

COMMANDS MANUAL

---

**VK80**  
**VKP80**  
**VKP80II**  
**VKP80II-EE**  
**VKP80II-SX**

**CUSTOM<sup>®</sup>**

CUSTOM S.p.A.  
Via Berettine 2/B  
43010 Fontevivo (PARMA) - Italy  
Tel. : +39 0521-680111  
Fax : +39 0521-610701  
http: www.custom.biz

Customer Service Department:  
www.custom4u.it

© 2022 CUSTOM S.p.A. – Italy.  
All rights reserved. Total or partial reproduction of this manual in whatever form, whether by printed or electronic means, is forbidden. While guaranteeing that the information contained in it has been carefully checked, CUSTOM S.p.A. and other entities utilized in the realization of this manual bear no responsibility for how the manual is used. Information regarding any errors found in it or suggestions on how it could be improved are appreciated. Since products are subject to continuous check and improvement, CUSTOM S.p.A. reserves the right to make changes in information contained in this manual without prior notification.

The pre-installed multimedia contents are protected from Copyright CUSTOM S.p.A. Other company and product names mentioned herein may be trademarks of their respective companies. Mention of third-party products is for informational purposes only and constitutes neither an endorsement nor a recommendation. CUSTOM S.p.A. assumes no responsibility with regard to the performance or use of these products.

**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.



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 (*Electromagnetic compatibility of multimedia equipment - Emission Requirements*)
- EN 55024/EN55035 (*Electromagnetic compatibility of multimedia equipment - Immunity requirements*)
- EN IEC/EN62368-1 (*Audio/video, information and communication technology 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](http://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 2012/19/EU, 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.

INTRODUCTION



CUSTOM/POS EMULATION



ALIGNMENT



PAGE MODE







# INTRODUCTION

1	CONSULTATION OF COMMANDS MANUAL .....	7
2	IDENTIFICATION OF THE MODELS .....	9
3	PAPER SPECIFICATIONS .....	11





# 1 CONSULTATION OF COMMANDS MANUAL

Each command reported in this manual is described as shown in the following picture. In the first heading field is reported the hexadecimal command value and the ASCII command value. In the second heading field reported the command function. In the third heading field are listed the devices on which it is possible to use the command (for example, device AAAA).

Link to index

Command value  
Command function  
Devices that use the command

0x0D

<CR>

Print and carriage return

---

Valid for	AAAA
	BBBB
	CCCC

---

[Format]      Hex      0x0D  
                 ASCII    CR

[Range]

[Description]      When Autofeed is "CR enabled", this command function in the same way as 0x0A, otherwise it is disregarded.

[Notes]

This command sets the printing position to the beginning of the line.

**AAAA**

**BBBB**

- This command sets the printing position to the beginning of the line.

**CCCC**

- This command is immediately executed even when the data buffer is full.
- This status is transmitted whenever data sequence is received.

[Default]

[Reference]      0x0A

[Example]

Information valid for devices AAAA, BBBB, CCC

Information valid only for devices AAAA, BBBB

Information valid only for device CCCC



The fields shown in the scheme of the previous figure have the following meaning:

[Format]	ASCII, hexadecimal and decimal command value.
[Range]	Limits of the values the command and its variables can take
[Description]	Description of command function
[Notes]	Additional information about command use and settings .
[Default]	Default value of the command and its variables.
[Reference]	Pertaining commands related to described command.
[Example]	Example of using the command

Listed below are the meanings of some of symbols that may be found in the command description:

0x	indicates the representation of the command hexadecimal value (for example 0x40 means HEX 40).
n, m, t, x, y	are optional parameters that can have different values.



## 2 IDENTIFICATION OF THE MODELS

NOMENCLATURE	DESCRIPTION
VK80	VK80 base configuration
VKP80	VKP80 base configuration
VKP80II	VKP80II base configuration
VKP80II-EE	VKP80II with Ethernet port
VKP80II-SX	VKP80II SX



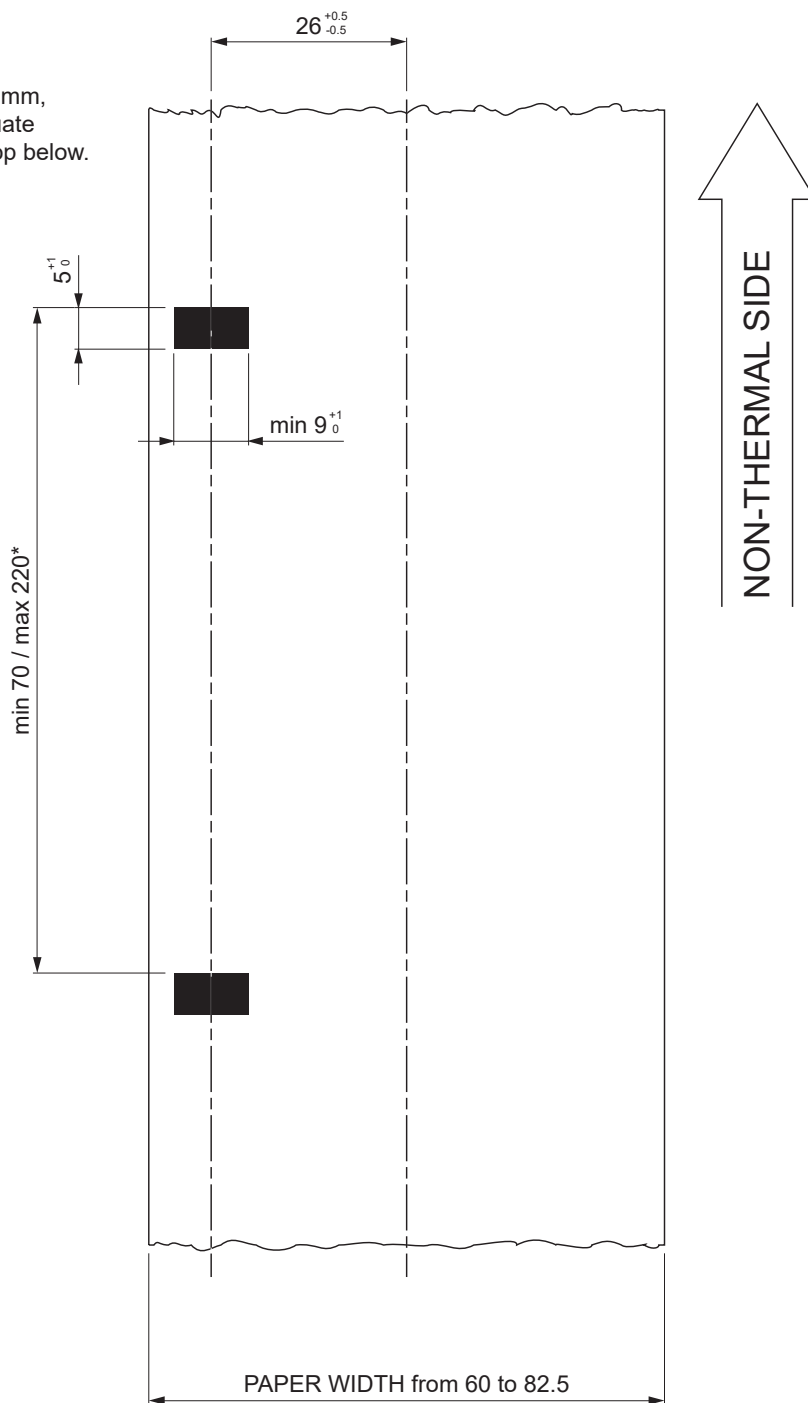
# 3 PAPER SPECIFICATIONS

## Paper with black mark on the non thermal side

The following image show the placement of the black mark on the non-thermal side of the paper.

For more information about the use of paper with black mark see the user manual of each device.  
All the dimensions shown in following figures are in millimetres.

\* For lengths over 220 mm,  
be sure to leave adequate  
space for the paper loop below.







# CUSTOM/POS EMULATION

1	COMMANDS LISTED IN ALPHANUMERIC ORDER .....	14
2	COMMANDS LISTED BY FUNCTION .....	18



# 1 COMMANDS LISTED IN ALPHANUMERIC ORDER

0x08	<BS>	116
0x09	<HT>	117
0x0A	<LF>	87
0x0C	<FF>	88
0x0D	<CR>	89
0x10 0x04	<DLE EOT>	94
0x18	<CAN>	60
0x1B 0x20	<ESC SP>	61
0x1B 0x21	<ESC !>	62
0x1B 0x24	<ESC \$>	118
0x1B 0x25	<ESC %>	64
0x1B 0x26	<ESC &>	65
0x1B 0x28 0x76	<ESC ( y>	119
0x1B 0x2A	<ESC *>	109
0x1B 0x2D	<ESC ->	67
0x1B 0x30	<ESC 0>	84
0x1B 0x32	<ESC 2>	85
0x1B 0x33	<ESC 3>	86
0x1B 0x34	<ESC 4>	68
0x1B 0x3D	<ESC =>	137
0x1B 0x3F	<ESC ?>	69
0x1B 0x40	<ESC @>	138
0x1B 0x44	<ESC D>	120
0x1B 0x45	<ESC E>	70
0x1B 0x47	<ESC G>	71
0x1B 0x4A	<ESC J>	90



0x1B 0x4D	<ESC M>	72
0x1B 0x52	<ESC R>	73
0x1B 0x56	<ESC V>	74
0x1B 0x5C	<ESC \>	122
0x1B 0x61	<ESC a>	123
0x1B 0x63 0x35	<ESC c>	139
0x1B 0x64	<ESC d>	91
0x1B 0x69	<ESC i>	128
0x1B 0x74	<ESC t>	75
0x1B 0x76	<ESC v>	100
0x1B 0x7B	<ESC {>	78
0x1B 0xC1		79
0x1B 0xFA		140
0x1B 0xFF		141
0x1C 0x25	<FS %>	80
0x1C 0xC0		142
0x1C 0xC1		129
0x1C 0xEA		101
0x1D 0x21	<GS !>	81
0x1D 0x28 0x6B	<GS (>	25
0x1D 0x28 0x6B [fn 065]	<GS (>	27
0x1D 0x28 0x6B [fn 066]	<GS (>	28
0x1D 0x28 0x6B [fn 067]	<GS (>	29
0x1D 0x28 0x6B [fn 068]	<GS (>	30
0x1D 0x28 0x6B [fn 069]	<GS (>	31
0x1D 0x28 0x6B [fn 080]	<GS (>	33



0x1D 0x28 0x6B [fn 081]	<GS (>	34
0x1D 0x28 0x6B [Fn 165]	<GS (>	35
0x1D 0x28 0x6B [Fn 166]	<GS (>	36
0x1D 0x28 0x6B [Fn 167]	<GS (>	40
0x1D 0x28 0x6B [Fn 169]	<GS (>	41
0x1D 0x28 0x6B [Fn 180]	<GS (>	42
0x1D 0x28 0x6B [Fn 181]	<GS (>	43
0x1D 0x28 0x6B [Fn Q65]	<GS (>	44
0x1D 0x28 0x6B [fn Q66]	<GS (>	45
0x1D 0x28 0x6B [fn Q67]	<GS (>	46
0x1D 0x28 0x6B [fn Q68]	<GS (>	47
0x1D 0x28 0x6B [fn Q80]	<GS (>	48
0x1D 0x28 0x6B [fn Q81]	<GS (>	49
0x1D 0x2A	<GS *>	111
0x1D 0x2F	<GS />	113
0x1D 0x3A	<GS :>	126
0x1D 0x42	<GS B>	83
0x1D 0x43 0x30	<GS C 0>	144
0x1D 0x43 0x31	<GS C a>	145
0x1D 0x43 0x32	<GS C 2>	146
0x1D 0x43 0x3B	<GS C ;>	147
0x1D 0x48	<GS H>	50
0x1D 0x49	<GS I>	149
0x1D 0x4C	<GS L>	124
0x1D 0x50	<GS P>	151
0x1D 0x56	<GS V>	130
0x1D 0x57	<GS W>	125
0x1D 0x5E	<GS ^>	127



0x1D 0x63 .....	<GS c> .....	152
0x1D 0x65 .....	<GS e> .....	135
0x1D 0x66 .....	<GS f> .....	52
0x1D 0x68 .....	<GS h> .....	53
0x1D 0x6B .....	<GS k> .....	54
0x1D 0x72 .....	<GS r> .....	102
0x1D 0x76 0x30 .....	<GS v 0> .....	114
0x1D 0x77 .....	<GS w> .....	58
0x1D 0x7C .....		92
0x1D 0xD0 .....		153
0x1D 0xE0 .....		103
0x1D 0xE1 .....		104
0x1D 0xE2 .....		105
0x1D 0xE3 .....		106
0x1D 0xE4 .....		107
0x1D 0xE5 .....		108
0x1D 0xE6 .....		154
0x1D 0xE7 .....		131
0x1D 0xF0 .....		155
0x1D 0xF6 .....		133
0x1D 0xF8 .....		134



# 2 COMMANDS LISTED BY FUNCTION

## COMMANDS FOR BARCODE PRINTING

---

<b>0x1D 0x28 0x6B</b> . . . . . <GS (> . . . . .	25
Print two-dimensional barcode	
<b>0x1D 0x28 0x6B [fn 065]</b> . . . . . <GS (> . . . . .	27
Specify the number of columns of PDF417 barcode	
<b>0x1D 0x28 0x6B [fn 066]</b> . . . . . <GS (> . . . . .	28
Specify the number of rows of PDF417 barcode	
<b>0x1D 0x28 0x6B [fn 067]</b> . . . . . <GS (> . . . . .	29
Specify the width of a module of PDF417 barcode	
<b>0x1D 0x28 0x6B [fn 068]</b> . . . . . <GS (> . . . . .	30
Specify the height of the module of PDF417 barcode	
<b>0x1D 0x28 0x6B [fn 069]</b> . . . . . <GS (> . . . . .	31
Specify the error correction level of PDF417 barcode	
<b>0x1D 0x28 0x6B [fn 080]</b> . . . . . <GS (> . . . . .	33
Store the PDF417 barcode data in the barcode save area	
<b>0x1D 0x28 0x6B [fn 081]</b> . . . . . <GS (> . . . . .	34
Encodes and prints the PDF417 barcode data in the barcode save area	
<b>0x1D 0x28 0x6B [Fn 165]</b> . . . . . <GS (> . . . . .	35
Specify encoding scheme of QRcode barcode	
<b>0x1D 0x28 0x6B [Fn 166]</b> . . . . . <GS (> . . . . .	36
Specify QRcode barcode version	
<b>0x1D 0x28 0x6B [Fn 167]</b> . . . . . <GS (> . . . . .	40
Specify dot size of the module of the QRcode barcode	
<b>0x1D 0x28 0x6B [Fn 169]</b> . . . . . <GS (> . . . . .	41
Specify the error correction level of the QRcode barcode	
<b>0x1D 0x28 0x6B [Fn 180]</b> . . . . . <GS (> . . . . .	42
<b>0x1D 0x28 0x6B [Fn 181]</b> . . . . . <GS (> . . . . .	43
<b>0x1D 0x28 0x6B [Fn Q65]</b> . . . . . <GS (> . . . . .	44
Specify the encoding scheme of DATAMATRIX barcode	
<b>0x1D 0x28 0x6B [fn Q66]</b> . . . . . <GS (> . . . . .	45
Set rotation of DATAMATRIX barcode	
<b>0x1D 0x28 0x6B [fn Q67]</b> . . . . . <GS (> . . . . .	46
Set dot size of the module of DATAMATRIX barcode	



<b>0x1D 0x28 0x6B [fn Q68]</b> . . . . . <GS (> . . . . .	47
Set size of DATAMATRIX barcode	
<b>0x1D 0x28 0x6B [fn Q80]</b> . . . . . <GS (> . . . . .	48
Store the DATAMATRIX barcode data in the barcode save area	
<b>0x1D 0x28 0x6B [fn Q81]</b> . . . . . <GS (> . . . . .	49
Encodes and prints the DATAMATRIX barcode data in the barcode save area	
<b>0x1D 0x48</b> . . . . . <GS H> . . . . .	50
Select printing position of Human Readable Interpretation ( HRI ) characters	
<b>0x1D 0x66</b> . . . . . <GS f> . . . . .	52
Select font for HRI characters	
<b>0x1D 0x68</b> . . . . . <GS h> . . . . .	53
Set 1D barcode height	
<b>0x1D 0x6B</b> . . . . . <GS k> . . . . .	54
Print 1D barcode	
<b>0x1D 0x77</b> . . . . . <GS w> . . . . .	58
Set 1D barcode width	

## CHARACTER COMMANDS

---

<b>0x18</b> . . . . . <CAN> . . . . .	60
Cancel current line transmitted	
<b>0x1B 0x20</b> . . . . . <ESC SP> . . . . .	61
Set right-side character spacing	
<b>0x1B 0x21</b> . . . . . <ESC !> . . . . .	62
Select print modes	
<b>0x1B 0x25</b> . . . . . <ESC %> . . . . .	64
Enable or disable user-defined characters	
<b>0x1B 0x26</b> . . . . . <ESC &> . . . . .	65
Defines user-defined characters	
<b>0x1B 0x2D</b> . . . . . <ESC -> . . . . .	67
Turn underline mode on or off	
<b>0x1B 0x34</b> . . . . . <ESC 4> . . . . .	68
Turn italic mode on or off	
<b>0x1B 0x3F</b> . . . . . <ESC ?> . . . . .	69
Cancel user-defined characters	
<b>0x1B 0x45</b> . . . . . <ESC E> . . . . .	70
Turn bold mode on or off	
<b>0x1B 0x47</b> . . . . . <ESC G> . . . . .	71
Turn double-strike mode on or off	



<b>0x1B 0x4D</b> .....	<b>&lt;ESC M&gt;</b> .....	<b>72</b>
Select character font		
<b>0x1B 0x52</b> .....	<b>&lt;ESC R&gt;</b> .....	<b>73</b>
Select an international character set		
<b>0x1B 0x56</b> .....	<b>&lt;ESC V&gt;</b> .....	<b>74</b>
Select print mode 90° turned		
<b>0x1B 0x74</b> .....	<b>&lt;ESC t&gt;</b> .....	<b>75</b>
Select character code table		
<b>0x1B 0x7B</b> .....	<b>&lt;ESC {&gt;</b> .....	<b>78</b>
Set/cancel upside-down character printing		
<b>0x1B 0xC1</b> .....		<b>79</b>
Select character pitch		
<b>0x1C 0x25</b> .....	<b>&lt;FS %&gt;</b> .....	<b>80</b>
Select the font type		
<b>0x1D 0x21</b> .....	<b>&lt;GS !&gt;</b> .....	<b>81</b>
Select character size		
<b>0x1D 0x42</b> .....	<b>&lt;GS B&gt;</b> .....	<b>83</b>

## LINE SPACING COMMANDS

---

<b>0x1B 0x30</b> .....	<b>&lt;ESC 0&gt;</b> .....	<b>84</b>
Select 1/8-inch line spacing		
<b>0x1B 0x32</b> .....	<b>&lt;ESC 2&gt;</b> .....	<b>85</b>
Select 1/6-inch line spacing		
<b>0x1B 0x33</b> .....	<b>&lt;ESC 3&gt;</b> .....	<b>86</b>
Set line spacing using minimum units		

## PRINT COMMANDS

---

<b>0x0A</b> .....	<b>&lt;LF&gt;</b> .....	<b>87</b>
Print and line feed		
<b>0x0C</b> .....	<b>&lt;FF&gt;</b> .....	<b>88</b>
Form Feed		
<b>0x0D</b> .....	<b>&lt;CR&gt;</b> .....	<b>89</b>
Print and carriage return		
<b>0x1B 0x4A</b> .....	<b>&lt;ESC J&gt;</b> .....	<b>90</b>
Print and feed paper		
<b>0x1B 0x64</b> .....	<b>&lt;ESC d&gt;</b> .....	<b>91</b>
Print and feed paper n lines		



0x1D 0x7C .....	92
Set printing density	

## STATUS COMMANDS

---

0x10 0x04 .....	<DLE EOT> .....	94
Real-time status transmission		
0x1B 0x76 .....	<ESC v> .....	100
Transmit paper sensor status		
0x1C 0xEA .....		101
Transmit the device serial number		
0x1D 0x72 .....	<GS r> .....	102
Transmit status		
0x1D 0xE0 .....		103
Enable or disable automatic FULL STATUS BACK		
0x1D 0xE1 .....		104
Reading of length paper (cm) available before virtual paper-end		
0x1D 0xE2 .....		105
Reading number of cuts performed by the autocutter		
0x1D 0xE3 .....		106
Reading of length of printed paper		
0x1D 0xE4 .....		107
Reading number of retracting		
0x1D 0xE5 .....		108
Reading number of power up		

## BIT-IMAGE COMMANDS

---

0x1B 0x2A .....	<ESC *> .....	109
Select image print mode		
0x1D 0x2A .....	<GS *> .....	111
Define received bit image		
0x1D 0x2F .....	<GS /> .....	113
Print downloaded bit image		
0x1D 0x76 0x30 .....	<GS v 0> .....	114
Print raster image		



## PRINT POSITION COMMANDS

---

0x08 .....	<BS> .....	116
Back space		
0x09 .....	<HT> .....	117
Horizontal tab		
0x1B 0x24 .....	<ESC \$> .....	118
Set absolute print position		
0x1B 0x28 0x76 .....	<ESC ( y> .....	119
Set relative vertical print position		
0x1B 0x44 .....	<ESC D> .....	120
Set horizontal tab position		
0x1B 0x5C .....	<ESC \> .....	122
Set relative print position		
0x1B 0x61 .....	<ESC a> .....	123
Select justification		
0x1D 0x4C .....	<GS L> .....	124
Set left margin		
0x1D 0x57 .....	<GS W> .....	125
Set printing area width		

## MACRO FUNCTIONS CONTROL

---

0x1D 0x3A .....	<GS :> .....	126
Start or end of macro definition		
0x1D 0x5E .....	<GS ^> .....	127
Execute macro		

## COMMANDS FOR MECHANISM CONTROL

---

0x1B 0x69 .....	<ESC i> .....	128
Total cut		
0x1C 0xC1 .....		129
Enable or disable the paper recovery after cut		
0x1D 0x56 .....	<GS V> .....	130
Select cut mode		



## ALIGNMENT COMMANDS

---

<b>0x1D 0xE7</b> .....	131
Set black mark distance	
<b>0x1D 0xF6</b> .....	133
Align the ticket with the printhead	
<b>0x1D 0xF8</b> .....	134
Align the ticket with the autocutter	

## EJECTOR COMMANDS

---

<b>0x1D 0x65</b> .....	<GS e> .....	135
Ejector commands		

## MISCELLANEOUS COMMANDS

---

<b>0x1B 0x3D</b> .....	<ESC => .....	137
Select peripheral device		
<b>0x1B 0x40</b> .....	<ESC @> .....	138
Initialize device		
<b>0x1B 0x63 0x35</b> .....	<ESC c> .....	139
Enable or disable keys panel		
<b>0x1B 0xFA</b> .....		140
Print graphic bank (608x862 dots)		
<b>0x1B 0xFF</b> .....		141
Receive the graphic page from the communication port		
<b>0x1C 0xC0</b> .....		142
Prints graphic logo in the graphic page		
<b>0x1D 0x43 0x30</b> .....	<GS C 0> .....	144
Select counter print mode		
<b>0x1D 0x43 0x31</b> .....	<GS C a> .....	145
Select count mode (A)		
<b>0x1D 0x43 0x32</b> .....	<GS C 2> .....	146
Set counter		
<b>0x1D 0x43 0x3B</b> .....	<GS C ;> .....	147
Select count mode (B)		
<b>0x1D 0x49</b> .....	<GS I> .....	149
Transmit device ID		
<b>0x1D 0x50</b> .....	<GS P> .....	151
Set horizontal and vertical motion units		



0x1D 0x63 .....	<GS c> .....	152
Print counter		
0x1D 0xD0 .....		153
Set horizontal and vertical motion units		
0x1D 0xE6 .....		154
Virtual paper-end limit		
0x1D 0xF0 .....		155
Set print mode		



# COMMANDS FOR BARCODE PRINTING

## 0x1D 0x28 0x6B

<GS (>

Print two-dimensional barcode

Valid for	VK80 VKP80II-EE VKP80II-SX
-----------	----------------------------------

[Format]	Hex            1D    28    6B    pL    pH    cn    fn ASCII        GS    (    k    pL    pH    cn    fn
----------	--

[Range]	cn = 0x30, 0x31, 0x51 0x41 ≤ fn ≤ 0x45 0x50 ≤ fn ≤ 0x51
---------	---

[Description]	Processes the data concerning two-dimensional barcode. • Barcode type is specified by cn • Function is specified by fn
---------------	--

### VK80, VKP80II-EE

cn	fn	FUNCTION	
0x30	0x41	Function 065	PDF 417: Specify the number of columns
0x30	0x42	Function 066	PDF 417: Specify the number of rows
0x30	0x43	Function 067	PDF 417: Specify the width of module
0x30	0x44	Function 068	PDF 417: Specify the module height
0x30	0x45	Function 069	PDF 417: Specify the error correction level
0x30	0x50	Function 080	PDF 417: Store the received data in the barcode save area
0x30	0x51	Function 081	PDF 417: Print the barcode data in the barcode save area
0x51	0x41	Function Q65	DATAMATRIX: Set encoding scheme
0x51	0x42	Function Q66	DATAMATRIX: Set rotate
0x51	0x43	Function Q67	DATAMATRIX: Set dot size of the module
0x51	0x44	Function Q68	DATAMATRIX: Set size of barcode
0x51	0x50	Function Q80	DATAMATRIX: Store the received data in the barcode save area
0x51	0x51	Function Q81	DATAMATRIX: Print the barcode data in the barcode save area



## VKP80II-SX

cn	fn	FUNCTION	
0x30	0x41	<a href="#">Function 065</a>	PDF 417: Specify the number of columns
0x30	0x42	<a href="#">Function 066</a>	PDF 417: Specify the number of rows
0x30	0x43	<a href="#">Function 067</a>	PDF 417: Specify the width of module
0x30	0x44	<a href="#">Function 068</a>	PDF 417: Specify the module height
0x30	0x45	<a href="#">Function 069</a>	PDF 417: Specify the error correction level
0x30	0x50	<a href="#">Function 080</a>	PDF 417: Store the received data in the barcode save area
0x30	0x51	<a href="#">Function 081</a>	PDF 417: Print the barcode data in the barcode save area
0x31	0x41	<a href="#">Function 165</a>	QRcode: Specify encoding scheme
0x31	0x42	<a href="#">Function 166</a>	QRcode: Specify the selected version
0x31	0x43	<a href="#">Function 167</a>	QRcode: Specify dot size of the module
0x31	0x45	<a href="#">Function 169</a>	QRcode: Specify the error correction level
0x31	0x50	<a href="#">Function 180</a>	QRcode: Store the received data in the barcode save area
0x31	0x51	<a href="#">Function 181</a>	QRcode: Print the barcode data

[Notes]

[Default]

[Reference]

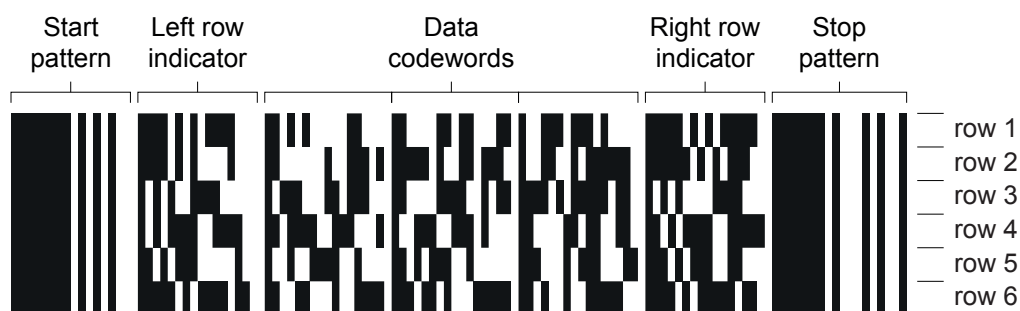
[Example]

