USER MANUAL

MODUS3

CUSTOM®

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

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

GENERAL INSTRUCTIONS

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

GENERAL SAFETY INFORMATION

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

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

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

The device is in conformity with the essential Electromagnetic Compatibility and Electric Safety requirements laid down in Directives 2014/30/EU and 2014/35/EU inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55032 *(Limits and methods of measurements of radio disturbance characteristics of Information Technology Equipment)*
- EN 55024 *(Information Technology Equipment – Immunity characteristics – Limits and methods of measurement)*
- EN 60950-1 *(Safety of information equipment including electrical business equipment)*

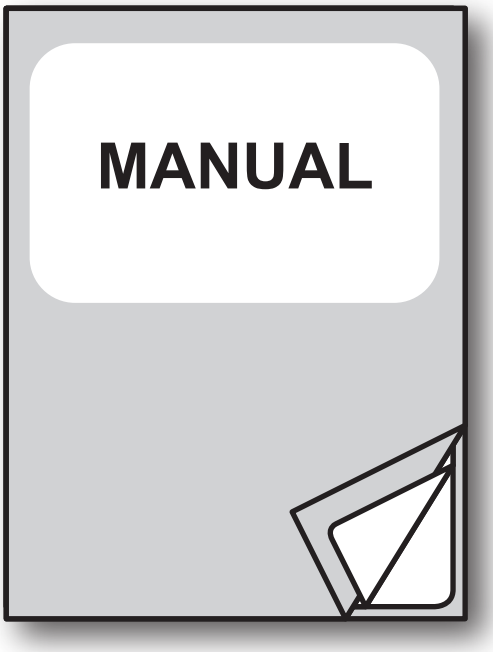
The device is in conformity with the essential requirements laid down in Directives 2014/53/EU about devices equipped with intentional radiators
The Declaration of Conformity and other available certifications can be downloaded from the site www.custom4u.it.

GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

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

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

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



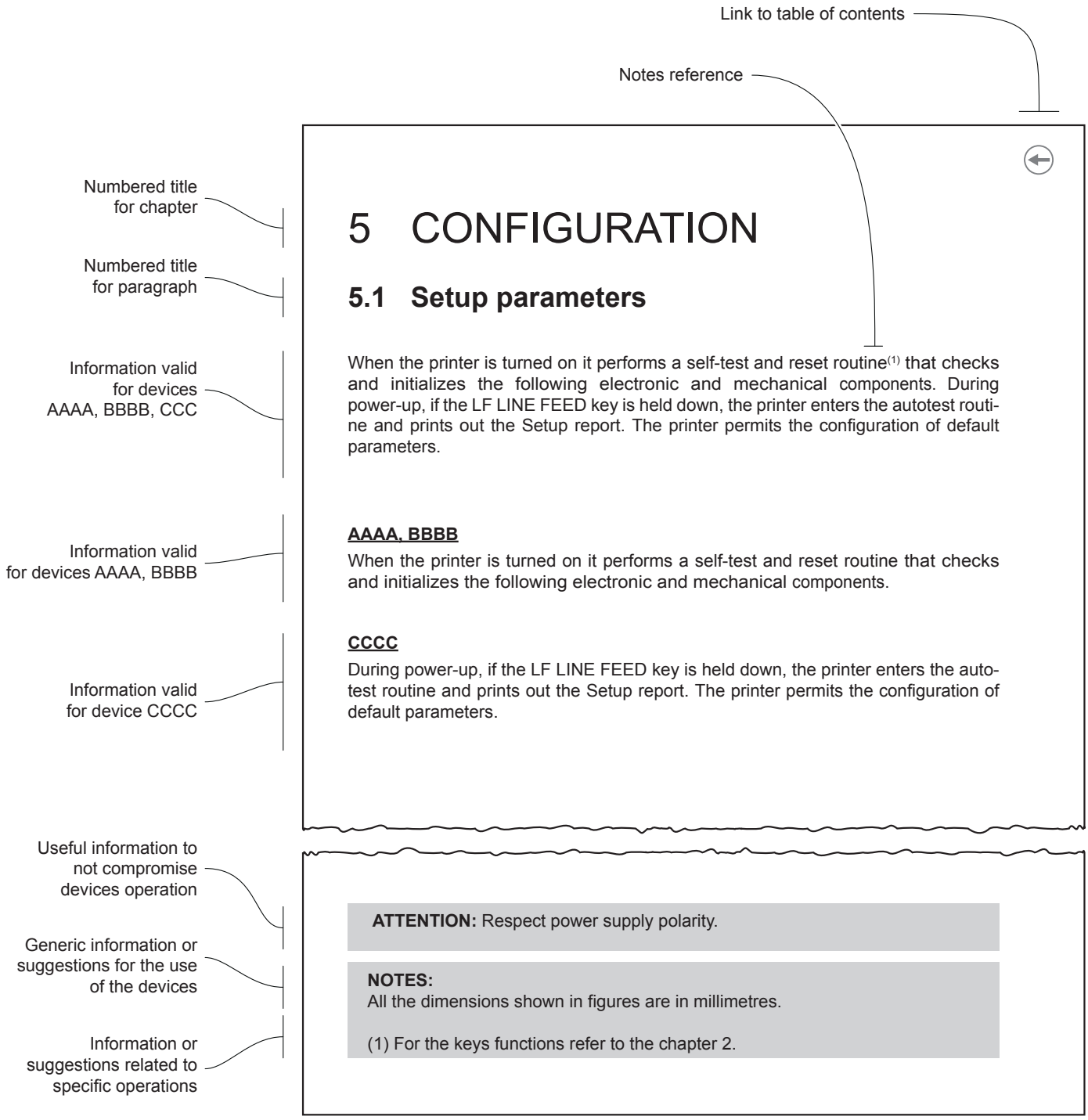
For details on the commands,
refer to the manual with code **77200000004500**

For further information about the use of "PrinterSet" tool
refer to the manual with code **78200000001800**

TABLE OF CONTENTS

1 INTRODUCTION

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

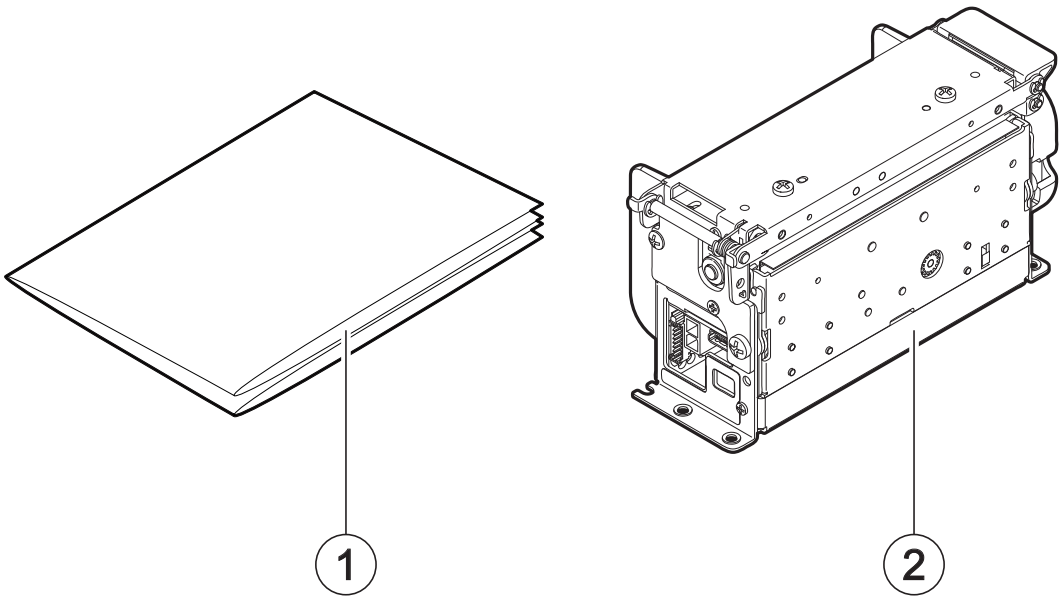


2 DESCRIPTION

2.1 Box contents

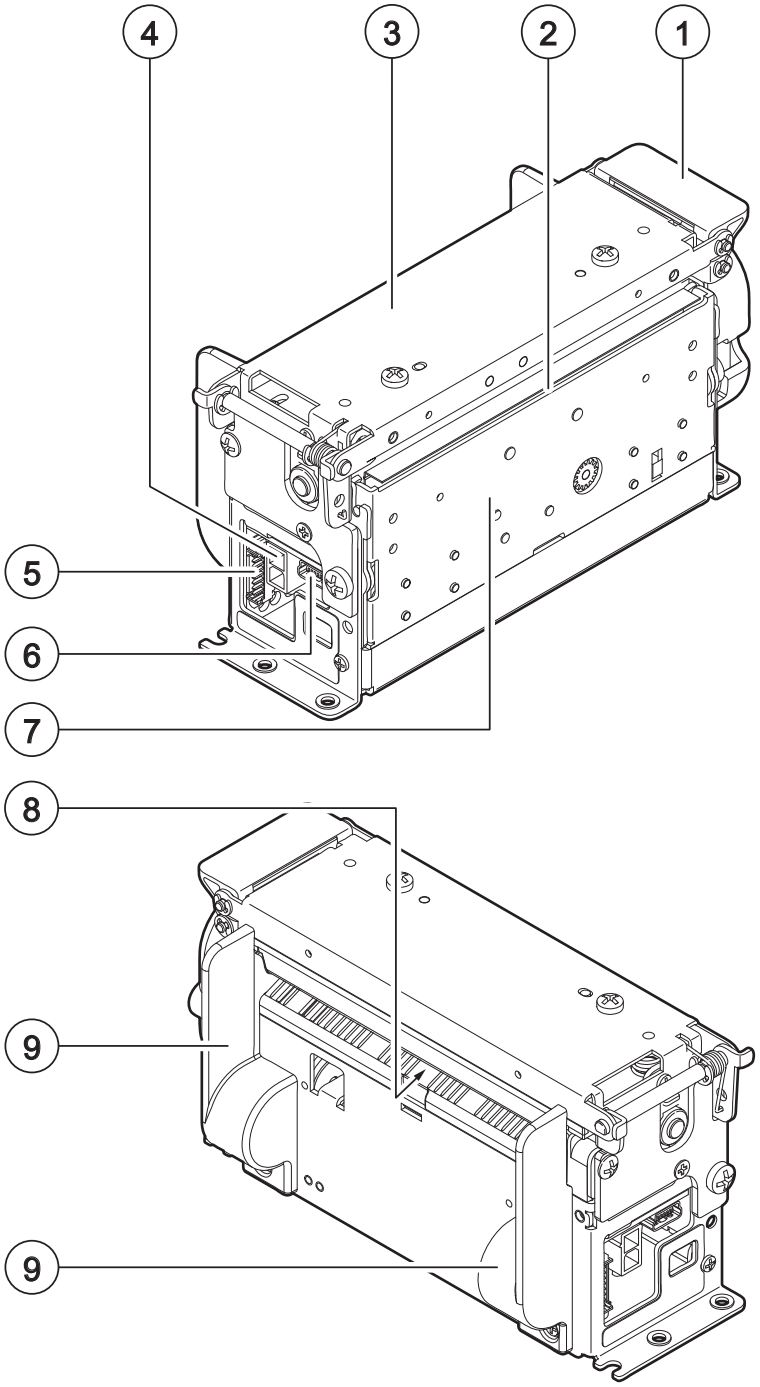
Remove all the box contents (see following figures) being careful not to damage the packing material so that it may be re-used if the device is to be transported in the future.
Make sure that all the components illustrated below are present and that there are no signs of damage. If there are, contact Customer Service.

1. Installation instruction sheet
2. Device



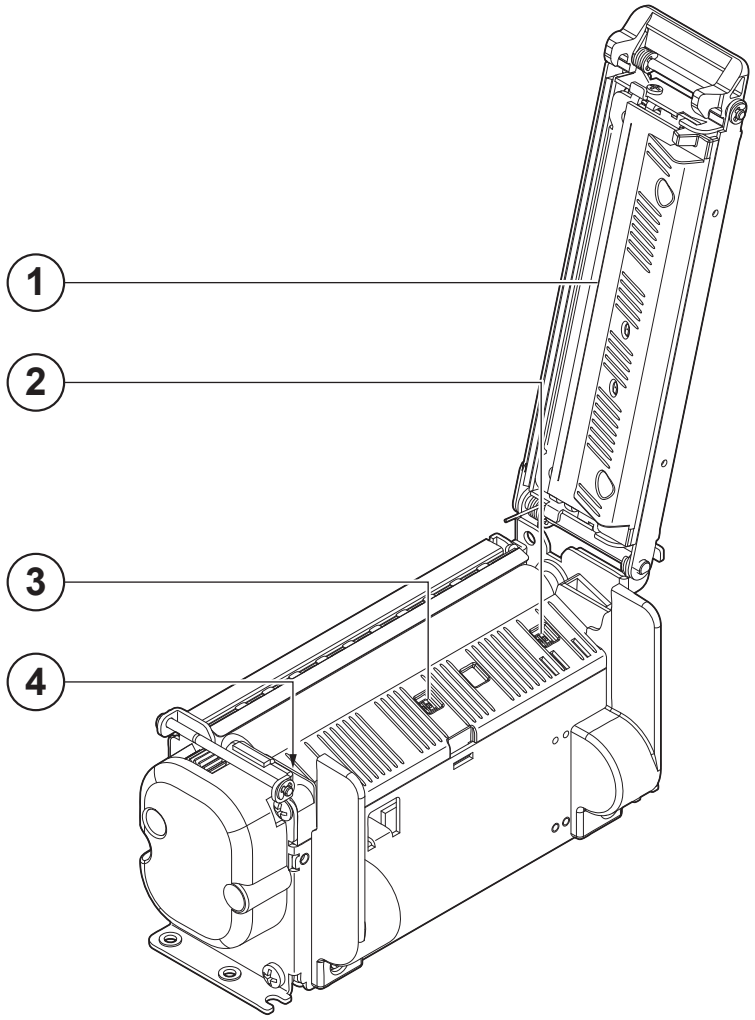
2.2 Device components: external views

1. Opening lever for device cover
2. Paper out
3. Device cover
4. Power supply port
5. RS232 serial port
6. Mini-USB port
7. Autocutter
8. Paper input
9. Adjustable cursor for paper in



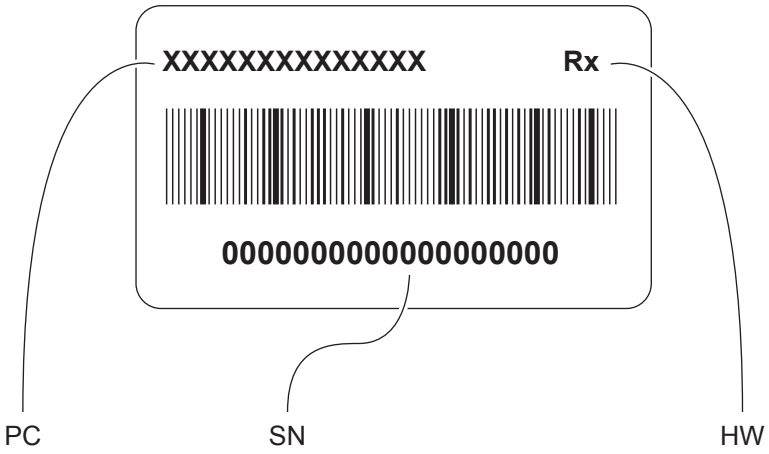
2.3 Device components: internal views

1. Printhead with temperature sensor
2. Sensor for detecting black mark on the thermal side of paper
3. Sensor for detecting paper in presence
4. Sensor for cover opening detection



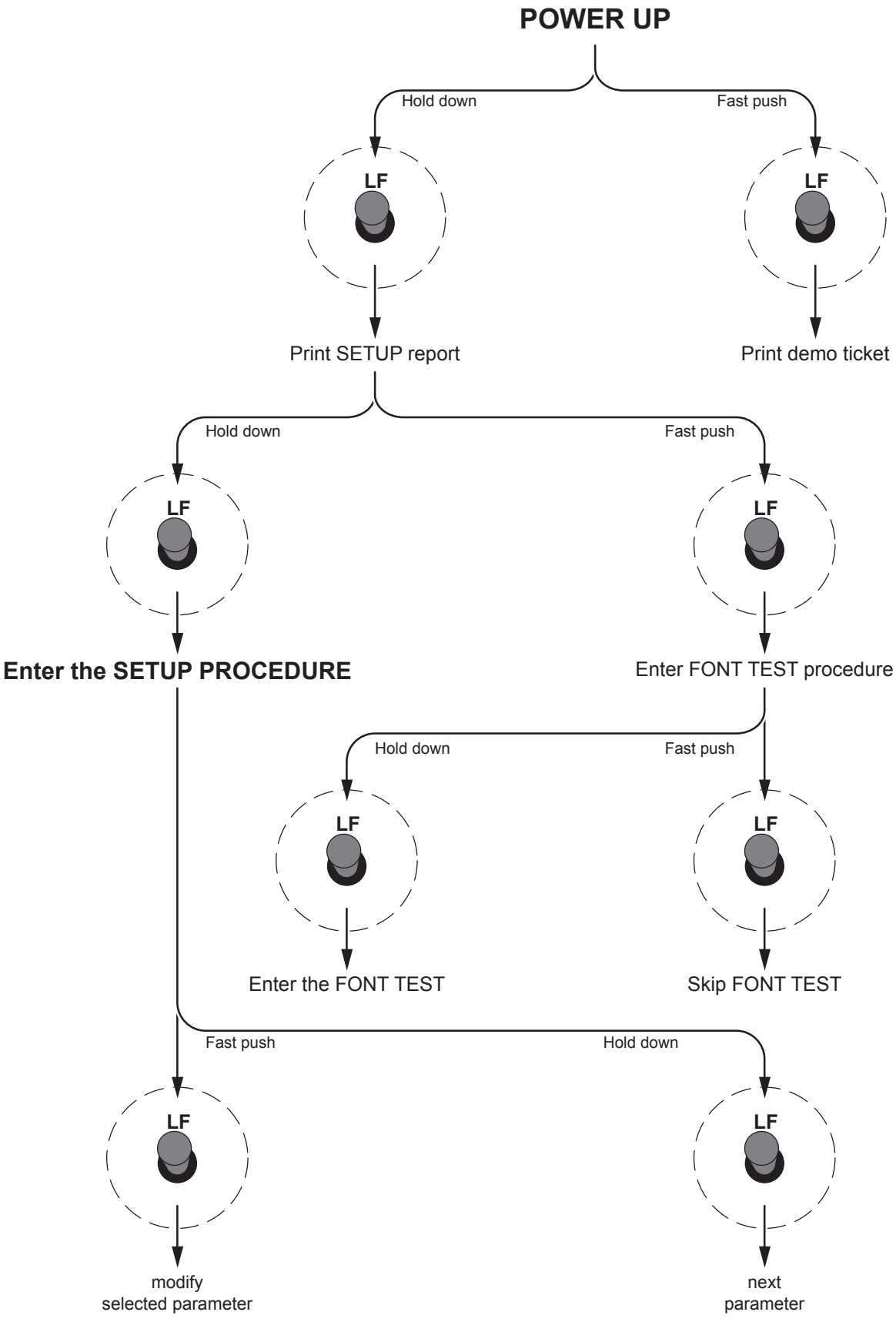
2.4 Product label

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



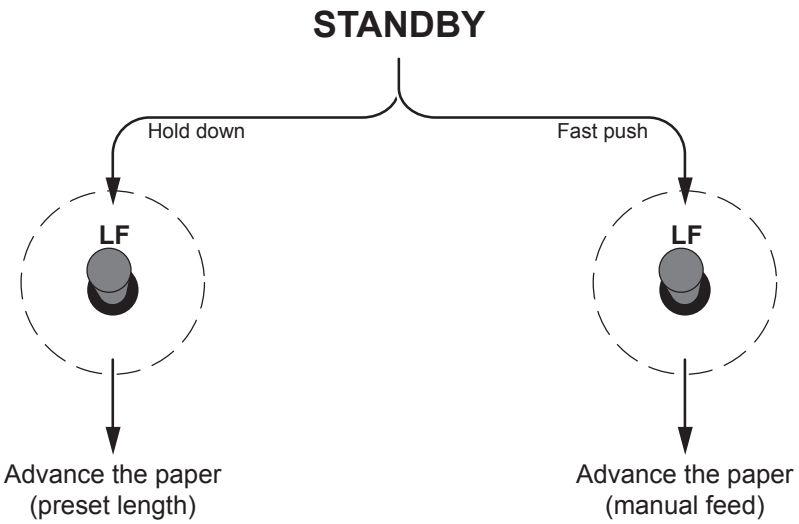
2.5 Key functions: power up

To have the key shown in the figure is necessary to build a cable to be connected to the serial port (see paragraph 3.3).



