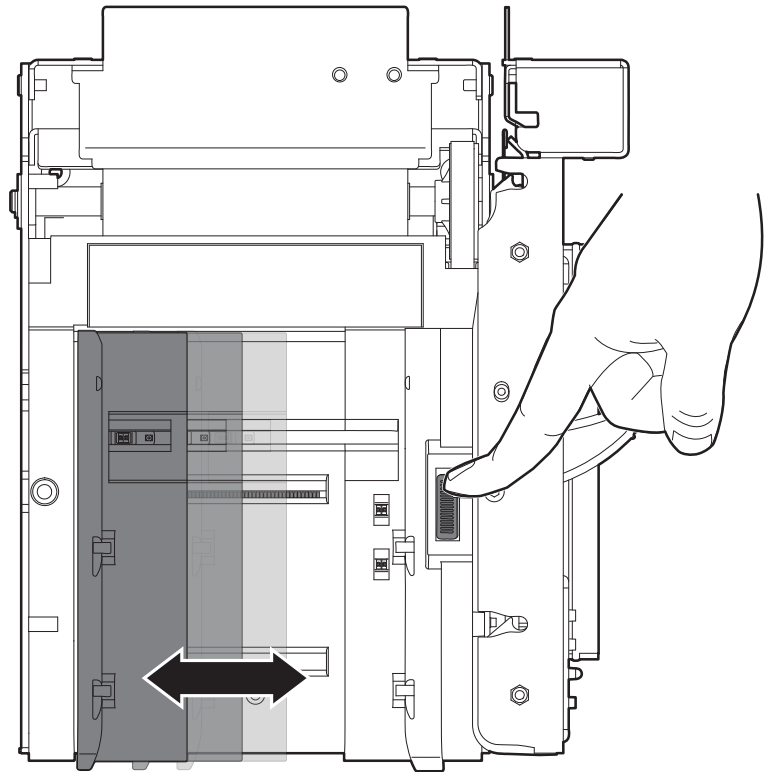
To manage paper width from 20mm to 40 mm, apply the spacer on the adjustable paper guide (see following figure), then adjust the paper width.
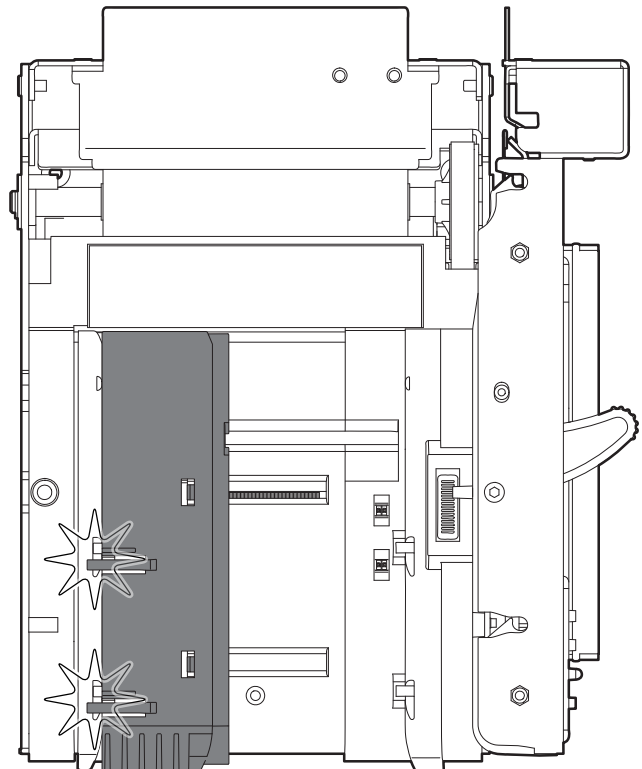
NOTE: For ease of reference, it is represented only the internal printer without the external plastic chassis.

4.2 Adjusting the alignment sensors

The device is equipped with two mobile sensors for the detection of the alignment black mark placed both on the thermal side and on the non-thermal side of paper as shown in the following figure.
The device user will need to manually move these mobile sensors according to the position and the type of the black mark on the paper (see next paragraphs).
To use these sensors, you must set the "Notch/B.Mark Position" setup parameter on the correct value (see Chapter 5).
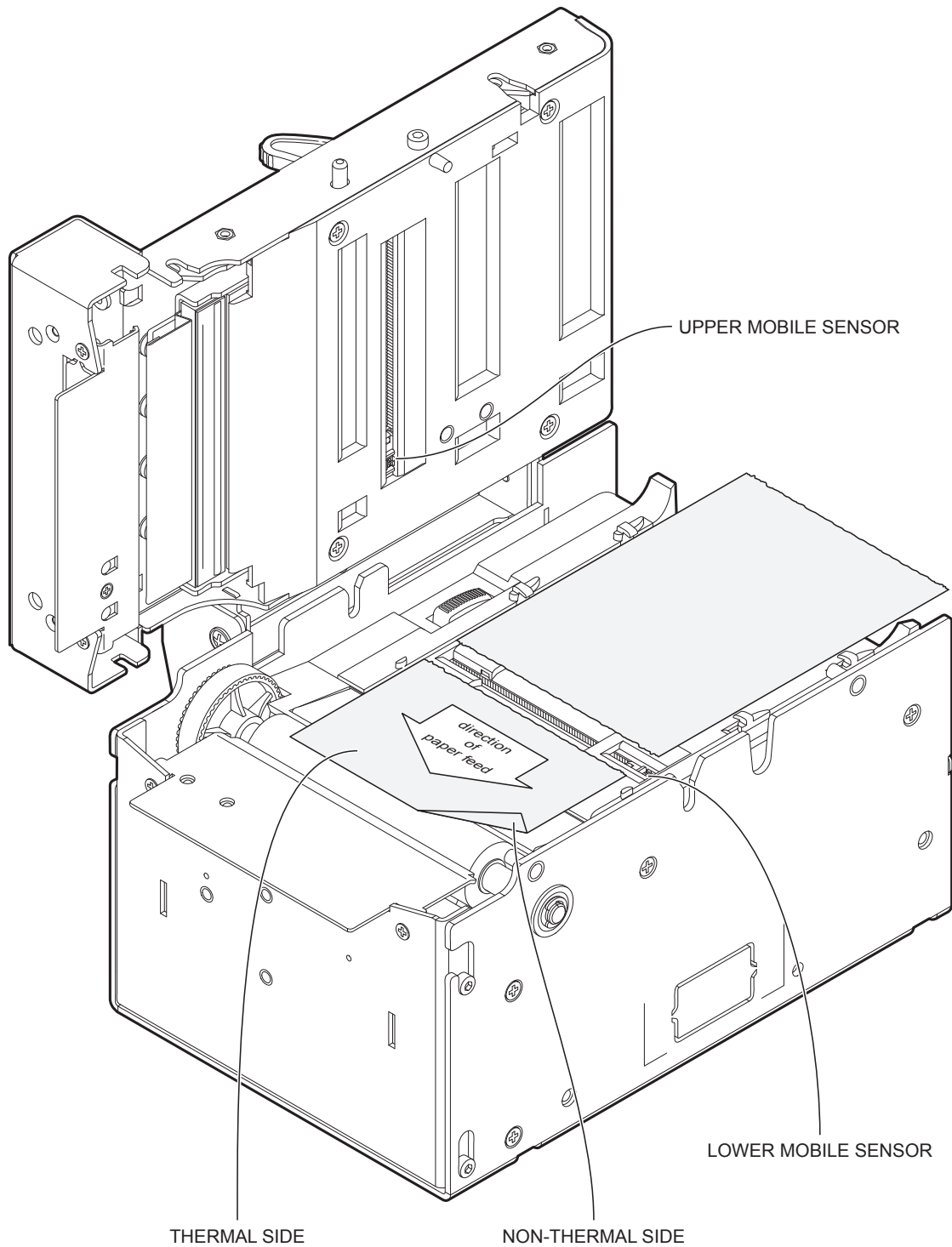
UPPER MOBILE SENSOR

direction
of
paper feed

LOWER MOBILE SENSOR

THERMAL SIDE

NON-THERMAL SIDE

NOTE:
For ease of reference, for some models is represented only the internal printer group without the external plastic chassis.

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To adjust the mobile sensors position according to the black mark position and type on paper, open the device cover (see par.4.4) and move the sensors to the desired position 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.
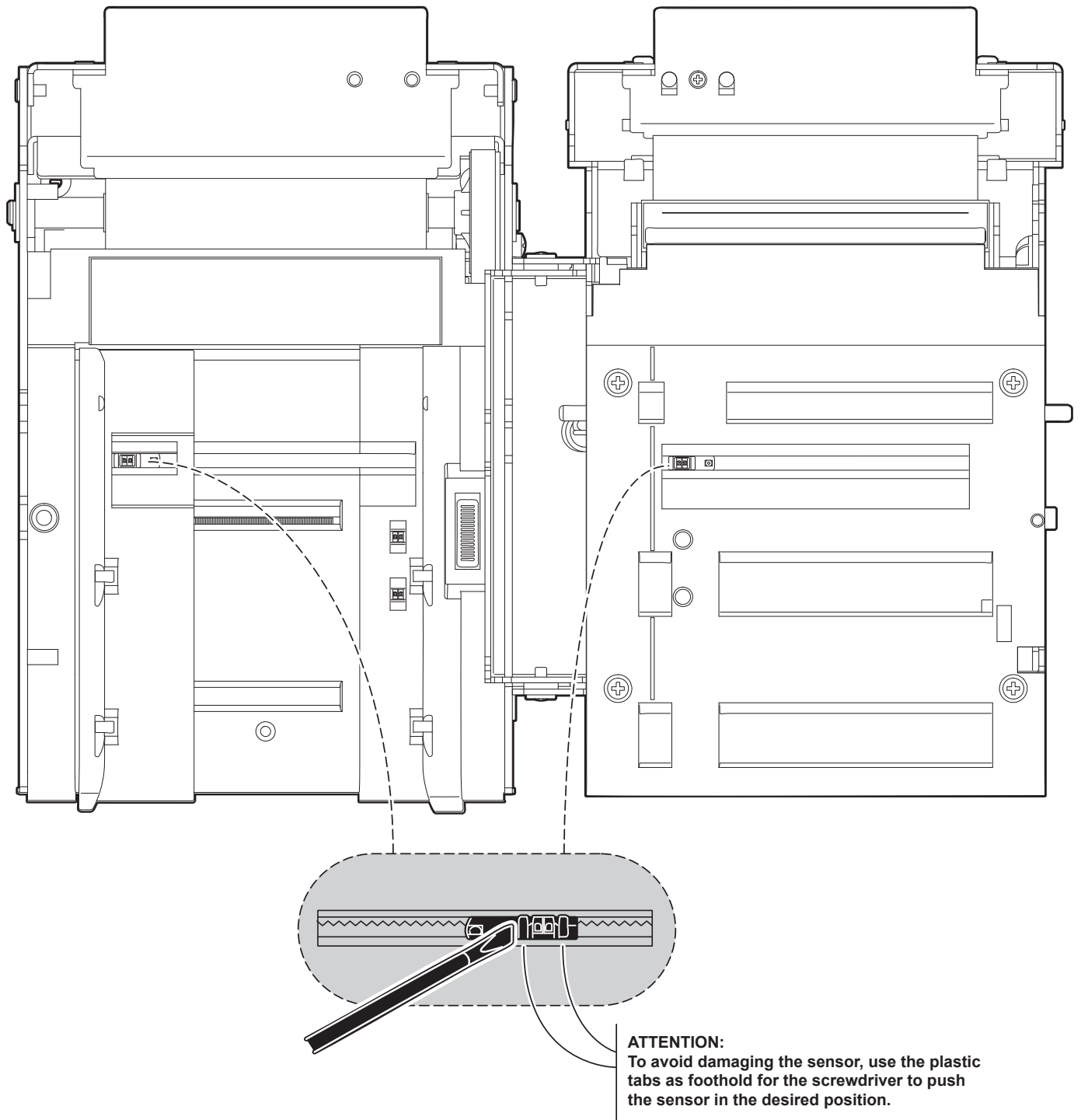
NOTES:
For ease of understanding, the image shows the two flats represented in the same plane.

For ease of reference, for some models is represented only the internal printer group without the external plastic chassis
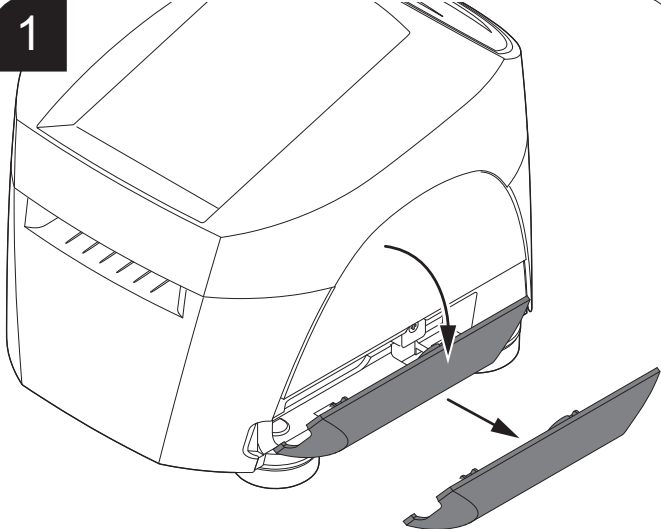
4.3 Switch the device ON

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1

*Power supply cable
(included)*

**EXTERNAL POWER
SUPPLY UNIT
(OPTIONAL)**

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

2

RS232

24V ⎓

KPM202

RoHS

CE

IN DC 24V ⎓ 0.8A

KPM203

RoHS

CE

IN DC 24V ⎓ 0.6A

*Power supply cable
(included)*

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

3

The green led turn on
and the device is ready.

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TK202, TK203

1

Remove the
connectors cover.

2

TK202

IN DC 24V === 0.8A

TK203

IN DC 24V === 0.6A
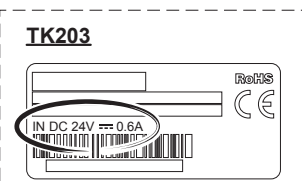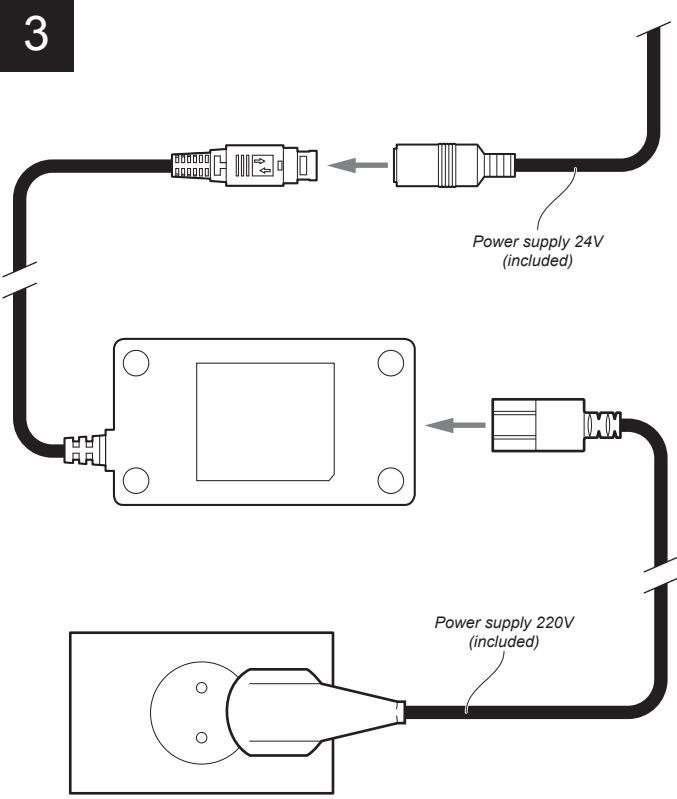
Power supply 24V
(included)

Connect the power supply 24V to the device.
Use the type of electrical power supply
indicated on the label.

3

Power supply 24V
(included)

Power supply 220V
(included)

Connect both the power supply cables
(24V and 220V) to the power supply and
connect the cable 220V to outlet.

4

```
PRINTER READY
01/01/14  12:00:00
```

The display turns on with the standby message.
The device is ready.

4.4   Loading the paper roll

To change the paper proceed as follows. At every change of paper, check inside the printer to locate and remove any scraps of paper.

1   **TK202, TK203**
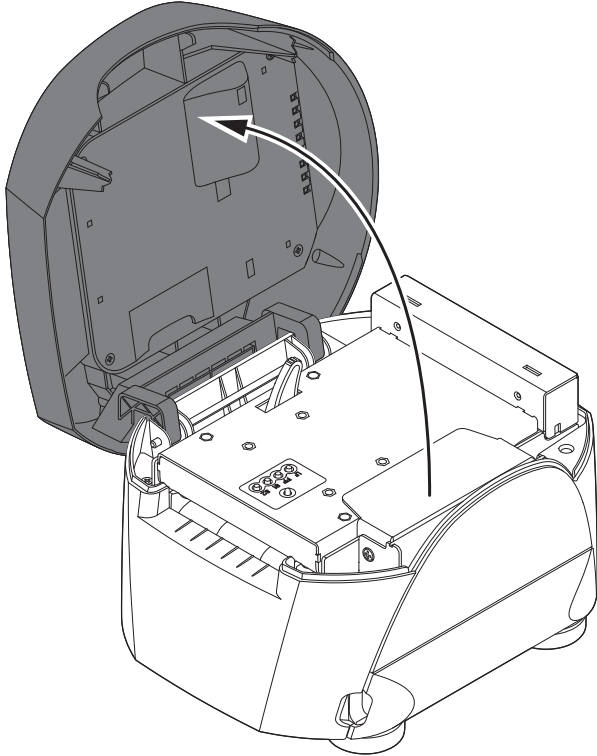
Open the
upper plastic cover.

2
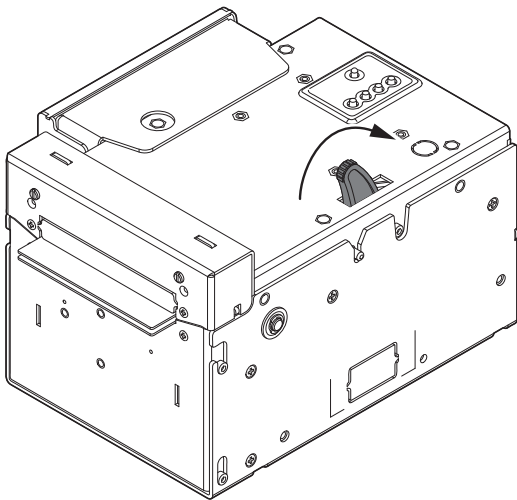
Push the opening lever
in the direction shown in the figure.

3
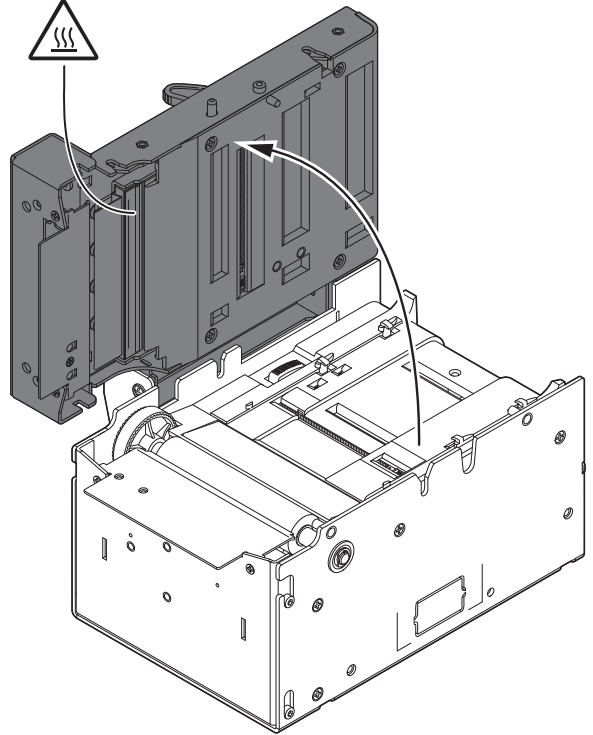
Open the upper cover
of the device.

4
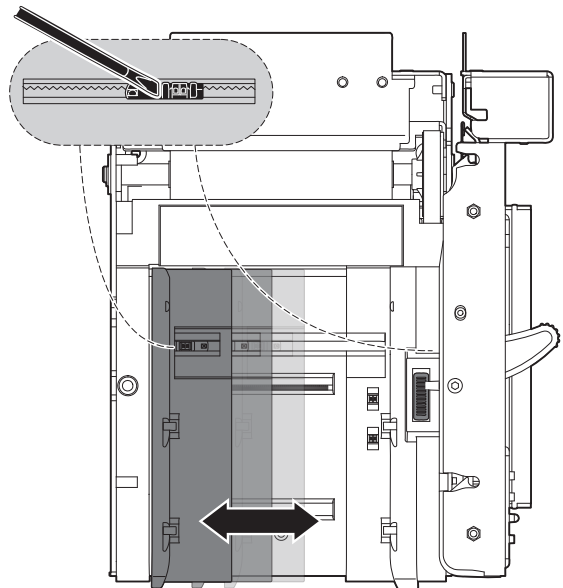
Adjust the paper width and the notch sensors
position (see previous paragraphs).

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5
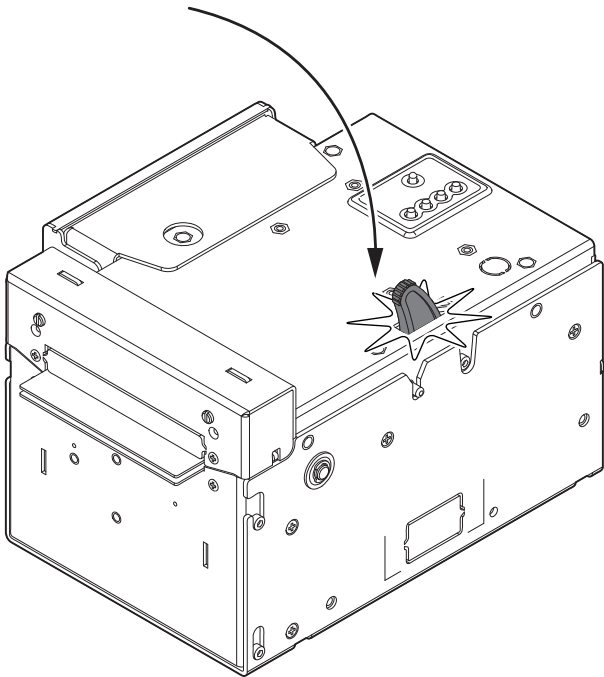
Close the upper cover
of the device.

6
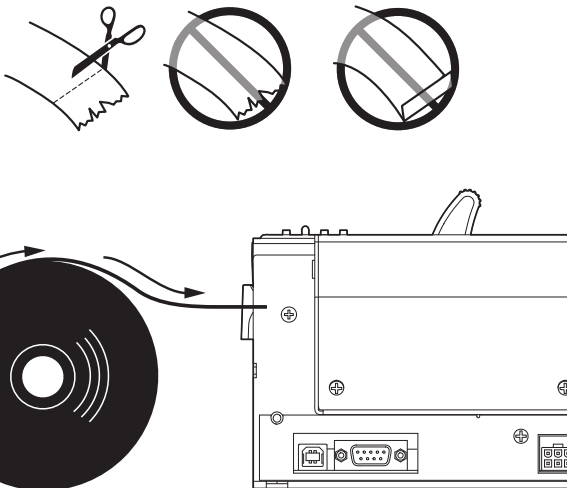
Insert the paper into the input mouth so that it unrolls
correctly. Be sure that the paper is
correctly positioned into paper guides.

7
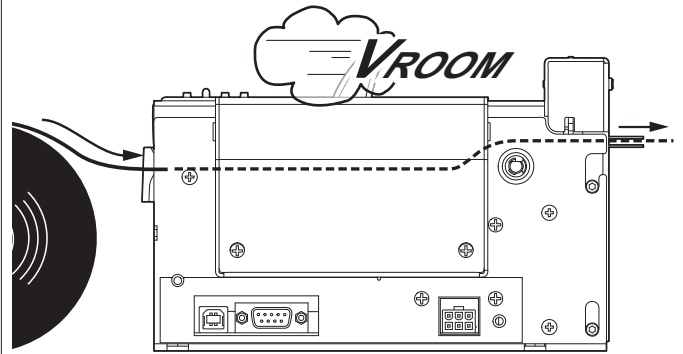
Wait until the paper is
automatically loaded.