## 0x1D 0x28 0x6B [fn 065]

<GS (>

Specify the number of columns of PDF417 barcode

Valid for	VK80 VKP80II-EE VKP80II-SX
[Format]	Hex            1D    28    6B    pL    pH    30    41    n ASCII          GS    (    k    pL    pH    0    A    n
[Range]	(pL + pH × 256) = 3    (pL = 0x03, pH = 0x00) 0x00 ≤ n ≤ 0x1E
[Description]	Specifies the number of columns of PDF417 barcode. <ul style="list-style-type: none"> <li>• pL and pH specify the number of successive bytes to be sent.</li> <li>• n = 0x00 specifies auto processing. When n = 0x00, the maximum number of columns in the data area is 30 columns.</li> </ul>
[Notes]	<ul style="list-style-type: none"> <li>• The following data is not included in the number of columns: <ul style="list-style-type: none"> <li>- start pattern and stop pattern</li> <li>- indicator code word of left and right</li> </ul> </li> <li>• Settings are effective until <b>0x1B 0x40</b> is executed, the device is reset or turned off.</li> </ul>
[Default]	n = 0x00
[Reference]	<a href="#">0x1D 0x28 0x6B</a>
[Example]	To define 3 columns the command sequence is the following: 0x1D 0x28 0x6B 0x03 0x00 0x30 0x41 0x03



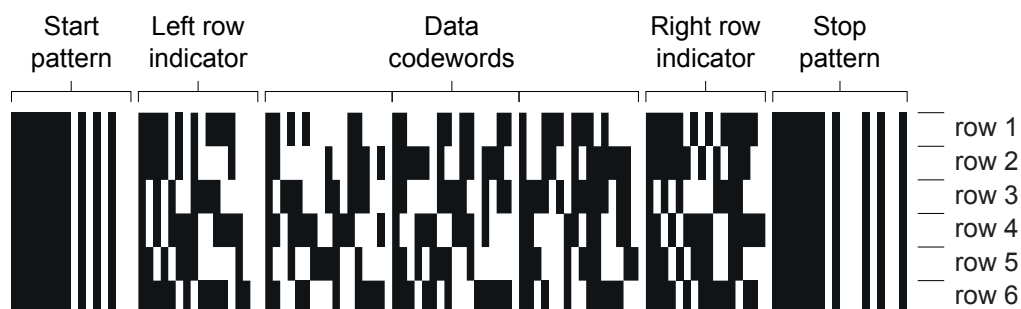


## 0x1D 0x28 0x6B [fn 066]

<GS (>

Specify the number of rows of PDF417 barcode

Valid for	VK80 VKP80II-EE VKP80II-SX								
[Format]	Hex	1D	28	6B	pL	pH	30	42	n
	ASCII	GS	(	k	pL	pH	0	B	n
[Range]	(pL + pH × 256) = 3 (pL = 3, pH = 0) n = 0x00 0x03 ≤ n ≤ 0x14								
[Description]	Specifies the number of rows of PDF417 barcode. <ul style="list-style-type: none"> <li>• pL and pH specify the number of successive bytes to be sent.</li> <li>• n = 0x00 specifies auto processing. When n = 0x00 the maximum number of rows is 20. When n ≠ 0x00, n specifies the number of rows of the data area.</li> </ul>								
[Notes]	• Settings are effective until <a href="#">0x1B 0x40</a> is executed, the device is reset or turned off.								
[Default]	n = 0x00								
[Reference]	<a href="#">0x1D 0x28 0x6B</a>								
[Example]	To define 3 rows the command sequence is the following: 0x1D 0x28 0x6B 0x03 0x00 0x30 0x42 0x03								

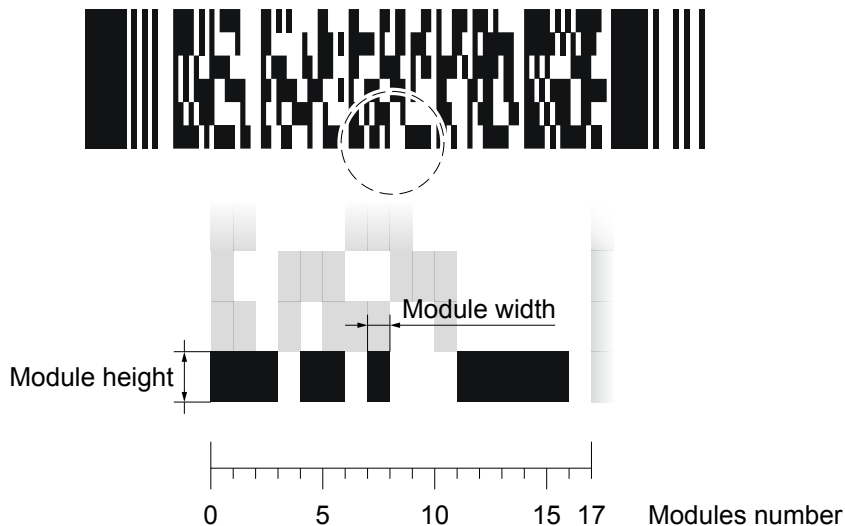


## 0x1D 0x28 0x6B [fn 067]

<GS (>

Specify the width of a module of PDF417 barcode

Valid for	VK80 VKP80II-EE VKP80II-SX								
[Format]	Hex	1D	28	6B	pL	pH	30	43	n
	ASCII	GS	(	k	pL	pH	0	C	n
[Range]	(pL + pH × 256) = 3 (pL = 3, pH = 0) 0x02 ≤ n ≤ 0x08								
[Description]	Specifies the width of a module of PDF417 barcode. • pL and pH specify the number of successive bytes to be sent.								
[Notes]	Settings are effective until <a href="#">0x1B 0x40</a> is executed, the device is reset or turned off.								
[Default]	n = 0x03								
[Reference]	<a href="#">0x1D 0x28 0x6B</a>								
[Example]	To define width = 4, the command sequence is the following: 0x1D 0x28 0x6B 0x03 0x00 0x30 0x43 0x04								





# 0x1D 0x28 0x6B [fn 068]

<GS (>

Specify the height of the module of PDF417 barcode

Valid for	VK80
	VKP80II-EE
	VKP80II-SX

[Format]	Hex	1D	28	6B	pL	pH	30	44	n
	ASCII	GS	(	k	pL	pH	0	D	n

[Range] (pL + pH × 256) = 3 (pL = 3, pH = 0)  
 0x02 ≤ n ≤ 0x08

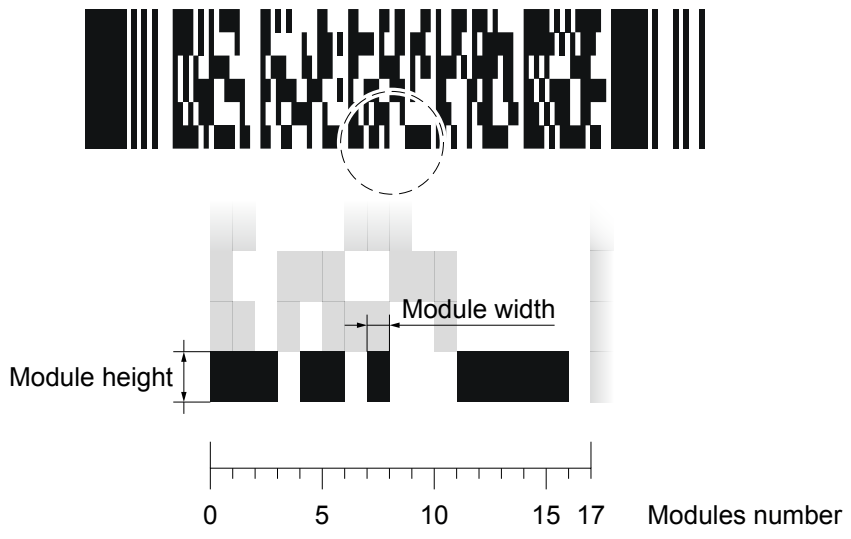
[Description] Specifies the height of the module of the PDF417 barcode.  
 • pL and pH specify the number of successive bytes to be sent.

[Notes] Settings are effective until 0x1B 0x40 is executed, the device is reset or turned off.

[Default] n = 0x03

[Reference] 0x1D 0x28 0x6B

[Example] To set height = 4 the command sequence is the following:  
 0x1D 0x28 0x6B 0x03 0x00 0x30 0x44 0x04





## 0x1D 0x28 0x6B [fn 069]

<GS (>

Specify the error correction level of PDF417 barcode

Valid for	VK80
	VKP80II-EE
	VKP80II-SX

[Format]	Hex	1D	28	6B	pL	pH	30	45	m	n
	ASCII	GS	(	k	pL	pH	0	E	m	n

[Range]	$(pL + pH \times 256) = 4$	$(pL = 4, pH = 0)$
	$m = 0x30$	$0x30 \leq n \leq 0x37$
	$m = 0x31$	$0x01 \leq n \leq 0x28$

[Description] Specifies the error correction level of PDF417 barcode. This error correction allows the barcode to endure some damage without causing loss of data. The error correction level depends on the amount of data that needs to be encoded, the size and the amount of symbol damage that could occur.

- pL and pH specify the number of successive bytes to be sent.
- $m = 0x30$  the error correction level is specified by "level"
- $m = 0x31$  the error correction level is specified by "ratio" [ $n \times 10\%$ ].

[Notes]

- Error correction level is specified by either "level" or "ratio".
- Error correction level specified by "level" ( $m = 0x30$ ) is as follows. The number of the error correction code word is fixed regardless of the number of code words on the data area.

n	CORRECTION LEVEL	N. OF ERROR CORRECTION CODE WORD
0x30	Error correction level 0	2
0x31	Error correction level 1	4
0x32	Error correction level 2	8
0x33	Error correction level 3	16
0x34	Error correction level 4	32
0x35	Error correction level 5	64
0x36	Error correction level 6	128
0x37	Error correction level 7	256



- Error correction level specified by “ratio” (m = 0x31) is as follows. The error correction level is defined by the calculated value [number of data code word × n × 0.1 = (A)]. The number of the error correction code word is changeable in proportion to the number of the code words on the data area.

CALCULATED VALUE (A)	CORRECTION LEVEL	N. OF ERROR CORRECTION CODE WORD
0 - 3	Error correction level 1	4
4 - 10	Error correction level 2	8
11 - 20	Error correction level 3	16
21 - 45	Error correction level 4	32
46 - 100	Error correction level 5	64
101 - 200	Error correction level 6	128
201 - 400	Error correction level 7	256
> 400	Error correction level 8	512

- Settings are effective until **0x1B 0x40** is executed, the device is reset or turned off.

[Default] m = 0x31, n = 0x01 [ratio: 10%]

[Reference] **0x1D 0x28 0x6B**

[Example] To define error correction = 0,2 , the command sequence is the following:  
0x1D 0x28 0x6B 0x03 0x00 0x30 0x45 0x30 0x02



## 0x1D 0x28 0x6B [fn 080]

<GS (>

Store the PDF417 barcode data in the barcode save area

Valid for	VK80 VKP80II-EE VKP80II-SX																				
[Format]	<table border="0"> <tr> <td>Hex</td> <td>1D</td> <td>28</td> <td>6B</td> <td>pL</td> <td>pH</td> <td>30</td> <td>50</td> <td>30</td> <td>d1...dk</td> </tr> <tr> <td>ASCII</td> <td>GS</td> <td>(</td> <td>k</td> <td>pL</td> <td>pH</td> <td>0</td> <td>P</td> <td>0</td> <td>d1...dk</td> </tr> </table>	Hex	1D	28	6B	pL	pH	30	50	30	d1...dk	ASCII	GS	(	k	pL	pH	0	P	0	d1...dk
Hex	1D	28	6B	pL	pH	30	50	30	d1...dk												
ASCII	GS	(	k	pL	pH	0	P	0	d1...dk												
[Range]	<p><math>0x00 \leq d \leq 0xFF</math>  <math>k = (pL + pH \times 256) - 3</math></p> <ul style="list-style-type: none"> <li>PDF417 barcode only with ASCII characters:  <math>4 \leq (pL + pH \times 256) \leq 1112</math> (<math>0x00 \leq pL \leq 0xFF</math>, <math>0x00 \leq pH \leq 0x04</math>)</li> <li>PDF417 barcode only with alphanumeric characters:  <math>4 \leq (pL + pH \times 256) \leq 1854</math> (<math>0x00 \leq pL \leq 0xFF</math>, <math>0x00 \leq pH \leq 0x07</math>)</li> <li>PDF417 barcode only with numeric characters:  <math>4 \leq (pL + pH \times 256) \leq 2729</math> (<math>0x00 \leq pL \leq 0xFF</math>, <math>0x00 \leq pH \leq 0x0A</math>)</li> </ul>																				
[Description]	<p>Store the PDF417 barcode data (d1...dk) in the barcode save area.</p> <ul style="list-style-type: none"> <li>pL and pH specify the number of successive bytes to be sent.</li> <li>k bytes of d1...dk are processed as barcode data.</li> </ul>																				
[Notes]	<ul style="list-style-type: none"> <li>Data stored in the barcode save area by this function are processed by <a href="#">Function 081</a>. The data in the barcode save area are reserved after processing <a href="#">Function 0811</a>.</li> <li>Specify only the data code word of the barcode with this function. Be sure not to include the control data in the data d1...dk because they are added automatically by the device.</li> <li>Settings are effective until <a href="#">0x1B 0x40</a> is executed, the device is reset or turned off.</li> </ul>																				
[Default]																					
[Reference]	<a href="#">0x1D 0x28 0x6B</a>																				
[Example]																					



## 0x1D 0x28 0x6B [fn 081]

<GS (>

Encodes and prints the PDF417 barcode data in the barcode save area

Valid for	VK80 VKP80II-EE VKP80II-SX
[Format]	Hex            1D    28    6B    pL    pH    30    51    30 ASCII          GS    (    k    pL    pH    0    Q    0
[Range]	(pL + pH × 256) = 3    (pL = 0x03, pH = 0x00)
[Description]	Encodes and prints the PDF417 barcode data in the barcode save area. • pL and pH specify the number of successive bytes to be sent.
[Notes]	<ul style="list-style-type: none"> <li>• In standard mode, use this function when device is “at the beginning of a line” or “there is no data in the print buffer”.</li> <li>• A barcode that size exceeds the printing area cannot be printed.</li> <li>• If there is any error described below in the data of the barcode save area, it cannot be printed. <ul style="list-style-type: none"> <li>- There is no data (<a href="#">Function 080</a> is not processed).</li> <li>- If [(number of columns × number of rows) &lt; number of code word] when auto processing is specified for number of columns and number of rows.</li> <li>- Number of code word exceeds 928 in the data area.</li> </ul> </li> <li>• When auto processing (<a href="#">Function 065</a>) is specified, the number of columns is calculated by the current printing area, module width (<a href="#">Function 067</a>) and the code word in the data area. Maximum number of the columns is 30.</li> </ul>
[Default]	
[Reference]	<a href="#">0x1D 0x28 0x6B</a>
[Example]	To print the PDF417 barcode data the command sequence is the following: 0x1D 0x28 0x6B 0x03 0x00 0x30 0x51 0x30

## 0x1D 0x28 0x6B [Fn 165]

<GS (>

Specify encoding scheme of QRcode barcode

---

Valid for VKP80II-SX

---

[Format]	Hex	1D	28	6B	pL	pH	31	41	n
	ASCII	GS	(	k	pL	pH	1	A	n

[Range] (pL+pH × 256) = 3 (pL = 0x03, pH = 0x00)  
0x00 ≤ n ≤ 0x01

[Description] Specifies encoding type of QRcode barcode.

n	ENCODING SCHEME
0x00	QRcode
0x01	MicroQR

[Notes]

- QRcode: Encode all extended ASCII characters data up to a maximum length of 7089 numeric digits, 4296 alphabetic characters or 2953 bytes of data.
- pL and pH specify the number of successive bytes to be sent
- MicroQR (a miniature version of the QRcode barcode for short message): Encode all numbers from 0 to 9 up to a maximum length of 35 characters.

[Default] n = 0

[Reference] [0x1D 0x28 0x6B](#)

[Example]



QRcode



MicroQR



# 0x1D 0x28 0x6B [Fn 166]

<GS (>

## Specify QRcode barcode version

Valid for	VKP80II-SX								
[Format]	Hex	1D	28	6B	pL	pH	31	42	n
	ASCII	GS	(	k	pL	pH	1	B	n
[Range]	(pL + pH × 256) = 3 (pL = 0x03, pH = 0x00) 0x00 ≤ n ≤ 0x28								
[Description]	Defines QRcode version to be printed.								
[Notes]	<ul style="list-style-type: none"> <li>• If selected version has not enough capacity to store the saved amount of data, next smallest version capable of that capacity will be printed.</li> <li>• For QRcode version capacity according to ECC (Error Correction Capability) and data type refer to following table.</li> <li>• With n = 0x00 the selection of the version occurs automatically according to the one that allows the printing of the requested data.</li> </ul>								

n	VERSION	MODULES	ECC LEVEL	NUMERIC	ALPHANUMERIC	BINARY
0x00	AUTO	-	-	-	-	-
0x01	1	21 x 21	L	40	24	16
			M	33	19	13
			Q	26	15	10
			H	16	9	6
0x02	2	25 x 25	L	76	46	31
			M	62	37	25
			Q	47	28	19
			H	33	19	13
0x03	3	29 x 29	L	126	76	52
			M	100	60	41
			Q	76	46	31
			H	57	34	23
0x04	4	33 x 33	L	186	113	77
			M	148	89	61
			Q	110	66	45
			H	81	49	33
0x05	5	37 x 37	L	254	153	105
			M	201	121	83
			Q	143	86	59
			H	105	63	43
0x06	6	41 x 41	L	321	194	133
			M	254	153	105
			Q	177	107	73
			H	138	83	57
0x07	7	45 x 45	L	369	223	153
			M	292	177	121
			Q	206	124	85
			H	153	92	63



n	VERSION	MODULES	ECC LEVEL	NUMERIC	ALPHANUMERIC	BINARY
0x08	8	49 x 49	L	460	278	191
			M	364	220	151
			Q	258	156	107
			H	201	121	83
0x09	9	53 x 53	L	551	334	229
			M	431	261	179
			Q	311	188	129
			H	234	142	97
0x0A	10	57 x 57	L	651	394	270
			M	512	310	212
			Q	363	220	150
			H	287	173	118
0x0B	11	61 x 61	L	771	467	320
			M	603	365	250
			Q	426	258	176
			H	330	199	136
0x0C	12	65 x 65	L	882	534	366
			M	690	418	286
			Q	488	295	202
			H	373	226	154
0x0D	13	69 x 69	L	1021	618	424
			M	795	482	330
			Q	579	351	240
			H	426	258	176
0x0E	14	73 x 73	L	1100	666	457
			M	870	527	361
			Q	620	375	257
			H	467	282	193
0x0F	15	77 x 77	L	1249	757	519
			M	990	599	411
			Q	702	425	291
			H	529	320	219
0x10	16	81 x 81	L	1407	853	585
			M	1081	655	449
			Q	774	469	321
			H	601	364	249
0x11	17	85 x 85	L	1547	937	643
			M	1211	733	503
			Q	875	530	363
			H	673	407	279
0x12	18	89 x 89	L	1724	1045	717
			M	1345	815	559
			Q	947	573	393
			H	745	451	309
0x13	19	93 x 93	L	1902	1152	791
			M	1499	908	623
			Q	1062	643	441
			H	812	492	337
0x14	20	97 x 97	L	2060	1248	857
			M	1599	969	665
			Q	1158	701	481
			H	918	556	381



n	VERSION	MODULES	ECC LEVEL	NUMERIC	ALPHANUMERIC	BINARY
0x15	21	101 x 101	L	2231	1351	928
			M	1707	1034	710
			Q	1223	741	508
			H	968	586	402
0x16	22	105 x 105	L	2408	1459	1002
			M	1871	1133	778
			Q	1357	822	564
			H	1055	639	438
0x17	23	109 x 109	L	2619	1587	1090
			M	2058	1247	856
			Q	1467	889	610
			H	1107	671	460
0x18	24	113 x 113	L	2811	1703	1170
			M	2187	1325	90
			Q	1587	92	60
			H	1227	73	50
0x19	25	117 x 117	L	3056	1852	1272
			M	2394	1450	96
			Q	1717	1040	74
			H	1285	78	54
0x1A	26	121 x 121	L	3282	198	1366
			M	2543	1541	1058
			Q	1803	1093	70
			H	1424	83	52
0x1B	27	125 x 125	L	3516	2131	1464
			M	2700	1636	1124
			Q	1932	1171	84
			H	1500	89	64
0x1C	28	129 x 129	L	3668	2222	1527
			M	2856	1731	118
			Q	2084	1262	87
			H	1580	97	67
0x1D	29	133 x 133	L	3908	2368	1627
			M	3034	1838	1263
			Q	2180	1321	97
			H	1676	1015	67
0x1E	30	137 x 137	L	4157	251	1731
			M	3288	1993	136
			Q	2357	1428	91
			H	1781	107	71
0x1F	31	141 x 141	L	4416	2676	183
			M	3485	2112	1451
			Q	2472	1498	102
			H	1896	114	69
0x20	32	145 x 145	L	4685	283	1951
			M	3692	2237	1537
			Q	266	1617	1111
			H	2021	1225	81
0x21	33	149 x 149	L	4964	3008	2067
			M	3908	2368	1627
			Q	2804	16	1167
			H	2156	1306	87



n	VERSION	MODULES	ECC LEVEL	NUMERIC	ALPHANUMERIC	BINARY
0x22	34	153 x 153	L	5252	3182	2187
			M	4133	2505	1721
			Q	2948	1786	1227
			H	2300	1393	97
0x23	35	157 x 157	L	5528	3350	2302
			M	4342	2631	1808
			Q	3080	1866	1282
			H	2360	1430	92
0x24	36	161 x 161	L	5835	3536	2430
			M	4587	277	1910
			Q	3243	1965	1350
			H	2523	152	1050
0x25	37	165 x 165	L	6152	3728	2562
			M	4774	2893	1988
			Q	3416	2070	1422
			H	2624	1590	1092
0x26	38	169 x 169	L	6478	3926	2698
			M	5038	3053	2098
			Q	3598	2180	1498
			H	2734	1657	1138
0x27	39	173 x 173	L	6742	4086	2808
			M	5312	321	2212
			Q	3790	2297	1578
			H	2926	1773	1218
0x28	40	177 x 177	L	7088	4295	2952
			M	5595	3390	2330
			Q	3992	241	1662
			H	3056	1851	1272

[Default]

n = 0x00

[Reference]

[0x1D](#) [0x28](#) [0x6B](#)

[Example]

To select QRcode version 8 the command sequence is:

0x1D 0x28 0x6B 0x03 0x00 0x31 0x42 0x08

## 0x1D 0x28 0x6B [Fn 167]

<GS (>

Specify dot size of the module of the QRcode barcode

---

Valid for	VKP80II-SX								
-----------	------------	--	--	--	--	--	--	--	--

---

Format]	Hex	1D	28	6B	pL	pH	31	42	n
	ASCII	GS	(	k	pL	pH	1	B	n

[Range] ((pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)  
0x02 ≤ n ≤ 0x18

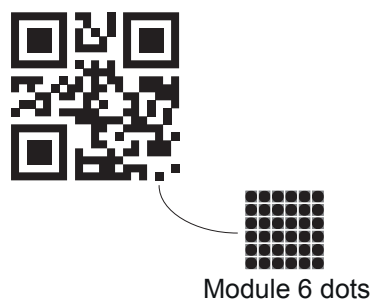
[Description] Specifies numbers of dot for each pixel of QRcode barcode.

[Notes] • pL and pH specify the number of successive bytes to be sent

[Default] n = 0x06

[Reference] [0x1D 0x28 0x6B](#)

[Example]



## 0x1D 0x28 0x6B [Fn 169]

<GS (>

Specify the error correction level of the QRcode barcode

---

Valid for VKP80II-SX

---

[Format] Hex 1D 28 6B pL pH 31 45 n  
 ASCII GS ( k pL pH 1 E n

[Range]  $(pL + pH \times 256) = 3$  ( $pL = 0x03, pH = 0x00$ )  
 $0x30 \leq n \leq 0x34$

[Description] Specifies the ECC level (Error Correction Capability) of QRcode barcode.


n	ECC level	
0x30	AUTO	
0x31	ECC L = approx 20% of symbol	Recovery Capability = approx 7%
0x32	ECC M = approx 37% of symbol	Recovery Capability = approx 15%
0x33	ECC Q = approx 55% of symbol	Recovery Capability = approx 25%
0x34	ECC H = approx 65% of symbol	Recovery Capability = approx 30%

[Notes] • pL and pH specify the number of successive bytes to be sent


[Default] n = 0x30

[Reference] [0x1D 0x28 0x6B](#)


[Example]




Level L




Level M







Level Q



Level H



Recover Capability

L	M	Q	H
			
7%	15%	25%	30%



## 0x1D 0x28 0x6B [Fn 180]

<GS (>

Store the data in the barcode save area for printing in QRcode format

Valid for	VKP80II-SX									
[Format]	Hex	1D	28	6B	pL	pH	31	50	31	d1...dk
	ASCII	GS	(	k	pL	pH	1	P	1	d1...dk
[Range]	<p><math>0x00 \leq d \leq 0xFF</math>  <math>k = (pL + pH \times 256) - 3</math></p> <ul style="list-style-type: none"> <li>QRcode barcode only with binary characters (8 bit):  <math>4 \leq (pL + pH \times 256) \leq 2957</math> (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x0B)</li> <li>QRcode barcode only with alphanumeric characters:  <math>4 \leq (pL + pH \times 256) \leq 4300</math> (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x10)</li> <li>QRcode barcode only with numeric characters:  <math>4 \leq (pL + pH \times 256) \leq 7093</math> (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x1B)</li> </ul>									
[Description]	Store the data (d1...dk) in the barcode save area for printing in QRcode format.									
[Notes]	<ul style="list-style-type: none"> <li>Data stored in the barcode save area by this function are processed by <a href="#">Function 181</a> and then reserved.</li> <li>pL and pH specify the number of successive bytes to be sent</li> <li>k bytes of d1...dk are processed as barcode data.</li> <li>Specify only the data code word of the barcode with this function.</li> </ul>									
[Default]										
[Reference]	<a href="#">0x1D 0x28 0x6B</a>									
[Example]										



## 0x1D 0x28 0x6B [Fn 181]

<GS (>

Prints the data stored in the barcode save area in QRcode format

---

Valid for	VKP80II-SX								
<hr/>									
[Format]	Hex	1D	28	6B	pL	pH	31	51	31
	ASCII	GS	(	k	pL	pH	1	Q	1
[Range]	(pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)								
[Description]	Prints the data stored in the barcode save area in QRcode format.								
[Notes]	• pL and pH specify the number of successive bytes to be sent								
[Default]									
[Reference]	<a href="#">0x1D 0x28 0x6B</a>								
[Example]									



## 0x1D 0x28 0x6B [Fn Q65]

<GS (>

Specify the encoding scheme of DATAMATRIX barcode

---

Valid for	VK80
	VKP80II-EE

---

[Format]	Hex	1D	28	6B	pL	pH	51	41	n
	ASCII	GS	(	k	pL	pH	Q	A	n

[Range] (pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)  
 0x00 ≤ n ≤ 0x06

[Description] Set the encoding scheme for the DATAMATRIX barcode based on the value of n as follows:

n	ENCODING
0x00	ASCII
0x01	C40
0x02	Text
0x03	X12
0x04	Edifact
0x05	Base256
0x06	AutoBest

[Notes] • pL and pH specify the number of successive bytes to be sent

[Default]

[Reference] [0x1D 0x28 0x6B](#)

[Example] To set encoding = ASCII, the command sequence is:  
 0x1D 0x28 0x6B 0x03 0x00 0x51 0x41 0x00



## 0x1D 0x28 0x6B [fn Q66]

<GS (>

### Set rotation of DATAMATRIX barcode

---

Valid for	VK80
	VKP80II-EE

---

[Format]	Hex	1D	28	6B	pL	pH	51	42	n
	ASCII	GS	(	k	pL	pH	Q	B	n

[Range] (pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)  
n = 0x00, 0x01

[Description] Set the rotation for the DATAMATRIX barcode based on the value of n as follows:

n	ROTATION
0x00	No rotation
0x01	Rotation

[Notes] • pL and pH specify the number of successive bytes to be sent

[Default]

[Reference] [0x1D 0x28 0x6B](#)

[Example]



## 0x1D 0x28 0x6B [fn Q67]

<GS (>

### Set dot size of the module of DATAMATRIX barcode

Valid for	VK80 VKP80II-EE								
[Format]	Hex	1D	28	6B	pL	pH	51	43	n
	ASCII	GS	(	k	pL	pH	Q	C	n
[Range]	(pL + pH × 256) = 3 (pL = 0x03, pH = 0x00) 0x02 ≤ n ≤ 0x18								
[Description]	Set dot size of the module of the DATAMATRIX barcode: n = dot dimension								
[Notes]	• pL and pH specify the number of successive bytes to be sent								
[Default]	n = 0x06								
[Reference]	<a href="#">0x1D 0x28 0x6B</a>								
[Example]	To set dot size = 6 the command sequence is: 0x1D 0x28 0x6B 0x03 0x00 0x51 0x43 0x06								