2.6 Key functions: standby

To have the key shown in the figure is necessary to build a cable to be connected to the serial port (see paragraph 3.3).



2.7 Status messages

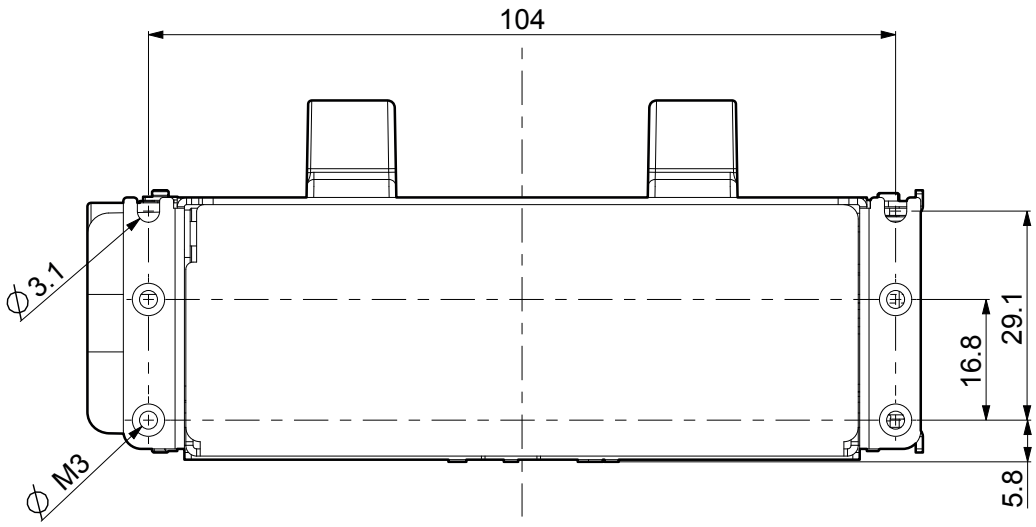
The status of the device is sent to the serial port. To get a visual feedback of the signallings is necessary to build a cable to be connected to the serial port (see paragraph 3.3).
The status LED indicates hardware status of device. Given in the table below are the various LED signals and the corresponding device status.

STATUS LED		DESCRIPTION
○	OFF	DEVICE OFF
●	ON	DEVICE ON: NO ERROR
● RECOVERABLE ERROR	x 1	RECEIVE DATA
	x 2	PRINTHEAD OVERHEATED
	x 3	PAPER END
	x 4	POWER SUPPLY VOLTAGE INCORRECT
	x 5	RECEPTION ERRORS (PARITY, FRAME ERROR, OVERRUN ERROR)
	x 6	COMMAND NOT RECOGNIZED
	x 7	COMMAND RECEPTION TIME OUT
	x 8	COVER OPEN
	x 9	PAPER JAM
	x 10	AUTOCUTTER ERROR
	x 11	RAM ERROR
	x 12	EXTERNAL FLASH MEMORY ERROR
	x 13	LOW PAPER

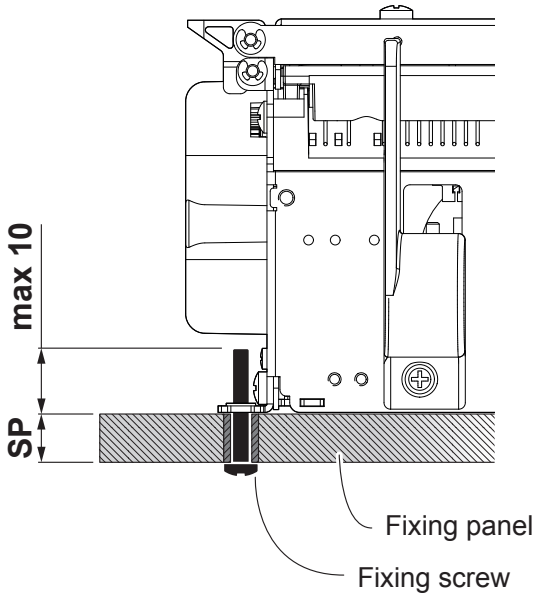
3 INSTALLATION

3.1 Fastening

The device is provided with four fixing holes on the bottom of device (see following figure).
All the dimensions shown in following figures are in millimetres.
To fasten the device on a panel, use four M3 screws.



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

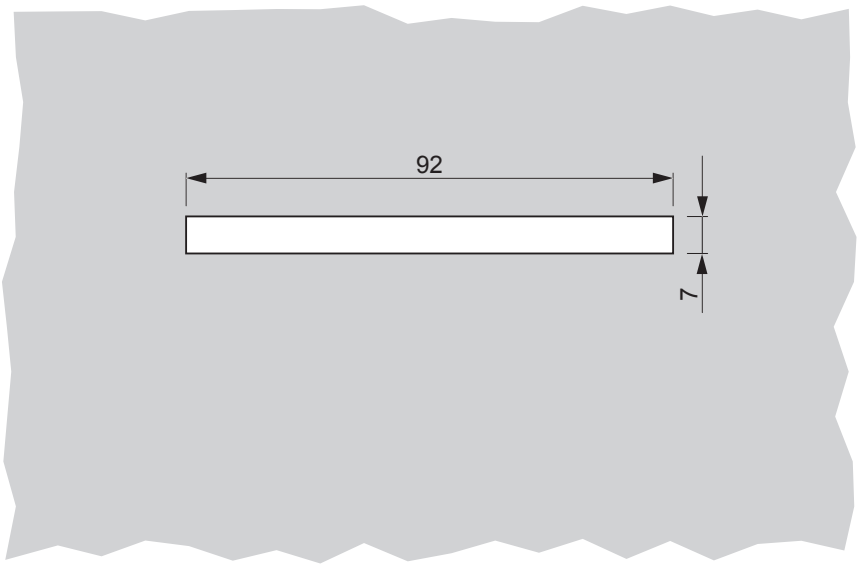


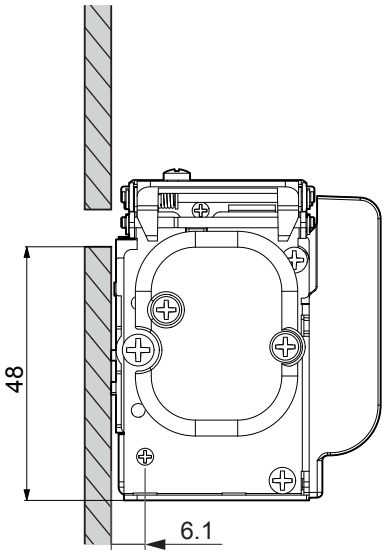
The screw length (L) will be calculated according to the thickness of the panel (Sp) on which the device is fixed, as follows:

$$L \leq 10 \text{ mm} + Sp$$

For example, if panel thickness is 10 mm (Sp = 10 mm), the maximum length for screws will be 20 mm.

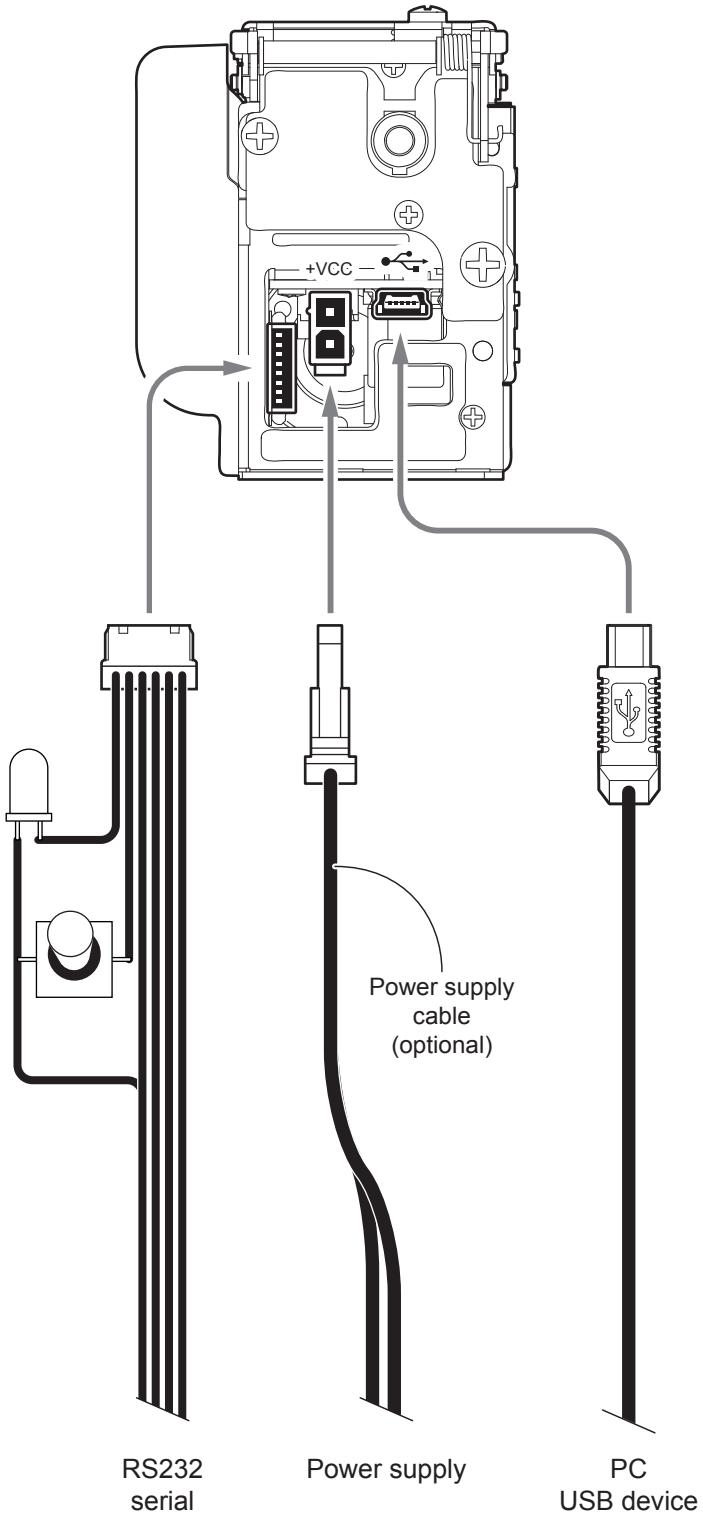
Additionally, the front panel must provide an opening for the paper output that meets the following measures (in millimetres).





3.2 Connections

The following figure shows the possible connections for the device. When the RS232 and USB communication cables are connected to the device at the same time, communication takes place via the USB port.



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

3.3 Pinout

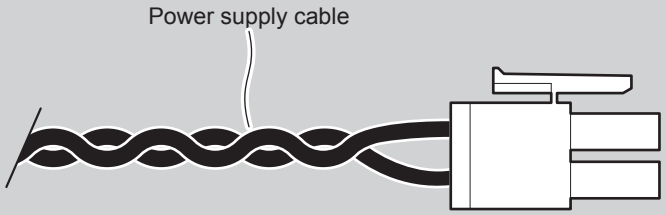
POWER SUPPLY

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

J13	1	+24 Vdc
	2	GND

ATTENTION:
Respect power supply polarity.

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



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

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

MINI-USB INTERFACE

Female Mini-USB type B connector

J2	1	USB0_VBUS (in)
	2	USB0_D- (in/out)
	3	USB0_D+ (in/out)
	4	n.c.
	5	GND
	SH1	SHIELD
	SH2	SHIELD
	SH3	SHIELD
	SH4	SHIELD

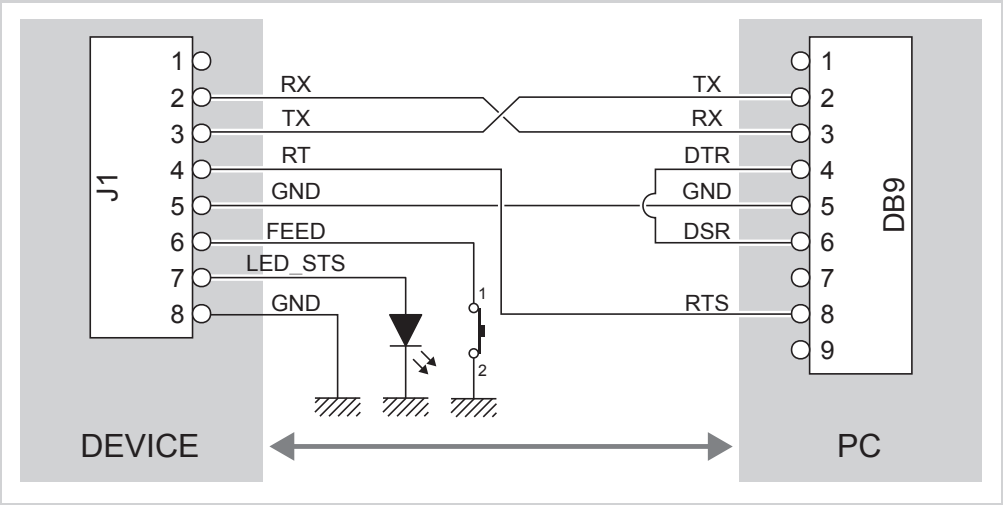
RS232 SERIAL INTERFACE

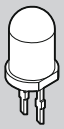
Molex 53261-0871

J1	1	n.c.	
	2	RX	During reception, takes the values -VRS232 and +VRS232 depending on data
	3	TX	During transmission, takes the values -VRS232 and +VRS232 depending on data
	4	RT	
	5	GND	
	6	FEED	
	7	LED_STS	
	8	GND	

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

DEVICE > PC connection
The following picture shows an example of connection between the device and a personal computer using a molex connector 8 pin 51021 female and a 9 pin RS232 serial connector:





LED_STS
green LED Ø 3 mm Vishay TLHG4400 (or equivalent)

FEED
Imax = 1.5 mA

3.4 Driver and SDK

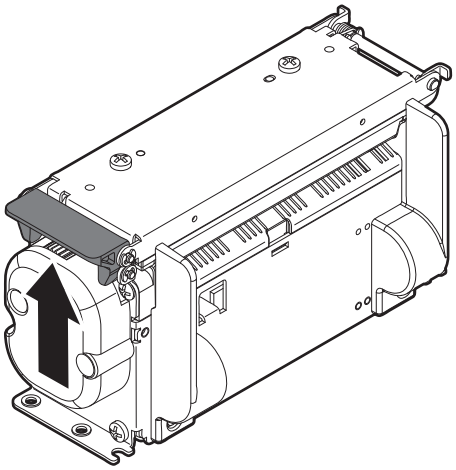
The drivers for the following operating system are available in the website www.custom4u.it:

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 (32/64 bit)	
	Driver for Windows 7 (32/64 bit)	
	Driver for Windows 8 (32/64 bit)	
	Driver for Windows 8.1 (32/64 bit)	
	Driver for Windows 10 (32/64 bit)	
	Self-installing driver for VIRTUAL COM (32/64 bit) (see paragraph 5.4)	
Linux	(32/64 bit)	Follow the instruction get back on the “Readme.txt” file. You can find it in the software package downloaded in advance.

4 OPERATION

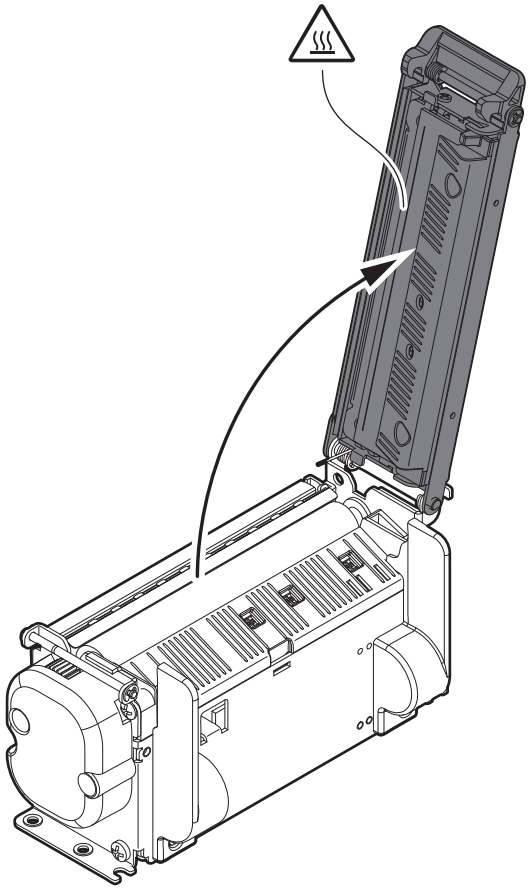
4.1 Opening device cover

1



Push the release lever in the direction shown in the figure.

2

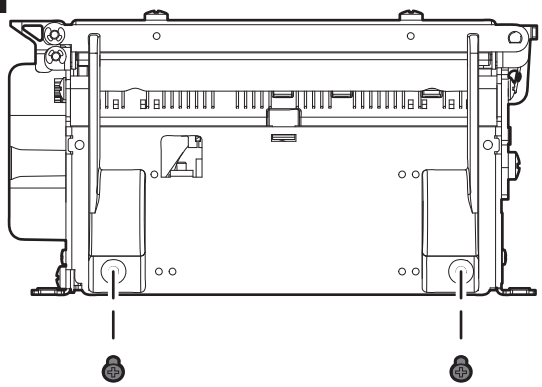


Lift the device cover.

4.2 Adjusting paper width

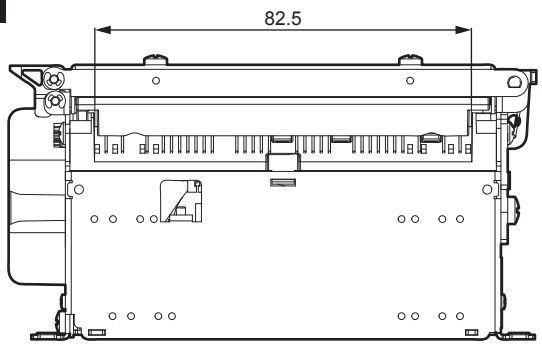
Paper width may be adjusted from 54 mm to 82.5 mm by moving the paper guides as shown in the following figure.
The minimum width that allows the black mark sensor to detect the black mark on the non-thermal side of the paper is 72 mm.