8 **TK202, TK203**
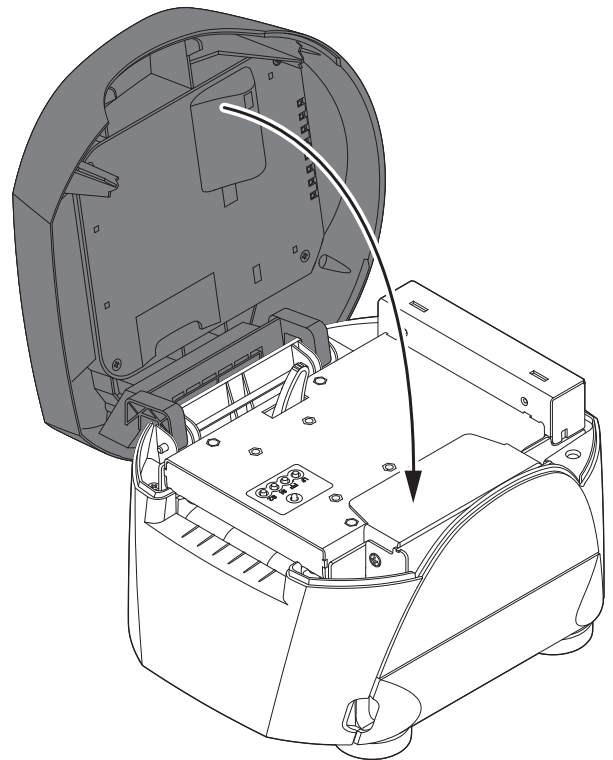
Close the
upper plastic cover.

NOTE:
For ease of reference, in some figure is represented only the internal printer without the external plastic chassis.

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5   CONFIGURATION

5.1   Configuration mode

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

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1

While pressing the LF LINE FEED key,
switch on the printer by connecting the power supply cable.

2

The device prints the report with
the settings parameters.

3

LF   FF   S1   S2

↓
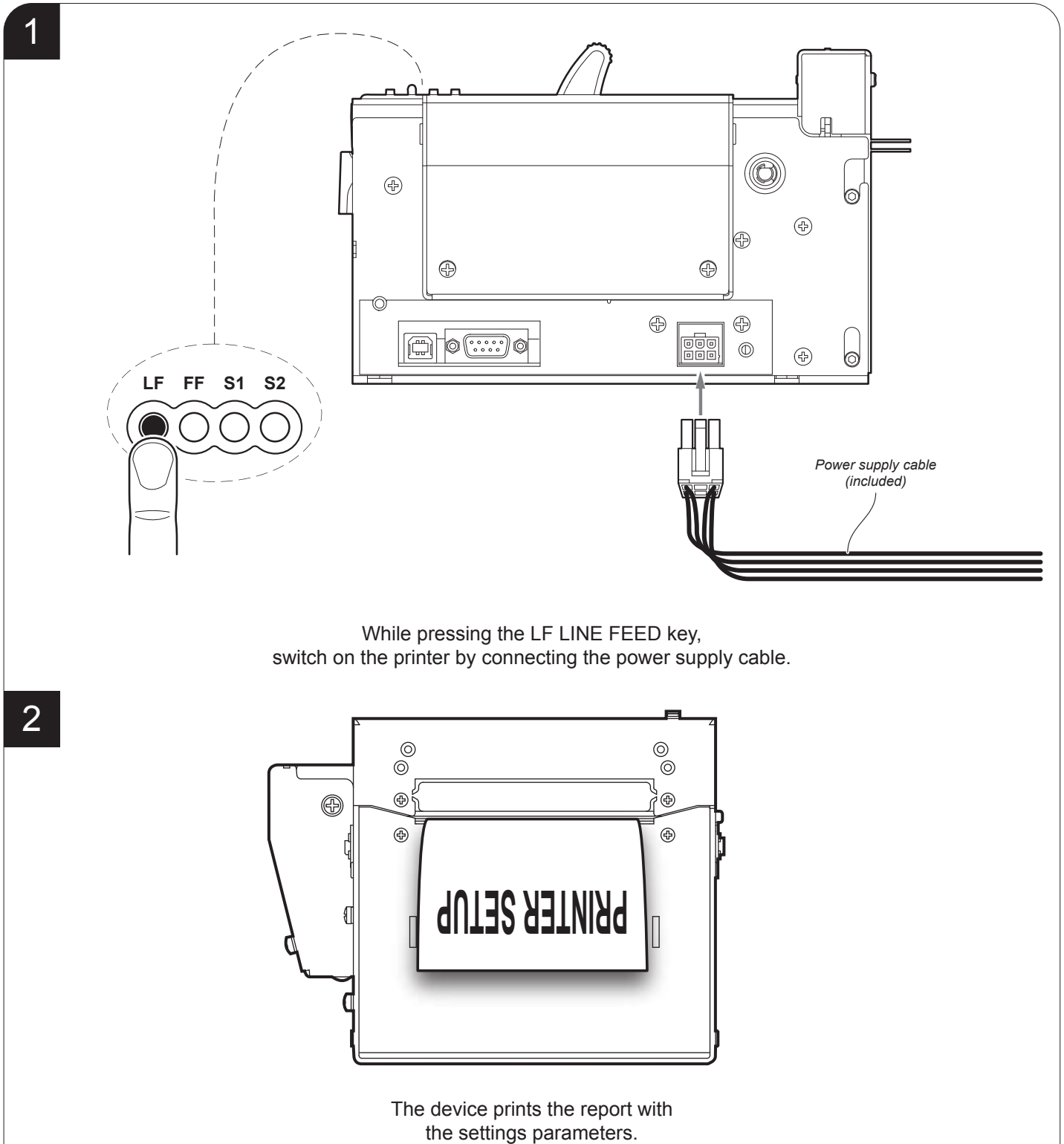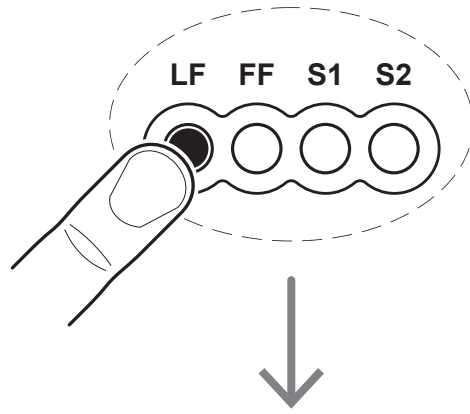
**Enter
printer
setup**

Press the LF LINE FEED key
to enter the configuration mode.

TK202, TK203

1

RS232   24V ⎓

FF   LF

*Power supply cable
(included)*

While pressing the LF LINE FEED key,
switch on the printer by connecting the power supply cable.

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2

PRINTER SETUP

The device prints the report with
the settings parameters.

3

FF   LF
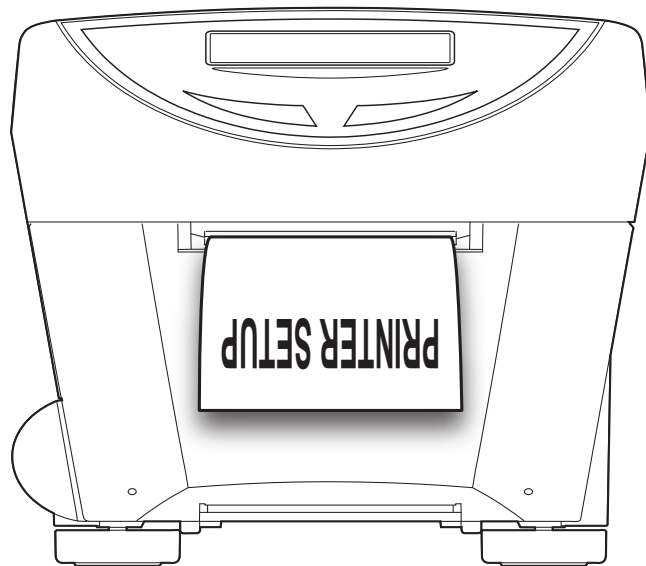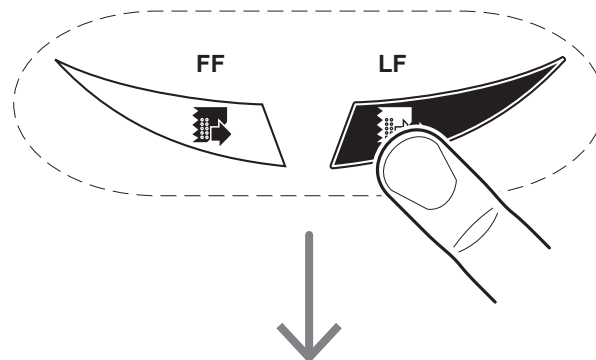
**Enter
printer
setup**

Press the LF LINE FEED key
to enter the configuration mode.

5.2 Setup report

The following figure shows the setup report of the device.

PRINTER NAME and FIRMWARE MODULES RELEASE

```
                    KPM202  printer
 SCODE: <code>                    -   rel   1.00
 BCODE: <code>                    -   rel   1.00
 FCODE: <code>                    -   rel   1.00
 UCODE: <code>                    -   rel   1.00
 DCODE: <code>                    -   rel   1.00
           CPLD                   -   rel   1.00

                 PRINTER SETTINGS
```

PRINTER STATUS

```
 PRINTER TYPE ..................................KPM202
 Barcode Reader .................................Not Present
 RFID module .......................................Not Present
 PRINTING HEAD TYPE ......................KPA80
 INTERFACE .........................................RS232
 ETHERNET TYPE................................None
 PROGRAM MEMORY TEST................OK
 DYNAMIC RAM TEST.........................OK
 EEPROM TEST....................................OK
 PRINTER HEAD Rav ...........................561
 HEAD VOLTAGE              [V]    =  24.55
 HEAD TEMPERATURE       [°C]   =  26
 POWER ON COUNTER               =  3
 PAPER PRINTED            [cm]   =  10
```

PRINTER PARAMETERS

```
 Printer Emulation.............................:  CUSTOM/POS
 RS232 Baud Rate ...........................:  115200 bps
 RS232 Data Length.........................:  8 bits/chr
 RS232 Parity ...................................:  None
 RS232 Handshaking ......................:  Xon/Xoff
 Busy Condition ..............................:  RxFull
 USB Mass Storage .........................:  Enabled
 USB Address Number ....................:  0
 Print Mode .....................................:  Normal
 Autofeed ........................................:  CR disabled
 Chars / inch ...................................:  A=15 B=20cpi
 Speed / Quality..............................:  Normal
 Paper Width.....................................:  82 mm
 Paper Threshold .............................:  60%
 Notch/B.Mark Position ....................:  Bottom
 Notch/B.Mark Threshold.................:  40%
 Notch Distance [mm] ......................:  +00.0
 Notch/B.Mark Min. Width...............:  0 mm
 Ticket Locking.................................:  Disabled
 PaperEnd Buffer Clear ...................:  Disabled
 Ticket Management ........................:  Disabled
 Paper End Management ...............:  Print All
 RFID Module Baud Rate ...............:  38400
 Print Density...................................:  0%
```

KEYS FUNCTIONS

```
 [LF]   enter Printer Setup
 [S1]   enter Clock Setup
 [S2]   skip Setup
```

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5.3   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 the barcode reader*
RFID module	*presence of the RFID reader/writer*
PRINTING HEAD TYPE	*print head model*
INTERFACE	*interface present*
ETHERNET TYPE	*Ethernet connection type*
PROGRAM MEMORY TEST	*OK appears if functioning and NOT OK if faulty*
DYNAMIC RAM TEST	*OK appears if functioning and NOT OK if faulty*
EEPROM TEST	*OK appears if functioning and NOT OK if faulty*
PRINTER HEAD Rav	*resistance of a dot head*
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*

5.4 Printer parameters

These devices allow 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 device has been turned off and they are stored in non-volatile memory.

PRINTER EMULATION	*Available emulations for the device:* *SVELTA* [D] *CUSTOM/POS*
RS232 BAUD RATE	*Communication speed of the serial interface:* *115200* [D] *9600* *57600* *4800* *38400* *2400* *19200* *1200* 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* [D] *= software handshaking* *Hardware = hardware handshaking (CTS/RTS)* NOTE: Parameter valid only with serial interface.
BUSY CONDITION	*Activation mode for Busy signal:* *OffLine/ RXFull = Busy signal is activated when the device 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.

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USB MASS STORAGE	*Sharing mode from Mass Storage:*
	Disabled = sharing mode disabled *Enabled [D] = sharing mode 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*
	NOTE: the parameter is printed only with CUSTOM/POS emulation enabled.

CHARS / INCH	*Font selection:*
	KPM202, TK202 **KPM203, TK203** *A = 11 cpi, B = 15 cpi [D]* *A = 16 cpi, B = 23 cpi [D]* *A = 15 cpi, B = 20 cpi* *A = 23 cpi, B = 30 cpi*
	NOTES: CPI = Characters Per Inch The parameter is printed only with CUSTOM/POS emulation enabled.

SPEED / QUALITY	*Setting of printing speed and printing quality:*
	Normal *High Quality* *High Speed [D]*

PRINT WIDTH	*Width of printing area:*
	20 mm 34 mm 48 mm 62 mm 76 mm *22 mm 36 mm 50 mm 64 mm 78 mm* *24 mm 38 mm 52 mm 66 mm [D] 80 mm* *26 mm 40 mm 54 mm 68 mm 82 mm* *28 mm 42 mm 56 mm 70 mm* *30 mm 44 mm 58 mm 72 mm* *32 mm 46 mm 60 mm 74 mm*

PAPER THRESHOLD	*Threshold value (in percent) for the recognition of the presence of paper by the paper presence sensor:*
	30% 60% [D] 90% *40% 70%* *50% 80%*

NOTCH/B.MARK POSITION	*Position of the alignment notch and choice of appropriate notch sensor:*
	Disabled [D] = the notch alignment is not performed *Top = the notch position is detected by the upper sensor (reflection)* *Bottom = the notch position is detected by the lower sensor (reflection)* *Transparence = the notch position is detected by both the sensors (transparence)*
NOTCH/B.MARK 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/B.Mark 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 10).* *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 a positive notch distance value of 15mm, 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.

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NOTCH/B.MARK MIN. WIDTH	*Minimum length for the alignment notch:*

0 mm ^D	*5 mm*	*10 mm*	*15 mm*	*20mm*
1 mm	*6 mm*	*11 mm*	*16 mm*	
2 mm	*7 mm*	*12 mm*	*17 mm*	
3 mm	*8 mm*	*13 mm*	*18 mm*	
4 mm	*9 mm*	*14 mm*	*19 mm*	

NOTES: If the "Notch/B.Mark Position" parameter is disabled, this parameter is not printed.

This parameter describes the dimensions of the alignment notch in order to avoid that other graphics on the ticket is detected erroneously as notch.

TICKET LOCKING	*This parameter enables/disables the block of the paper inside the device where the ticket is not cut with the cutter, but is presented for the manual tear off by the user:*

Disabled [D] = paper block disabled
Enabled = paper block enabled

NOTE: If the "Notch/B.Mark Position" parameter is disabled, the parameter is not printed.

PAPEREND BUFFER CLEAR	*Cleaning mode of the data in receive buffer, if the printing is stopped due to lack of paper:*

Disabled D = The data remain in the receive buffer. When the paper runs out, the device keeps the remaining data in the receive buffer and prints the remaining portion of the ticket after that the new paper is loaded.
Enabled = When the paper runs out, all data in the receive buffer are deleted.

TICKET MANAGEMENT	*This parameter allows the ticket management:*

Disabled ^D = no check
Short Ticket = it is possible to manage tickets with length less than the distance between the notch sensor and the printing line
Check First = before printing, the device checks the integrity of the first ticket

RFID MODULE BAUD RATE	*Communication speed of the RFID module:*

115200	*38400* ^D	*9600*	*2400*
57600	*19200*	*4800*	*1200*

NOTE: if the RFID module is not recognized in the printer status ("RFID module = Not Present"), set this parameter on the correct value.

PRINT DENSITY	*Adjusting the printing density:*

-50%	*-12%*	*+25%*
-37%	*0* ^D	*+37%*
-25%	*+12%*	*+50%*

5.5 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 device 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:

```
HEXADECIMAL DUMP

31  32  33  34  35  ...        12345 ...
39  30  31  32  33  ...        90123 ...
37  38  39  75  69  ...        789ui ...
68  6B  6A  73  64  ...        hkjsd ...
73  64  66  6B  6A  ...        sdfkj ...
66  73  64  66  6B  ...        fsdfk ...
65  69  6F  79  75  ...        eioyu ...
6F  72  69  75  77  ...        oriuw ...
6F  75  77  65  72  ...        ouwer ...
77  65  72  69  6F  ...        werio ...
72  69  6F  75  77  ...        riouw ...
6B  6C  73  64  66  ...        klsdf ...
64  66  6B  73  64  ...        dfksd ...
73  64  66  6B  6A  ...        sdfkj ...
66  6B  F2  6A  73  ...        fk≥j ...
6A  6B  6C  68              jklh
```

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5.6 Calendar clock

The devices are equipped with a Real Time Clock. During power-up, held down the LF LINE FEED key to enter in the printer configuration mode. Press the S1 key to enter in the clock configuration (see following figure).
Press the LF LINE FEED key to modify date/time; the device will print the updated date and time.

Follow the instructions printed on the paper for the key functionality. The highlighted digit (the number is written in negative mode) indicates the digit to be modified. Press the LF LINE FEED key to modify the value of the highlighted digit; every single LF LINE FEED key pressure increases of 1 his value. Once the value 9 is reached the counting starts again from 0.

Press the FF FORM FEED key to move the cursor on the next digit; if the cursor position is on the latest digit you can proceed to next parameter by pressing the FF FORM FEED key again.
Press the S2 key to exit and terminate the setting procedure.

```
              CLOCK SETUP

    [LF]   to modify date/time
    [FF]   to next field
    [S2]   to exit

           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00
           01/01/14    12:00:00


           Date Time Setting :
           01/01/14    12:00:00
```
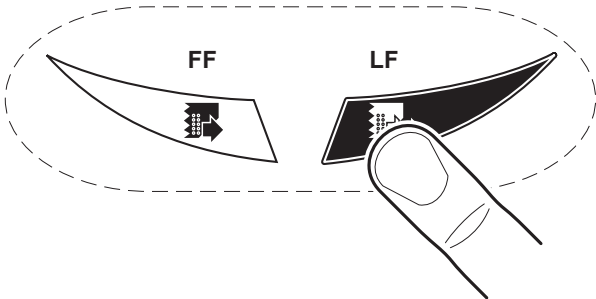
TK202, TK203

The devices are equipped with a Real Time Clock. Proceed as follows to set the clock.
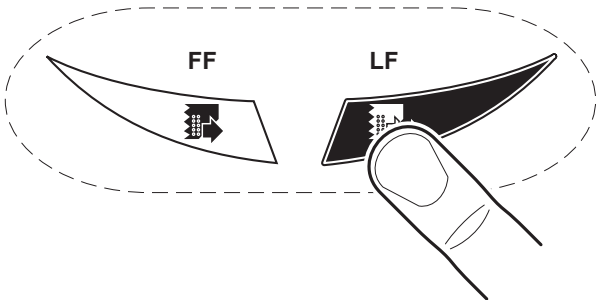
1

```
LF = ENTER SETUP...
FF = EXIT SETUP...
```

During power-up, press the LF LINE FEED key
to enter the setup configuration.

2

```
Set-Up type...
Printer Set/Up
```

Press the LF LINE FEED key
to select the Real Time Clock settings.

3

```
Set-Up type...
Real Time Clock
```
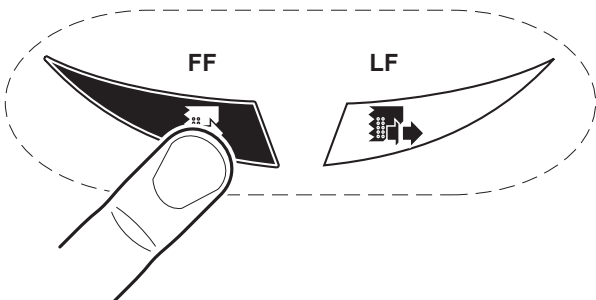
Press the FF FORM FEED key to confirm the selection.
The date/time values will be displayed.
Follow the instructions printed on the paper.

4

```
→0→1→2→3→4→5→6→7→8→9
        Clock Setup
01/01/14 12:00:00
```
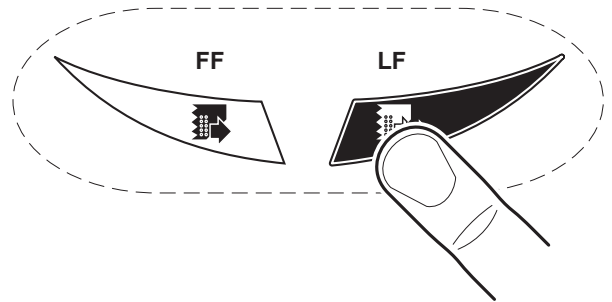
The digit to be modified is highlighted.
Press the LF LINE FEED key to modify the value;
every press on the button increases the value by one.
Once the max selectable value is reached the
counting starts again from 0.

5

```
→0→1→2→3→4→5→6→7→8→9
        Clock Setup
01/01/14 12:00:00
```
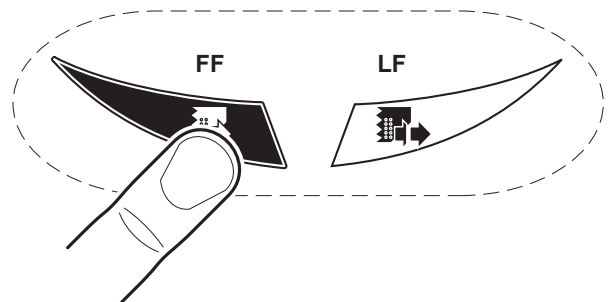
Use the FF FORM FEED key to move the cursor
on the next digit; if the cursor position is
on the latest digit, press the FF FORM FEED key
to exit and save the date/time entered.
Then the device is ready.