## 0x1D 0x28 0x6B [fn Q68]

<GS (>

### Set size of DATAMATRIX barcode

Valid for	VK80
	VKP80II-EE

[Format]	Hex	1D	28	6B	pL	pH	51	44	n
	ASCII	GS	(	k	pL	pH	Q	D	n

[Range]	(pL + pH × 256) = 3	(pL = 0x03, pH = 0x00)
	0x00 ≤ n ≤ 0x1D	

[Description] Set the size of DATAMATRIX barcode based on the value of n as follows:

n	BARCODE SIZE	n	BARCODE SIZE
0x00	AUTO	0x0F	52 x 52
0x01	10 x 10	0x10	64 x 64
0x02	12 x 12	0x11	72 x 72
0x03	14 x 14	0x12	80 x 80
0x04	16 x 16	0x13	88 x 88
0x05	18 x 18	0x14	96 x 96
0x06	20 x 20	0x15	104 x 104
0x07	22 x 22	0x16	120 x 120
0x08	24 x 24	0x17	132 x 132
0x09	26 x 26	0x18	144 x 144
0x0A	32 x 32	0x19	8 x 18
0x0B	36 x 36	0x1A	8 x 32
0x0C	40 x 40	0x1B	12 x 26
0x0D	44 x 44	0x1C	12 x 36
0x0E	48 x 48	0x1D	16 x 36

[Notes] • pL and pH specify the number of successive bytes to be sent

[Default] n = 0x00

[Reference] [0x1D 0x28 0x6B](#)

[Example]



## 0x1D 0x28 0x6B [fn Q80]

<GS (>

Store the DATAMATRIX barcode data in the barcode save area

---

Valid for	VK80
	VKP80II-EE

---

[Format]	Hex	1D	28	6B	pL	pH	51	50	33	d1...dk
	ASCII	GS	(	k	pL	pH	Q	P	3	d1...dk

[Range]	0x00 ≤ d ≤ 0xFF
	k = (pL + pH × 256) - 3
	• DATAMATRIX barcode only with ASCII characters (8 bit) :
	4 ≤ (pL + pH × 256) ≤ 1560 (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x06)
	• DATAMATRIX barcode only with alphanumeric characters:
	4 ≤ (pL + pH × 256) ≤ 2339 (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x09)
	• DATAMATRIX barcode only with numeric characters:
	4 ≤ (pL + pH × 256) ≤ 3120 (0x00 ≤ pL ≤ 0xFF, 0x00 ≤ pH ≤ 0x0C)

[Description]	Store the DATAMATRIX barcode data (d1...dk) in the barcode save area.
---------------	---

[Notes]	<ul style="list-style-type: none"> <li>• Data stored in the barcode save area by this function are processed by <a href="#">Function Q81</a> and then reserved.</li> <li>• k bytes of d1...dk are processed as barcode data.</li> <li>• Specify only the data code word of the barcode with this function. Be sure not to include the control data in the data d1...dk because they are added automatically by the device.</li> <li>• Settings are effective until 0x1B 0x40 command is executed, the device is reset or turned off.</li> </ul>
---------	---

[Default]

[Reference]	<a href="#">0x1D 0x28 0x6B</a>
-------------	--------------------------------

[Example]



## 0x1D 0x28 0x6B [fn Q81]

<GS (>

Encodes and prints the DATAMATRIX barcode data in the barcode save area

Valid for	VK80 VKP80II-EE								
[Format]	Hex	1D	28	6B	pL	pH	51	51	33
	ASCII	GS	(	k	pL	pH	Q	Q	3
[Range]	(pL + pH × 256) = 3 (pL = 0x03, pH = 0x00)								
[Description]	Encodes and prints the data stored in the barcode save area in DATAMATRIX format.								
[Notes]	<ul style="list-style-type: none"> <li>• In standard mode, use this function when device is “at the beginning of a line” or “there is no data in the print buffer”.</li> <li>• pL and pH specify the number of successive bytes to be sent</li> <li>• A barcode that size exceeds the printing area cannot be printed.</li> <li>• If there is any error described below in the data of the barcode save area, it cannot be printed. <ul style="list-style-type: none"> <li>- There is no data (<a href="#">Function Q80</a> is not processed).</li> <li>- If [(number of columns × number of rows) &lt; number of code word] when auto processing is specified for number of columns and number of rows.</li> <li>- Number of code word exceeds 928 in the data area.</li> </ul> </li> <li>• When auto processing (<a href="#">Function Q65</a>) is specified, the number of columns is calculated by the current printing area, module width (<a href="#">Function Q67</a>) and the code word in the data area. Maximum number of the columns is 30.</li> </ul>								
[Default]									
[Reference]	<a href="#">0x1D 0x28 0x6B</a>								
[Example]	To print the DATAMATRIX barcode data the command sequence is : 0x1D 0x28 0x6B 0x03 0x00 0x51 0x51 0x33								



## 0x1D 0x48

<GS H>

Select printing position of Human Readable Interpretation ( HRI ) characters

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	48	n
	ASCII	GS	H	n

[Range]	$0x00 \leq n \leq 0x03$
	$0x30 \leq n \leq 0x33$

[Description] Selects the print position of HRI (Human Readable Interpretation) characters when printing a 1D barcode, based on the value of n as follows:

n	FUNCTION
0x00, 0x30	Not printed
0x01, 0x31	Above the barcode
0x02, 0x32	Below the barcode
0x03, 0x33	Both above the below the barcode

[Notes] HRI characters are printed using the font specified by [0x1D 0x66](#).

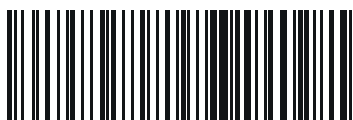
[Default] n = 0x00

[Reference] [0x1D 0x66](#), [0x1D 0x6B](#)



[Example]

Not printed



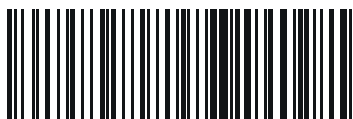
Above the barcode

ABCDEFGH123456



Below the barcode

ABCDEFGH123456



Both above and below the barcode

ABCDEFGH123456



ABCDEFGH123456



# 0x1D 0x66

<GS f>

## Select font for HRI characters

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

[Format]

Hex	1D	66	n
ASCII	GS	f	n

[Range] n = 0x00, 0x01, 0x30, 0x31

[Description] Selects a font for the HRI characters used when printing a barcode. n selects a font from the following table:

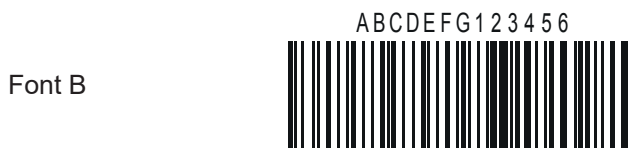
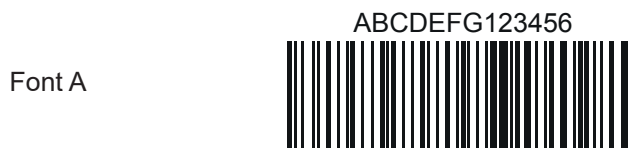
n	FONT
0x00, 0x30	Font A
0x01, 0x31	Font B

[Notes] HRI characters are printed at the position specified by [0x1D 0x48](#).

[Default] n = 0x00

[Reference] [0x1D 0x48](#), [0x1D 0x6B](#)

[Example]





## 0x1D 0x68

<GS h>

### Set 1D barcode height

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	68	n
	ASCII	GS	h	n

[Range]  $0x01 \leq n \leq 0xFF$

[Description] Sets the height of the 1D barcode.  
n specifies the number of vertical dots.

[Notes]

[Default]  $n = 0xA2$  (20.25 mm)

[Reference] [0x1D 0x6B](#)

[Example] To print a barcode with height of 15 mm, the command sequence is:  
0x1D 0x68 0x78

Where:

15 mm =  $15 \times 8$  dots = 120 dots which converted in hexadecimal value = 0x78



## 0x1D 0x6B

<GS k>

### Print 1D barcode

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
-----------	--

[Format 1]	Hex	1D	6B	m	[d1..dk]	00
	ASCII	GS	k	m	[d1..dk]	NUL

[Format 2]	Hex	1D	6B	m	n	[d1..dn]
	ASCII	GS	k	m	n	[d1..dn]

[Range]	Format 1	0x00 ≤ m ≤ 0x08,	m = 0x14
	Format 2	0x41 ≤ m ≤ 0x49,	m = 0x5A

[Description] Selects a 1D barcode system and prints the 1D barcode based on the value of m as follows:

#### Format 1

m	BARCODE SYSTEM	NUMBER OF CHARACTERS	REMARKS
0x00	UPC-A	0x0B ≤ k ≤ 0x0C	0x30 ≤ d ≤ 0x39
0x01	UPC-E	0x0B ≤ k ≤ 0x0C	0x30 ≤ d ≤ 0x39
0x02	EAN13 (JAN)	0x0C ≤ k ≤ 0x0D	0x30 ≤ d ≤ 0x39
0x03	EAN8 (JAN)	0x07 ≤ k ≤ 0x08	0x30 ≤ d ≤ 0x39
0x04	CODE39	0x01 ≤ k	0x30 ≤ d ≤ 0x39, 0x41 ≤ d ≤ 0x5A, 0x20, 0x24, 0x25, 0x2B, 0x2D, 0x2E, 0x2F
0x05	ITF	0x01 ≤ k (even number)	0x30 ≤ d ≤ 0x39
0x06	CODABAR	0x01 ≤ k	0x30 ≤ d ≤ 0x39, 0x41 ≤ d1 ≤ 0x44, 0x24, 0x2B, 0x2D, 0x2E, 0x2F, 0x3A
0x07	CODE93	0x01 ≤ k ≤ 0xFF	0x01 ≤ d ≤ 0x7F
0x08	CODE128	0x02 ≤ k ≤ 0xFF	0x01 ≤ d ≤ 0x7F
0x14	CODE32	0x08 ≤ k ≤ 0x09	0x30 ≤ d ≤ 0x39



Format 2:

m	BARCODE SYSTEM	NUMBER OF CHARACTERS	REMARKS
0x41	UPC-A	0x0B ≤ n ≤ 0x0C	0x30 ≤ d ≤ 0x39
0x42	UPC-E	0x0B ≤ n ≤ 0x0C	0x30 ≤ d ≤ 0x39
0x43	EAN13 (JAN)	0x0C ≤ n ≤ 0x0D	0x30 ≤ d ≤ 0x39
0x44	EAN8 (JAN)	0x07 ≤ n ≤ 0x08	0x30 ≤ d ≤ 0x39
0x45	CODE39	0x01 ≤ n ≤ 0xFF	0x30 ≤ d ≤ 0x39, 0x41 ≤ d ≤ 0x5A, 0x20, 0x24, 0x25, 0x2B, 0x2D, 0x2E, 0x2F
0x46	ITF	0x01 ≤ n ≤ 0xFF	0x30 ≤ d ≤ 0x39
0x47	CODABAR	0x01 ≤ n ≤ 0xFF	0x30 ≤ d ≤ 0x39, 0x41 ≤ d1 ≤ 0x44, 0x24, 0x2B, 0x2D, 0x2E, 0x2F, 0x3A
0x48	CODE93	0x01 ≤ n ≤ 0xFF	0x01 ≤ d ≤ 0x7F
0x49	CODE128	0x02 ≤ n ≤ 0xFF	0x01 ≤ d ≤ 0x7F
0x5A	CODE32	0x08 ≤ n ≤ 0x09	0x30 ≤ d ≤ 0x39

[Notes]

- If d is outside of the specified range, the device prints the following message: “BARCODE GENERATOR IS NOT OK!” and processes the data which follows as normal data.
- If the horizontal size exceeds the printing area, the device only feeds the paper.
- This command feeds as much paper as is required to print the barcode, regardless of the line spacing specified by [0x1B 0x32](#) or [0x1B 0x33](#).
- After printing the barcode, this command sets the print position to the beginning of the line.
- This command is not affected by print modes (bold, double-strike, underline or character size), except for upside-down and justification mode.

Format 1:

- This command ends with a NUL code.
- When the barcode system used is UPC-A or UPC-E, the device prints the barcode data after receiving 11 (without check digit) or 12 (with check digit) bytes barcode data.
- When the barcode system used is EAN13, the device prints the barcode data after receiving 12 (without check digit) or 13 (with check digit) bytes barcode data.
- When the barcode system used is EAN8, the device prints the barcode data after receiving 7 (without check digit) or 8 (with check digit) bytes barcode data.
- The number of data for ITF barcode must be even numbers. When an odd number of data is input, the device ignores the last received data.



Format 2:

- If n is outside of the specified range, the device stops command processing and processes the following data as normal data.

When CODE93 is used the device:

- prints an HRI character ( o ) as a start character at the beginning of the HRI character string
- prints an HRI character ( o ) as a stop character at the end of the HRI character string.
- prints an HRI character ( n ) as a control character (0x00 to 0x1F and 0x7F).

When CODE128 is used, please note the following regarding data transmission:

- The top part of the barcode data string must be a code set selection character (CODE A, CODE B or CODE C) which selects the first code set.
- Special characters are defined by combining two characters “{” and one character. ASCII character “{” is defined by transmitting “{” twice, consecutively.

SPECIFIC CHARACTER	DATA TRANSMISSION	
	ASCII	HEX
SHIFT	{S	7B, 53
CODE A	{A	7B, 41
CODE B	{B	7B, 42
CODE C	{C	7B, 43
FNC1	{1	7B, 31
FNC2	{2	7B, 32
FNC3	{3	7B, 33
FNC4	{4	7B, 34
{‘	{{	7B, 7B

When UPC-E is used: introducing the barcode characters, the device prints

TRANSMITTED DATA											PRINTING DATA					
d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d2	d3	d9	d10	d11	
0	0-9	0-9	0	0	0	0	0	0-9	0-9	0-9	d2	d3	d9	d10	d11	0
0	0-9	0-9	1	0	0	0	0	0-9	0-9	0-9	d2	d3	d9	d10	d11	1
0	0-9	0-9	2	0	0	0	0	0-9	0-9	0-9	d2	d3	d9	d10	d11	2
0	0-9	0-9	3-9	0	0	0	0	0	0-9	0-9	d2	d3	d4	d10	d11	3
0	0-9	0-9	0-9	1-9	0	0	0	0	0	0-9	d2	d3	d4	d5	d11	4
0	0-9	0-9	0-9	0-9	1-9	0	0	0	0	5-9	d2	d3	d4	d5	d6	d11

[Default]

[Reference] [0x1D 0x48, 0x1D 0x66, 0x1D 0x68, 0x1D 0x77](#)



[Example]

Format 1: Example for printing a CODE39 barcode:  
0x1D 0x6B 0x04 0x54 0x45 0x53 0x54 0x00

Format 2: Example for printing a CODE39 barcode:  
0x1D 0x6B 0x45 0x04 0x54 0x45 0x53 0x54



# 0x1D 0x77

<GS w>

## Set 1D barcode width

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	77	n
	ASCII	GS	w	n

[Range]	<b>VK80, VKP80II-EE</b>
	0x01 ≤ n ≤ 0x06
	0x81 ≤ n ≤ 0x86

	<b>VKP80, VKP80II, VKP80II-SX</b>
	0x01 ≤ n ≤ 0x06

[Description]	<b>VKP80, VKP80II, VKP80II-SX</b>
	Sets the horizontal size of the 1D barcode.
	n specifies the bar code width (referred to the narrow bar) as follows:

n	MODULE WIDTH ( mm )
0x1, 0x81	0.125
0x2, 0x82	0.25
0x3, 0x83	0.375
0x4, 0x84	0.5
0x5, 0x85	0.625
0x6, 0x86	0.75

- If barcode ≠ CODE128 the wide and narrow bar ratio is the following:

n	WIDE BAR / NARROW BAR RATIO
If n < 0x80	0x1, 0x2, 0x3, 0x4, 0x5, 0x6
	3:1
	0x81
	3:1
	0x82
	2,5:1
	0x83
	2,33:1
If n > 0x80	0x84
	2,25:1
	0x85
	3:1
	0x86
	3:1

### VKP80, VKP80II

Sets the horizontal size of the 1D barcode.  
n specifies the bar code width as follows:

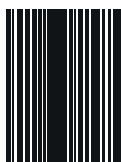
n	MODULE WIDTH ( mm )
0x01	0.125
0x02	0.25
0x03	0.375
0x04	0.5
0x05	0.625
0x06	0.75

[Notes]

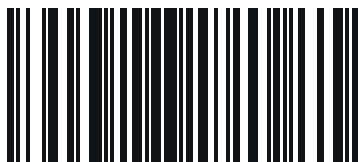
[Default] n = 0x03

[Reference] 0x1D 0x6B

[Example]



n = 0x01



n = 0x03



# CHARACTER COMMANDS

## 0x18

<CAN>

Cancel current line transmitted

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	18
	ASCII	CAN

[Range]

[Description] Deletes current line transmitted.

- [Notes]
- Sets the print position to the beginning of the line.
  - This command does not clear the receive buffer.

[Reference]

[Example]

## 0x1B 0x20

<ESC SP>

### Set right-side character spacing

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

[Format]	Hex	1B	20	n
	ASCII	ESC	SP	n

[Range]  $0x00 \leq n \leq 0xFF$

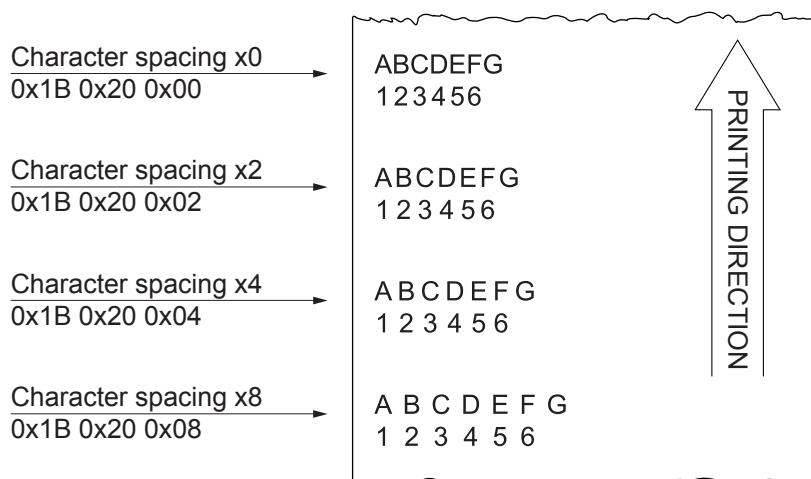
[Description] Sets the character spacing for the right side of the character to [n x horizontal or vertical motion units].

- [Notes]
- The right character spacing for double-width mode is twice the normal value. When the characters are enlarged, the right side character spacing is m (2 or 4) times the normal value.
  - The horizontal and vertical motion units are specified by [0x1D 0x50](#). Changing the horizontal or vertical motion units does not affect the current right side spacing.
  - The [0x1D 0x50](#) command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount.
  - The maximum right side character spacing is 32 mm.
  - In standard mode, the horizontal motion unit is used.

[Default] n = 0x00

[Reference] [0x1D 0x50](#), [0x1D 0xD0](#)

[Example]





## 0x1B 0x21

<ESC !>

### Select print modes

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	21	n
	ASCII	ESC	!	n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Selects print modes based on the value of n as follows:

BIT	OFF/ON	n	FUNCTION	11/15 cpi	15/20 cpi
0	Off	0x00	Character font A selected.	18 x 24	14 x 24
	On	0x01	Character font B selected.	14 x 24	10 x 24
1	-	-	Undefined		
2	-	-	Undefined		
3	Off	0x00	Bold mode not selected		
	On	0x08	Bold mode selected		
4	Off	0x00	Double-height mode not selected		
	On	0x10	Double-height mode selected		
5	Off	0x00	Double-width mode not selected		
	On	0x20	Double-width mode selected		
6	Off	0x00	Italic mode not selected		
	On	0x40	Italic mode selected		
7	Off	0x00	Underline mode not selected		
	On	0x80	Underline mode selected		

- [Notes]
- The device can underline all characters, but cannot underline the spaces set by [0x09](#), [0x1B 0x24](#), [0x1B 0x5C](#) and 90°/270° rotated characters.
  - This command resets the left and right margin at default value (see [0x1D 0x4C](#), [0x1D 0x57](#)).
  - [0x1B 0x45](#) can also be used to turn the emphasized mode on/off. However, the last-received setting command is the effective one.
  - [0x1B 0x2D](#) can also be used to turn the underlining mode on/off. However, the last-received setting command is the effective one.
  - [0x1D 0x21](#) can also be used to select character height/width. However, the last-received setting command is the effective one.
  - [0x1B 0x34](#) can also be used to turn the italic mode on or off. However, the last-received setting command is the effective one.

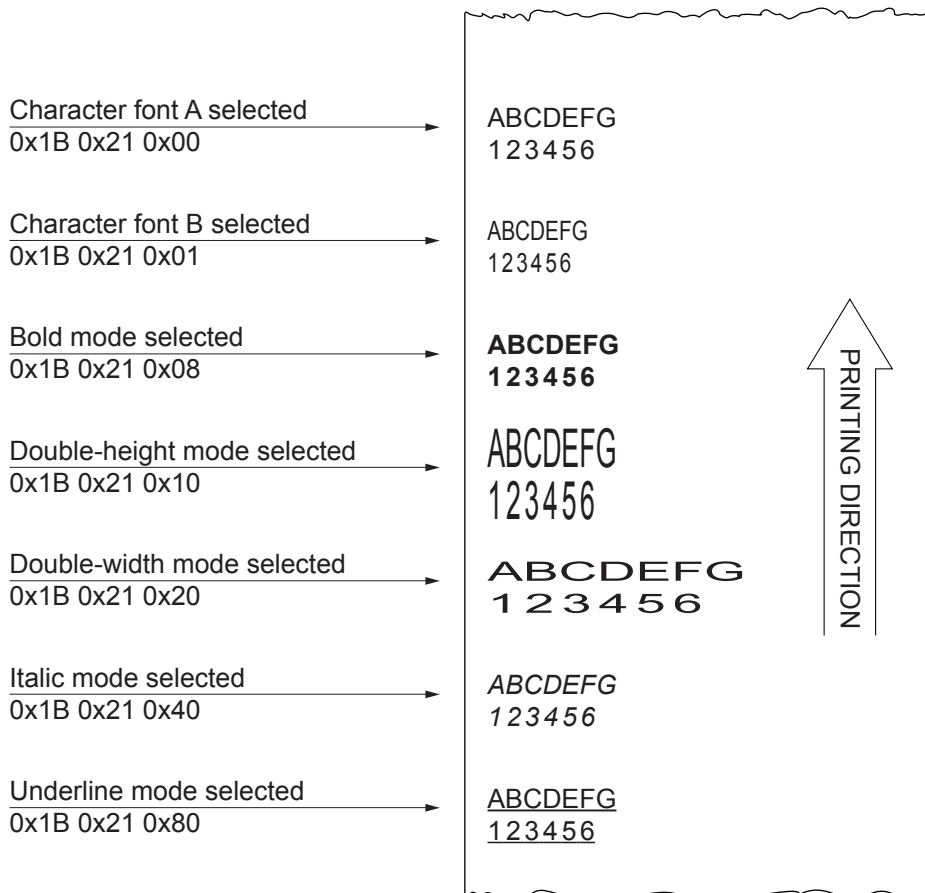


• Commands that change the height and width of characters are effective on the x and y axes. In case of 90°/270° rotated characters, command 0x1B 0x21 0x10 selects double-width mode and command 0x1B 0x21 0x20 selects double-height mode.

[Default] n = 0x00

[Reference] 0x1B 0x2D, 0x1B 0x34, 0x1B 0x45, 0x1D 0x21

[Example]





## 0x1B 0x25

<ESC %>

### Enable or disable user-defined characters

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	25	n
	ASCII	ESC	%	n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Enables or disables the user-defined character set.  
When the Least Significant Bit (LSB) of n is 0, the user-defined character set is disabled.  
When the Least Significant Bit (LSB) of n is 1, the user-defined character set is enabled.

[Notes]

- Only the Least Significant Bit (LSB) of n is applicable.
- When the user-defined character set is disabled, the internal character set is automatically selected.

[Default] n = 0x00

[Reference] [0x1B 0x26](#), [0x1B 0x3F](#)

[Example]



## 0x1B 0x26

<ESC &>

Defines user-defined characters

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
[Format]	Hex            1B    26    y    c1    c2 ASCII        ESC   &    y    c1    c2
[Range]	y = 0x03 0x20 ≤ c1 ≤ cn ≤ 0x7E 0x00 ≤ x ≤ 0x12 (font 18 x 24) 0x00 ≤ x ≤ 0x0E (font 14 x 24) 0x00 ≤ x ≤ 0x0A (font 10 x 24) 0x00 ≤ x ≤ 0x08 (font 8 x 24) 0x00 ≤ d0...dk ≤ 0xFF k = cn – c1 + 1
[Description]	Defines user-defined characters. y specifies the number of bytes in the vertical direction. c1 specifies the beginning character code for the definition and C2 specifies the final code. x specifies the number of dots in the horizontal direction.
[Notes]	<ul style="list-style-type: none"> <li>• The allowable character code range is from ASCII 0x20 (32) to 0x7E (126) (95 characters).</li> <li>• It is possible to define multiple characters for consecutive character codes. If only one character is desired, use c1 = c2.</li> <li>• if c2 &lt; c1, the command is not executed.</li> <li>• d is the dot data for the characters. The dot pattern is in the horizontal direction starting from the left. Any remaining dots on the right remain blank.</li> <li>• The data to define a user-defined character is ( x × y) bytes.</li> <li>• To print a dot, set the corresponding bit to 1; to not have it print, set to 0.</li> <li>• This command can define different user-defined character patterns for each font. To select the font, use <a href="#">0x1B 0x21</a>, <a href="#">0x1B 0xC1</a>.</li> <li>• The user programmable character definitions are cleared when commands <a href="#">0x1B 0x40</a> or <a href="#">0x1D 0x2A</a> or <a href="#">0x1B 0x3F</a> are executed or the device is reset or turned off.</li> <li>• x1 [d0 ... dk] will be repeated for each character to be replaced.</li> </ul>
[Default]	Internal character set.
[Reference]	<a href="#">0x1B 0x25</a> , <a href="#">0x1B 0x3F</a>



[Example]

To replace only the “A” character of the 11 cpi font table (font 18x24), the command sequence is:  
0x1B 0x26 0x03 0x41 0x41 0x10 [48 bytes of the new character definition].

To replace “A” and “B” characters of the 11 cpi font table (font 18x24), the command sequence is:  
0x1B 0x26 0x03 0x41 0x42 0x10 [48 bytes of the new character definition] 0x10 [48 bytes of the new character definition].

## 0x1B 0x2D

<ESC ->

### Turn underline mode on or off

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	2D	n
	ASCII	ESC	-	n

[Range]	$0x00 \leq n \leq 0x02$
	$0x30 \leq n \leq 0x32$

[Description] Turns underline mode on or off based on the value of n as follows:

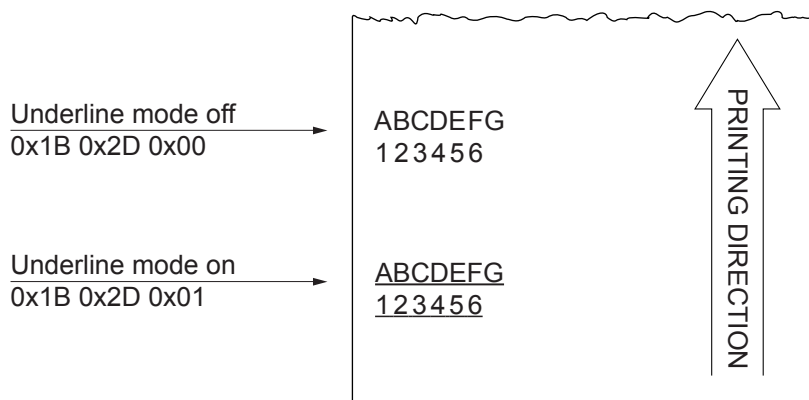
n	FUNCTON
0x00, 0x30	Turns off underline mode
0x01, 0x31	Turns on underline mode (1 dot thick)
0x02, 0x32	Turns on underline mode (2 dot thick)

- [Notes]
- The device can underline all characters, but cannot underline the space and right-side character spacing (command [0x09](#)).
  - The device cannot underline 90°/270° rotated characters and white/black inverted characters.
  - When underline mode is turned off by setting the value of n to 0x00 or 0x30, the data which follows is not underlined.
  - Underline mode can also be turned on or off by using [0x1B 0x21](#). However, the last-received setting command is the effective one.