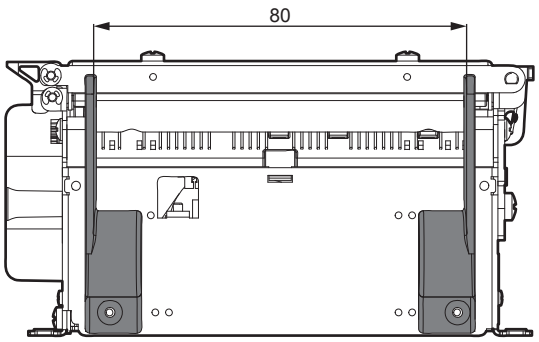
1

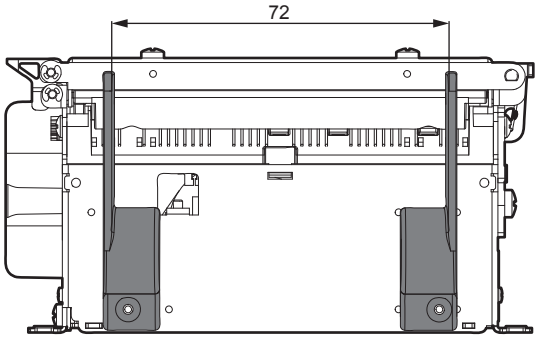


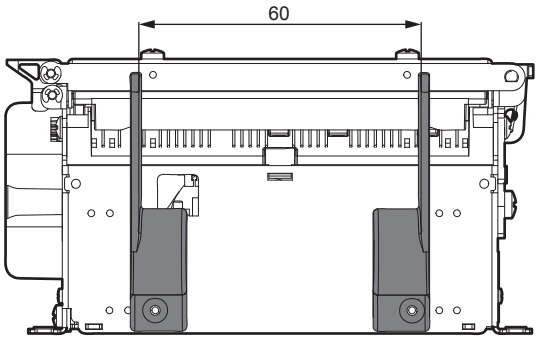
Unscrew the paper guides fixing screws.

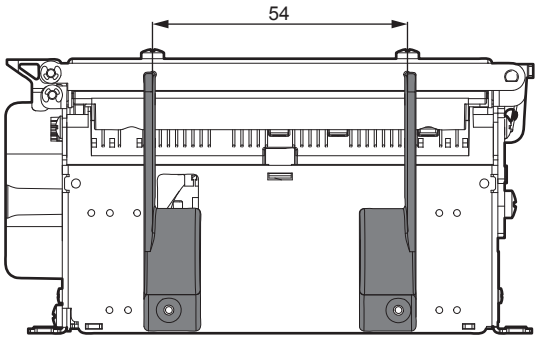
2





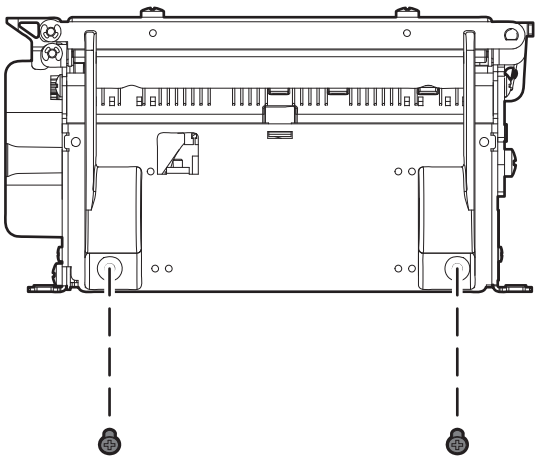






Adjust the paper guides according to the desired width.

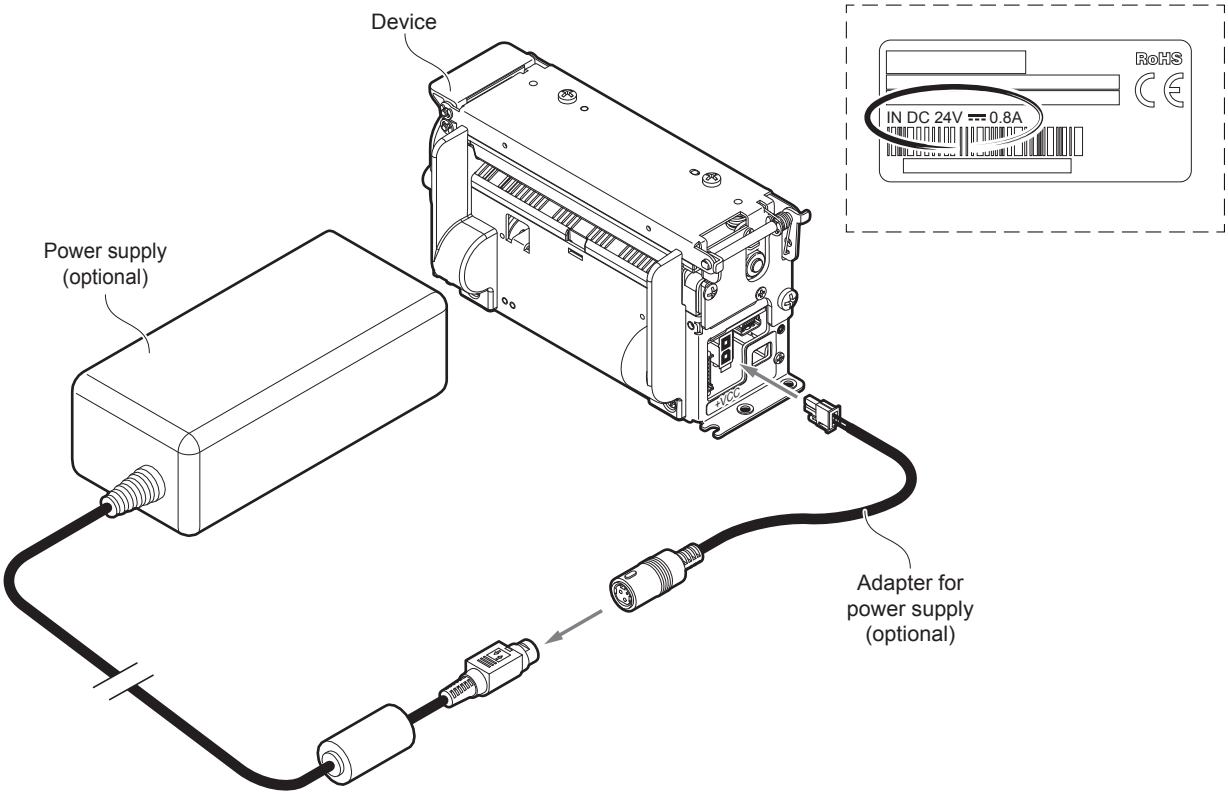
3



Screw the paper guides fixing screws.

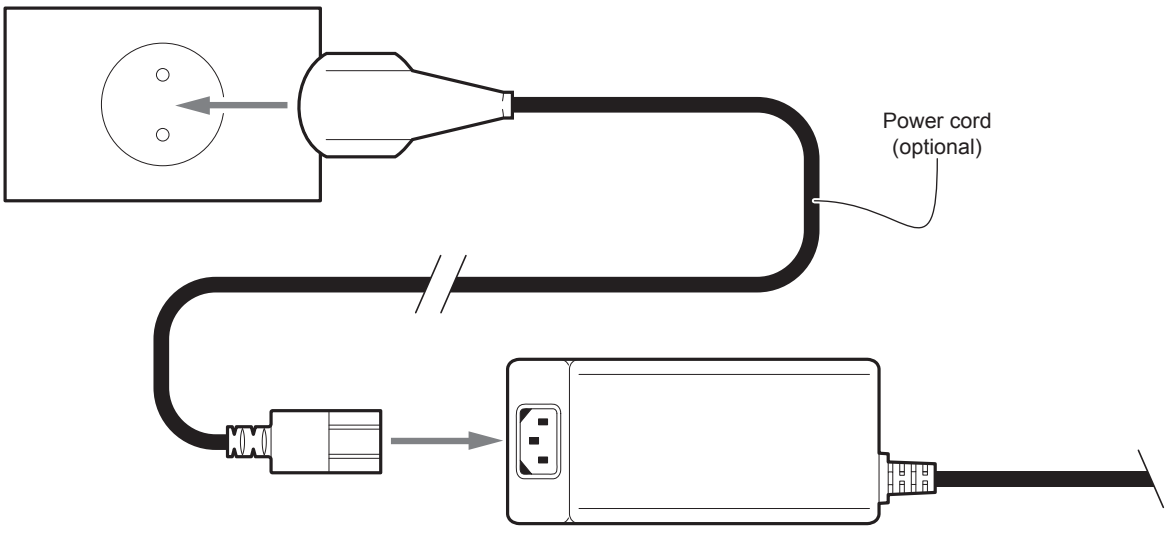
4.3 Switch the device on

1



Connect the power adapter (optional) to the power supply and connect the power supply (optional) to the device.
Use the type of electrical power supply indicated on the label.

2

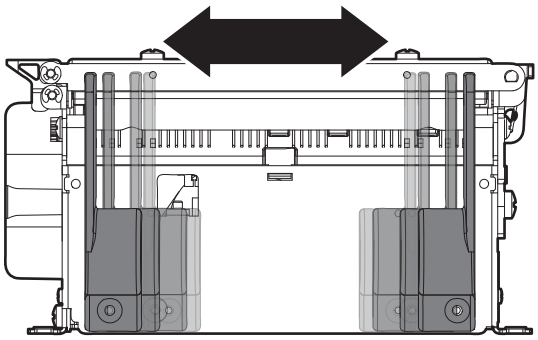


Connect the power cord (optional) to the
power supply and to the mains outlet.

4.4 Loading the paper roll

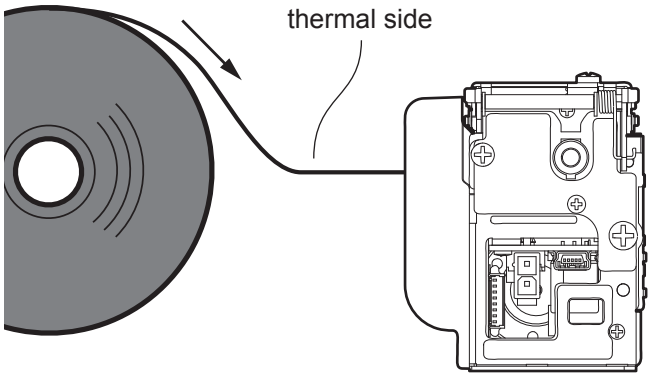
To change the paper proceed as follows. At every change of paper, check inside the device to locate and remove any scraps of paper.

1



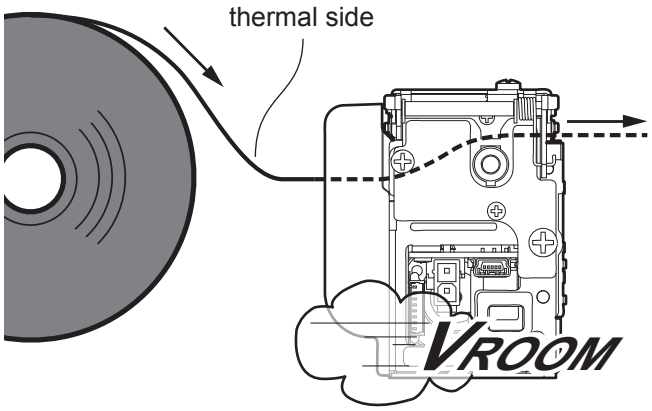
Adjust the paper width
(see paragraph 4.2).

2



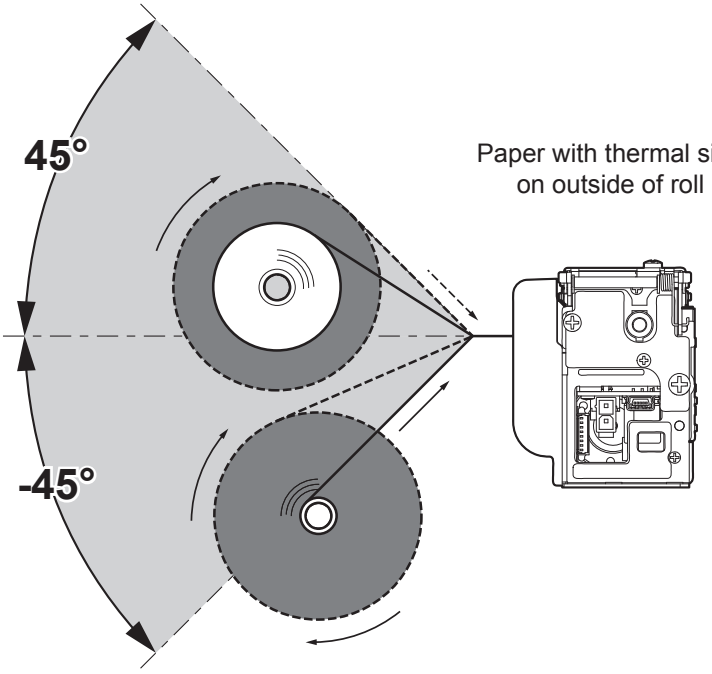
Insert the paper into the input mouth. Be sure that the paper is correctly positioned into paper guides.

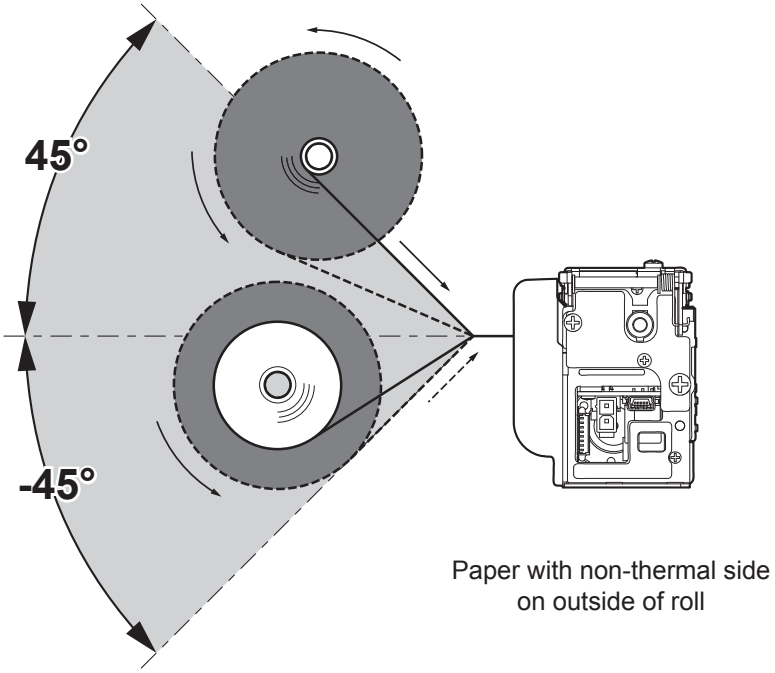
3



Wait until the paper is loaded
and automatically cut off.

The following figure gives the limit positions of the paper roll related to the device for a correct paper loading without a paper roll holder support.
The direction of the paper will always form a maximum angle of 45° or -45° with the insertion plane of paper inside the device.

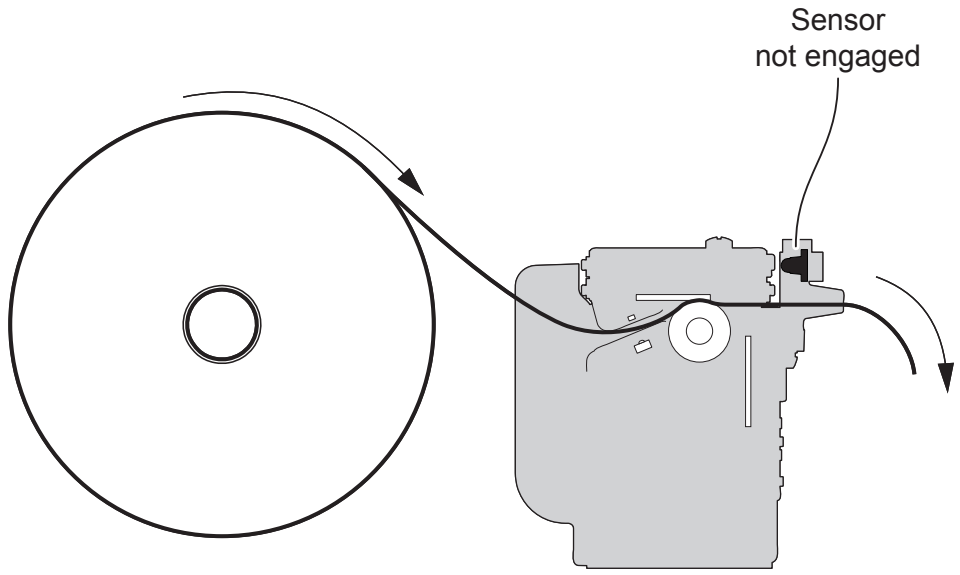




4.5 Anti-jamming system

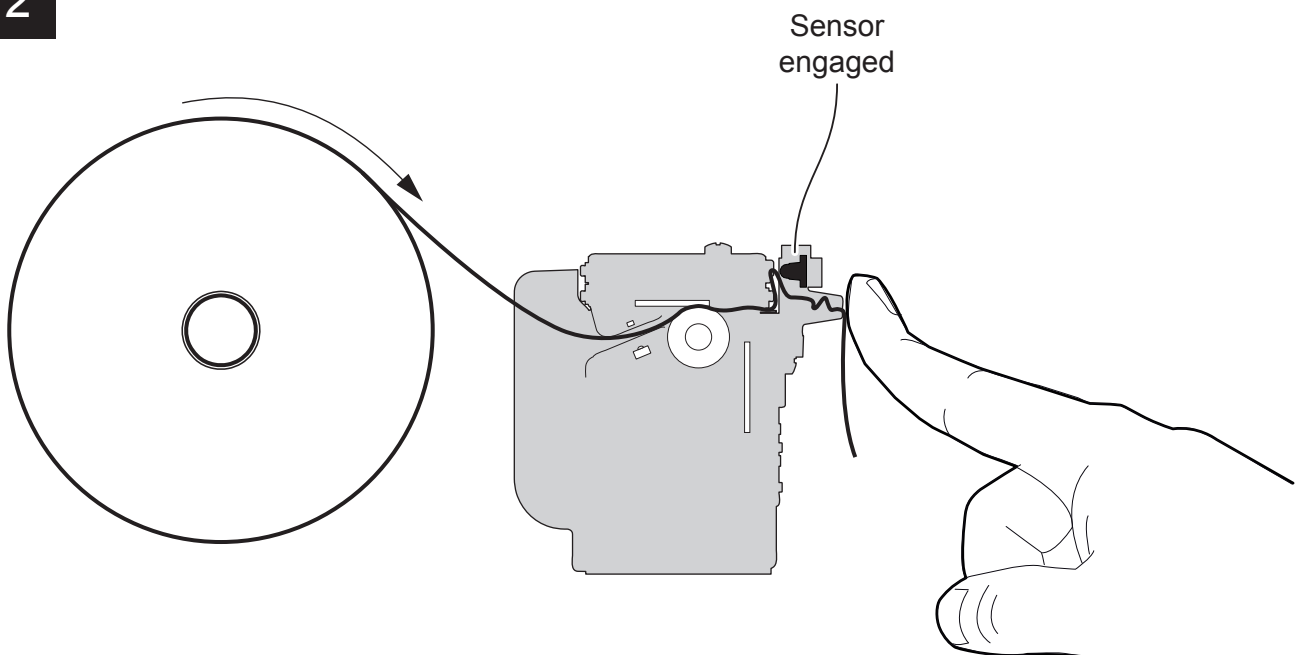
The anti-jamming system, available as an accessory (see chapter 10), starts operating when the user tries to block the paper output while printing is still in progress. This system is composed of an infrared reflex sensor that detects the lifting of the paper. The user that blocks the paper bezel before the printing end, causes the lifting of the paper inside the device. This movement disengages the reflex sensor: printing is interrupted until the paper bezel is not unblocked.

1



The device starts the ticket printing.

2



During the printing of the ticket, the obstruction of the paper bezel causes lifting of the paper inside the device. The sensor is engaged generating the status of 'paper jam'.

