USER MANUAL

VK80

CUSTOM®

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

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

GENERAL INSTRUCTIONS

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

GENERAL SAFETY INFORMATION

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

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

CE

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

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

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

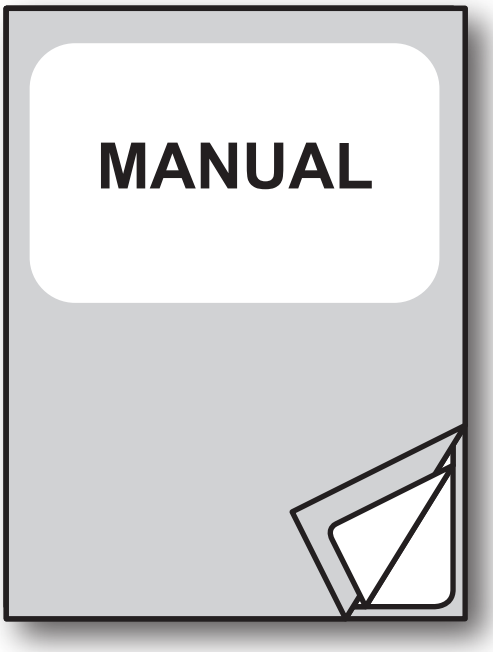
The device is in conformity with the essential requirements laid down in Directives 1999/05/CE about devices equipped with intentional radiators The Declaration of Conformity and other available certifications can be request to support@custom.it please providing the correct part number shown on product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

GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

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

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

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

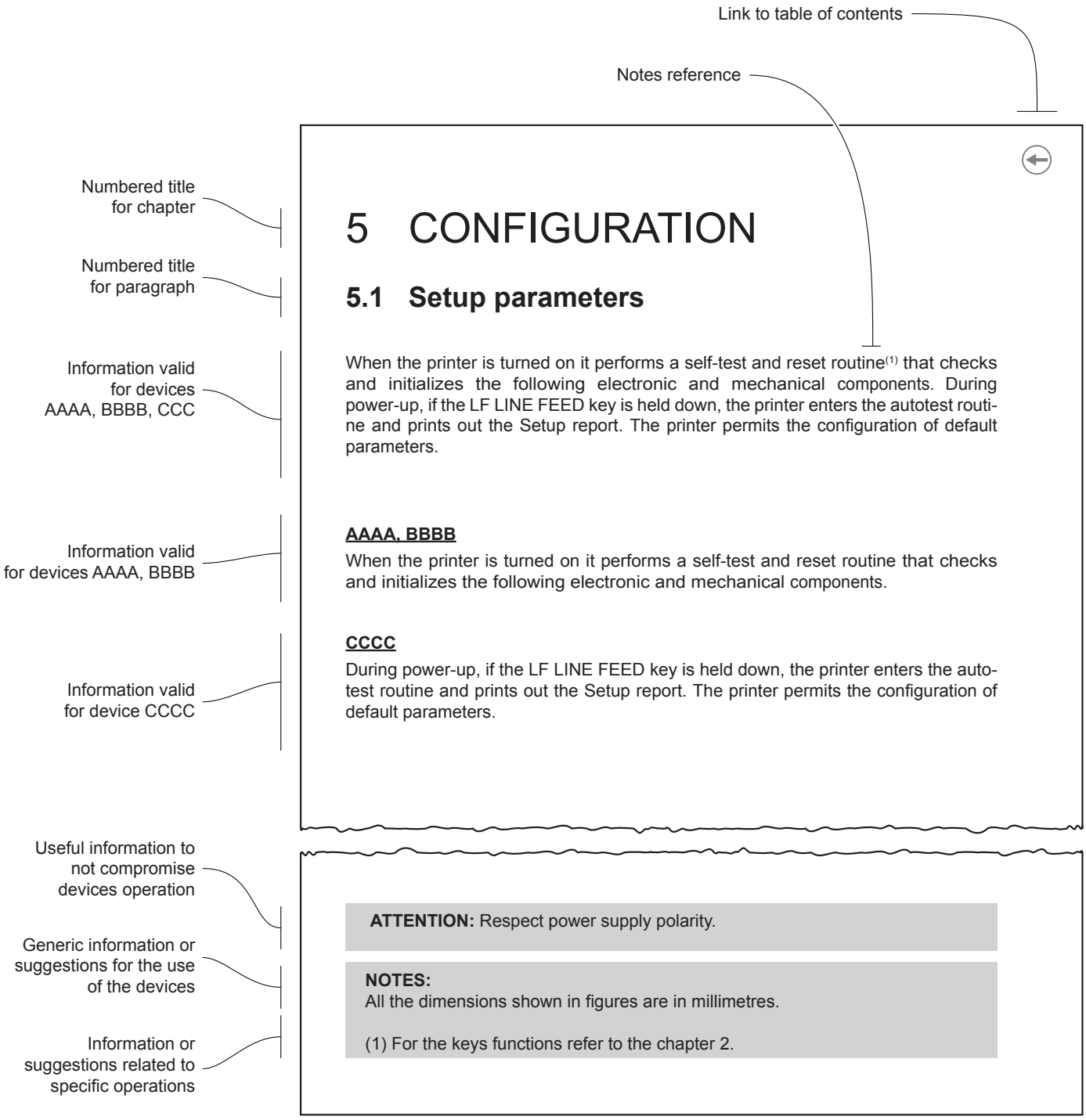


For details on the commands,
refer to the manual with code **771000000001500**

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 IDENTIFICATION OF THE MODELS

NOMENCLATURE	DESCRIPTION
VK80 200 REAR	VK80 base configuration (model with 200 dpi print head) with rear connectors
VK80 200 LAT	VK80 base configuration (model with 200 dpi print head) with lateral connectors
VK80 300	VK80 base configuration (model with 300 dpi print head)

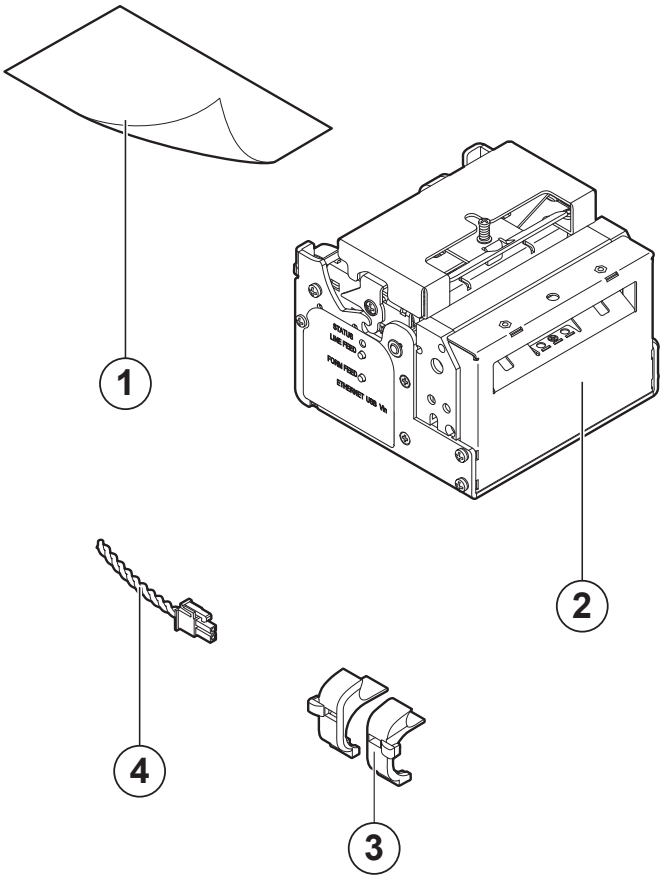
3 DESCRIPTION

3.1 Box contents

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.

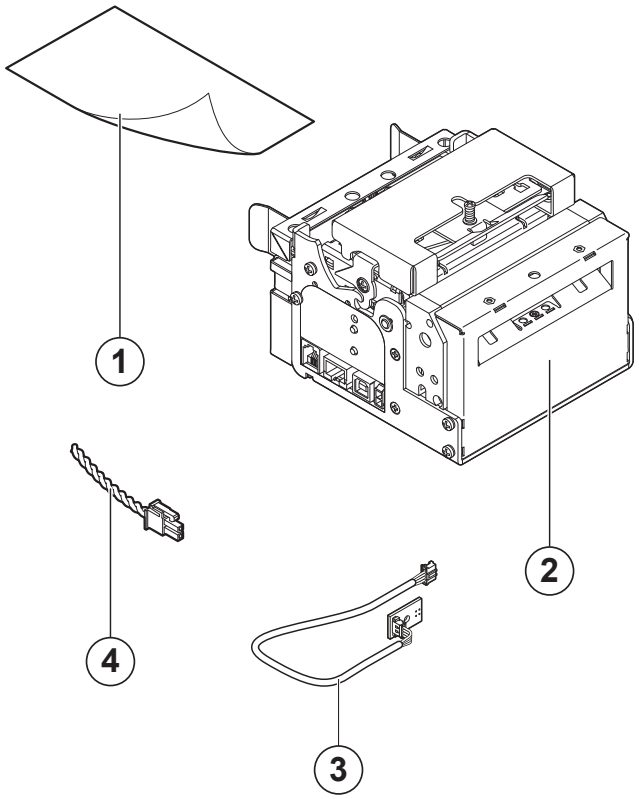
VK80 200 REAR, VK80 200 LAT

1. Installation instruction sheet
2. Device
3. Paper width reduction guides kit
4. Power supply cable



VK80 300

1. Installation instruction sheet
2. Device
3. External low paper sensor with cable
4. Power supply cable

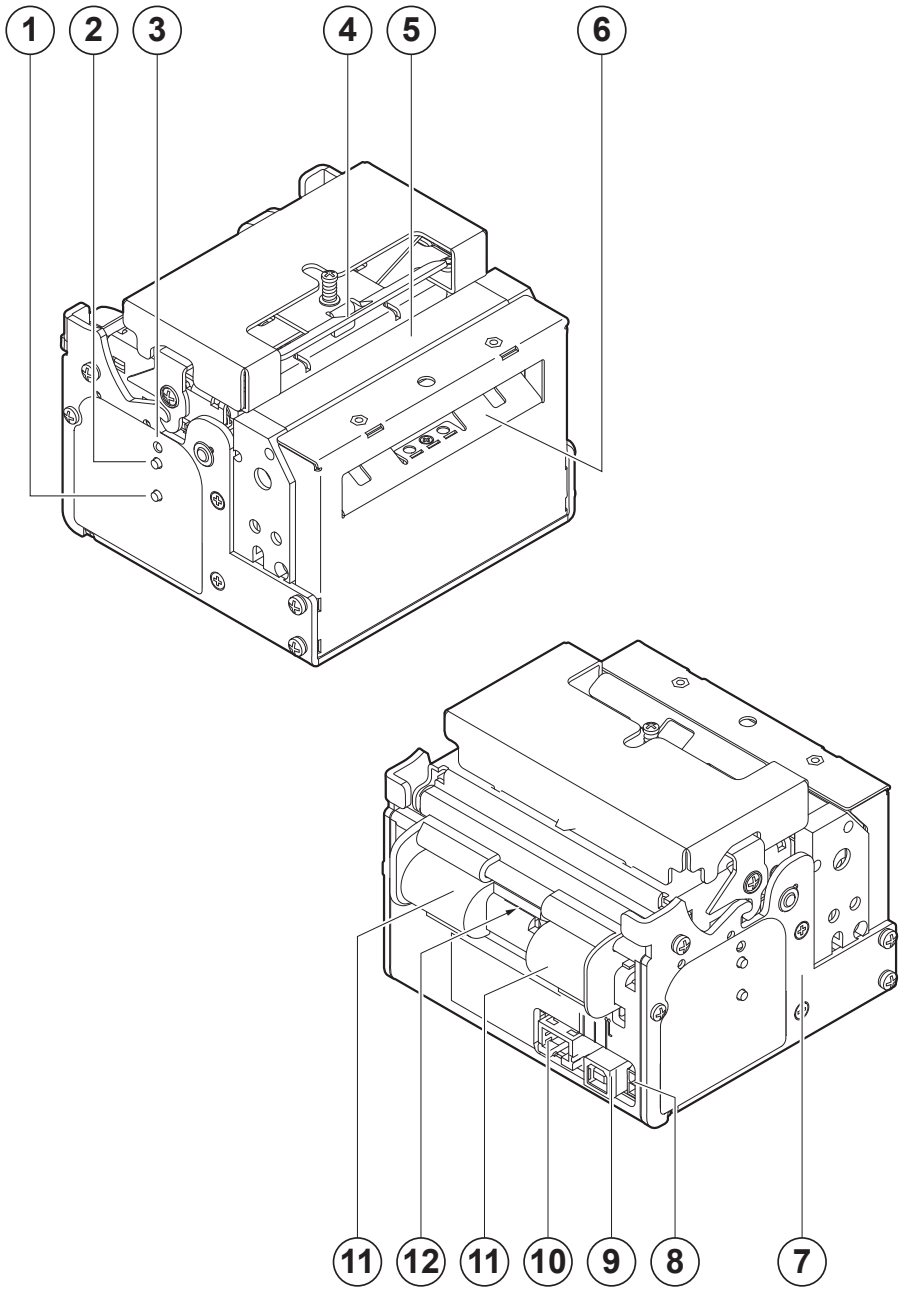


- Open the device packaging.
- Take out the device.
- Take out the rest of the content.
- Keep the box, trays and packing materials in the event the device must be transported/shipped in the future.

3.2 Device components: external views

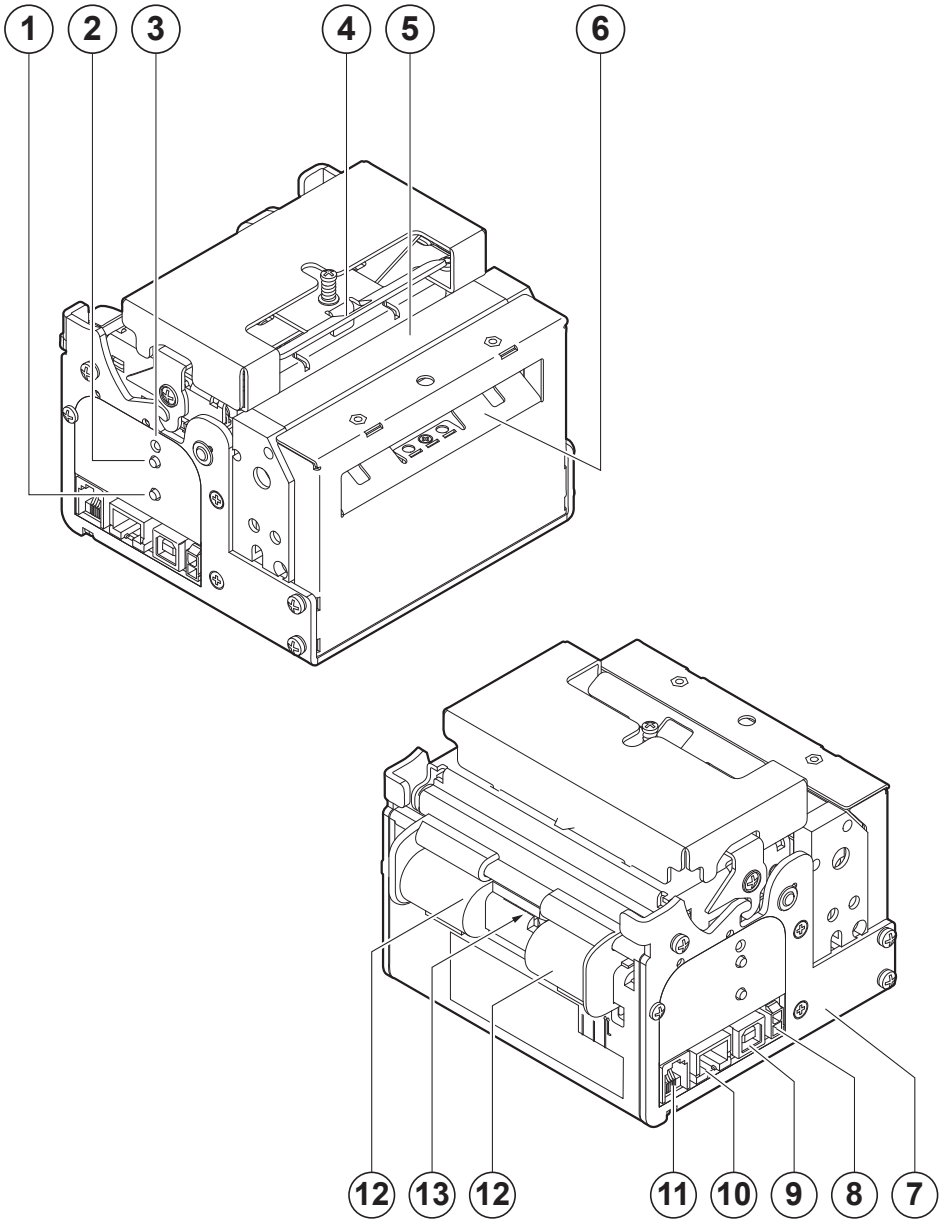
VK80 200 REAR

1. FORM FEED key
2. LINE FEED key
3. Status LED
4. Opening lever for device
5. Cutter group
6. Paper out
7. Device chassis
8. Power supply port
9. USB port
10. ETHERNET port
11. Adjustable cursor for paper in
12. Paper input



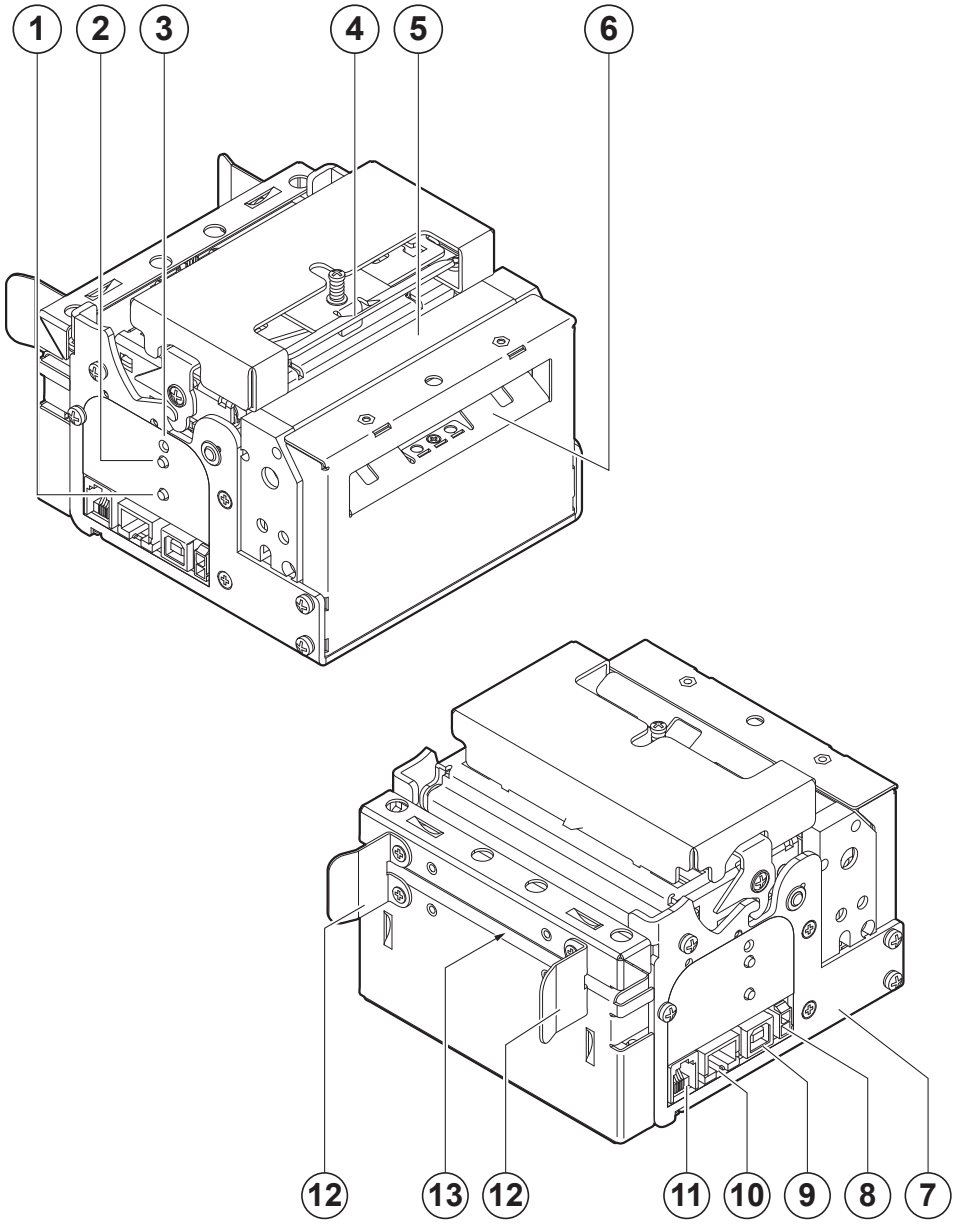
VK80 200 LAT

1. FORM FEED key
2. LINE FEED key
3. Status LED
4. Opening lever for device
5. Cutter group
6. Paper out
7. Device chassis
8. Power supply port
9. USB port
10. ETHERNET port
11. Serial interface port
12. Adjustable cursor for paper in
13. Paper input



VK80 300

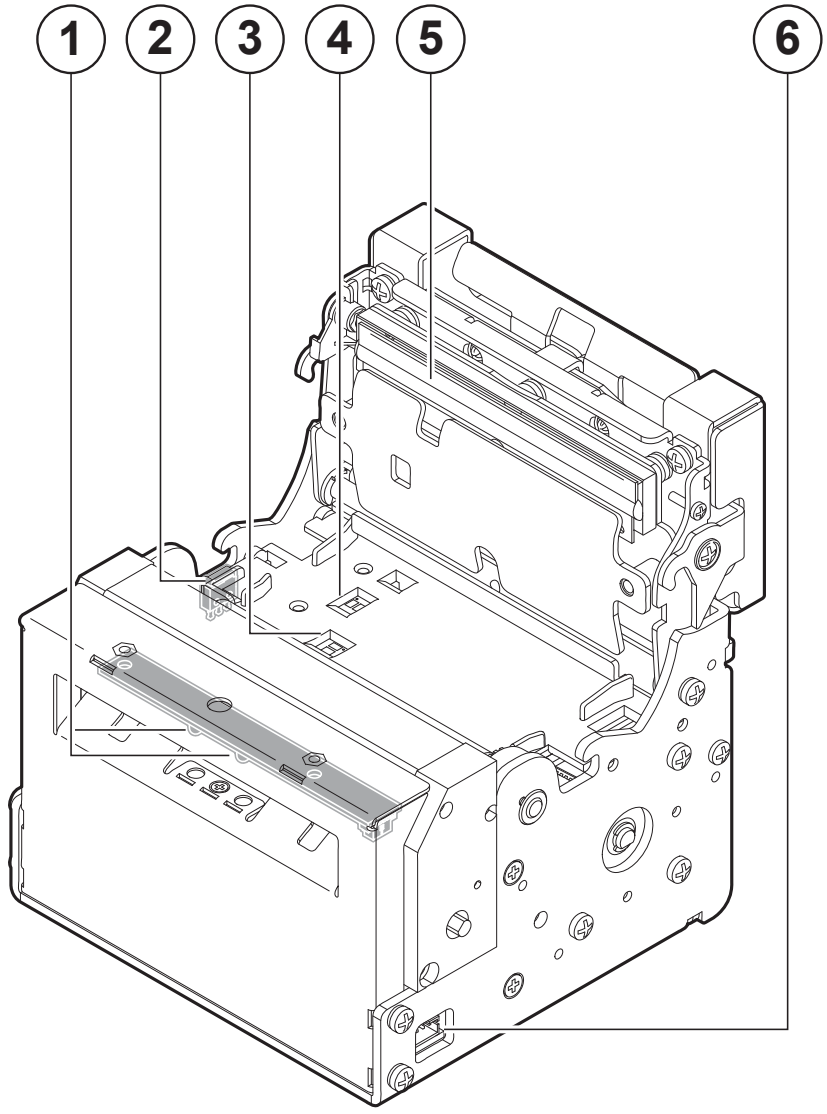
1. FORM FEED key
2. LINE FEED key
3. Status LED
4. Opening lever for device
5. Cutter group
6. Paper out
7. Adjustable cursor for paper in
8. Paper input
9. Serial interface port
10. ETHERNET port
11. USB port
12. Power supply port
13. Device chassis



3.3 Device components: internal views

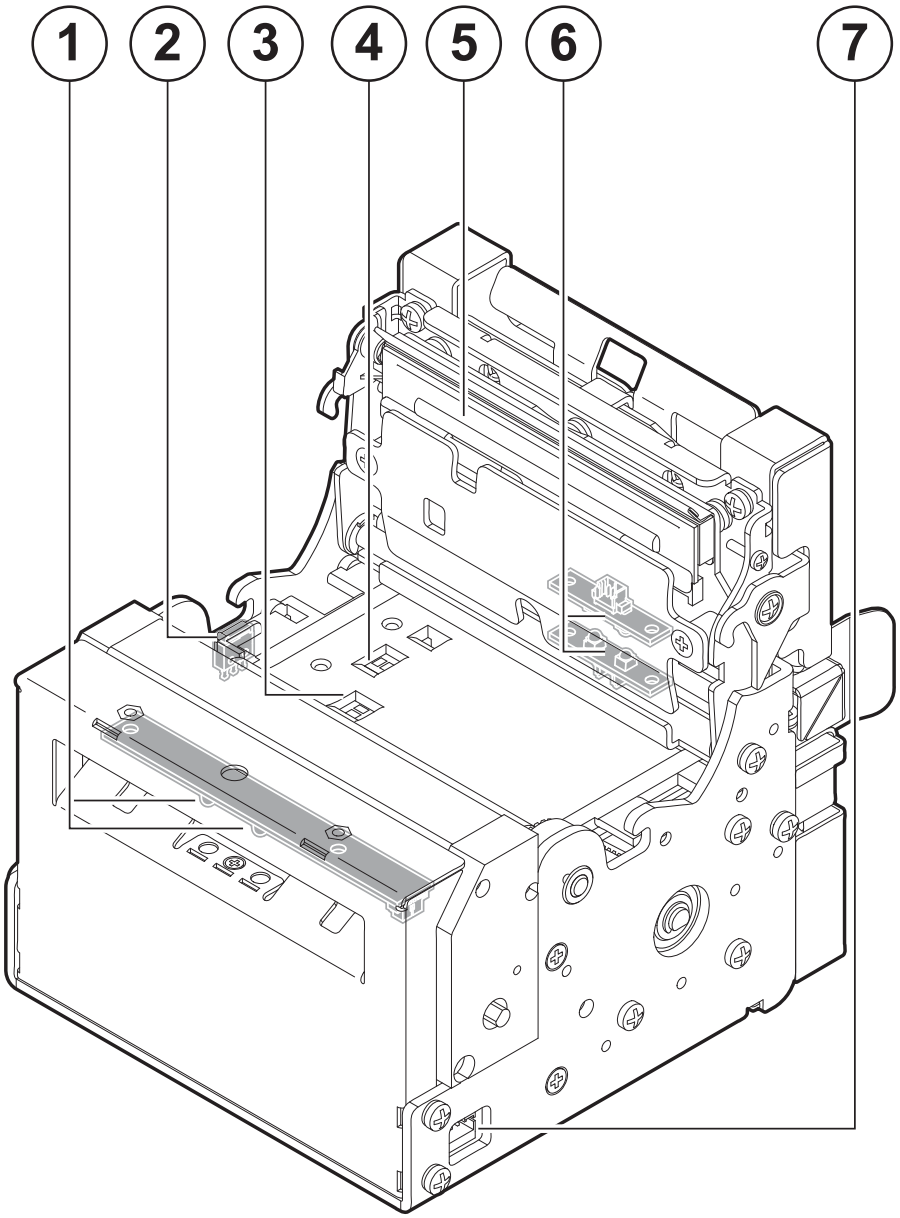
VK80 200 REAR, VK80 200 LAT

1. Sensors for detecting paper out presence
2. Sensor for printing group opening
3. Sensors for detecting paper in presence
4. Black mark sensor
5. Printing head with temperature sensor
6. Port for low paper sensor (external)



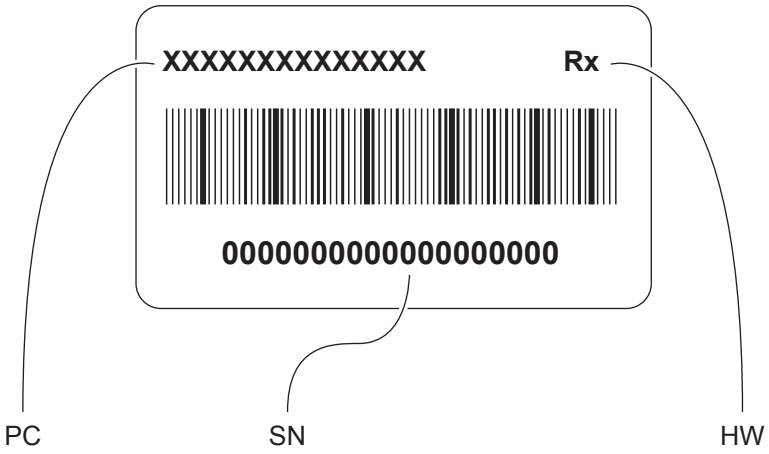
VK80 300

1. Sensors for detecting paper out presence
2. Sensor for printing group opening
3. Sensors for detecting paper in presence
4. Black mark sensor (inactive)
5. Printing head with temperature sensor
6. Black mark sensors (transparency)
7. Port for low paper sensor (external)