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6   MAINTENANCE

6.1   Printer paper jam
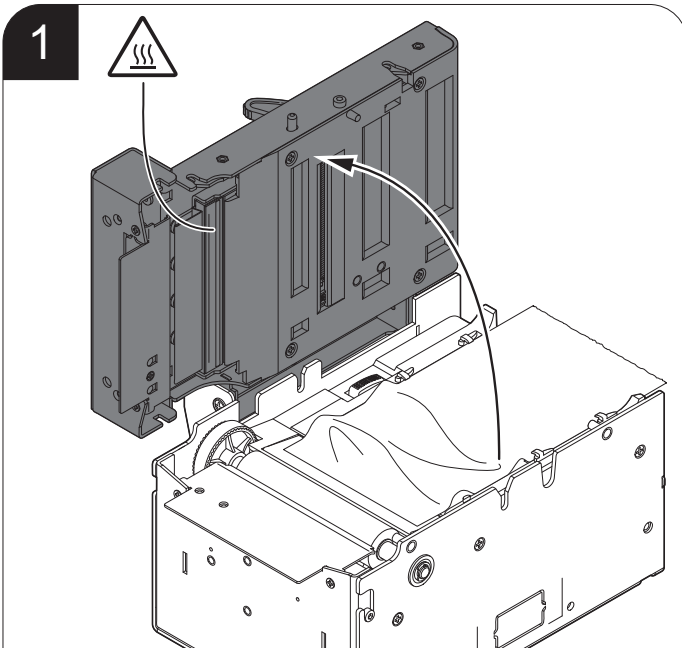
1 ⚠

Open the upper covers of the device
(see previous paragraphs).
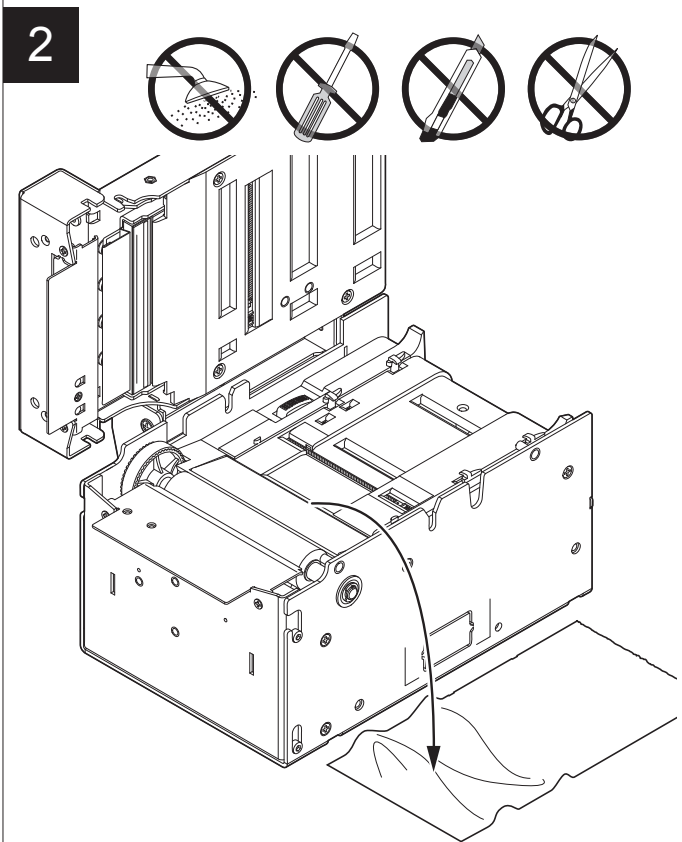
2

Remove the damaged paper and check the presence
for paper scraps inside the device. Carefully remove all
paper scraps. If necessary use tweezers.
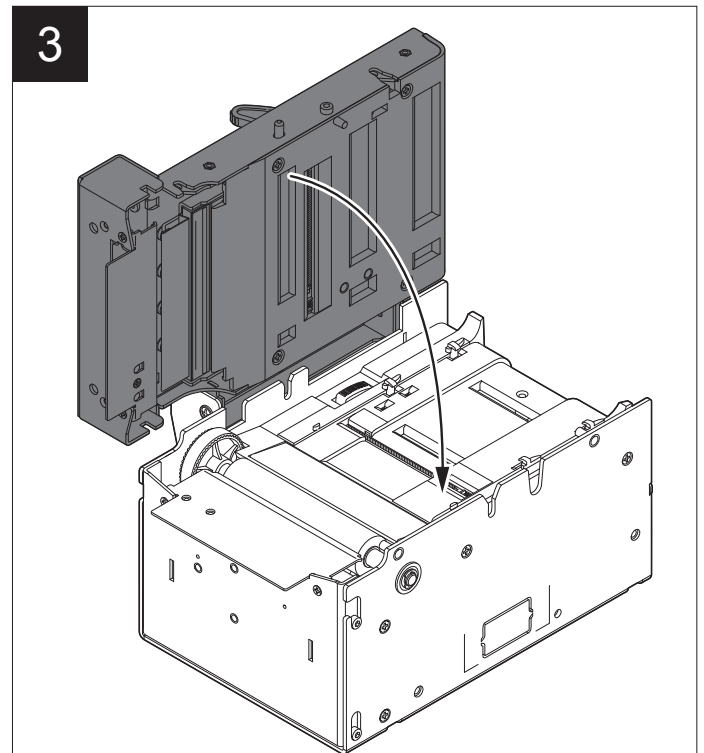
3

Close the upper covers of the device
(see previous paragraphs).

4

VROOM
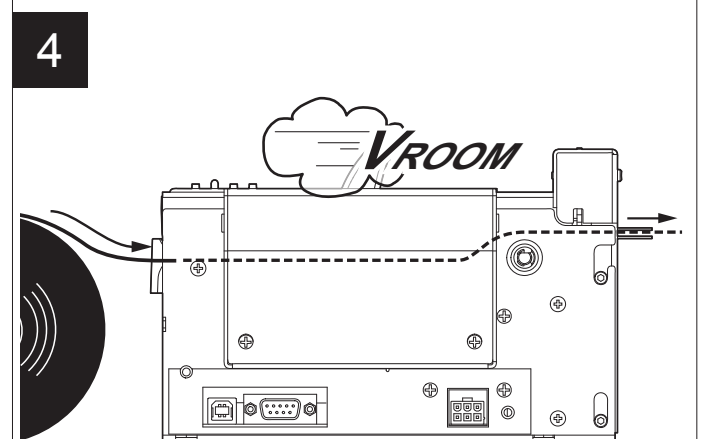
Insert the paper
(see previous paragraphs).

NOTE: For ease of reference, in some figure is represented only the internal printer without the external plastic chassis.

6.2 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
Printing roll	Use isopropyl alcohol
EVERY 5 PAPER CHANGES	
Paper path	Use compressed air or tweezers
Sensors	Use compressed air
EVERY 6 MONTHS OR AS NEEDED	
Case	Use compressed air or a soft cloth
Display	Use a soft cloth [3]

For specific procedures, see the following pages.

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

For ease of reference, in the following pages, for some models is represented only the printer group without the external plastic chassis.

(1) Don't use any ammonia-based product (only for TK202, TK203)

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6.3 Cleaning

For periodic cleaning of the device, see the instructions below

<u>Case</u>
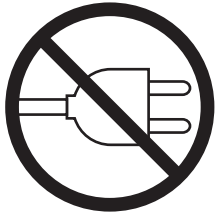
<u>Paper path</u>

| 1 | Disconnect the power supply cable. |

| 2 | To clean the device, use compressed air or a soft cloth. |

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

| 1 | Disconnect the power supply cable and open the upper device covers (see previous paragraphs). |

| 2 | Clean the area involved in the passage of paper by using compressed air. |

COMPRESSED AIR

ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.
To remove paper scraps, use tweezers or compressed air.

Printing head

1

Disconnect the power supply cable and open the upper device covers (see previous paragraphs).

2
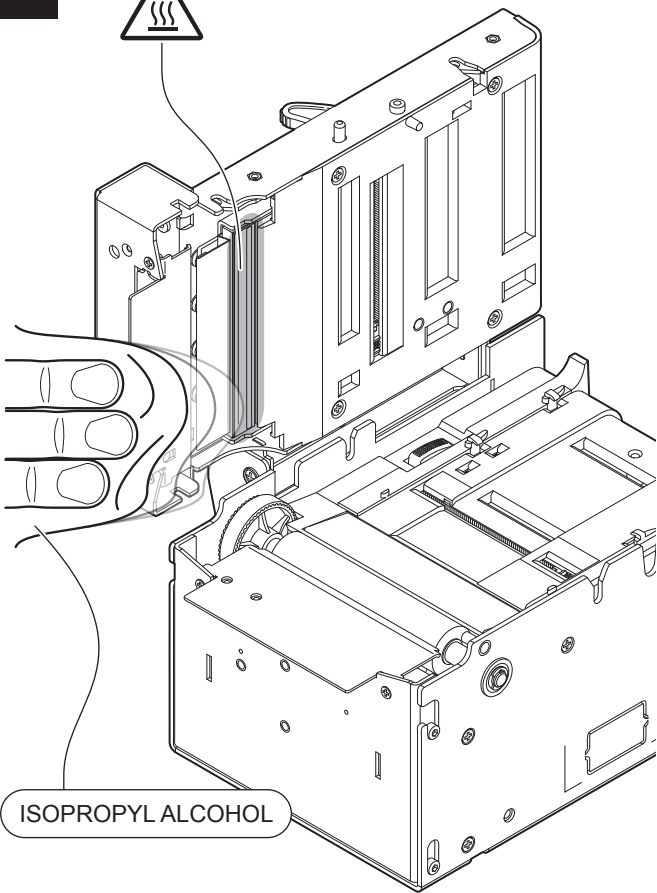
ISOPROPYL ALCOHOL

ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.
To remove paper scraps, use tweezers or compressed air.

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

Printing roller

1
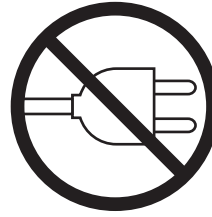
Disconnect the power supply cable and open the upper device covers (see previous paragraphs).

2
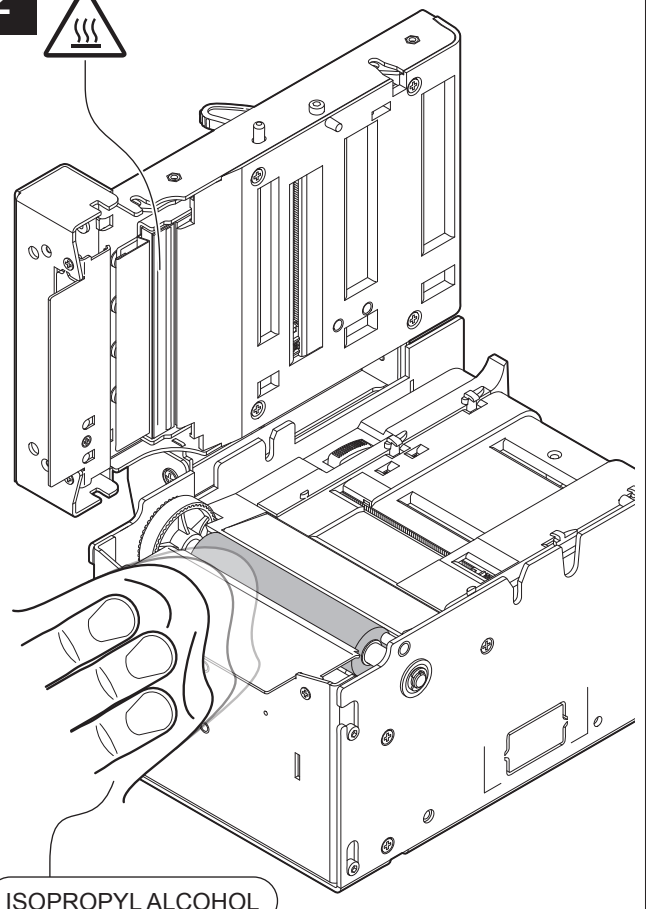
ISOPROPYL ALCOHOL

ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.
To remove paper scraps, use tweezers or compressed air.

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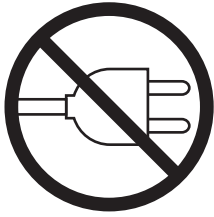
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Sensors

1

Disconnect the power supply cable and open the upper device covers (see previous paragraphs).

2
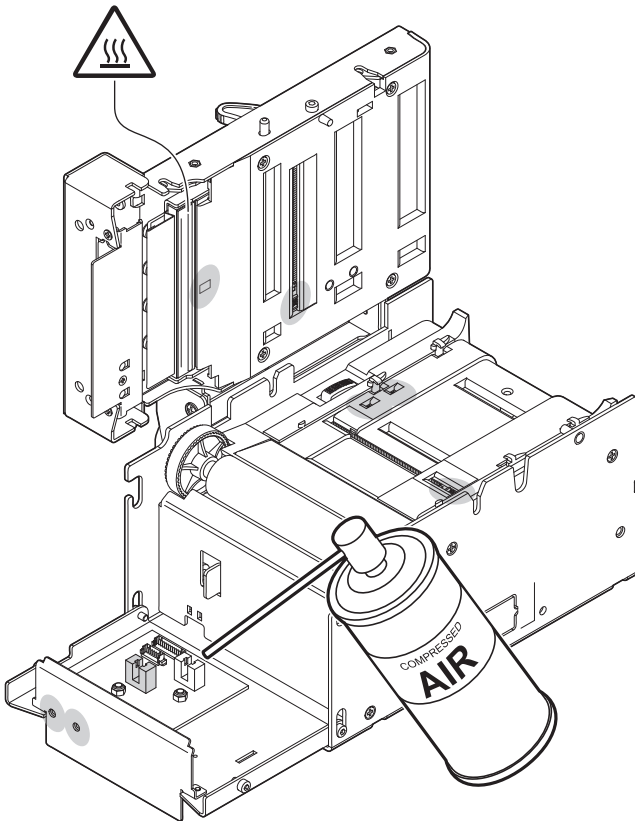
ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the machine.
To remove paper scraps, use tweezers or compressed air.

Clean all the device sensors
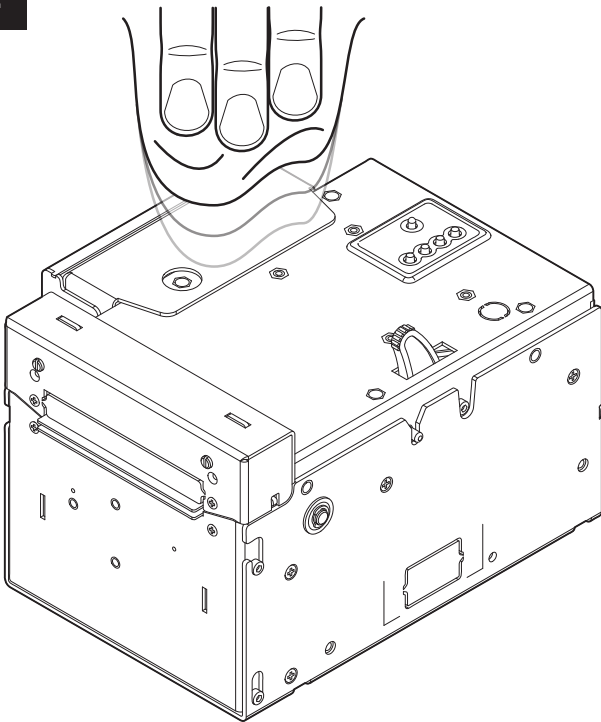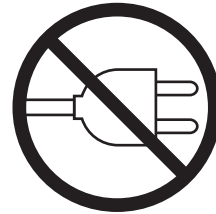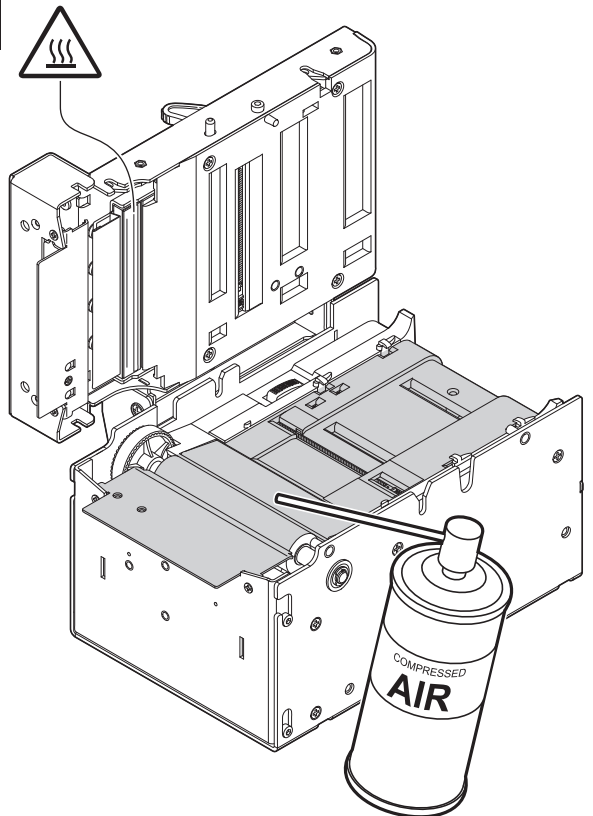by using compressed air.
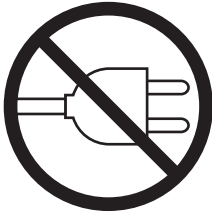
Display

1
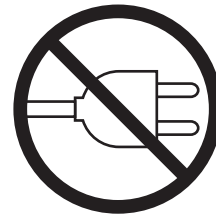
Disconnect the power supply cable.
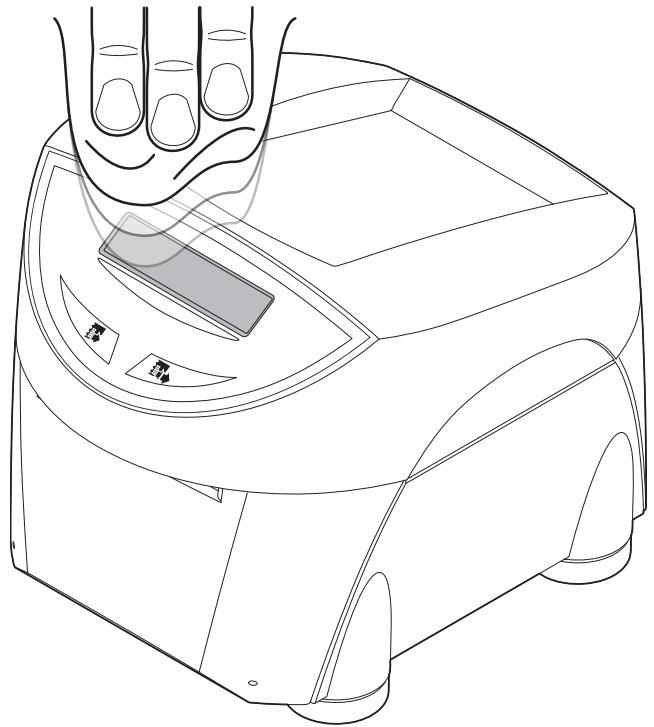
2

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

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

6.4   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 device upgrading the UPG-CEPRN 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 par.2.5).
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 5).
4. Switch OFF the device.
5. Connect the device to the PC using a serial cable (see paragraph 3.3).
6. Switch ON the device.
7. Launch the software UPGCEPRN.
8. Select the update file .PSW location:
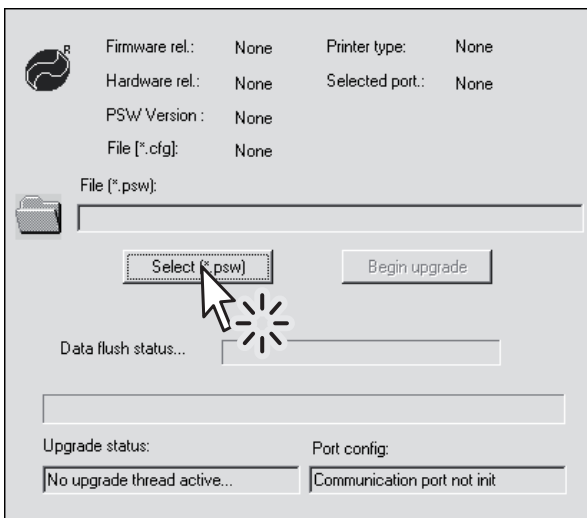
9. Select the serial communication port (e.g. COM1):
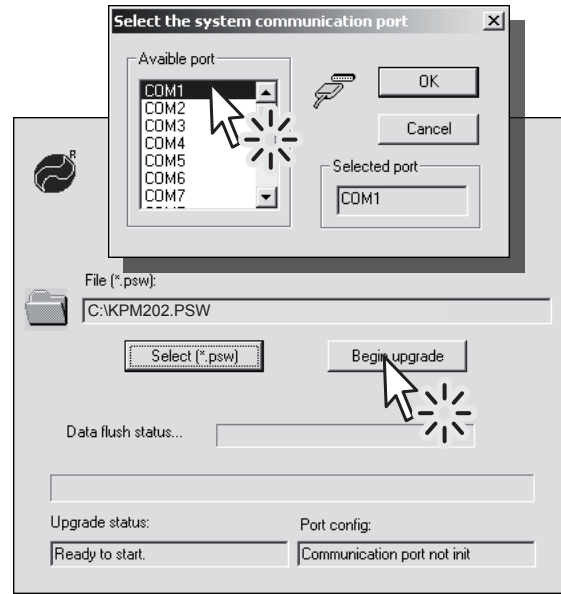
10. Detecting and setting of the parameters necessary for serial communication are performed automatically and then updating begins.
11. After a few minutes a message on the screen warns that the update is completed.
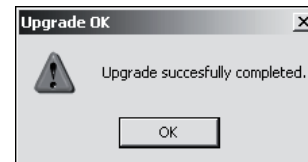
12. Print a new SETUP report to verify the new firmware release (see chapter 5).

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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 device 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 par.2.5).
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 5).
4. Switch OFF the device.
5. Connect the device to the PC using a USB cable (see paragraph 3.3).
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. KPM202):
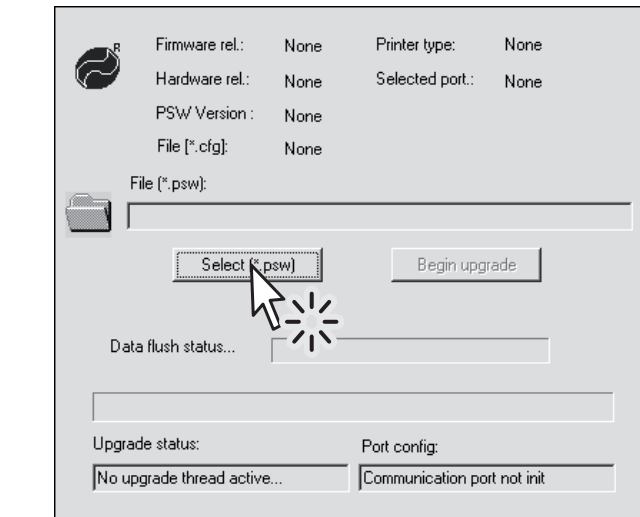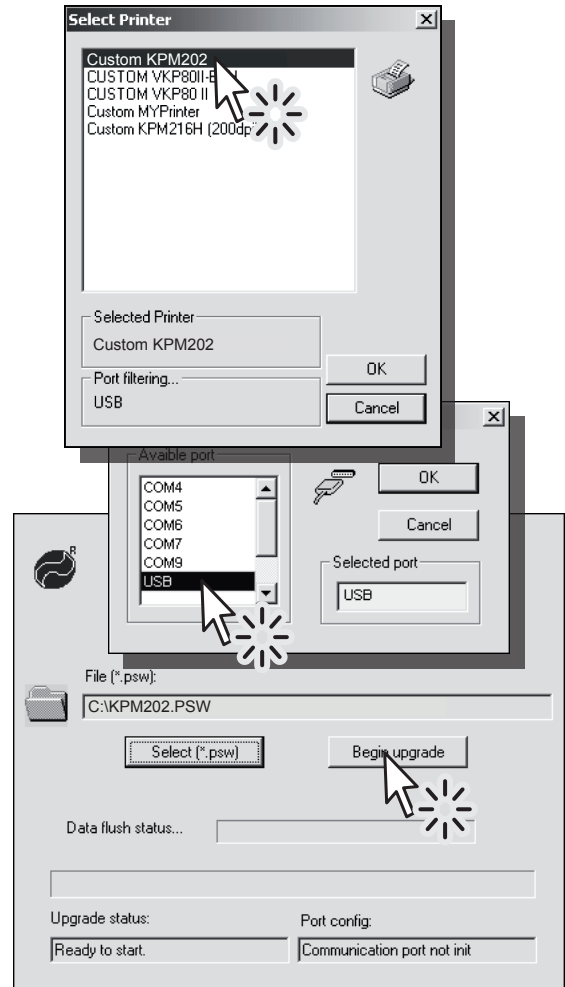
10. After a few minutes a message on the screen warns that the update is completed.
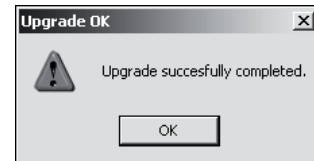
11. Print a new SETUP report to verify the new firmware release (see chapter 5).