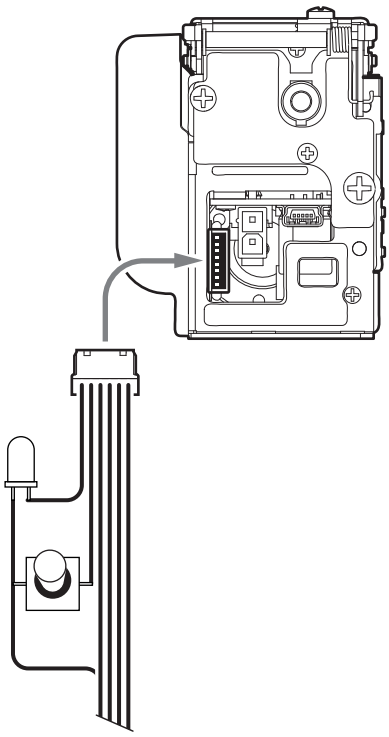
NOTE: Use paper with a weight between 58 g/m^2 and 74 g/m^2.

5 CONFIGURATION

5.1 Configuration by keys

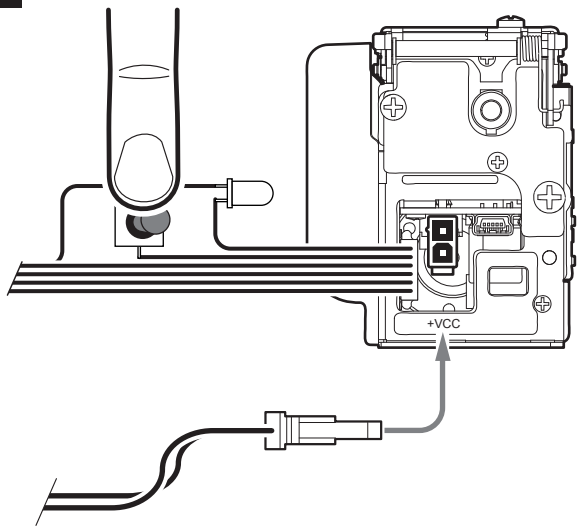
To enter the configuration mode and print a setup report with the operating parameters of the device, proceed as follows.

1



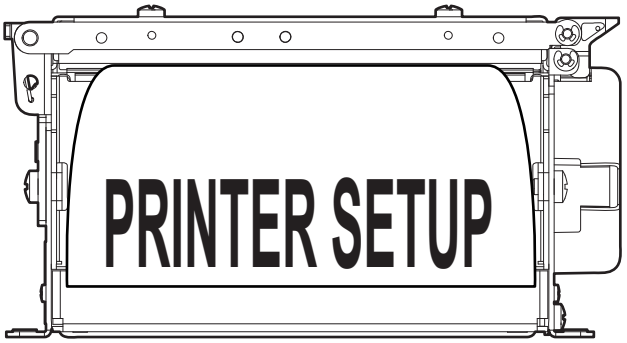
Connect the serial cable (see paragraph 3.2).

2



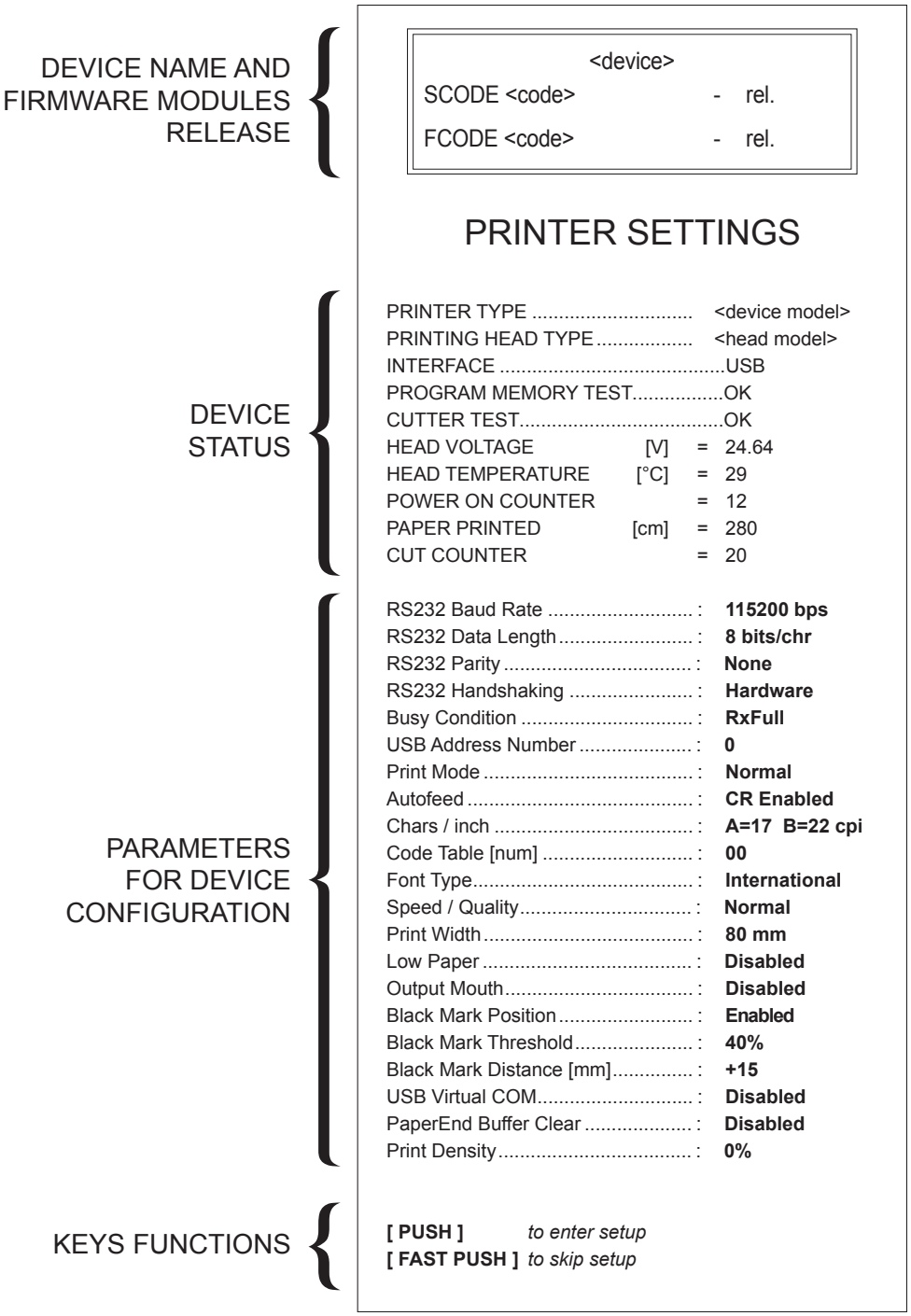
While pressing the LF LINE FEED key, switch on the device by inserting the power supply cable (see paragraph 4.3).

3



The device prints the report with the settings parameters. Follow the instruction printed on the paper to proceed with configuration procedure.

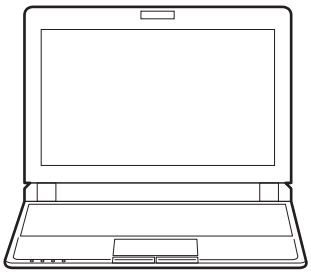
The following figure shows the setup report of the device. The shown values for parameters are sample values; for the list and the description of device parameters see the following paragraphs.



5.2 Configuration by software

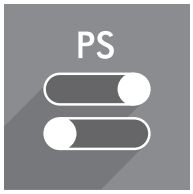
The setup parameters can be set by using the “PrinterSet” software tool available on www.custom4u.it.
For a detailed description of the device operating parameters see the following paragraphs.
To configure the device by software, proceed as follows:

1



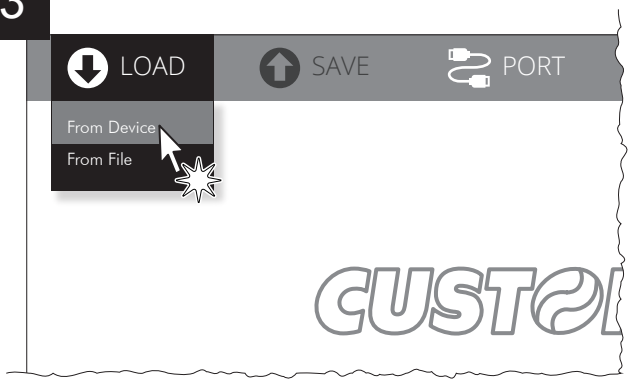
Connect the device to a PC directly
(see paragraph 3.2), without using HUB devices.

2



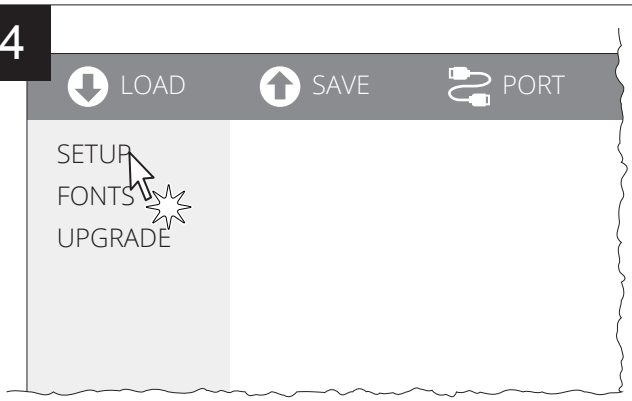
Start “PrinterSet” software tool.

3



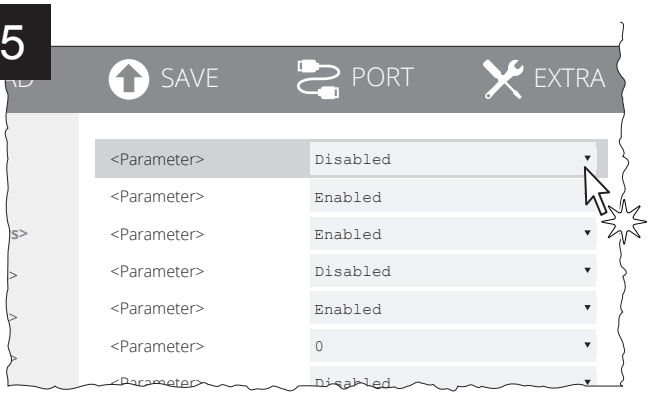
Click on LOAD > FROM DEVICE and select
the device connected to the PC.

4



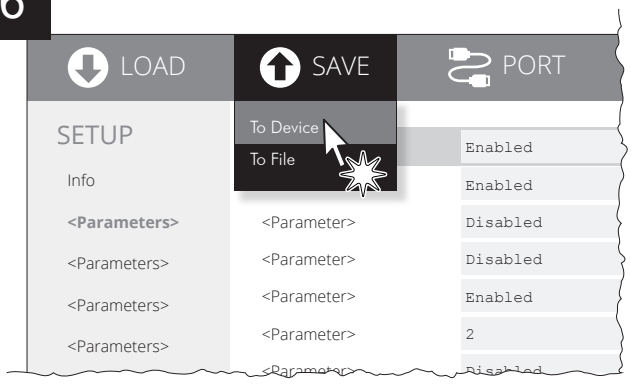
Click on SETUP to access the operating parameteres of
the device to be configured.

5



Make the desired changes to the
device operating parameters.

6



Click on SAVE > TO DEVICE
to make the changes made effective.

ATTENTION:
During saving, it is strongly discouraged to disconnect the communication cable or to remove the power supply of the PC or the device.

5.3 Device status

The device 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
PRINTING HEAD TYPE	printhead model
INTERFACE	interface present
PROGRAM MEMORY TEST	OK appears if functioning and NOT OK if faulty
CUTTER TEST	OK appears if functioning and NOT OK if faulty
HEAD VOLTAGE	voltage of the head
HEAD TEMPERATURE	temperature of the head
POWER ON COUNTER	number of power-ups made
PAPER PRINTED	centimetres of paper printed
CUT COUNTER	number of cuts made

5.4 Communication parameters

This device allows the configuration of the parameters listed in the following table.
The parameters marked with the symbol [D] are the default values.
Settings remain active even after the device has been turned off

RS232 BAUD RATE	Communication speed of the serial interface: 1200 19200 2400 38400 4800 57600 9600 115200 [D] This parameter is valid only with serial interface.
RS232 DATA LENGTH	Number of bit used for characters encoding: 7 bits/char 8 bits/char [D] This parameter is 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 This parameter is valid only with serial interface.
RS232 HANDSHAKING	Handshaking: XON/XOFF = software handshaking Hardware [D] = hardware handshaking (CTS/RTS) This parameter is valid only with serial interface. When the receive buffer is full, if handshaking is set to XON/XOFF, the device sends the XOFF (0x13) on the serial port. When the receive buffer has cleared once again, if handshaking is set to XON/XOFF, the device sends the XON (0x11) on the serial port.
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 This parameter is valid only with serial interface.

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
USB VIRTUAL COM	Setting the USB port as a virtual serial port: Disabled [D] = virtual COM disabled Enabled = virtual COM enabled This parameter can't be modified by software. To use this configuration it is necessary to install an addictional driver (see paragraph 3.4).

5.5 Operation parameters

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

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 = carriage Return disabled CR enabled [D] = carriage Return enabled
CHARS / INCH	Font selection: A = 13 cpi, B = 17 cpi A = 17 cpi, B = 22 cpi [D] CPI = Characters Per Inch
CODE TABLE [NUM]	Identifier number of the character code table to use. See the paragraph 8.10 to learn about the character tables corresponding to the identification numbers set with this parameter. The character tables set with this parameter are the same set with the command 0x1B 0x74 (refer to the commands manual of the device). The numeric value of the identifier is made up with the following two parameters for the setting of two digits for the tens and the units:
Code Table [num x 10]	Setting the digit for tens: 0 [D] 2 4 1 3 5
Code Table [num x 1]	Setting the digit for units: 0 [D] 2 4 6 8 1 3 5 7 9
FONT TYPE	Setting of the font type: International [D] = Enables the use of the 256 characters font tables Chinese GB18030 = Enables the use of the chinese extended font GB18030-2000 Korean CP949 = Enables the use of the korean font CP949 When the “International” font is enabled, you need to choose the character code table (“Code Table” parameter). When the Chinese or Korean fonts is enabled, the selection of the character code table is suspended (“Code Table” parameter).

SPEED / QUALITY

Setting of printing speed and printing quality:

Normal [D]
High Quality

PRINT WIDTH

Printing area width:

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

LOW PAPER

Setting the optional low paper sensor:

Disabled [D] = Sensor disabled
Enabled = Sensor enabled

OUTPUT MOUTH

Setting the paper jam and output paper presence sensors on the optional bezel:

Disabled [D] = Sensors disabled
Enabled = Sensors enabled

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.

PRINT DENSITY

Adjusting the printing density:

-25% 0% [D] +25%
-12% +12%
The print quality is strongly influenced by the type of chemical treatment and the type of storage to which the thermal paper has been subjected, as well as by the weight of the same. It may therefore necessary to act on this parameter to obtain the desired print quality.

5.6 Alignment parameters

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

BLACK MARK POSITION

Alignment management:

Disabled [D] = the black mark alignment is not performed
Enabled = the black mark alignment is performed

BLACK MARK THRESHOLD

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

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

If “Black Mark Position” parameter is set on "Disabled", this parameter has not effect on device configuration and it is not printed on setup report.

BLACK MARK DISTANCE

“Black Mark Distance” is the minimum distance (in millimeters) between the upper edge of ticket and the black mark (see chapter 6).
If “Black Mark Position” parameter is set on "Disabled", the parameters for the “Black Mark Distance” are not printed.
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, one for the decimal part and of the sign):

BLACK MARK DISTANCE SIGN

Sign setting:

+ [D] = positive distance
- = negative distance

BLACK MARK DISTANCE [mm x 10]

Setting the digit for tens:

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

BLACK MARK DISTANCE [mm x 1]

Setting the digit for units:

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

BLACK MARK DISTANCE [mm x .1]

Setting the digit for decimals:

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

5.7 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 device 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
```

6 ALIGNMENT

Device is provided with a sensor for the use of alignment black mark in order to handle rolls of tickets with pre-printed fields and a fixed length.

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

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

6.1 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.

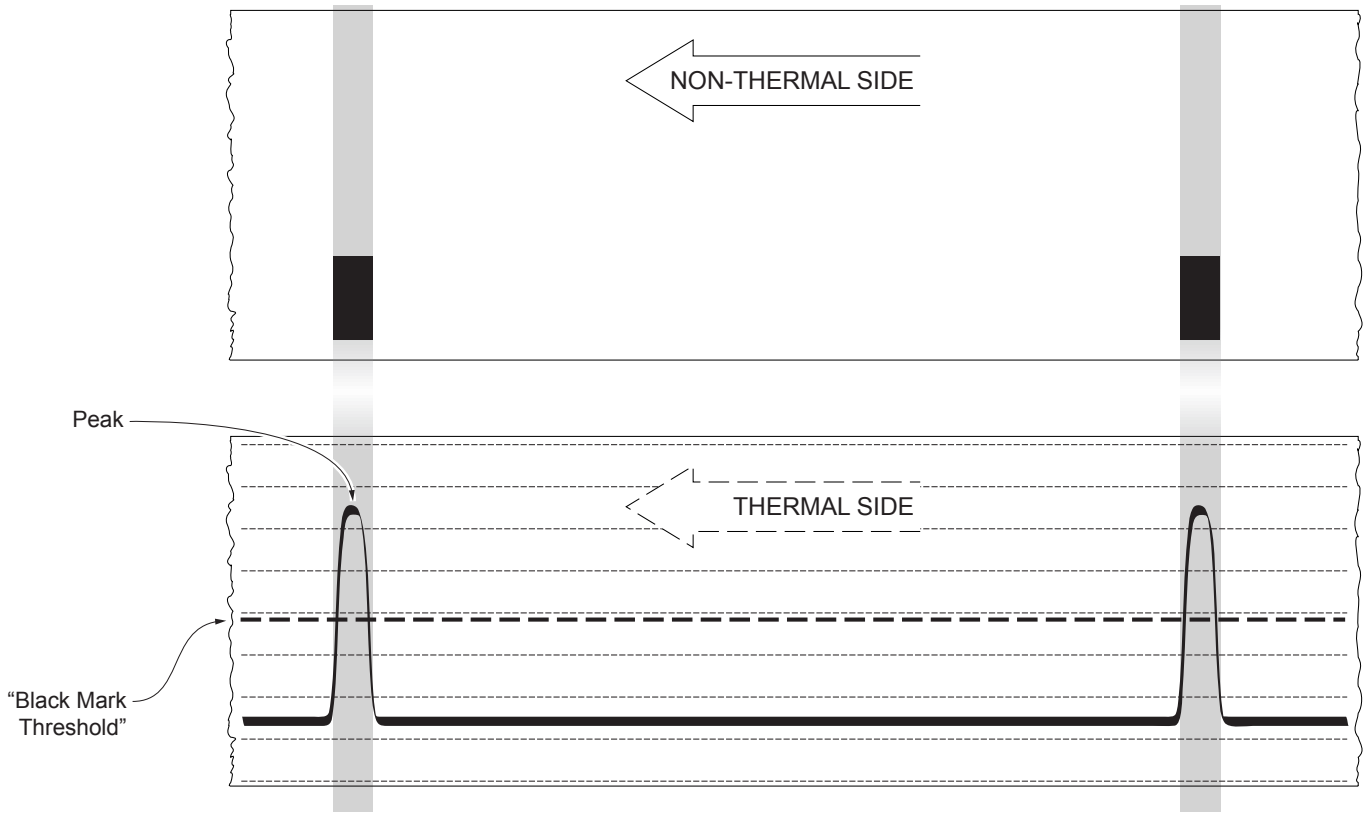
The device automatically performs the self-calibration during the setup procedure only if the “Black Mark Position” parameter is set to a value other than “Disabled” (see chapter 5).

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 black mark detection:

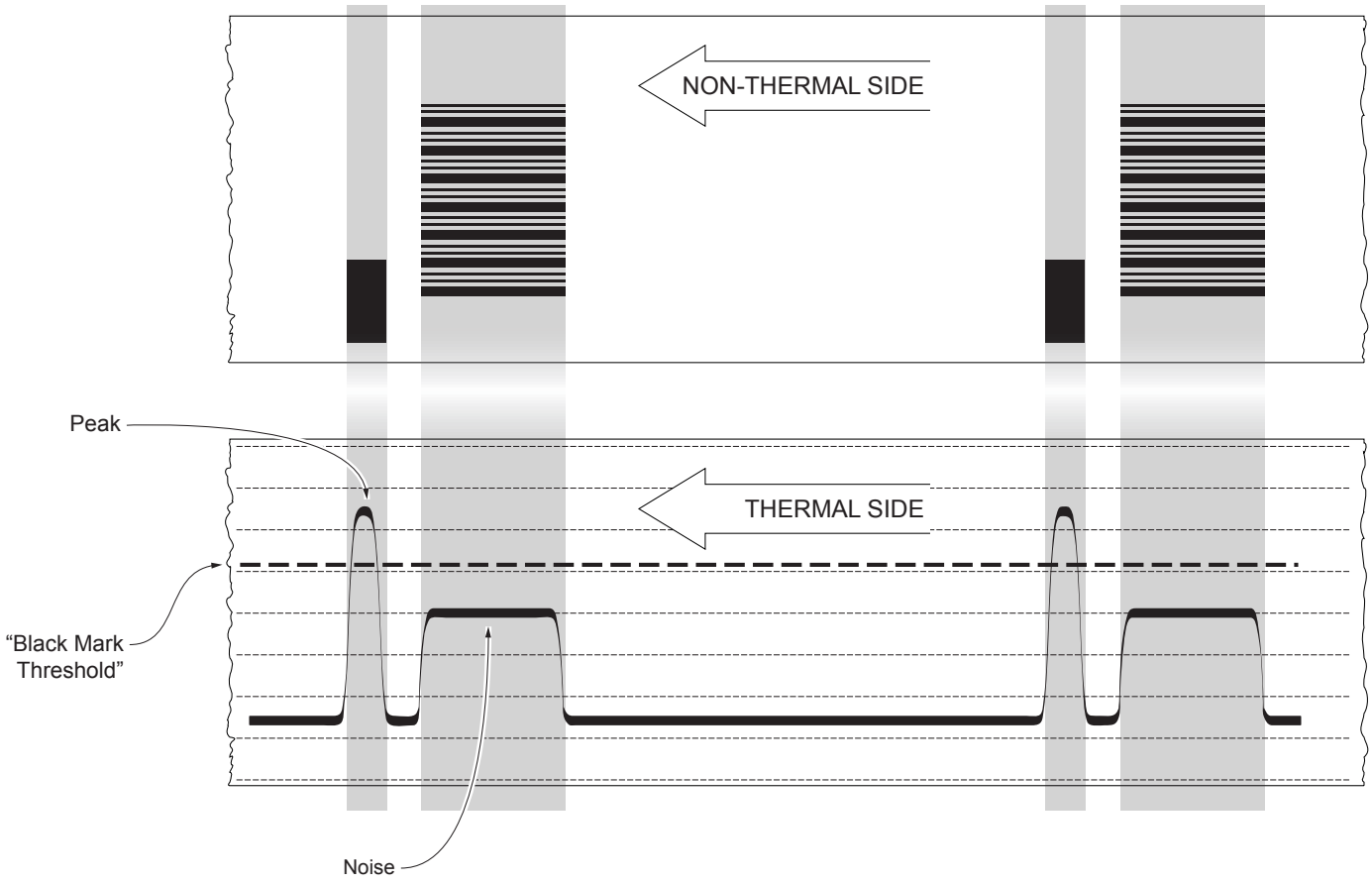
Autosetting black mark : OK
PWM Duty Cycle : 85.3%

The “Autosetting black mark” 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 “Black Mark Threshold” parameter which represents the detection threshold of the black mark.
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 “Black Mark Threshold” value. This graphic representation is useful to set the most suitable value to assign to the “Black 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 black marks and presents a peak at each black mark.
In this case, the optimal value for the “Black Mark Threshold” parameter is placed about half of the peak.



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



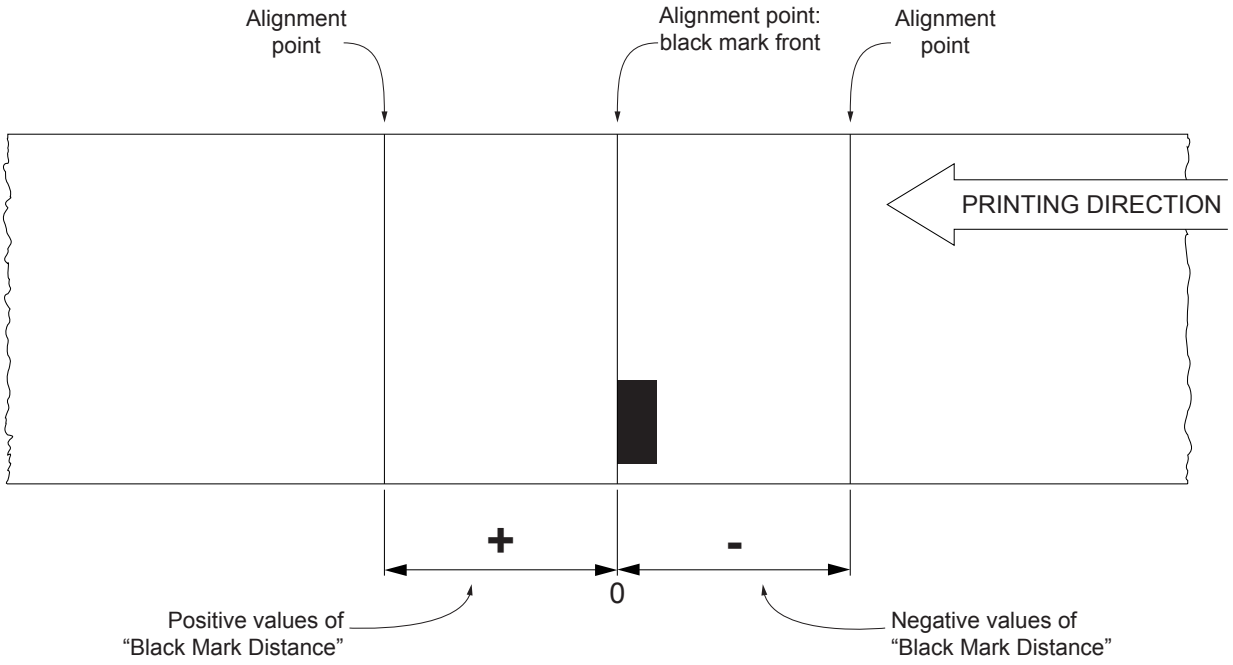
If the maximum value of “noise” read by the sensor is very close to the peak value, it might be difficult to place the value of the “Black Mark Threshold” at an intermediate point. In these cases, it is mandatory that the portion of paper between the point of printing end and the front of black mark 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 black mark.

6.2 Alignment parameters

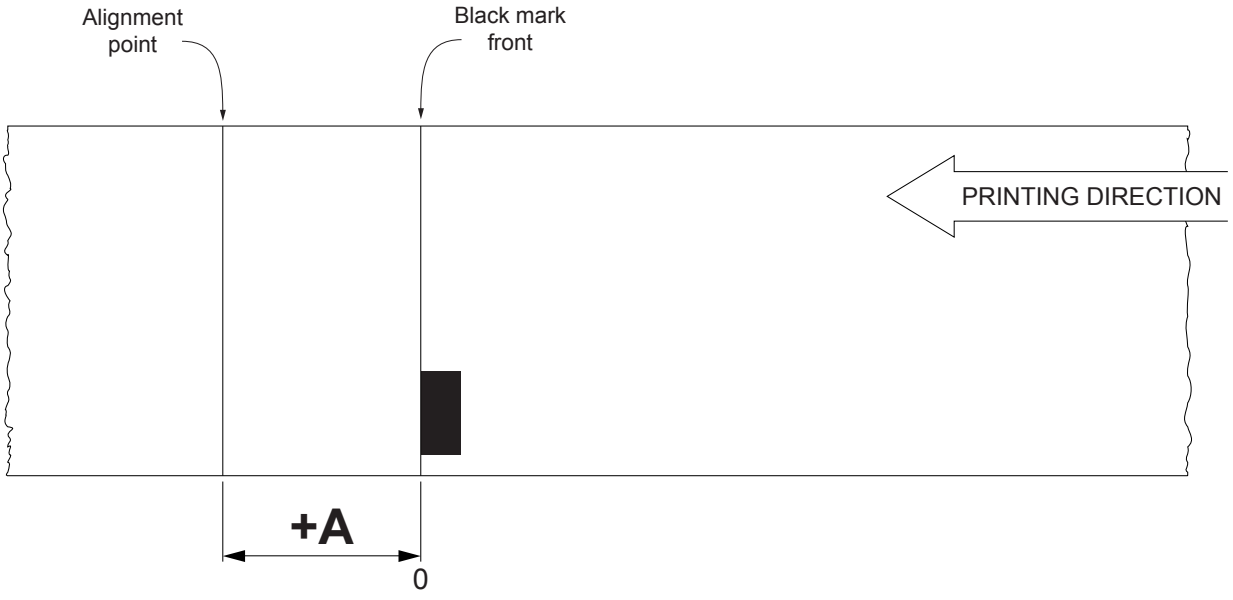
The “alignment point” is defined as the position inside the ticket to use for the black mark alignment.
The distance between the black mark edge and the alignment point is defined as “Black Mark Distance”.

Referring to the front of the black mark, the value of “Black Mark Distance” value varies from -5 mm minimum and 99.9 mm maximum.

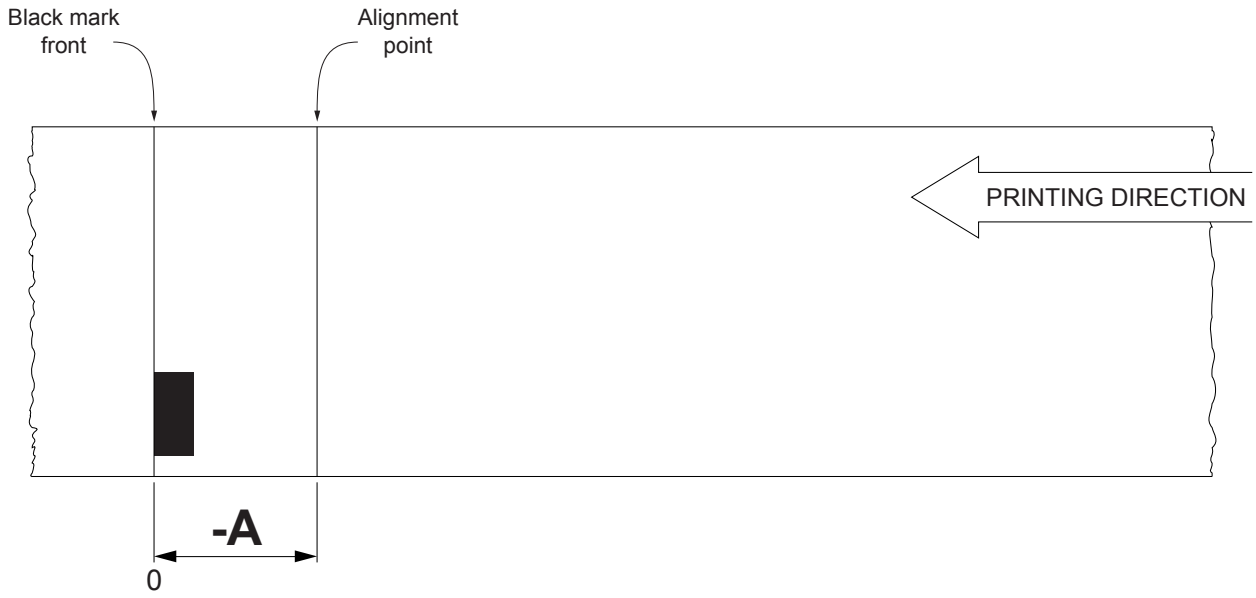
If the “Black Mark Distance” value is set to 0, the alignment point is set at the beginning of the black mark.



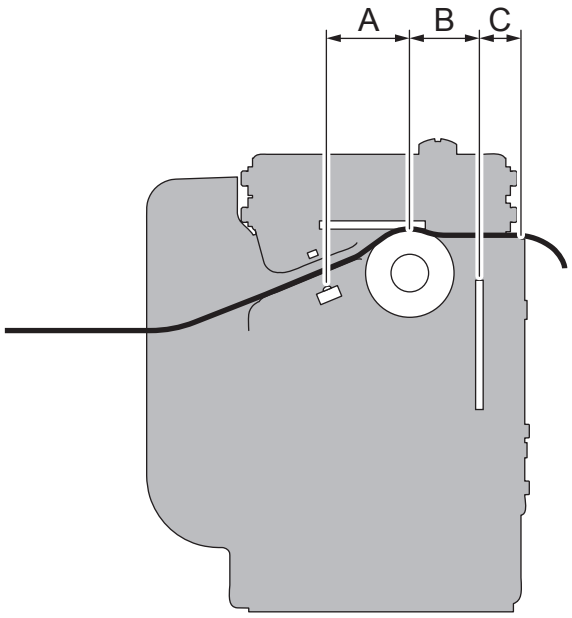
The following figure shows an example of paper with alignment point set by a positive value of “Black Mark Distance” (“Black Mark Distance” = + A):



To set a negative value of the “Black Mark Distance” parameter is useful in cases where the alignment point refers to the black mark printed on the previous ticket or where the desired cutting line is placed in the middle of the alignment black mark. In the following images, the value of “Black Mark Distance” parameter is set to -A.



The following figure shows a simplified sections of the device with the paper path and the distance (expressed in millimetres) between the alignment sensor, the printhead, the autocutter and the paper out.



A = distance between alignment sensor and printhead = 13.2 mm
B = distance between printhead and autocutter = 9.5 mm
C = distance between autocutter and paper out = 6 mm

CUSTOM/POS emulation

To define the alignment point you need to set the printer parameters that compose the numerical value of the “Black Mark Distance” parameter. (see paragraph 5.6).
For example, to set a black mark distance of 15 mm between the black mark and the alignment point, the parameters must be set on the following values:

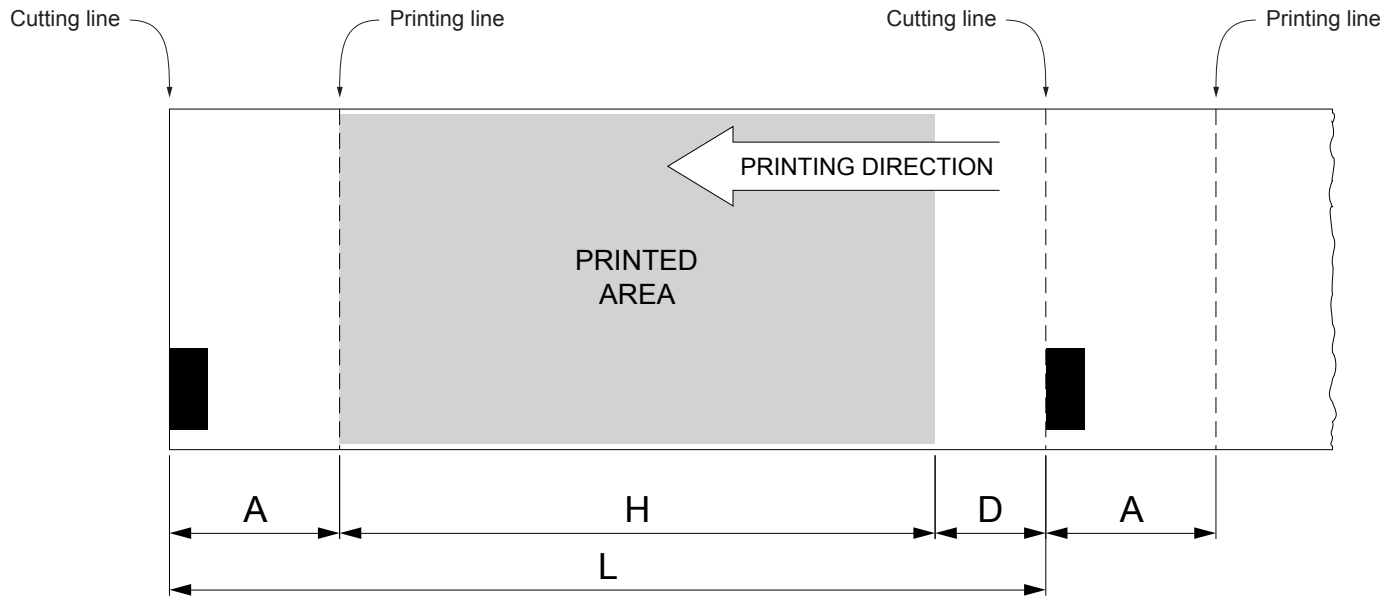
Black Mark Distance sign	: +
Black Mark Distance [mm x 10]	: 1
Black Mark Distance [mm x 1]	: 5
Black Mark Distance [mm x .1]	: 0

The “Black Mark Distance” parameter, may be modified as described in chapter 6.

6.3 Printing area

In order to print ticket containing only one black mark and to not overlay printing to a black mark (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-black mark distance.

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



A “Non-printable area” = “Distance between autocutter/printhead”

where:

“Distance between autocutter/printhead” = 9.5 mm (fixed distance)