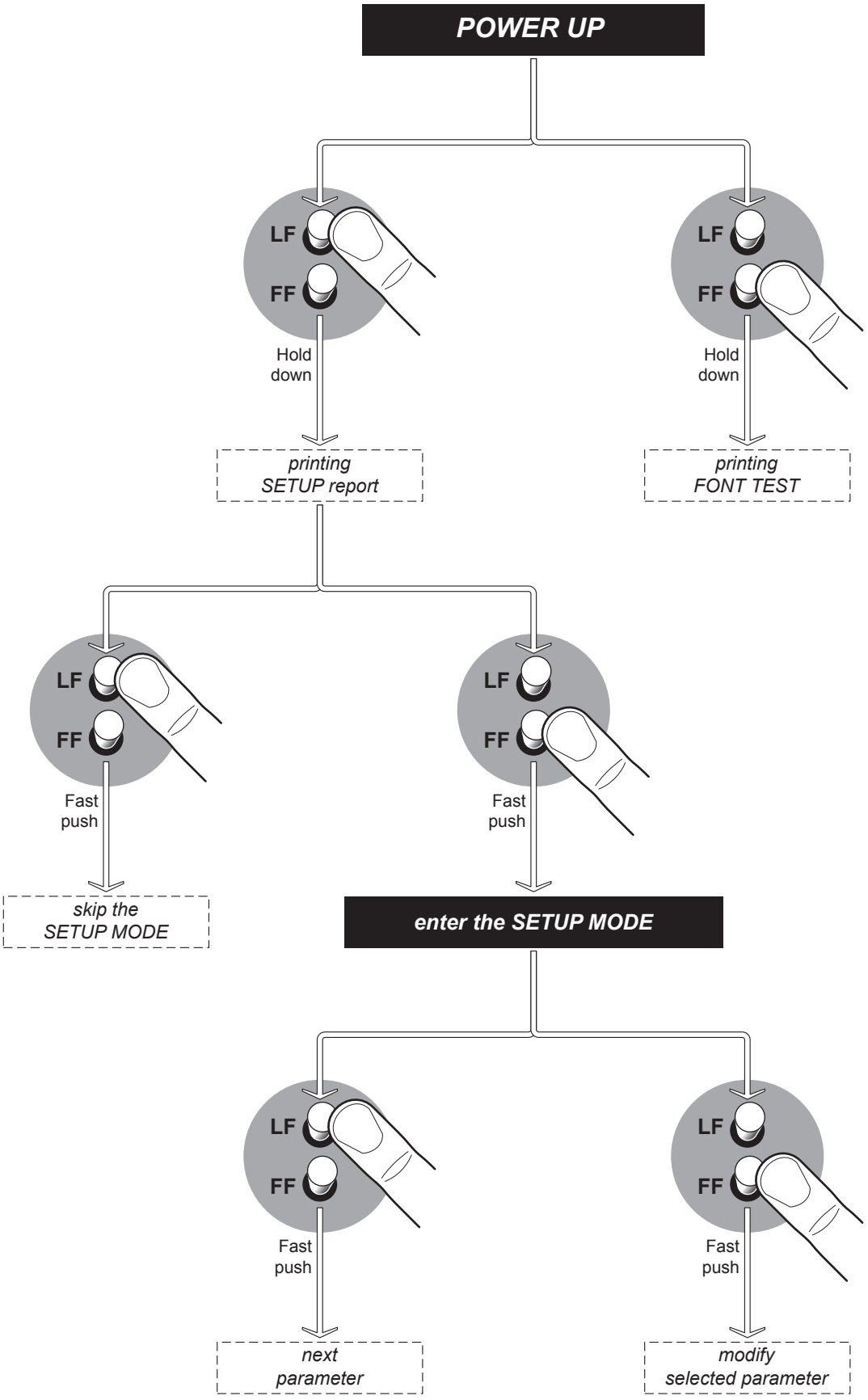


3.4 Product label

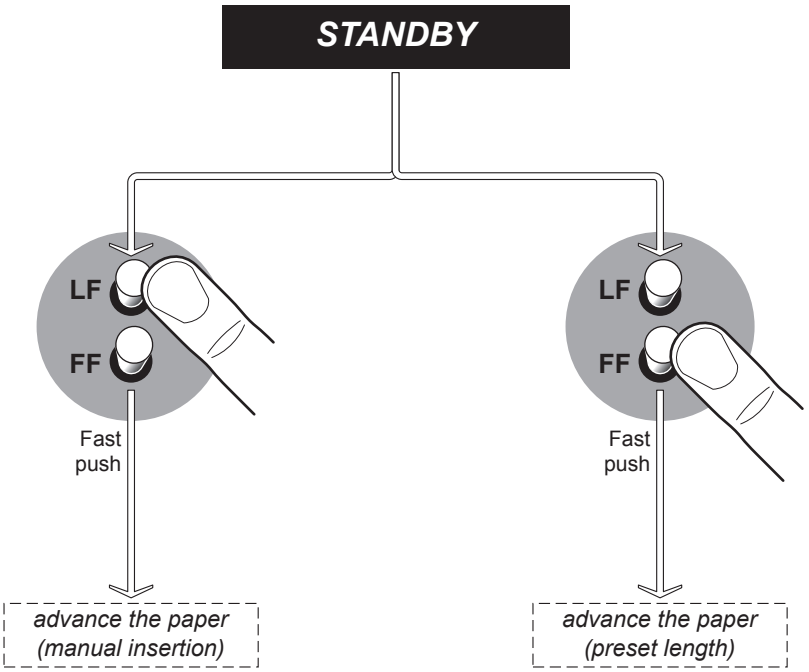
PC = Product code (14 digits)
SN = Serial number
HW = Hardware release



3.5 Key functions: power up



3.6 Key functions: standby



3.7 Status messages

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

STATUS LED			DESCRIPTION
-	○	***OFF***	DEVICE OFF
GREEN	●	***ON***	DEVICE ON: NO ERROR
GREEN COMMUNICATION STATUS	●	***x 1***	RECEIVE DATA
		x 2	RECEPTION 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	●	***x 3***	RAM ERROR
		x 4	EXTERNAL FLASH ERROR
		x 5	CUTTER ERROR

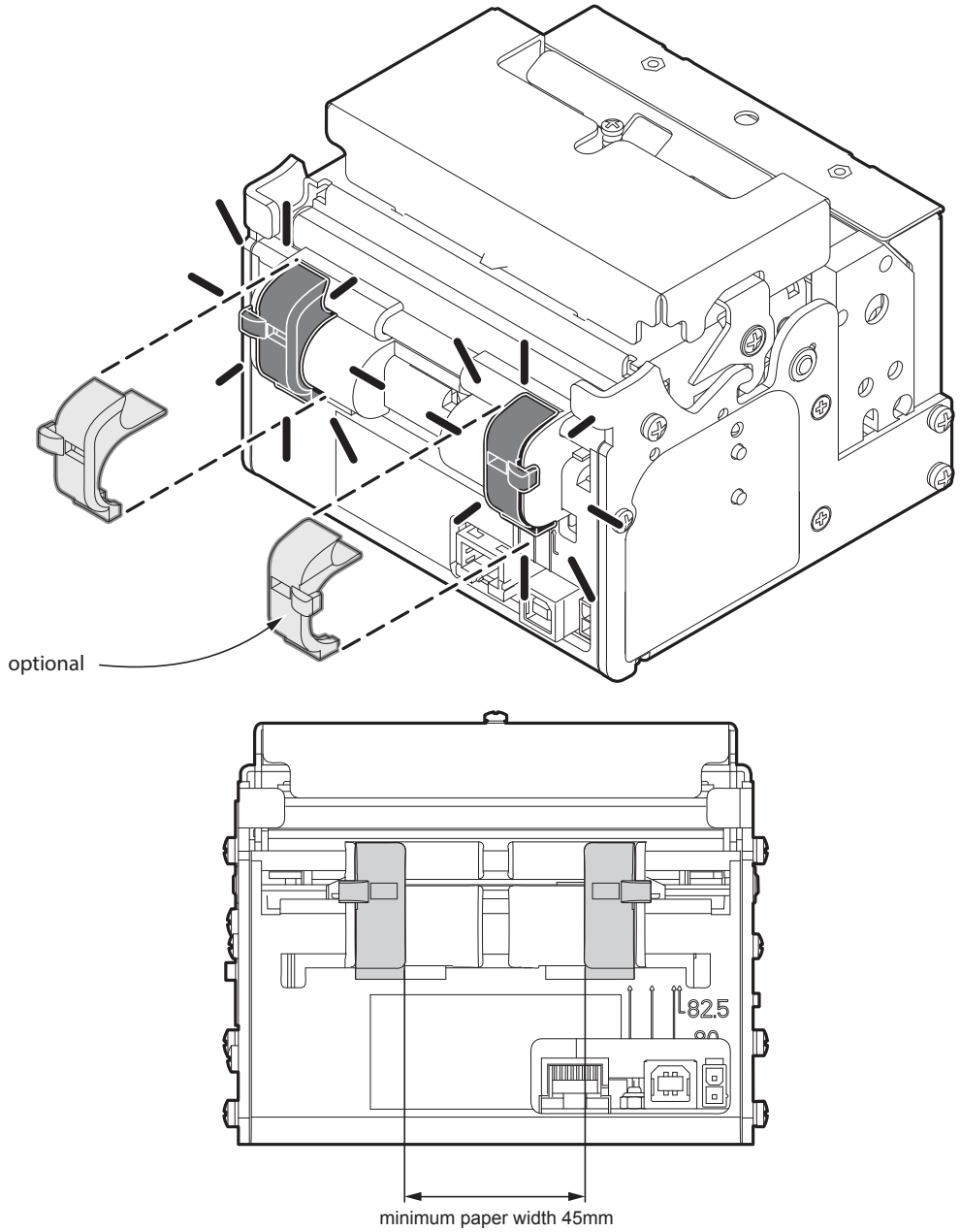
4 INSTALLATION

4.1 Paper width reduction guides kit

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

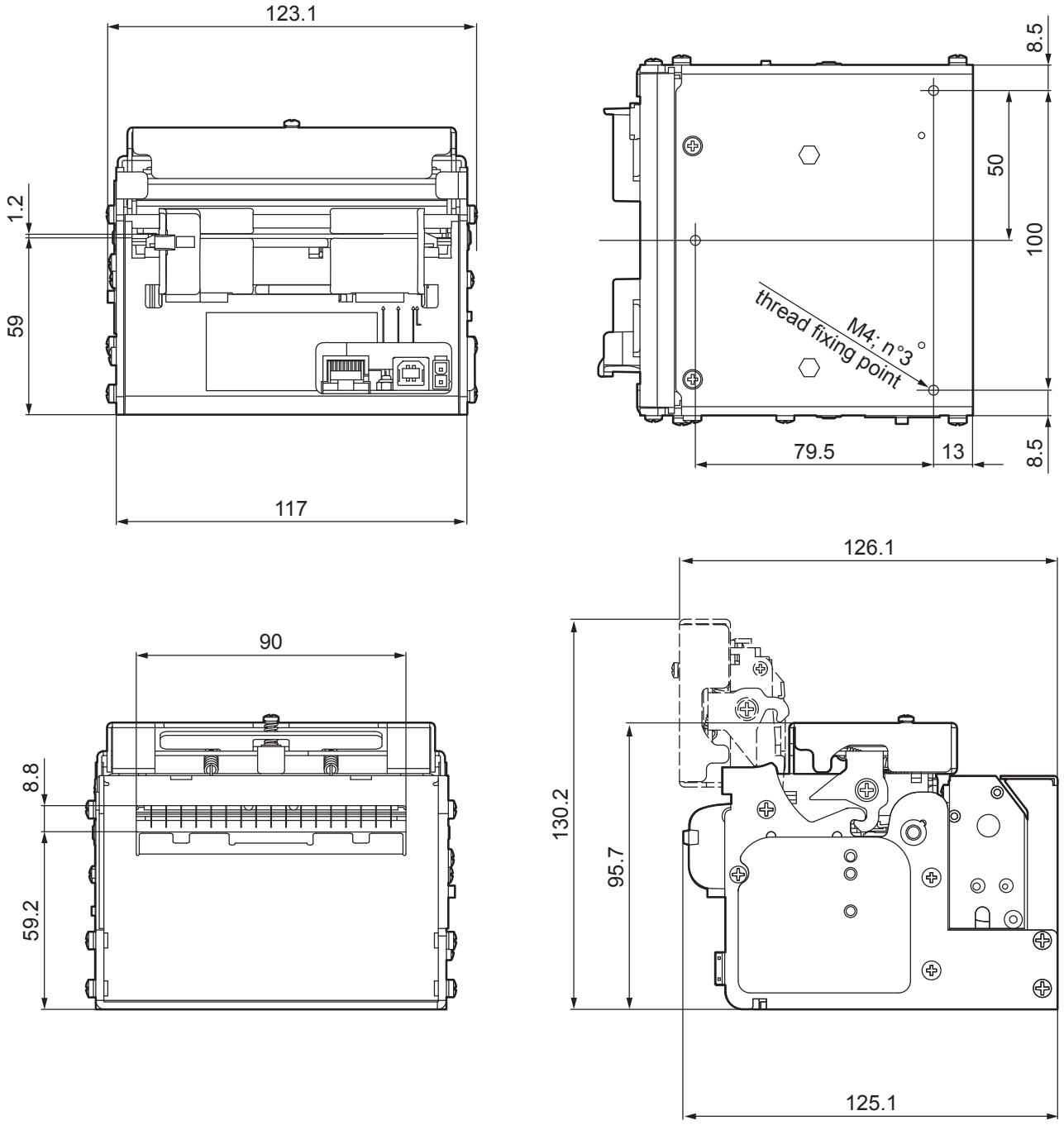
VK80 200 REAR, VK80 200 LAT

IThe printer includes a kit for the reduction of paper width up to 45mm. The kit includes the reductions for both the left paper guide and the right paper guide.
The guides can be assembled separately. The right paper guide can be optionally assembled.
With both the guides assembled, do not go below 45mm wide paper: below this value, the sensor the sensor can not detect the paper presence.
To assemble the reductions refer to the following figure.



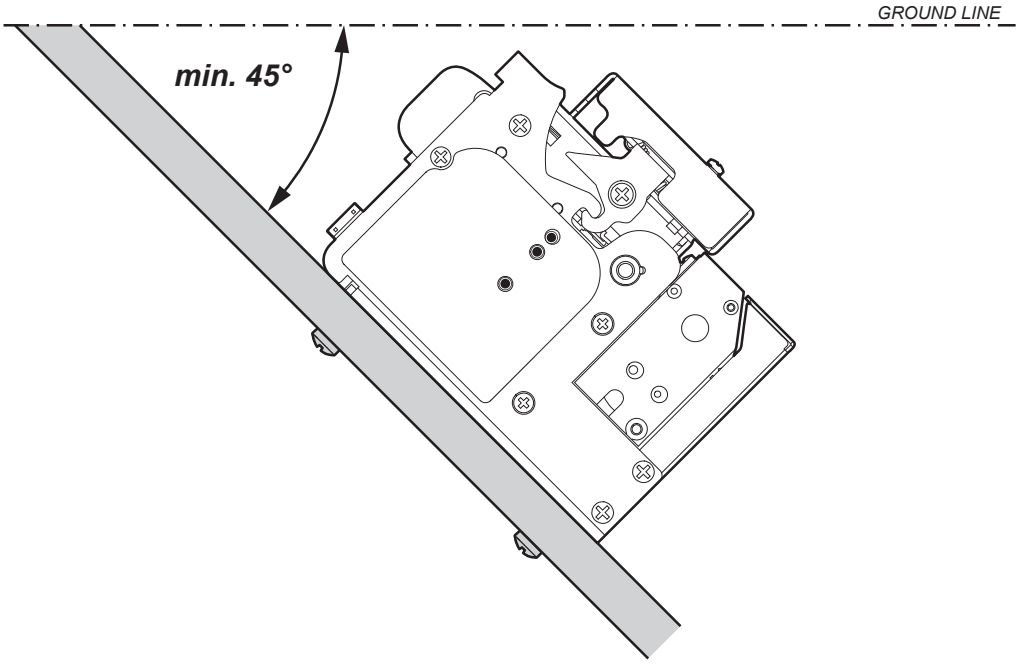
The following figure shows the dimensions of the printer with the left paper guide reduction.

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

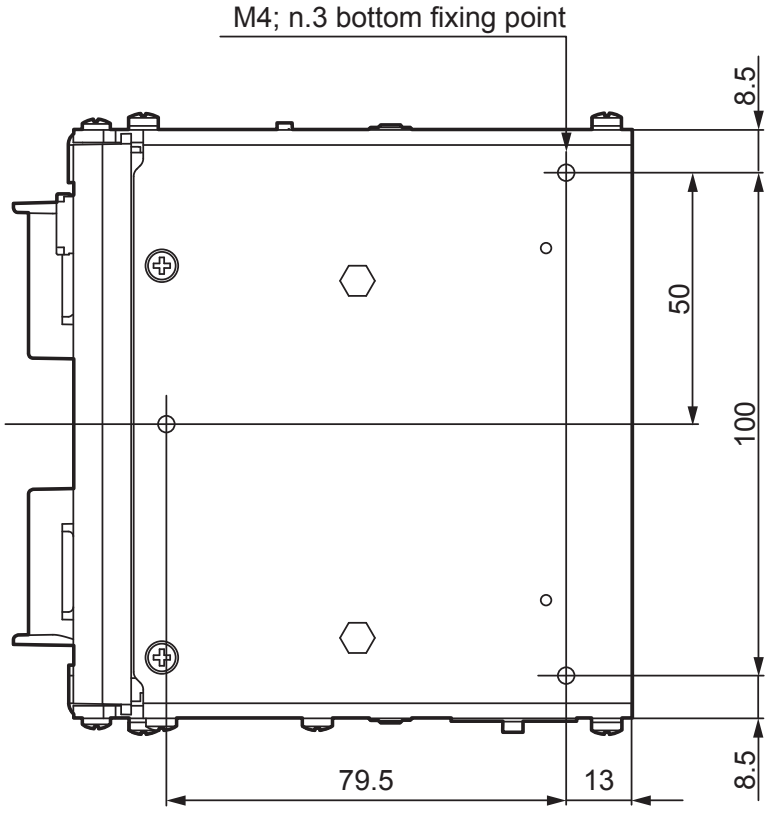


4.2 Fastening

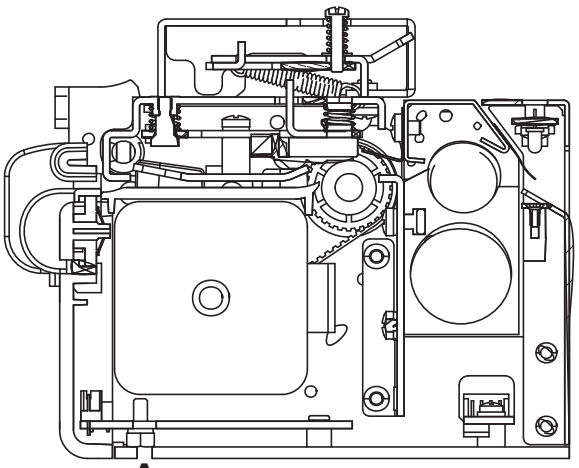
For the correct operation of the device and allow the fall of tickets printed, the machine must be installed with a minimum downward slope of 45°, as shown in following figure.



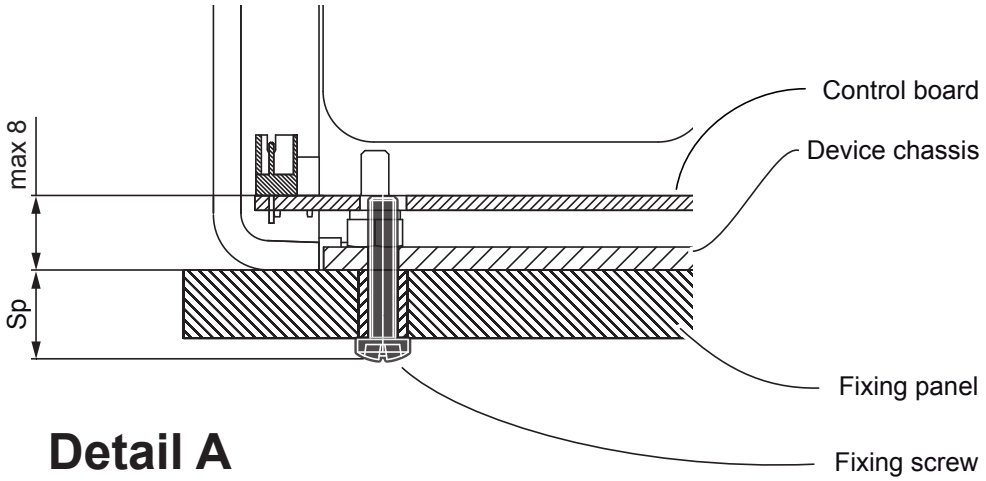
The device is provided with three fixing holes on the bottom of device (see following figure). To fasten the device on a panel, use three M4 screws.



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



A



Detail A

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

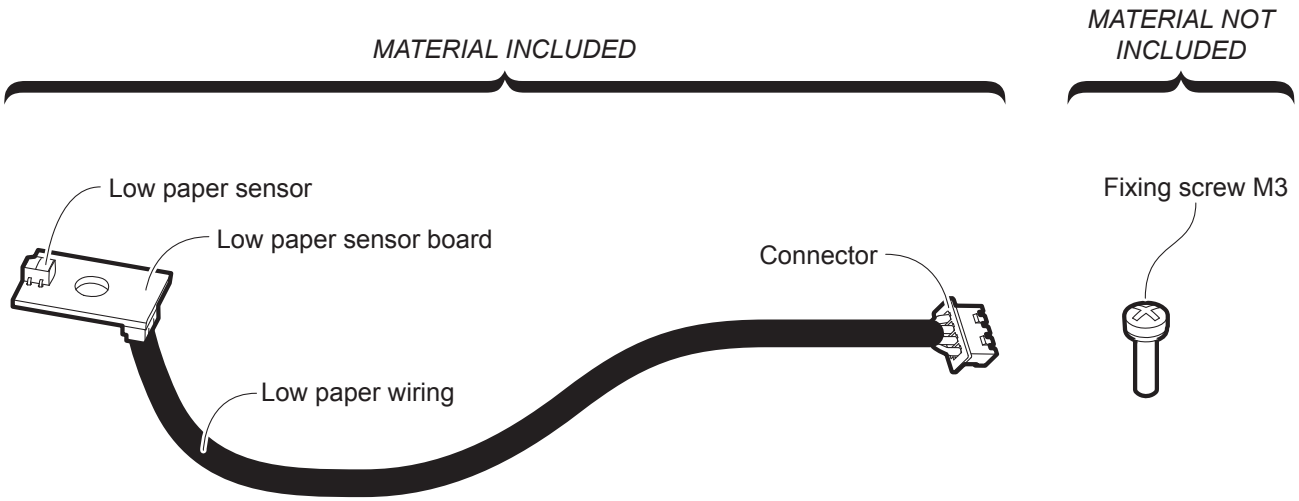
$$L \leq 8 \text{ mm} + Sp$$

For example, if panel thickness is 10mm (Sp = 10mm) the max screw length will be 18mm.

4.3 Low paper sensor

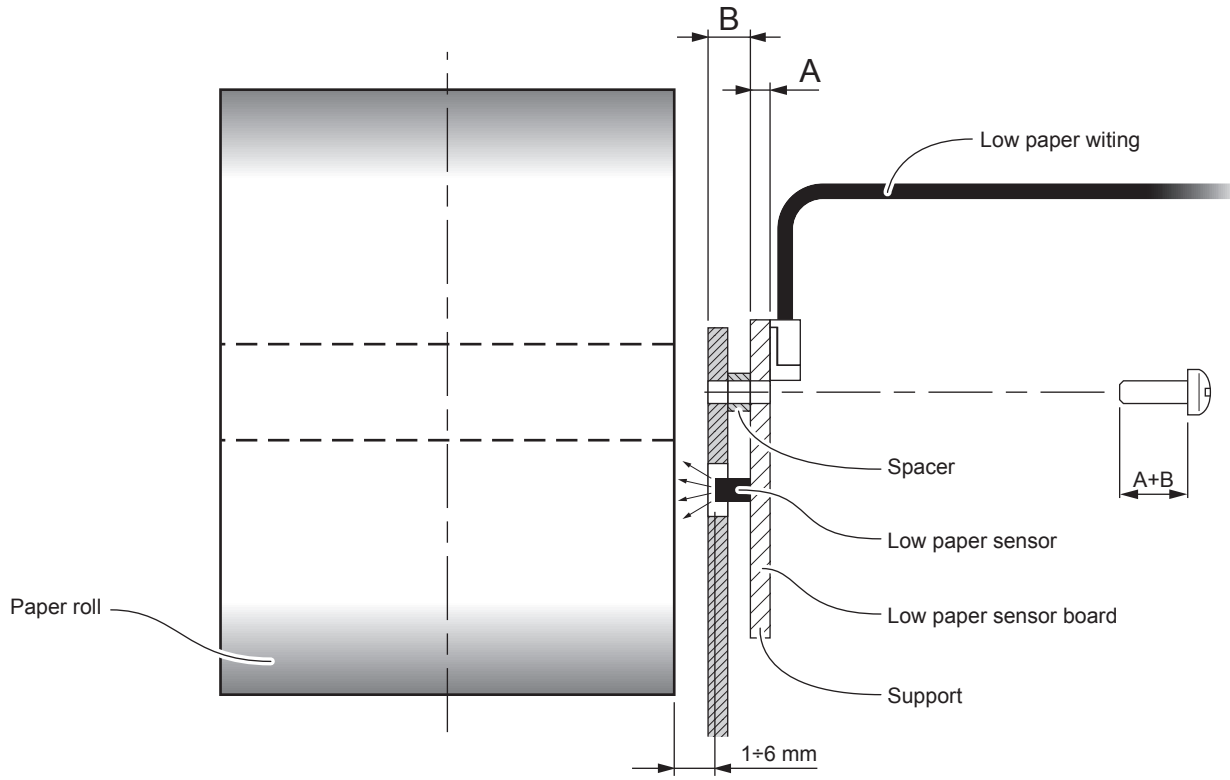
VK80 300

The device includes a low paper sensor with the cable (see following figure). To fix the sensor, use an M3 screw not supplied.



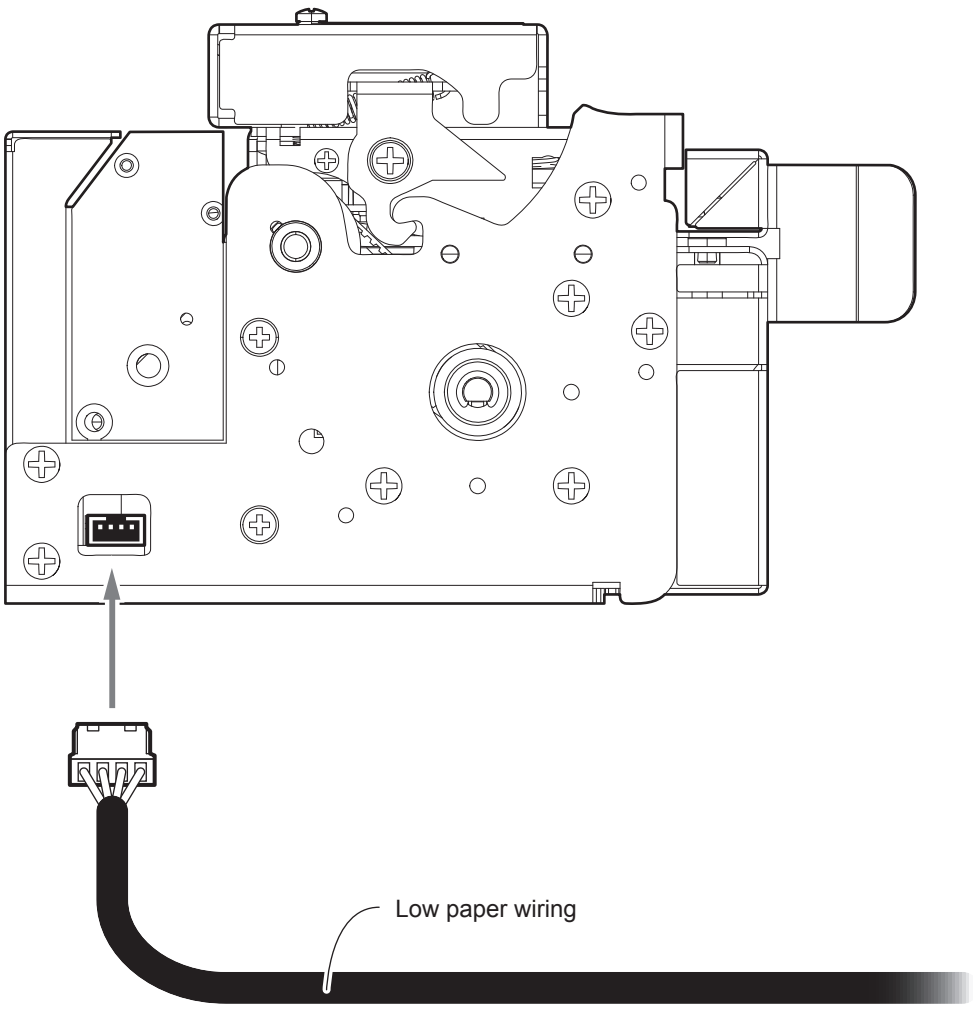
For the assembly procedure, proceed as follows:

1



Fix the low paper sensor board to the support by using an M3 screw not included.
For the correct functioning of the low paper sensor, comply with the measures specified.

2

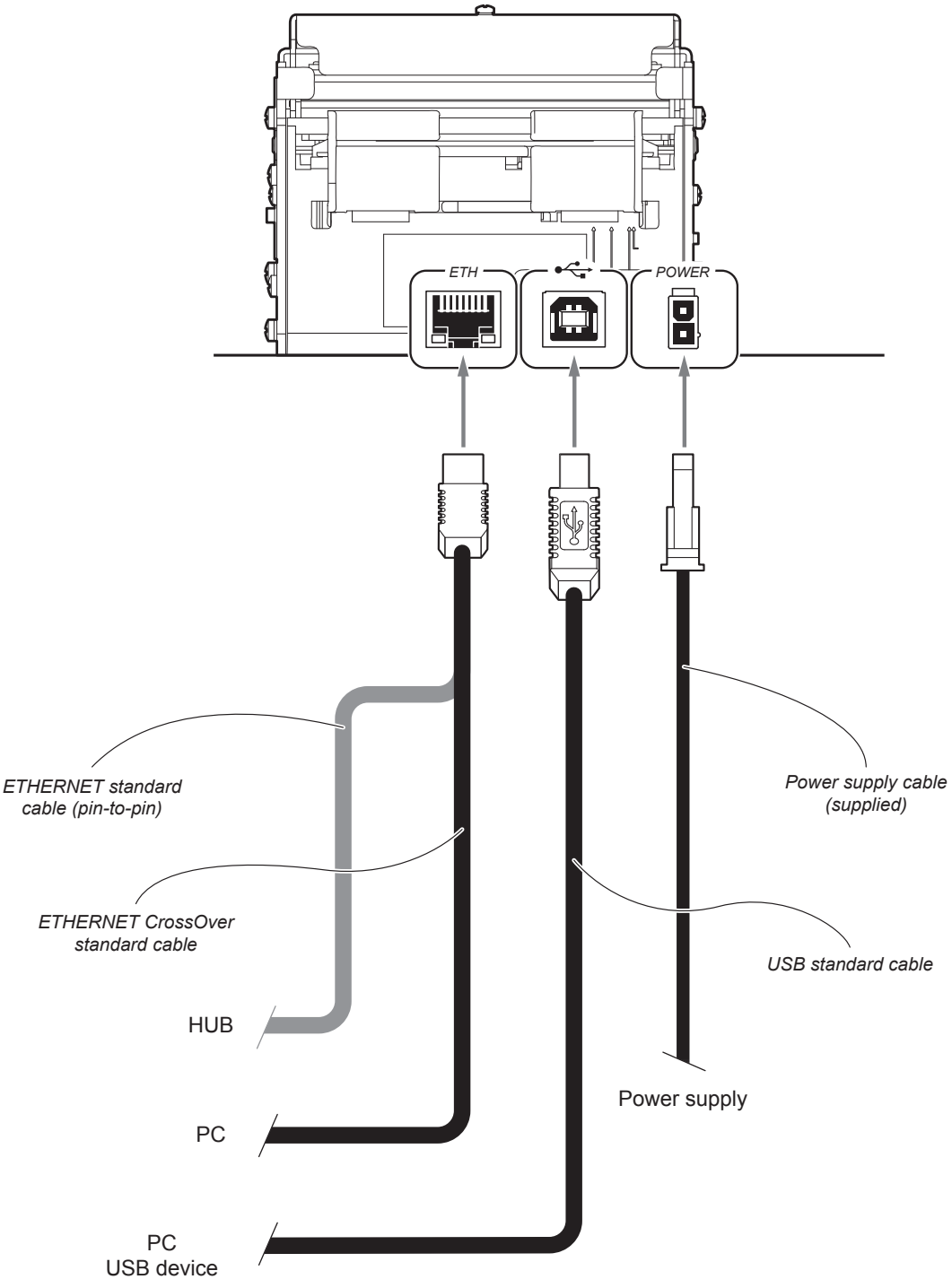


Connect the wiring coming from the low paper sensor board
at the connector shown in figure.