7 SPECIFICATION

7.1 Hardware specifications

GENERAL	
Sensors	Head temperature, paper presence, paper presence on output, mobile detectors of black mark or translucent gap/hole (setting by software), frontal and upper cover open, external near paper end,
MTBF [1]	84 080 hours
Noise	
TK202, TK203	75 dBA
Emulations	CUSTOM/POS, SVELTA
INTERFACES	
USB port	12 Mbit/sec
RS232 serial port	from 1200 to 115200 bps
MEMORIES	
Receive buffer	64 Kbytes
Flash memory	16 Mbytes)
Graphic memory	Logos dynamic management (max 2MB graphic memory)
PRINTER	
Resolution	
KPM202, TK202	203 dpi (8 dot/mm)
KPM203, TK203	304 dpi (12 dot/mm)
Printing method	Thermal, fixed head
Head life [2]	50 Km / 100M pulses

Printing mode	Normal, 90°, 180°, 270°
Printing format	Height/Width from 1 to 8, bold, reverse, underlined, italic
Character font	
CUSTOM/POS emulation	PC437, PC850, PC860, PC863, PC865, PC858 (euro), 2 TrueType fonts [3]
CUSTOM/POS emulation (models with simplified chinese font)	PC437, PC850, PC860, PC863, PC865, PC858 (euro), GB2312, 2 TrueType fonts [3]
CUSTOM/POS emulation (models with traditional chinese font)	PC437, PC850, PC860, PC863, PC865, PC858 (euro), BIG5, 2 TrueType fonts [3]
SVELTA emulation	20 embedded fonts and 2 TrueType fonts [3]
Printable barcode	UPCA, UPCE, EAN13, EAN8, CODE39, ITF, CODABAR, CODE93, CODE128, CODE32, PDF417, DATAMATRIX, AZTEC, QRCODE
Printing speed [2] [4]	
KPM202, TK202	High quality = 110 mm/sec Normal = 170 mm/sec High spped = 200 mm/sec
KPM203, TK203	High quality = 100 mm/sec Normal = 125 mm/sec High speed = 150 mm/sec
PAPER	
Type of paper	Thermal rolls, heat-sensitive side on outside of roll Thermal fanfold module with alignment notch
Paper width	from 20 mm to 82.5 mm (2 mm step)
Paper weight	from 80 g/m^2 to 255 g/m^2
External roll diameter [5]	max. 300 mm
Internal roll core diameter	25 mm (+ 1mm)
Core thickness	2 mm (+ 1mm)
Paper end	Not attached to roll core

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Core type	Cardboard or plastic

DEVICES ELECTRICAL SPECIFICATIONS	
Power supply	24 Vdc ±10%
Medium consumption [4]	
KPM202, TK202	0.8 A
KPM203, TK203	0.6 A
Stand-by consumption	0.14 A

POWER SUPPLY ELECTRICAL SPECIFICATIONS cod.963GE020000004	
Power supply voltage	Auto Range, 90-132 VAC & 190-264 VAC
Frequency	from 47 Hz to 63 Hz
Current (output)	4.17 A
Power	100 W

ENVIRONMENTAL CONDITIONS	
Operating temperature	from 0°C to 50°C
Relative humidity	
KPM202, KPM203	from 10% Rh to 80% Rh
TK202, TK203	from 10% Rh to 85% 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) : "Veramono.ttf" and "Vera.ttf" are installed on device flash disk. It is possible to install additional TrueType fonts (see par.12.8).
(4) : Referred to a standard CUSTOM receipt (L=10cm, Density = 12,5% dots on).
(5) : For external rolls diameter higher to Ø100mm it's recommended to use a paper pretensioning device.

7.2   Character specifications

KPM202, TK202

Character set	3		
Character density	11 cpi	15 cpi	20 cpi
Number of columns	35	45	64
Chars / sec	2900	3800	5300
Lines / sec	83	83	83
Characters (L x H mm)-Normal	2.25 x 3	1.75 x 3	1.25 x 3

KPM203, TK203

Character set	3		
Character density	16 cpi	23 cpi	30 cpi
Number of columns	53	68	96
Chars / sec	5300	6800	9600
Lines / sec	100	100	100
Characters (L x H mm)-Normal	1.5 x 2	1.2 x 2	0.8 x 2

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7.3 Device dimensions

KPM202, KPM203

Length	191 mm
Height	123 mm
Width	160 mm
Weight	3500 g

NOTE:
All the dimensions shown in the following figure are in millimetres and referred to devices with covers closed.
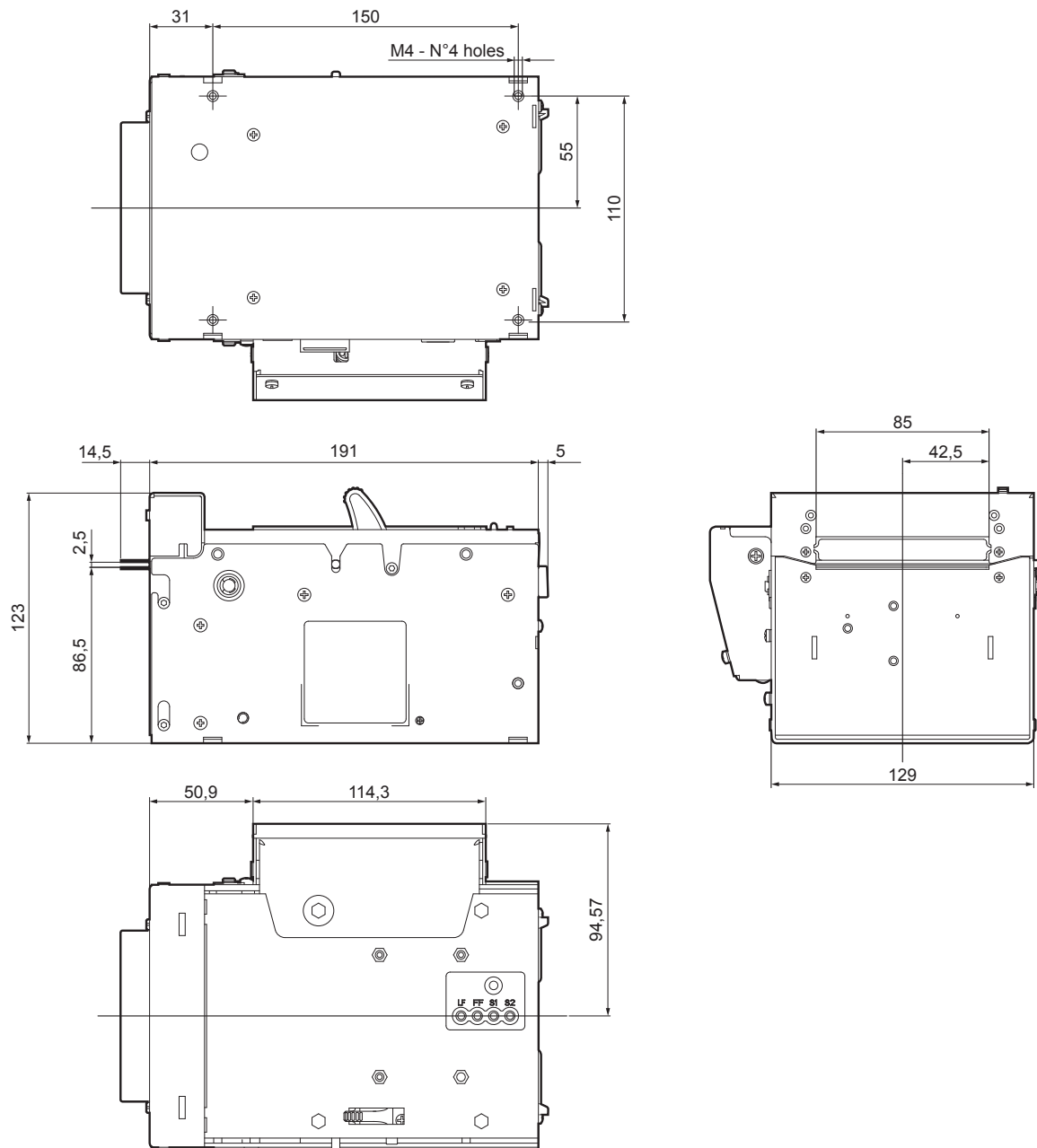
TK202, TK203

Length	252.1 mm
Height	192.6 mm
Width	216 mm
Weight	4000 g

NOTE: All the dimensions shown in the following figure are in millimetres and referred to devices with covers closed and without paper roll.
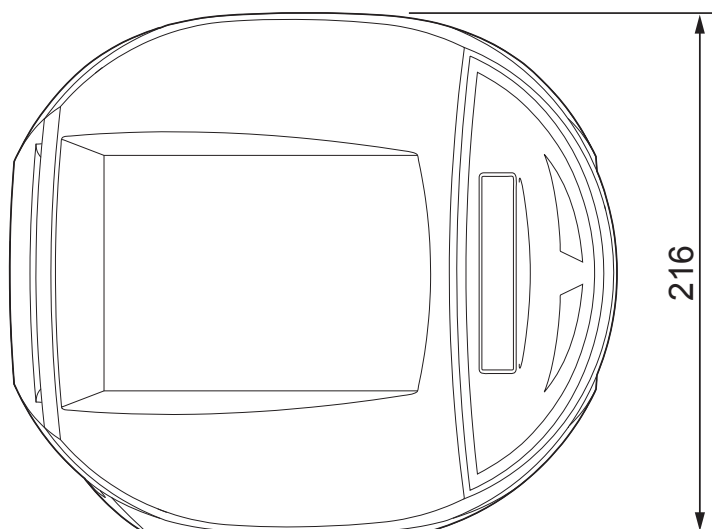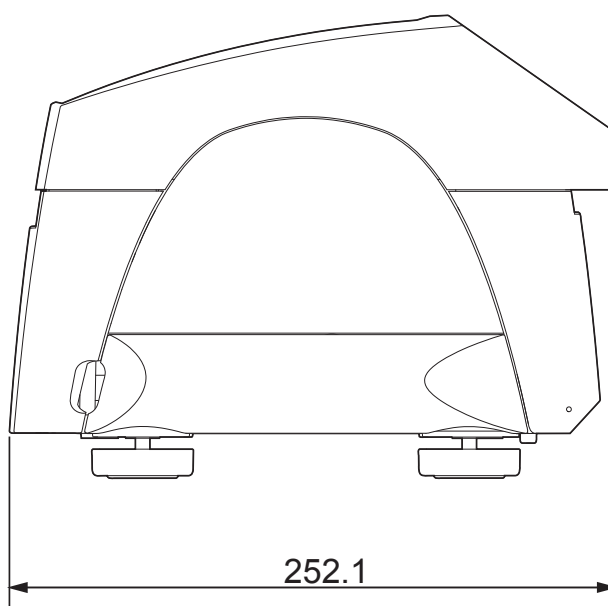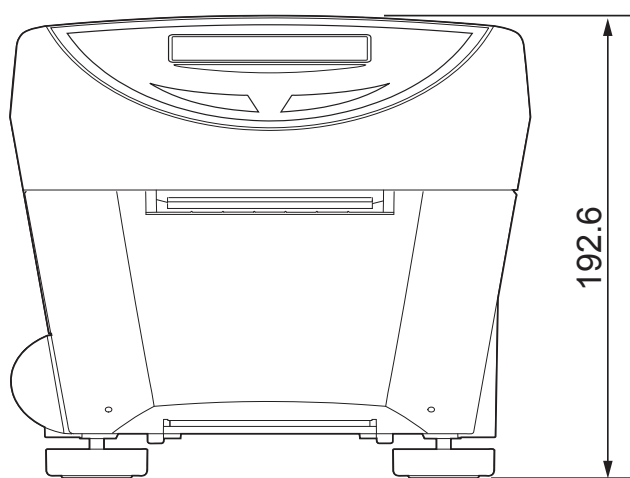
7.4 Device dimensions with paper roll holder

TK202, TK203

Length	411.2 mm
Height	212.7 mm
Width	216 mm

NOTE: All the dimensions shown in the following figure are in millimetres and referred to devices with covers closed and without paper roll.
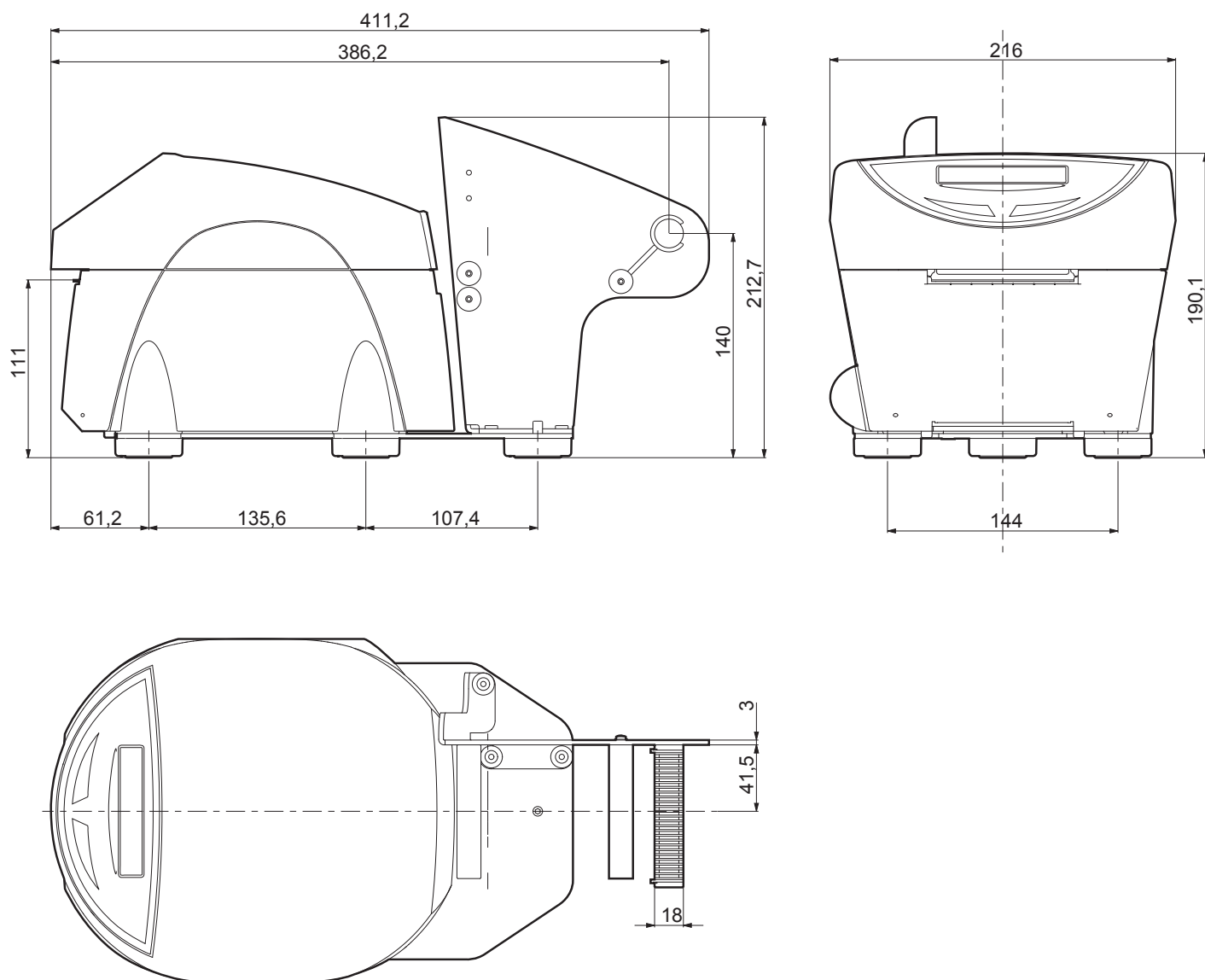
7.5   Device dimensions with ticket tray

TK202, TK203

Length	464 mm
Height	192.6 mm
Width	216 mm

NOTE: All the dimensions shown in the following figure are in millimetres and referred to devices with covers closed and without paper roll.
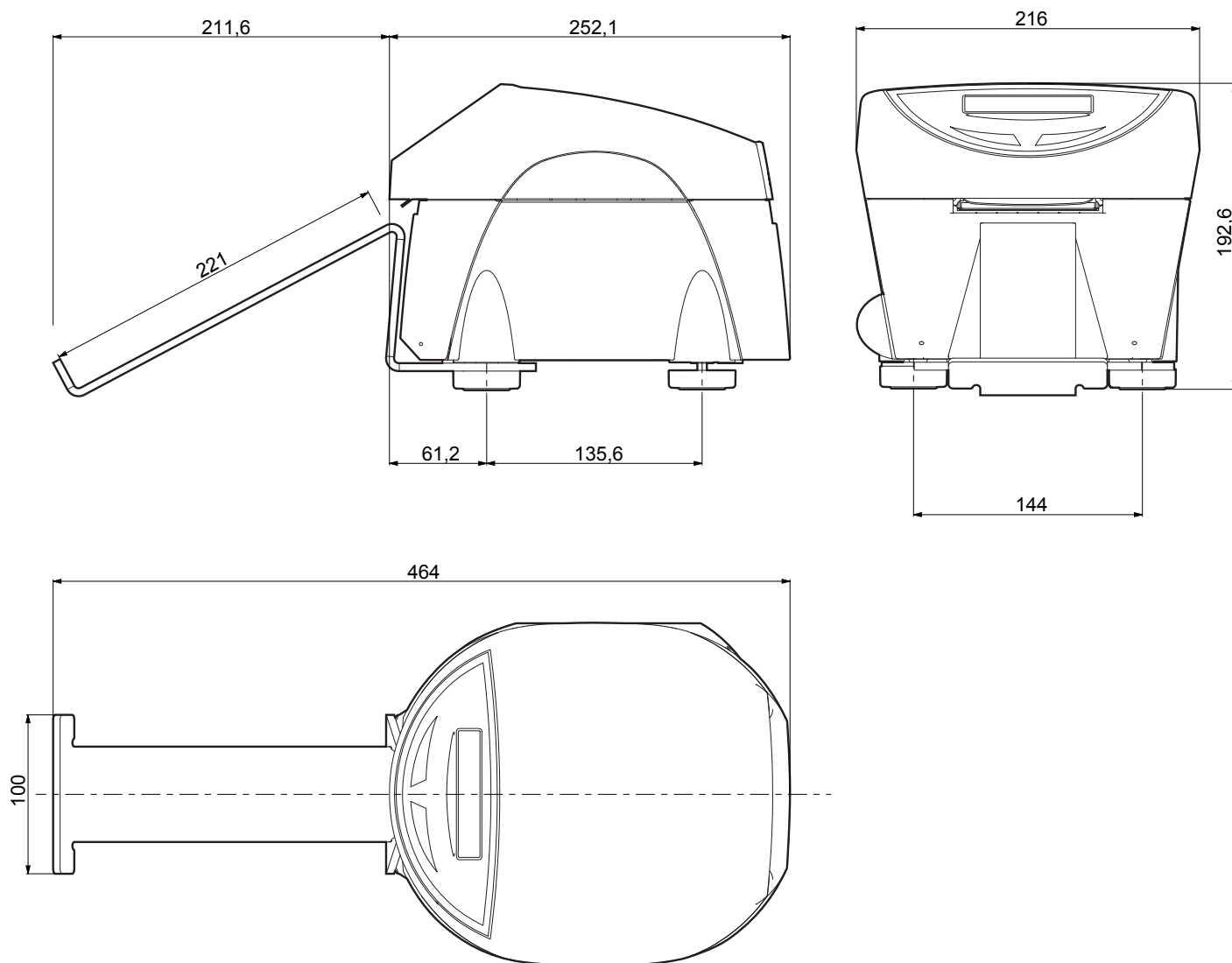
7.6 Power supply dimensions cod. 963GE020000004

Length	146,2 ± 0,5 mm
Height	39 ± 0,5 mm
Width	75,2 ± 0,5 mm

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

AC INLET

N.C

GND

+24V

DC OUTPUT WIRE

39 ± 0,5

75,2 ± 0,5

146,2 ± 0,5
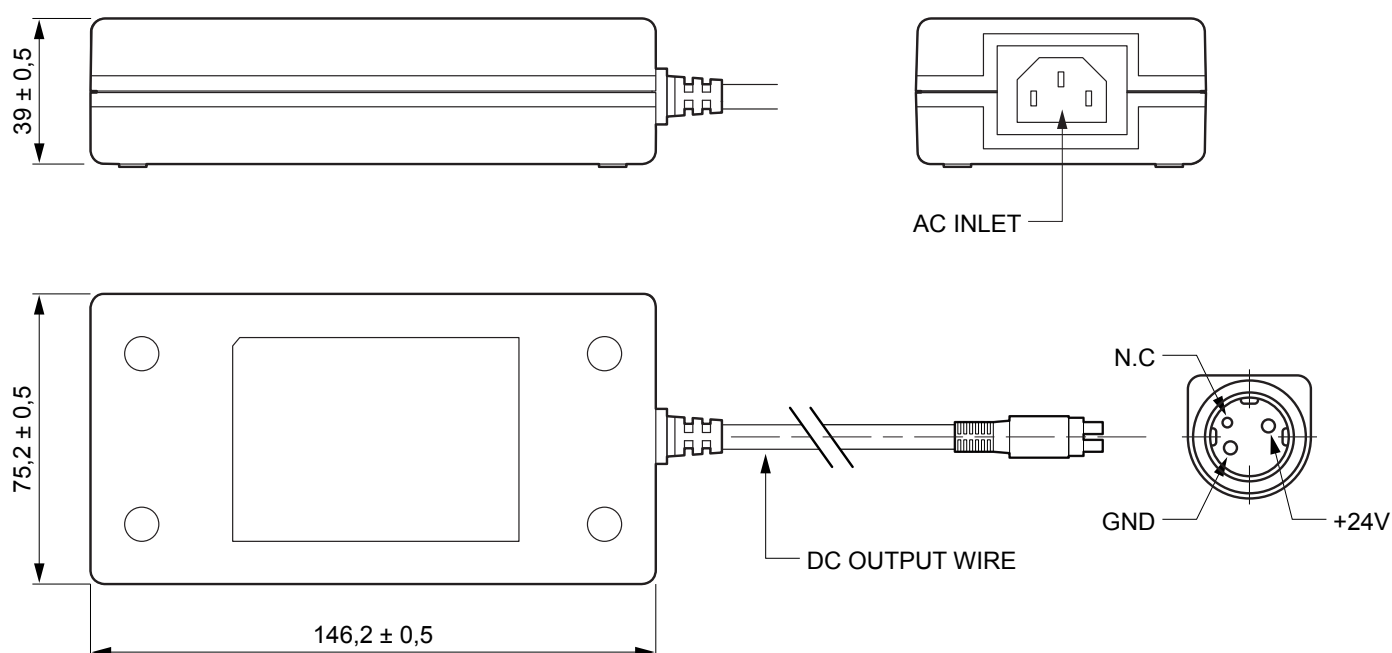
7.7 Paper specification

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

Paper with black mark

The following image shows the placement of the black mark on paper. The notch can be printed both on the thermal side and on the non-thermal side of paper and it can be placed anywhere on the whole width of the paper.
For more information about the use of paper with black mark see Chapter 10.
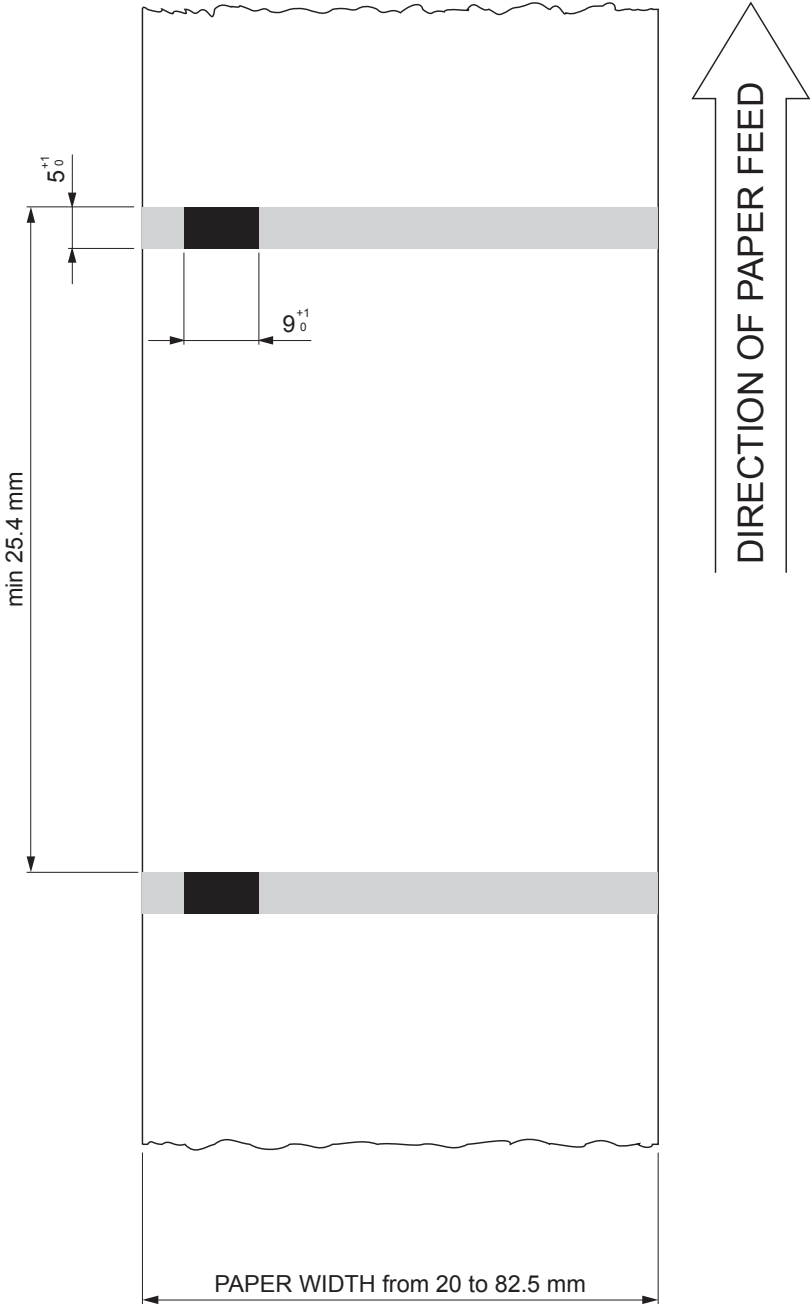
Fanfold paper with hole