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

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

D Automatic feed for alignment at the next black mark.

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

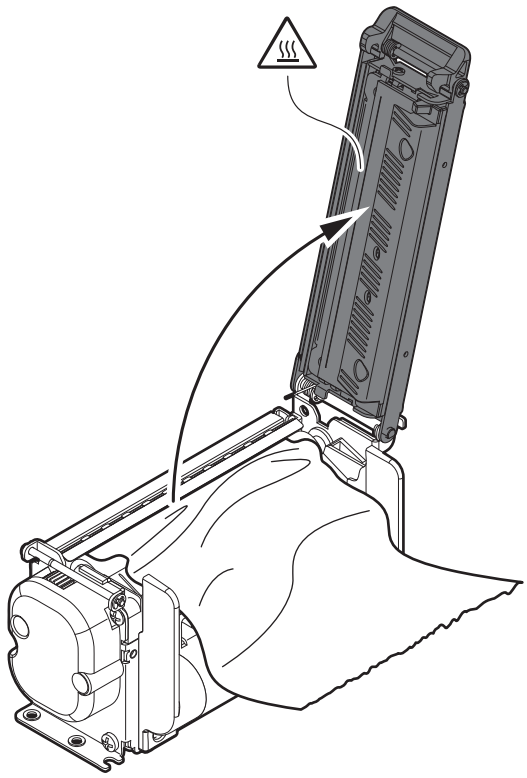
$H + A \leq L$

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

7 MAINTENANCE

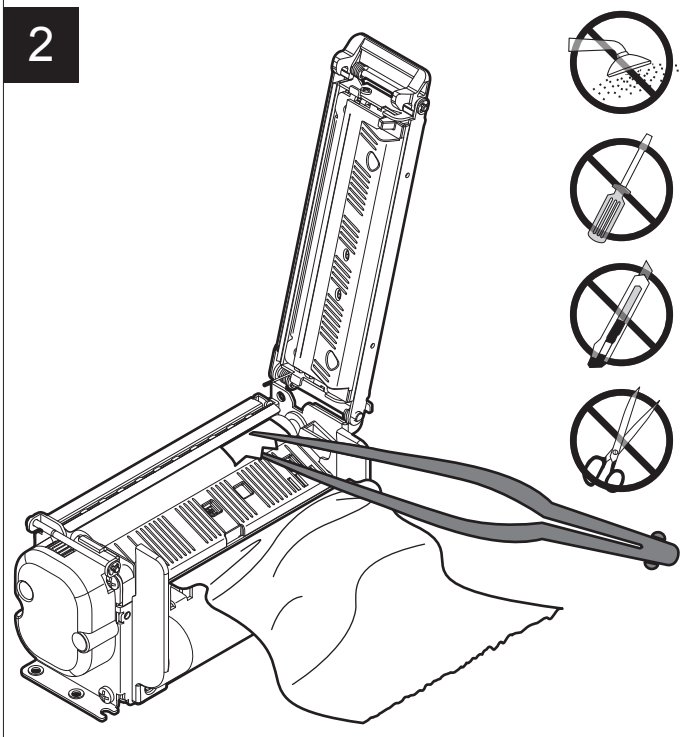
7.1 Paper jam

1



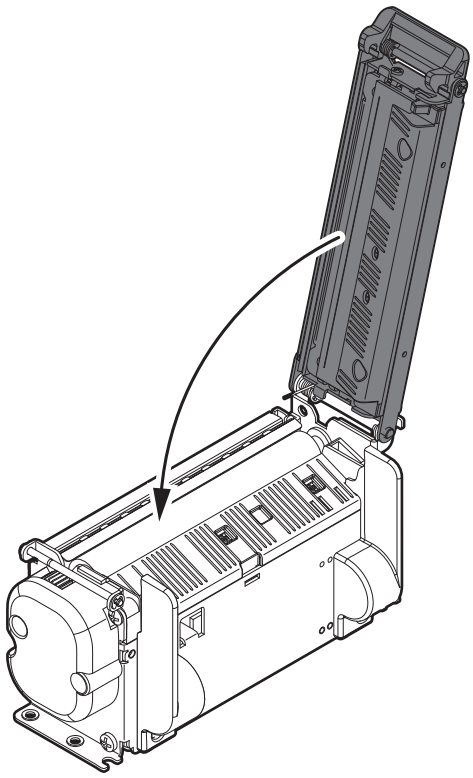
Lift the device cover
(see paragraph 4.1).

2



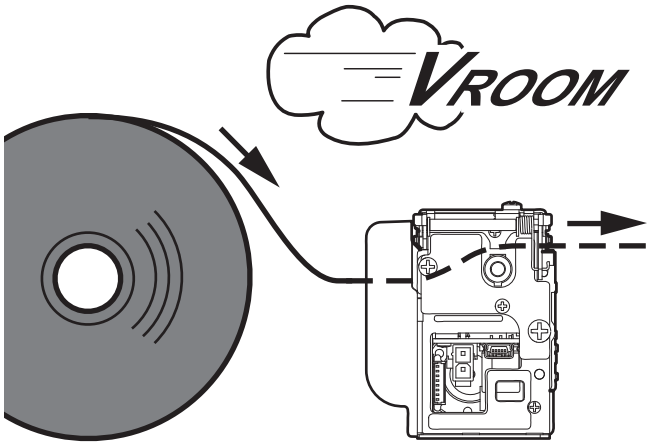
Remove the damaged paper and check the presence for paper scraps inside the device. Carefully remove all paper scraps. If necessary use tweezers.

3



Lower the
device cover.

4



Insert the paper
(see paragraph 4.4).

7.2 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. If you use the device in dusty environments, you must reduce the intervals between the cleaning operations. For specific procedures, see paragraph 7.3.

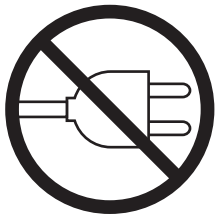
EVERY PAPER CHANGE	
Printhead	Use isopropyl alcohol
Rollers	Use isopropyl alcohol
EVERY 5 PAPER CHANGES	
Autocutter	Use compressed air
Paper path	Use compressed air or tweezers
Sensors	Use compressed air
EVERY 6 MONTHS OR AS NEEDED	
Case	Use compressed air or a soft cloth

7.3 Cleaning

For periodic cleaning of the device, see the instructions below

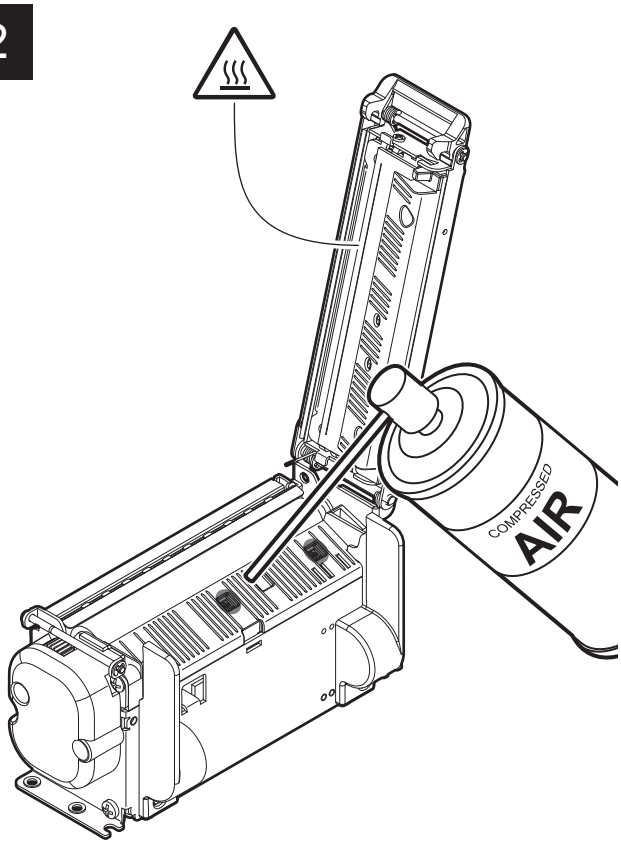
Sensors

1



Disconnect the power supply cable and lift the device cover (see paragraph 4.1).

2

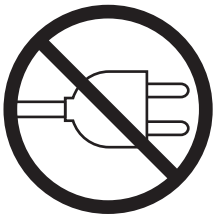


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the device.

Clean the device sensors by using compressed air.

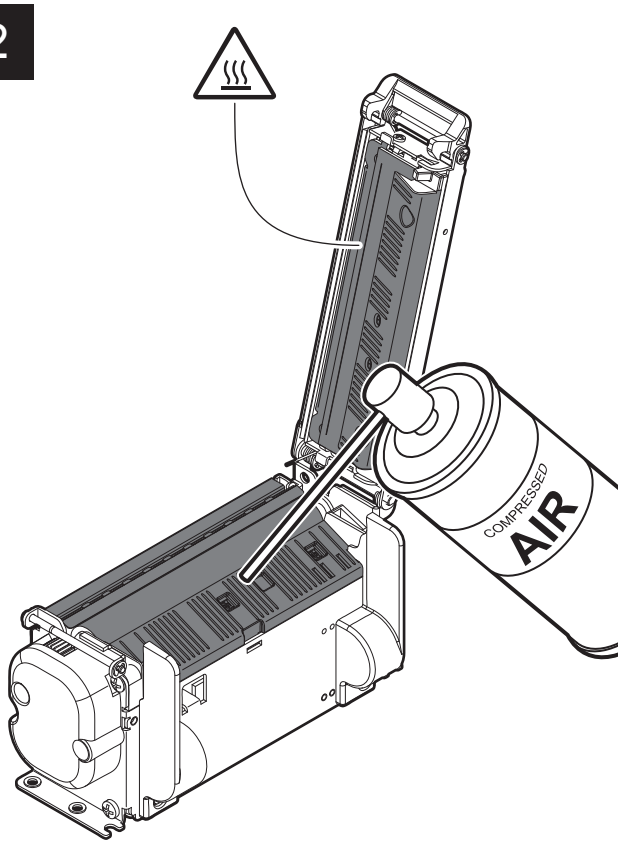
Paper path

1



Disconnect the power supply cable and lift the device cover (see paragraph 4.1).

2

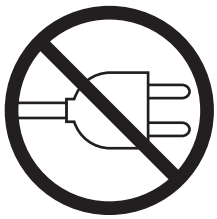


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the device.

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

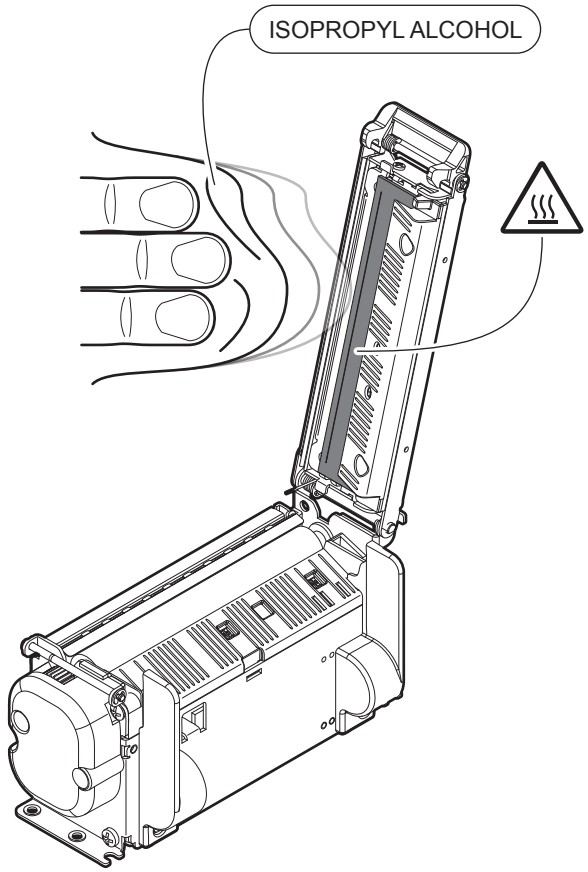
Printhead

1



Disconnect the power supply cable and lift the device cover (see paragraph 4.1).

2

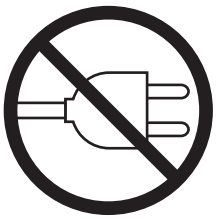


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

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

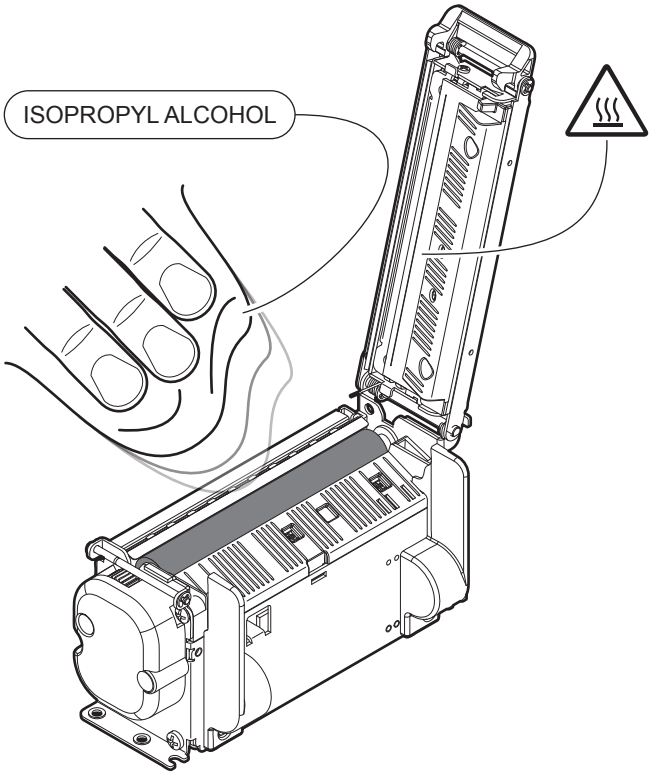
Platen roller

1



Disconnect the power supply cable and lift the device cover (see paragraph 4.1).

2

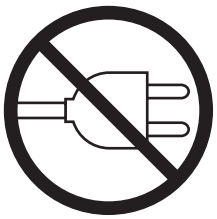


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

Clean the platen roller by using a non-abrasive cloth moistened with isopropyl.

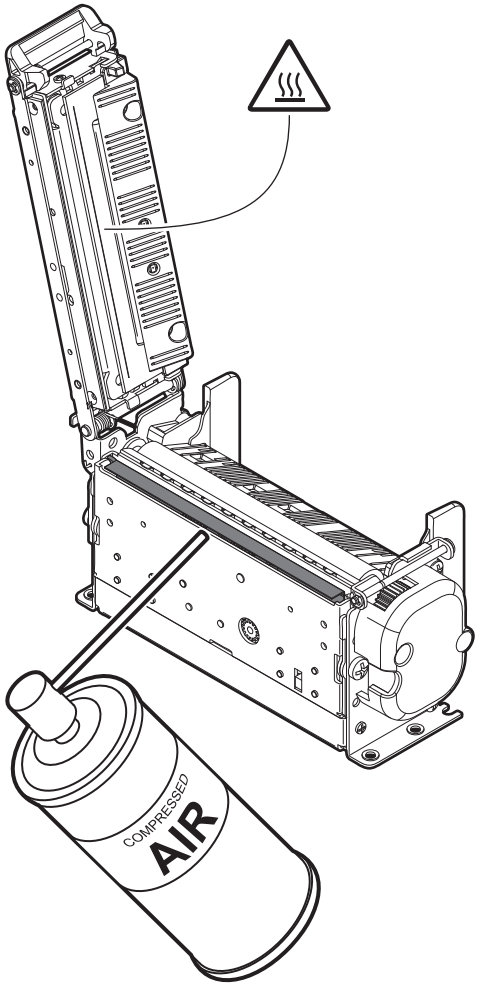
Autocutter

1



Disconnect the power supply cable and lift the device cover (see paragraph 4.1).

2

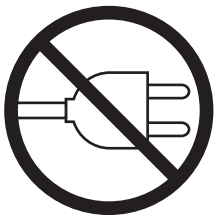


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the device.

Clean the autocutter by using compressed air.

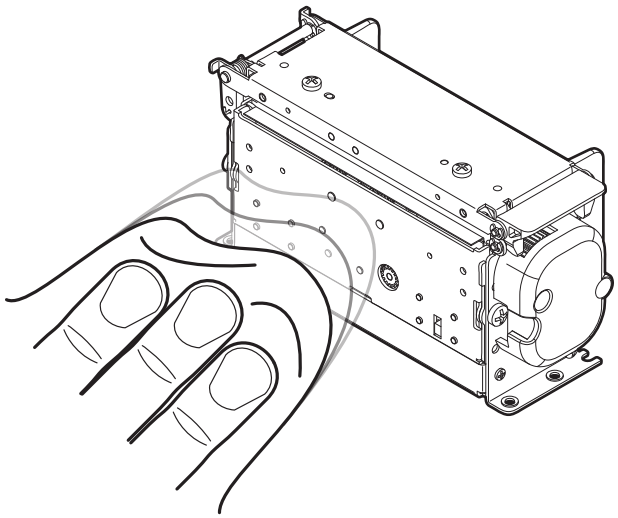
Case

1



Disconnect the power supply cable.

2



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

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

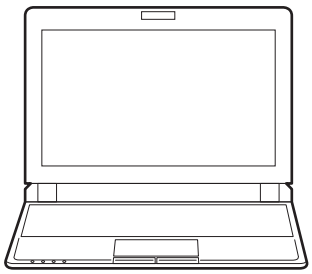
7.4 Firmware upgrade

Firmware upgrade can be performed by using the “PrinterSet” software tool available on www.custom4u.it.
To upgrade firmware, proceed as follows:

1

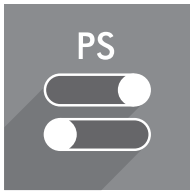
Login to the website www.custom4u.it, type in the product code of the device and download the latest firmware release available.

2



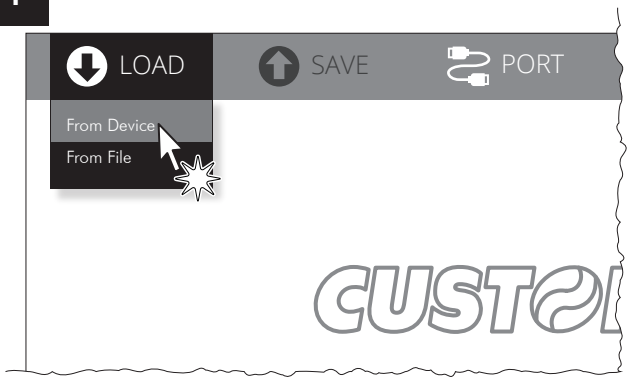
Connect the device to a PC directly (see paragraph 3.2), without using HUB devices.

3



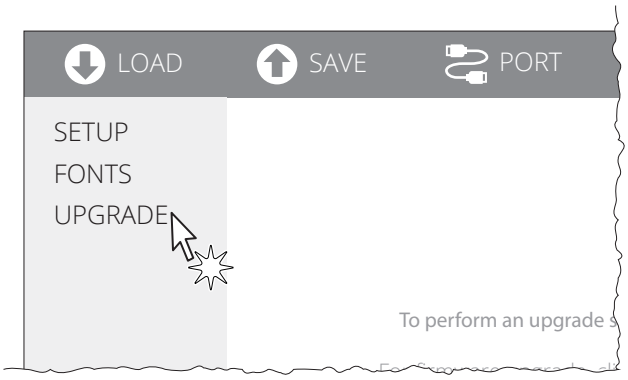
Start the “PrinterSet” software tool.

4



Click on LOAD > FROM DEVICE and select the device connected to the PC.

5



Click on UPGRADE and follow the instructions shown on the screen.

ATTENTION:
During saving, it is strongly discouraged to disconnect the communication cable or to remove the power supply of the PC or the device.

8 SPECIFICATION

8.1 Hardware specifications

GENERAL	
Sensors	Head temperature, paper presence, black mark, cover open, external low paper (optional)
Emulations	CUSTOM/POS
Printing driver	Windows XP VISTA (32/64 bit) Windows 7 (32/64 bit) Windows 8 (32/64 bit) Windows 8.1 (32/64 bit) Windows 10 (32/64 bit) Self-installing driver for Virtual COM (32/64 bit) Linux
INTERFACES	
USB port	12 Mbit/s (USB 2.0 full speed)
RS232 serial port	from 1200 bps to 115200 bps