4.4 Connections

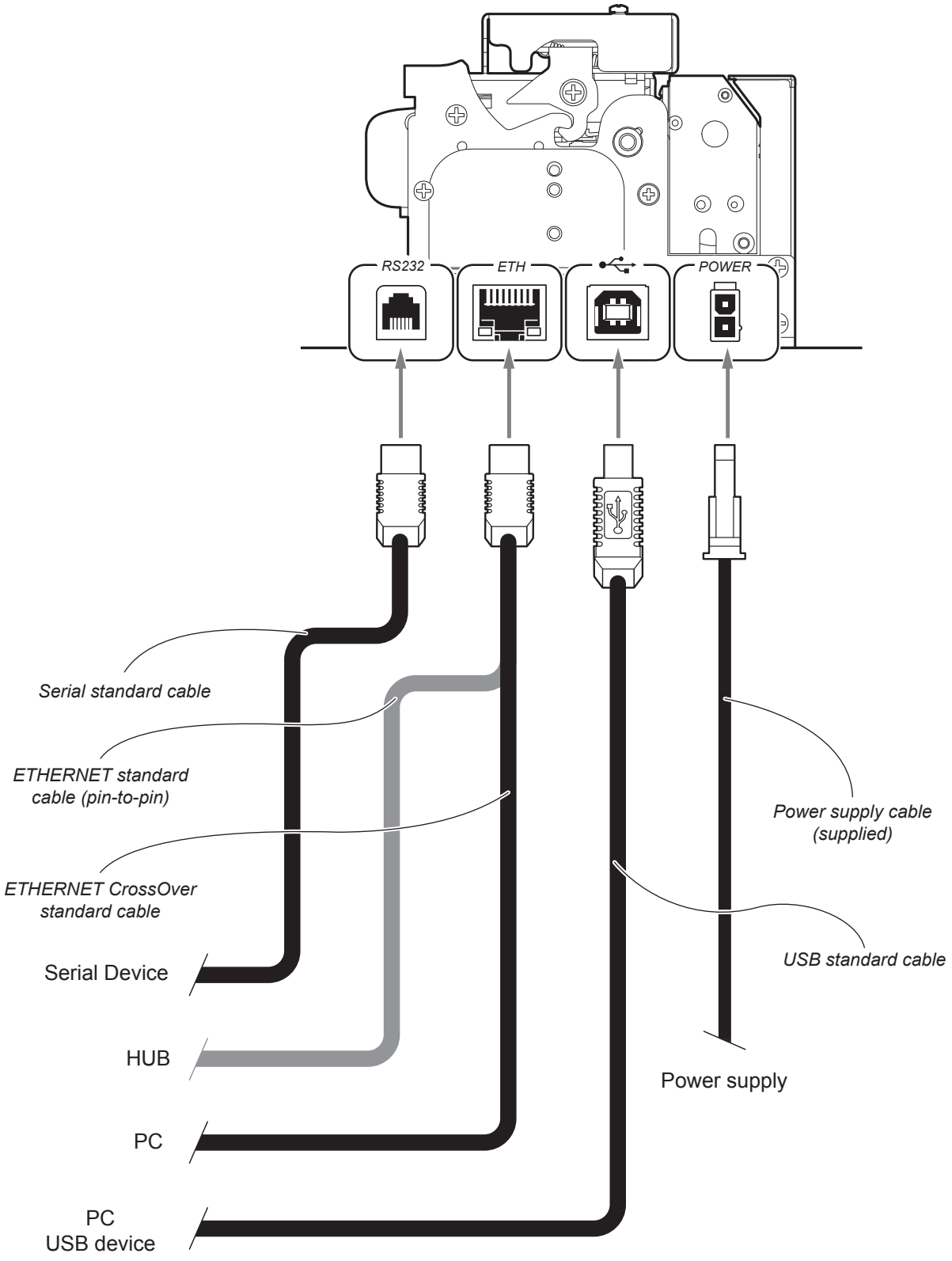
The following figures show the pollible connections for device.

VK80 200 REAR



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

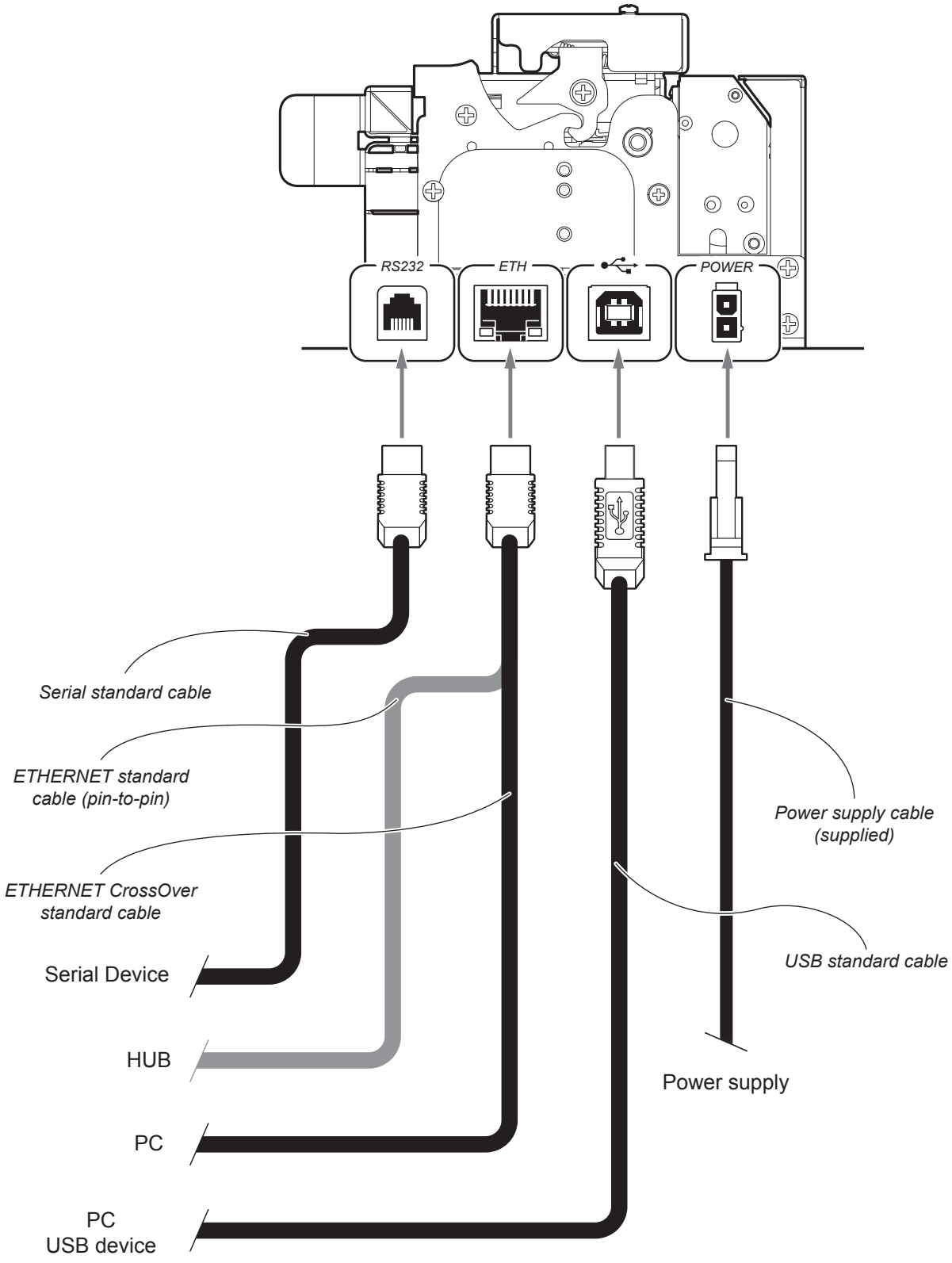
VK80 200 LAT



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

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

VK80 300



ATTENTION: In some 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.

4.5 Pinout

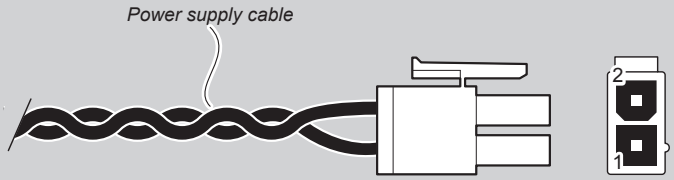
POWER SUPPLY

Male Molex connector series 5569 vertical (no. 39-30-1020)

J9	1	+24 Vdc
	2	GND

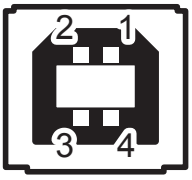
ATTENTION:
Respect power supply polarity.

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



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

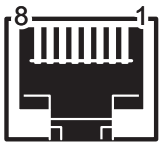
PIN	Cable color	Signal
1	Red	+24V
2	Black	GND



USB INTERFACE

Female USB type B connector

J7	1	USB-PLUG	(in)
	2	PD -0-	(in/out)
	3	PD +0	(in/out)
	4	GND	



ETHERNET INTERFACE

RJ45 female connector

J15	1	TPOUT+
	2	TPOUT-
	3	TPIN+
	4	GND
	5	GND
	6	TPIN-
	7	n.c
	8	n.c
	9 (*)	+3,3 V
	10 (*)	LED-LAN
	11 (*)	+3,3 V
	12 (*)	LED-LNK
	13 (*)	GND
	14 (*)	GND

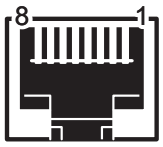
NOTES:
The functionality of two LED are specified in the following tables:

LED	FUNCTION
LED-LNK	Link (yellow color): the LED lights up when a connection is active
LED-LAN	Rx/Tx: (green color): the LED lights up when occurs a data reception or transmission.

• To directly connect the device to a Personal Computer, use a Cross-Over Ethernet cable.

• To connect the device to a hub device, use an UTP Ethernet cable (Pin to Pin).

(*) : The pinout shown in table represents the input signals to component J15 before the isolation voltage transformer.



ETHERNET INTERFACE

RJ45 female connector

J15	1	RX+1
	2	+3,3VETH
	3	RX-1
	4	TX+1
	5	+3,3VETH
	6	TX-1
	7	n.c
	8	GND
	9 (*)	+3,3 V
	10 (*)	LED-LNK
	11 (*)	+3,3 V
	12 (*)	LED-LAN
	13 (*)	GND
	14 (*)	GND

NOTES:
The functionality of two LED are specified in the following tables:

• For 10Base-T connection:

LED	FUNCTION
LED-LNK	Link (yellow color): the LED lights up when a connection is active
LED-LAN	Rx/Tx (green color): the LED lights up when occurs a data reception or transmission

• For 10/100Base-TX connection:

LED	FUNCTION
LED-LNK	The LED light (yellow color) on when a connection is active and flashes wnen occurs a data reception or transmission
LED-LAN	The LED light (green color) on when occurs a 100Mbit connection and off when occurs a 10Mbit connection

The device automatically recognizes the type of connection (cross or pin-to-pin).

(*) : The pinout shown in table represents the input signals to component J15 before the isolation voltage transformer (through-hole pin).

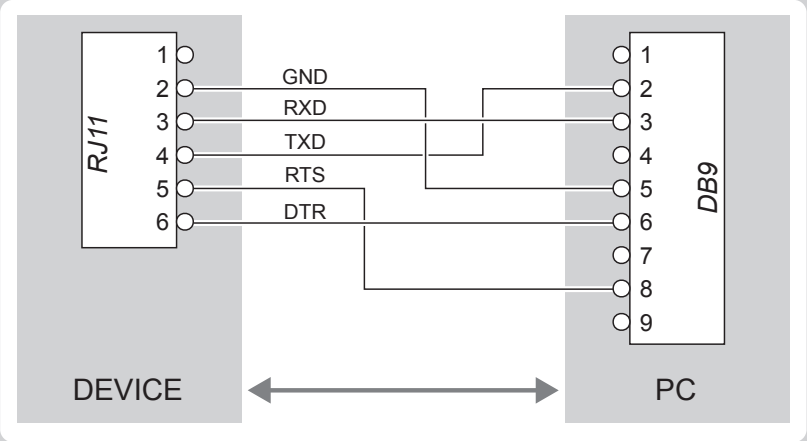
SERIAL INTERFACE

RJ11 female connector

J3	1	+5VF	
	2	GND	
	3	RX1	During reception, takes the values -VRS232 and +VRS232 depending on data
	4	TX1	During transmission, takes the values -VRS232 and +VRS232 depending on data
	5	RT1	
	6	DT1	

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

DEVICE > PC connection
The following pictures show an example of connections between the printer and a personal computer using a 9 pin female serial connector:



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

4.6 Driver and SDK

The drivers are available for the following operating system:

VK80 200 REAR, VK80 200 LAT

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 (32/64 bit)	
	Driver for Windows 10 (32/64 bit)	
	Driver for OPOS	
Linux	32/64bit	Follow the instruction get back on the README.TXT file you can find it in the software package downloaded in advance
Windows / Linux	Driver for JavaPOS	Extract the zipped folder to the destination path desired
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 CustomiOSAp	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 can be found in the DOWNLOAD section of the web site www.custom.biz.

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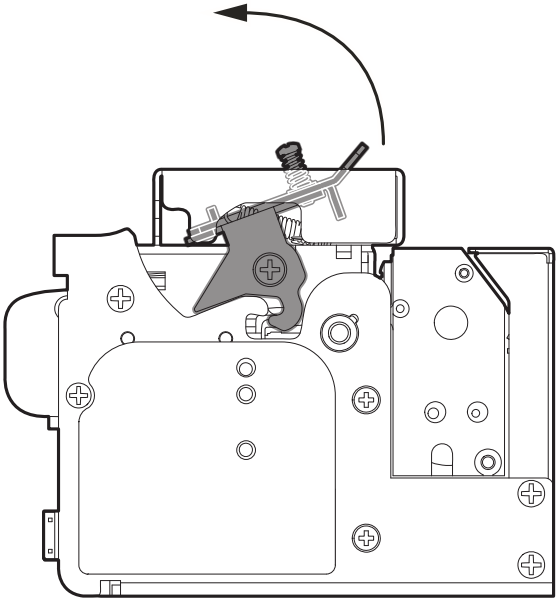
OPERATING SYSTEM	DESCRIPTION	INSTALLATION PROCEDURE
Windows	Driver for Windows XP	From the START menu, press Run and type-in the path where the SW was saved on your PC, then click OK. Follow the instructions that appear on the screen to install the drive
	Driver for Windows VISTA (32/64bit)	
	Driver for Windows 7 (32/64bit)	
	Driver for Windows 8 (32/64bit)	
	Driver for Windows 8.1 (32/64 bit)	
	Driver for Windows 10 (32/64 bit)	
	Driver for OPOS	
Linux	32/64bit	Follow the instruction get back on the README.TXT file you can find it in the software package downloaded in advance
Windows / Linux	Driver for JavaPOS	Extract the zipped folder to the destination path desired

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

5 OPERATION

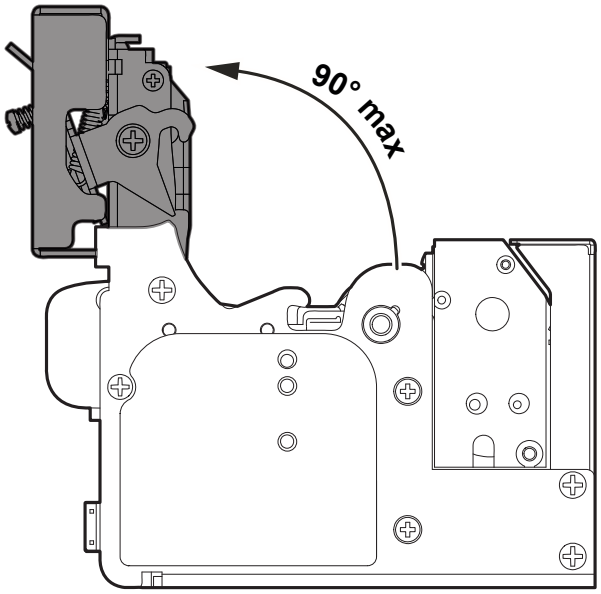
5.1 Opening cover

1



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

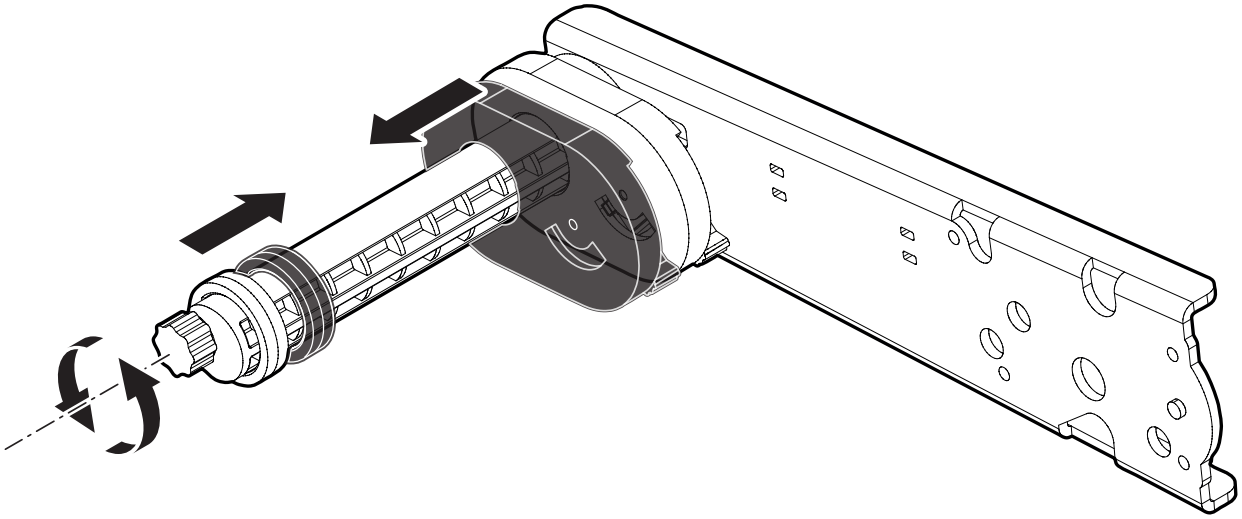
2



Open the
device cover.

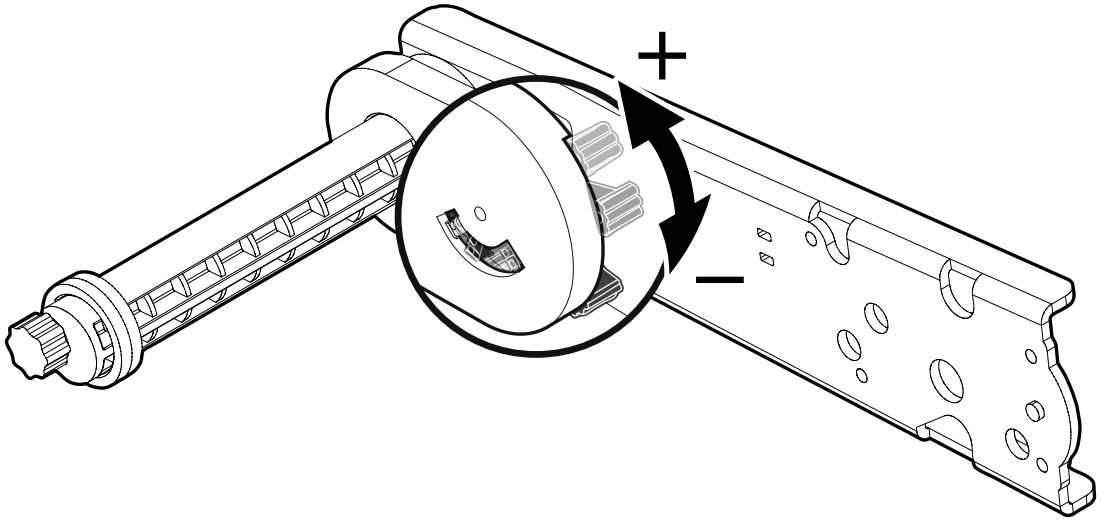
5.2 Adjusting paper width with the paper roll holder code 974DW010000001 (optional)

This accessory allows the use of paper roll width from 60mm to 86mm. To adjust the width of the paper roll case, rotate the knob as shown in the following figure.



5.3 Adjusting the paper stock with the paper roll holder code 974DW010000001 (optional)

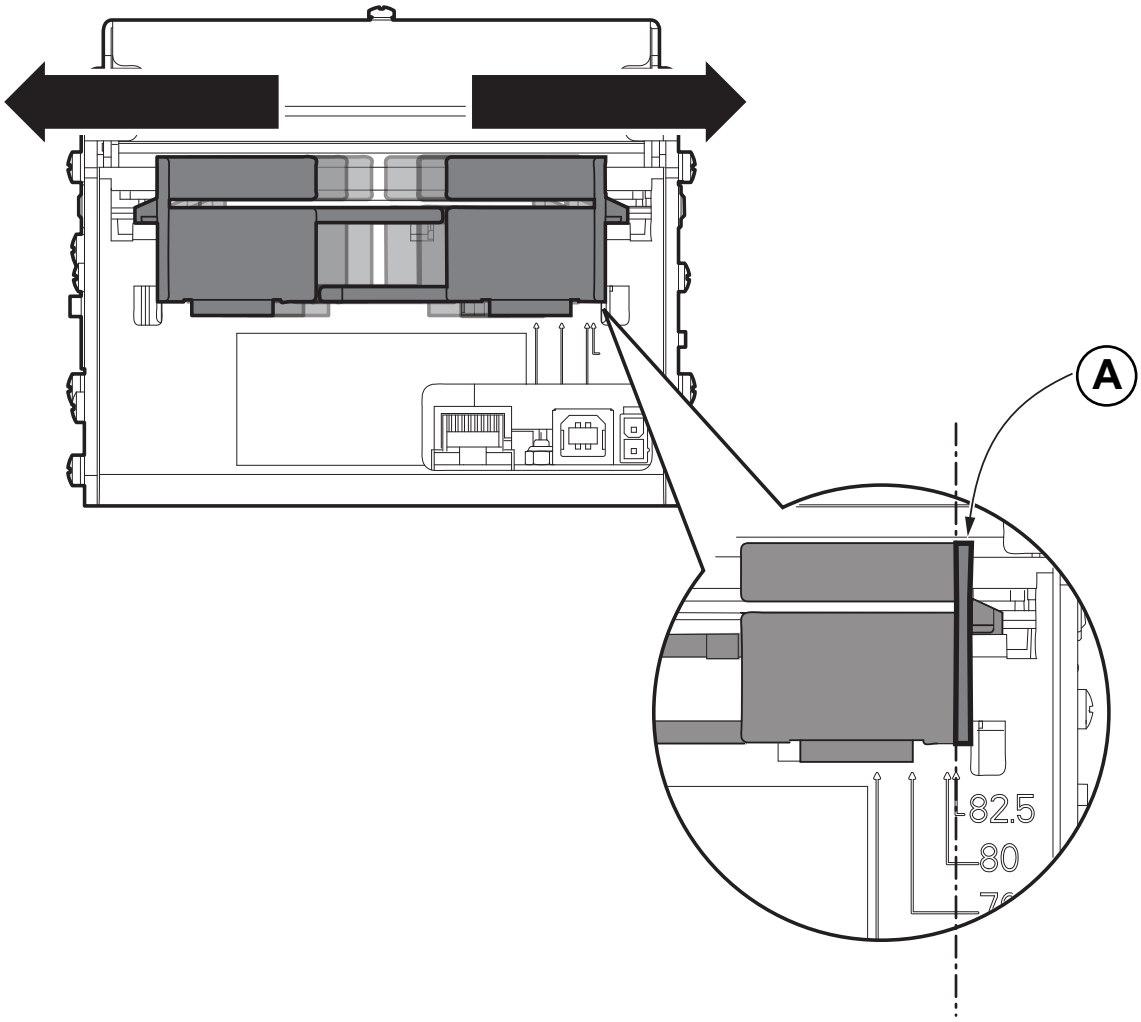
This accessory allows the move the position of the low paper sensor to adjust the amount of paper on the roll under which report the low paper.
Use the lever shown in figure to move the low paper sensor: move the lever up to increase the paper stock, move the lever down to decrease the paper stock.



5.4 Adjusting paper width

VK80 200 REAR, VK80 200 LAT

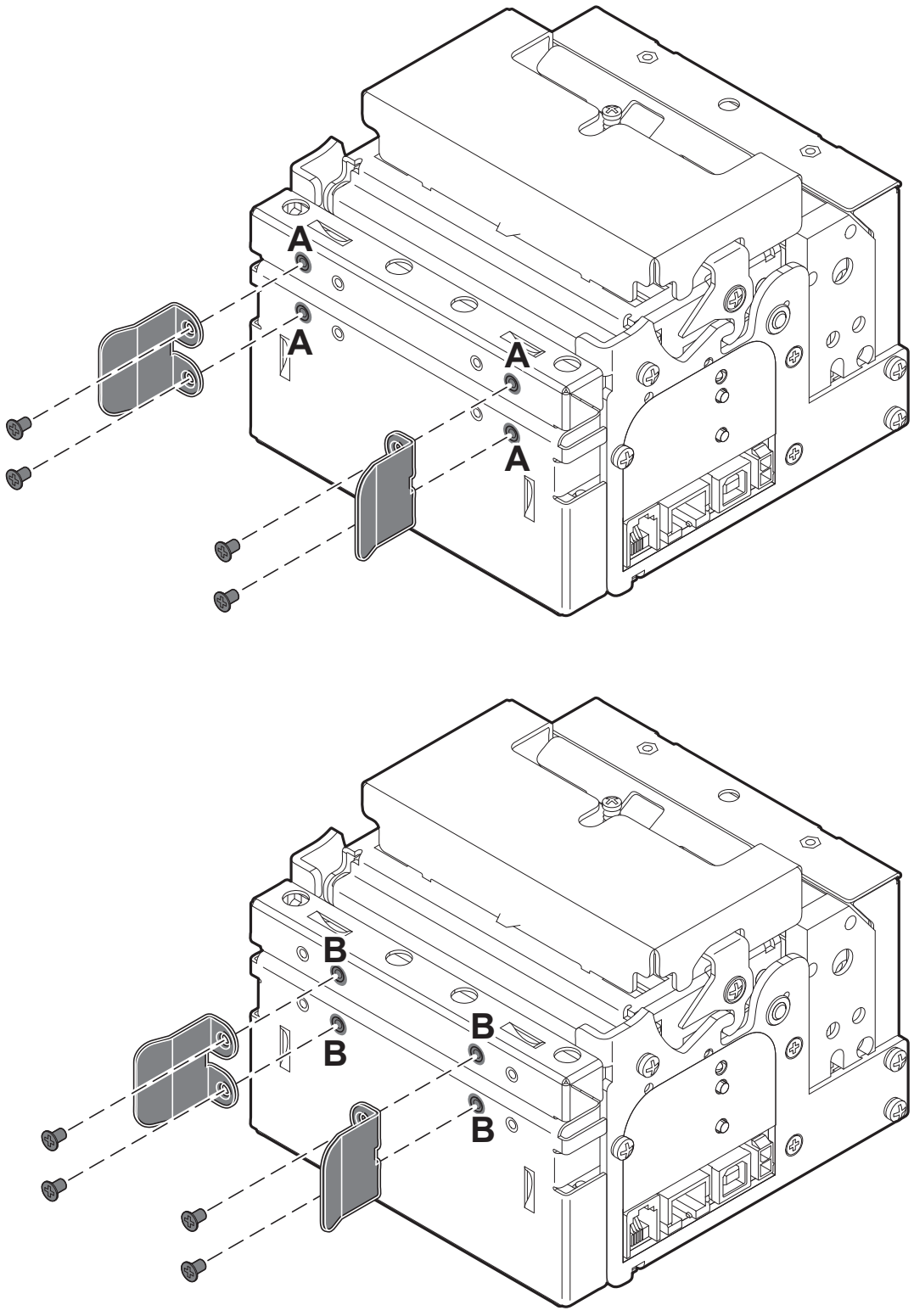
Paper width may be adjusted from 60mm to 82.5mm using the right and left slides located at the paper infeed opening. Below the right slide there are four point of reference for paper width (60, 70, 80 and 82.5mm). To choose one of this value for paper width, move the slides to align the internal side of the fin (A) with the point of reference (see following figure).



The device includes a kit for paper width reducing. The kit allows the use of paper widths up to 45mm.
For more details, see paragraph 4.1 of this manual.

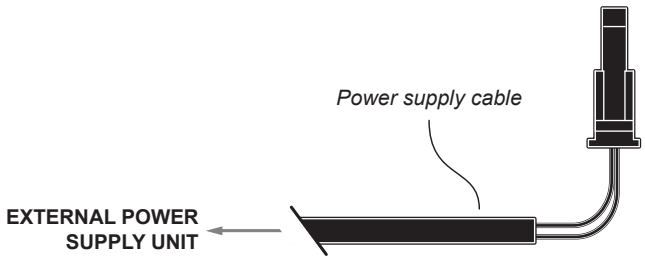
VK80 300

Paper width may be adjusted on 60mm or on 86mm. To adjust the paper width, unscreew the fixing screws fot the paper cursors and assemble them into the holes in the outer (A) to use 86mm paper width or into the inner holes (B) to use 60mm paper width (see following figure).



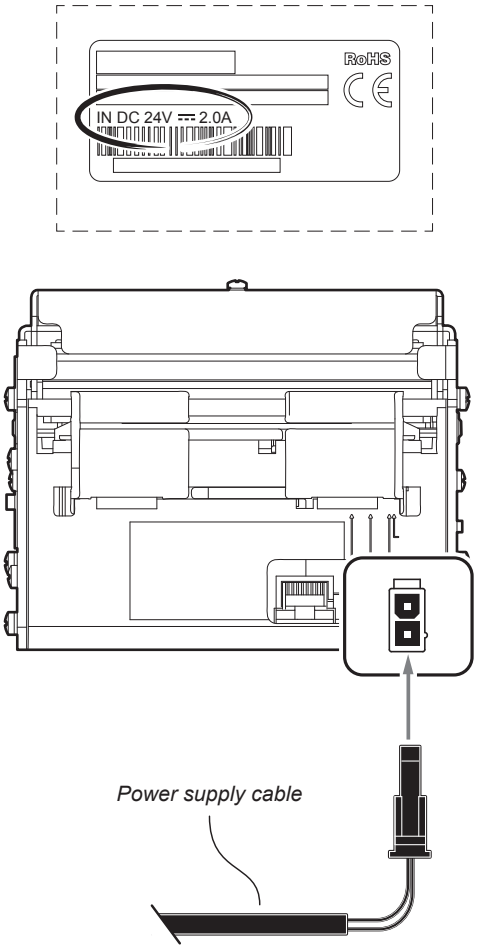
5.5 Switch the device on

1



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

2

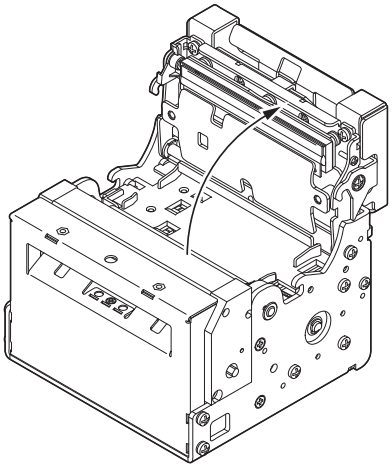


Connect the power supply cable to the device.
Use the type of electrical power supply indicated on the label.
The green LED turn on and the device is ready.

5.6 Loading the paper roll

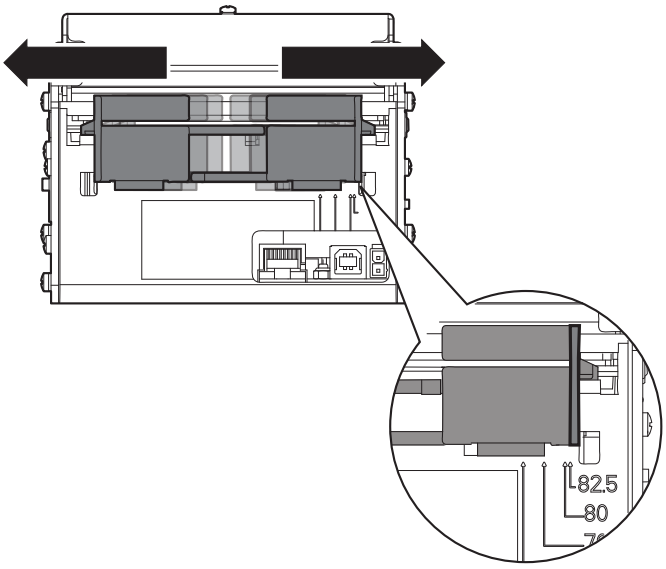
To change the paper proceed as follows. At every change of paper, check inside the device to locate and remove any scraps of paper.

1



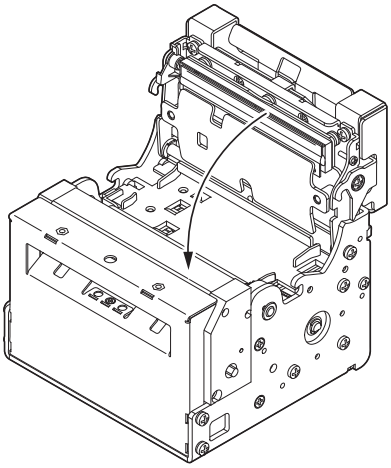
Open the device cover
(see par. 5.1).