[Default] n = 0x00

[Reference] [0x1B 0x21](#)

[Example]



# 0x1B 0x34

<ESC 4>

## Turn italic mode on or off

Valid for  
 VK80  
 VKP80  
 VKP80II  
 VKP80II-EE  
 VKP80II-SX

[Format]           Hex            1B    34    n  
                   ASCII        ESC  4    n

[Range]           0x00 ≤ n ≤ 0x01  
                   0x30 ≤ n ≤ 0x31

[Description]     Turns italic mode on or off based on the value of n as follows:

n	FUNCTION
0x00, 0x30	Turns off italic mode
0x01, 0x31	Turns on italic mode

[Notes]

- The device can print any character in italic mode.
- When italic mode is turned off by setting the value of n to 0x00 or 0x30, the data which follows is printed in normal mode.
- Italic mode can also be turned on or off using [0x1B 0x21](#). However, the last-received setting command is the effective one.

[Default]         n = 0x00

[Reference]       [0x1B 0x21](#)

[Example]





## 0x1B 0x3F

<ESC ?>

### Cancel user-defined characters

---

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
-----------	--

---

[Format]	Hex            1B    3F    n ASCII           ESC   ?    n
[Range]	0x20 ≤ n ≤ 0x7E
[Description]	Cancels user-defined characters.
[Notes]	<ul style="list-style-type: none"><li>• This command cancels the pattern defined for the character code specified by n.</li><li>• This command deletes the pattern defined for the specified character code in the font selected by <a href="#">0x1B 0x21</a>.</li><li>• If the user-defined character has not been defined for the specified character code, the device ignores this command.</li></ul>
[Default]	
[Reference]	<a href="#">0x1B 0x25</a> , <a href="#">0x1B 0x26</a>
[Example]	

# 0x1B 0x45

<ESC E>

Turn bold mode on or off

Valid for  
 VK80  
 VKP80  
 VKP80II  
 VKP80II-EE  
 VKP80II-SX

[Format]            Hex            1B    45    n  
                       ASCII           ESC    E      n

[Range]            0x00 ≤ n ≤ 0xFF

[Description]      Turns bold mode on or off, based on the n value:  
 - when the Least Significant Bit (LSB) of n is 0, the bold mode is off.  
 - when the Least Significant Bit (LSB) of n is 1, the bold mode is on.

[Notes]            • Only the Least Significant Bit (LSB) of n is effective.  
 • [0x1B 0x21](#) also turns on and off the emphasized mode. However, the last received command is the effective one.

[Default]           n = 0x00

[Reference]        [0x1B 0x21](#)

[Example]



# 0x1B 0x47

## Turn double-strike mode on or off

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	47	n
	ASCII	ESC	G	n

[[Range] 0x00 ≤ n ≤ 0xFF

[Description] Turns double-strike mode on or off, based on the n value:  
- when the Least Significant Bit (LSB) of n is 0, the double-strike mode is off.  
- when the Least Significant Bit (LSB) of n is 1, the double-strike mode is on.

[Notes] • Only the Least Significant Bit (LSB) of n is effective.  
• Device output is the same in double-strike and bold mode.

[Default] n = 0x00

[Reference] [0x1B 0x45](#)





## 0x1B 0x4D

<ESC M>

### Select character font

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1B	4D	n
ASCII	ESC	M	n

[Range] n = 0x00, 0x01, 0x30, 0x31

[Description] Selects characters font depending of cpi value set (Char/Inch) as follows:

CHAR/INCH	n	FUNCTION
A=11cpi	0x00, 0x30	Font 11 cpi (18x24)
B=15cpi	0x01, 0x31	Font 15 cpi (14x24)
A=15cpi	0x00, 0x30	Font 15 cpi (14x24)
B=20cpi	0x01, 0x31	Font 20 cpi (10x24)
A=20cpi	0x00, 0x30	Font 20 cpi (10x24)
B=15cpi	0x01, 0x31	Font 15 cpi (14x24)

[Notes]

[Default]

[Reference] [0x1B 0xC1](#)

[Example]



## 0x1B 0x52

<ESC R>

### Select an international character set

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

[Format]

Hex	1B	52	n
ASCII	ESC	R	n

[Range] 0x00 ≤ n ≤ 0x0A

[Description] Selects the international character set n according to the table below:

	HEX	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
n	CHARACTER SET												
0x00	U.S.A.	#	\$	@	[	\	]	^	`	{		}	~
0x01	France	#	\$	à	°	ç	§	^	`	é	ù	è	“
0x02	Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
0x03	United Kingdom	£	\$	@	[	\	]	^	`	{		}	~
0x04	Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
0x05	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
0x06	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
0x07	Spain I	Pt	\$	@	i	Ñ	¿	^	`	“	ñ	}	~
0x08	Japan	#	\$	@	[	¥	]	^	`	{		}	~
0x09	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
0x0A	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

[Notes]

[Default] n = 0x00

[Reference]

[Example]



# 0x1B 0x56

<ESC V>

## Select print mode 90° turned

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

[Format]

Hex	1B	56	n
ASCII	ESC	V	n

[Range] n = 0x00, 0x01, 0x30, 0x31

[Description] Turns 90° rotation mode on or off based on the value of n as follows:

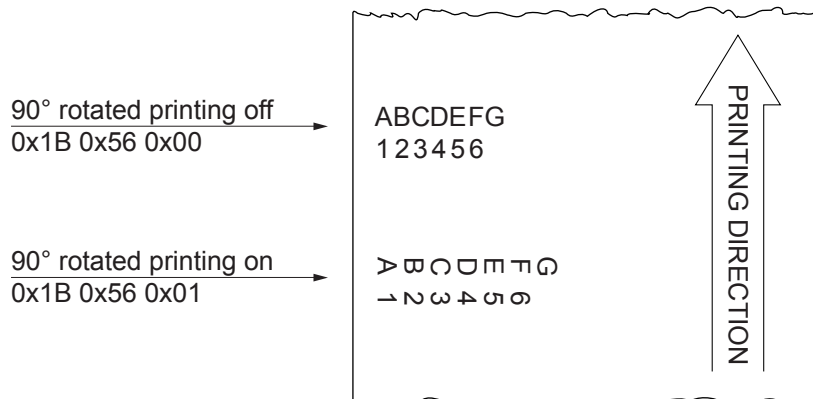
n	FUNCTION
0x00, 0x30	Disable 90° rotation mode
0x01, 0x31	Enable 90° rotation mode

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

[Default] n = 0x00

[Reference] [0x1B 0x21](#), [0x1B 0x2D](#)

[Example]





# 0x1B 0x74

<ESC t>

## Select character code table

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	74	n
	ASCII	ESC	t	n

[Range] **VK80, VKP80, VKP80II, VKP80II-EE**  
 n = 0x0, 0x02, 0x03, 0x04, 0x05, 0x13, 0xFF

**VKP80-SX**  
 0x01 ≤ n ≤ 0x35, n = 0xFF

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

### VK80, VKP80, VKP80II, VKP80II-EE

n	PAGE
0x00	0 (PC437 - U.S.A., Standard Europe)
0x02	2 (PC850 - Multilingual)
0x03	3 (PC860 - Portuguese)
0x04	4 (PC863 - Canadian/French)
0x05	5 (PC865 - Nordic)
0x13	6 (PC858 for Euro symbol in position 0xD5)
0xFF	Space page

### VKP80-SX

n	PAGE
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
12	PC853 - Turkish



13	PC857 - Turkish
14	PC737 - Greek
15	ISO8859-7 - Greek
16	WPC1252
17	PC866 - Cyrillic 2
18	PC852 - Latin 2
19	PC858 for Euro symbol at position 213
20	KU42 - Thai
21	TIS11 - Thai
26	TIS18 - Thai
30	TCVN_3 - Vientamese
31	TCVN_3 - Vientamese
32	PC720 - Arabic
33	WPC775 - Baltic Rim
34	PC855 - Cyrillic
35	PC861 - Icelandic
36	PC862 - Hebrew
37	PC864 - Arabic
38	PC869 - Greek
39	ISO8859-2 - Latin 2
40	ISO8859-15 - Latin 9
41	PC1098 - Farci
42	PC1118 - Lithuanian
43	PC1119 - Lithuanian
44	PC1125 - Ukranian
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 - Vientamese
53	KZ1048 - Kazakhstan
255	Space page



[Notes]

### VKP80-SX

- The tables are selectable only if the code pages are present on the machine. By selecting a code page not present on the machine, the code page remains the one currently in use.
- Make sure to select the font type “International” with the command `0x1C 0x25` or with the “Font type” parameter during the setup procedure (refer to the user manual of the device).

[Default]

n = 0x00

[Reference]

`0x1C 0x25`

[Example]

For printing Euro symbol (€), the command sequence is  
0x1B, 0x74, 0x13, 0xD5

# 0x1B 0x7B

<ESC {>

## Set/cancel upside-down character printing

Valid for  
 VK80  
 VKP80  
 VKP80II  
 VKP80II-EE  
 VKP80II-SX

[Format]            Hex            1B    7B    n  
                       ASCII           ESC    {      n

[Range]            0x00 ≤ n ≤ 0xFF

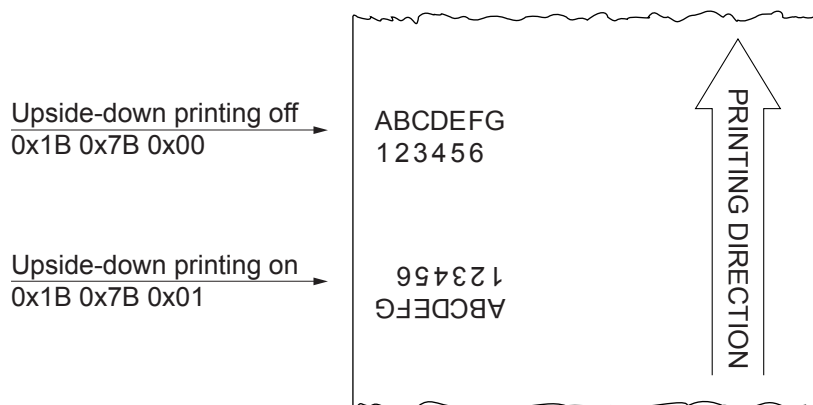
[Description]       Turns upside-down printing mode on or off, based on the value of n:  
 - when the Least Significant Bit (LSB) of n is 0, the upside-down printing mode is off.  
 - when the Least Significant Bit (LSB) of n is 1, the upside-down printing mode is on.

[Notes]             • Only the Least Significant Bit (LSB) of n is effective.  
 • This command is valid only if entered at the beginning of a line.  
 • In upside-down printing mode, the device rotates the line to be printed 180° and then prints it.

[Default]           n = 0x00

[Reference]

[Example]



## 0x1B 0xC1

### Select character pitch

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	C1	n
	ASCII	ESC	0xC1	n

[Range]	$0x00 \leq n \leq 0x02$
	$0x30 \leq n \leq 0x32$

[Description] This command selects the character pitch expressed in cpi (characters per inch) based on the values of n as follows:

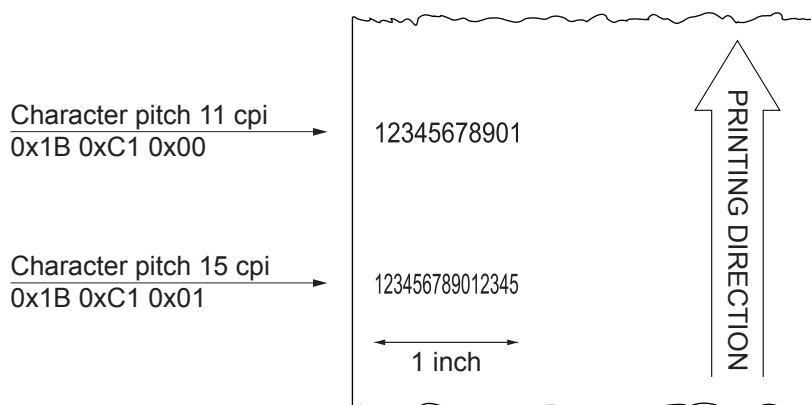
n	PITCH	
0x00, 0x30	Font A = 11 cpi	Font B = 15 cpi
0x01, 0x31	Font A = 15 cpi	Font B = 20 cpi
0x02, 0x32	Font A = 20 cpi	Font B = 15 cpi

[Notes]

[Default] n = 0x00

[Reference] [0x1B 0x21](#)

[Example]





## 0x1C 0x25

<FS %>

### Select the font type

Valid for VKP80II-SX

[Format]	Hex	1C	25	n
	ASCII	FS	%	n

[Range] 0x00 ≤ n ≤ 0x02

[Description] Select the font type based on the value of n as follows:

n	FONT TYPE
0x00	International
0x01	Chinese GB18030
0x02	Korean CP949

[Notes]

- This command can be used only for the models with Extended Chinese (GB18030-2000) or Korean (PC949).
- The selection made by this command is stored in the RAM memory. Turning off the device reverts to the default value, that can be set with the “Font type” parameter during the setup procedure (refer to the user manual of the device).
- After selecting the font type “International” it must be selected the desired character code table using the command [0x1B 0x74](#).

[Default] n = 0x00

[Reference] [0x1B 0x74](#)., see the commands manual “Chinese fonts management”.

[Example]



## 0x1D 0x21

<GS !>

### Select character size

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

[Format]	Hex	1D	21	n
	ASCII	GS	!	n

[Range]	0x00 ≤ n ≤ 0x07	0x10 ≤ n ≤ 0x17
	0x20 ≤ n ≤ 0x27	0x30 ≤ n ≤ 0x37
	0x40 ≤ n ≤ 0x47	0x50 ≤ n ≤ 0x57
	0x60 ≤ n ≤ 0x67	0x70 ≤ n ≤ 0x77

[Description] Selects character height and width, as follows:

- Bits 0 to 3: to select character height (see table 2).
- Bits 4 to 7: to select character width (see table 1).

Table 1 Select Character Width

HEX	WIDTH
00	1 (normal)
10	2 (width = 2x)
20	3 (width = 3x)
30	4 (width = 4x)
40	5 (width = 5x)
50	6 (width = 6x)
60	7 (width = 7x)
70	8 (width = 8x)

Table 2 Select character height

HEX	HEIGHT
00	1 (normal)
01	2 (height = 2x)
02	3 (height = 3x)
03	4 (height = 4x)
04	5 (height = 5x)
05	6 (height = 6x)
06	7 (height = 7x)
07	8 (height = 8x)

[Notes]

- This command is effective for all characters (except HRI characters).
- If n falls outside the defined range, this command is ignored.
- Characters enlarged to different heights on the same line are aligned at the baseline or topline.
- **0x1B 0x21** can also be used to select character size. However, the setting of the last received command is the effective one.
- This command is effective on the x and y axes. In case of 90°/270° rotated characters, bit from 0 to 3 select character width and bit from 4 to 7 select character height.

[Default] n = 0x00



[Reference]

0x1B 0x21

[Example]

For printing a character with 6x width and height the command sequence is:  
0x1D 0x21 0x55

## 0x1D 0x42

<GS B>

Turn black and white reverse printing mode on or off

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	42	n
	ASCII	GS	B	n

[Range]  $0x00 \leq n \leq 0xFF$

[Description] Turns black and white reverse printing mode on or off, based on the value of n:  
 - when the Least Significant Bit (LSB) of n is 0, white/black reverse printing is turned off.  
 - when the Least Significant Bit (LSB) of n is 1, white/black reverse printing is turned on.

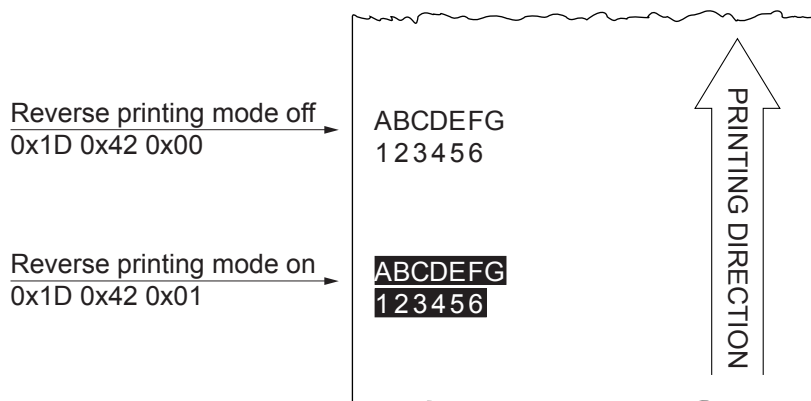
[Notes]

- Only the Least Significant Bit (LSB) of n is effective.
- This command is available for both built-in and user-defined characters.
- This command does not affect bit image, downloaded bit image, barcode, HRI characters and spacing skipped by 0x09, 0x1B 0x24 and 0x1B 0x5C.
- This command does not affect white space between lines.
- White/black reverse mode has a higher priority than underline mode. Even if underline mode is on, it will be disabled (but not cancelled) when white/black reverse mode is selected.

[Default] n = 0

[Reference]

[Example]





# LINE SPACING COMMANDS

## 0x1B 0x30

<ESC 0>

Select 1/8-inch line spacing

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1B	30
ASCII	ESC	0

[Range]

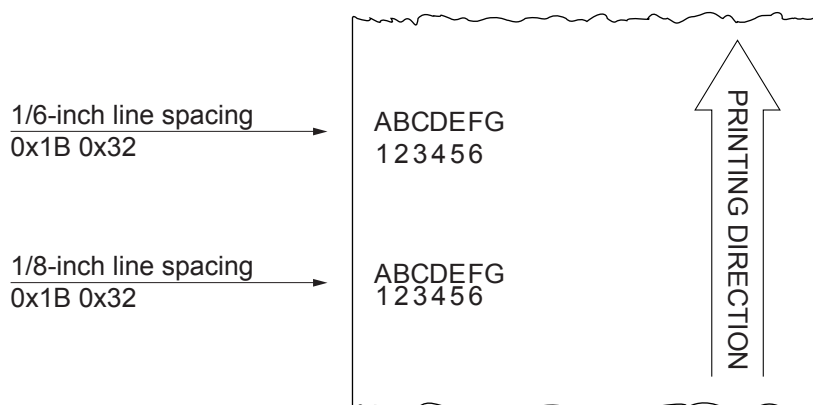
[Description] Selects 1/8-inch line spacing.

[Notes]

[Default]

[Reference] [0x1B 0x32](#), [0x1B 0x33](#)

[Example]



## 0x1B 0x32

<ESC 2>

Select 1/6-inch line spacing

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1B	32
ASCII	ESC	2

[Range]

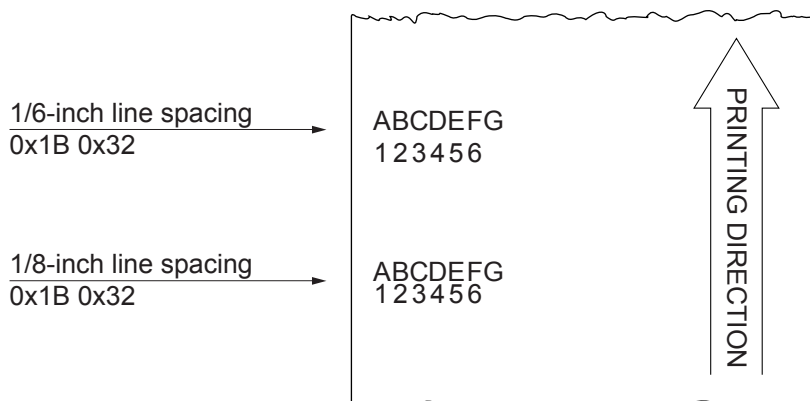
[Description]        Selects 1/6-inch line spacing.

[Notes]

[Default]

[Reference]        [0x1B 0x30](#), [0x1B 0x33](#)

[Example]





## 0x1B 0x33

<ESC 3>

### Set line spacing using minimum units

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
[Format]	Hex            1B    33    n ASCII        ESC   3    n
[Range]	0x00 ≤ n ≤ 0xFF
[Description]	Sets line spacing to [ n × (vertical or horizontal motion unit)] inches.
[Notes]	<ul style="list-style-type: none"> <li>• The horizontal and vertical motion unit are specified by <a href="#">0x1D 0x50</a> or <a href="#">0x1D 0xD0</a>. Changing the horizontal or vertical motion unit does not affect the current line spacing.</li> <li>• The <a href="#">0x1D 0x50</a> or <a href="#">0x1D 0xD0</a> command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum vertical movement amount.</li> <li>• In standard mode, the vertical motion unit is used.</li> <li>• The maximum spacing is 32.5 mm.</li> </ul>
[Default]	n = 0x40 (1/6 inch)
[Reference]	<a href="#">0x1B 0x32</a> , <a href="#">0x1B 0x30</a> , <a href="#">0x1D 0x50</a> , <a href="#">0x1D 0xD0</a>
[Example]	

# PRINT COMMANDS

## 0x0A

<LF>

### Print and line feed

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	0A
	ASCII	LF

[Range]

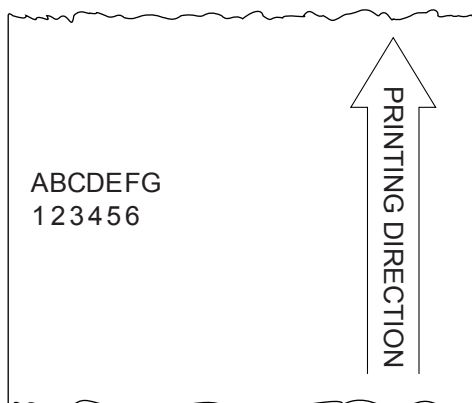
[Description] This command sets the print position to the beginning of the line printing the data in the buffer and feeding one line based on the line spacing set with the command 0x1B 0x30 or 0x1B 0x32.

[Notes] If the buffer is empty, the printing feeds of a value equal to the sum of the character height and line spacing.

[Default] 1/6-inch (32 dots)

[Reference] [0x1B 0x30](#), [0x1B 0x32](#), [0x1B 0x33](#), [0x0D](#)

[Example]



To print the ticket shown in figure the command sequence is:  
 ABCDEFGH 0x0A 123456 0x0A



## 0x0C

<FF>

### Form Feed

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	0C
	ASCII	FF

[Range]

[Description] Prints the data in the buffer, cuts the paper and presents the ticket.

[Notes] The buffer data is deleted after being printed.

[Default]

[Reference]

[Example]

# 0x0D

<CR>

## Print and carriage return

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]            Hex            0D  
                      ASCII            CR

[Range]

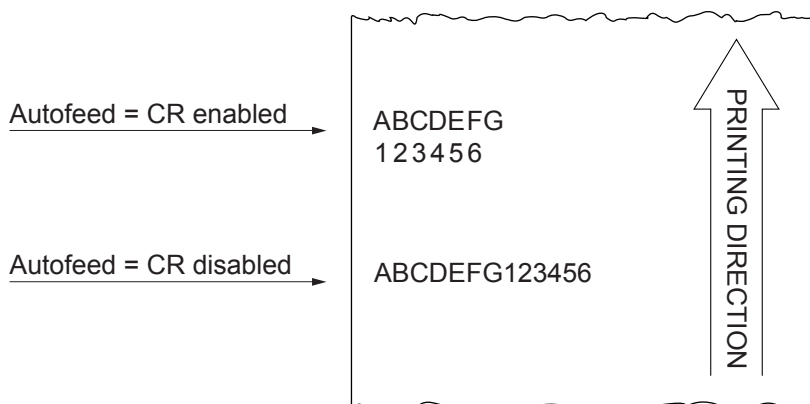
[Description]        This command handles the end of a line text.

[Notes]              If “Autofeed” setup parameter is set to “CR enabled”, this command works in the same way as [0x0A](#), otherwise it is disregarded.

[Default]            See “Autofeed” setup parameter (refer to the user manual of the device).

[Reference]          [0x0A](#)

[Example]



To print the ticket shown in figure the command sequence is:  
ABCDEFGH 0x0D 123456 0x0D



## 0x1B 0x4A

<ESC J>

### Print and feed paper

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

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

[Range] 0x00 ≤ n ≤ 0xFF

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

- [Notes]
- After printing has been completed, this command sets the print starting position to the beginning of the line.
  - The paper feed amount set by this command does not affect the values set by [0x1B 0x32](#) or [0x1B 0x33](#).
  - The horizontal and vertical motion units are specified by [0x1D 0x50](#) or [0x1D 0xD0](#).
  - [0x1D 0x50](#) or [0x1D 0xD0](#) can change the vertical (and horizontal) motion unit. However, the value cannot be less than the minimum vertical movement amount.
  - In standard mode, the vertical motion unit is used.
  - The maximum paper feed amount is 520 mm.

[Default]

[Reference] [0x1D 0x50](#), [0x1D 0xD0](#)

[Example]



## 0x1B 0x64

<ESC d>

### Print and feed paper n lines

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	64	n
	ASCII	ESC	d	n

[Range] 0x00 ≤ n ≤ 0xFF

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

[Notes]

- n rows paper feed is equivalent to (n x char height + line spacing set).
- Sets the print starting position at the beginning of the line.
- This command does not affect the line spacing set by [0x1B 0x32](#) or [0x1B 0x33](#).
- The maximum paper feed amount is 254 lines. Even if a paper feed amount of more than 254 lines is set, the device feeds the paper only 254 lines.

[Default]

[Reference] [0x1B 0x32](#), [0x1B 0x33](#)

[Example]



## 0x1D 0x7C

### Set printing density

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	7C	n
	ASCII	GS	0x7C	n

[Range]	<b>VK80, VKP80, VKP80II, VKP80II-EE</b>
	0x00 ≤ n ≤ 0x08
	0x30 ≤ n ≤ 0x38

<b>VKP80II-SX</b>
0x02 ≤ n ≤ 0x06
0x32 ≤ n ≤ 0x36

[Description] Sets printing density. n specifies printing density as follows:

**VK80, VKP80, VKP80II, VKP80II-EE**

n	PRINTING DENSITY
0x00, 0x30	- 50%
0x01, 0x31	- 37.5%
0x02, 0x32	- 25%
0x03, 0x33	- 12.5%
0x04, 0x34	0%
0x05, 0x35	+ 12.5%
0x06, 0x36	+ 25%
0x07, 0x37	+ 37.5%
0x08, 0x38	+ 50%

### VKP80II-SX

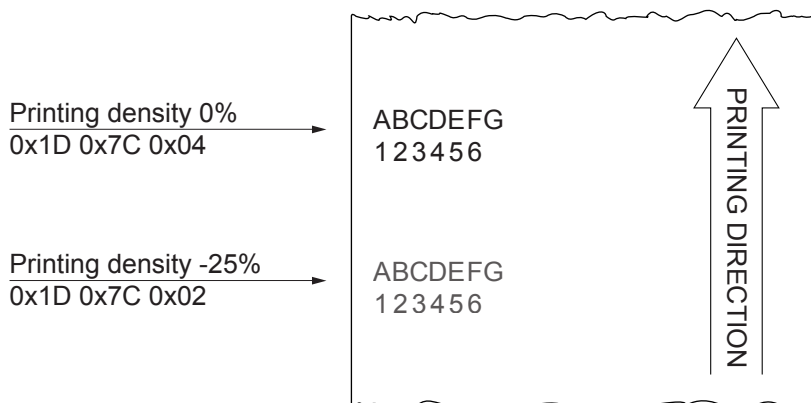
n	PRINTING DENSITY
0x02, 0x32	- 25%
0x03, 0x33	- 12.5%
0x04, 0x34	0%
0x05, 0x35	+ 12.5%
0x06, 0x36	+ 25%

[Notes] Printing density reverts to the default value when the device is reset or turned off.