MEMORIES	
Receive buffer	1 kB
Flash memory	768 kB internal
RAM memory	128 kB internal
Graphic memory	1 logo (640x409 dots)
PRINTER	
Resolution	203 dpi (8 dot/mm)
Printing method	Thermal, fixed head
Head life (1)	
Abrasion resistance (2)	150 km (with recommended paper)
Pulse durability	100 M (12.5% duty cycle)

Printing width	from 48 mm to 80 mm (2 mm step)
Printing mode	Normal, 90°, 180°, 270°
Printing format	Height/Width from 1 to 8, bold, reverse, underlined, italic
Character fonts	54 character code tables (see paragraph 8.10), extended chinese GB18030-2000, korean PC949
Printable barcode	UPCA, UPCE, EAN13, EAN8, CODE39, ITF, CODABAR, CODE93, CODE128, CODE32, QRCode
Printing speed (1) (3)	Normal = 130 mm/s High Quality = 80 mm/s (4)
PAPER	
Type of paper	Thermal rolls, heat-sensitive side on outside of roll
Paper width	54 mm, 60 mm, 72 mm, 80 mm, 82.5 mm ± 0.5 mm
Paper weight	
Without optional bezel	from 58 g/m^2 to 116 g/m^2
With optional bezel	from 58 g/m^2 to 74 g/m^2
Paper thickness	63 µm, 120 µm
Recommended types of paper	KANZAN KF50
External roll diameter	max. 80 mm
External roll core diameter	12 mm (+ 1 mm) 25 mm (+ 1 mm)
Paper end	Not attached to roll core
Core type	Cardboard or plastic
AUTOCUTTER	
Paper cut	Total cut or partial cut
Estimated life (1)	1000000 cuts

DEVICE ELECTRICAL SPECIFICATIONS	
Power supply	24 Vdc ± 10% (optional external power supply)
Typical consumption (3)	0.8 A
Standby consumption	0.03 A
ELECTRICAL SPECIFICATIONS POWER SUPPLY code 963GE020000053 (optional)	
Power supply voltage	from 100 Vac to 240 Vac
Frequency	from 50 Hz to 60 Hz
Output	24 V, 2.5 A
Power	60 W
ENVIRONMENTAL CONDITIONS	
Operating temperature	from -20°C to +70°C
Relative humidity (RH)	from 10% to 85% (w/o condensation)
Storage temperature	from -20 °C to +70 °C
Storage relative humidity (RH)	from 10% to 90% (w/o condensation)

NOTES:
(1) : Respecting the regular schedule of cleaning for the device components.
(2) : Damages caused by scratches, ESD and electromigration are excluded.
(3) : Referred to a standard CUSTOM receipt (L = 10 cm, Density = 12.5% dots on).
(4) : Use paper with a weight of 116 g/m^2.

8.2 Character specifications

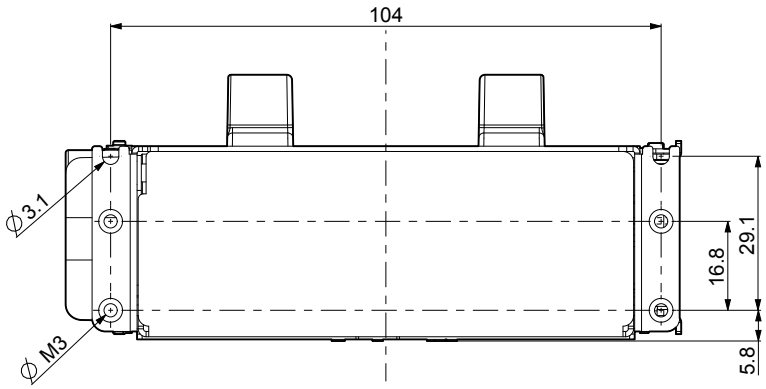
Character set		3	
Character density	13 cpi	17 cpi	22 cpi
Number of columns	42	55	71
Chars / s	1820	2383	3076
Lines / s	43	43	43
Characters (L x H mm) - Normal	1.875 x 3	1.4375 x 3	1.125 x 3

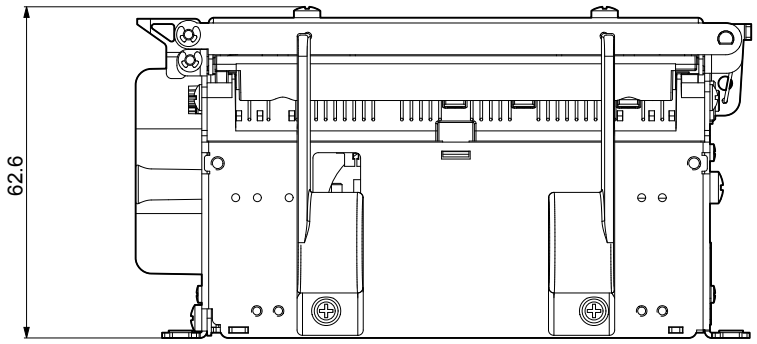
NOTE: Theoretical values.

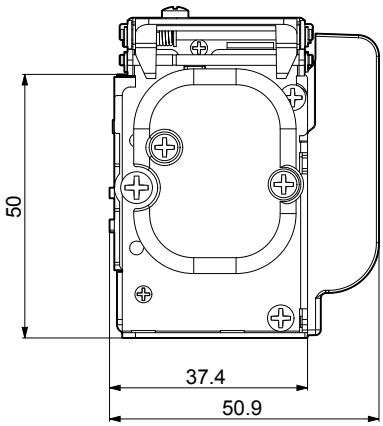
8.3 Device dimensions

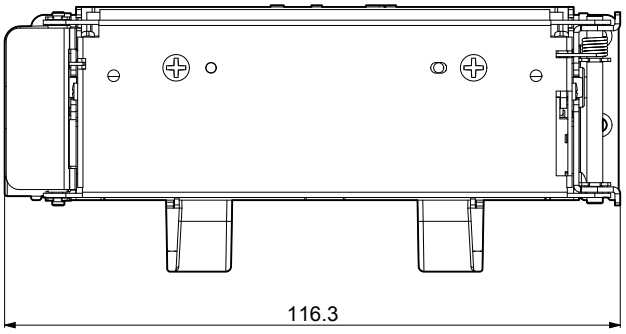
Length	50.9 mm
Height	62.6 mm
Width	116.3 mm
Weight	400 g

All the dimensions shown in following figures are in millimetres and referred to device with closed cover.





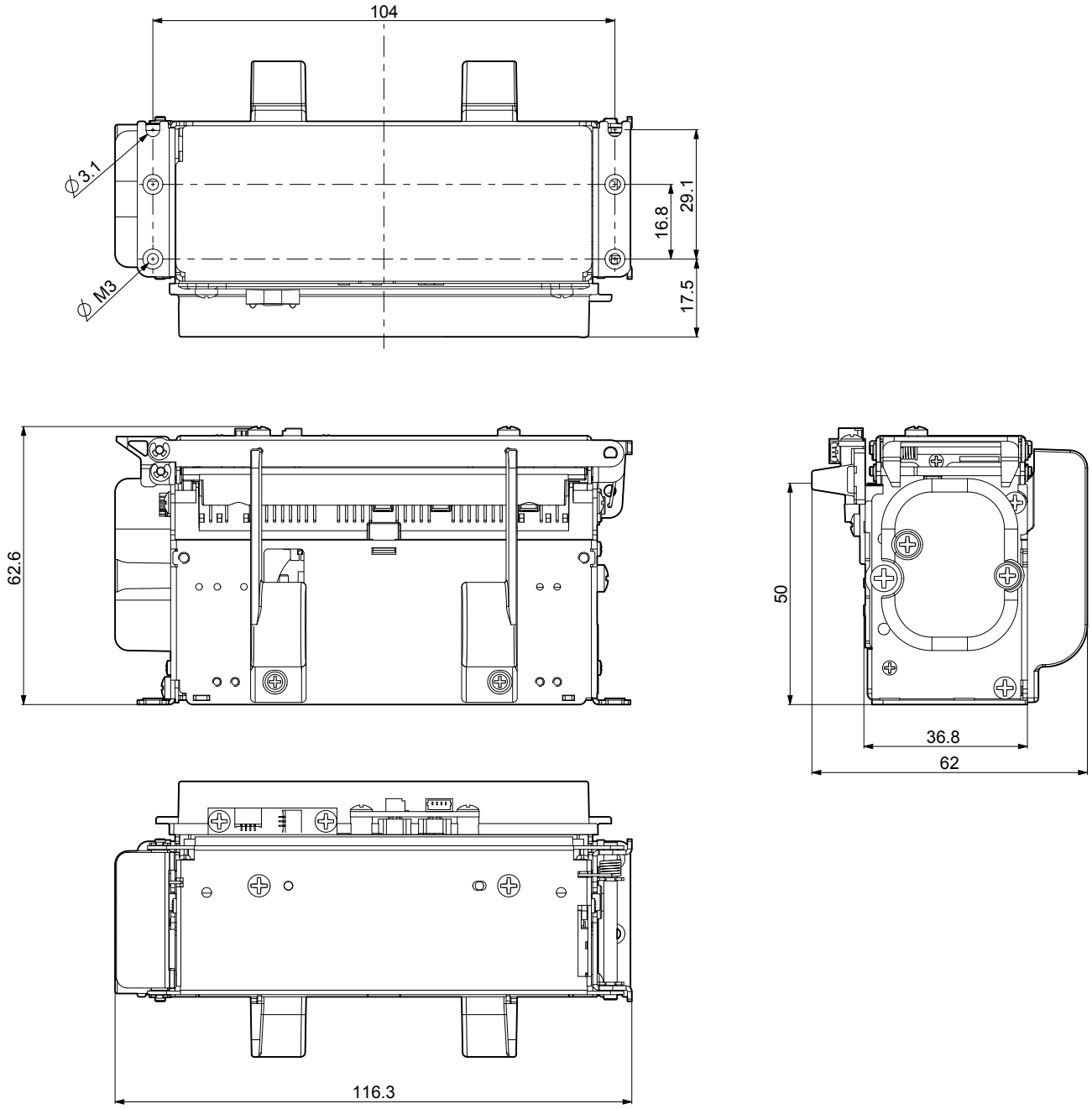




8.4 Device dimensions with bezel code 976LF010000003 (optional)

Length	62 mm
Height	62.6 mm
Width	116.3 mm

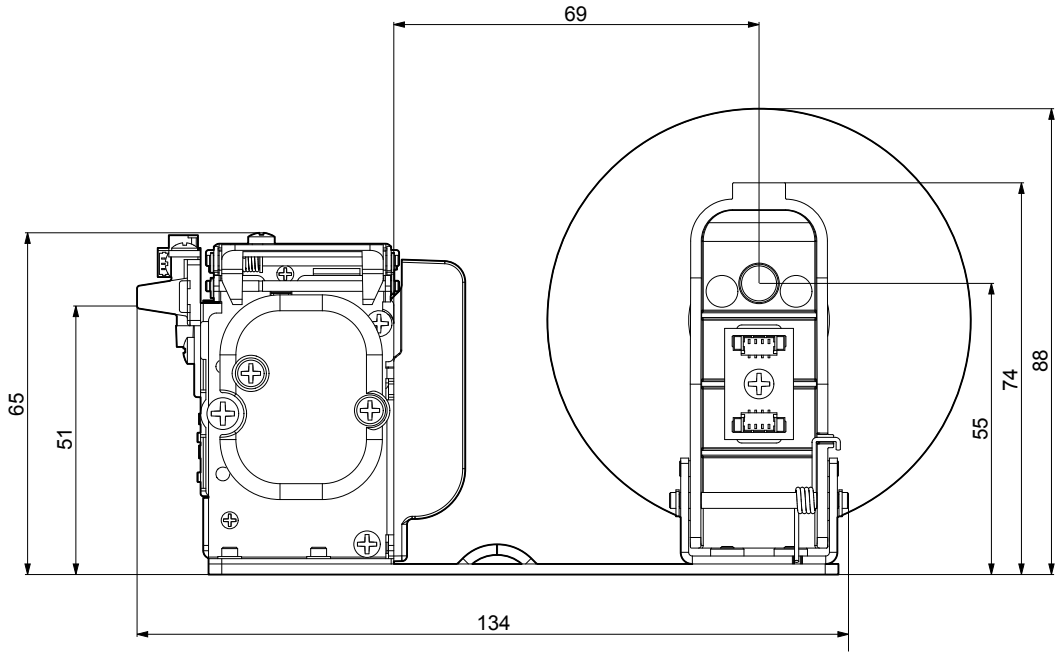
All the dimensions shown in following figures are in millimetres and referred to device with closed cover.

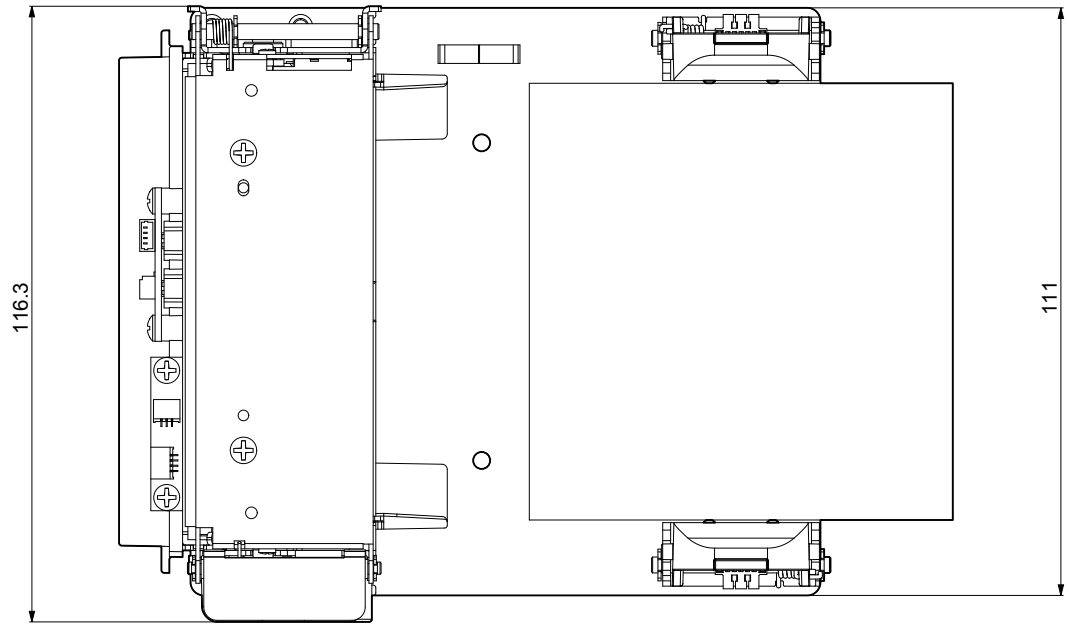


8.5 Device dimensions with paper roll holder code 974LF010000002 (optional)

Length	134 mm
Height	74 mm
Width	116.3 mm

All the dimensions shown in following figures are in millimetres and referred to device with closed cover.

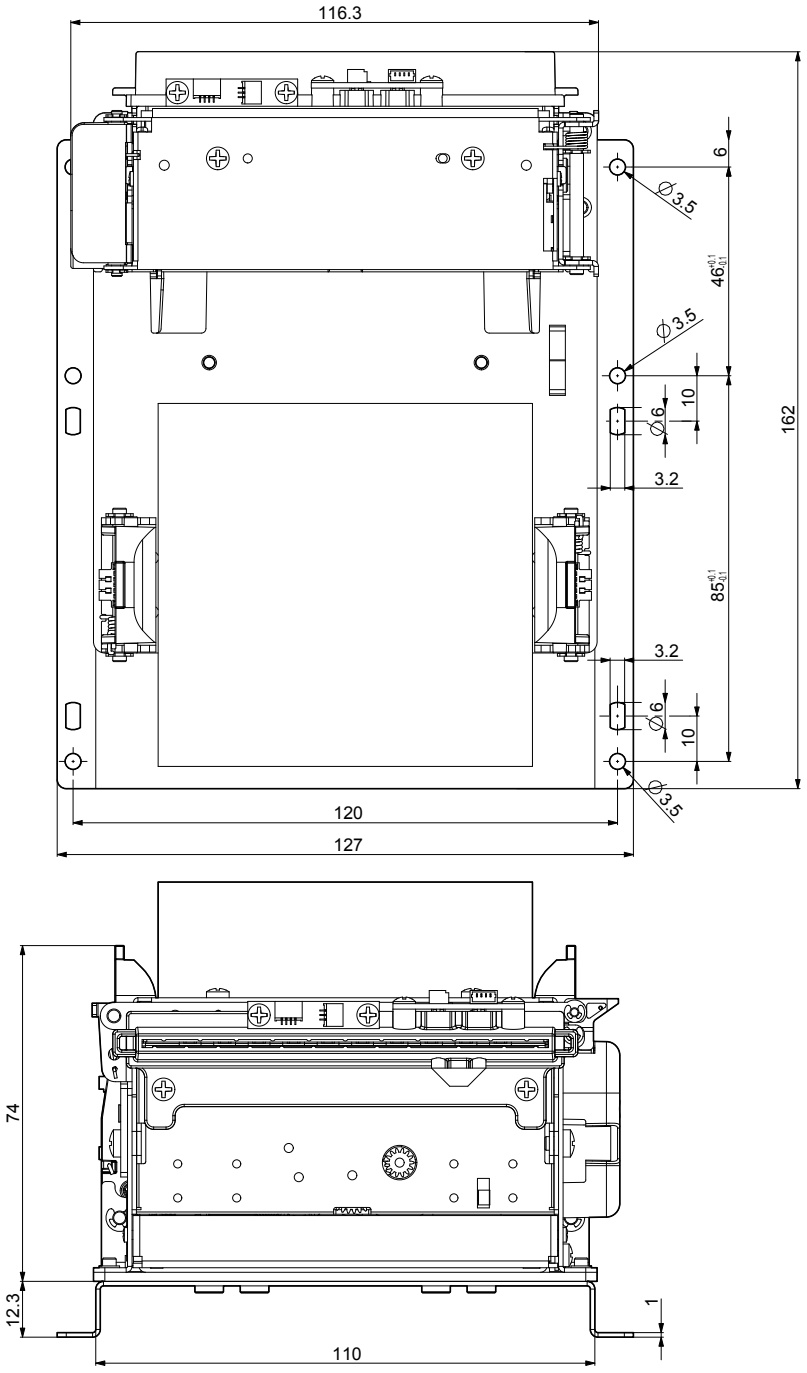




8.6 Device dimensions with NP adjustment bracket code 44000000007900 (optional)

Length	162 mm
Height	86.3 mm
Width	127 mm

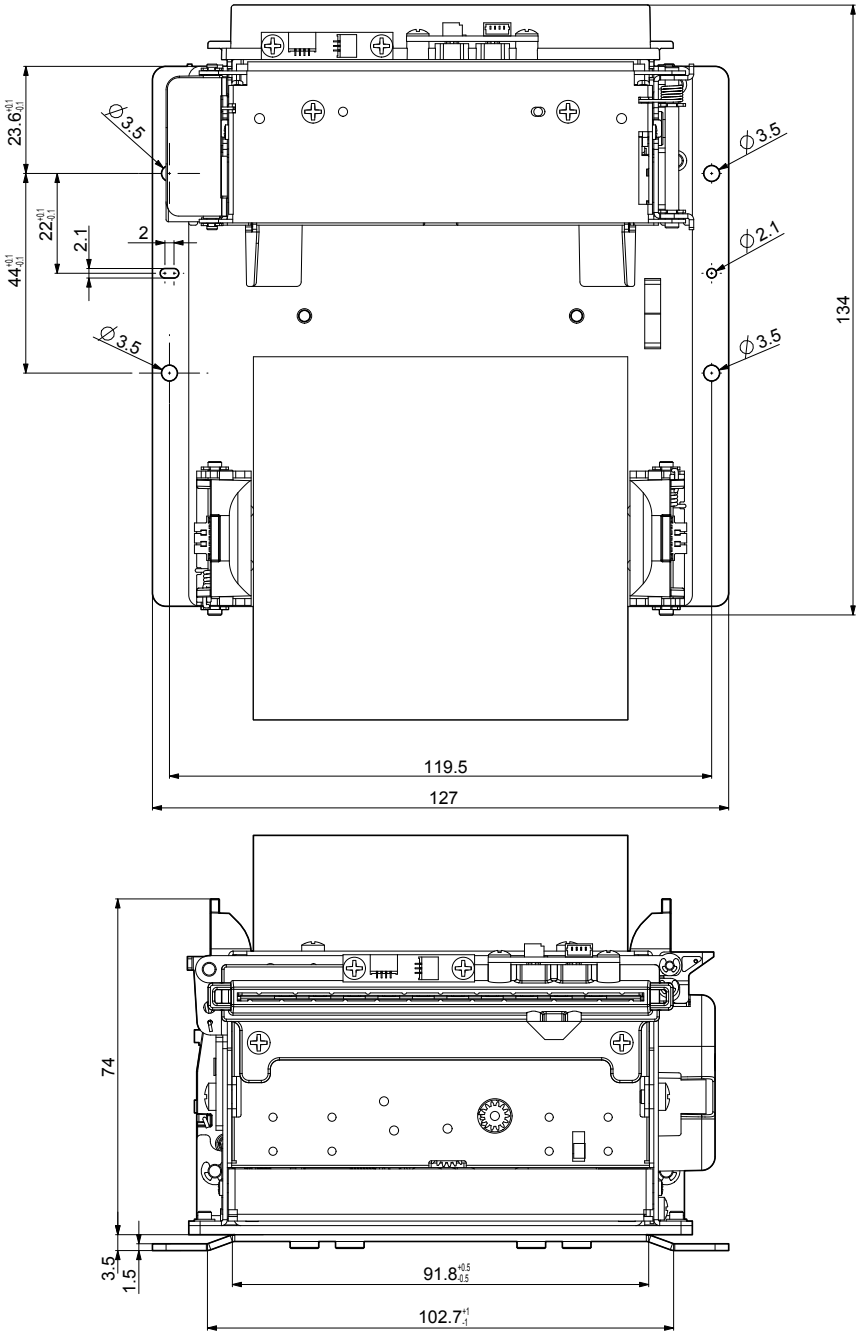
All the dimensions shown in following figures are in millimetres and referred to device with closed cover.



8.7 Device dimensions with SK adjustment bracket code 44000000008000 (optional)

Length	134 mm
Height	77.5 mm
Width	127 mm

All the dimensions shown in following figures are in millimetres and referred to device with closed cover.



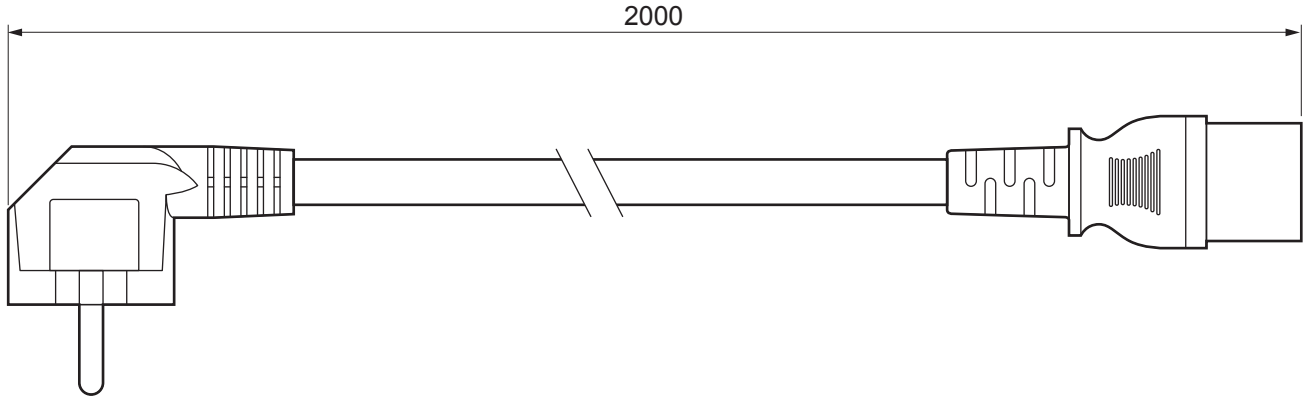
8.8 Power supply, power cord and adapter for power supply dimensions (optionals)

The following table shows the dimensions of the power supply, the power cord and the adapter for power supply optionals for the device:

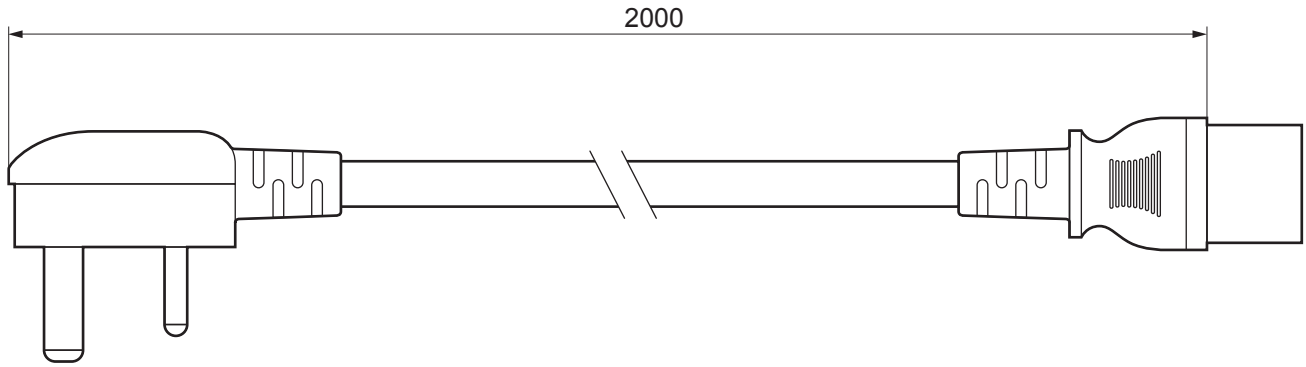
POWER CORD code 26100000000311 and code 26100000000313	
Length	2000 mm
ADAPTER FOR POWER SUPPLY code 26900000000005	
Length	200 mm
POWER SUPPLY code 963GE020000053	
Length	127 mm
Height	35.5 mm
Width	56 mm