2



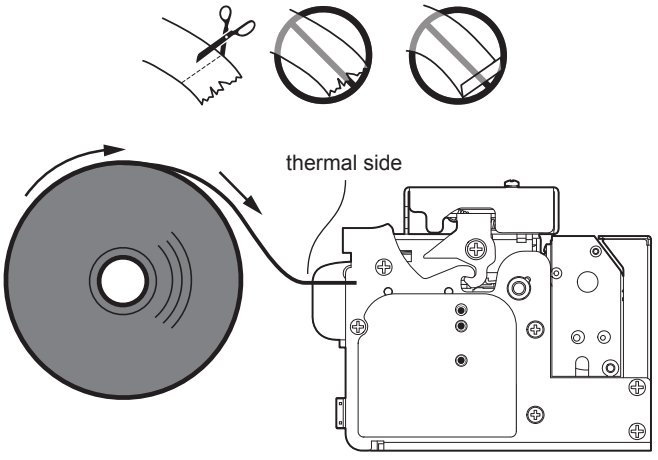
Adjust the paper width (see par. 5.4).

3



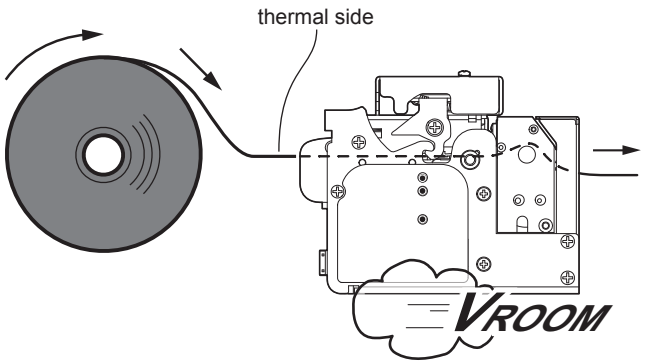
Close the
device cover.

4



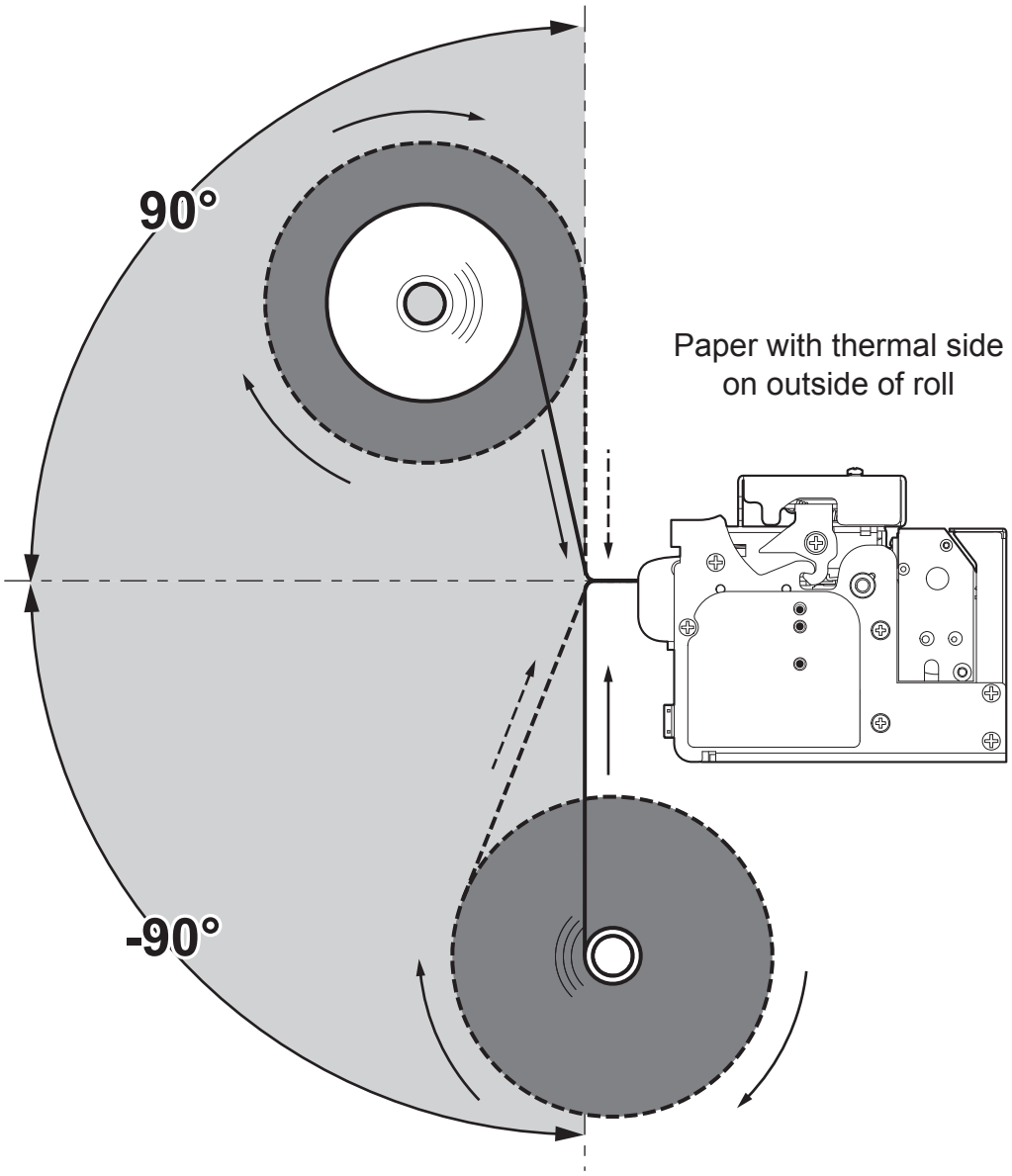
Insert the paper into the input mouth so that it unrolls correctly. Be sure that the paper is correctly positioned into paper guides.

5



Wait until the paper is automatically loaded.

The following figure gives the limit positions of the paper roll related to the printer for a correct paper loading without a paper roll holder support.
The direction of the paper will always form a maximum angle of 90 ° or -90 ° with the insertion plane of paper inside the printer.



6 CONFIGURATION

6.1 Configuration mode

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

1

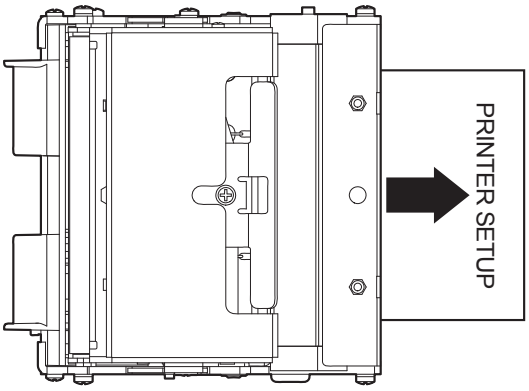
LINE FEED KEY
(hold down)

+

POWER SUPPLY

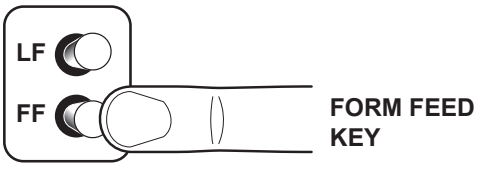
During power-up, hold down the LINE FEED key
while the wiring is plugged into the power supply connector of the device.

2



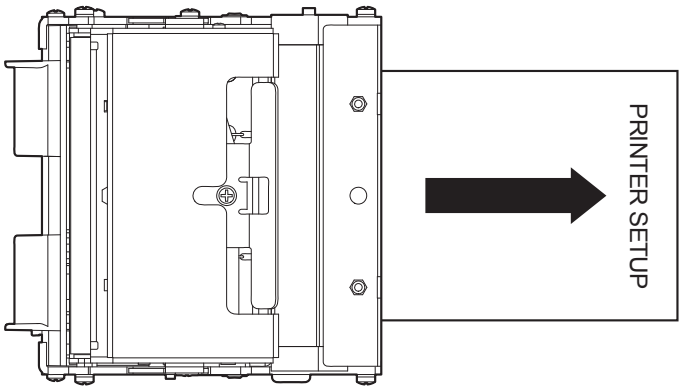
The device prints a setup report.

3



Press the LINE FEED key to enter the configuration mode.

4



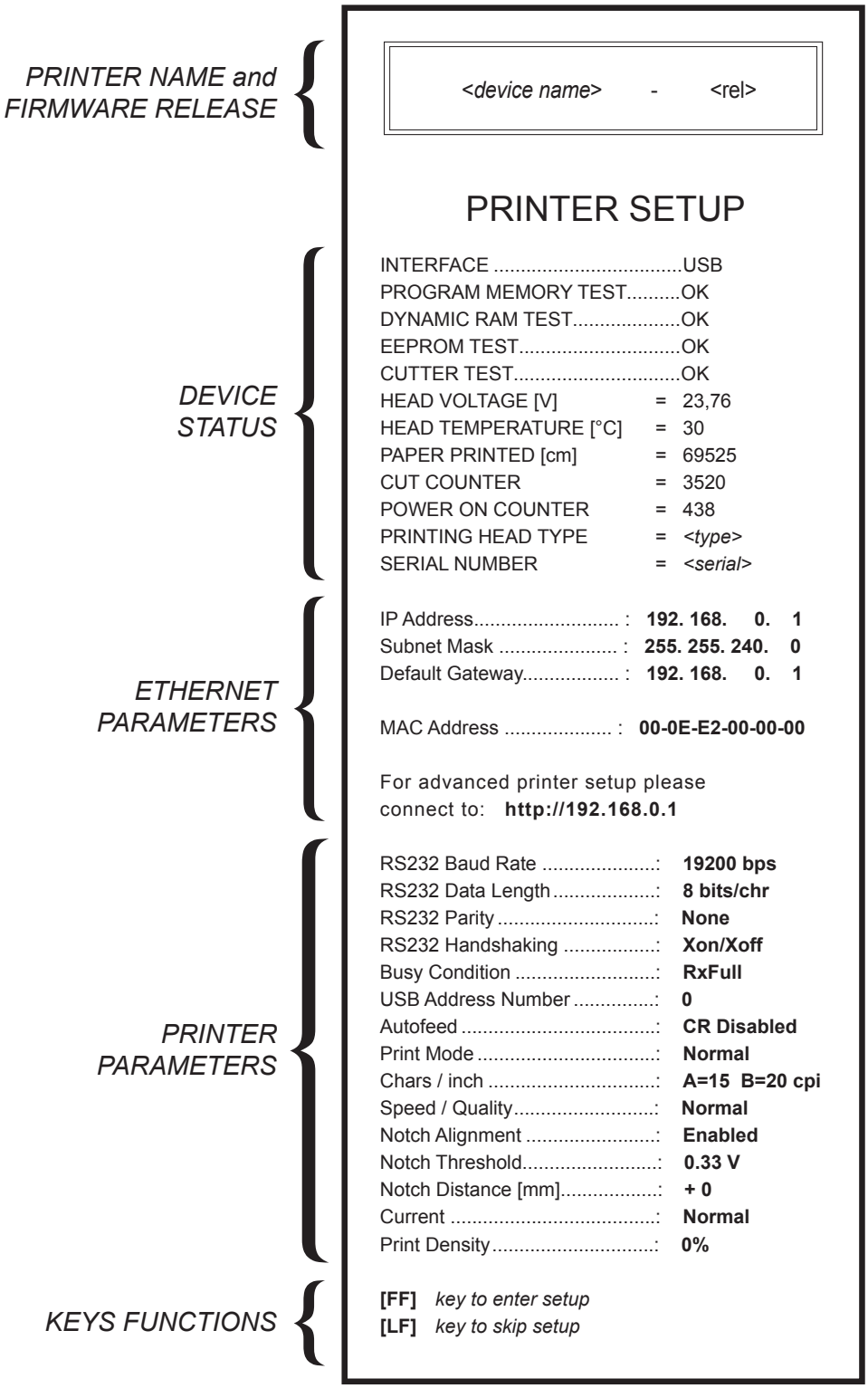
Proceed with the configuration by using the keys according the functions printed on paper (see par. 3.5).
For description and values of setup parameters, see the following paragraphs.

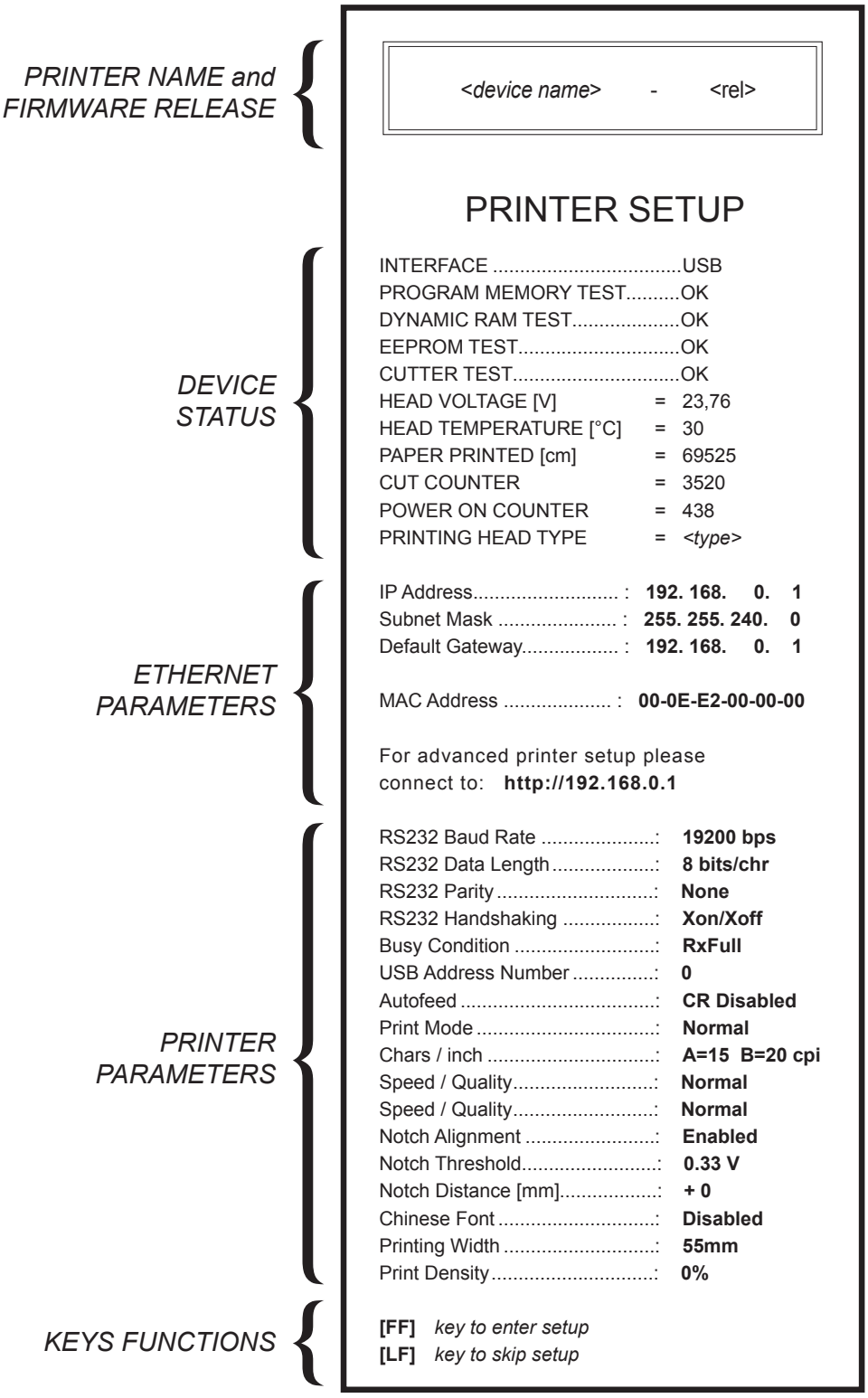
NOTE:
During power-up, if the LINE FEED key is held down, the device enters the auto-test routine and prints out the setup report. The device will remain in standby in Hexadecimal dump mode (see following paragraphs) until another key is pressed or characters are received through the device communication port.
When the FORM FEED key is pressed, the device enters parameter configuration.
When the LINE FEED key is pressed, the device exits setup and terminates the Hexadecimal dump function.

6.2 Setup report

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

VK80 200 REAR, VK80 200 LAT




PRINTER NAME and FIRMWARE RELEASE
DEVICE STATUS
ETHERNET PARAMETERS
PRINTER PARAMETERS
KEYS FUNCTIONS
<device name> - <rel>
PRINTER SETUP
INTERFACE .....USB
PROGRAM MEMORY TEST.....OK
DYNAMIC RAM TEST.....OK
EEPROM TEST.....OK
CUTTER TEST.....OK
HEAD VOLTAGE [V] = 23,76
HEAD TEMPERATURE [°C] = 30
PAPER PRINTED [cm] = 69525
CUT COUNTER = 3520
POWER ON COUNTER = 438
PRINTING HEAD TYPE = <type>
IP Address..... : 192. 168. 0. 1
Subnet Mask ..... : 255. 255. 240. 0
Default Gateway..... : 192. 168. 0. 1
MAC Address ..... : 00-0E-E2-00-00-00
For advanced printer setup please connect to: http://192.168.0.1
RS232 Baud Rate .....: 19200 bps
RS232 Data Length.....: 8 bits/chr
RS232 Parity.....: None
RS232 Handshaking .....: Xon/Xoff
Busy Condition .....: RxFull
USB Address Number .....: 0
Autofeed .....: CR Disabled
Print Mode .....: Normal
Chars / inch .....: A=15 B=20 cpi
Speed / Quality.....: Normal
Speed / Quality.....: Normal
Notch Alignment .....: Enabled
Notch Threshold.....: 0.33 V
Notch Distance [mm].....: + 0
Chinese Font .....: Disabled
Printing Width .....: 55mm
Print Density.....: 0%
[FF] key to enter setup
[LF] key to skip setup

6.3 Printer status

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:

INTERFACE	*interface present*
PROGRAM MEMORY TEST	*OK appears if functioning and NOT OK if faulty*
DYNAMIC RAM TEST	*OK appears if functioning and NOT OK if faulty*
EEPROM 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*
PAPER PRINTED	*centimetres of paper printed*
CUT COUNTER	*number of cuts made*
POWER ON COUNTER	*number of power-ups made*
PRINTING HEAD TYPE	*print head model*
SERIAL NUMBER *	*serial number of the device*

NOTE:
* : Only for VK80 200 REAR, VK80 200 LAT models.

6.4 Printer parameters

The 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.

VK80 200 REAR, VK80 200 LAT

ATTENTION:
Any changes to network parameters will interrupt browser connection. If the server not responding you must reconnect to the new IP address set.

IP ADDRESS	*IP address of device; this parameter is assigned by the network administrator.* NOTE: Press the FORM FEED key to modify the value of the highlighted digit. Pressing LINE FEED key to move the cursor on the next digit (if the cursor is on the latest digit, proceed to next parameter by pressing the LINE FEED key).
SUBNET MASK	*This parameter identifies the local network address.* NOTE: Press the FORM FEED key to modify the value of the highlighted digit. Pressing LINE FEED key to move the cursor on the next digit (if the cursor is on the latest digit, proceed to next parameter by pressing the LINE FEED key).
DEFAULT GATEWAY	*This parameter identifies the Gateway IP address used to send applications to the external network* NOTE: Press the FORM FEED key to modify the value of the highlighted digit. Pressing LINE FEED key to move the cursor on the next digit (if the cursor is on the latest digit, proceed to next parameter by pressing the LINE FEED key).
MAC ADDRESS	*This is the number, provided by the constructor, that identifies the printer; this number is univocal.* NOTE: This parameter can't be modified by set up.
RS232 BAUD RATE	*Communication speed of the serial interface:* *115200* *9600* *57600* *4800* *38400* *2400* *19200 [D]* *1200* NOTE: Parameter valid only with serial interface.
RS232 DATA LENGTH	*Number of bit used for characters encoding:* *7 bit/car* *8 bit/car [D]* NOTE: Parameter valid only with serial interface.

RS232 PARITY

Bit for the parity control of the serial interface:

None [D] = parity bit omitted
Even = even value for parity bit
Odd = odd value for parity bit

NOTE: Parameter valid only with serial interface.

RS232 HANDSHAKING

Handshaking:

XON/XOFF = software handshaking
Hardware [D] = hardware handshaking (CTS/RTS)

NOTES:
Parameter valid only with serial interface.

When the receive buffer is full, if handshaking is set to XON/XOFF, the device sends the XOFF ($13) on the serial port. When the receive buffer has cleared once again, if handshaking is set to XON/XOFF, the device sends the XON ($11) on the serial port.

BUSY CONDITION

Activation mode for Busy signal:

OffLine/ RXFull = Busy signal is activated when the printer is both in OffLine status and the buffer is full
RXFull [D] = Busy signal is activated when the buffer is full

NOTE: Parameter valid only with serial interface. Using this parameter, it is possible to select whether the Busy signal is activated when the printer is both in Off Line status and the buffer is full or only if the reception buffer is full.

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*

AUTOFEED

Setting of the Carriage Return character:

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

PRINT MODE

Printing mode:

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

CHARS / INCH

Font selection:

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

NOTE: CPI = Characters Per Inch

SPEED / QUALITY

Setting of printing speed and printing quality:

High Quality
Normal [D]
High Speed
Very High Speed

NOTCH/B.MARK ALIGNMENT

Alignment management:

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

NOTCH/B.MARK THRESHOLD

Threshold value for the recognition of the presence of notch/black mark by the black mark sensor:

0.33V [D] *0.99V 1.65V 2.31V 2.97V*
0.66V 1.32V 1.98V 2.64V

NOTA: if the “Notch Alignment” parameter is disabled, this parameter is not printed.

NOTCH DISTANCE

“Notch Distance” is the minimum distance (in mm) between the upper edge of ticket and the notch (see chapter 11).
The numeric value of the distance is made up with the following three parameters for the setting of two digits for the tens and the units 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

NOTES:
For example, to set the notch distance to 15 mm, modify the parameters as follows:
Notch Distance Sign = +
Notch Distance [mm x 10] = 1
Notch Distance [mm x 1] = 5

If the “Notch Alignment” parameter is disabled, the parameters for the “Notch Distance” are not printed.

In setup mode, it is possible to set the notch distance using a values range from -5 mm to 32 mm.

CURRENT

Setting of the current consumption:

Low
High
Normal [D]

PRINT DENSITY	*Adjusting the printing density:*		
	-50%	*-12%*	*+25%*
	-37%	*0 D*	*+37%*
	-25%	*+12%*	*+50%*

ATTENTION:
Any changes to network parameters will interrupt browser connection. If the server not responding you must reconnect to the new IP address set.

IP ADDRESS

IP address of device; this parameter is assigned by the network administrator.

NOTE: Press the FORM FEED key to modify the value of the highlighted digit.
Pressing LINE FEED key to move the cursor on the next digit (if the cursor is on the latest digit, proceed to next parameter by pressing the LINE FEED key).

SUBNET MASK

This parameter identifies the local network address.

NOTE: Press the FORM FEED key to modify the value of the highlighted digit.
Pressing LINE FEED key to move the cursor on the next digit (if the cursor is on the latest digit, proceed to next parameter by pressing the LINE FEED key).

DEFAULT GATEWAY

This parameter identifies the Gateway IP address used to send applications to the external network

NOTE: Press the FORM FEED key to modify the value of the highlighted digit.
Pressing LINE FEED key to move the cursor on the next digit (if the cursor is on the latest digit, proceed to next parameter by pressing the LINE FEED key).

MAC ADDRESS

This is the number, provided by the constructor, that identifies the printer; this number is univocal.

NOTE: This parameter can't be modified by set up.

RS232 BAUD RATE

Communication speed of the serial interface:

115200	*9600*
57600	*4800*
38400	*2400*
19200 [D]	*1200*

NOTE: Parameter valid only with serial interface.

RS232 DATA LENGTH

Number of bit used for characters encoding:

7 bit/car
8 bit/car [D]

NOTE: Parameter valid only with serial interface.

RS232 PARITY

Bit for the parity control of the serial interface:

None [D] = parity bit omitted
Even = even value for parity bit
Odd = odd value for parity bit

NOTE: Parameter valid only with serial interface.

RS232 HANDSHAKING

Handshaking:

XON/XOFF = software handshaking
Hardware [D] = hardware handshaking (CTS/RTS)

NOTES:
Parameter valid only with serial interface.

When the receive buffer is full, if handshaking is set to XON/XOFF, the device sends the XOFF ($13) on the serial port. When the receive buffer has cleared once again, if handshaking is set to XON/XOFF, the device sends the XON ($11) on the serial port.

BUSY CONDITION

Activation mode for Busy signal:

OffLine/ RXFull = Busy signal is activated when the printer is both in OffLine status and the buffer is full
RXFull [D] = Busy signal is activated when the buffer is full

NOTE: Parameter valid only with serial interface.

USB 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*

AUTOFEED

Setting of the Carriage Return character:

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

PRINT MODE

Printing mode:

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

CHARS / INCH

Font selection:

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

NOTE: CPI = Characters Per Inch

SPEED / QUALITY

Setting of printing speed and printing quality:

High Quality
Normal [D]
High Speed
Very High Speed

NOTCH/B.MARK ALIGNMENT

Alignment management:

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

NOTCH/B.MARK THRESHOLD

Threshold value for the recognition of the presence of notch/black mark by the black mark sensor:

0.33V [D] *0.99V 1.65V 2.31V 2.97V*
0.66V 1.32V 1.98V 2.64V

NOTA: if the “Notch Alignment” parameter is disabled, this parameter is not printed.

NOTCH DISTANCE

“Notch Distance” is the minimum distance (in mm) between the upper edge of ticket and the notch (see chapter 11).
The numeric value of the distance is made up with the following three parameters for the setting of two digits for the tens and the units 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

NOTES:
For example, to set the notch distance to 15 mm, modify the parameters as follows:
Notch Distance Sign = +
Notch Distance [mm x 10] = 1
Notch Distance [mm x 1] = 5

If the “Notch Alignment” parameter is disabled, the parameters for the “Notch Distance” are not printed.

In setup mode, it is possible to set the notch distance using a values range from -5 mm to 32 mm.

CHINESE FONT

Printing with the chinese characters set GB18030:

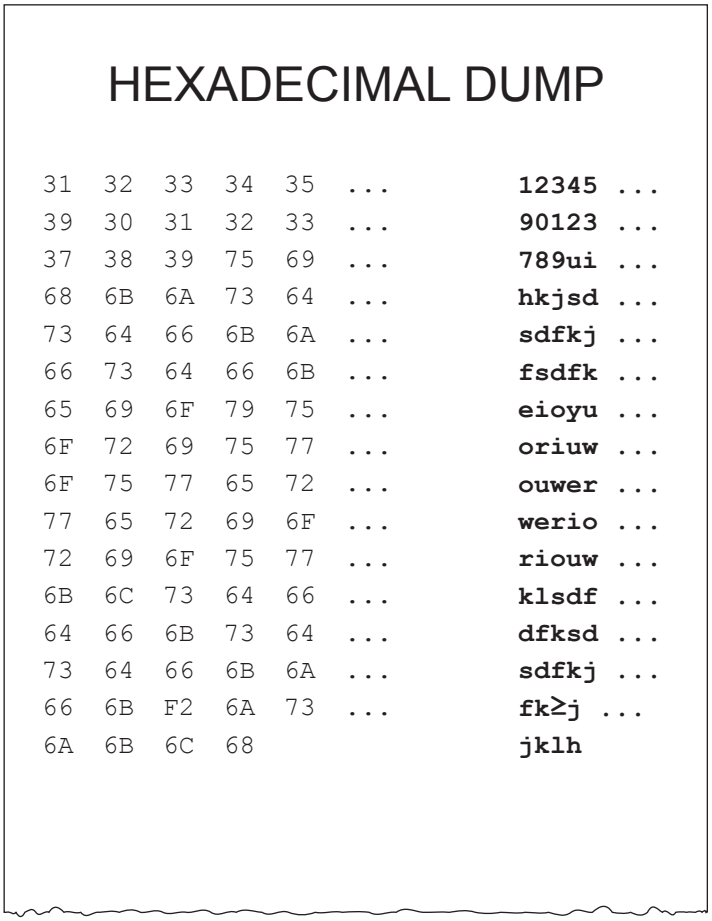
Disable [D] *= Printing with the chinese characters is not performed*
Enable = Printing is performed with the chinese characters

PRINTING WIDTH	*Adjustment of printing width:*		
	55mm	*80mm* [D]	
PRINT DENSITY	*Adjusting the printing density:*		
	-50%	*-12%*	*+25%*
	-37%	*0* [D]	*+37%*
	-25%	*+12%*	*+50%*

6.5 Hexadecimal dump

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

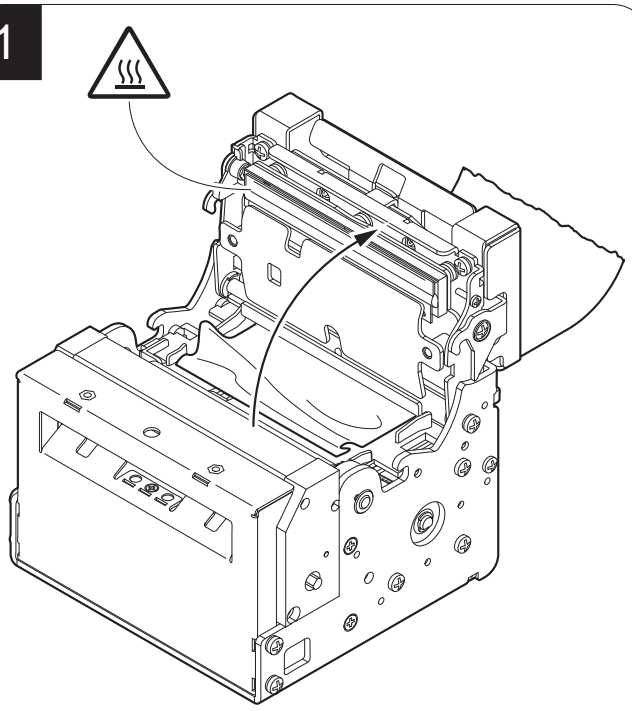
During the startup, if you hold down the FEED key, the device enters the self-test routine and print the setup report.
The device remains in standby until a key is pressed or characters are received through the communication port (Hexadecimal Dump mode). For each character sent, the ticket shows the 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:



7 MAINTENANCE

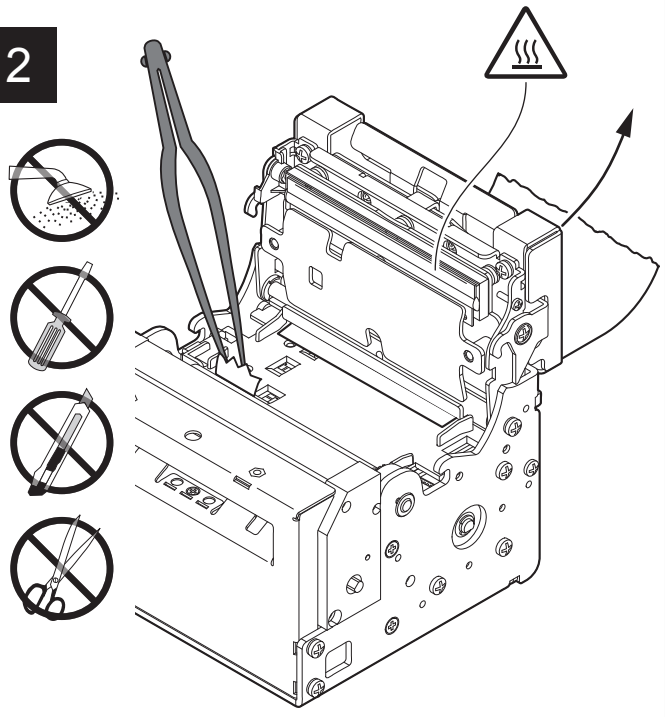
7.1 Device paper jam

1



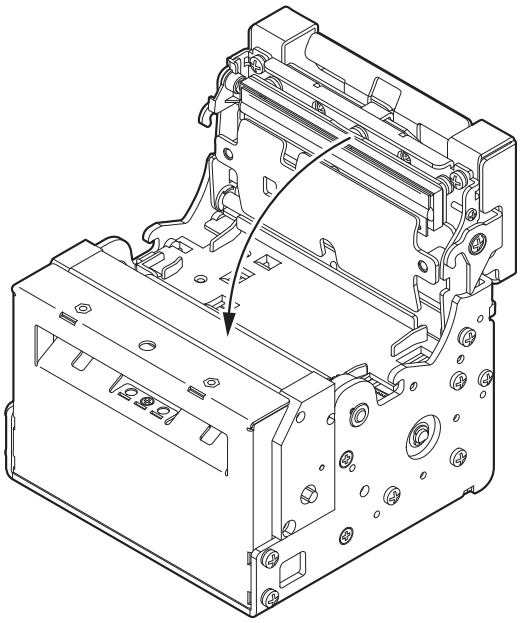
Open the device cover
(see par. 5.1).