[Default] n = 0x04

[Reference]

[Example]





# STATUS COMMANDS

## 0x10 0x04

<DLE EOT>

### Real-time status transmission

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	10	04	n
	ASCII	DLE	EOT	n

[Range]	$0x01 \leq n \leq 0x04$
	n = 0x11, 0x14

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

---

n = 0x01	transmits device status
n = 0x02	transmits off-line status
n = 0x03	transmits error status
n = 0x04	transmits paper roll sensor status
n = 0x11	transmits print status
n = 0x14	transmits full status

---



Device status (n = 0x01)

BIT	OFF/ON	HEX	DECIMAL	FUNCTION
0	-	-	-	RESERVED
1	-	-	-	RESERVED
2	-	-	-	RESERVED
3	Off	00	0	On-line
	On	08	8	Off-line
4	-	-	-	RESERVED
5	-	-	-	Not defined
6	-	-	-	Not defined
7	-	-	-	RESERVED

Off-line status (n = 0x02)

BIT	OFF/ON	HEX	DECIMAL	FUNCTION
0	-	-	-	RESERVED
1	-	-	-	RESERVED
2	Off	00	0	Cover closed
	On	04	4	Cover opened
3	Off	00	0	Paper isn't fed by LINE FEED button
	On	08	8	Paper is fed by LINE FEED button
4	-	-	-	RESERVED
5	Off	00	0	Paper present
	On	20	32	Printing stop due to paper end
6	Off	00	0	No error
	On	40	64	Error
7	-	-	-	RESERVED



Error status (n = 0x03)

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	-	-	-	RESERVED
1	-	-	-	RESERVED
2	-	-	-	RESERVED
3	Off	00	0	Cutter ok
	On	08	8	Cutter error
4	-	-	-	RESERVED
5	Off	00	0	No unrecoverable error
	On	20	32	Unrecoverable error
6	Off	00	0	No auto-recoverable error
	On	40	64	Auto-recoverable error
7	-	-	-	RESERVED

Paper roll sensor status (n = 0x04)

BIT	OFF/ON	HEX	DECIMAL	FUNCTION
0	-	-	-	RESERVED
1	-	-	-	RESERVED
2,3	Off	00	0	Paper present in abundance
	On	0C	12	Low paper
4	-	-	-	RESERVED
5, 6	Off	00	0	Paper present
	On	60	96	Paper not present
7	-	-	-	RESERVED

Print status (n = 0x11)

BIT	OFF/ON	HEX	DECIMAL	FUNCTION
0	-	-	-	RESERVED
1	-	-	-	RESERVED
2	Off	00	0	Paper drag motor off
	On	04	4	Paper drag motor on
3	-	-	-	RESERVED
4	-	-	-	RESERVED
5	Off	00	0	Paper present
	On	20	32	Printing stop due to paper end
6	-	-	-	RESERVED
7	-	-	-	RESERVED



Full status (n = 0x14, 6 bytes)

1st byte = 0x10 (DLE)

2nd byte = 0x0F

3rd byte = Paper status

BIT	OFF/ON	HEX	DECIMAL	FUNCTION
0	Off	00	0	Paper present
	On	01	1	Paper not present
1	-	-	-	RESERVED
2	Off	00	0	Paper present in abundance
	On	04	4	Near paper end
3	-	-	-	RESERVED
4	-	-	-	RESERVED
5	Off	00	0	Ticket not present in output
	On	20	32	Ticket present in output
6	Off	00	0	Paper virtually present (*)
	On	40	64	Virtual paper end (*)
7	Off	00	0	Black mark is placed over the sensor
	On	80	128	Black mark is not placed over the sensor

(\*) Paper virtually present is set when the paper length available, read by 0x1D 0xE1, is 0.

4th byte = User status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Cover closed
	On	01	1	Cover opened
1	Off	00	0	Cover closed
	On	02	2	Cover opened
2	Off	00	0	No spooling
	On	04	4	Spooling
3	Off	00	0	Drag paper motor off.
	On	08	8	Drag paper motor on
4	-	-	-	RESERVED
5	Off	00	0	LF key released
	On	20	32	LF key pressed



6	Off	00	0	FF key released
	On	40	64	FF key pressed
7	-	-	-	RESERVED

5th byte = Recoverable error status

BIT	OFF/ON	HEX	Decimal	FUNCTION
0	Off	00	0	Head temperature ok
	On	01	1	Head temperature error
1	Off	00	0	No COM error
	On	02	2	RS232 COM error
2	-	-	-	RESERVED
3	Off	00	0	Power supply voltage ok
	On	08	8	Power supply voltage error
4	-	-	-	RESERVED
5	Off	00	0	Acknowledge command
	On	20	32	Not acknowledge command error
6	Off	00	0	Free paper path
	On	40	64	Paper jam
7	-	-	-	RESERVED



6th byte = Unrecoverable error status

BIT	OFF/ON	HEX	DECIMAL	FUNCTION
0	Off	00	0	Autocutter ok
	On	01	1	Autocutter error
1	Off	00	0	External flash ok (*)
	On	02	2	External flash error (*)
2	Off	00	0	RAM ok
	On	00	0	RAM error
3	Off	00	0	EEPROM ok
	On	08	8	EEPROM error
4	-	-	-	RESERVED
5	-	-	-	RESERVED
6	Off	00	0	Flash ok
	On	40	64	Flash error
7	-	-	-	RESERVED

(\*) Only for VKP80II-SX.

[Notes]

This command is immediately executed even when the data buffer is full.

[Default]

[Reference]

[Example]



## 0x1B 0x76

<ESC v>

### Transmit paper sensor status

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

[Format]

Hex	1B	76
ASCII	ESC	v

[Range]

[Description] When this command is received, transmit the current status of the paper sensor. The status to be transmitted is shown in the table below:

BIT	OFF/ON	HEX	FUNCTION
0, 1	Off	00	Low paper sensor: paper present
	On	03	Low paper sensor: paper not present
2, 3	Off	00	Paper end sensor: paper present
	On	0C	Paper end sensor: paper not present
4	Off	00	Not used. Fixed to Off
5	-	-	Undefined
6	-	-	Undefined
7	Off	00	Not used. Fixed to Off

[Notes]

- This command is executed immediately, even when the data buffer is full (Busy).
- After the paper autoloader all buffers (receive and print) are cleared.

[Default]

[Reference] [0x10 0x04](#)

[Example]



## 0x1C 0xEA

### Transmit the device serial number

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1C	EA	n
	ASCII	FS	0xEA	n

[Range] n = 0x52, 0x72

[Description] Transmits the device serial number.

- [Notes]
- The serial number is a string of 16 alphanumeric characters.
  - If the printer serial number is not defined, the device returns a string of 16 characters with a value of 0x00.

[Default]

[Reference]

[Example] To read the device serial number the command sequence is:  
0x1C 0xEA 0x52

The device returns a string of 16 alphanumeric characters just like the following:  
'ABC0123456789012'



## 0x1D 0x72

<GS r>

### Transmit status

---

Valid for VK80  
VKP80  
VKP80II  
VKP80II-EE  
VKP80II-SX

---

[Format] Hex 1D 72 n  
ASCII GS r n

[Range] n = 0x01, 0x31

[Description] Transmits paper sensor status.

[Notes] This command is executed when the data is processed in the data buffer. Therefore, there may be a time lag between receiving the command and transmitting the status, depending on data buffer status.

[Default]

[Reference] [0x10 0x04, 0x1B 0x76](#)

[Example]



## 0x1D 0xE0

### Enable or disable automatic FULL STATUS BACK

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	E0	n
	ASCII	GS	0xE0	n

[Range] 0x00 ≤ n ≤ 0xFF

[Description] Enables or disables automatic full status back. n specifies the composition of full status as follows:

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Disable paper status
	On	01	Enable paper status
1	Off	00	Disable user status
	On	02	Enable user status
2	Off	00	Disable Recoverable Error Status
	On	04	Enable Recoverable Error Status
3	Off	00	Disable Unrecoverable Error Status
	On	08	Enable Unrecoverable Error Status
4	-	-	Undefined
5	-	-	Undefined
6	-	-	Undefined
7	-	-	Undefined

[Notes] Once enable at least one byte of the FULL STATUS, for each change of at least one of the bits which compose the required status, the status sent in automatic from the device will be so composed as follows:  
 1st Byte = 0x10 (DLE)  
 2nd Byte = n

[Default]

[Reference] 0x10 0x04

[Example]



## 0x1D 0xE1

### Reading of length paper (cm) available before virtual paper-end

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	E1
	ASCII	GS	0xE1

[Range]

[Description] Reading of length paper available before virtual paper-end (expressed in centimetres).  
The command return a string pointing out how much paper is available.

[Notes]

- The length of residual paper reported is just as an indication because tolerances and other factors are not taken into consideration (paper thickness, roll core diameter, roll core thickness).
- The virtual paper-end limit is set by the command [0x1D 0xE6](#).
- To set virtual paper-end limit, measure the length of the paper from near paper end to the end of the roll, using several of them.

[Default]

[Reference] [0x1D 0xE6](#)

[Example] If there are 5.1 m before paper end, the answer will be:  
'510cm'



## 0x1D 0xE2

### Reading number of cuts performed by the autocutter

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	E2
	ASCII	GS	0xE2

[Range]

[Description] Reading the number of cuts performed by the autocutter.

[Notes] The command return a string that points out how many cuts are performed by the autocutter.

[Default]

[Reference]

[Example] If the autocutter has performed 2376 cuts, the answer will be:  
'2376cuts'



## 0x1D 0xE3

### Reading of length of printed paper

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1D	E3
ASCII	GS	0xE3

[Range]

[Description] Reading of length expressed in centimetre of printed paper.

[Notes] The command return a string pointing out how much paper is printed.

[Default]

[Reference]

[Example] If the device has printed about 2515,5 m, the answer will be:  
'251550cm'



## 0x1D 0xE4

### Reading number of retracting

---

Valid for	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	E4
	ASCII	GS	0xE4

[Range]

[Description] Reading number of retracting of the device.

[Notes] The command returns a string indicating the number of retracting of the device.

[Default]

[Reference]

[Example] If the device has retracted the paper 512 times, the answer will be:  
'512ret'



## 0x1D 0xE5

### Reading number of power up

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1D	E5
ASCII	GS	0xE5

[Range]

[Description] Reading number of power up of the device.

[Notes] The command return a string pointing out the number of turning on of the device.

[Default]

[Reference]

[Example] If the device is turned on 512 times, the answer will be:  
'512on'



# BIT-IMAGE COMMANDS

## 0x1B 0x2A

<ESC \*>

Select image print mode

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

[Format]	Hex	1B	2A	m	nL	nH	d1...dk
	ASCII	ESC	*	m	nL	nH	d1...dk

[Range]	m = 0x00, 0x01, 0x20, 0x21
	0x00 ≤ nL ≤ 0xFF
	0x00 ≤ nH ≤ 0x03
	0x00 ≤ d ≤ 0xFF

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

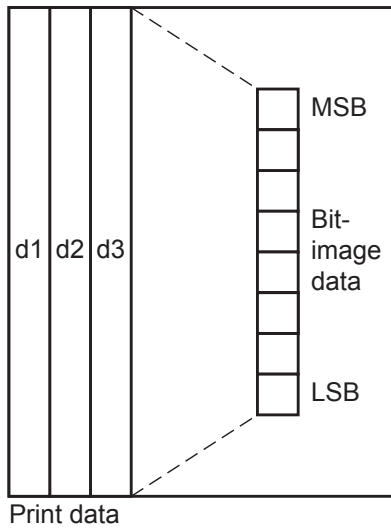
m	MODE	VERTICAL DIRECTION		HORIZONTAL DIRECTION	
		N. DOTS	DPI	DPI	N. DATA (k)
0x00	8 dots single density	8	67	100	nL + nH × 256
0x01	8 dots double density	8	67	200	nL + nH × 256
0x20	24 dots single density	24	200	100	(nL + nH × 256) × 3
0x21	24 dots double density	24	200	200	(nL + nH × 256) × 3

- [Notes]
- The nL and nH commands indicate the number of dots of the bit image in the horizontal direction. The number of dots is calculated using: nL + nH × 256.
  - If the bit image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
  - d indicates the bit image data. Set a corresponding bit to 1 to print a dot, or to 0 to not print the dot.
  - If the value of m is outside the specified range, nL and data following it are processed as normal data.
  - If the width of the printing area set by [0x1D 0x4C](#) and [0x1D 0x57](#) is less than the width required by the data set using [0x1B 0x2A](#), the excess data are ignored.
  - To print the bit image use [0x0A](#), [0x0D](#), [0x1B 0x4A](#) or [0x1B 0x64](#).
  - After printing a bit image, the device returns to normal data processing mode.
  - This command is not affected by the emphasized, double-strike, underline (etc.) print modes, except for the upside-down mode.

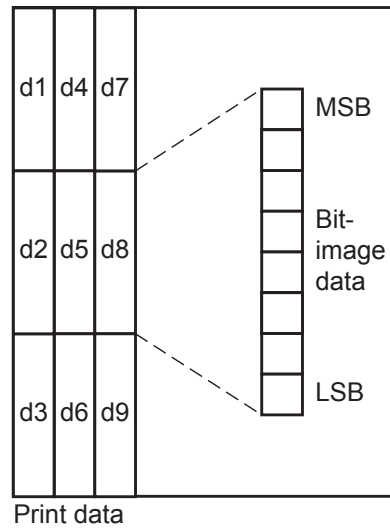


- The relationship between the image data and the dots to be printed is as follows:

8-dot bit image



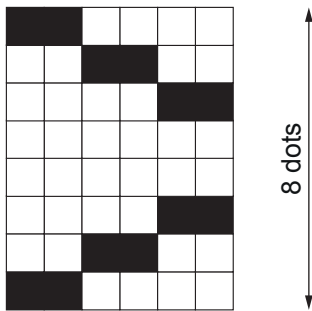
24-dot bit image



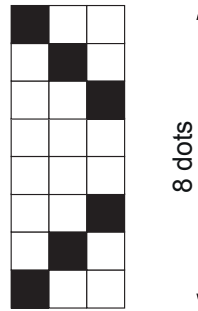
[Default]

[Reference]

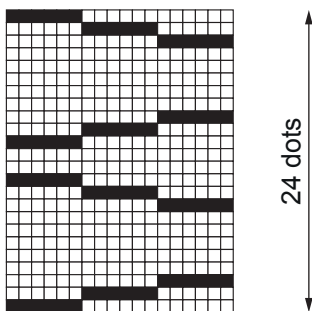
[Example]



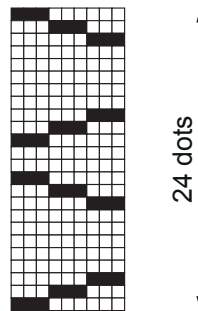
8 dots single density



8 dots double density



24 dots single density



24 dots double density



## 0x1D 0x2A

<GS \*>

### Define received bit image

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	2A	x	y	d1...d(x × y × 8)
	ASCII	GS	*	x	y	d1...d(x × y × 8)

[Range]	0x01 ≤ x ≤ 0xFF
	0x01 ≤ y ≤ 0x30
	x × y ≤ 1536
	0x00 ≤ d ≤ 0xFF

[Description]	Defines a downloaded bit image using the number of dots specified by x and y. <ul style="list-style-type: none"> <li>• x specifies the number of dots in the horizontal direction.</li> <li>• y specifies the number of dots in the vertical direction.</li> </ul>
---------------	--

[Notes]	<ul style="list-style-type: none"> <li>• The number of dots in the horizontal direction is x × 8, in the vertical direction it is y × 8.</li> <li>• If x × y is out of the specified range, this command is disabled.</li> <li>• The d indicates bit-image data. Data ( d ) specifies a bit printed to 1 and not printed to 0.</li> <li>• The received bit image definition is cleared when: <ul style="list-style-type: none"> <li>- 0x1B 0x40 is executed.</li> <li>- 0x1B 0x26 is executed.</li> <li>- Device is reset or turned off.</li> </ul> </li> <li>• The image is saved in the graphic memory of the device.</li> </ul>
---------	--

[Default]

[Reference]





## 0x1D 0x2F

<GS />

### Print downloaded bit image

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	2F	m
	ASCII	GS	/	m

[Range]	0x00 ≤ m ≤ 0x03
	0x30 ≤ m ≤ 0x33

[Description] Prints a downloaded bit image using the mode specified by m. m selects a mode from the table below:

m	MODE
0x00, 0x30	Normal
0x01, 0x31	Double width
0x02, 0x32	Double height
0x03, 0x33	Quadruple

- [Notes]
- This command is ignored if a received bit image has not been defined.
  - In standard mode, this command is effective only when there is no data in the print buffer.
  - This command has no effect in the print modes bold, underline, character size, or white/black reverse printing), except for upside-down printing mode (180° rotation).
  - If the received bit-image to be printed exceeds the printable area, the excess data is not printed.
  - If the printing area width set by [0x1D 0x4C](#) and [0x1D 0x57](#) is less than the bit image horizontal size, the following processing is performed:
    - 1) The printing area width is extended toward the right side up to hold the bit image. In this case, printing does not exceed the printable area.
    - 2) If the printing area width cannot be extended toward the right side, because there's no more printing area, the left margin is reduced to accommodate the bit image.

[Default]

[Reference] [0x1D 0x2A](#)

[Example]



## 0x1D 0x76 0x30

<GS v 0>

### Print raster image

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
-----------	--

[Format]	Hex	1D	76	30	m	xL	xH	yL	yH	d1...dk
	ASCII	GS	v	0	m	xL	xH	yL	yH	d1...dk

[Range]

$0x00 \leq m \leq 0x03$ ,  $0x30 \leq m \leq 0x33$   
 $0x00 \leq xL \leq 0xFF$   
 $0x00 \leq xH \leq 0xFF$  ( $1 \leq xL + xH \times 256 \leq 65535$ )  
 $0x00 \leq yL \leq 0xFF$   
 $0x00 \leq yH \leq 0x08$  ( $1 \leq yL + yH \times 256 \leq 2047$ )  
 $0x00 \leq d \leq 0xFF$   
 $k = (xL + xH \times 256) \times (yL + yH \times 256)$   
(except for  $k = 0$ )

[Description] Selects raster bit image mode. The value of m selects the mode as follows:

m	MODE
0x00, 0x30	Normal
0x01, 0x31	Double-width
0x02, 0x32	Double-height
0x03, 0x33	Quadruple

- xL, xH selects the number of data bits ( $xL + xH \times 256$ ) in the horizontal direction for the bit image.
- yL, yH selects the number of data bits ( $yL + yH \times 256$ ) in the vertical direction for the bit image.
- k shows the number of data of the image. It's an explanation parameter so it isn't necessary to transmit it.
- d shows the data of the image.

- [Notes]
- In standard mode for receipt paper, this command is effective only when there is no data in the print buffer.
  - The data (d) identify as 1 a printed bit and as 0 a non printed bit.
  - If a raster bit image is longer than one line, the surplus data aren't printed.
  - This command has no effect in all print modes (character size, emphasized, upside-down, underline, white/black reverse printing, etc.) for raster bit image, except the reverse mode (90° anticlockwise rotation).
  - This command feed the paper as much as is necessary to print the raster bit image, though the spacing set by [0x1B 0x32](#) or [0x1B 0x33](#).
  - Don't use this command during a macro execution because it can't be included in a macro.



- After the printing, the printing position moves to the beginning of the line.
- The following table shows the report between the image data and the printing result:

d1	d2	...	dx
dX+1	dX+2	...	dX x 2
:	:	...	:
...	dk-2	dk-1	d

[Default]

[Reference]

[Example]



# PRINT POSITION COMMANDS

## 0x08

<BS>

Back space

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	08
	ASCII	BS

[Range]

[Description] Moves print position to previous character..

[Notes] Can be used to put two characters at the same position.

[Default]

[Reference]

[Example]

## 0x09

<HT>

### Horizontal tab

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]           Hex           09  
                  ASCII       HT

[Range]

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

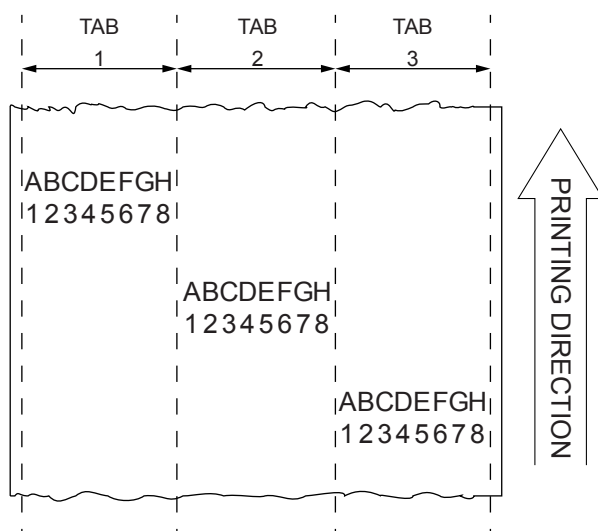
[Notes]

- Horizontal tab position are set using [0x1B 0x44](#).
- Ignored unless the next horizontal tab position has been set.
- If the command is received when the printing position is at the right margin, the device executes print buffer full printing and horizontal tab processing from the beginning of the next line.

[Default]           Default tab positions are set at intervals of 8 characters (9, 17, 25, ...) when the right-side character spacing is 0.

[Reference]       [0x1B 0x44](#)

[Example]





## 0x1B 0x24

<ESC \$>

### Set absolute print position

---

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
-----------	--

---

[Format]	Hex            1B    24    nL    nH ASCII           ESC   \$    nL    nH
[Range]	0x00 ≤ nL ≤ 0xFF 0x00 ≤ nH ≤ 0xFF
[Description]	Sets the distance from the beginning of the line to the position at which subsequent characters are to be printed. The distance from the beginning of the line to the print position is [(nL + nH × 256) × (vertical or horizontal motion unit)] inches.
[Notes]	<ul style="list-style-type: none"><li>• Settings outside the specified printable area are ignored.</li><li>• The horizontal and vertical motion unit are specified by <a href="#">0x1D 0x50</a> or <a href="#">0x1D 0xD0</a>.</li><li>• The <a href="#">0x1D 0x50</a> or <a href="#">0x1D 0xD0</a> command can change the horizontal and vertical motion unit. However, the value cannot be less than the minimum horizontal movement amount.</li><li>• In standard mode, the horizontal motion unit (x) is used.</li><li>• If the setting is outside the printing area width, it sets the absolute print position, but the left or right margin is set at default value.</li></ul>
[Default]	
[Reference]	<a href="#">0x1B 0x5C</a> , <a href="#">0x1D 0x50</a> , <a href="#">0x1D 0xD0</a>
[Example]	



## 0x1B 0x28 0x76

<ESC ( y>

### Set relative vertical print position

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
[Format]	Hex            1B    28    76    nL    nH ASCII        ESC   (    v    nL    nH
[Range]	0x00 ≤ nL ≤ 0xFF 0x00 ≤ nH ≤ 0xFF
[Description]	Sets the print vertical position based on the current position by using the horizontal or vertical motion unit. This command sets the distance from the current position to [(nL + nH × 256) × horizontal or vertical motion unit].
[Notes]	<ul style="list-style-type: none"> <li>• When the starting position is specified by N motion unit to the bottom: nL + nH × 256 = N</li> <li>• When the starting position is specified by N motion unit to the top (negative direction), use the complement of 65536: nL + nH × 256 = 65536 - N</li> <li>• The horizontal and vertical motion unit are specified by <a href="#">0x1D 0x50</a>.</li> <li>• The <a href="#">0x1D 0x50</a> command can change the horizontal (and vertical) motion unit. However, the value cannot be less than the minimum horizontal movement amount.</li> <li>• In standard mode, the vertical motion unit is used.</li> </ul>
[Default]	
[Reference]	<a href="#">0x1D 0x50</a>
[Example]	



## 0x1B 0x44

<ESC D>

### Set horizontal tab position

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	44	n1...nk	00
	ASCII	ESC	D	n1...nk	NUL

[Range]	0x01 ≤ n ≤ 0xFF
	0x00 ≤ k ≤ 0x20

[Description]	Sets horizontal tab positions
	<ul style="list-style-type: none"> <li>• n specifies the column number for setting a horizontal tab position calculated from the beginning of the line.</li> <li>• k indicates the total number of horizontal tab positions to be set.</li> </ul>

[Notes]	<ul style="list-style-type: none"> <li>• The horizontal tab position is stored as a value of [character width x n] measured from the beginning of the line. The character width includes the right-side character spacing and double-width characters are set with twice the width of normal characters.</li> <li>• This command cancels previous tab settings.</li> <li>• Up to 32 tab positions ( k = 0x20) can be set. Data exceeding 32 tab positions is processed as normal data.</li> <li>• Send [ n ] k in ascending order and place a 0 NUL code at the end. When [ n ] k is less than or equal to the preceding value [ n ] k-1, the setting is complete and the data which follows is processed as normal data.</li> <li>• 0x1B 0x44 00 cancels all horizontal tab positions.</li> <li>• The previously specified horizontal tab position does not change, even if the character width is modified.</li> </ul>
---------	--

[Default]	Default tab positions are set at intervals of 8 characters (columns 9, 17, 25, ...) when the right-side character spacing is 0.
-----------	---

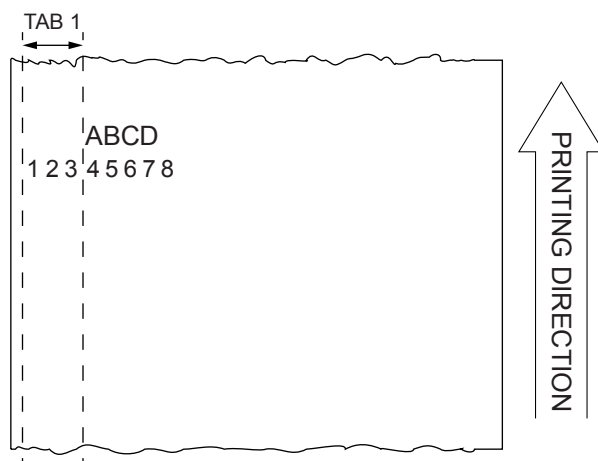
[Reference]	<a href="#">0x09</a>
-------------	----------------------



[Example]

To set a tabulation to column 4 send the command:

0x1B 0x44 0x03 0x00



To print the string 'ABCD' to the tabulation previously set, the command sequence is:

0x09 'ABCD'

where:

0x09                    move the print position to the set horizontal tab (4th column).

'ABCD'                is the string to be printed.



## 0x1B 0x5C

<ESC I>

### Set relative print position

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	5C	nL	nH
	ASCII	ESC	\	nL	nH

[Range]	$0x00 \leq nL \leq 0xFF$
	$0x00 \leq nH \leq 0xFF$

[Description]	Sets the print starting position based on the current position by using the horizontal or vertical motion unit. Sets the distance from the current position to $[(nL + nH \times 256) \times (\text{horizontal or vertical motion unit})]$ .
---------------	---

[Notes]	<ul style="list-style-type: none"> <li>• When the starting position is specified by n motion units to the right : <math>nL + nH \times 256 = N</math> When the starting position is specified by n motion units to the left (negative direction) use the complement of 65536 : <math>nL + nH \times 256 = 65536 - N</math></li> <li>• If setting exceeds the printing area width, the left or right margin is set to the default value.</li> <li>• The horizontal and vertical motion unit are specified by <a href="#">0x1D 0x50</a> or <a href="#">0x1D 0xD0</a>.</li> <li>• <a href="#">0x1D 0x50</a> can change the horizontal (and vertical) motion units. However, the value cannot be less than the minimum horizontal movement amount.</li> <li>• In standard mode, the horizontal motion unit is used.</li> <li>• It's possible to print further on the right margin set for every font. In this case the printing continues up to the maximum border of the device mechanism and then begins a new row.</li> </ul>
---------	--

[Default]

[Reference]	<a href="#">0x1B 0x24</a> , <a href="#">0x1D 0x50</a> , <a href="#">0x1D 0xD0</a>
-------------	---

[Example]

# 0x1B 0x61

<ESC a>

## Select justification

Valid for  
 VK80  
 VKP80  
 VKP80II  
 VKP80II-EE  
 VKP80II-SX

[Format]            Hex            1B    61    n  
                       ASCII            ESC    a     n

[Range]             $0x00 \leq n \leq 0x02$   
                        $0x30 \leq n \leq 0x32$

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

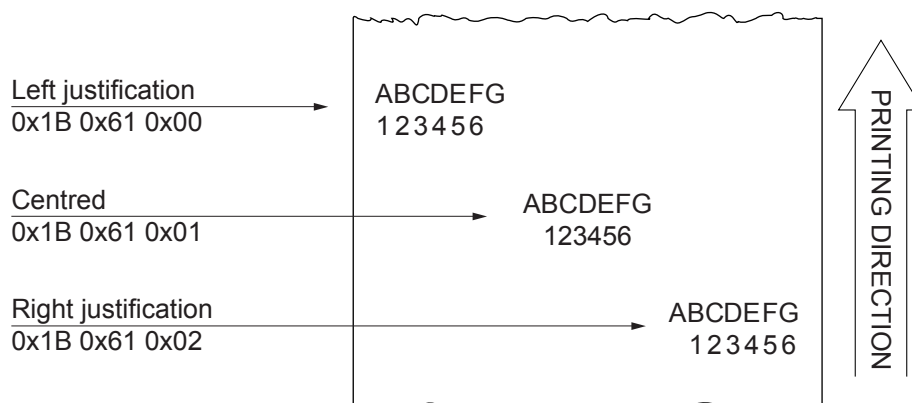
n	JUSTIFICATION
0, 48	Flush left
1, 49	Centered
2, 50	Flush right

[Notes]            • Lines are justified within the specified printing area.  
 • Spaces set by 0x09, 0x1B 0x24 and 0x1B 0x5C will be justified according to the previously-entered mode.