The following image shows the placement of the hole on the paper. The hole can be positioned across the width of the ticket.
To manage tickets with hole, set the parameter "Notch / B.Mark position" to "Transparent" (see par. 5.4).
For more information about the use of paper with hole see Chapter 10.

min 2

min 10

DIRECTION OF PAPER FEED

PAPER WIDTH from 20 to 82 mm
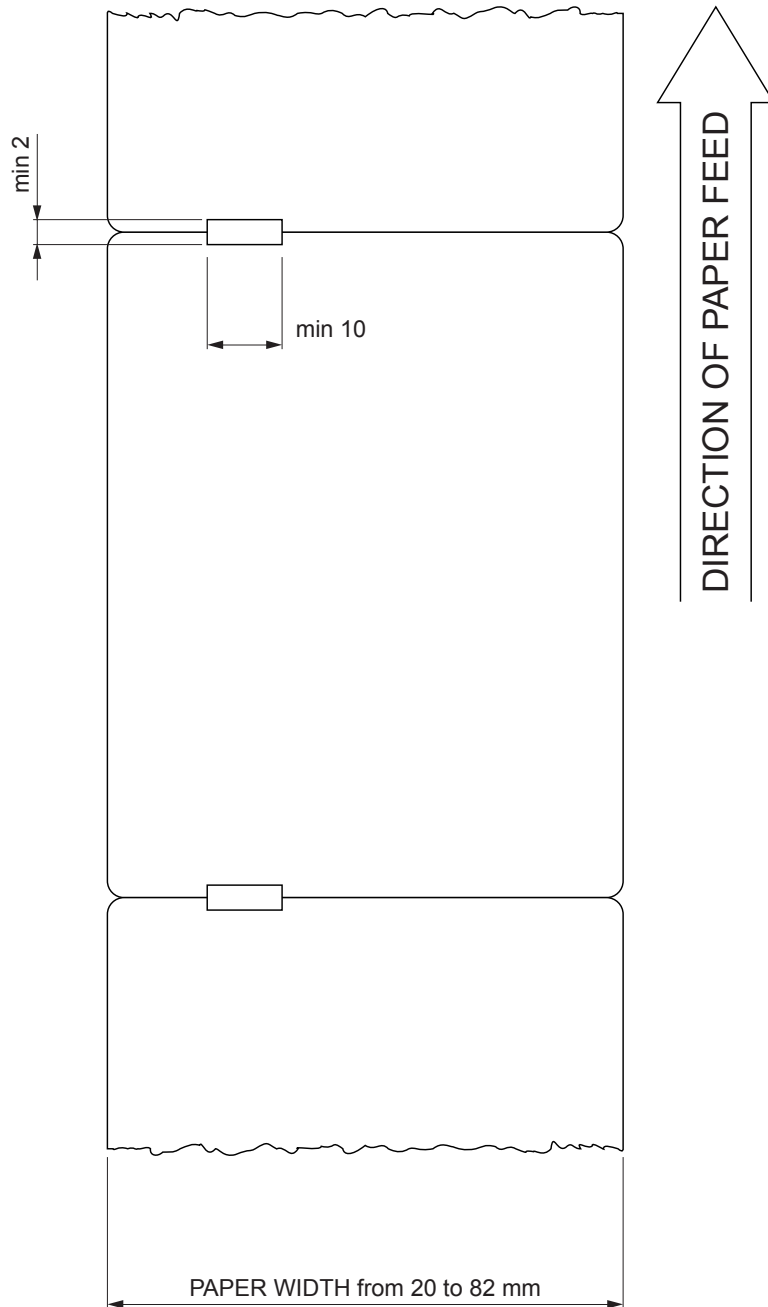
Paper with labels

The following image shows a portion of paper with labels. To manage paper with label, you need to set a negative value for the parameter "Notch distance" (see par. 5.4).
For more information about the use of paper with hole see Chapter 10.

min 2 mm

min 25.4 mm

DIRECTION OF PAPER FEED

PAPER WIDTH from 20 to 82.5 mm
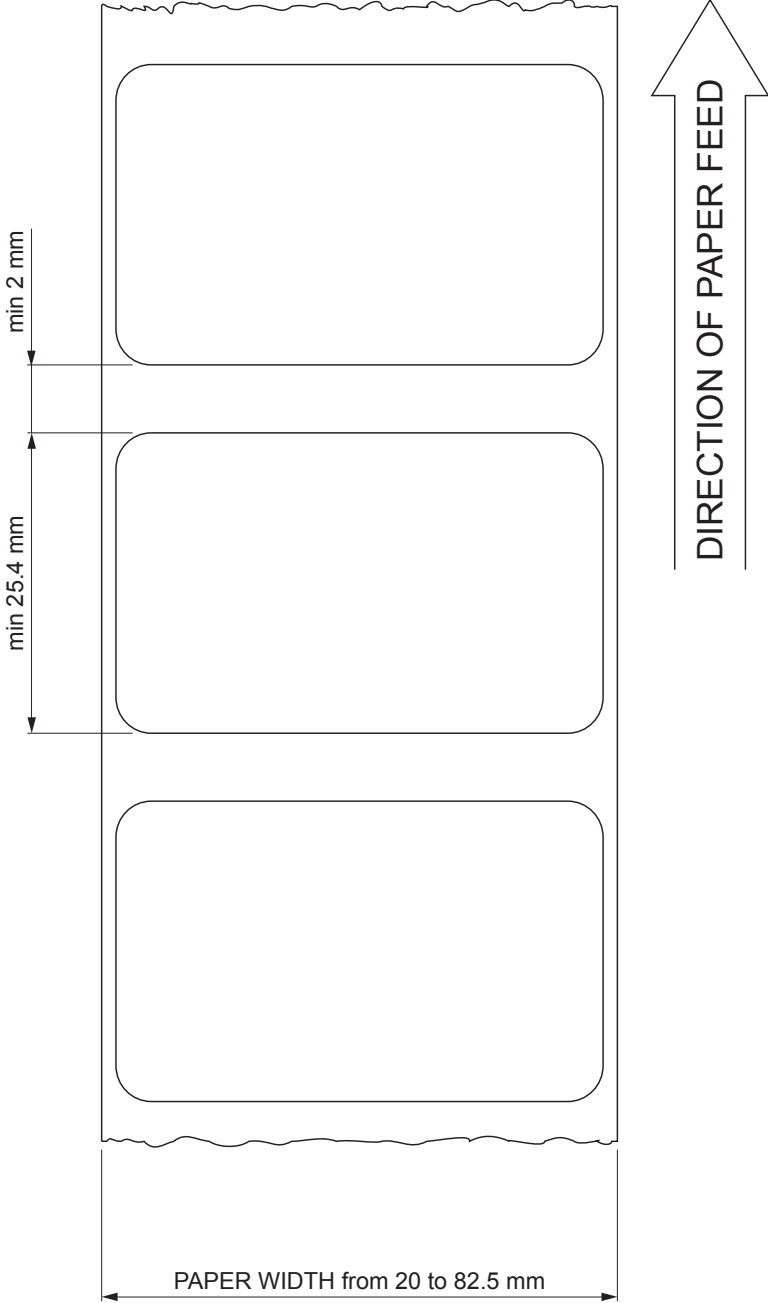
7.8 Character sets in CUSTOM/POS emulation

The device has 3 embedded fonts of varying width: 11, 15, 20 cpi for the 200 cpi model and 16, 23, 60 cpi for the 300 dpi model.

Each of these fonts offers the following code tables: PC437, PC850, PC860, PC863, PC865, PC858

PC437 CODE TABLE (Usa, Standard Europe)

Char	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{			}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	Pts	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC850 CODE TABLE (Multilingual)

Char	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	ð	Ð	Ê	Ë	È	ı	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	SHY	±	=	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

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
PC860 CODE TABLE (Portuguese)

Char	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ã	à	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	À	È	ô	ö	ò	Ú	ù	Ì	Õ	Ü	¢	£	Ù	Pts	Ó
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	Ò	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC863 CODE TABLE (Canadian, French)

Char	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{			}	~	△
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	Â	à	¶	ç	ê	ë	è	ï	î	=	À	§
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	È	Ê	ô	Ë	Ï	û	ù	¤	Ô	Ü	¢	£	Ù	Û	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	¦	´	ó	ú	¨	¸	³	—	Î	⌐	¬	½	¼	¾	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

CUSTOM®

Char	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{			}	~	⌂
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	Pts	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	¤
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

PC858 CODE TABLE (Euro symbol)

Char	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
Hex	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F
Dec	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Char	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Hex	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B	003C	003D	003E	003F
Dec	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Char	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Hex	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F
Dec	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
Char	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
Hex	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	005A	005B	005C	005D	005E	005F
Dec	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Char	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Hex	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F
Dec	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Char	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	△
Hex	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	007A	007B	007C	007D	007E	007F
Dec	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
Char	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
Hex	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F
Dec	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
Char	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
Hex	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	009A	009B	009C	009D	009E	009F
Dec	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
Char	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
Hex	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF
Dec	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
Char	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
Hex	00B0	00B1	00B2	00B3	00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF
Dec	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
Char	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
Hex	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF
Dec	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Char	ð	Ð	Ê	Ë	È	€	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
Hex	00D0	00D1	00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF
Dec	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Char	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	‾	´
Hex	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
Dec	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
Char	SHY	±	=	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	NBSP
Hex	00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF
Dec	240	241	242	243	244	245	246	247	248	249	250	251	252	253	251	255

NOTE:
To print the Euro (€) symbol, the command sequence is: 0x1B 0x74 0x13 0xD5 (see Commands Manual).

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In CUSTOM/POS 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 for the 200dpi model and 16, 23 and 30 cpi for the 300dpi model).

The quality of TrueType fonts and the correct positioning into the printable area 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.

7.9 Character sets in SVELTA emulation

In SVELTA emulation the device has 20 embedded fonts of varying width which may be accessed through control characters (see commands description in SVELTA emulation of Command Reference). The following list shows the font available and relative dimensions in dot:

• Font HEL8PT8 [A]	Proportional Font with fixed height (H = 28 dot)
• Font HEL10PT8 [A]	Proportional Font with fixed height (H = 34 dot)
• Font HEL14PT8 [A]	Proportional Font with fixed height (H = 50 dot)
• Font HEL16PT8 [A]	Proportional Font with fixed height (H = 55 dot)
• Font 18x24	(Font 18x24 in ESC/POS emulation)
• Font 14x24	(Font 14x24 in ESC/POS emulation)
• Font 10x24	(Font 10x24 in ESC/POS emulation)
• Font 8x12 [B]	Fixed Font
• Font 8x12-2 [B]	Fixed Font
• Font 12x12 [B]	Fixed Font
• Font 14x11 [B]	Fixed Font
• Font 16x24 [B]	Fixed Font
• Font 16x24_1 [B] [C]	Fixed Font
• Font 16x24_2 [B] [C]	Fixed Font
• Font 20x15 [B]	Fixed Font
• Font 28x20 [B]	Fixed Font
• Font 14x24_1 [B] [C]	Fixed Font
• Font 16x24CN [B] [C]	Fixed Font
• Font OCRB (20x32) [B]	Fixed Font

For further informations to characters representations print directly the Font Test[D].

NOTES:
(A) : A proportional font is a font in which different characters have different pitches (widths).
(B) : A fixed font is the opposite of a proportional font and is a fixed-pitch font.
(C) : The fonts with the same name and dimension contain different characters in different positions from theirs.
(D) : During power-up, if the FORM FEED (FF) key is held down, the device executes the FONT TEST.
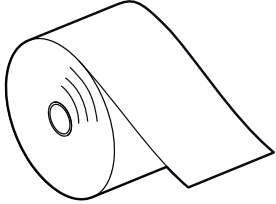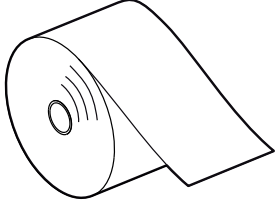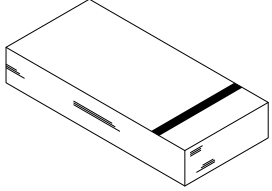
In SVELTA emulation, it is possible to use TrueType fonts. True Type fonts are printable with every angle of rotation and in bold, reverse, italic and underlined mode.

It is possible to address the TrueType font respects the UNICODE™ standard (see www.unicode.org), by using UTF-8 or UTF-16 encoding.

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.

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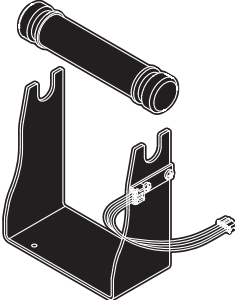
The following table shows the list of available consumables for device:

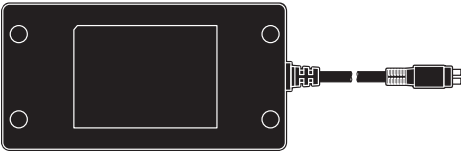| DESCRIPTION	CODE
KPM202, KPM203	
THERMAL PAPER ROLL weight = 180 g/m^2 width = 80 mm Ø external = 180 mm Ø core = 25 mm	**67300000000386**
THERMAL PAPER ROLL weight = 180 g/m^2 width = 82.5 mm Ø external = 150 mm Ø core = 45 mm	**67300000000409**
TK202, TK203	
THERMAL FANFOLD MODULE (100 tickets) weight = 105 g/m^2 dimensions = 155 mm x 65 mm	**67A00000000300**

9 ACCESSORIES

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

KPM202, KPM203

DESCRIPTION	CODE
all models	
POWER SUPPLY (for technical specifications, see paragraphs 7.1)	**963GE020000004**
ADAPTER CABLE FOR POWER SUPPLY (see the paragraph 9.2)	**26600000000348**
ADAPTER CABLE FOR POWER SUPPLY WITH ON/OFF SWITCH (see the paragraph 9.2)	**26600000000349**
PAPER ROLL HOLDER (see paragraphs 9.1)	**974AU010000305**

TK202, TK203

DESCRIPTION	CODE
TICKET TRAY	**976BB010000003 (black)** **976BB010000002 (white)** **976BD010000001 (transparent)**
PAPER ROLL HOLDER	**974BA010000312**
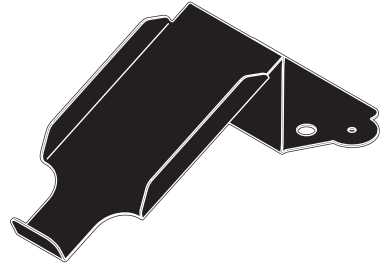
CUSTOM®
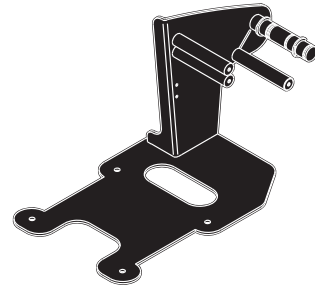
9.1 Paper roll holder

For the device is available an external paper roll holder kit 974AU010000305 (supplied as an accessory). The kit makes it possible to use paper rolls with larger diameter (Øext.150mm max).
The kit includes:
1. Paper roll pin.
2. Paper holder support with near paper end sensor.

For the assembly procedure, proceed as follows:

Insert the pin in the paper roll and then
put the asembled roll on the support.
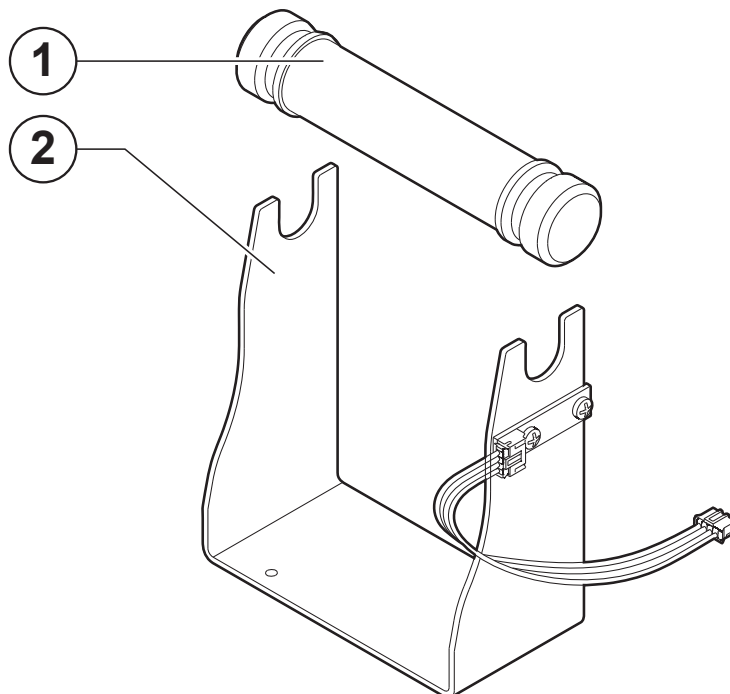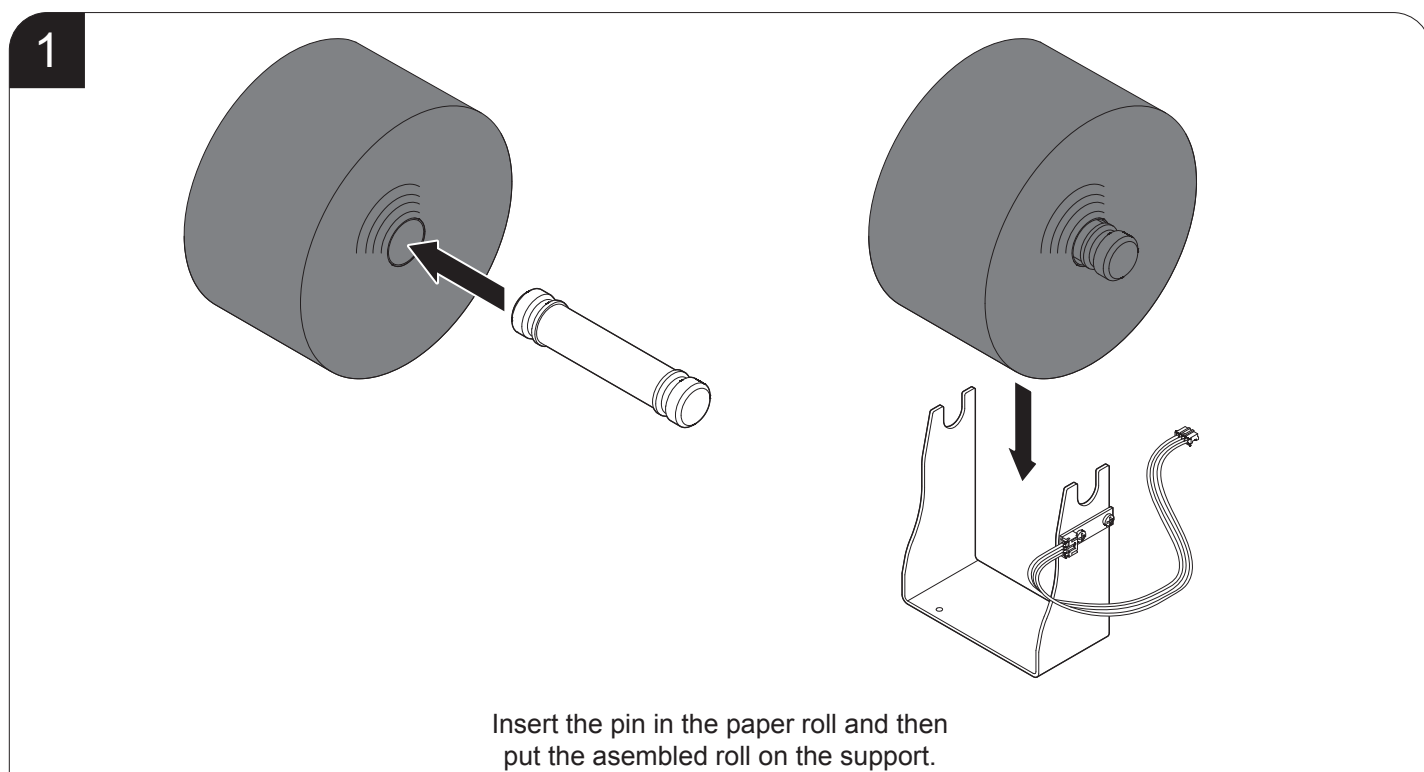
2
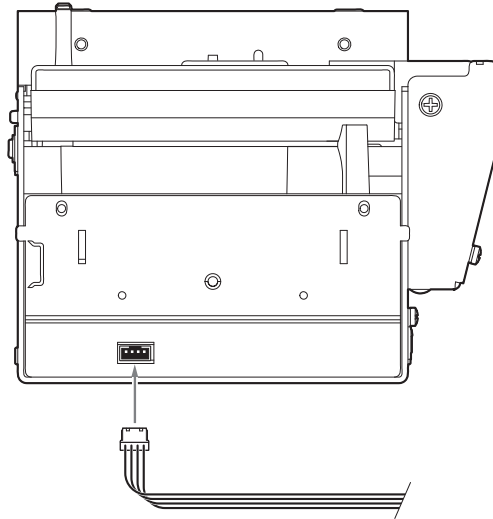
Connect the cable for the near paper end sensor (NPE)
to the device connector.

3

NPE sensor board
on the opposite side
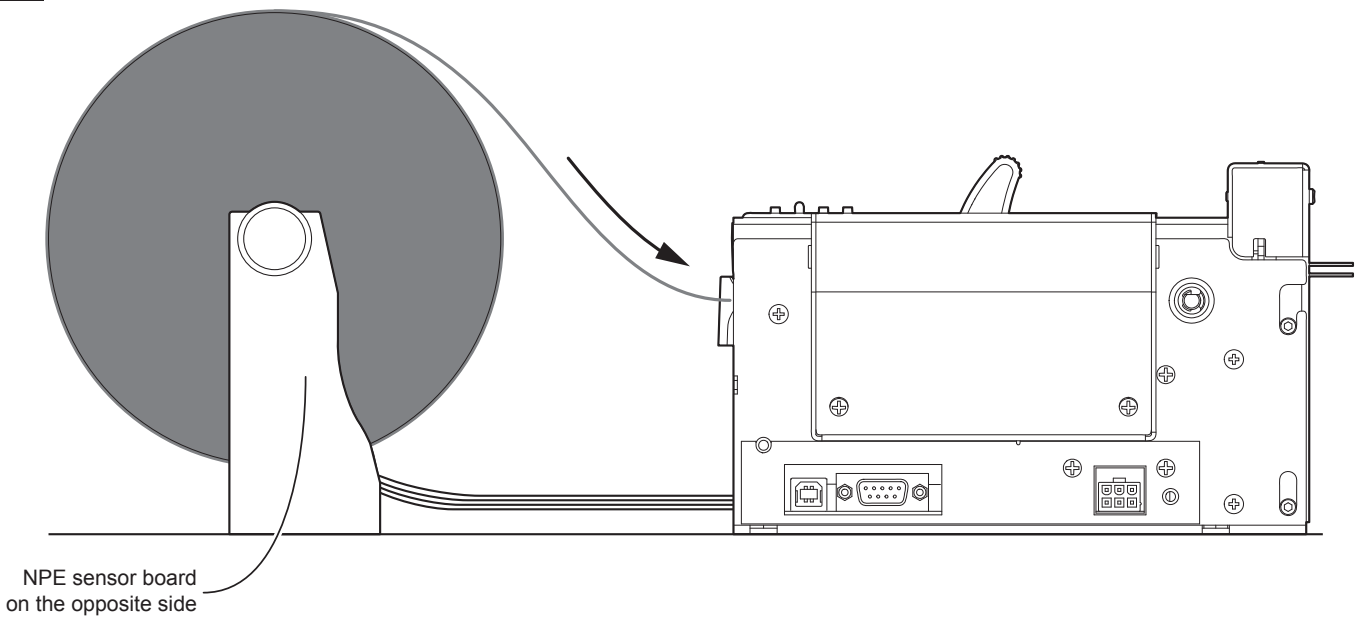
Place the roll holder as shown in figure
and load the paper (see previous paragraphs).