2



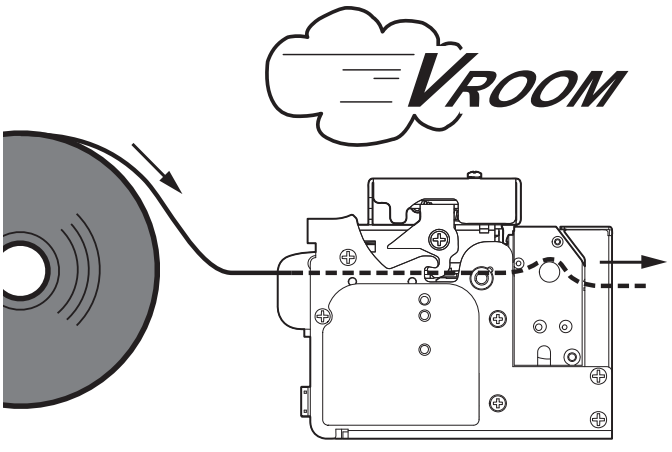
Remove the damaged paper and check the presence for paper scraps inside the device. Carefully remove all paper scraps. If necessary use tweezers.

3



Close the
device cover.

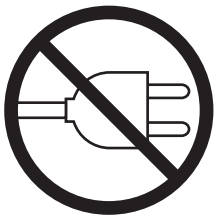
4



Insert the paper
(see par. 5.6).

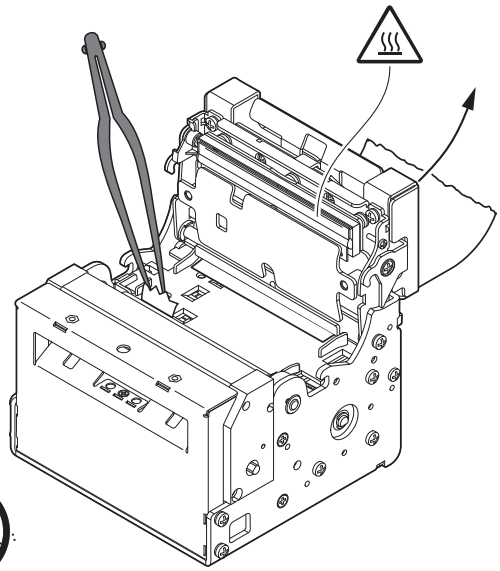
7.2 Cutter paper jam

1



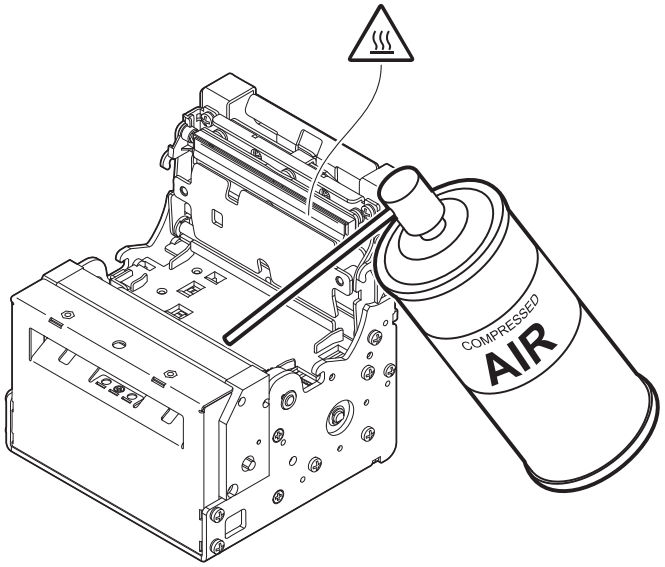
Disconnect the power supply cable and open the device cover (see par. 5.1).

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



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

Clean the cutter by using compressed air.

7.3 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 ROLL CHANGE	
Printing head	Use isopropyl alcohol
Printing roller	Use isopropyl alcohol
EVERY 5 ROLL CHANGES	
Cutter	Use compressed air or tweezers
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

For specific procedures, see the following pages.

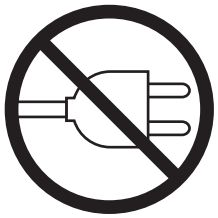
NOTE:
If you use the device in dusty environments, you must reduce the intervals between the cleaning operations.

7.4 Cleaning

For periodic cleaning of the printer, see the instructions below.

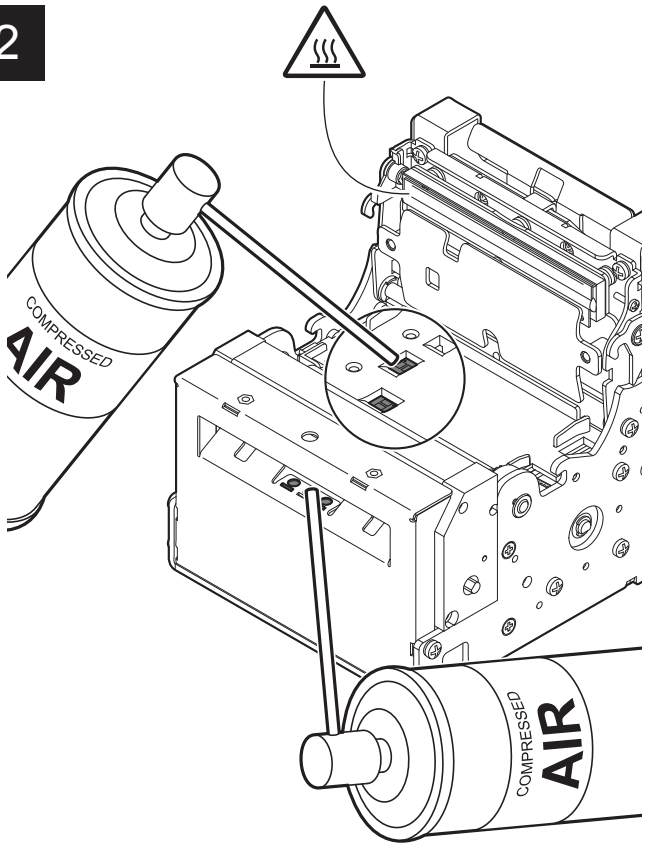
Sensors

1



Disconnect the power supply cable and open the device cover (see par. 5.1).

2

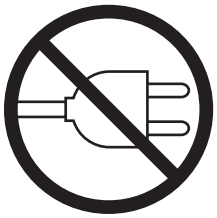


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the device.

Clean the device sensors by using compressed air.

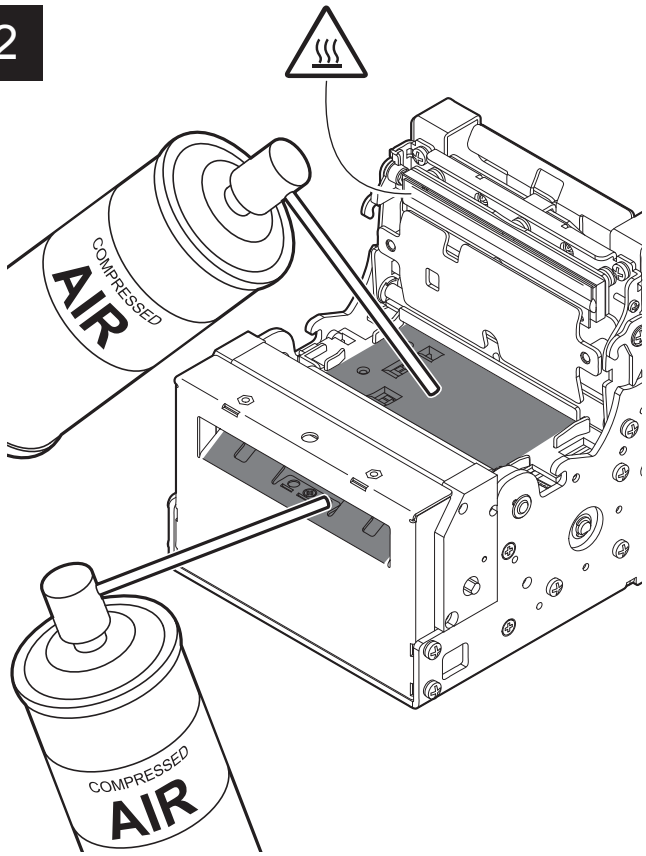
Paper path

1



Disconnect the power supply cable and open the device cover (see par. 5.1).

2

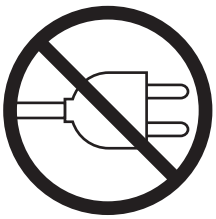


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the device.

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

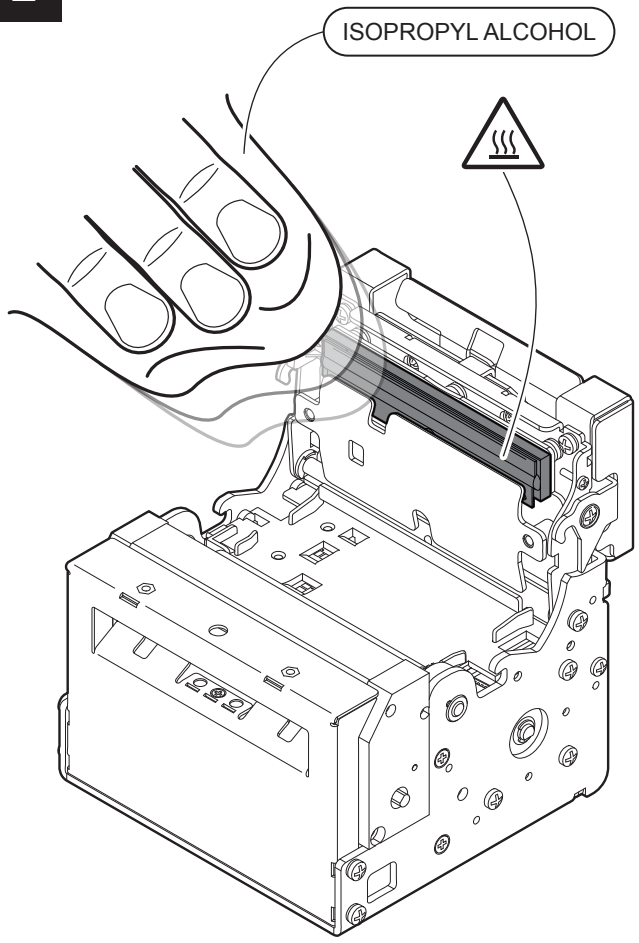
Printing head

1



Disconnect the power supply cable and open the device cover (see par. 5.1).

2

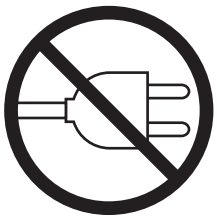


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

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

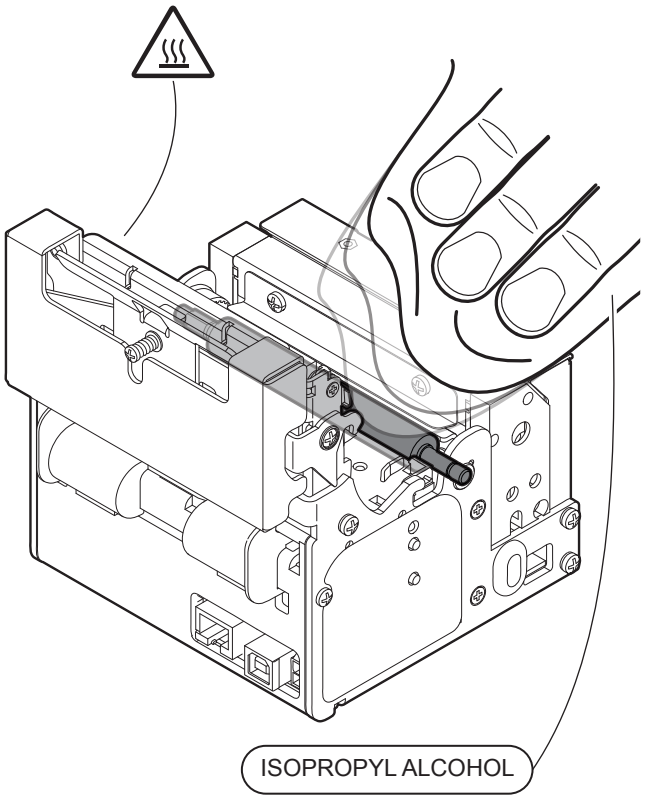
Printing roller

1



Disconnect the power supply cable and open the device cover (see par. 5.1).

2

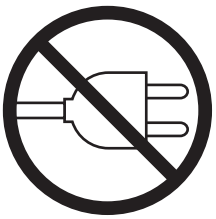


ATTENTION:
Do not use solvents, or hard brushes.
Do not let water or other liquids get inside the machine.

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

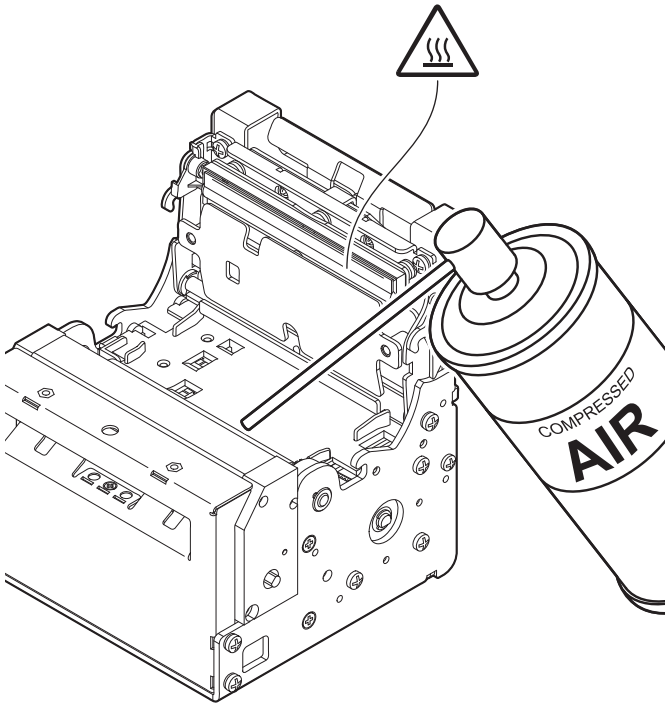
Cutter

1



Disconnect the power supply cable and
open the device cover (see par. 5.1).

2

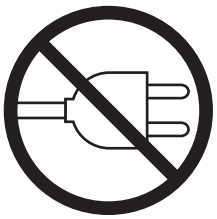


ATTENTION:
Do not use alcohol, solvents, or hard brushes.
Do not let water or other liquids get inside the device.

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

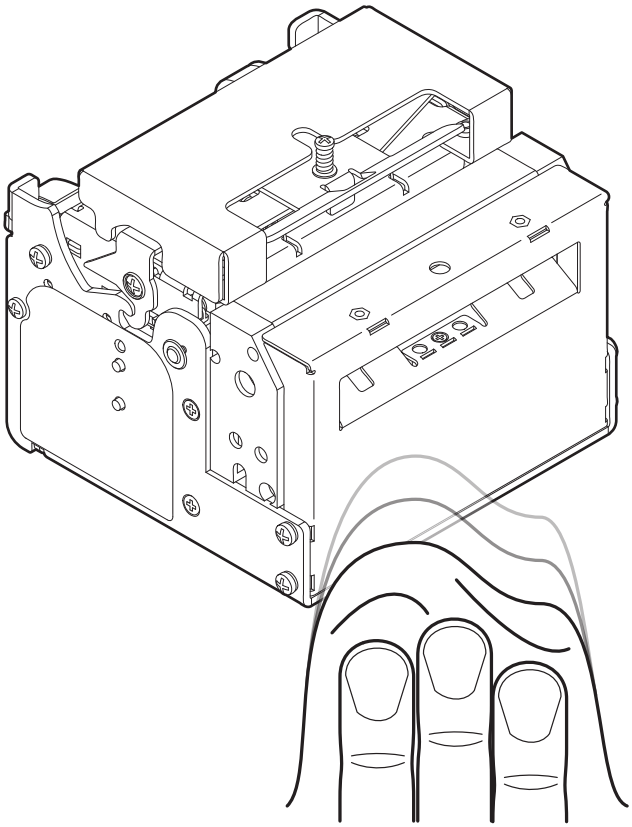
Case

1



Disconnect the power supply cable and
open the device cover (see par. 5.1).

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.

7.5 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.

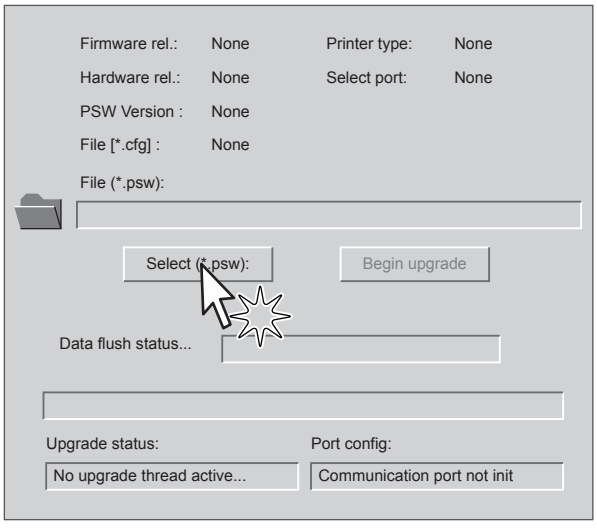
NOTES:
The latest firmware is available in the download area of the web site www.custom.biz

Install on the PC used for device upgrading the UPG-CEPRN software available in the download area of the web site www.custom.biz.

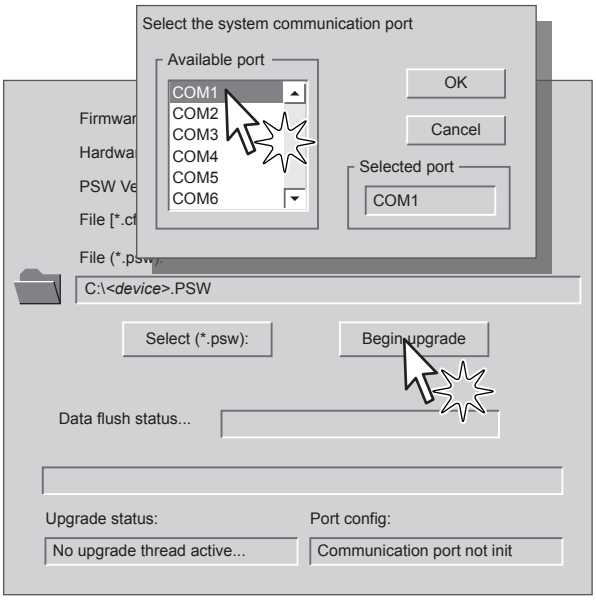
Update via serial interface
VK80 200 LAT, VK80 300

Proceed as follows:

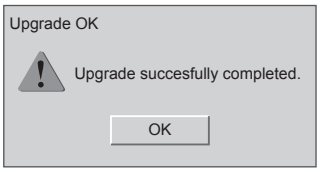
1. Write down the product code (14 digits) printed on the product label (see par. 3.4).
2. Go to the web site www.custom.biz and download the appropriate firmware release from the DOWNLOAD area.
3. Print the SETUP report (see chapter 6).
4. Switch OFF the device.
5. Connect the device to the PC using a serial cable (see par. 4.4).
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 6).

Update via USB interface

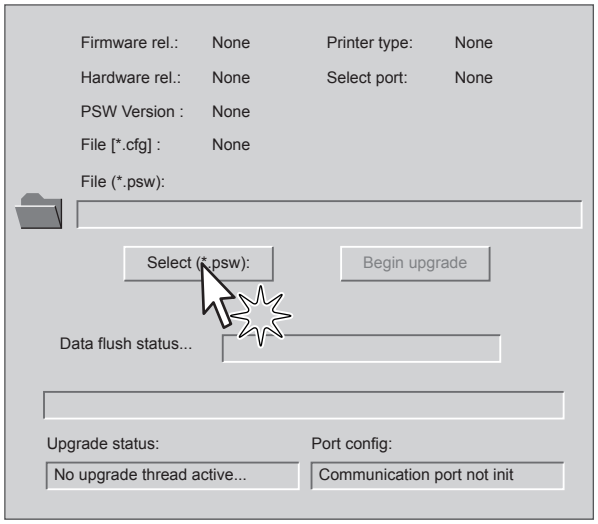
ATTENTION:
Only during the firmware update, the connection between PC and device must be direct, without the use of HUB device.

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

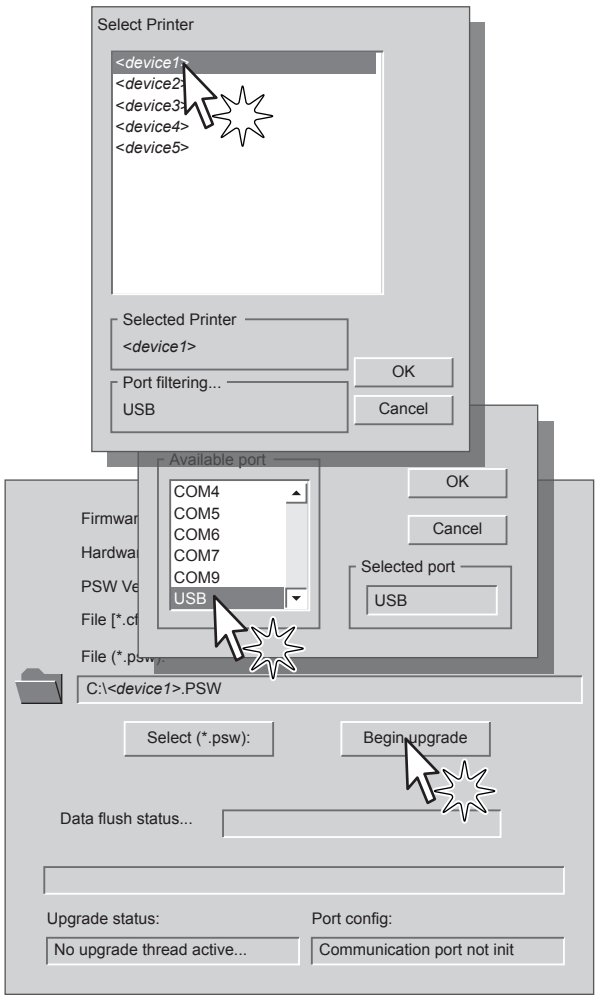
NOTE: For communication via USB you must install on PC the deice driver available in the download area of the web site www.custom.biz.

Proceed as follows:

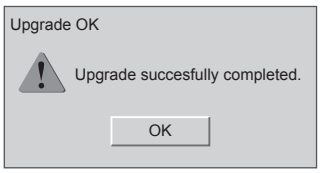
1. Write down the product code (14 digits) printed on the product label (see par. 3.4).
2. Go to the web site www.custom.biz and download the appropriate firmware release from the DOWNLOAD area.
3. Print the setup report (see chapter 6).
4. Switch OFF the device.
5. Connect the device to the PC using a USB cable (see paragraph 4.4).
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 (ex. device1):



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



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

8 SPECIFICATIONS

8.1 Hardware specifications

GENERAL	
Sensors	Paper presence, paper presence on output, printing head temperature, black mark detector, printing group open
Emulations	CUSTOM/POS
Printing driver	
VK80 200 REAR, VK80 200 LAT	Windows XP VISTA (32/64bit) Windows 7 (32/64bit) Windows 8 (32/64bit) Windows 8.1 (32/64 bit) Windows 10 (32/64 bit) OPOS JavaPOS Linux (32/64 bit) Android iOS
VK80 300	Windows XP VISTA (32/64bit) Windows 7 (32/64bit) Windows 8 (32/64bit) Windows 8.1 (32/64 bit) Windows 10 (32/64 bit) OPOS JavaPOS Linux (32/64 bit)
INTERFACES	
USB port	12 Mbit/sec (USB 2.0 full speed)
Serial port RJ11	
VK80 200 LAT, VK80 300	from 1200 to 115200 bps
ETHERNET port	
VK80 200 REAR, VK80 200 LAT	10 Mbit/s
VK80 300	10 Mbit/s, 100 Mbit/s

MEMORIES	
Receive buffer	24 Kbyte
Flash memory	384 Kbyte
PRINTER	
Resolution	
VK80 200 REAR, VK80 200 LAT	203 dpi (8 dot/mm)
VK80 300	304 dpi (12 dot/mm)
Printing method	thermal, fixed head
Head life (1)	
Abrasion resistance (3)	100 Km (with recommended paper)
Pulse durability	100 M (12.5% duty cycle)
Printing width	
VK80 200 REAR, VK80 200 LAT	from 48mm to 80mm (2mm step)
VK80 300	55 mm, 80 mm
Printing mode	Normal, 90°, 180°, 270°
Printing format	height/width from 1 to 8, bold, reverse, underlined, italic
Character fonts	
VK80 200 REAR, VK80 200 LAT	PC437, PC850, PC860, PC863, PC865, PC858 (euro)
VK80 300	PC437, PC720, PC737, PC850, PC 852, PC860, PC 862, PC863, PC864, PC865, PC 866, PCKATA, FKU42, PC858 (euro), GB18030
Printable barcode	UPC-A. UPC-E, EAN13, EAN8, CODE39, ITF, CODABAR, CODE93, CODE128, CODE32, PDF417, DATAMATRIX
Printing speed (1) (2)	High Quality = 90 mm/sec Normal = 100 mm/sec High Speed = 130 mm/sec Very High Speed (4) = 200 mm/sec

PAPER	
Type of paper	Thermal rolls, thermal side on outside of roll
Paper width [5]	
VK80 200 REAR, VK80 200 LAT	from 60 mm to 82.5 mm
VK80 300	60 mm, 86 mm
Paper weight	from 90 g/m^2 to 250 g/m^2
Paper thickness	max 270 µm
Recommended types of paper	KANZAN KP460 and KP390 MITSUBISHI TL4000 and TF1067
External roll diameter [6]	max. 180 mm
Internal roll core diameter	50 mm
Paper end	Not attached to roll core
Core type	Cardboard or plastic
Minimum ticket length [7]	40 mm
CUTTER	
Paper cut	Total
Estimated life [1]	1 500 000 cutter number
DEVICE ELECTRICAL SPECIFICATIONS	
Power supply	24 Vdc ±10% (optional external power supply)
Medium consumption [8] [9]	2.0 A
Typical consumption [2] [8] [9]	
VK80 200 REAR, VK80 200 LAT	1.1 A
VK80 300	1.4 A
Standby consumption [8] [9]	

VK80 200 REAR, VK80 200 LAT	0.04 A
VK80 300	0.07 A
ELECTRICAL SPECIFICATIONS POWER SUPPLY cod.963GE020000046	
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 0°C to +50°C
Relative humidity	from 10% Rh to 80% Rh
Storage temperature	from -20 °C to +70 °C
Storage relative humidity	from 10% Rh to 90% Rh

NOTES:
(1) : Respecting the regular schedule of cleaning for the device components.
(2) : Referred to a standard CUSTOM receipt (L=10cm, Density = 12,5% dots on)
(3) : Damages caused by scratches, ESD and electromigration are excluded.
(4) : Tested with paper weights of 90 g/m^2.
(5) : For ticket width = 60 mm do not exceed a max length of 250 mm.
(6) : For external rolls diameter higher to Ø100mm it's recommended to use a paper pretensioning device.
(7) : Recommended minimal length of the ticket to ensure the fall of the ticket.
(8) : The values for VK80 200 REAR, VK80 200 LAT are referred to "Normal" value of "Current" parameter.
(9) : Referred to the UL measurements (Speed/Quality = Normal, Print density =+50%, Ticket length = 100mm).

8.2 Character specifications

VK80 200 REAR, VK80 200 LAT

Character set		3	
Character density	11 cpi	15 cpi	20 cpi
Number of columns	35	49	64
Chars / sec	1516	2133	2773
Lines / sec	43	43	43
Characters (L x H mm)-Normal	2.25 x 3	1.625 x 3	1.25 x 3

NOTE: Theoretical values.

VK80 300

Character set		3	
Character density	11 cpi	15 cpi	20 cpi
Number of columns	35	48	64
Chars / sec	2275	3120	4160
Lines / sec	65	65	65
Characters (L x H mm)-Normal	2.25 x 2	1.66 x 2	1.25 x 2

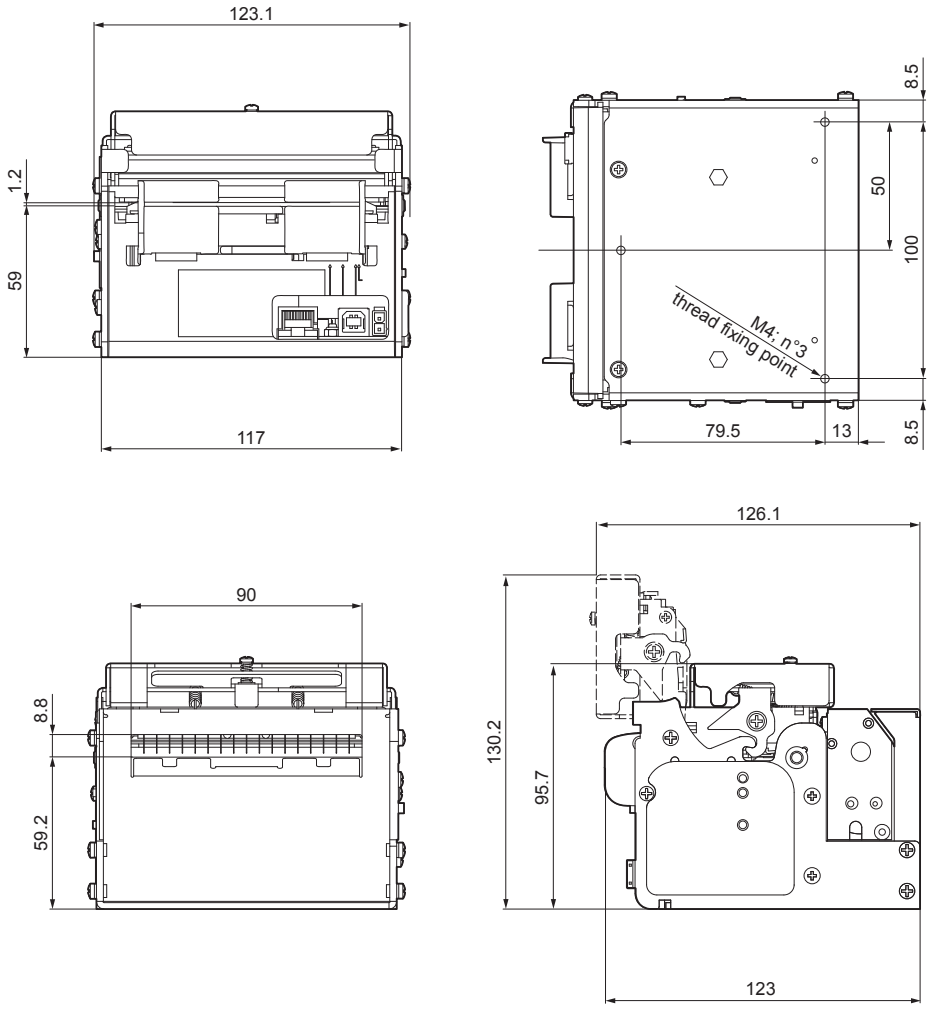
NOTE: Theoretical values.