All the dimensions shown in following figures are in millimetres.

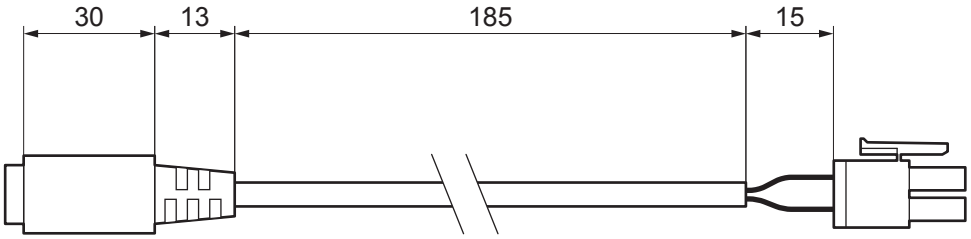
POWER CORD code 26100000000311



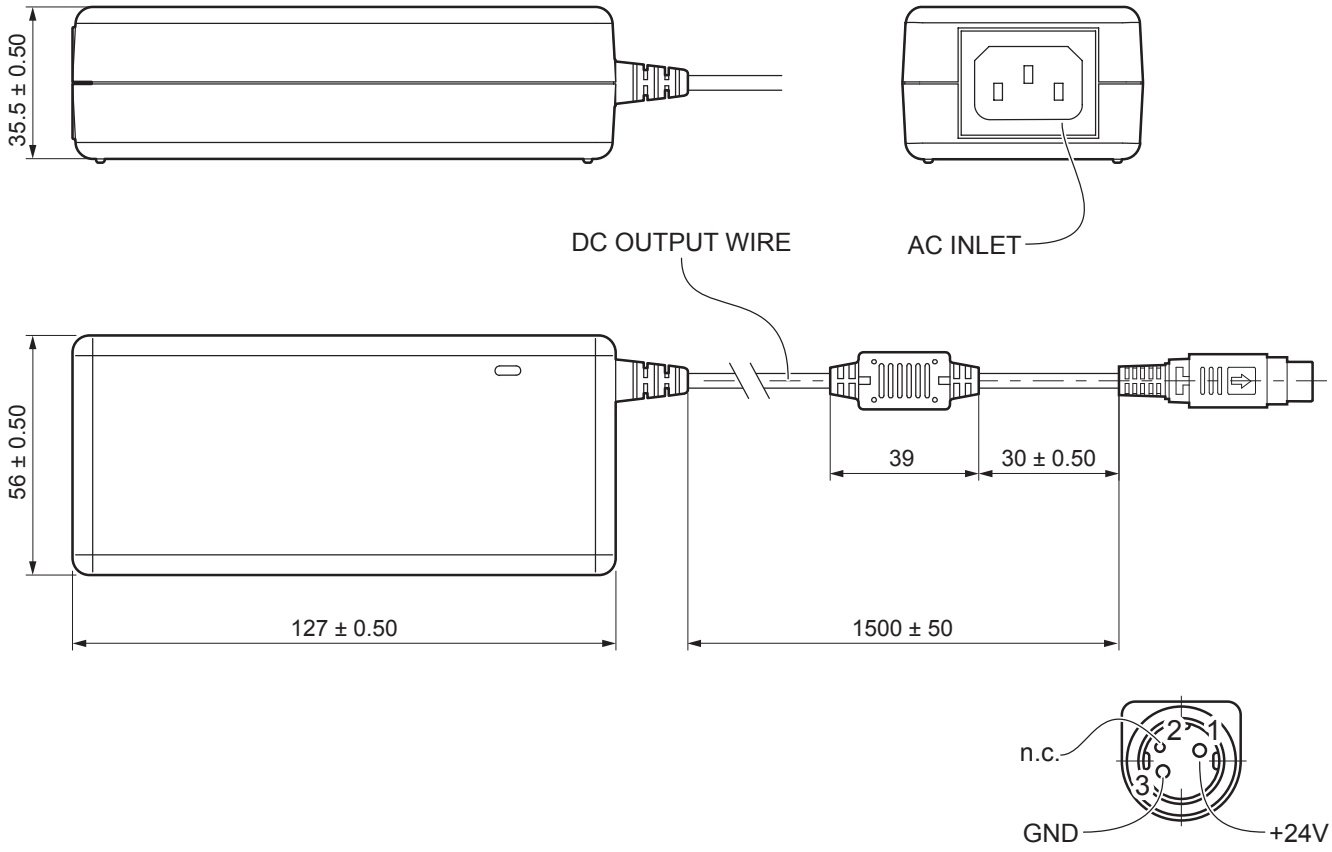
POWER CORD code 26100000000313



ADAPTER FOR POWER SUPPLY code 26900000000005



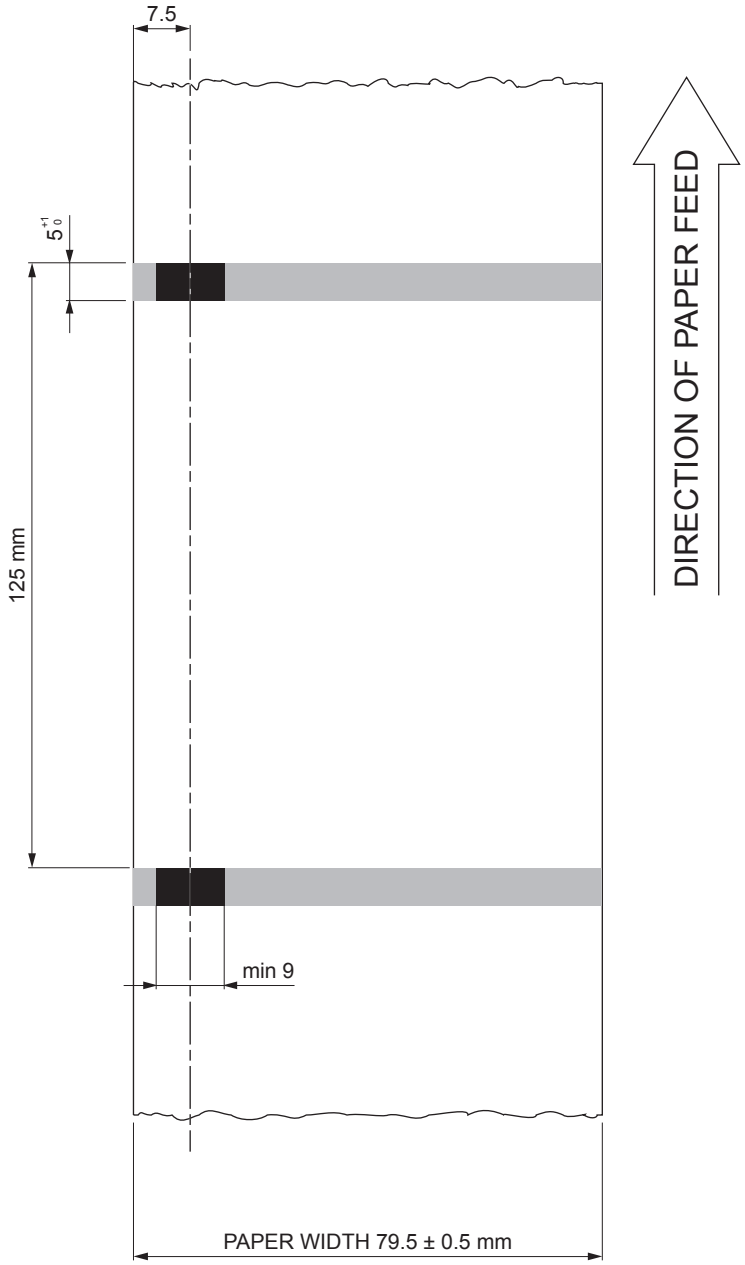
POWER SUPPLY code 963GE020000053



8.9 Paper specification

The following image shows an example of black mark placement on the non-thermal side of paper.
For more information about the use of paper with black mark see chapter 6.

All the dimensions shown in following figures are in millimetres.



8.10 Character sets in CUSTOM/POS emulation

The device has 3 fonts of varying width (13, 17 and 22 cpi) which may be related one of the coding tables provided on the device.

To know the coding tables actually present on the device, you need to print the font test (see paragraph 2.5).

You can set font and coding table by using the commands (see the commands manual of the device) or using the “Code Table” and the "Chars / Inch" parameters during the setup procedure (see paragraph 5.5).

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

<CodeTable>	Coding table	
0	PC437 - U.S.A., Standard Europe	
1	Katakana	
2	PC850 - Multilingual	
3	PC860 - Portuguese	
4	PC863 - Canadian/French	
5	PC865 - Nordic	
11	PC851 - Greek	on request
12	PC853 - Turkish	on request
13	PC857 - Turkish	on request
14	PC737 - Greek	on request
15	ISO8859-7 - Greek	on request
16	WPC1252 - Scandinavian	
17	PC866 - Cyrillic 2	
18	PC852 - Latin 2	on request
19	PC858 for Euro symbol in position 213	
20	KU42 - Thai	on request
21	TIS11 - Thai	on request
26	TIS18 - Thai	on request
30	TCVN_3 - Vietnamese	on request
31	TCVN_3 - Vietnamese	on request
32	PC720 - Arabic	on request
33	WPC775 - Baltic Rim	on request

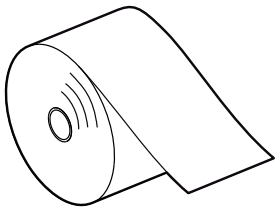
<CodeTable>	Coding table	
34	PC855 - Cyrillic	on request
35	PC861 - Icelandic	on request
36	PC862 - Hebrew	
37	PC864 - Arabic	
38	PC869 - Greek	on request
39	ISO8859-2 - Latin 2	on request
40	ISO8859-15 - Latin 9	on request
41	PC1098 - Farsi	on request
42	PC1118 - Lithuanian	on request
43	PC1119 - Lithuanian	on request
44	PC1125 - Ukrainian	on request
45	WPC1250 - Latin 2	
46	WPC1251 - Cyrillic	
47	WPC1253 - Greek	
48	WPC1254 - Turkish	
49	WPC1255 - Hebrew	
50	WPC1256 - Arabic	
51	WPC1257 - Baltic Rim	
52	WPC1258 - Vietnamese	
53	KZ1048 - Kazakh	on request
255	Space page	

9 CONSUMABLES

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

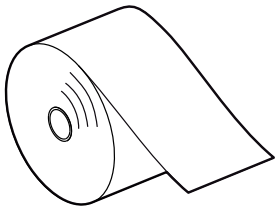
67300000000039

THERMAL PAPER ROLL
weight = 116 g/m^2
width = 80 mm
Ø external = 80 mm
Ø core = 12 mm



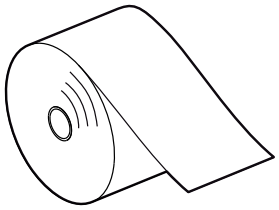
67300000000398

THERMAL PAPER ROLL
weight = 58 g/m^2
width = 80 mm
Ø external = 80 mm
Ø core = 13 mm



67300000000401

THERMAL PAPER ROLL
weight = 74 g/m^2
width = 80 mm
Ø external = 80 mm
Ø core = 25 mm

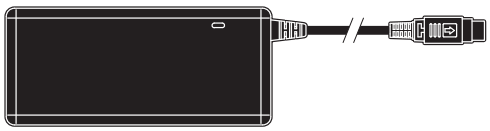


10 ACCESSORIES

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

963GE020000053

POWER SUPPLY
(for technical specifications, see paragraph 8.1)



26100000000311

POWER CORD SCHUKO PLUG
length = 2 m
(see paragraph 8.8)

26100000000313

POWER CORD UK PLUG
length = 2 m
(see paragraph 8.8)

26300000000579

POWER SUPPLY CABLE
Length = 1 m

26500000000052

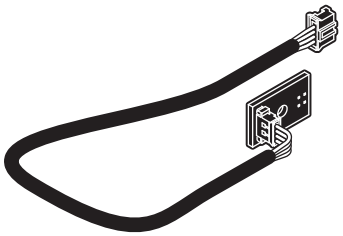
RS232 CABLE
Length = 500 mm

26900000000005

ADAPTER CABLE FOR POWER SUPPLY
length = 200 mm
(see paragraph 8.8)

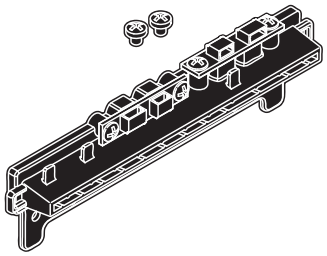
976LF010000004

EXTERNAL LOW PAPER SENSOR
board with cable 500 mm long



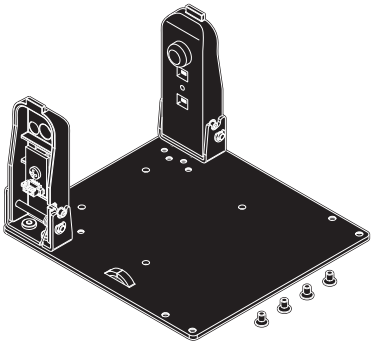
976LF010000003

BEZEL



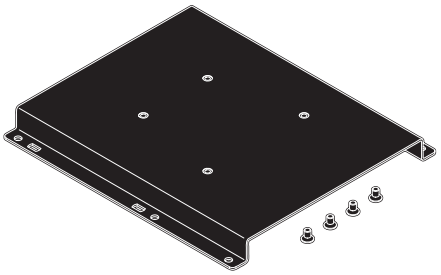
974LF010000002

80 mm ROLL HOLDER BRACKET



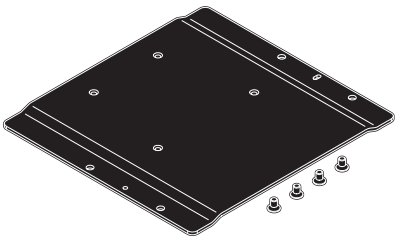
44000000007900

NP ADJUSTMENT BRACKET



44000000008000

SK ADJUSTMENT BRACKET



11 TECHNICAL SERVICE

In case of failure, contact the technical service accessing the website www.custom4u.it and using the support tools on the homepage. It is advisable to keep the identification data of the product at hand.

The product code, the serial number and the hardware release number can be found on the product label (see paragraph 2.4). The firmware release number (SCODE) can be found:

- on the setup report (see paragraph 5.1)
- connecting the device to a PC and starting the “PrinterSet” tool (see paragraph 5.2)

Code : 7620000008000 Rev.1.20

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