[Default]            n = 0x00

[Reference]

[Example]



# 0x1D 0x4C

<GS L>

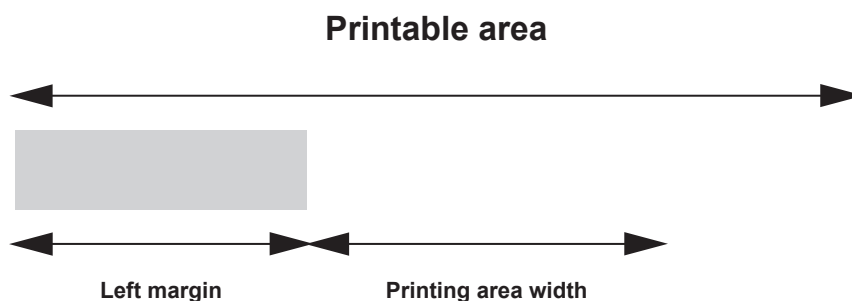
## Set left margin

Valid for  
 VK80  
 VKP80  
 VKP80II  
 VKP80II-EE  
 VKP80II-SX

[Format]            Hex            1D    4C    nL    nH  
                       ASCII           GS    L    nL    nH

[Range]             $0x00 \leq nL, nH \leq 0xFF$

[Description]      Sets the left margin to  $[(nL + nH \times 256) \times \text{horizontal motion unit}]$ .



- [Notes]
- If the setting exceeds the printable area, the maximum value of the printable area is used.
  - If the left margin + printing area width is greater than the printable area, the printing area width is set at maximum value.
  - The horizontal and vertical motion unit are specified by [0x1D 0x50](#) or [0x1D 0xD0](#). Changing the horizontal or vertical motion unit does not affect the current left margin.
  - The [0x1D 0x50](#) or [0x1D 0xD0](#) command can change the horizontal (and vertical) motion unit.
  - However, the value cannot be less than the minimum horizontal movement amount and it must be in even units of the minimum horizontal movement amount.

[Default]

[Reference]        [0x1D 0x50](#), [0x1D 0x57](#), [0x1D 0xD0](#)

[Example]

## 0x1D 0x57

<GS W>

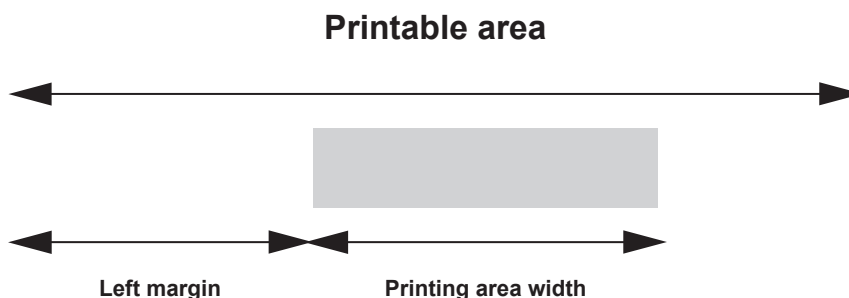
### Set printing area width

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

[Format]	Hex	1D	57	nL	nH
	ASCII	GS	W	nL	nH

[Range]	$0 \leq nL, nH \leq 0xFF$ $0 \leq (nL + nH \times 256) \leq 260$
---------	---

[Description]	Sets the printing area width to the area specified by nL and nH. The left margin is set to $[(nL + nH \times 256) \times (\text{horizontal motion unit})]$ inches.
---------------	---



[Notes]	<ul style="list-style-type: none"> <li>• This command is only enabled if set at the beginning of the line.</li> <li>• If the right margin is greater than the printable area, the printing area width is set at maximum value.</li> <li>• If the printing area width = 0, it is set at the maximum value.</li> <li>• The horizontal and vertical motion units are specified by <a href="#">0x1D 0x50</a> or <a href="#">0x1D 0xD0</a>. Changing the horizontal or vertical motion unit does not affect the current left margin.</li> <li>• The <a href="#">0x1D 0x50</a> or <a href="#">0x1D 0xD0</a> command can change the horizontal (and vertical) motion unit.</li> <li>• However, the value cannot be less than the minimum horizontal movement amount and it must be in even units of the minimum horizontal movement amount.</li> </ul>
---------	---

[Default]	
-----------	--

[Reference]	<a href="#">0x1D 0x4C</a> , <a href="#">0x1D 0x50</a> , <a href="#">0x1D 0xD0</a>
-------------	---

[Example]	
-----------	--



# MACRO FUNCTIONS CONTROL

## 0x1D 0x3A

<GS :>

Start or end of macro definition

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1D	3A
ASCII	GS	:

[Range]

[Description] Starts or ends macro definition.

[Notes]

- Macro definition starts when this command is received during normal operation.
- When [0x1D 0x5E](#) is received during macro definition, the device ends macro definition and clears all definitions.
- Macros are not defined when power is turned on to the machine.
- Macro content is not cancelled by the [0x1B 0x40](#) command. Therefore, [0x1B 0x40](#) may be included in the content of macro definitions.
- If the device receives [0x1D 0x3A](#) a second time after previously receiving [0x1D 0x3A](#), the device remains in macro undefined status.
- The contents of the macro can be defined up to 2048 bytes. If the macro definition exceeds 2048 bytes, excess data is not stored.

[Default]

[Reference] [0x1D 0x5E](#)

[Example]



## 0x1D 0x5E

<GS ^>

### Execute macro

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
[Format]	Hex            1D    5E    r    t    m ASCII        GS    ^    r    t    m
[Range]	0x00 ≤ r, t ≤ 0xFF 0x00 ≤ m ≤ 0x01
[Description]	Executes a macro. <ul style="list-style-type: none"> <li>• r specifies the number of times to execute the macro.</li> <li>• t specifies the waiting time for executing the macro. The waiting time is t × 100 ms for each macro execution.</li> <li>• m specifies macro executing mode: When the Least Significant Bit (LSB) of m = 0, the macro is executed r times continuously at the interval specified by t. When the Least Significant Bit (LSB) of m = 1, after waiting for the period specified by t, the LED indicator blinks and the device waits for the FEED button to be pressed. After the button is pressed, the device executes the macro once. The device repeats the operation r times.</li> </ul>
[Notes]	<ul style="list-style-type: none"> <li>• This command has an interval of (t × 100 ms) after a macro is executed by t.</li> <li>• If this command is received while a macro is being defined, the macro definition is aborted and the definition is cleared.</li> <li>• If the macro is not defined or if r is 0x00, nothing is executed.</li> <li>• When the macro is executed by pressing the FEED button (m = 0x01), the paper cannot be fed using the FEED button.</li> </ul>
[Default]	
[Reference]	<a href="#">0x1D 0x3A</a>
[Example]	



# COMMANDS FOR MECHANISM CONTROL

## 0x1B 0x69

<ESC i>

### Total cut

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	69
	ASCII	ESC	i

### [Range]

[Description] This command enables autocutter operation and executes a total cut.

#### **VKP80, VKP80II, VKP80II-EE, VKP80SX**

The device acts as follows:

- Is performed the total cut of the ticket.

#### **VK80**

If the paper recovery after cutting has been disabled ([0x1C 0xC1](#)) the device acts as follows:

- The ticket is fed to the distance <printing line / cutting line>.
- Is performed the full cut of the ticket.

If the paper recovery after cutting has been enabled ([0x1C 0xC1](#)) the device acts as follows:

- The ticket is fed to the distance <printing line / cutting line>.
- Is performed the full cut of the ticket.
- The paper in the device is recovered to the distance <printing line / cutting line>.

[Notes] The device waits to complete all paper movement commands before it executes a total cut.

### [Default]

[Reference] [0x1C 0xC1](#)

### [Example]



## 0x1C 0xC1

### Enable or disable the paper recovery after cut

---

Valid for	VK80
-----------	------

---

[Format]	Hex	1C	C1	n
	ASCII	FS	0xC1	n

[Range]  $0x00 \leq n \leq 0x01$

[Description] Enables or disables the recovery of the paper after a cut, as follows:

---

n	FUNCTION
0x00	Disables paper recovery
0x01	Enables paper recovery

---

[Notes]

[Default] n = 0x01

[Reference]

[Example]



# 0x1D 0x56

<GS V>

## Select cut mode

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format 1]	Hex	1D	56	m
	ASCII	GS	V	m

[Format 2]	Hex	1D	56	m	n
	ASCII	GS	V	m	n

[Range]	Format 1:	m = 0x00, 0x30
	Format 2:	m = 0x41

[Description] Selects cut mode and executes the cut command based on the value of m as follows:

m	FUNCTION
0x00, 0x30	Total cut
0x41	Form feed (cut position + [ n × vertical motion unit]) and total cut

- [Notes]
- This command is only enabled if set at the beginning of the line.
  - The horizontal and vertical motion units are specified by [0x1D 0x50](#) or [0x1D 0xD0](#).

[Default]

[Reference] [0x1B 0x69](#), [0x1D 0x50](#), [0x1D 0xD0](#)

[Example]



# ALIGNMENT COMMANDS

## 0x1D 0xE7

### Set black mark distance

---

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
-----------	--

---

[Format]	Hex            1D    E7    nH    nL ASCII           GS    0xE7 nH    nL
[Range]	0x00 ≤ nH ≤ 0xFF 0x00 ≤ nL ≤ 0xFF
[Description]	Sets black mark distance in tenth of millimeter of the alignment point from the edge of the black mark. This value is expressed as [(nH × 256) + nL] where: - nH specifies the type of distance (0x00 = positive, 0x80 = negative) - nL specifies the distance in millimetres.
[Notes]	<b>VKP80, VKP80II, VKP80II-EE, VKP80-SX</b> The minimum and maximum limit can be set during setup and range from 0 mm to 32 mm.  <b>VK80</b> The minimum and maximum limit can be set during setup and range from -5 mm to 32 mm.  • The distance is saved in nonvolatile memory: it is therefore recommended not to send this command for each printed ticket, because the number of rewrites is limited. In many devices, however, is checked the diversity of the data before performing the rescue to avoid reaching the limit of rewrites. • The distance defined by this command is the same that can be set with the value of the “Black Mark Distance” during the setup of the device (see user manual for further explanation).
[Default]	nH = 0x00 nL = 0x00
[Reference]	



[Example]

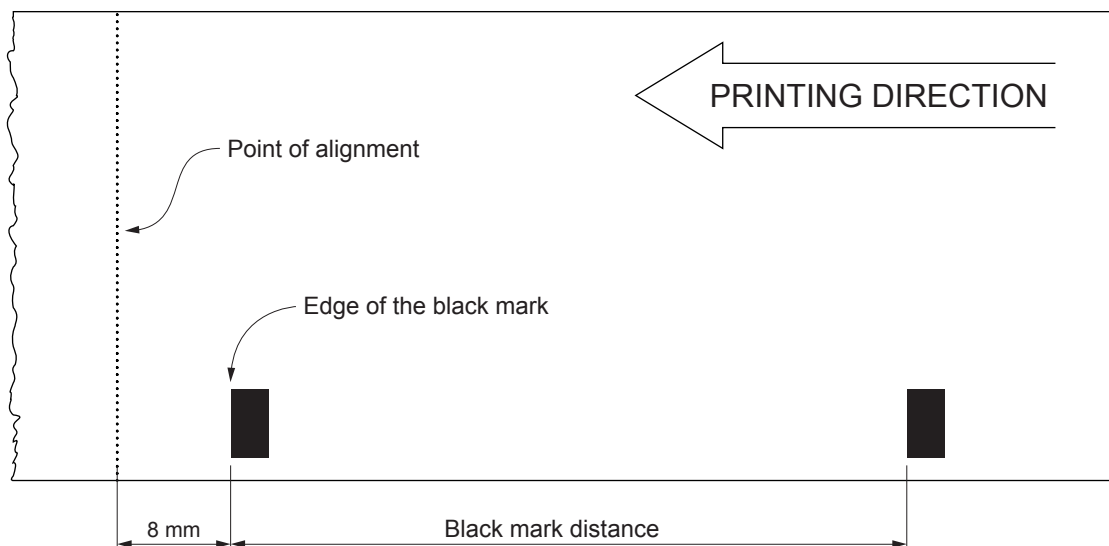
To set a distance of the alignment point from the black mark equal to 8 mm = 80 tenths of a millimeter, send the command:

```
0x1D 0xE7 0x00 0x50
```

where:

0x00            the most significant bit (MSB = 0) defines the sign +

0x00 0x50      the absolute value defines the distance = 80 tenths of a millimeter





## 0x1D 0xF6

### Align the ticket with the printhead

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	F6
	ASCII	GS	0xF6

[Range]

[Description] This command align the edge of black mark to the alignment point (see [ALIGNMENT](#) section for further explanation).

- [Notes]
- Use the command [0x1D 0xE7](#) to set an offset between the black mark and the point of alignment.
  - To work properly, the “Black Mark Position” parameter must be enabled during the setup procedure (refer to the user manual of each device).
  - Use this alignment command even to print more tickets without cutting.

[Default]

[Reference] [0x1D 0xE7](#), [0x1D 0xF8](#)

[Example]



## 0x1D 0xF8

### Align the ticket with the autocutter

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	F8
	ASCII	GS	0xF8

[Range]

[Description] This command aligns the edge of the black mark at the point of alignment (see [ALIGNMENT](#) section for further explanation)

- [Notes]
- Use the command [0x1D 0xE7](#) to set an offset between the black mark and the point of alignment.
  - To work properly, the “Black Mark Position” parameter must be enabled during the setup procedure (refer to the user manual of each device).
  - Use this alignment command even to print more tickets without cutting.

[Default]

[Reference] [0x1D 0xE7](#), [0x1D 0xF6](#)

[Example]



# EJECTOR COMMANDS

## 0x1D 0x65

<GS e>

### Ejector commands

---

Valid for VKP80  
VKP80II  
VKP80II-EE  
VKP80II-SX

---

[Format] Hex 1D 65 n m  
ASCII GS e n m

[Range]  $0x01 \leq n \leq 0x03$   
n = 0x05, 0x06, 0x08, 0x12, 0x14, 0x20  
 $0x00 \leq t \leq 0xFF$

[Description] This command manages the operation of the ejector based on the value of n as follows:

- n = 0x01 None
- n = 0x02 Ticket retracted (only if paper retracting is enabled)
- n = 0x03 Present the ticket with m steps (1 step = 7.3 mm)
- n = 0x05 Ticket ejected
- n = 0x06 Transmit the status byte of the ejector

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Paper present in abundance
	On	01	Low paper
1	Off	00	RESERVED
	On	00	RESERVED
2	Off	00	Paper end sensor (paper not present)
	On	04	Paper end sensor (paper present)
3	Off	00	Ticket not present on the output
	On	08	Ticket present on the output
4	Off	00	Device's stepper motor off
	On	10	Device's stepper motor on
5	Off	00	Emitter motor off
	On	20	Emitter motor on
6	Off	00	Not error
	On	40	Error
7	Off	00	Free paper route
	On	80	Paper jam



n = 0x08	Sets the length of the ticket presentation in m steps (1 step =7.3 mm).
n = 0x12	Disable the ejector continuous mode and sets the normal functioning: when the device is printing, the ticket remains in the bezel outlet until a cut command or eject command will be sent.
n = 0x14	Enable the ejectorcontinuous mode: when the device is printing, the ticket doesn't remain in the bezel outlet but it is continuously presented.
n = 0x20	Present a ticket in m steps, (1 step = 7.3 mm) with a timeout expressed in seconds indicated by t.

- [Notes]
- m must be sent with n = 0x03, n = 0x08 and n = 0x20;
  - With n = 0x03, 0x08 or 0x20 the device checks the length of the presentation: if the value of m is too high, the ticket is automatically presented with the maximum value of the allowed ticket length.
  - With n = 0x03 or 0x20 if the ticket is not yet cut, before to perform the command, the device performs a total cut.
  - With n = 0x20 it's necessary set a timeout that indicate how long th ticket remain presented; if send a now print before the timeout it's execute a ticket retract or ticket eject in according to device setup setting, when timeout occurs the device executes a ticket retract or ticket eject in according to device setup settings.

[Reference] [0x1B 0x69](#)

[Example] To print a ticket send the command sequence:

Ejector management	0x1D 0x65 0x05 (ejection) o 0x1D 0x65 0x02 (retracting)
Print ticket	
Paper total cut	0x1B 0x69
Presentation	0x1D 0x65 0x03 0x0C (87 mm presentation)



# MISCELLANEOUS COMMANDS

## 0x1B 0x3D

<ESC =>

Select peripheral device

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1B	3D	n
ASCII	ESC	=	n

[Range] 0x00 ≤ n ≤ 0xFF

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

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	Device disabled
	On	01	Device enabled
1	-	-	Undefined
2	-	-	Undefined
3	-	-	Undefined
4	-	-	Undefined
5	-	-	Undefined
6	-	-	Undefined
7	-	-	Undefined

[Notes] • When the device is disabled, it ignores all transmitted data until the device is enabled through this command.

[Default] n = 0x01

[Reference]

[Example]



## 0x1B 0x40

<ESC @>

### Initialize device

---

Valid for

- VK80
- VKP80
- VKP80II
- VKP80II-EE
- VKP80II-SX

---

[Format]

Hex	1B	40
ASCII	ESC	@

[Range]

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

[Notes]

- The data in the receiver buffer is not cleared.
- The macro definitions are not cleared.

[Default]

[Reference]

[Example]



## 0x1B 0x63 0x35

<ESC c>

### Enable or disable keys panel

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	63	35	n
	ASCII	ESC	c	5	n

[Range]            0x00 ≤ n ≤ 0xFF

[Description]        Enables or disables the keys panel, based on the value of n  
- when the Least Significant Bit (LSB) of n is 0, the keys panel is enabled.  
- when the Least Significant Bit (LSB) of n is 1, the keys panel is disabled.

[Notes]              • Only the Least Significant Bit (LSB) of n is effective.  
• When the keys panel is disabled, the keys may only be used after the device has been reset.

[Default]            n = 0x00

[Reference]

[Example]



## 0x1B 0xFA

### Print graphic bank (608x862 dots)

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	FA	n	xH	xL	yH	yL
	ASCII	ESC	0xFA	n	xH	xL	yH	yL

[Range]	$0x01 \leq n \leq 0x02$
	$0x00 \leq xH, xL, yH, yL \leq 0xFF$

[Description] Prints graphic logo from flash or current graphic page located in ram. n selects the graphic source as follows:

n	FUNCTION
0x01	Print logo 1 from flash bank
0x02	Print logo 2 from flash bank

[Notes]

- Printable maximum vertical dimension is 862 dots:  
 $xL + xH \times 256$  specifies the starting dotline (  $1 \div 862$  ).  
 $yL + yH \times 256$  specifies the number of lines to print.
- If  $(xL + (xH \times 256)) > 862$  the device does not execute the command.
- If  $(xL + (xH \times 256) + yL + (yH \times 256)) > 862$  the device prints only  $862 - xL + (xH \times 256) + 1$  dotline.
- If the logo has been previously saved in the flash bank it will be printed correctly. If not a "NACK" (0x15) will be returned.

[Default]

[Reference]

[Example] To print from RAM bank dotline 100 to dotline 299, send the command sequence  
 0x1B 0xFA 0x00 0x00 0x64 0x00 0xC7



## 0x1B 0xFF

Receive the graphic page from the communication port

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1B	FF	n	nL	nH
	ASCII	ESC	0xFF	n	nL	nH

[Range] n = 0x01, 0x02  
 0x00 ≤ nL, nH ≤ 0xFF

[Description] Receives [nL + (nH × 256)] words from the communication port and save them in the flash bank based on the value of n as follows:

n	FUNCTION
0x01	Save logo in the flash bank 1
0x02	Save logo in the flash bank 2

- [Notes]
- For serial communication, set setup parameter “RS232 handshaking” to “Hardware”.
  - The number of received data bytes is [nL + (nH × 256)] × 2.
  - Every word is received first as MSB and then as LSB.
  - If [nL + (nH × 256)] is more than 32756, the following data are processed as normal data.
  - In the horizontal dot line there are 38 words.
  - The flash bank for graphic print dimensions are: 608 horizontal dots (76 bytes/line) × 862 vertical dots (65512 bytes).

[Default]

[Reference]

[Example]



## 0x1C 0xC0

Prints graphic logo in the graphic page

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1C	C0	xH	xL	yH	yL	dxH	dxL	dyH	dyL	xIH	xIL	yIH	yIL	num
	ASCII	FS	0xC0	xH	xL	yH	yL	dxH	dxL	dyH	dyL	xIH	xIL	yIH	yIL	num

[Range]	$dx + xl \leq 608$
	$dx + x \leq 608$
	$dy + yl \leq 862$
	$0x00 \leq num \leq 0x01$

[Description]	<p>Allows to select parts of the graphic logo and insert the coordinates of the graphic page point in which to print it.</p> <ul style="list-style-type: none"> <li>• (xl,y) = graphic logo point coordinates:  <math>xl = xIL + (xIH \times 256)</math> ; <math>yl = yIL + (yIH \times 256)</math></li> <li>• dx = horizontal dimension of the graphic logo part which must be printed:  <math>dx = dxL + (dxH \times 256)</math></li> <li>• dy = vertical dimension of the graphic logo part which must be printed:  <math>dy = dyL + (dyH \times 256)</math></li> <li>• (x,y) = coordinates of the graphic page point where must be printed the graphic logo part:  <math>x = xL + (xH \times 256)</math> ; <math>y = yL + (yH \times 256)</math></li> <li>• num = parameter for the graphic logo selection between the two logos available.</li> </ul>
---------------	--

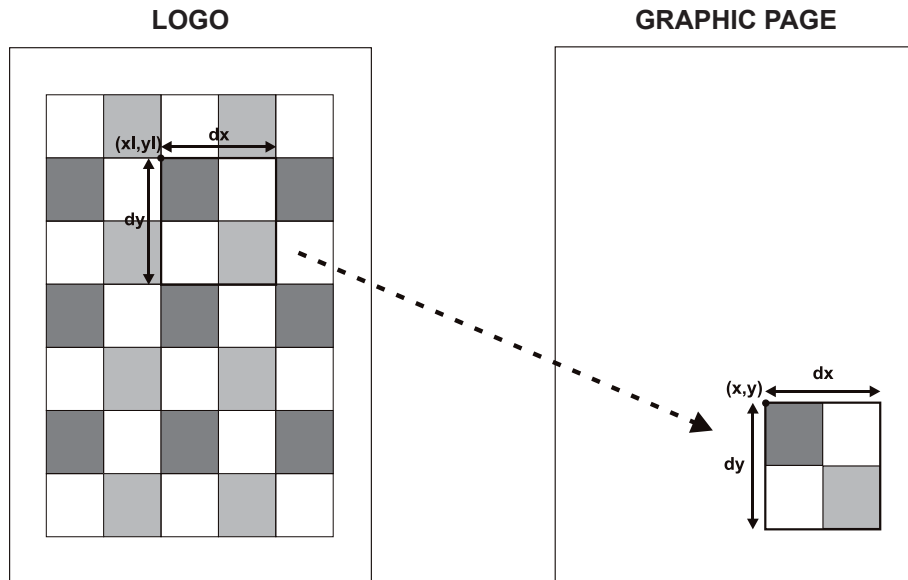
[Notes]

[Default]

[Reference]



[Example]





# 0x1D 0x43 0x30

<GS C 0>

## Select counter print mode

Valid for

VK80  
 VKP80  
 VKP80II  
 VKP80II-EE  
 VKP80II-SX

[Format]

Hex	1D	43	30	n	m
ASCII	GS	C	0	n	m

[Range]

0x00 ≤ n ≤ 0x05  
 m = 0x00, 0x01, 0x02, 0x30, 0x31, 0x32

[[Description]]

Selects a print mode for the serial number counter.

- n specifies the number of digits to be printed as follows:  
 when n = 0x00, the device prints the actual digits indicated by the number value.  
 when n = 0x01 to 0x05, this command sets the number of digits to be printed.
- m specifies the printing position within the entire range of printed digits, as follows:

m	PRINTING POSITION	PROCESSING OF DIGITS LESS THAN THOSE SPECIFIED
0x00, 0x30	Align right	Adds spaces to the left.
0x01, 0x31	Align right	Adds '0' to the left.
0x02, 0x32	Align left	Adds spaces to the right

[Notes]

- If n or m is out of the defined range, the previously set print mode is not changed.
- If n = 0x00, m does not have any meaning.

[Default]

n = 0x00, m = 0x00

[Reference]

[0x1D 0x43 0x31](#), [0x1D 0x43 0x32](#), [0x1D 0x43 0x3B](#), [0x1D 0x63](#)

[Example]

n = 0x03, m = 0x00	n = 0x03, m = 0x01	n = 0x03, m = 0x02
□ □ 1	001	1 □ □

□ indicates a space



## 0x1D 0x43 0x31

<GS C a>

### Select count mode (A)

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

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

[Range]	0x00 ≤ aL, aH ≤ 0xFF
	0x00 ≤ bL, bH ≤ 0xFF
	0x00 ≤ n, r ≤ 0xFF

[Description]	<p>Selects a count mode for the serial number counter.</p> <ul style="list-style-type: none"> <li>• aL, aH o bL, bH specify the counter range.</li> <li>• n specify the stepping amount when counting up or down.</li> <li>• r indicates the repetition number when the counter value is fixed.</li> </ul>
---------------	--

[Notes]	<ul style="list-style-type: none"> <li>• Count-up mode is specified when: [aL + (aH × 256)] &lt; [bL + (bH × 256)] and n ≠ 0x00 and r ≠ 0x00</li> <li>• Count-down mode is specified when: [aL + (aH × 256)] &gt; [bL + (bH × 256)] and n ≠ 0x00 and r ≠ 0x00</li> <li>• Counting stops when: [aL + (aH × 256)] = [bL + (bH × 256)] or n = 0x00 or r = 0x00</li> <li>• In setting count-up mode, the minimum value of the counter is [aL + (aH × 256)] and the maximum value is [bL + (bH × 256)]. If counting up reaches a value exceeding the maximum, it is resumed with the minimum value.</li> <li>• In setting count-down mode, the maximum value of the counter is [aL + (aH × 256)] and the minimum value is [bL + (bH × 256)]. If counting down reaches a value less than minimum, it is resumed with the maximum value.</li> <li>• When the command is executed, the internal count that indicates the repetition number specified by r is cleared.</li> </ul>
---------	--

[Default]	aL = 0x01, aH = 0x00, bL = 0xFF, bH = 0xFF, n = 0x01, r = 0x01
-----------	--

[Reference]	<a href="#">0x1D 0x43 0x30</a> , <a href="#">0x1D 0x43 0x32</a> , <a href="#">0x1D 0x43 0x3B</a> , <a href="#">0x1D 0x63</a>
-------------	--

[Example]	Send the command sequence:
-----------	----------------------------

```

0x1D  0x43  0x31  0x01  0x00  0x0A  0x00  0x01  0x02
                ↓    ↓    ↓    ↓    ↓    ↓
                aL   aH   bL   bH   n    r

```

The counter is set from 1 [aL + (aH x 256)] to 10 [bL + (bH x 256)].  
The counter is incremented by 1 (n) repeating the same value of 2 times (r).



# 0x1D 0x43 0x32

<GS C 2>

## Set counter

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	43	32	nL	nH
	ASCII	GS	C	2	nL	nH

[Range] 0x00 ≤ nL, nH ≤ 0xFF

[Description] Sets the serial number counter value.  
• nL and nH determine the value of the serial number counter set by [nL + (nH \* 256)].