8.3 Device dimensions

VK80 200 REAR, VK80 200 LAT

Length	
with printing unit closed	123 mm
with printing unit open	126.1 mm
Height	
with printing unit closed	95.7 mm
with printing unit open	130.2 mm
Width	117 mm
Weight	1676 g

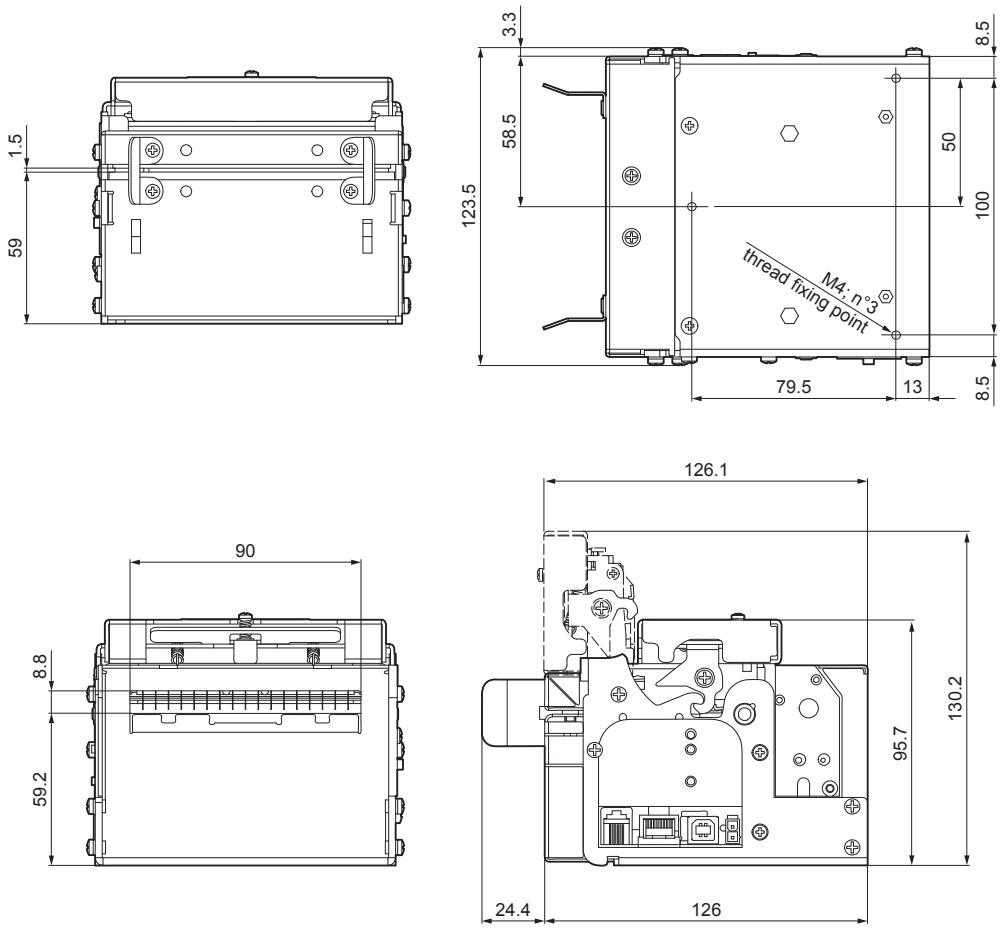
NOTE: All the dimensions shown in following figures are in millimetres.



VK80 300

Length	150.4 mm
Height	
with printing unit closed	95.7 mm
with printing unit open	130.2 mm
Width	117 mm
Weight	1838 g

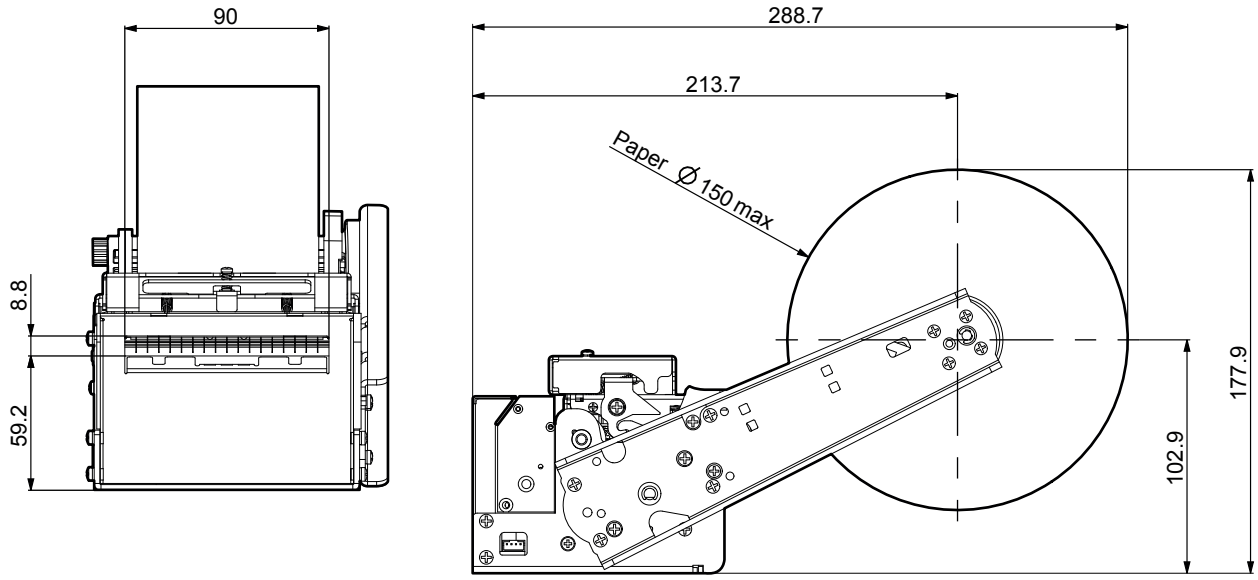
NOTE: All the dimensions shown in following figures are in millimetres.

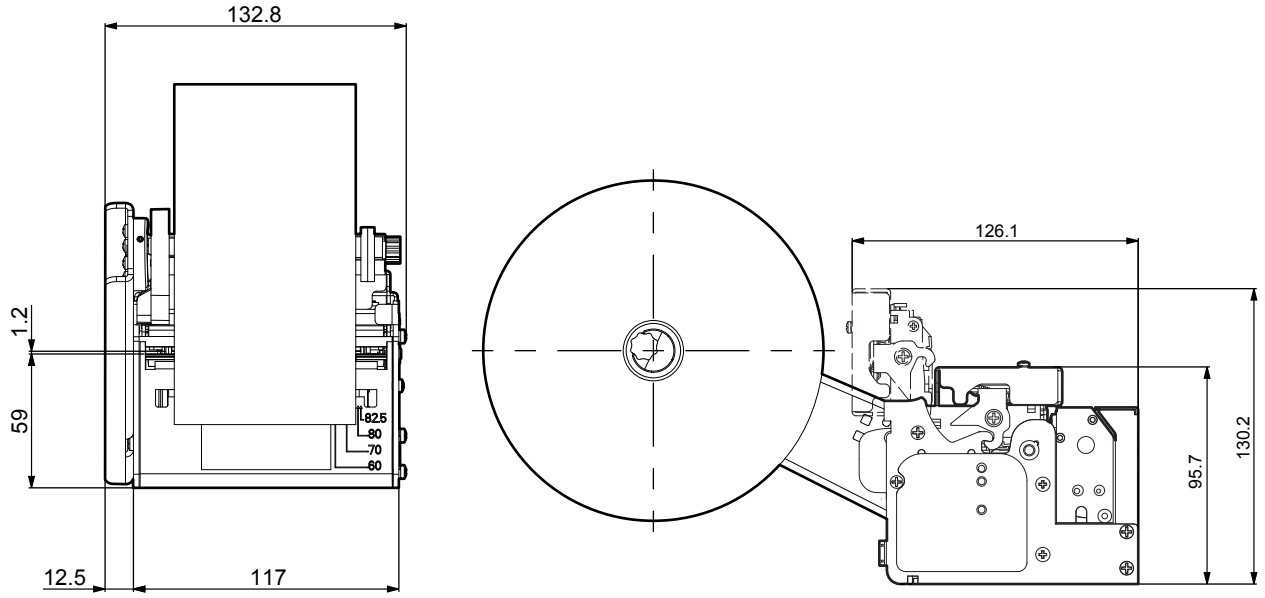


8.4 Device dimensions with adjustable paper roll holder cod. 974DW010000001 (optional)

VK80 200 REAR, VK80 200 LAT

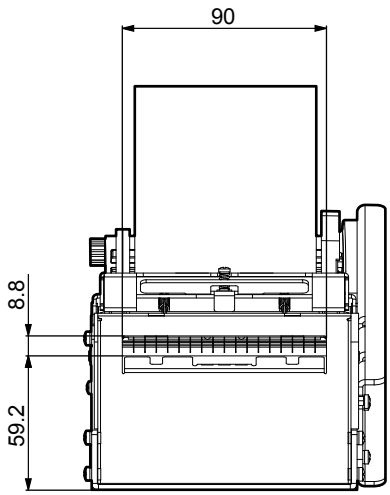
NOTE: All the dimensions shown in following figures are in millimetres.

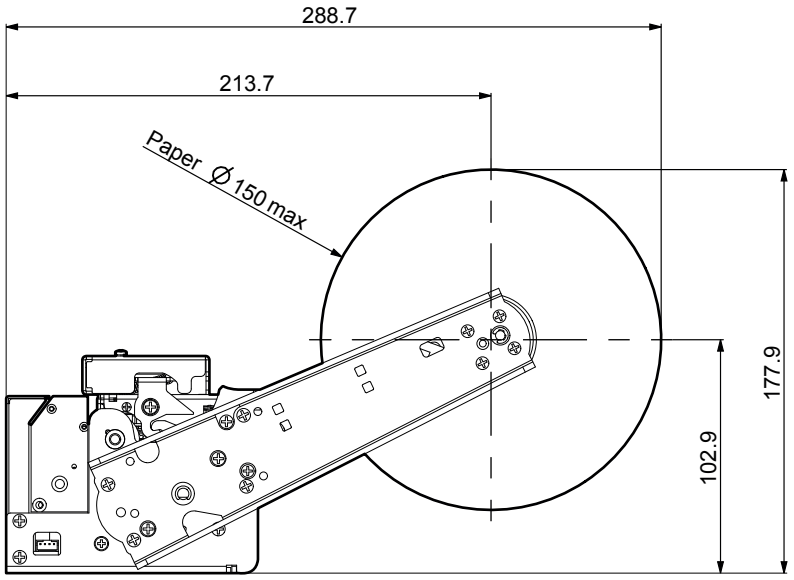


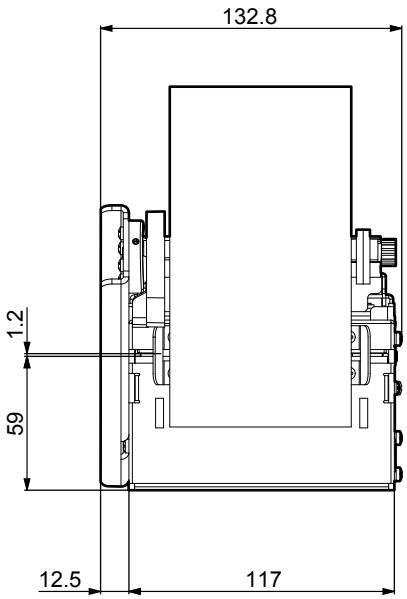


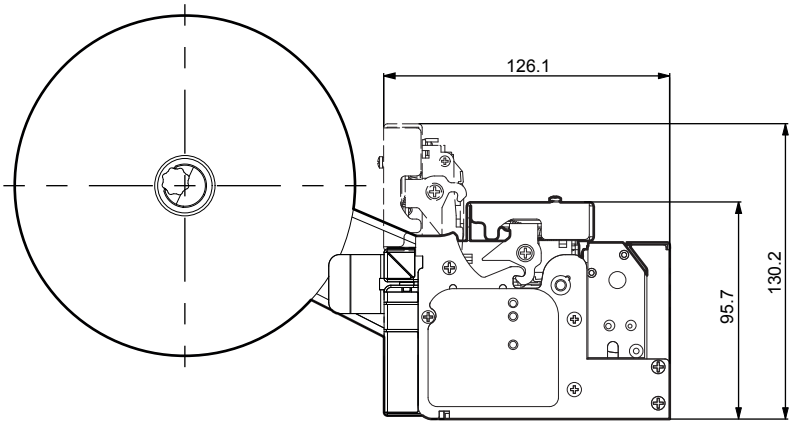
VK80 300

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





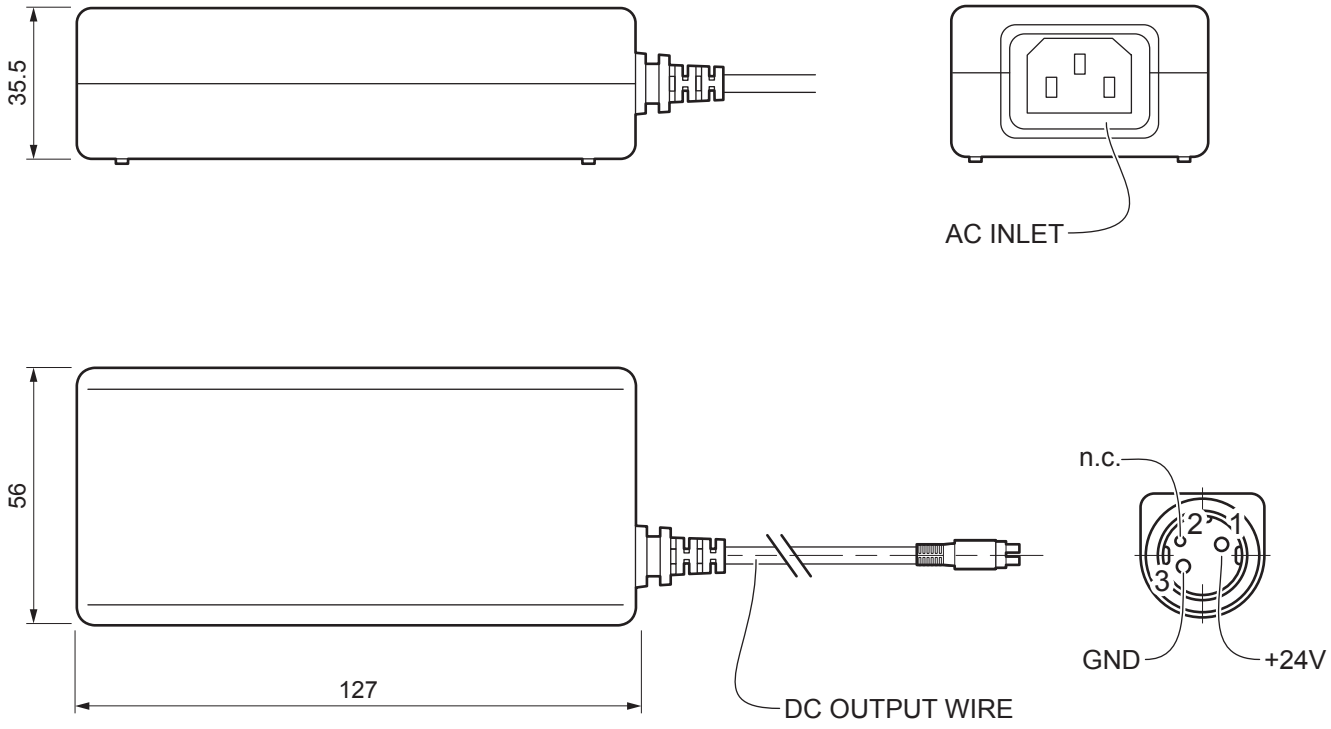




8.5 Dimensions of power supply cod. 963GE020000046 (optional)

Length	127 mm
Height	35.5 mm
Width	56 mm

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



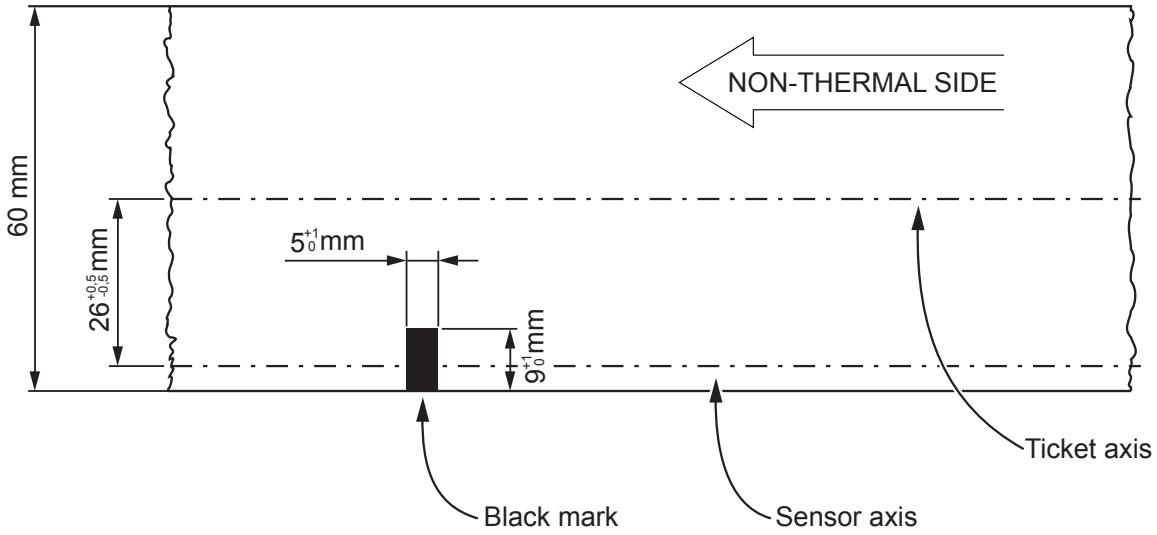
8.6 VK80 200 REAR, VK80 200 LAT paper specifications

Paper with black mark

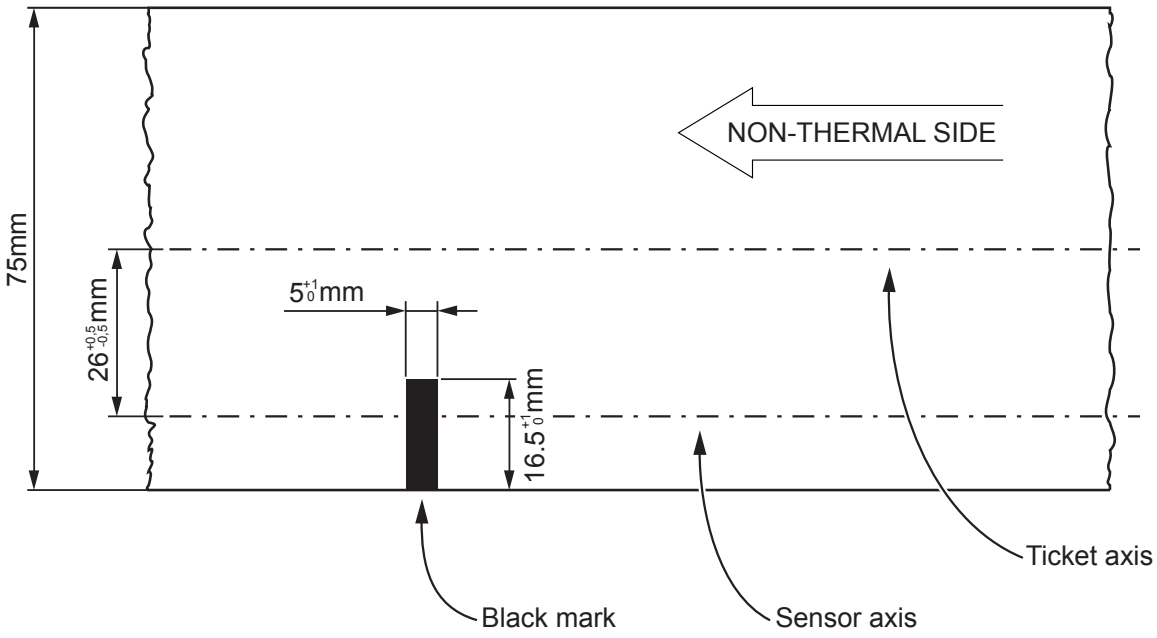
The following image shows the placement of the black mark on paper. The black mark can be printed both on the thermal side and on the non-thermal side of paper and it can be placed anywhere on the whole width of the paper.
For more information about the use of paper with black mark see chapter 11.

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

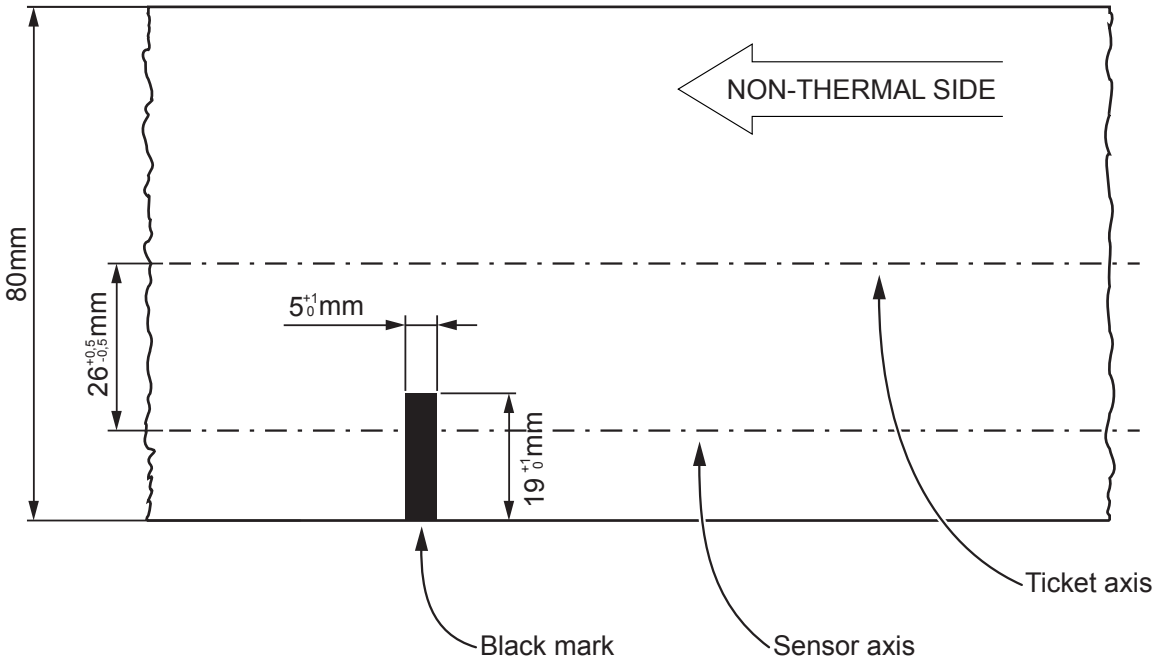
60mm paper with black mark



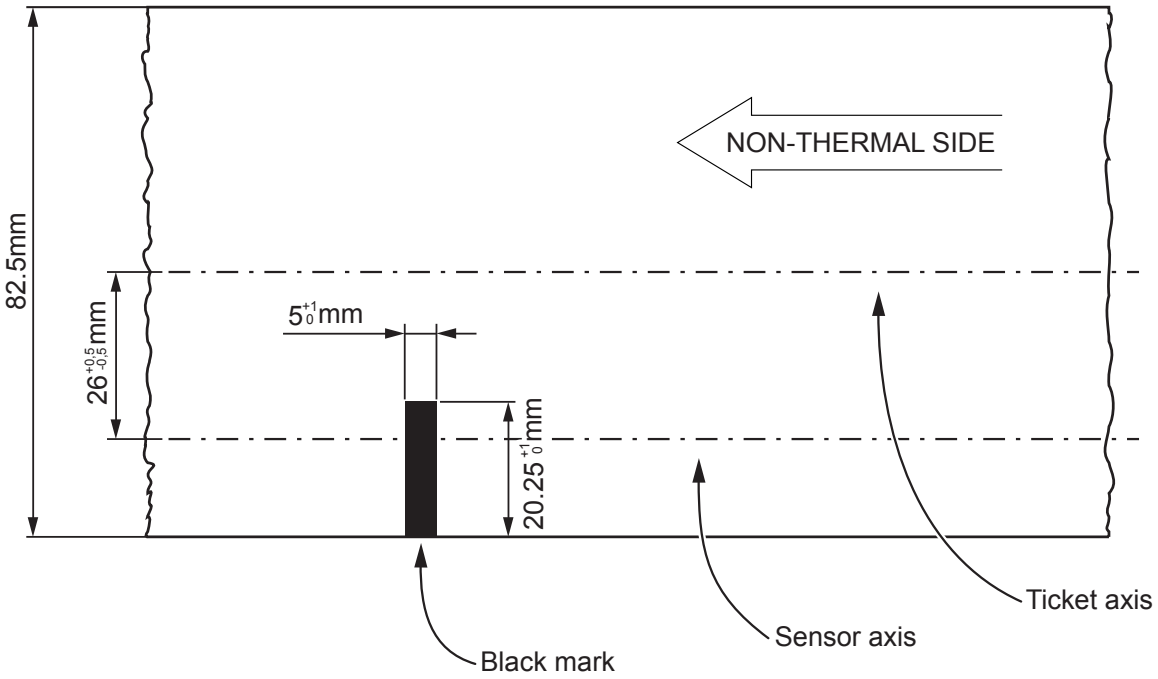
75mm paper with black mark



80mm paper with black mark



82.5mm paper with black mark

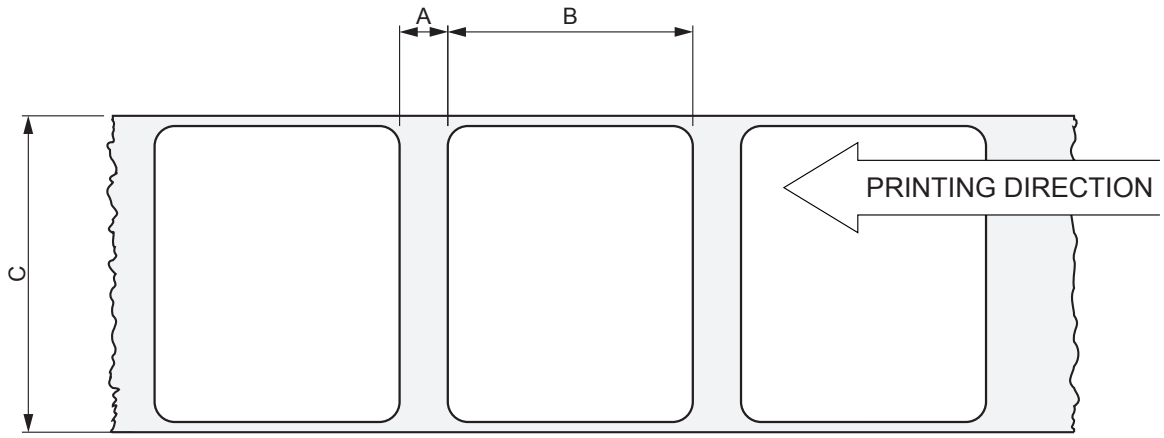


8.7 VK80 300 paper specifications

Paper with labels

To properly use the alignment commands is necessary to use labels that comply with the following dimensions:
For more information about the use of paper with labels see chapter 11.

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



A ≥ 3 mm
B ≥ 25,4 mm (1 inch)
C = 60 mm or 86mm

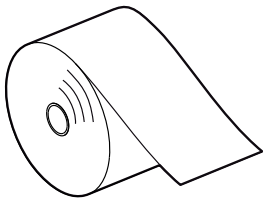
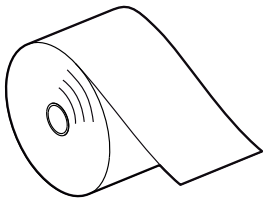
8.8 Character sets in CUSTOM/POS emulation

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

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

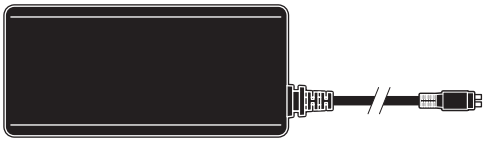
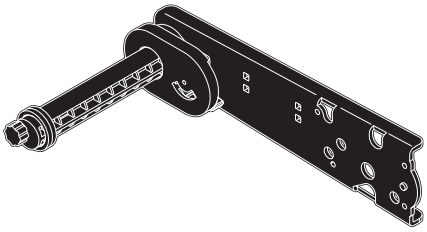
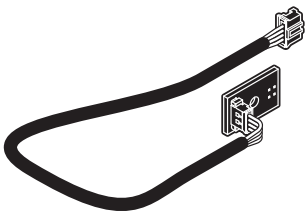
9 CONSUMABLES

La seguente tabella riporta l’elenco del materiale di consumo disponibile per il dispositivo:

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

10 ACCESSORIES

The available accessories for the device are listed in the following table:

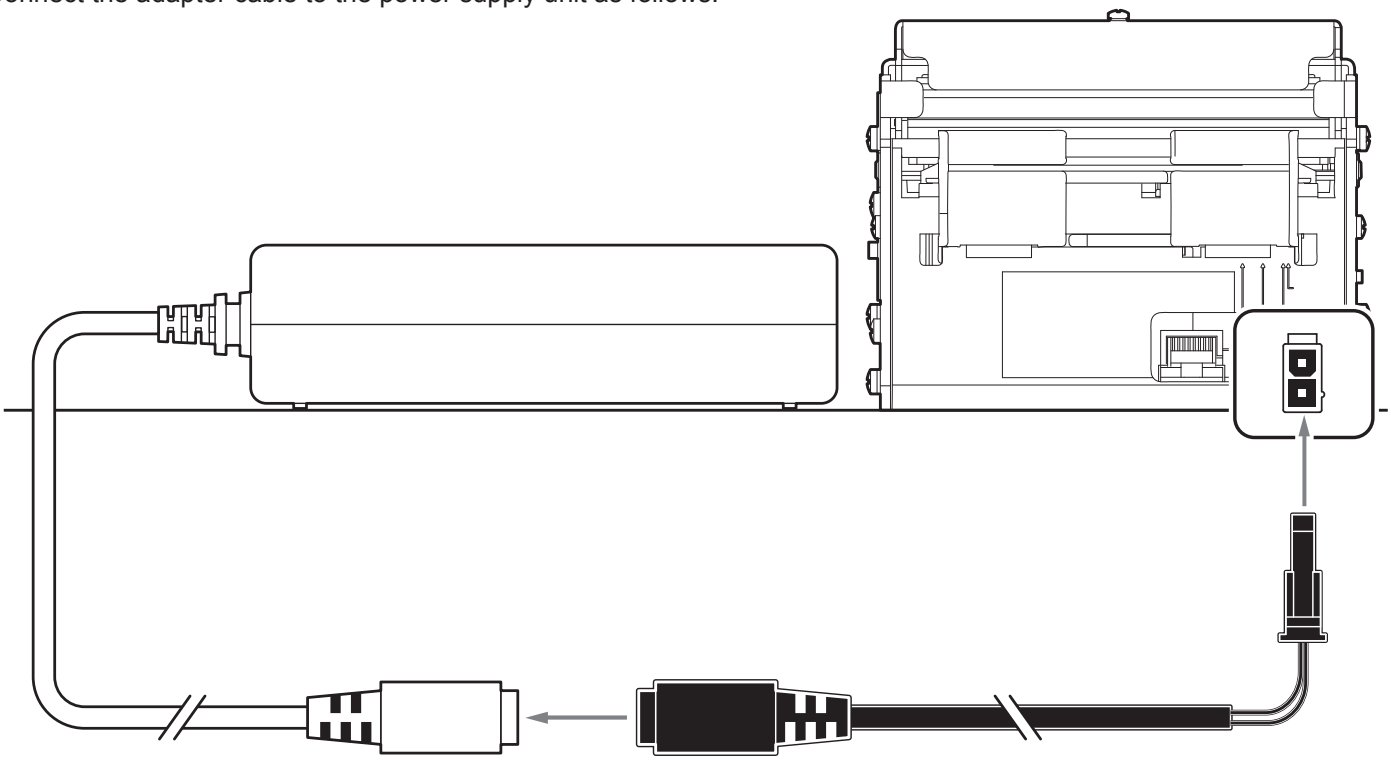
DESCRIPTION	CODE
POWER SUPPLY (for technical specifications, see paragraphs 8.1 and 8.5)	**963GE020000046** 
ADAPTER CABLE FOR POWER SUPPLY (see the paragraph 10.1)	**26900000000005** 
PAPER ROLL HOLDER (see the paragraph 5.2)	**974DW010000001** 
EXTERNAL LOW PAPER SENSOR WITH CABLE Length = 230 mm	**976DX010000004** 

10.1 Adapter cable for power supply cod. 963GE020000046 (opzionale)

For the device is available an adapter cable (cod. 26900000000005) supplied as an accessory, for connecting the printer to the external power supply unit (cod 963GE020000046 - optional).

Assembly instructions

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



11 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.

The alignment notch may be formed by
- black mark printed on paper, for VK80 200 REAR, VK80 200 LAT models (see par. 8.6);
- gap between two labels, for VK80 300 models (see par. 8.7).

The alignment sensors assembled on printer, 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.