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The following figure shows the specifications for holder and paper roll.

Ø max. 150

120

Ø max. 82,5

Ø 25

98

35

50

6   38 +0,2 -0,2

Ø 3,2

56 +0,2 -0,2
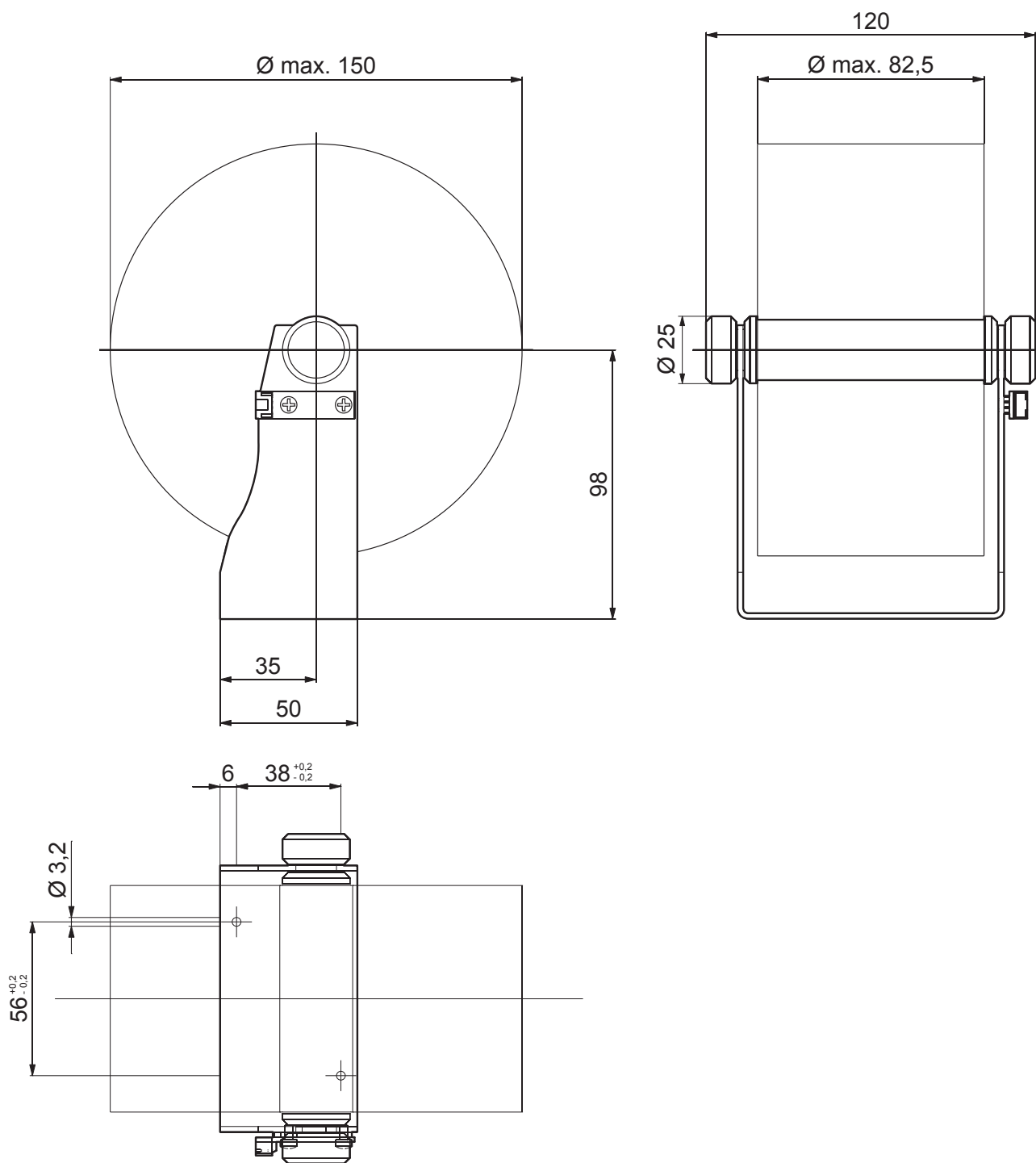
NOTES:
All the dimensions in figure are in millimetres.

For external rolls diameter higher to 100 mm it's recommended to use a paper pre-tensioning device.

9.2   Adapter cable for power supply

For the device are available two adapter cable supplied as accessory, for connecting the device to the external power sup-
ply unit (cod. 963GE020000004 - optional):
- cod. 26600000000348 : adapter cable
- cod. 26600000000349 : adapter cable with ON/OFF switch

For the assembly procedure, see the following figure:
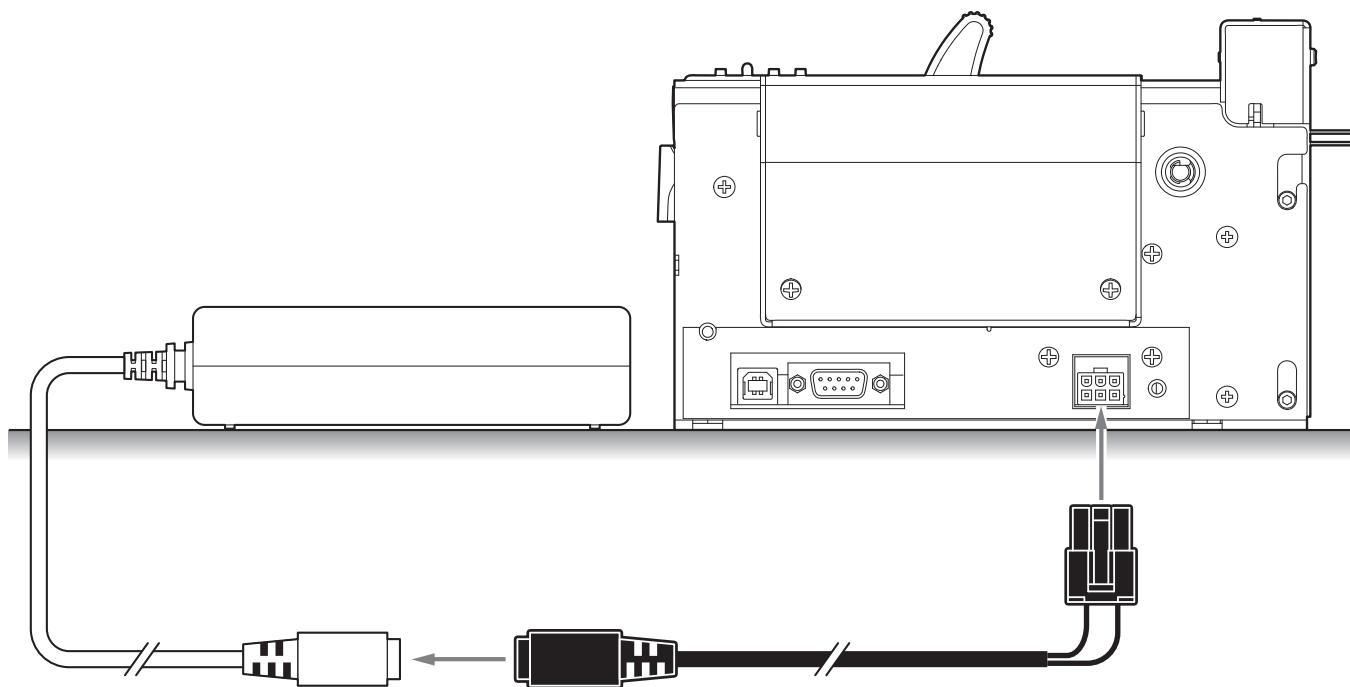
10 ALIGNMENT

Device is provided with sensors for the use of alignment notch in order to handle:
• roll of tickets with pre-printed fields and a fixed length;
• Fan-Fold module of tickets with pre-printed fields and a fixed length.

The alignment notch may be formed by (see par.7.7):
• black mark printed on paper;
• hole between two tickets;
• gap between two labels.

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.

To use tickets with holes or labels with gap, it is possible to use the same sensors as "transparence" sensors, coupled two by two: a beam of light is emitted by the transmitter sensor and the quantity of light which reaches the opposite receiver sensor is detected.
The presence of the hole/gap is detected evaluating the amount of light that arrives to the opposite sensor, considering that the paper doesn't allow the beam of light to reach the receiver, whereas a gap or a hole lets the light to reach the receiver.

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

10.1 Enable alignment

Device is provided with two sensors for alignment, placed as follows:
- one mobile sensor on the lower flat
- one mobile sensor on the upper flat.

To guarantee the alignment, it is necessary to correctly choose the sensor to use for the notch detection depending on the type of notch and its location on the ticket.
To do this, you must enable the parameter "Notch/B.Mark Position" during the Setup procedure (see chapter 5) and set the correct value of this parameter as described in the following table.

SENSOR USED	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	Reflection	Black mark printed on the thermal side of paper
1 + 2	Transparent	Transparence	Hole between tickets or gap between labels

SENSOR 1   *lower flat*   SENSOR 2   *upper flat*
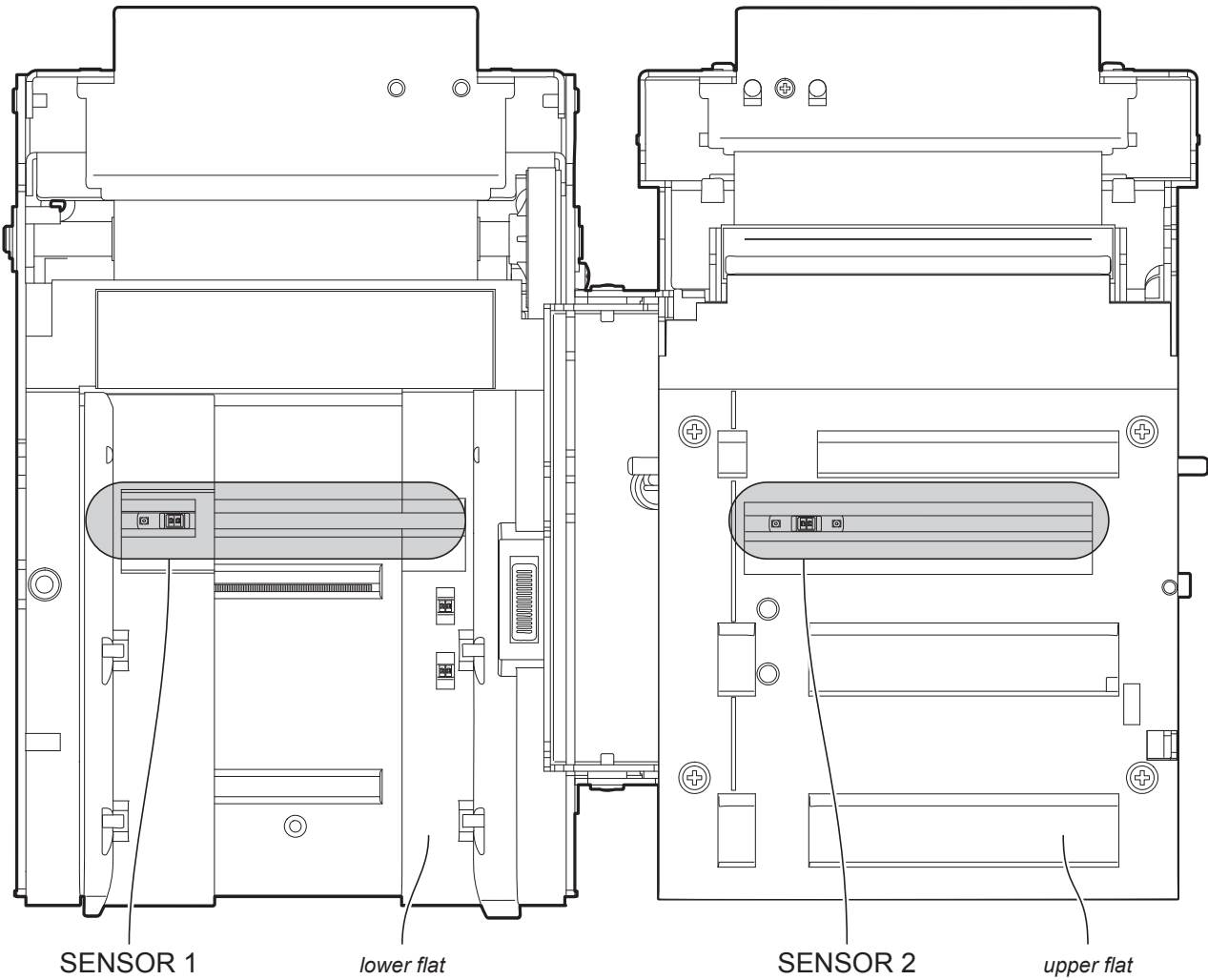
NOTE: For ease of understanding, the image shows the two flats represented in the same plane.
For ease of reference, for some models is represented only the internal printer group without the external plastic chassis.

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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

direction
of
paper feed

SENSOR 1

NON-TERMAL
SIDE
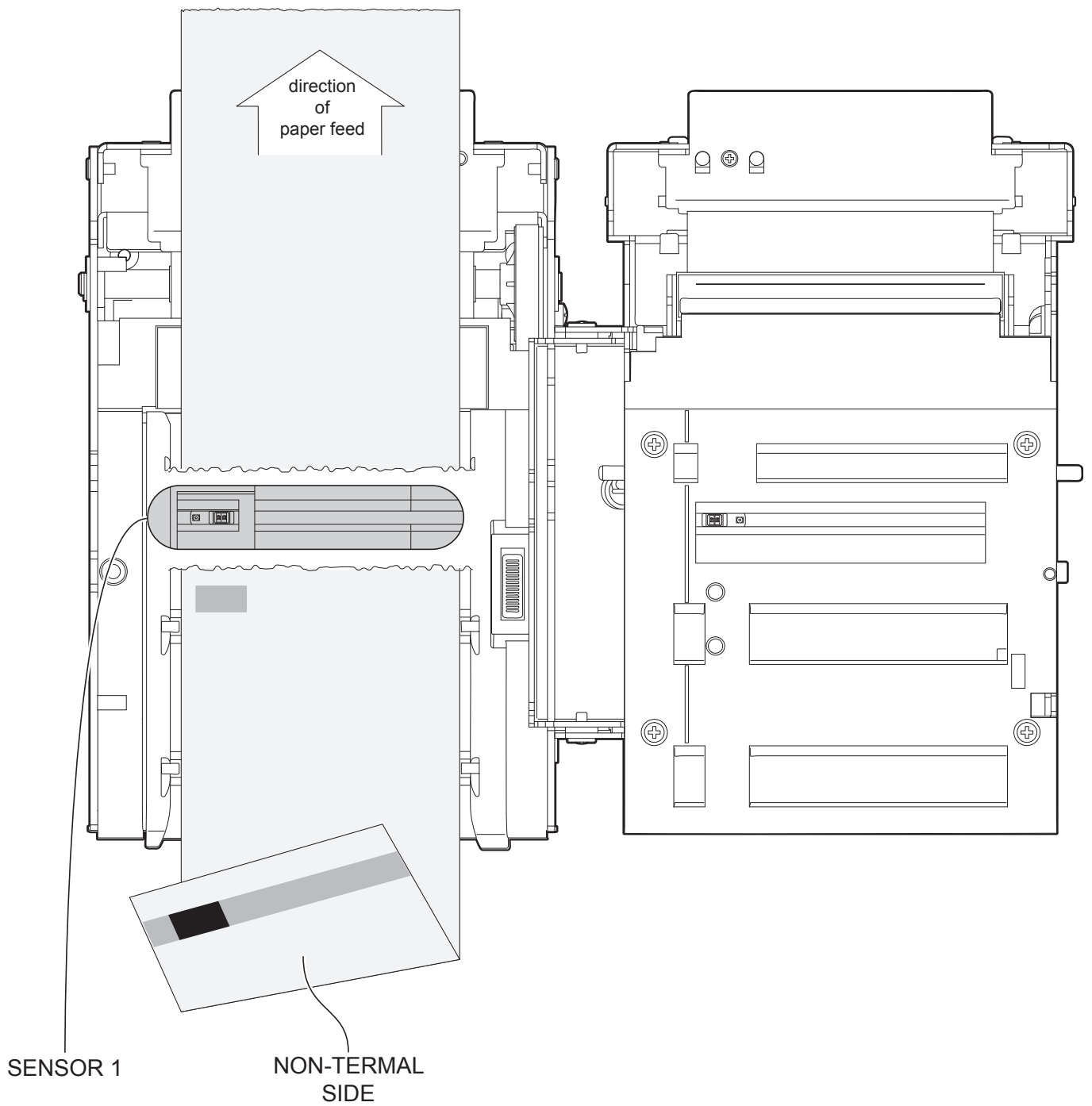
Paper with black mark on the thermal side

direction
of
paper feed

THERMAL
SIDE

SENSOR 2

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Tickets with hole

direction
of
paper feed

SENSOR 1

SENSOR 2

Paper with labels

direction
of
paper feed
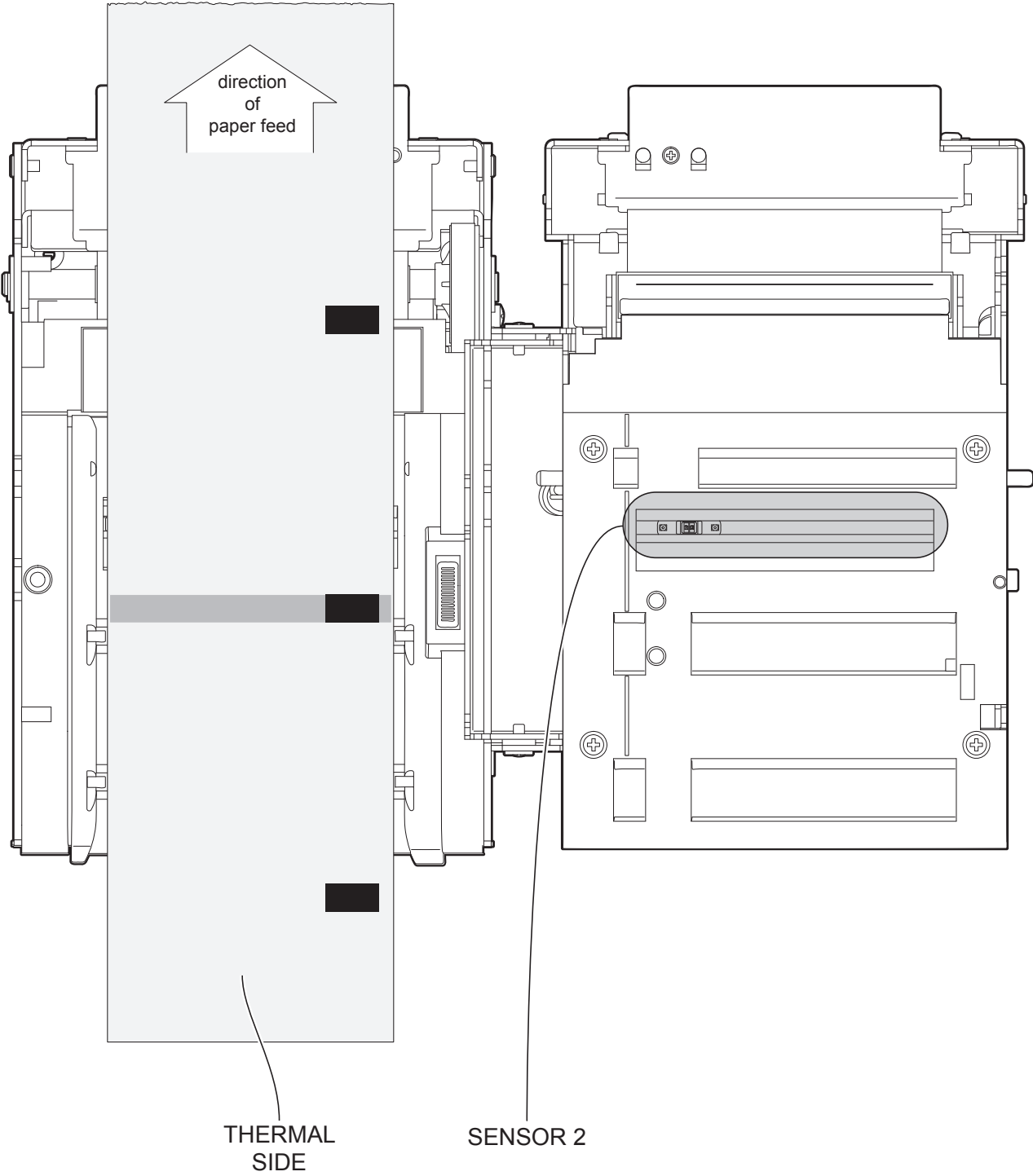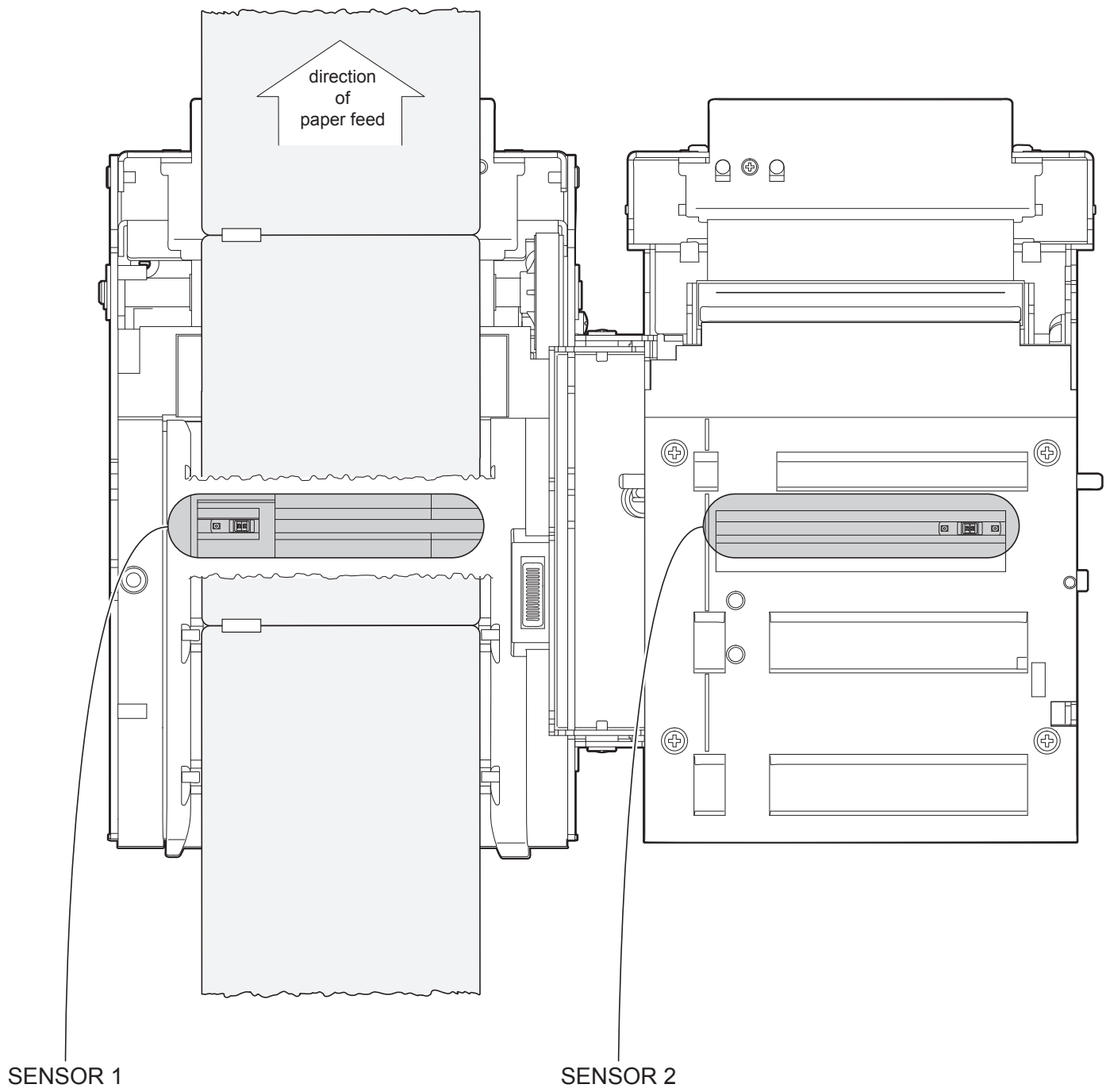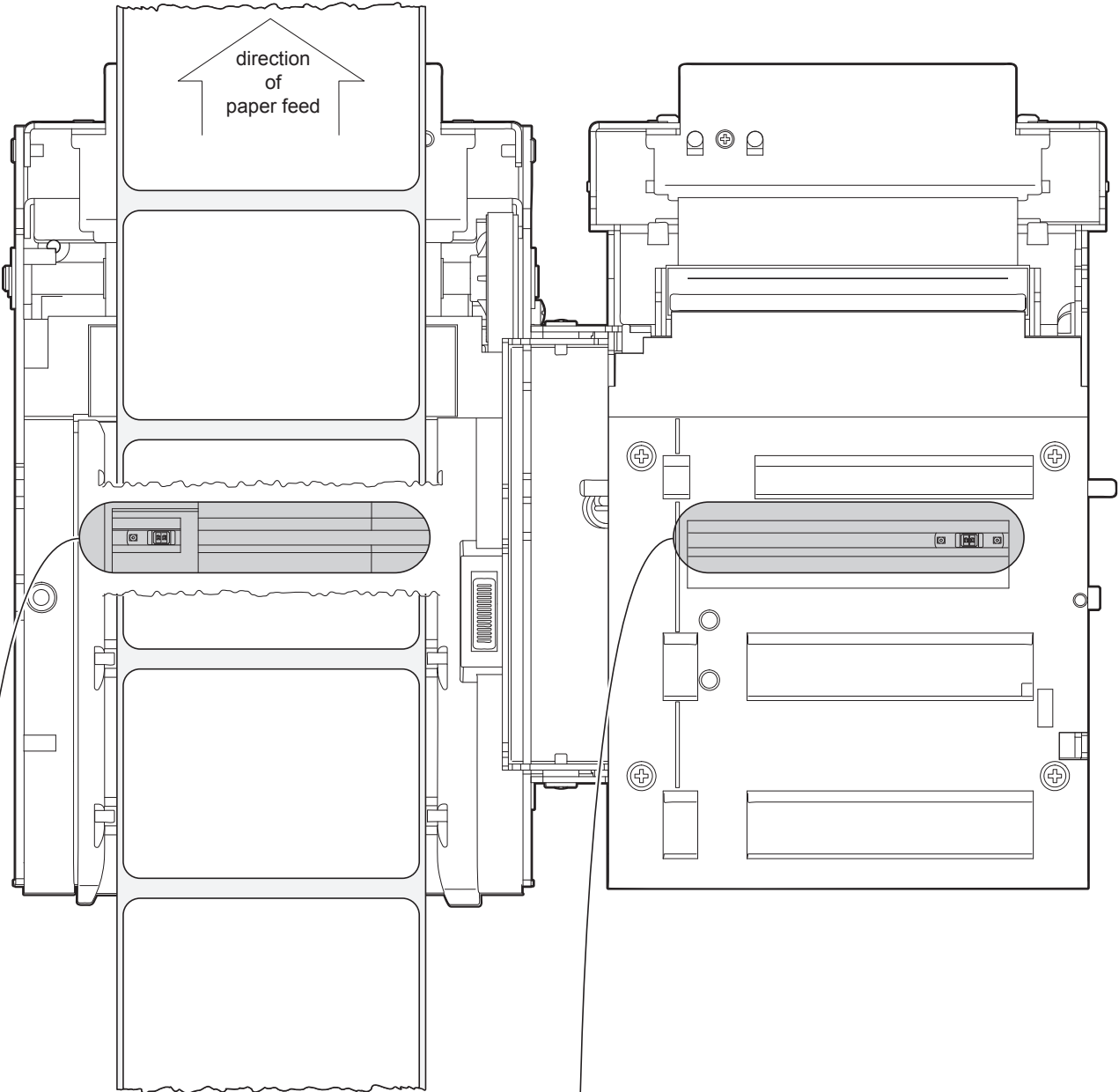
SENSOR 1