[Note] • In count-up mode, if the counter value specified by this command goes out of the counter operation range specified by 0x1D 0x43 0x31 or 0x1D 0x43 0x3B, it is forced to convert to the minimum value through 0x1D 0x63.  
• In count-down mode, if the counter value specified by this command goes out of the counter operation range specified by 0x1D 0x43 0x31 or 0x1D 0x43 0x3B, it is forced to convert to the maximum value through 0x1D 0x63.

[Default] nL = 0x01, nH = 0x00

[Reference] 0x1D 0x43 0x30, 0x1D 0x43 0x31, 0x1D 0x43 0x3B, 0x1D 0x63

[Example] Send the command sequence:

0x1D	0x43	0x32	0x05	0x00
			↓	↓
			nL	nH

The counter is set starting from 5 [nL + (nH x 256)].



## 0x1D 0x43 0x3B

<GS C ;>

### Select count mode (B)

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
-----------	--

[Format]	Hex            1D 43 3B sa 3B sb 3B sn 3B sr 3B sc 3B ASCII           GS C ; sa ; sb ; sn ; sr ; sc ;
----------	--

[Range]            0x00 ≤ sa, sb, sc ≤ 0xFFFF  
0x00 ≤ sn, sr ≤ 0xFF  
These values are all character strings.

[Description]     Selects a count mode for the serial number counter and specifies the value of the counter.

- sa, sb, sn, sr e sc are all displayed as ASCII characters using codes from '0' to '9'.
- sa e sb specify the counter range.
- sn indicates the unit amount for counting up or down.
- sr indicates the repetition number when the counter value is fixed.
- sc indicates the counter value.

[Notes]

- Count-up mode is specified when:  
sa < sb and sn ≠ 0x00 and sr ≠ 0x00
- Count-down mode is specified when:  
sa > sb and sn ≠ 0x00 and sr ≠ 0x00
- Counting stops when:  
sa = sb or sn = 0x00 or sr = 0x00
- In setting count-up mode, the minimum value of the counter is sa and the maximum value is sb. If counting up reaches a value exceeding the maximum, it resets to the minimum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the minimum value by executing [0x1D 0x63](#).
- In setting count-down mode, the maximum value of the counter is sa and the minimum value is sb. If counting down reaches a value less than the minimum, it resets to the maximum value. If the counter value set by sc is outside the counter operation range, the counter value is forced to convert to the maximum value by executing [0x1D 0x63](#).
- Parameters sa to sc can be omitted. If omitted, they remain unchanged.
- Parameters sa to sc cannot contain characters other than '0' to '9'.

[Default]            sa = 0x01, sb = 0xFFFF, sn = 0x01, sr = 0x01, sc = 0x01

[Reference]         [0x1D 0x43 0x30](#), [0x1D 0x43 0x32](#), [0x1D 0x43 0x31](#), [0x1D 0x63](#)



[Example]

Send the command sequence:

0x1D	0x43	0x3B	0x30	0x3B	0x31	0x30	0x3B	0x31	0x3B	0x31	0x3B	0x32	0x3B
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
"GS"	"C"	"j"	"0"	","	"1"	"0"	","	"1"	","	"1"	","	"2"	","
			↓		└───┘			↓		↓		↓	
			sa	;		sb	;	sn	;	sr	;	sc	;

The counter is set from 0 (sa) to 10 (sb) starting from 2 (sc).

The counter is incremented by 1 (sn) repeating the same value of 1 time (sr).



## 0x1D 0x49

<GS I>

### Transmit device ID

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

[Format]	Hex	1D	49	n
	ASCII	GS	I	n

[Range]	<b>VK80, VKP80, VKP80II, VKP80II, VKP80II-EE</b> $0x01 \leq n \leq 0x03$ $0x31 \leq n \leq 0x33$
	<b>VKP80II-SX</b> $0x01 \leq n \leq 0x03$ $0x31 \leq n \leq 0x33$ $n = 0x05$

[Description] Transmits the device ID specified by n follows:

#### **VK80, VKP80, VKP80II, VKP80II, VKP80II-EE**

n	DEVICE ID	SPECIFICATION
0x01, 0x31	Device model ID (1 byte)	0x5D (VKP80 200 dpi) 0x95 (VKP80II-EE) 0xB9 (VK80)
0x02, 0x32	Type ID	Undefined
0x03, 0x33	ROM version ID (4 bytes)	Depends on ROM version

#### **VKP80II-SX**

n	DEVICE ID	SPECIFICATION
0x01, 0x31	Device model ID (1 byte)	0x5D (VKP80 200 dpi)
0x02, 0x32	Type ID	Undefined
0x03, 0x33	ROM version ID (4 bytes)	Depends on ROM version
0x05	Device model ID (2 bytes)	0x02 0x19



n = 0x02, 0x32 Type ID

BIT	OFF/ON	HEX	FUNCTION
0	Off	00	2 bytes characters codes not supported
1	Off	00	Autocutter not supplied
	On	02	Autocutter supplied
2	Off	00	Thermal paper w/o label
	On	04	Thermal paper label
3	-	-	Undefined
4	Off	00	Not used. Fixed to off
5	-	-	Undefined
6	-	-	Undefined
7	Off	00	Not used. Fixed to off

[Notes] • This command is executed when the data is processed in the data buffer. Therefore, there could be a time lag between command reception and data transmission, depending on data buffer status.

[Default]

[Reference]

[Example]



## 0x1D 0x50

<GS P>

### Set horizontal and vertical motion units

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
[Format]	Hex            1D    50    x    y ASCII        GS    P    x    y
[Range]	0x00 ≤ x, y ≤ 0xFF
[Description]	Sets the horizontal and vertical motion units to 1/x inch and 1/y inch respectively. When x is set to 0, the default setting value is used. When y is set to 0, the default setting value is used.
[Notes]	<ul style="list-style-type: none"> <li>The horizontal direction is perpendicular to the paper feed direction.</li> <li>In standard mode, the following commands use x or y, regardless of character rotation (upside-down or 90° clockwise rotation):</li> </ul> <p>Commands using x: <a href="#">0x1B 0x20</a>, <a href="#">0x1B 0x24</a>, <a href="#">0x1B 0x5C</a>, <a href="#">0x1D 0x4C</a>, <a href="#">0x1D 0x57</a>. Commands using y: <a href="#">0x1B 0x33</a>, <a href="#">0x1B 0x4A</a>.</p> <ul style="list-style-type: none"> <li>This command does not affect the previously specified values.</li> <li>The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch or an exact multiple of that value.</li> </ul>
[Default]	x = 0xCC, y = 0x198
[Reference]	<a href="#">0x1B 0x20</a> , <a href="#">0x1B 0x24</a> , <a href="#">0x1B 0x5C</a> , <a href="#">0x1B 0x33</a> , <a href="#">0x1B 0x4A</a> , <a href="#">0x1D 0x4C</a> , <a href="#">0x1D 0x57</a>
[Example]	



## 0x1D 0x63

<GS c>

### Print counter

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	63
	ASCII	GS	c

[Range]

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

[Notes]

- After setting the current counter value in the print buffer as print data (a character string), the device counts up or down based on the count mode set. The counter value in the print buffer is printed when the device receives a print command or the buffer is full.
- The counter print mode is set using [0x1D 0x43 0x30](#).
- The counter mode is set using [0x1D 0x43 0x31](#) or [0x1D 0x43 0x3B](#).
- In count-up mode, if the counter value set by this command goes out of the counter operation range set by [0x1D 0x43 0x31](#) or [0x1D 0x43 0x3B](#), it is forced to revert to the minimum value.
- In count-down mode, if the counter value set by this command goes out of the counter operation range set by [0x1D 0x43 0x31](#) or [0x1D 0x43 0x3B](#), it is forced to revert to the maximum value.

[Default]

[Reference] [0x1D 0x43 0x30](#), [0x1D 0x43 0x31](#), [0x1D 0x43 0x32](#), [0x1D 0x43 0x3B](#)

[Example]



## 0x1D 0xD0

### Set horizontal and vertical motion units

Valid for	VK80 VKP80 VKP80II VKP80II-EE VKP80II-SX
[Format]	Hex            1D    D0    xH    xL    yH    yL ASCII          GS    0xD0 xH    xL    yH    yL
[Range]	$0 \leq (xH * 256) + xL \leq 2040$ $0 \leq (yH * 256) + yL \leq 4080$
[Description]	Sets the horizontal and vertical motion units to $1/((xH * 256) + xL)$ inch and $1/((yH * 256) + yL)$ inch respectively. When x is set to 0, the default setting value is used. When y is set to 0, the default setting value is used.
[Notes]	<ul style="list-style-type: none"> <li>The horizontal direction is perpendicular to the paper feed direction.</li> <li>In standard mode, the following commands use x or y, regardless of character rotation (upside-down or 90° clockwise rotation):</li> </ul> <p>Commands using x : <a href="#">0x1B 0x20</a>, <a href="#">0x1B 0x24</a>, <a href="#">0x1B 0x5C</a>, <a href="#">0x1D 0x4C</a>, <a href="#">0x1D 0x57</a>. Commands using y : <a href="#">0x1B 0x33</a>, <a href="#">0x1B 0x4A</a>.</p> <ul style="list-style-type: none"> <li>This command does not affect the previously specified values.</li> <li>The calculated result from combining this command with others is truncated to the minimum value of the mechanical pitch or an exact multiple of that value.</li> </ul>
[Default]	x = 0xCC, y = 0x198
[Reference]	<a href="#">0x1B 0x20</a> , <a href="#">0x1B 0x24</a> , <a href="#">0x1B 0x5C</a> , <a href="#">0x1B 0x33</a> , <a href="#">0x1B 0x4A</a> , <a href="#">0x1D 0x4C</a> , <a href="#">0x1D 0x50</a> , <a href="#">0x1D 0x57</a>
[Example]	



## 0x1D 0xE6

### Virtual paper-end limit

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	E6	nH	nL
	ASCII	GS	0xE6	nH	nL

[Range]	$0x00 \leq nH \leq 0xFF$
	$0x00 \leq nL \leq 0xFF$

[Description]	This command sets the limit, expressed in cm as $[(nH \times 256) + nL]$ , after which is pointed out the virtual paper-end.
---------------	--

[Notes]

[Default]	nH = 0x00
	nL = 0xF0

[Reference]

[Example]	To see the virtual paper-end is pointed out after 15 metres from the first detection of near paper end, it's necessary convert 15 metres in 1500 centimetres and then, calculate nH and nL value in the following mode:
-----------	---

$$nH = 1500 / 256 = 5$$

$$nL = 1500 - (nH \times 256) = 1500 - (5 \times 256) = 220$$

and then send the following command:

0x1D 0xE6 0x05 0xDC



## 0x1D 0xF0

### Set print mode

---

Valid for	VK80
	VKP80
	VKP80II
	VKP80II-EE
	VKP80II-SX

---

[Format]	Hex	1D	F0	n
	ASCII	GS	0xF0	n

[Range] **VKP80, VKP80II, VKP80II-EE, VKP80II-SX**  
 $0x00 \leq n \leq 0x02$

**VK80**  
 $0x00 \leq n \leq 0x03$

[Description] Sets print mode based on the value of n as follows:

**VKP80, VKP80II, VKP80II-EE, VKP80II-SX**

n	PRINTING SPEED
0x00	High quality
0x01	Normal
0x02	High speed

**VK80**

n	PRINTING SPEED
0x00	High quality
0x01	Normal
0x02	High speed
0x03	Very high speed

[Notes] Print mode reverts to the default value when the device is reset or turned off.

[Default] n = 0x01

[Reference]

[Esempio]





# ALIGNMENT

1	ALIGNMENT COMMANDS .....	159
---	--------------------------	-----



# 1 ALIGNMENT COMMANDS

Devices listed in this manual are equipped with a sensor that allows the use of alignment black mark to handle rolls of tickets with pre-printed and fixed length fields;

For further information, refer to the user manual of each device.

The commands available for managing the alignment of the ticket are the following:

- `0x1D 0xE7`: sets the distance between the point of alignment and the black mark (value of parameter "Black mark Distance")
- `0x1D 0xF6` and `0x1D 0xF8`: perform the ticket alignment, which is advanced to align the first point of alignment available under the sensor.

Print a ticket with alignment requires the following sequence of commands:

1. General settings of the ticket: character formatting, print density, margins etc..
2. Alignment command: `0x1D 0xF6`.
3. Ticket printout: printing text, logos or any graphic.
4. Alignment command: `0x1D 0xF8`.
5. Cut command: `0x1B 0x69`.

The settings take effect from next ticket to the one already in the device.

In the following examples, are described some sequences of commands to manage the alignment.

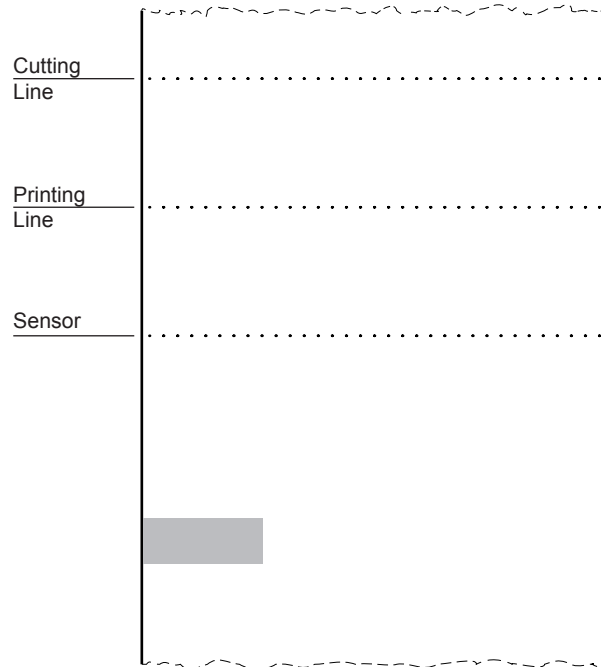
[Example 1]

### VK80

Commands sequence to print tickets with “alignment point” over the edge of the black mark (“Black Mark Distance” parameter = 0 mm set in the setup procedure) and with paper recovery enabled (0x1C 0xC1 0x01).

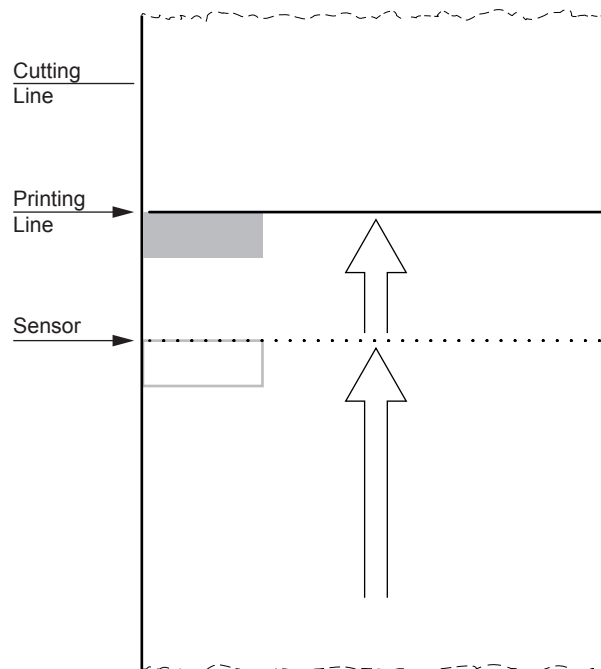
Start

Paper with black mark not aligned.



Alignment command 0x1D 0xF6.

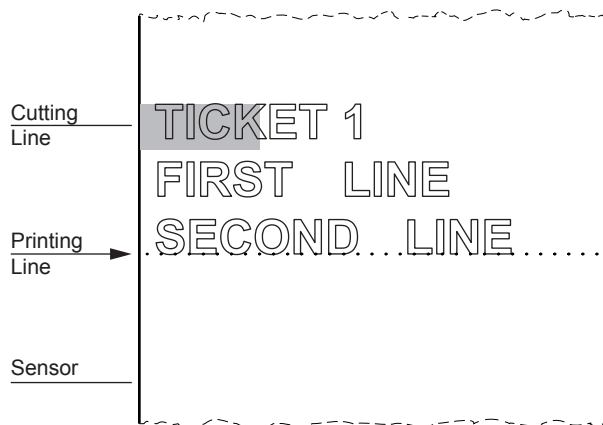
Paper is fed. The black mark is recognized by the sensor and aligned under the printing line.





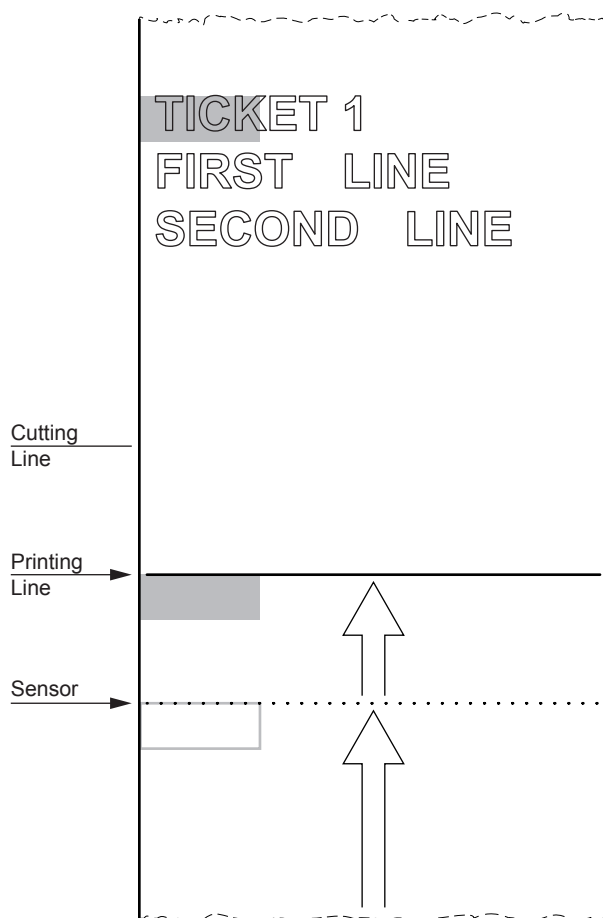
Command for text printing:

'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



Alignment command 0x1D 0xF8.

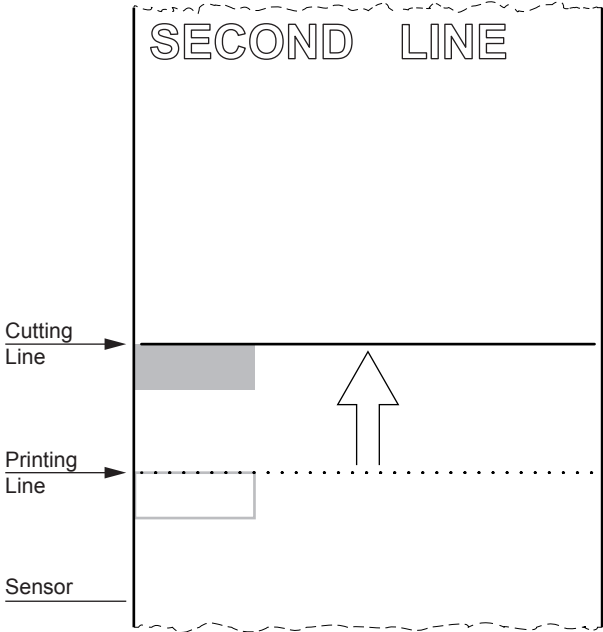
Paper is fed. The next black mark is recognized by the sensor and aligned under the printing line.





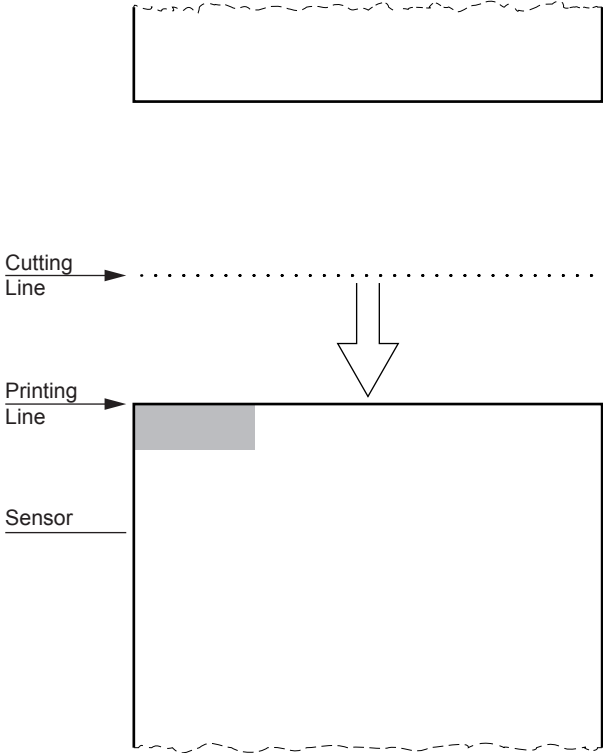
Cut command `0x1B 0x69`.

Paper is fed until the black mark is not aligned under the cutting line.



The paper is cut.

The paper is automatically retracted under the printing line.

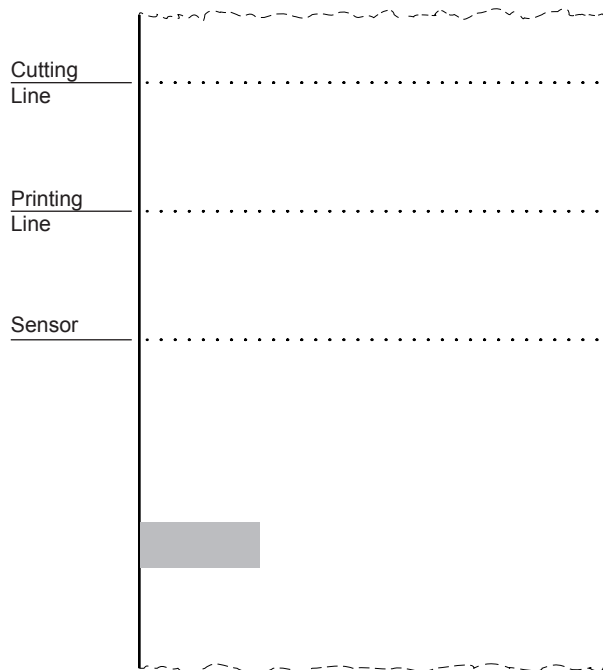


**VK80**

Commands sequence to print tickets with “alignment point” moved 5mm compared to the edge of the black mark (“Black Mark Distance” = 0 mm set from setup) and without paper recovery (0x1C 0xC1 0x00).

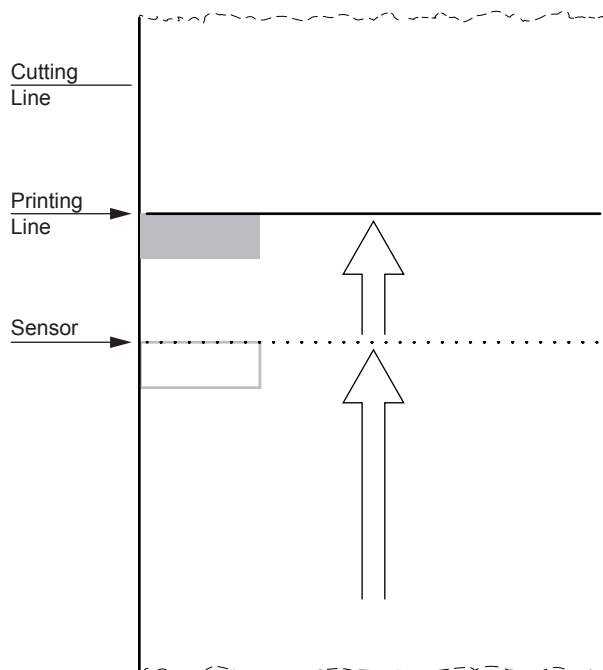
Start

Paper with black mark not aligned.



Alignment command 0x1D 0xF6.

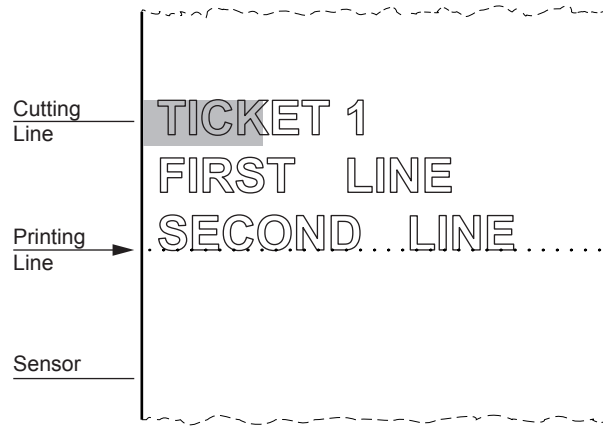
Paper is fed. The black mark is recognized by the sensor and aligned under the printing line.





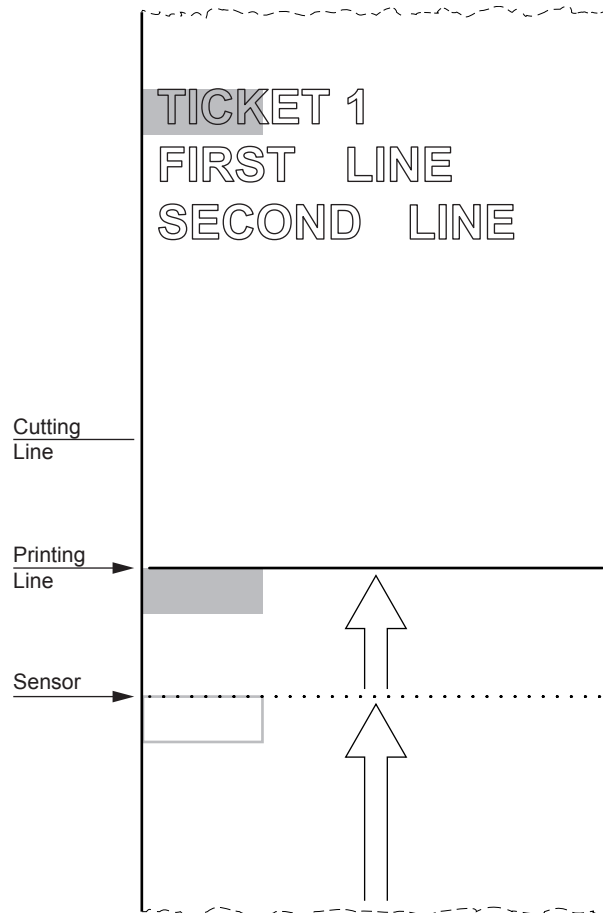
Command for text printing:

'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



Alignment command 0x1D 0xF8.

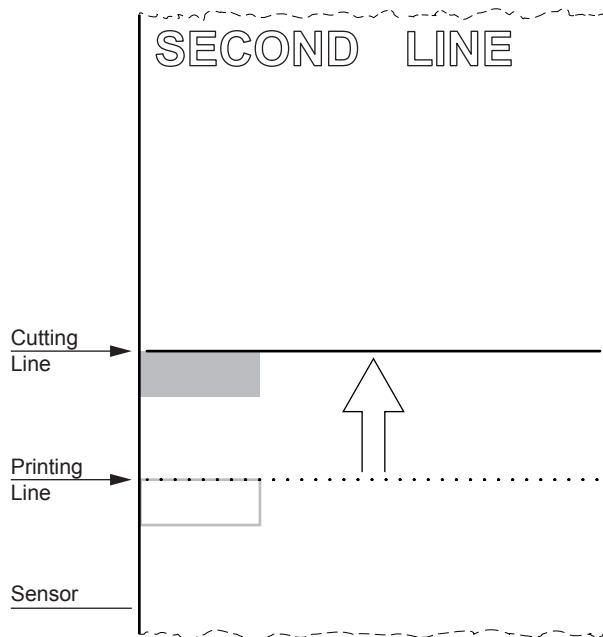
Paper is fed. The next black mark is recognized by the sensor and aligned under the printing line.





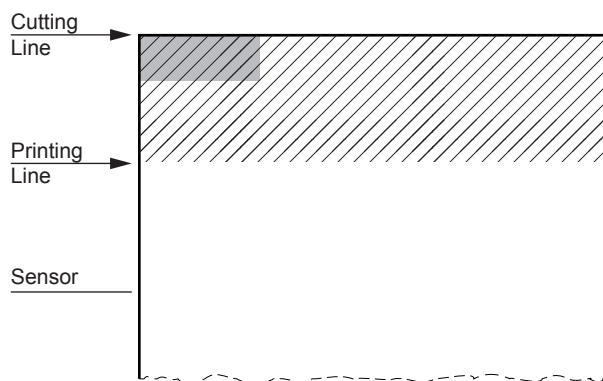
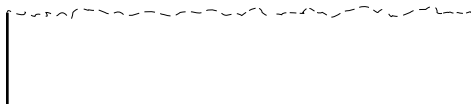
Cut command `0x1B 0x69`.