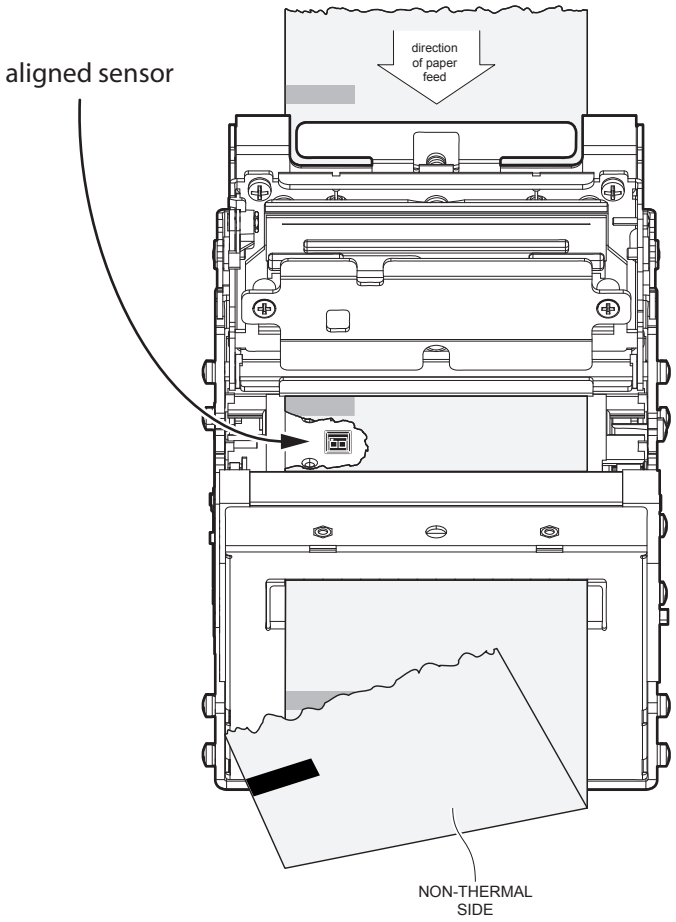
o use tickets with labels with gap, the sensors on VK80 300 models are used as “transparence” sensors. In this case, one of the two sensors coupled two by two, used as transmitter sensor, emits a beam of light and the quantity of light which reaches the opposite receiver sensor is detected.
The presence of the 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 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.

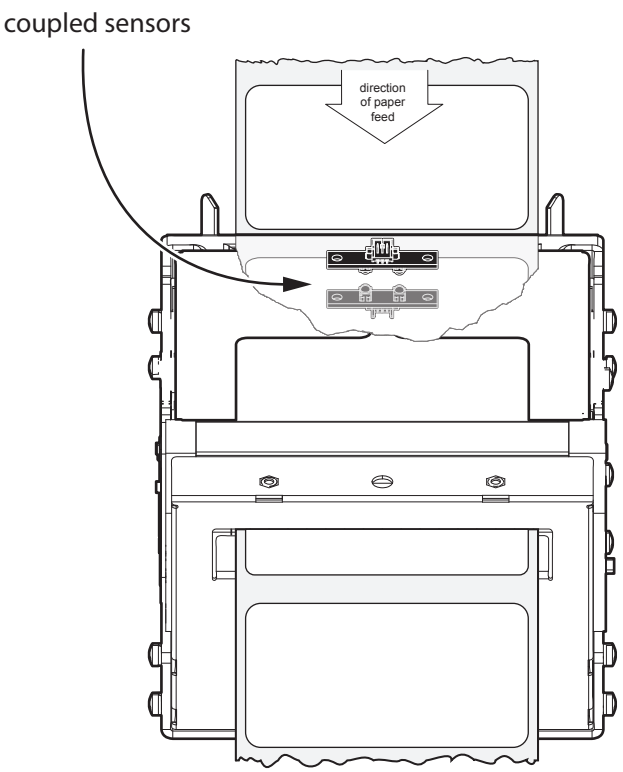
11.1 Enable alignment

The VK80 200 REAR, VK80 200 LAT models are provided with a fixed sensor for alignmentment facing the non-thermal side of paper. The VK80 300 models are provided with two fixed sensors coupled two by two (see par. 3.3)
To guarantee the alignment, it is necessary to enable the parameter “Notch Alignment” during the setup procedure (see chapter 65).

VK80 200 REAR, VK80 200 LAT



VK80 300



11.2 Calibration

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

The device automatically performs the self-calibration during the setup procedure only if the “Notch Alignment” parameter is set on “Enabled” (see chapter 6).

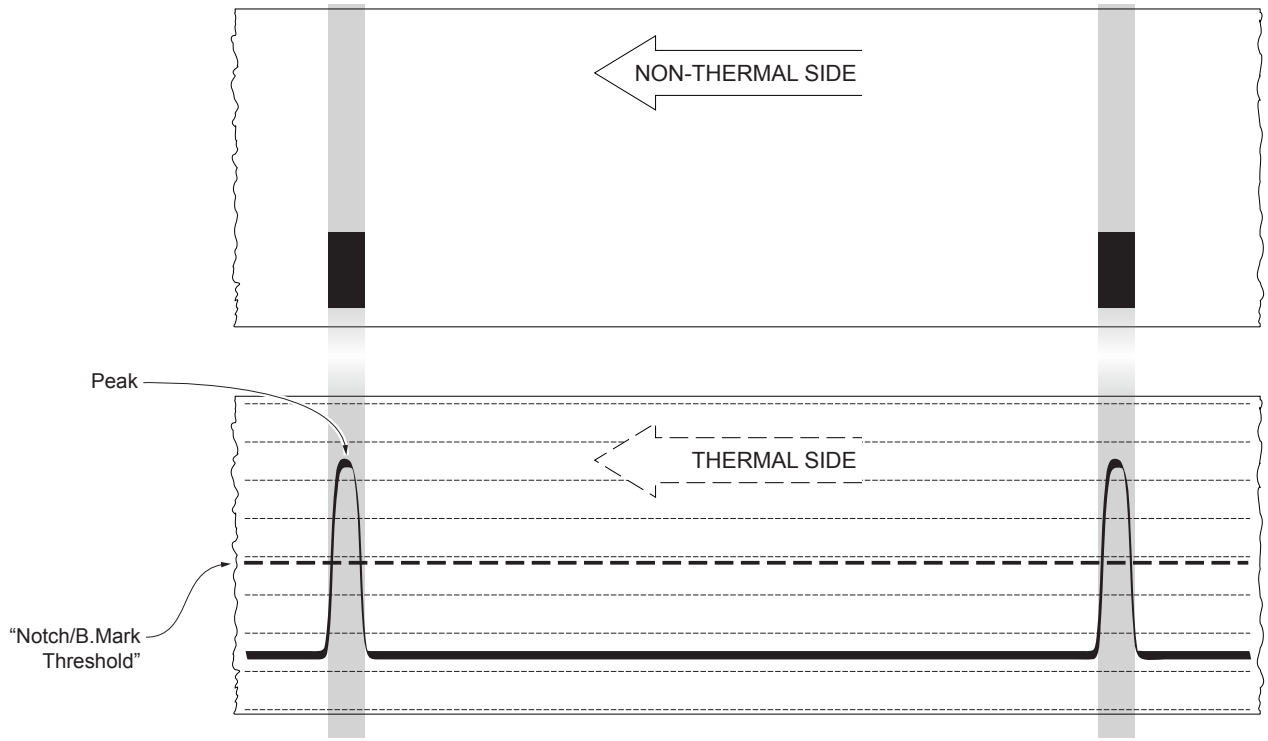
When self-calibration starts, the device performs some paper feeds and then it prints the calibration result and the value (numeric and as a percentage) of the *“Threshold White”* parameter that indicates the power-up level of the sensor emitting side (the value ranges from 0V to 5V):

Autosetting Notch : OK
Threshold White : 2,3V [70%]

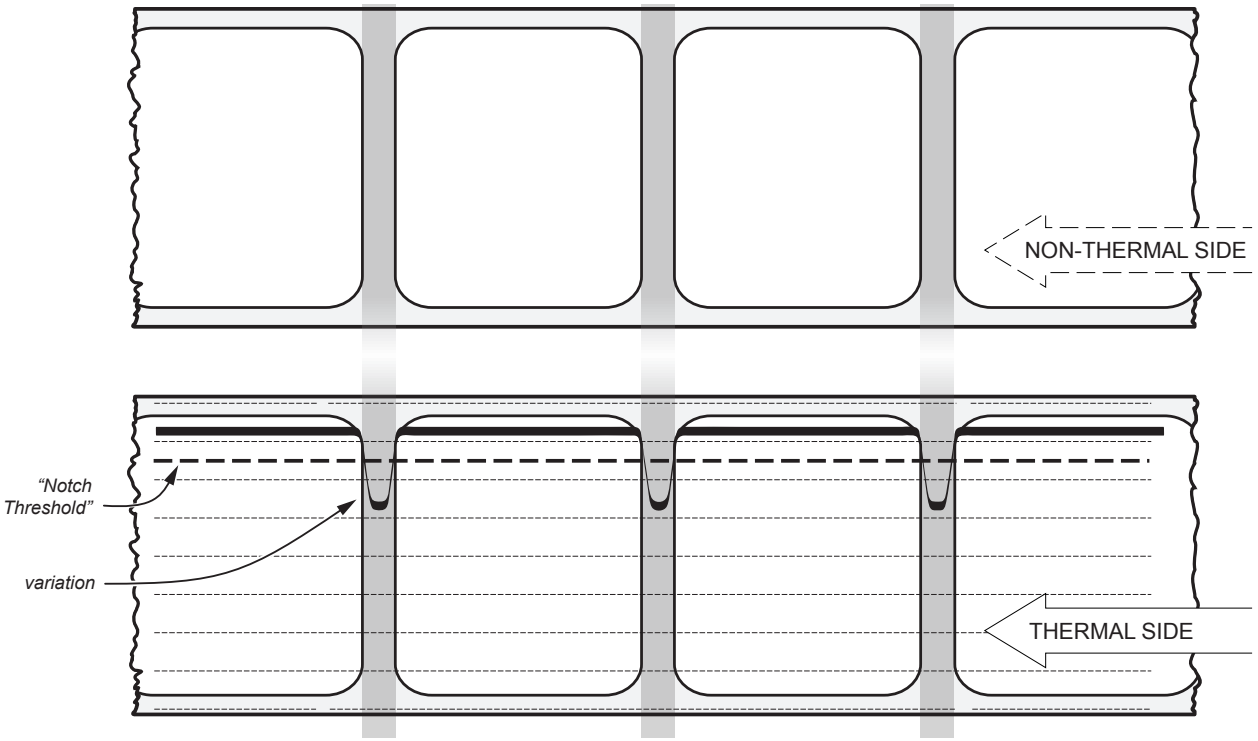
The “Autosetting Notch” parameter indicates the result of the self-calibration procedure; OK will appear if it has been successful, NOT OK will appear if the procedure has failed.

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 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 Threshold” value. This graphic representation is useful to set the most suitable value to assign to the “Notch 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.

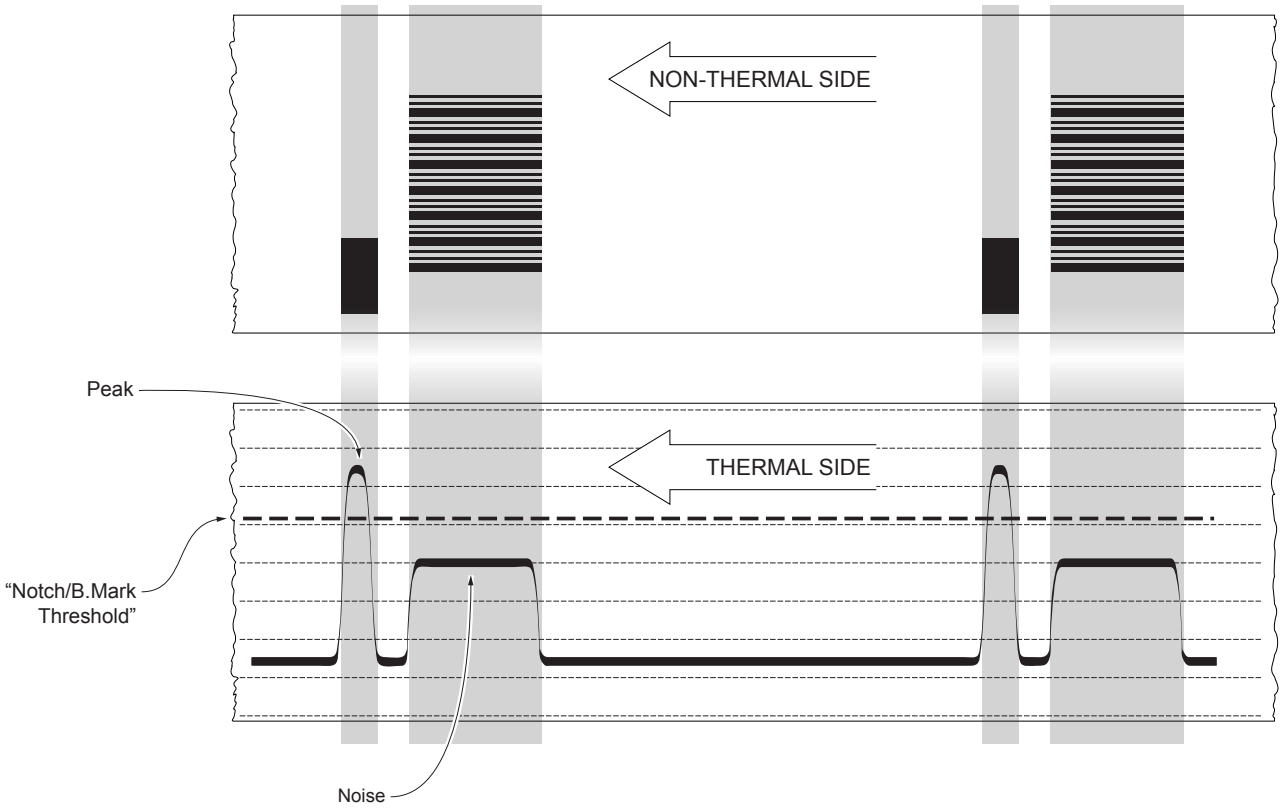
The following figure shows an example of paper with the non-thermal paper printed with black marks: the outgoing voltage is constant while passing the white paper between two notches and presents a peak at each black mark.
In this case, the optimal value for the “Notch Threshold” parameter is placed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



The following figure shows an example of paper with labels: the outgoing voltage is constant while passing the paper between two labels and presents a variation at each gap between two consecutive labels.
In this case, the optimal value for the “Notch 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 Threshold” parameter is located about halfway between the peak value and the maximum value of the “noise” (as shown in figure).



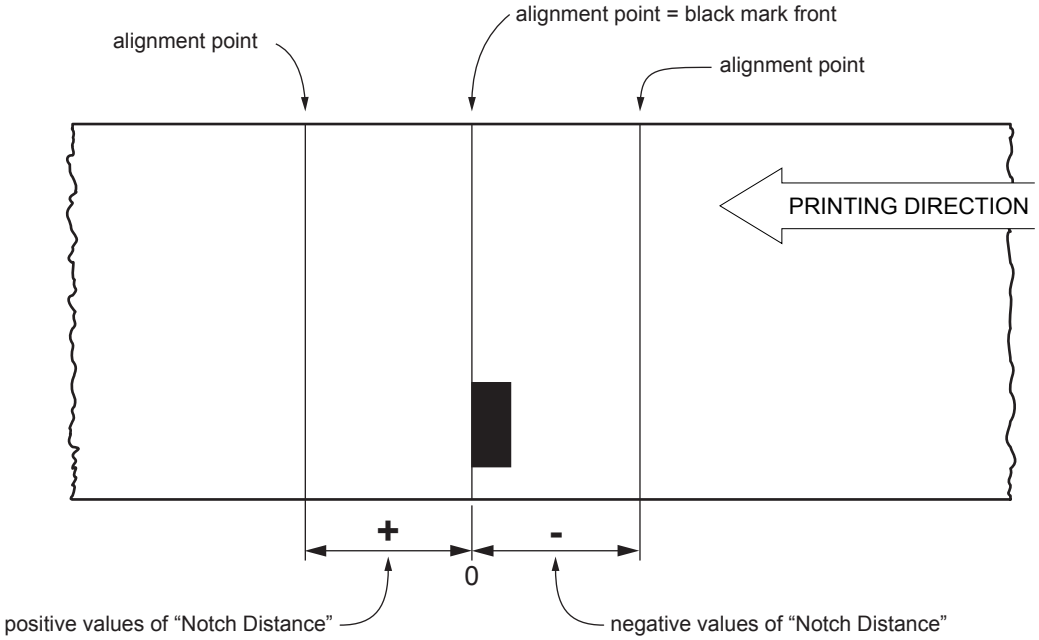
If the maximum value of “noise” read by the sensor is very close to the peak value, it might be difficult to place the value of the “Notch Threshold” at an intermediate point. In these cases, it is mandatory that the portion of paper between the point of printing end and the front notch is completely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

11.3 Alignment parameters

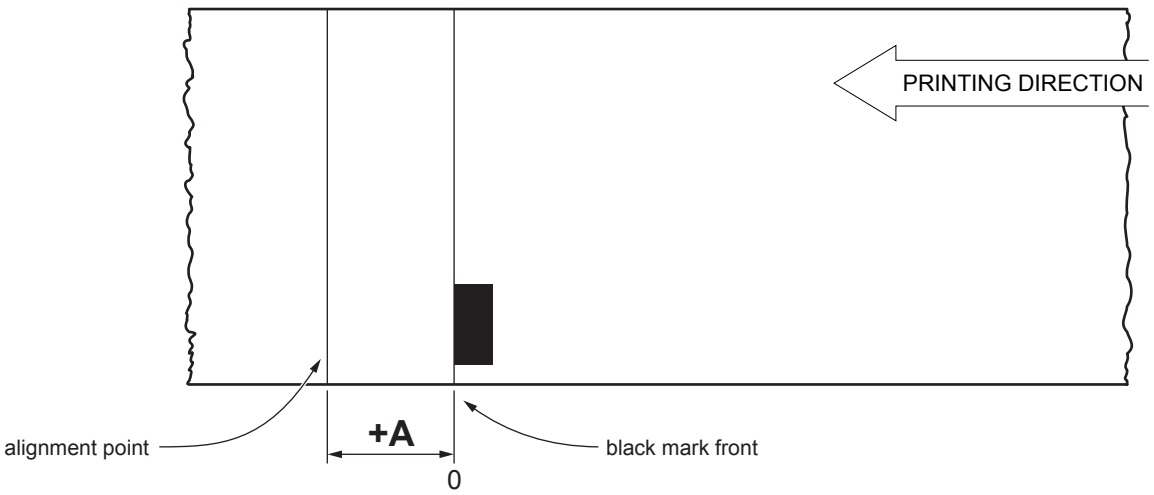
The “alignment point” is defined as the position inside the ticket to use for the notch alignment.
The distance between the notch edge and the alignment point is defined as “Notch Distance”.

The value of “Notch Distance” varies from -5mm minimum and 32mm maximum (this value is fix according to the mechanical distance between black mark sensor and printing head).

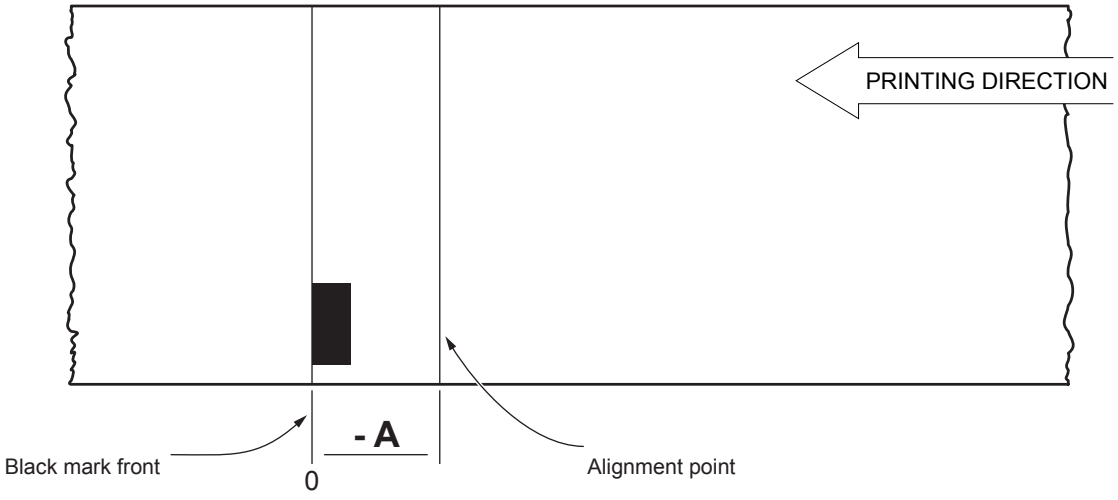
If the “Notch Distance” value is set to 0, the alignment point is set at the beginning of the black mark.

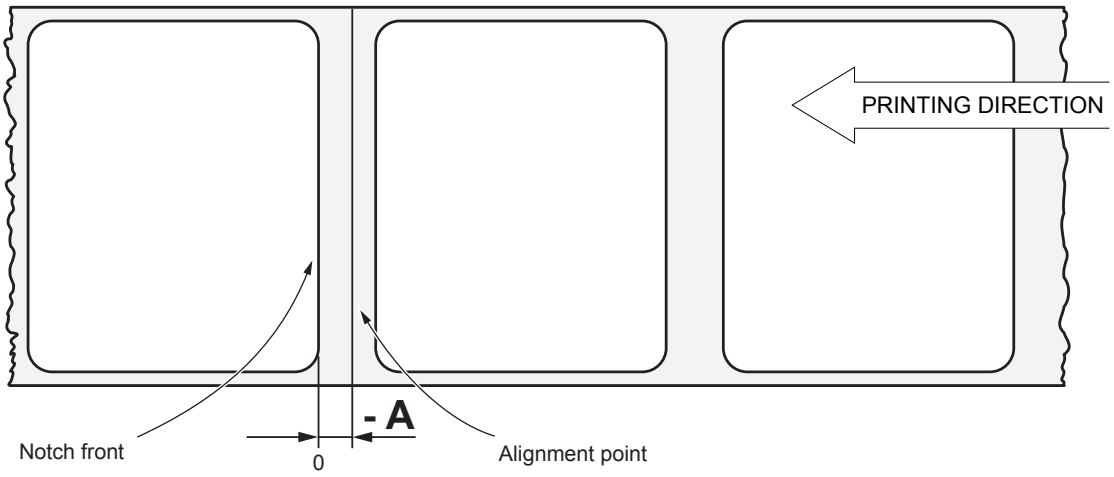


The following figure shows an example of paper with alignment point set by a positive value of “Notch Distance” (“Notch Distance” = + A):

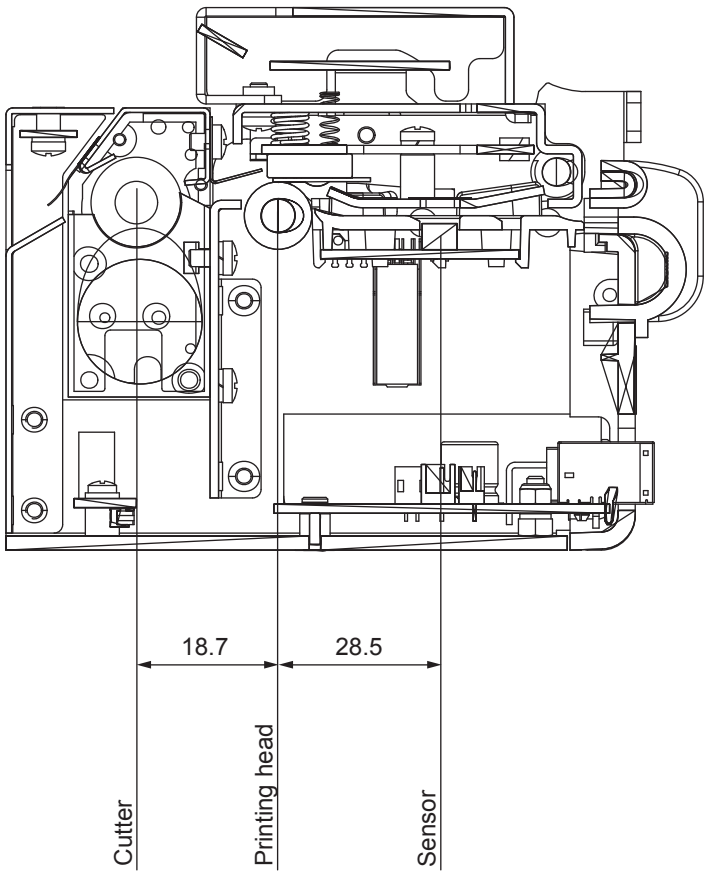


To set a negative value of the “Notch Distance” parameter is useful in cases where the alignment point refers to the black mark printed on the previous ticket or where the desired cutting line is placed in the middle of the alignment notch (for example, for paper with holes or gap). In the following images, the value of “Notch Distance” parameter is set to -A.





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



CUSTOM/POS emulation

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

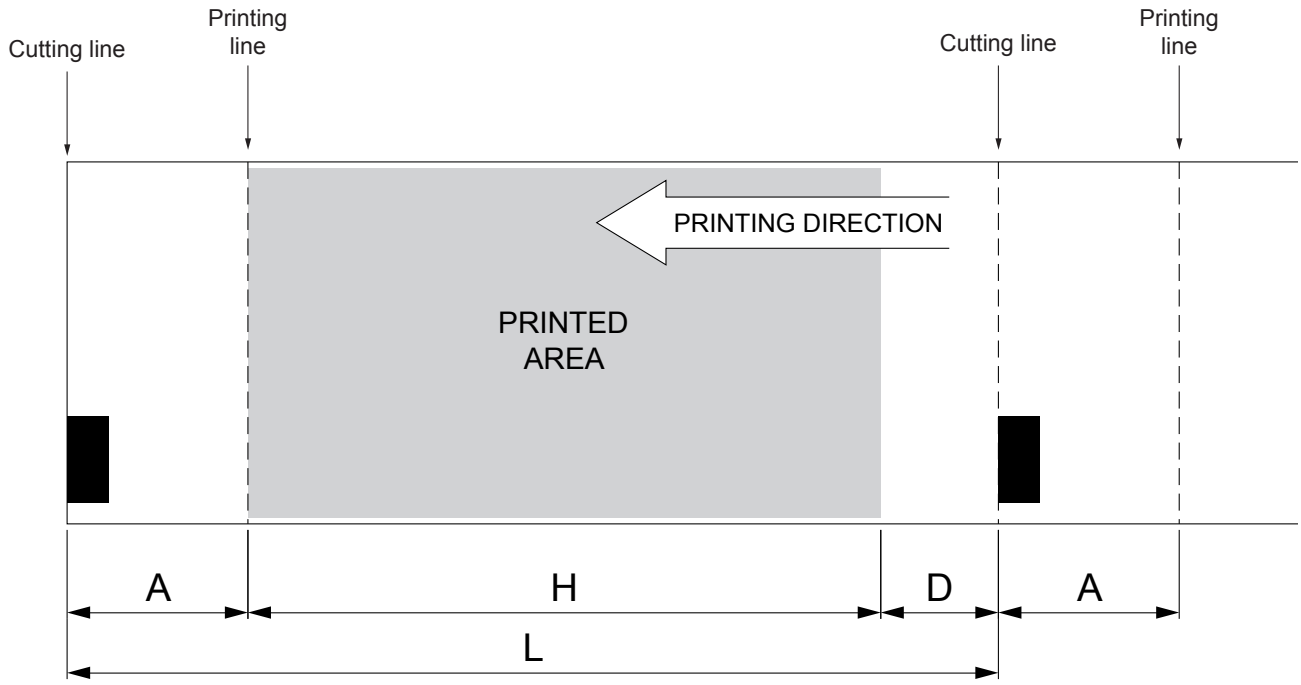
Notch Distance Sign : +
Notch Distance [mm x 10] : 1
Notch Distance [mm x 1] : 5

The “Notch Distance” parameter, may be modified as follows:
- during the setup procedure of the device (see chapter 5)
- by using the 0x1D 0xE7 command (for more details, refer to the Commands Manual)
- by driver.

11.4 Printing area

In order to print ticket containing only one 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 height of the printing area of ticket according to the inter-notch distance.

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



A “Non-printable area” = “Distance between cutter/printing head” = 18.7mm (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-notch distance”.

D Automatic feed for alignment at the next black mark.

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

$$H + A \leq L$$

The height of the printing area (H) can be increased to make no progress on alignment (D = 0) but no further.

12 TECHNICAL SERVICE

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

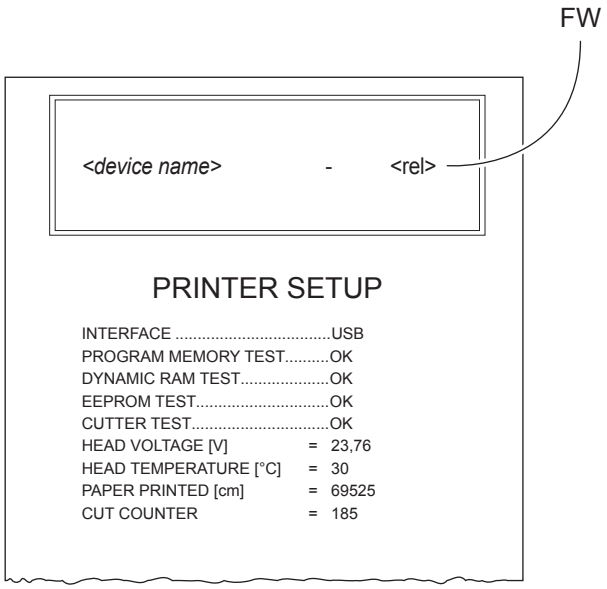
1. Product code
2. Serial number
3. Hardware release
4. Firmware release

To get the necessary data, proceed as follows:

1

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

2



Print a Setup report (see par. 6.2)
The Setup report shows
the firmware release.

3

Customer Service Department:

support@custom.it
(worldwide)

or

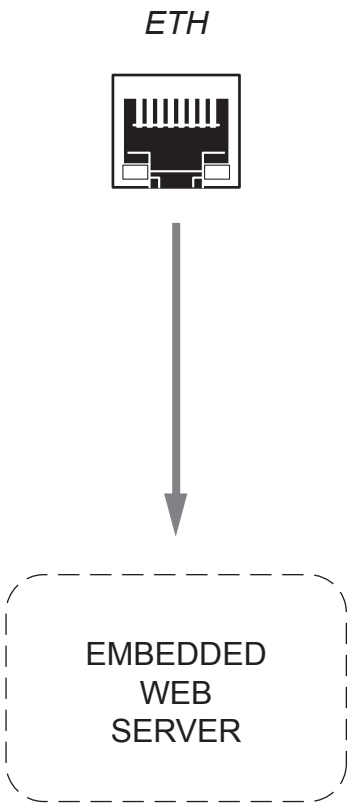
support@customamerica.com
(specific for North/South American customers)

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

13 ADVANCED FUNCTIONS

13.1 File sharing

The device can be connected to a PC with an Ethernet cable (see par. 4.4):
Through this kind of connection, it is possible to configure the operating parameters by entering the Embedded Web Server.