SENSOR 2

10.2 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 5).
Otherwise, the self-calibration can be started manually by pressing the S1 key during power-up.

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 of the alignment sensor driver so that it can be perform an optimal notch detection:

    Autosetting Notch : OK
    PWM Duty Cycle : 85.3%

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 (as shown in figure).
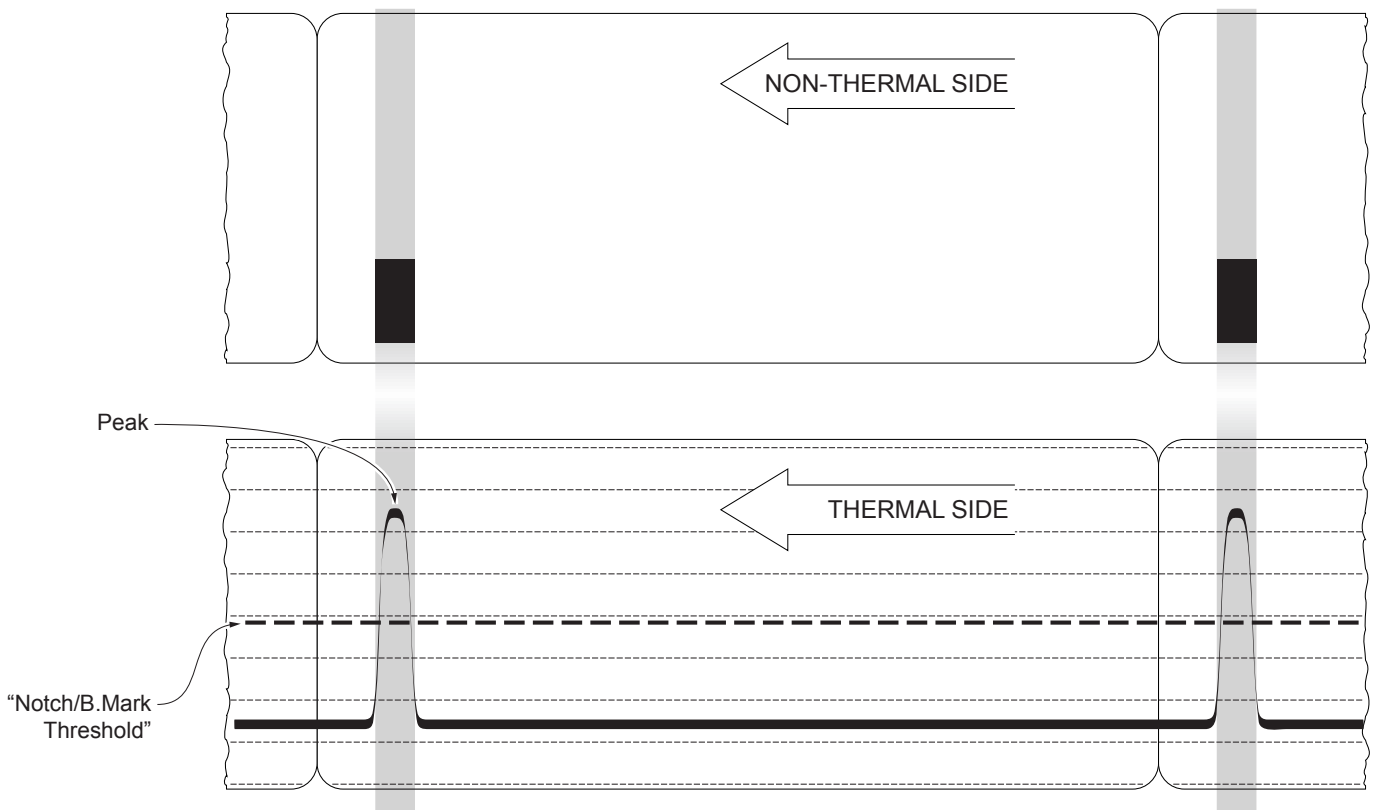
The following figure shows an example of paper with holes: the outgoing voltage is constant while passing the paper between two holes and presents a variation at each hole.
In this case, the optimal value for the "Notch/B.Mark Threshold" parameter is placed about half of the variation.
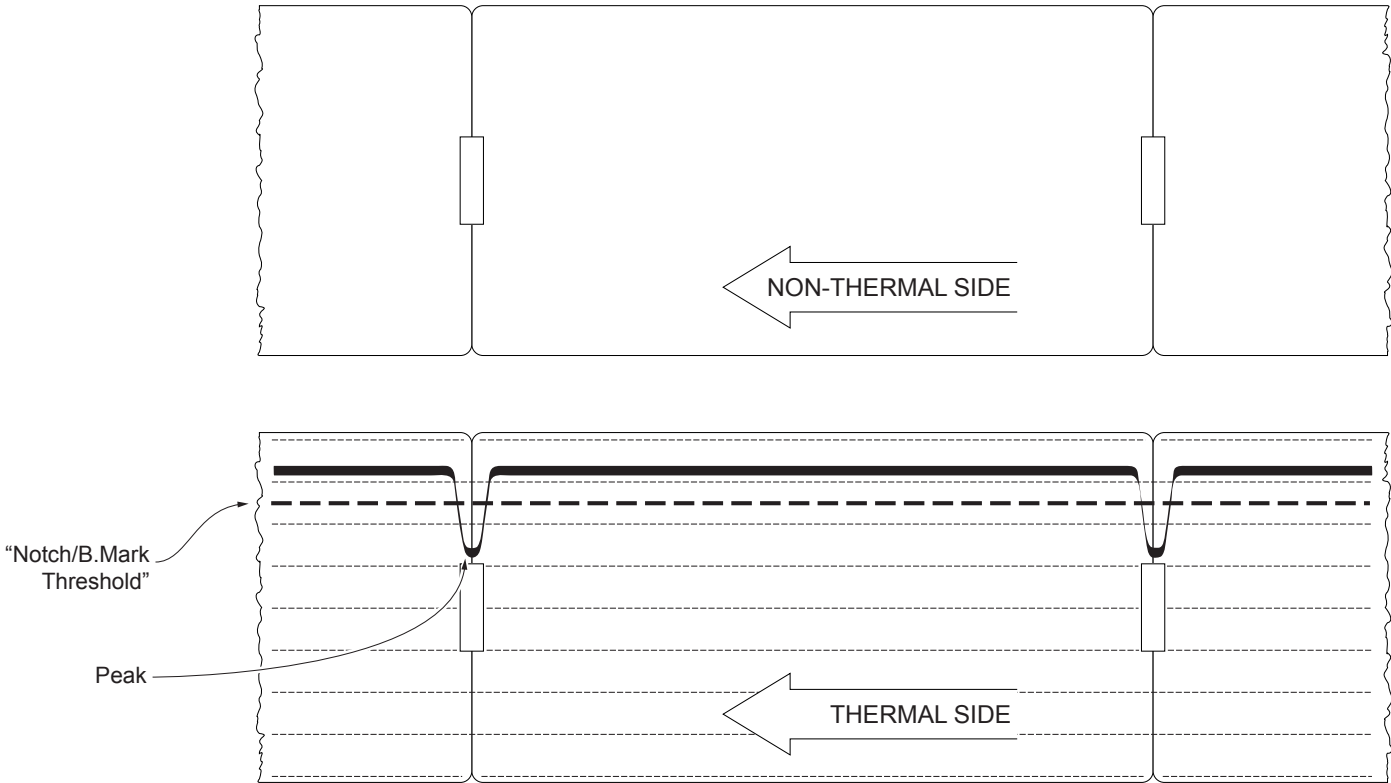
The following figure shows an example of paper with the non-thermal paper printed with black marks and other graphics (for example, a barcode): the outgoing voltage is constant while passing the white paper between two notches, presents a peak at each black mark and presents some "noise" at each barcode.
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" (as shown in figure):
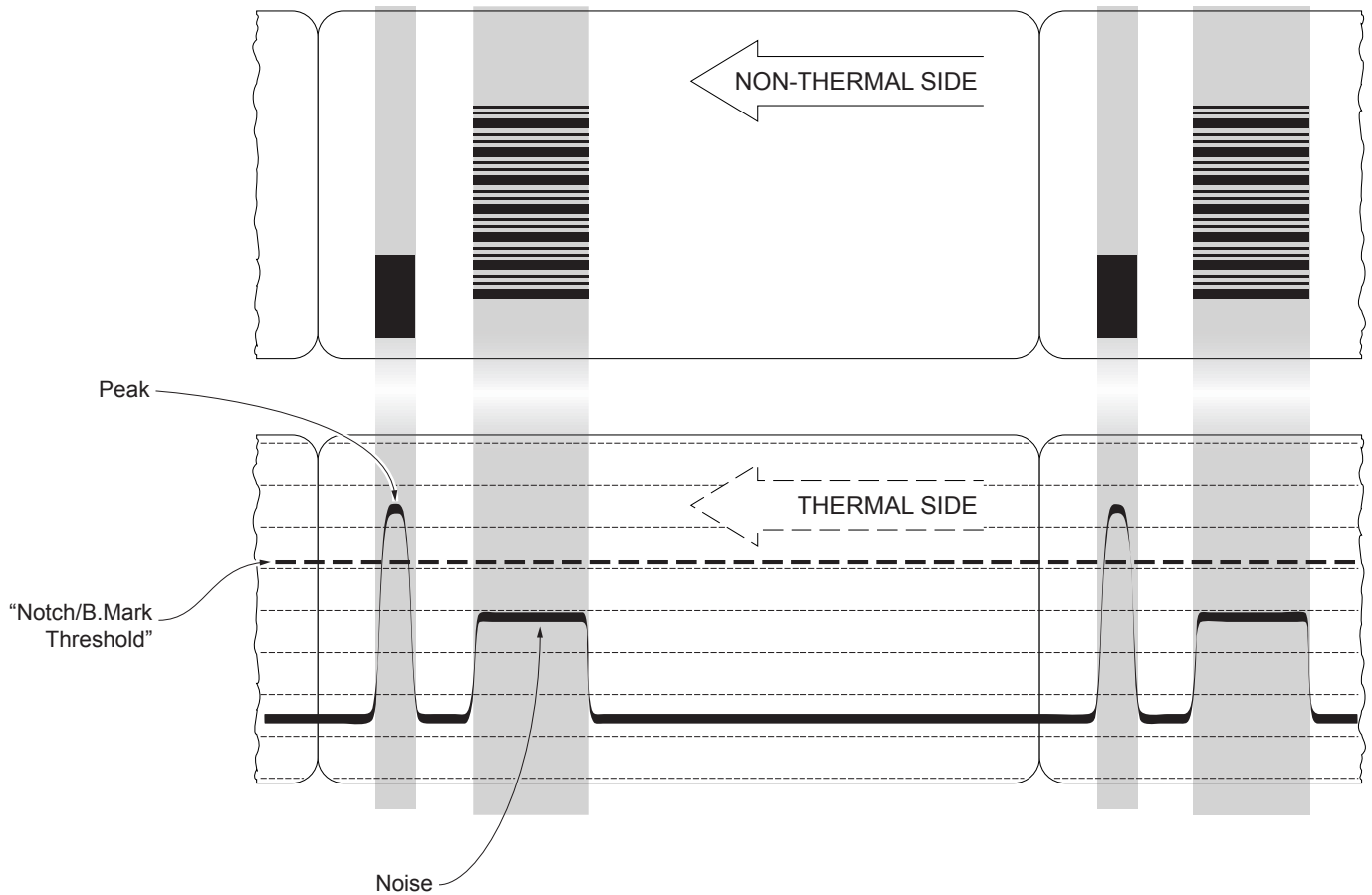
If the maximum value of "noise" read by the sensor is very close to the peak value, it might be difficult to place the value of the "Notch/B.Mark Threshold" at an intermediate point. In these cases, it is mandatory that the portion of paper between the point of printing end and the front notch is completely white (no graphics). In this way, the only next graphic detected by the sensor for alignment after the printing end will be the notch.

10.3   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".

The value of "Notch Distance" varies from a minimum value of -5 mm to a maximum value of 66 mm.

If the "Notch Distance" value is set to 0, the alignment point is set at the beginning of the notch:
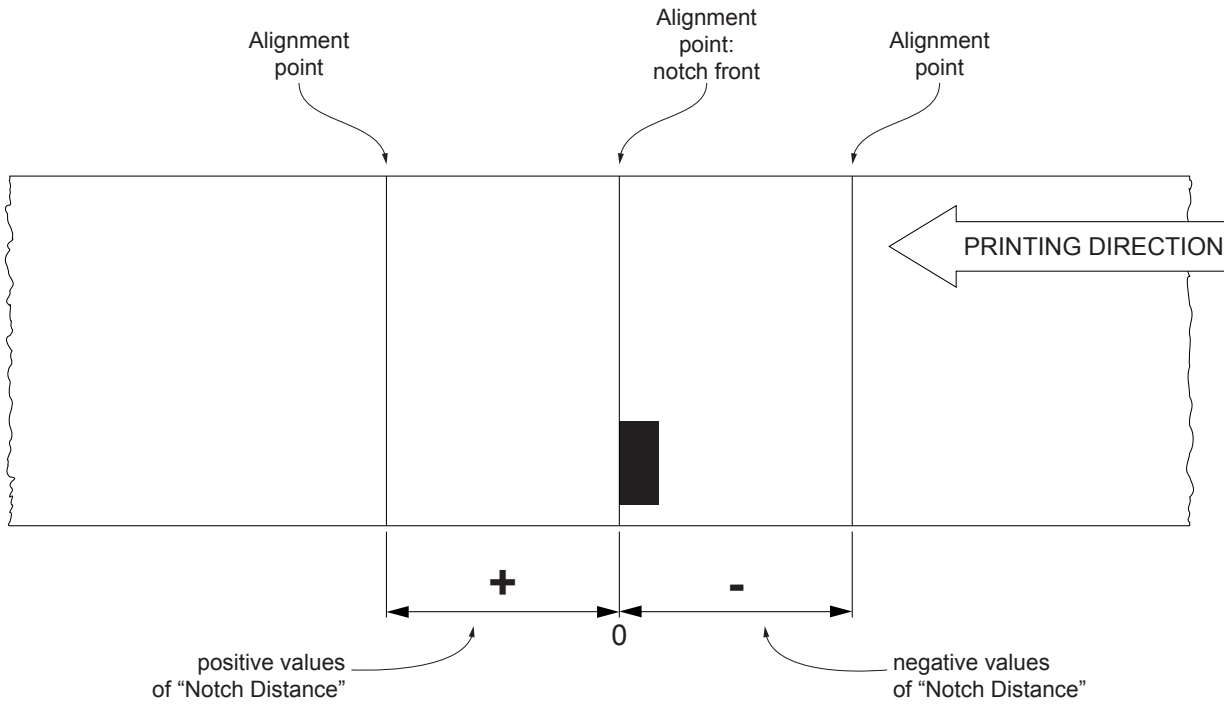
The following figure shows an example of paper with alignment point set by a positive value of "Notch Distance" ("Notch Distance" = + A):
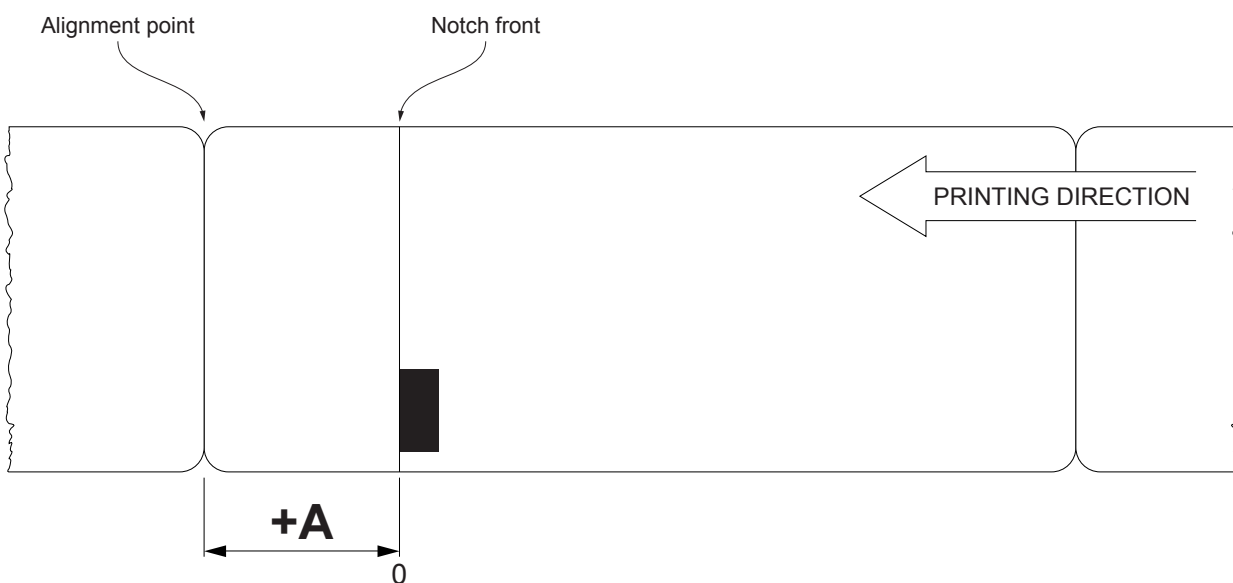
To set a negative value of the "Notch Distance" parameter is useful in cases where the alignment point refers to the notch printed on the previous ticket or where the desired tear-off line is placed in the middle of the alignment notch (for example, for paper with holes or gap). In the following images, the value of "Notch Distance" parameter is set to -A.
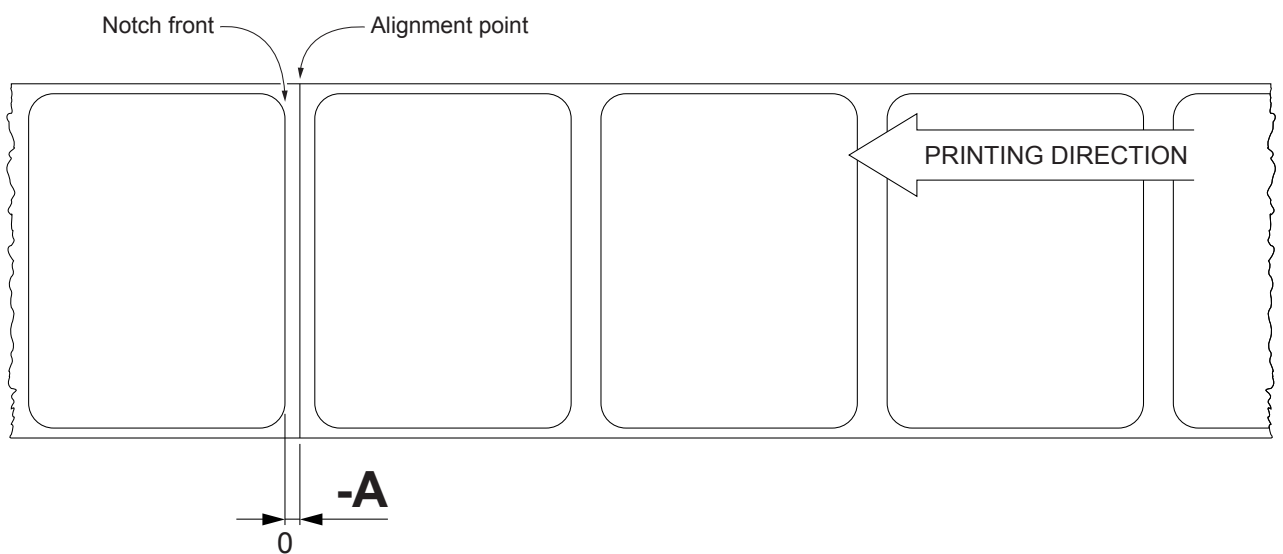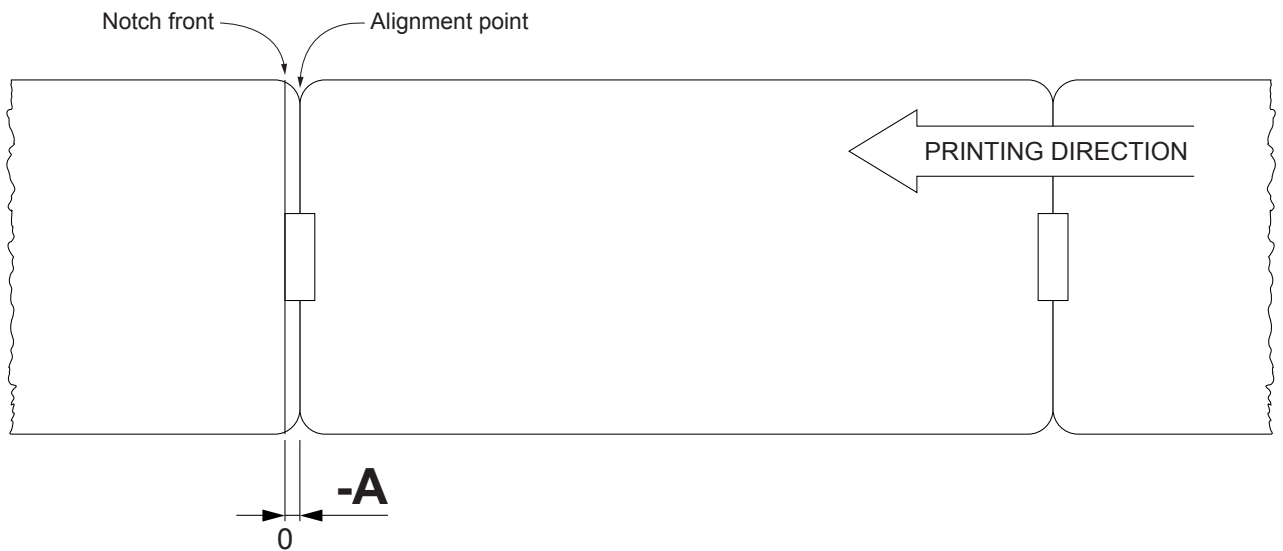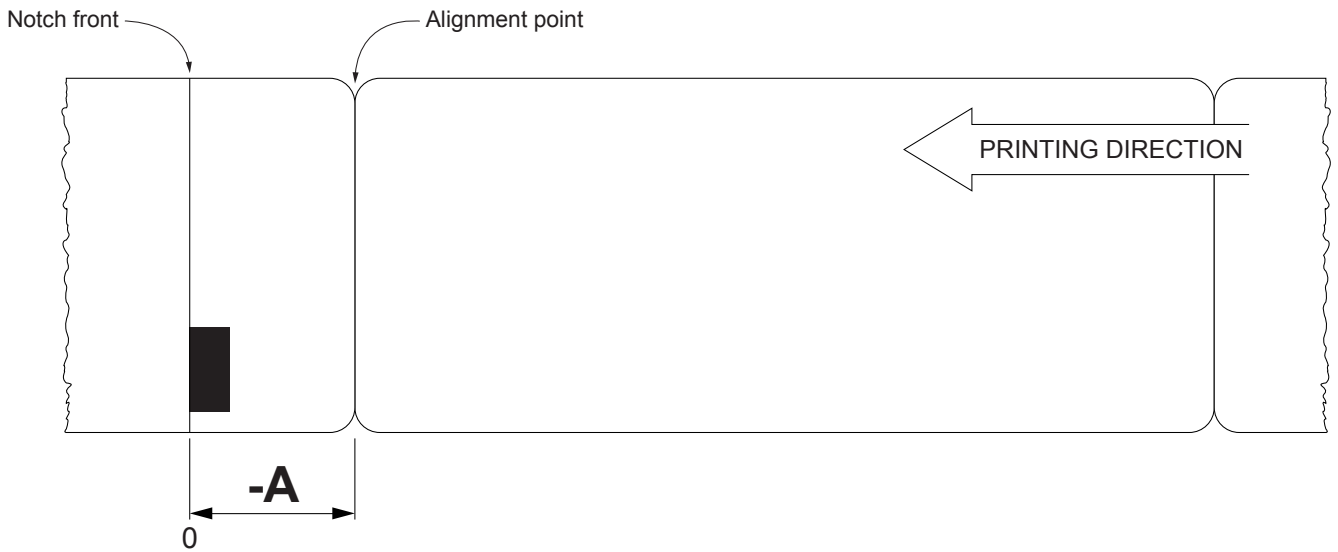
The following figure shows a simplified section of the device with the paper path and the distance (in mm) between the alignment sensors and the printing head.