13.2 Embedded Web Server

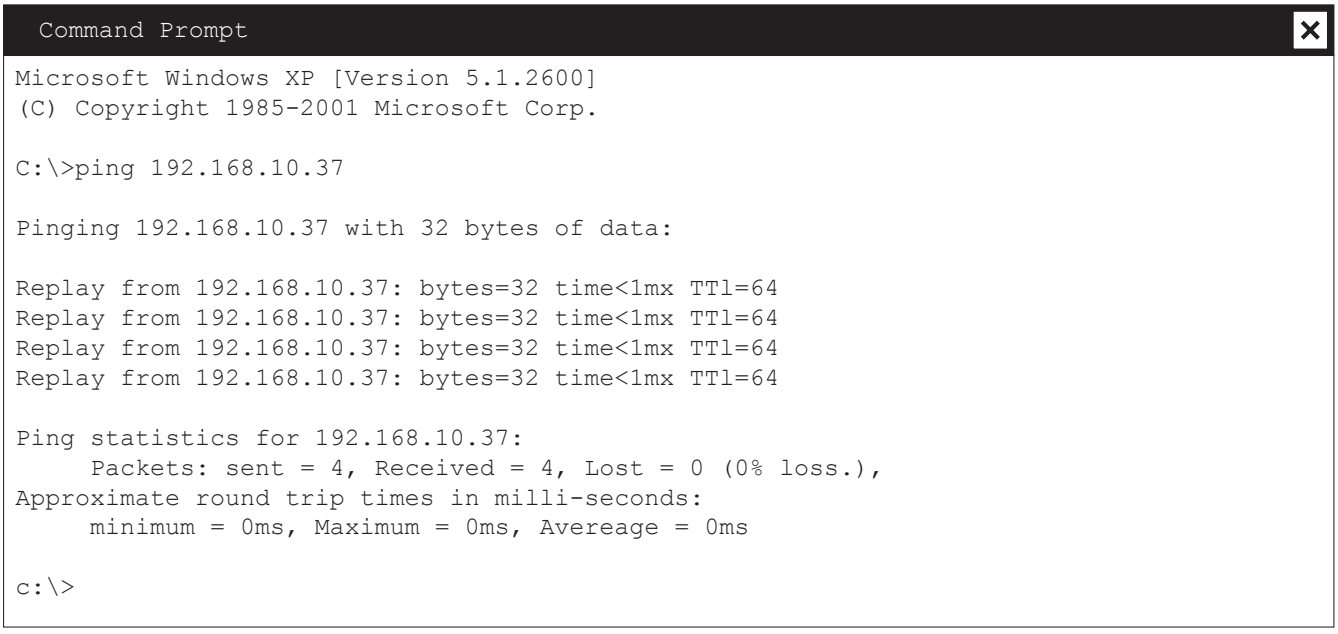
Device is equipped with an Embedded Web Server that allows to execute some operations on device, through a clear web interface, including:

- monitoring the device status;
- setting operating parameters;
- configuring network settings;
- configuring the email service to make diagnostics and maintenance operations easier;
- download printing drivers.

Before entering in the Embedded Web Server, check that:

- the device is connected and turned on;
- the device has a network connection based on the IP protocol;
- the following ports are opened (if a Firewall is present on computer): 9100 (or differently set up). 15000, 15001, 15002;
- have a Web browser on the computer;
- the device is connected to the network and its IP address and its Subnet Mask are set up in a correct way. To check the setting of these parameters, open a new terminal window and type “ping” on the command bar followed by the IP address of the device. The picture shows an example of a positive result after the “ping” command. Otherwise, if connection isn’t possible, to its IP address, a failure notice will appear.

Example: ping 192. 168. 10. 37



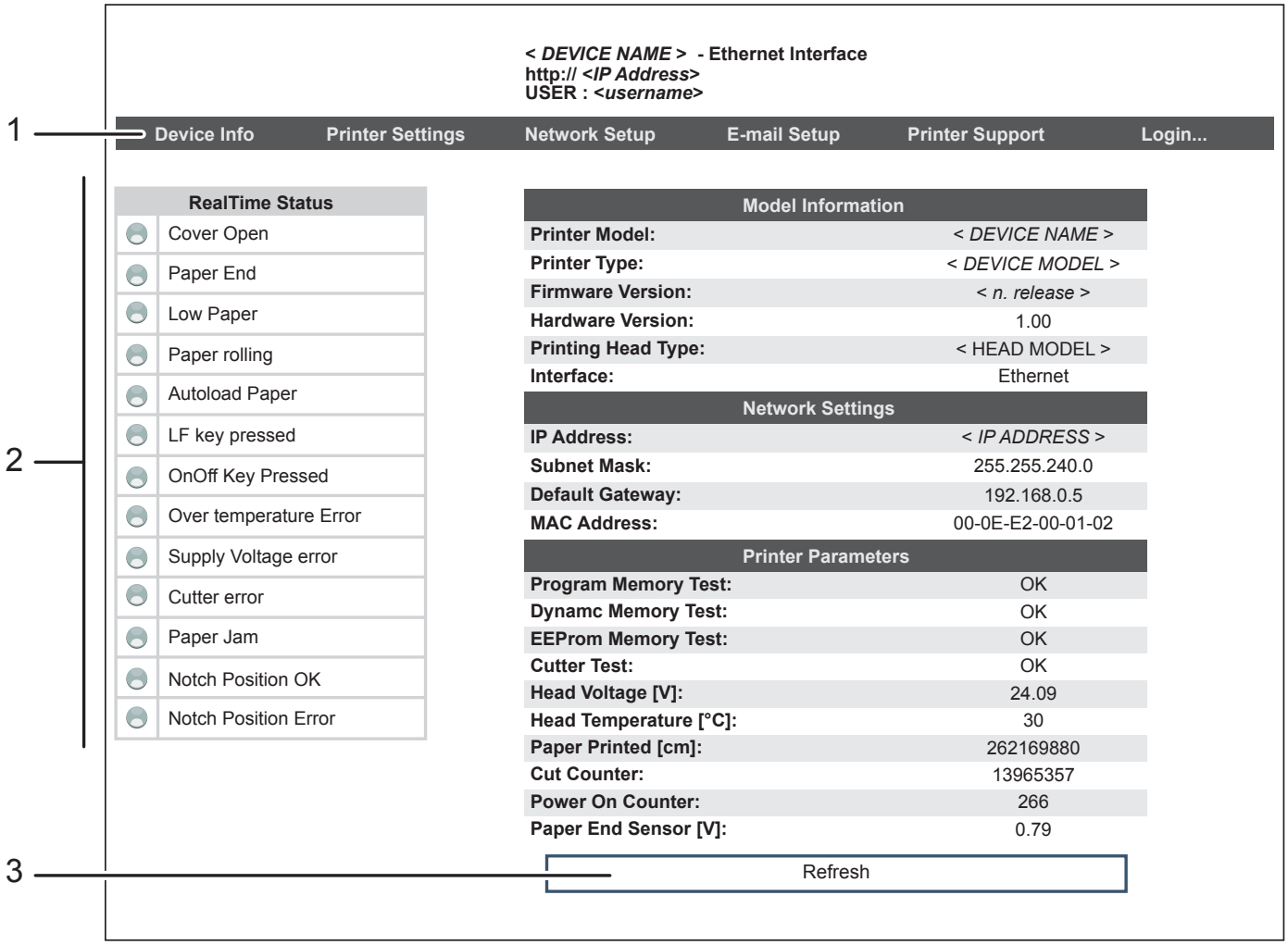
13.3 Embedded Web Server: access

To enter the Embedded Web Server, type the IP address assigned to the device into Web browser. To know the IP address of the device, print the setup report of the device (see chapter 6) or use “Locator”. For example, if IP address of the device is 192.168.10.37, type in the Web browser:

http://192.168.10.37

On the screen will appear the internal default page that corresponds to the section “Device Info” The home page is divided into 3 areas whose functions are described below:

1. **SECTIONS** — The web server has six sections listed within each web page. These sections are: Device Info, Printer Settings, Network setup, E-mail setup, Printer Support and Login.
2. **REAL TIME STATUS** — Reports a list of operating parameters controlled and monitored in real time (with a regular refresh of 15 s).
3. **TOOLS** — Lists the tools available within the chosen section.



To enter some sections and some configuration services, it is required the identification of the user and password. To make registration and to obtain the access to the restricted areas, when it is required insert the user name and the password as indicated in the following table:

User Name	**Custom**
Password	**AlwaysOn**

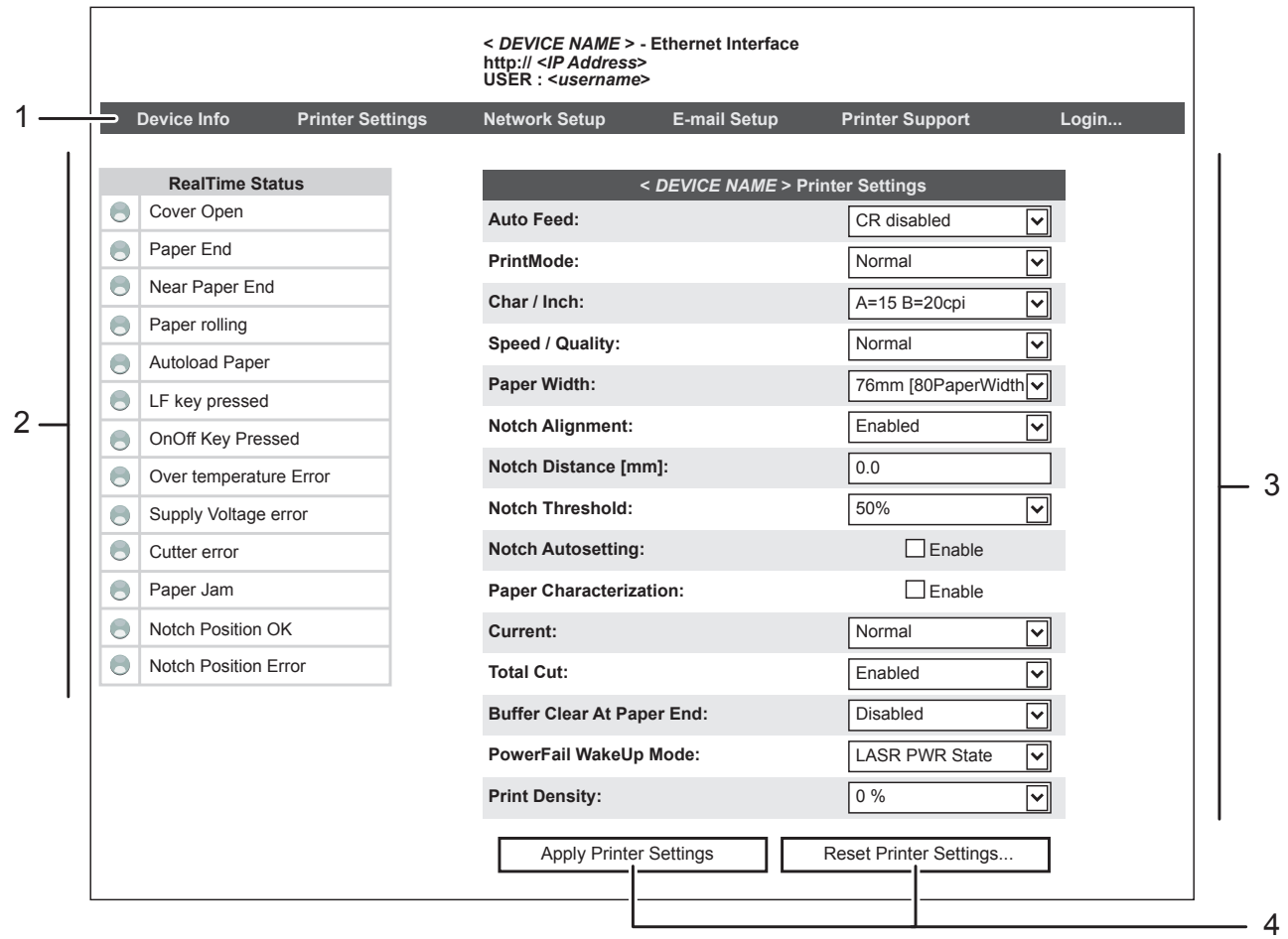
NOTE: Respect capital and small letters as indicated in table.

13.4 Embedded Web Server: functions

The “Printer Settings” section is a restricted one. To enter the section, it is required the identification of the user and password. With the tools of this section, it is possible to set up the same parameters of the device that are configurable in the device’s setup mode (see chapter 6).

The following figure shows the page for the “Printer Settings” and it is divided into 4 areas:

1. **SECTIONS** Are the same as described on the main page.
2. **REAL TIME STATUS** Reports a list of operating parameters controlled and monitored in real time.
3. **PARAMETERS** Reports the list of the configurable parameters of device.
4. **TOOLS** The modifications are applied by pressing the button “Apply Printer Settings”. To reintroduce the values previous the modify press the button “Reset Printer Settings”.

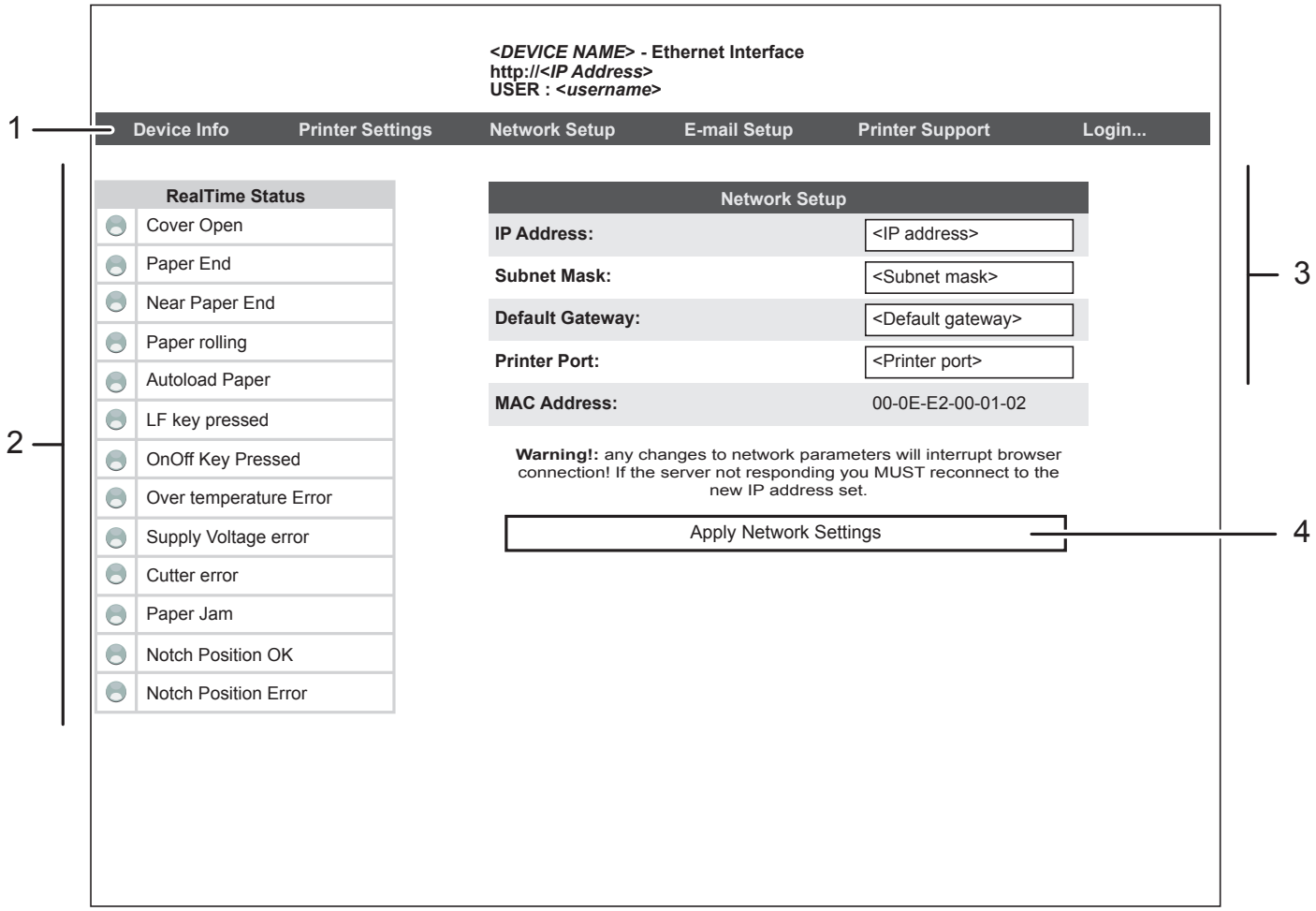


NOTE:
To know the IP address of the device, print the setup report of the device (see chapter 5) or use software LOCATOR.

With the tools in the “Network setup” section, it is possible to set up the same ethernet parameters of the device that are configurable in the device’s setup mode (see chapter 5).

The following figure shows the page for the “ADVANCED FUNCTIONS” tool. It is divided into 4 areas:

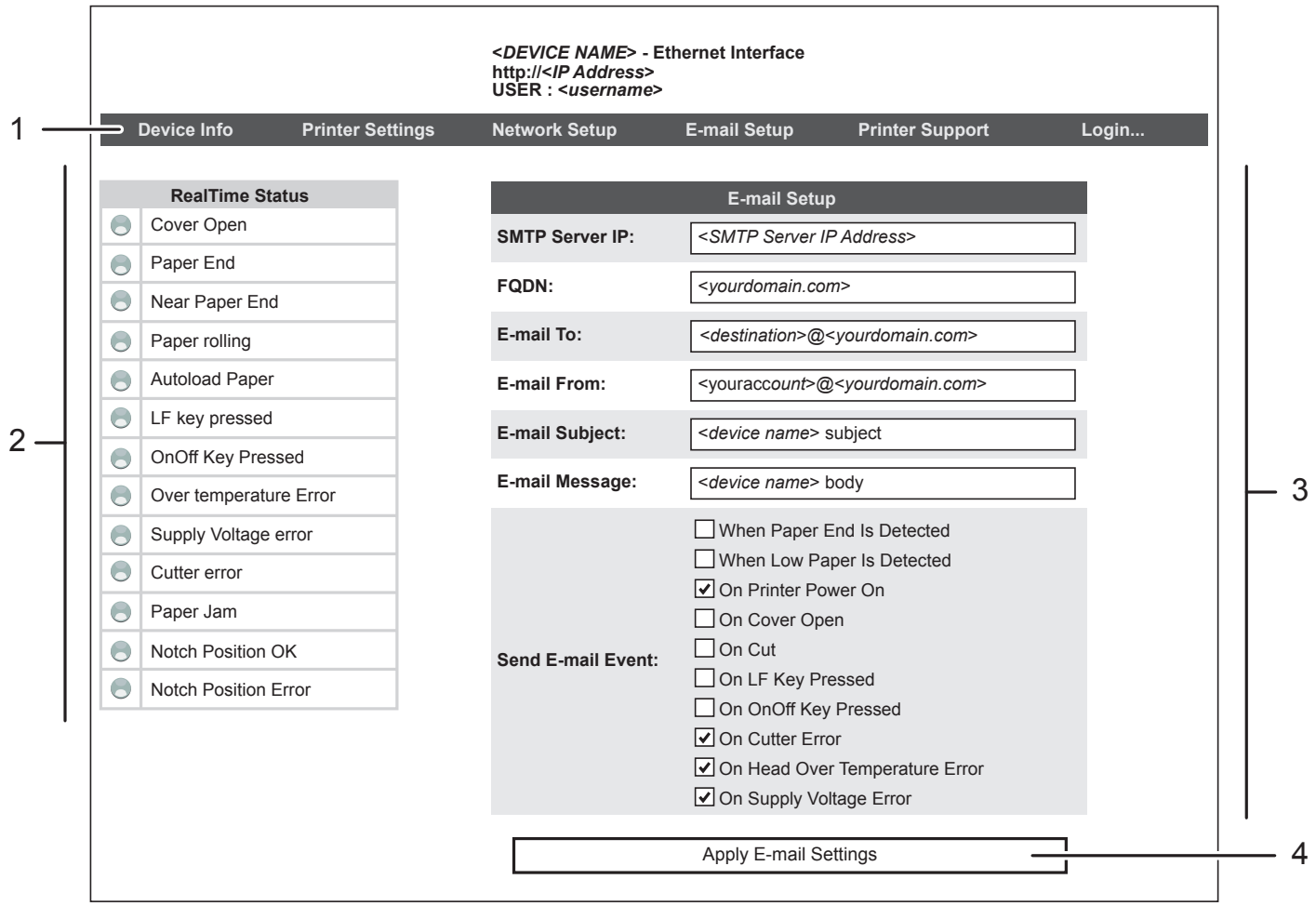
1. **SECTIONS** Are the same as described on the main page.
2. **REAL TIME STATUS** Reports a list of operating parameters controlled and monitored in real time.
3. **PARAMETERS** Reports the list of the configurable parameters of network.
4. **TOOLS** The modifications are applied by pressing the button “Apply Network Settings”.



With the tools in the “E-mail setup” section, it is possible to configure the automatically delivery of service email in order to inform the user when a change occurs to operating status of the device.

The following figure shows the page for the “ADVANCED FUNCTIONS” tool. It is divided into 4 areas:

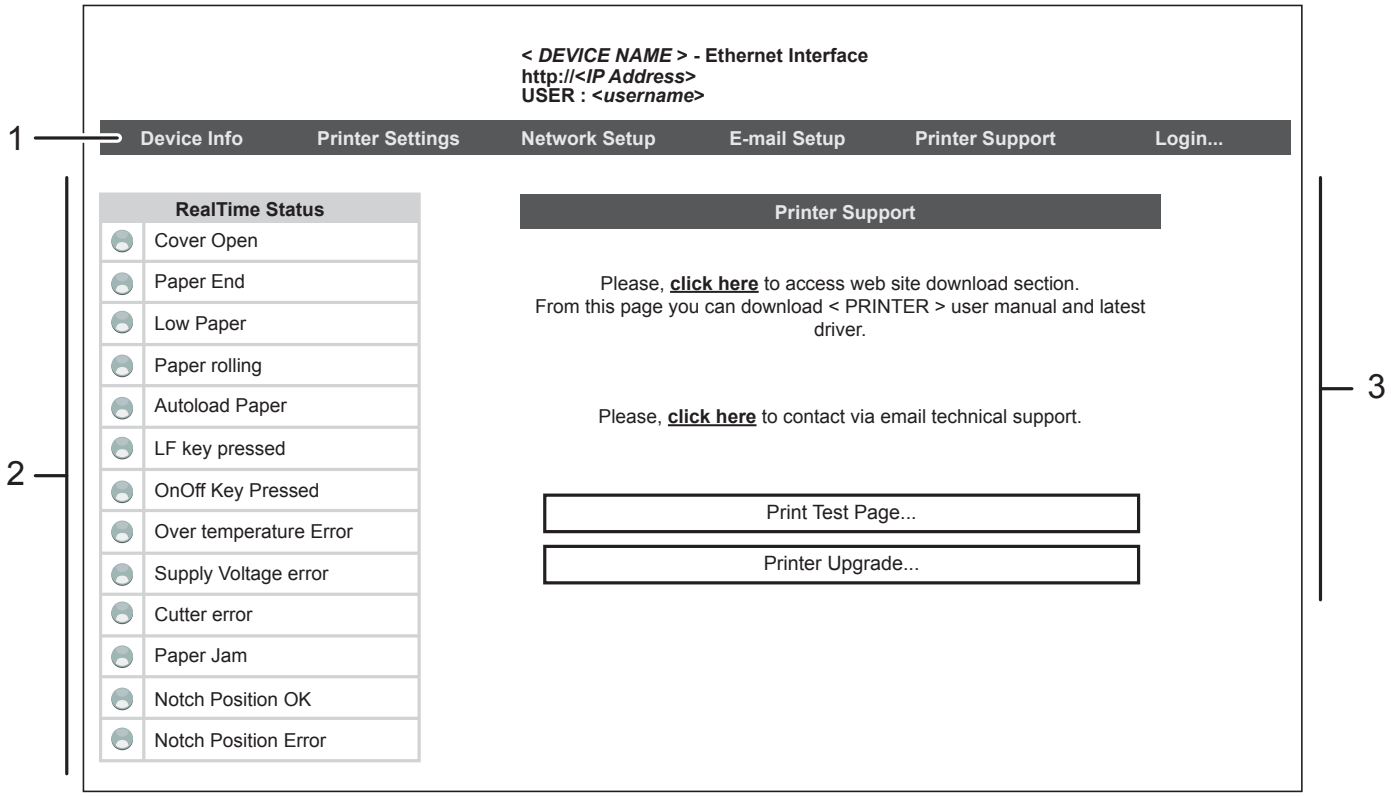
1. **SECTIONS** Are the same as described on the main page.
2. **REAL TIME STATUS** Reports a list of operating parameters controlled and monitored in real time.
3. **E-MAIL SETUP** Displays the fields available to configure the automatically delivery of service email in order to inform the user when a change occurs to operating status of the device. It is possible to select the events to enable the sending of the email.
4. **TOOLS** The modifications are applied by pressing the button “Apply E-mail Settings”.



With the tools in the “Printer Support” section, it is possible to download drivers, print a test page and execute the device firmware upgrade.

The following figure shows the page for the “Printer Support” tool. It is divided into 3 areas:

1. **SECTIONS** Are the same as described on the main page.
2. **REAL TIME STATUS** Reports a list of operating parameters controlled and monitored in real time.
3. **TOOLS** The first link is for entering the download section of the Custom web site (www.custom.biz). With the second link will open a blank e-mail already addressed to the “Client Technical Support” service.
   Press the “Print Test Page” button to make the device print a test page.
   Press the “Printer upgrade” button to enter the specific page for upgrade the device.



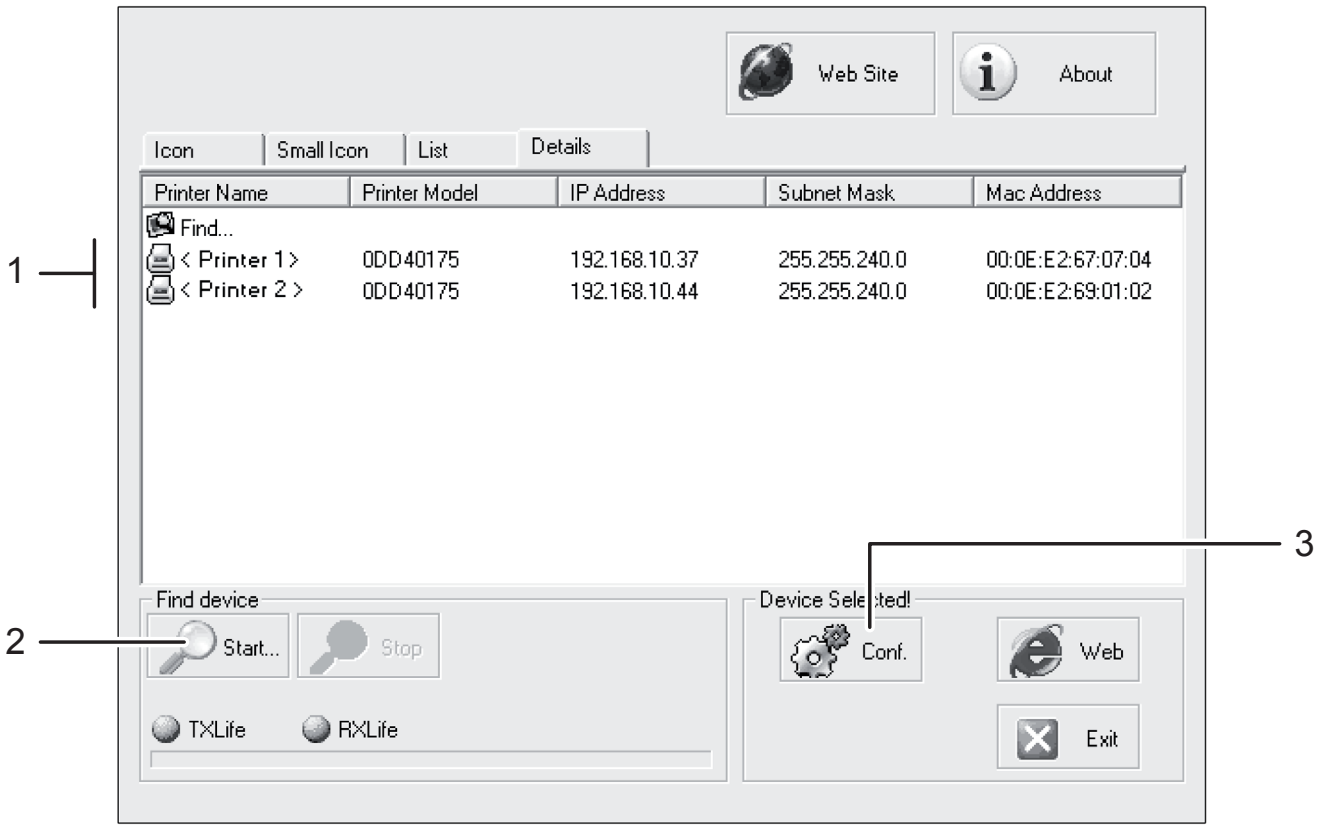
NOTE: To download updating from this page you must have an active Internet connection.

13.5 Locator

With the device it is possible to use an external software to perform a search for devices connected to the network with Ethernet cable, even without knowing the IP addresses of individual device

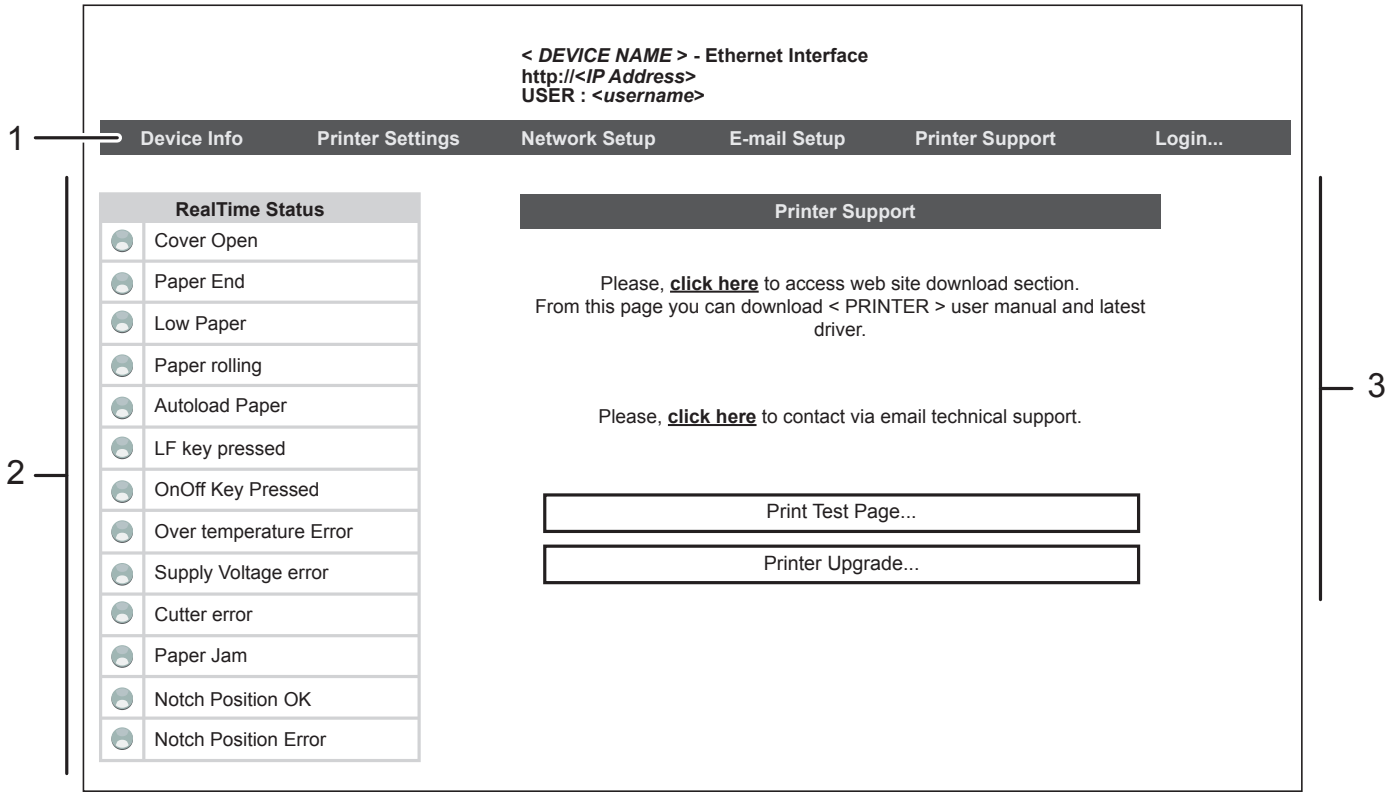
The following figure shows the software interface:

1. **DEVICES** Displays the list of the connected devices.
2. **“START...”** Stars a new search.
3. **“CONF.”** Enters the configuration window of the network parameters of the selected device.



13.6 Drivers installation

To install a new driver update for the device, enter the “Printer Support” page of the embedded Web Server (see the following figure) and click on the first link in the “Printer Support” section which will open directly the download area of the Custom web site (www.custom.biz).



NOTE: To download updating from this page you must have an active Internet connectio

Part Number : 7620000031100 Rev.2.00

CUSTOM S.p.A.
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