66

distance between
printing line and
notch sensor
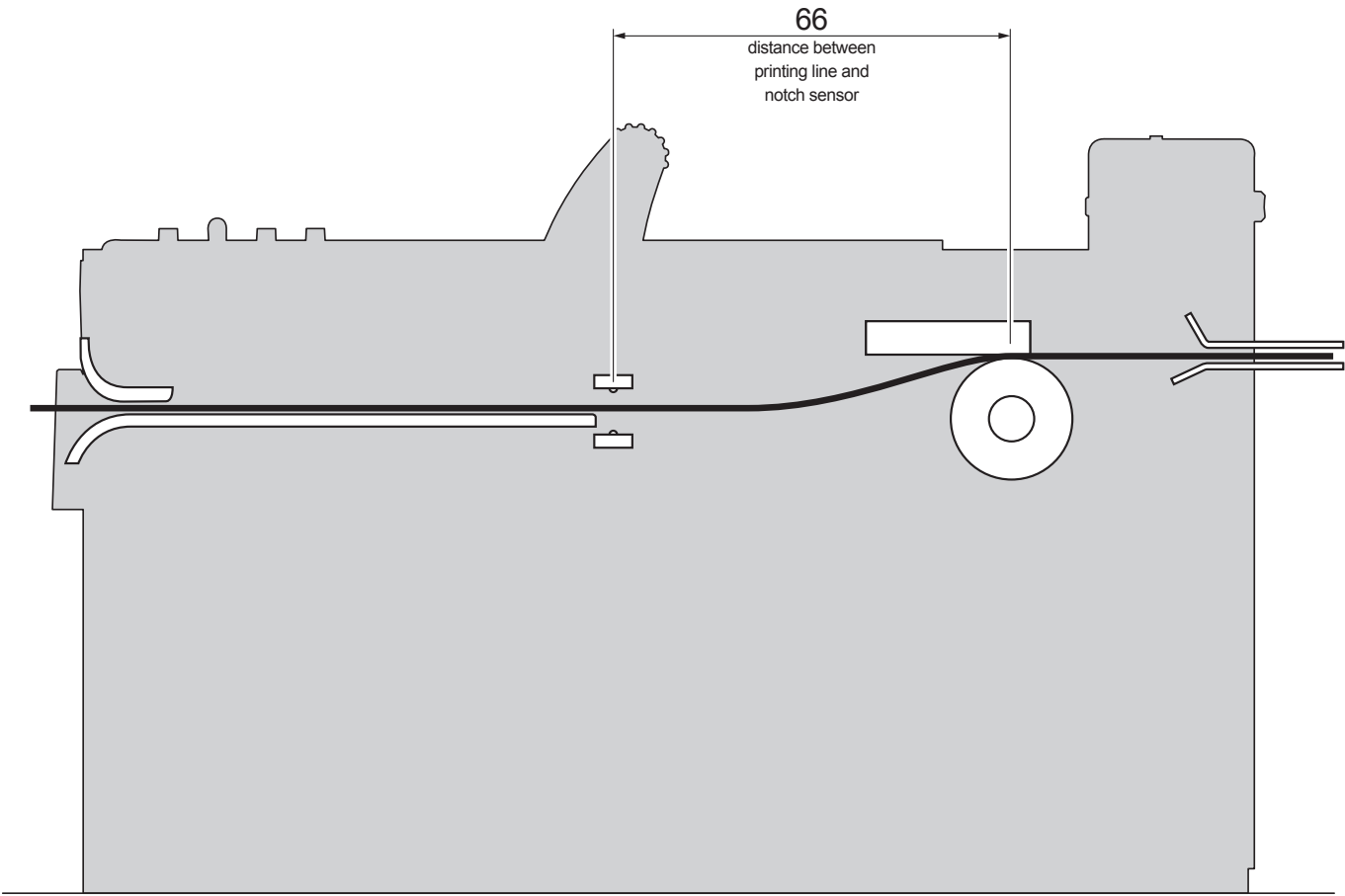
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CUSTOM/POS emulation

To define the alignment point you need to set the printer parameters that compose the numerical value of the "Notch Distance" parameter (see par.5.4).
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 5)
• by modifying the Setup.ini file (see par.12.5)
• by using the command 0x1D 0xE7 (for more details, refer to the Commands Manual)
• by driver.

SVELTA emulation

The ticket features and the alignment parameters, may be modified as follows:
• by using the parameters of the <LHT> command (for more details, refer to the Commands Manual)
• by modifying the Setup.ini file (see par.12.5)
• by driver

The following figure shows the some of parameters for alignment of the Setup.ini file:
• "Ticket X Dimension"
• "Ticket Y Dimension"
• "Notch Width"
• "Notch Distance"

10.4 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 manual tear-off.

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

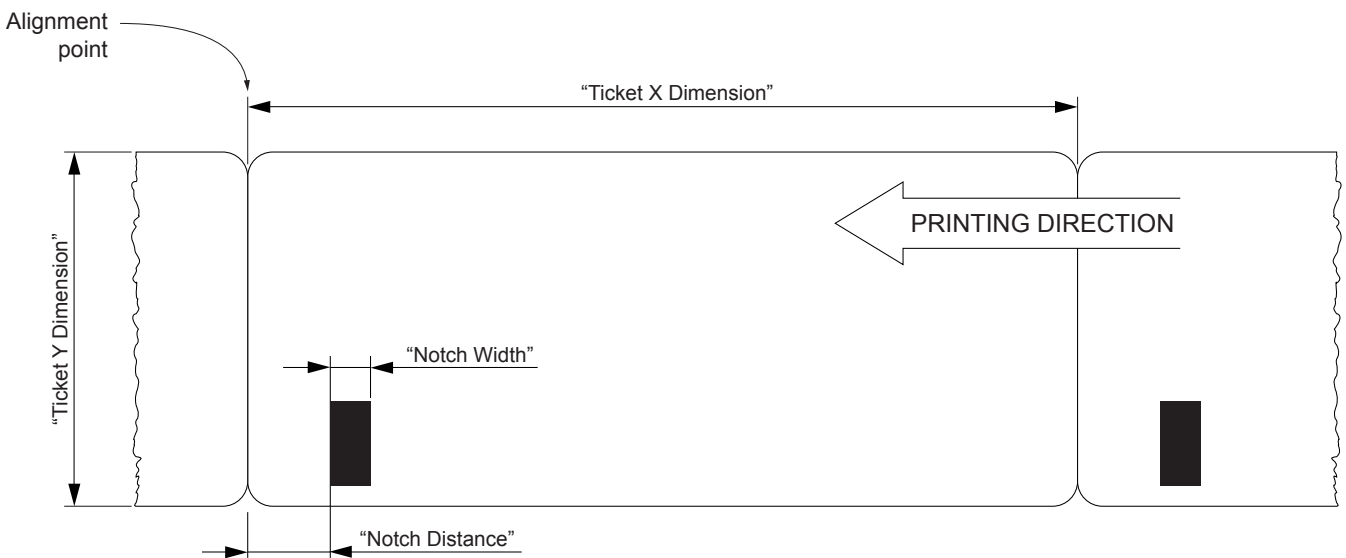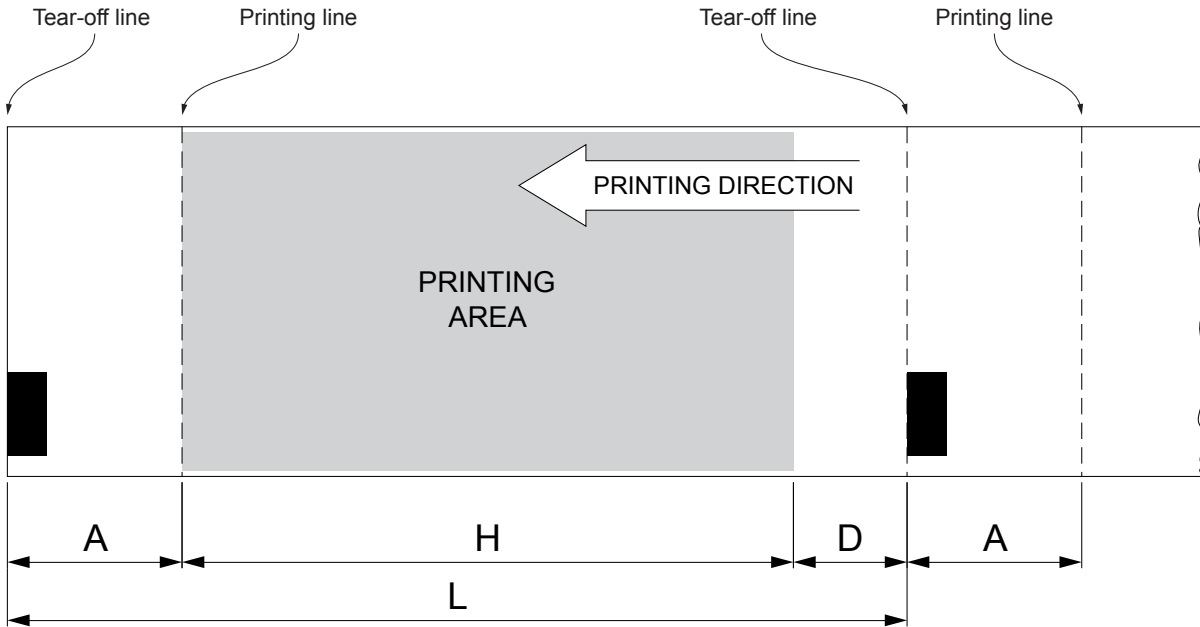A   "Non-printable area" generated from:

"*Distance between tear-off line/printing head"- "Value for the paper recovery after a manual tear-off*"

where:
"Distance between tear-off line/printing head" =   24 mm (fixed distance)
"Value for the paper recovery after a manual tear-off"= 9 mm (in CUSTOM/POS emulation)
                                                        24 mm (in SVELTA emulation)

In CUSTOM/POS emulation, after a performed tear-off, the paper is not completely recovered (in order to avoid jamming when using of thin paper). Otherwise, in this emulation you can use the command 0x1C 0xC1 to modify the "Value for the paper recovery after a manual tear-off" (see Commands Manual).
The SVELTA emulation, instead, it is designed specifically for ticketing and then for using with heavy paper, which avoids the risk of paper jams. After performing a tear-off, the device completely recovers the paper

H   Distance between the first and the last print line, called "Hieght 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 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.

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11 TECHNICAL SERVICE

In case of failure, contact the Technical Service by sending an e-mail to support@custom.it detailing:

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

To get the necessary data, proceed as follows:

1

XXXXXXXXXXXXXX   **Rx**

0000000000000000000

Write down the data printed
on the product label (see paragraph 2.5).

2

FW

KPM202 printer			
SCODE: *<code>*	-	rel	**1.00**
BCODE: *<code>*	-	rel	1.00
FCODE: *<code>*	-	rel	1.00
UCODE: *<code>*	-	rel	1.00
DCODE: *<code>*	-	rel	1.00
CPLD	-	rel	1.00

PRINTER SETTINGS

PRINTER TYPE KPM202
Barcode Reader ....Not Present
RFID module ....Not Present
PRINTING HEAD TYPE KPA80
INTERFACE RS232
ETHERNET TYPE................................10Base-T
PROGRAM MEMORY TEST................OK
DYNAMIC RAM TEST.........................OK
EEPROM TEST...................................OK
PRINTER HEAD Rav 561
HEAD VOLTAGE   [V]   = 24.55
HEAD TEMPERATURE   [°C] = 26

Print a Setup report (see paragraph 5.1)
The Setup report shows
the firmware release.

3

@

↓

support@custom.it
Customer Service Department

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

12 ADVANCED FUNCTIONS

12.1 File sharing

The device can be connected to a PC through an USB cable (see par.3.3):
With this type of connection made, it is possible to manage drivers, fonts and logos of the device and configure the operating parameters by files sharing from Mass Storage.

USB

FILE SHARING
FROM
MASS STORAGE
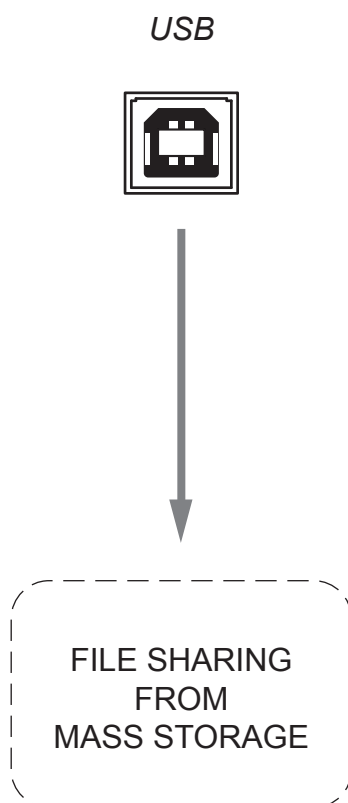
12.2 Drivers installation

It is possible to install the new driver update directly into the folder "DRIVER" on the Flash Drive of the device.
You can enter the Flash Drive by files sharing from Mass Storage

12.3   Logos management

It is possible to store new logos in addition to default logos stored on Flash Disk. The device automatically provides to convert BMP image to the error-diffusion format in black and white.

It is possible to add the new logo directly into the folder "PICTURES" on the Flash Drive of the device.
You can enter the Flash Drive by files sharing from Mass Storage. In this case, the relative parameter should be enabled during the configuration process (see chapter 5).

After adding the logo, open the configuration file "PictList.ini" and add a new line with a number associated to the logo (to be used with device's commands), a letter for the memory unit and the logo file name, as indicated in the instructions written inside the "PictList.ini" file.

To delete a logo stored in the device, proceed as follows:
1. delete the selected logo from the "Pictures" folder on Flash Disk
2. in the configuration file "PictList.ini", delete the line related to the erased logo.

The logos stored into the Flash Drive or the SD/MMC card and converted by the device, can be printed by using the number associated to the logo during the conversion step.
The correspondence between file-name and logo-number is warrant by the configuration file "PIctList.ini" and it is verifiable with the logo test.

12.4   Fonts management

It is possible to store new font in addition to default fonts stored on Flash Disk by adding the new font directly into the folder "FONTS" on the Flash Drive of the device.
You can enter the Flash Drive by files sharing from Mass Storage. In this case, the relative parameter should be enabled during the configuration process (see chapter 5).

NOTE:
Uploading the new font directly from the "Font" folder of Microsoft® Windows® directory, remember that the displayed font name into the "Font" folder may not match the real name of the font file.

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12.5   Setup

It is possible to configure the default parameters for device and network setup by editing the "Setup.ini" file on the device Flash Drive. You can enter the Flash Drive by files sharing from Mass Storage. In this case, the relative parameter should be enabled during the configuration process (see chapter 5).

The "Setup.ini" file is a configuration file that contains all the configurable parameters listed in text format and divided into some sections (indicated in square brackets).

The available values for every parameter, are listed after the parameter name. The value marked with the symbol ' * ' is the default one.
To modify device's parameters, change the numeric value after the name of parameters. To set the parameter to the default value, change the numeric value with the symbol D.
After editing device's parameter, simply save the "Setup.ini" file to make the modifies activated.
The "Setup.ini" file permits the configuration of the following parameters:

[PRINT]

Printer Emulation	0, 1*	0 = CUSTOM/POS 1 = SVELTA		
Print Mode	0*, 1	0 = Normal 1 = Reverse		
Autofeed	0*, 1	0 = CR disabled 1 = CR enable		
Chars / inch	0, 1*	0 = A=11 B=15 cpi 1 = A=15 B=20 cpi		
Speed / Quality	0, 1*, 2	0 = High Quality 1 = Normal 2 = High Speed		
Paper Width	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14*, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30	0 = 54 mm 1 = 56 mm 2 = 58 mm 3 = 60 mm 4 = 62 mm 5 = 64 mm 6 = 66 mm 7 = 68 mm 8 = 70 mm 9 = 72 mm 10 = 74 mm	11 = 76 mm 12 = 78 mm 13 = 80 mm 14 = 82 mm 15 = 20mm 16 = 22 mm 17 = 24 mm 18 = 26 mm 19 = 28 mm 20 = 30 mm 21 = 32 mm	22 = 34 mm 23 = 36 mm 24 = 38 mm 25 = 40 mm 26 = 42 mm 27 = 44 mm 28 = 46 mm 29 = 48 mm 30 = 50 mm 31 = 52 mm
Paper Threshold	0, 1, 2, 3*, 4, 5, 6	0 = 30 % 1 = 40 % 2 = 50 %	3 = 60 % 4 = 70 % 5 = 80 %	6 = 90 %

Notch/B.Mark Position	0*, 1, 2, 3	0 = Disabled 1 = Top	2 = Bottom 3 = Trasparence	
Notch/B.Mark Threshold	0, 1*, 2, 3, 4, 5, 6	0 = 30 % 1 = 40 % 2 = 50 %	3 = 60 % 4 = 70 % 5 = 80 %	6 = 90 %
Notch Distance [mm]				
Notch/B.Mark Min.Width	0*, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20	0 = 0 mm 1 = 1 mm 2 = 2 mm 3 = 3 mm 4 = 4 mm 5 = 5 mm 6 = 6 mm 7 = 7 mm	8 = 8 mm 9 = 9 mm 10 = 10 mm 11 = 11 mm 12 = 12 mm 13 = 13 mm 14 = 14 mm 15 = 15 mm	16 = 16 mm 17 = 17 mm 18 = 18 mm 19 = 19 mm 20 = 20 mm
Ticket Locking	0*, 1	0 = Disabled 1 = Enabled		
PaperEnd Buffer Clear	0*, 1	0 = Disabled 1 = Enabled		
Ticket Management	0*, 1, 2	0 = Disabled 1 = Short Ticket	2 = Check First	
RFID Module Baud Rate	0*, 1, 2, 3, 4, 5, 6, 7, 8	1 = 38400 bps 2 = 57600 bps 3 = 115200 bps	4 = 1200 bps 5 = 2400 bps 6 = 4800 bps	7 = 9600 bps 8 = 19200 bps
Print Density	0, 1, 2, 3, 4*, 5, 6, 7, 8	0 = - 50 % 1 = - 37 % 2 = - 25 %	3 = - 12 % 4 = 0 % 5 = + 12 %	6 = + 25 % 7 = + 37 % 8 = + 50 %

[INTERFACE]

RS232 Baud Rate	1, 2, 3, 4, 5, 6, 7, 8*	1 = 1200 bps 2 = 2400 bps 3 = 4800 bps	4 = 9600 bps 5 = 19200 bps 6 = 38400 bps	7 = 57600 bps 8 = 115200 bps
RS232 Data Length	0*, 1	0 = 8 bits/chr 1 = 7 bits/chr		
RS232 Parity	0*, 1, 2	0 = None 1 = Even	2 = Odd	

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RS232 Handshaking	0*, 1	0 = Xon/Xoff		
		1 = Hardware		
Busy Condition	0*, 1	0 = RxFull		
		1 = OffLine/RxFull		
USB Mass Storage	0*, 1	0 = Disabled		
		1 = Enabled		
USB Address Number	0*, 1, 2, 3, 4, 5, 6, 7, 8, 9	0 = 0	4 = 4	8 = 8
		1 = 1	5 = 5	9 = 9
		2 = 2	6 = 6	
		3 = 3	7 = 7	

[SVELTA]

Ticket X Dimension
Ticket Y Dimension
Notch Distance
Notch Width
Barcode timeout
Ticket Offset X
Ticket Offset Y

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