Paper is fed until the black mark is not aligned under the cutting line.



The paper is cut.

The portion of the paper between the cutting line and the printing line is not recovered.



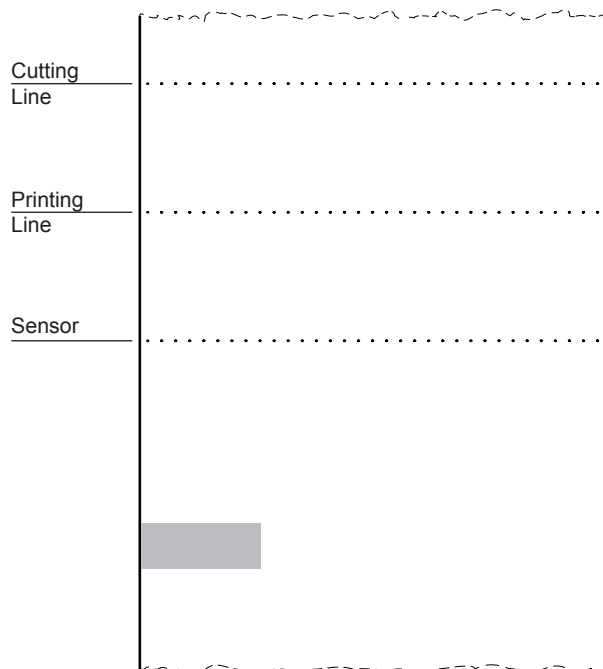
[Example 3]

### VK80

Commands sequence to print tickets with “alignment point” moved 5 mm compared to the edge of the black mark (“Black Mark Distance” = 5 mm set from setup) and with paper recovery enabled (0x1C 0xC1 0x01).

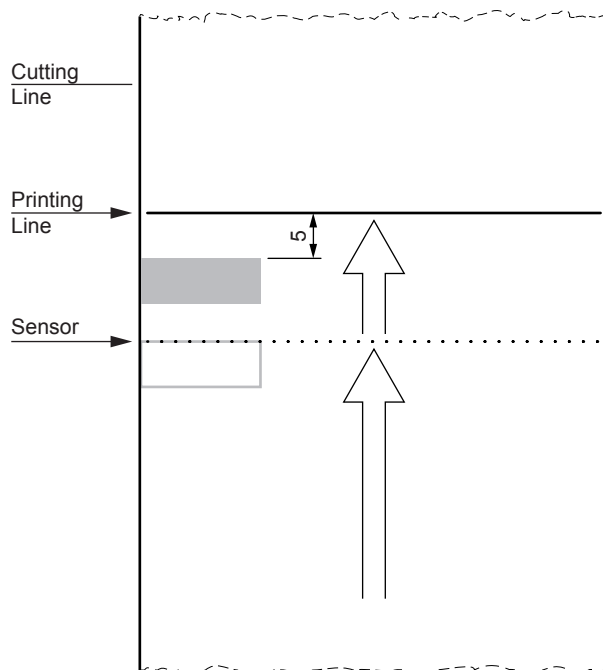
Start

Paper with black mark not aligned.



Alignment command 0x1D 0xF6.

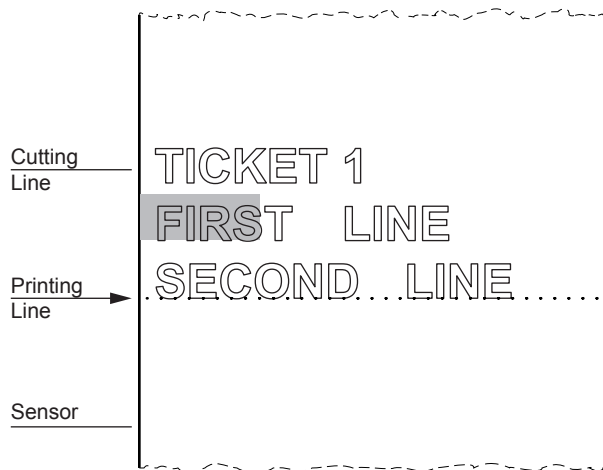
Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 5 mm (“Black Mark Distance”) from the printing line.





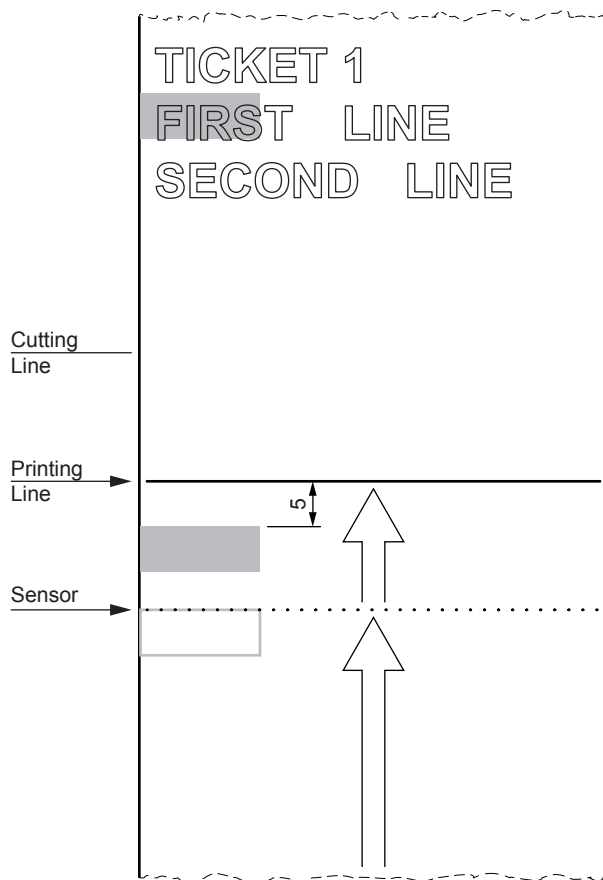
Command for text printing:

'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



Alignment command 0x1D 0xF8.

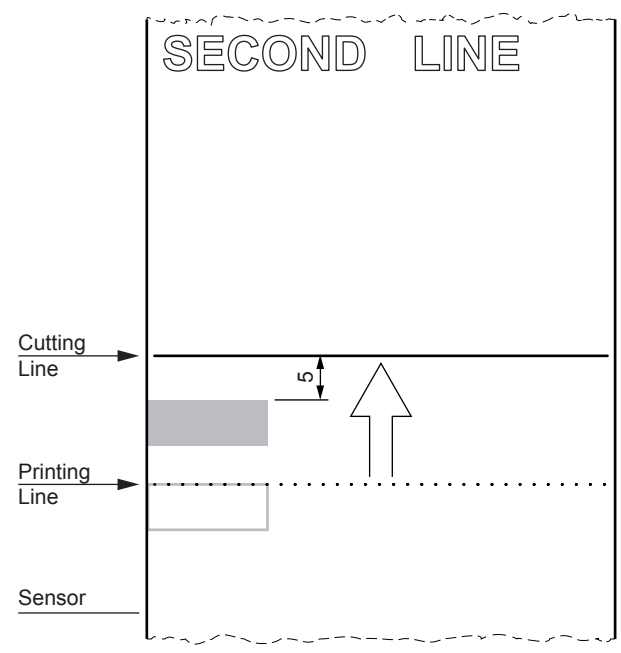
Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 5 mm ("Black Mark Distance") from the printing line.





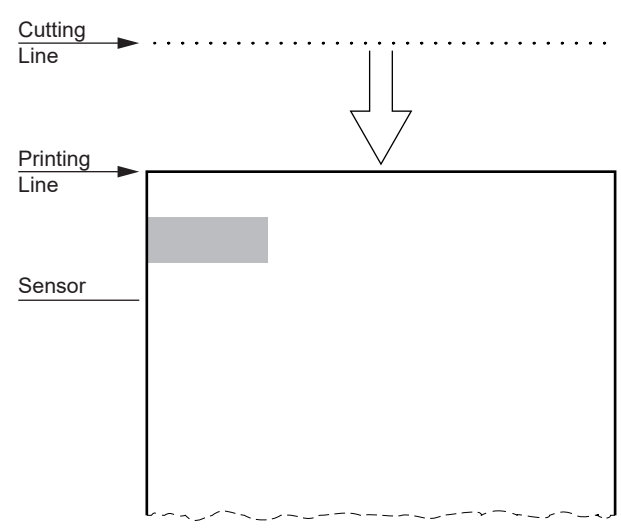
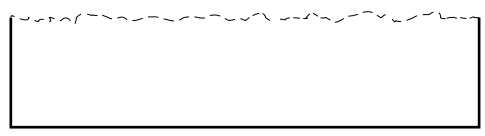
Cut command `0x1B 0x69`.

Paper is fed until the black mark is not aligned at a distance of 5 mm ("Black Mark Distance") from the cutting line.



The paper is cut.

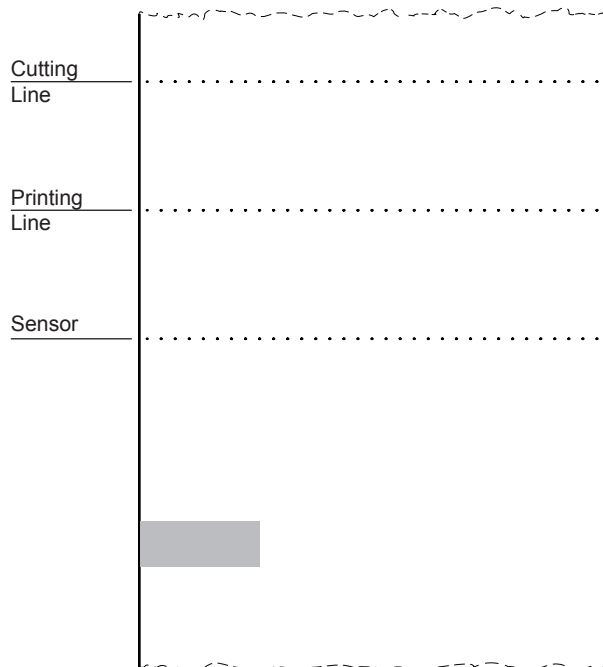
The paper is automatically retracted under the printing line.



Commands sequence to print tickets with “alignment point” moved 5 mm compared to the edge of the black mark (“Black Mark Distance” = 5 mm set from setup) and without paper recovery (`0x1C 0xC1 0x00`).

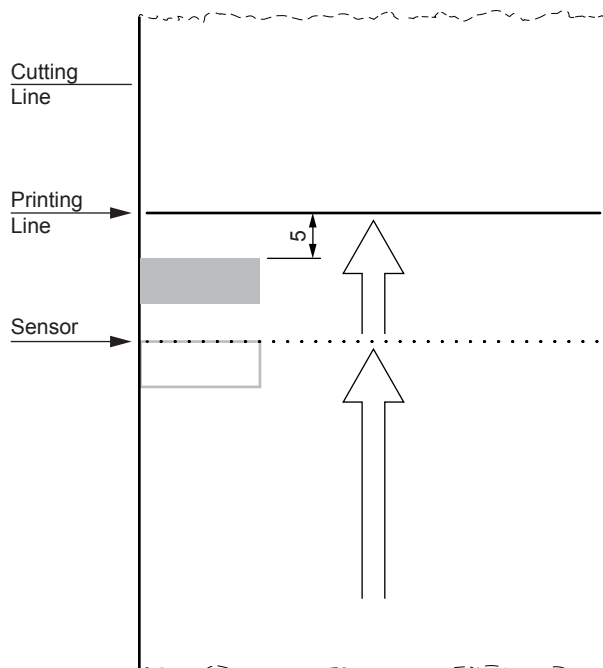
Start

Paper with black mark not aligned.



Alignment command `0x1D 0xF6`.

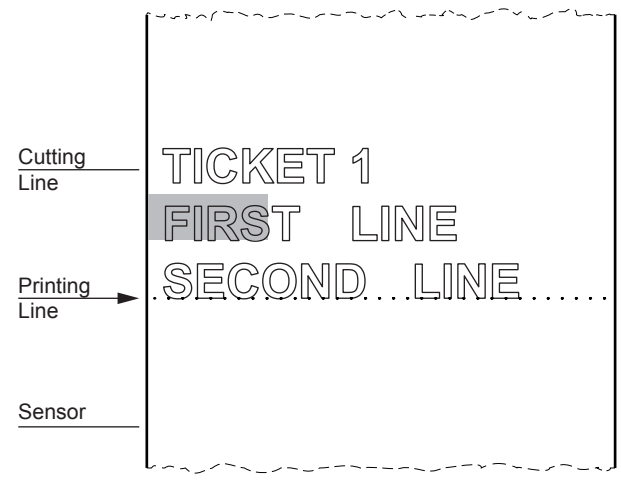
Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 5 mm (“Black Mark Distance”) from the printing line.





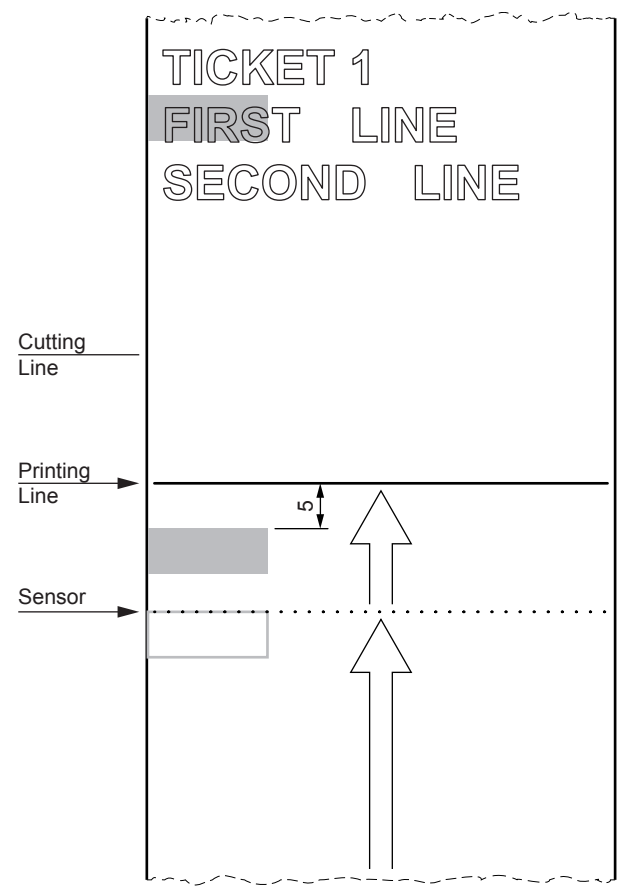
Command for text printing:

'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



Alignment command 0x1D 0xF8.

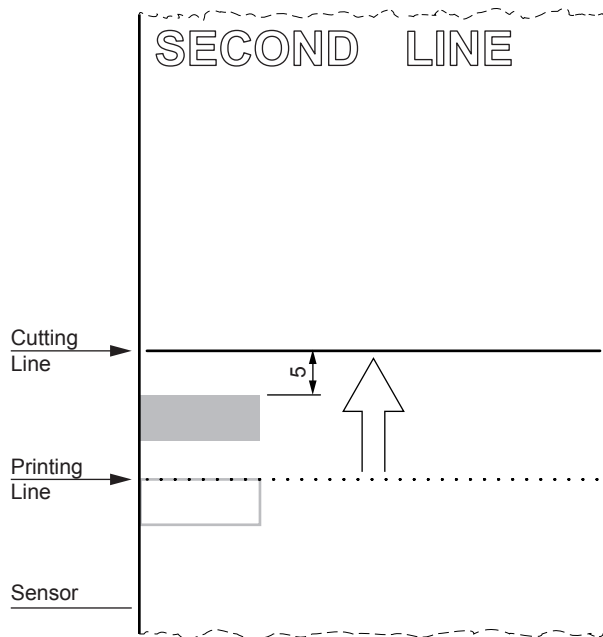
Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 5 mm ("Black Mark Distance") from the printing line.





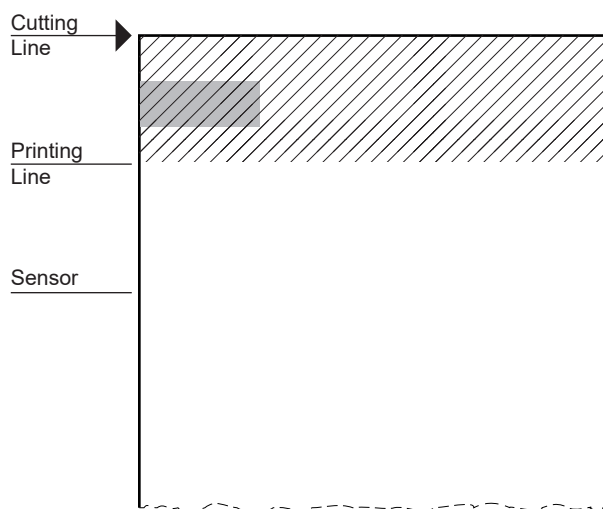
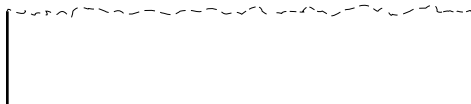
Cut command `0x1B 0x69`.

Paper is fed until the black mark is not aligned at a distance of 5 mm ("Black Mark Distance") from the cutting line.



The paper is cut.

The portion of the paper between the cutting line and the printing line is not recovered.



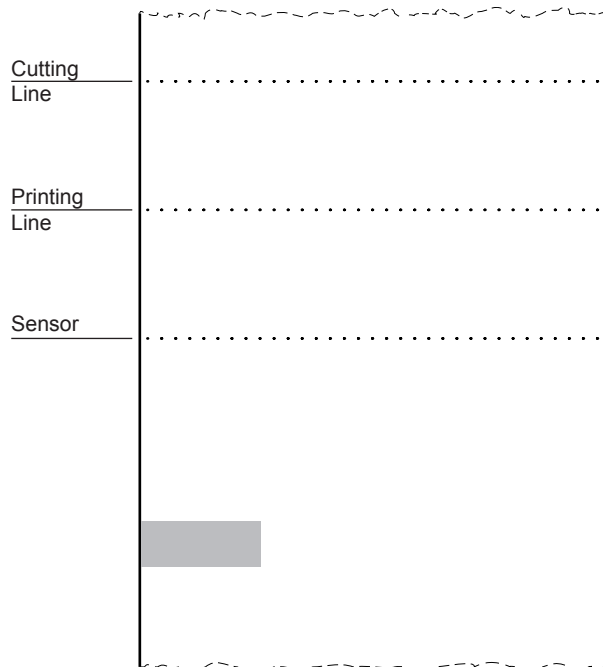
[Example 5]

### VKP80, VKP80II, VKP80II-EE, VKP80II-SX

Commands sequence to print tickets with “alignment point” over the edge of the black mark (“Black Mark Distance” parameter = 0 mm set in the setup procedure).

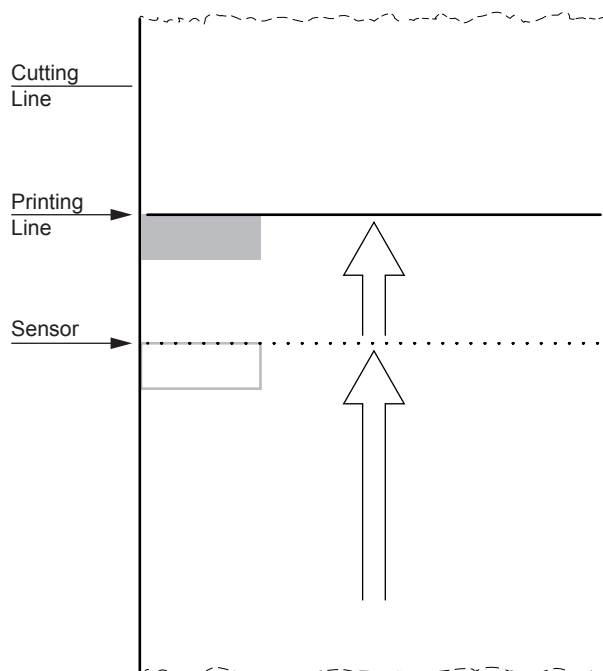
Start

Paper with black mark not aligned.



Alignment command `0x1D 0xF6`.

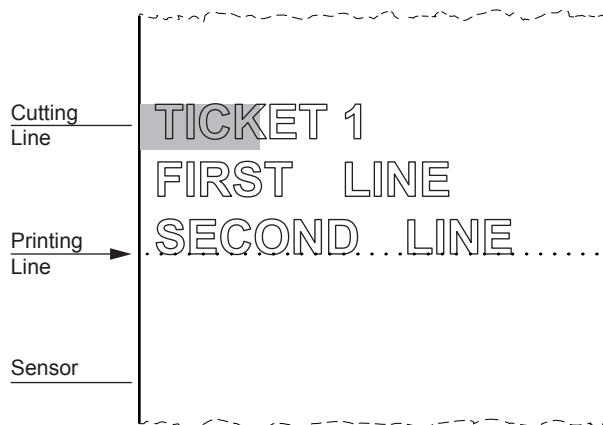
Paper is fed. The black mark is recognized by the sensor and aligned under the printing line.





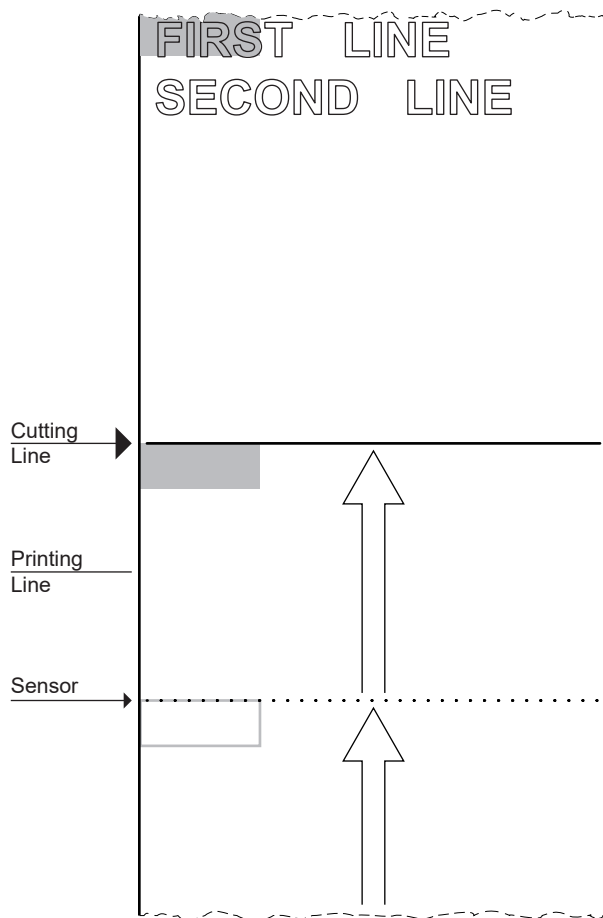
Command for text printing:

'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



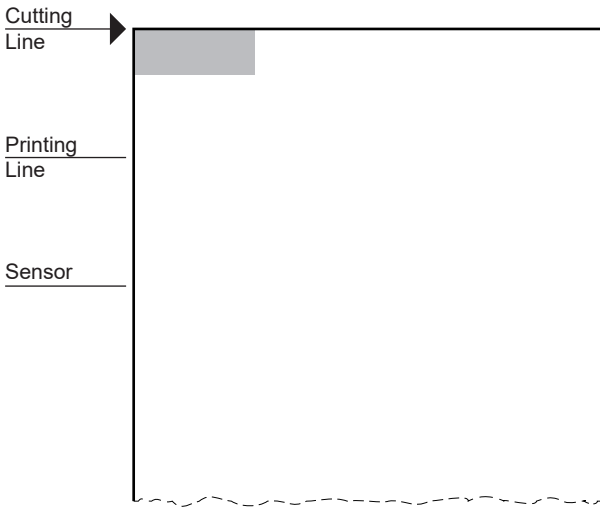
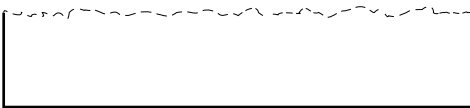
Alignment command 0x1D 0xF8.

Paper is fed. The next black mark is recognized by the sensor and aligned under the cutting line.





Cut command `0x1B 0x69`.  
The paper is cut.



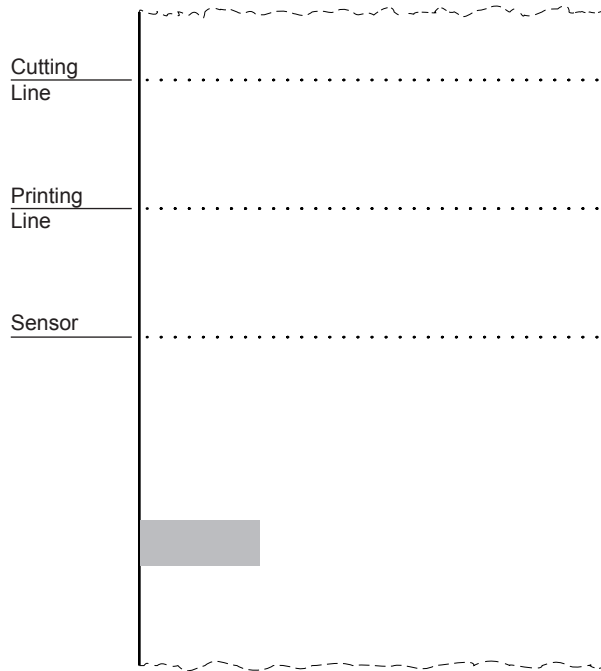
[Example 6]

### VKP80, VKP80II, VKP80II-EE, VKP80II-SX

Commands sequence to print tickets with “alignment point” moved 5 mm compared to the edge of the black mark (“Black Mark Distance” = 5 mm set from setup).

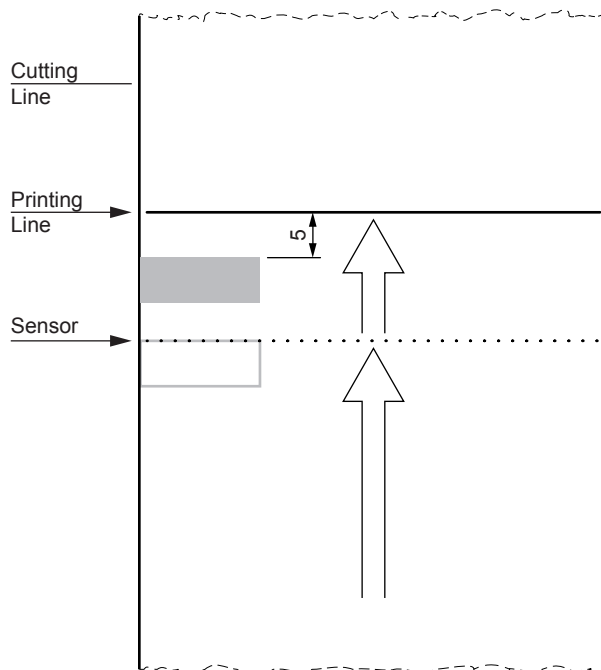
Start

Paper with black mark not aligned.



Alignment command [0x1D 0xF6](#).

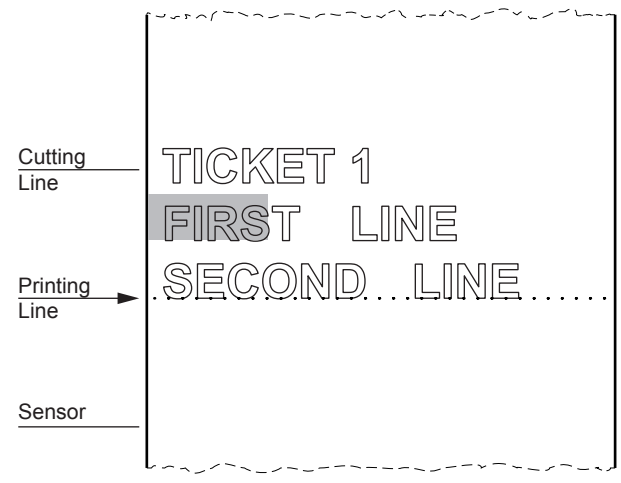
Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 5 mm (“Black Mark Distance”) from the printing line.





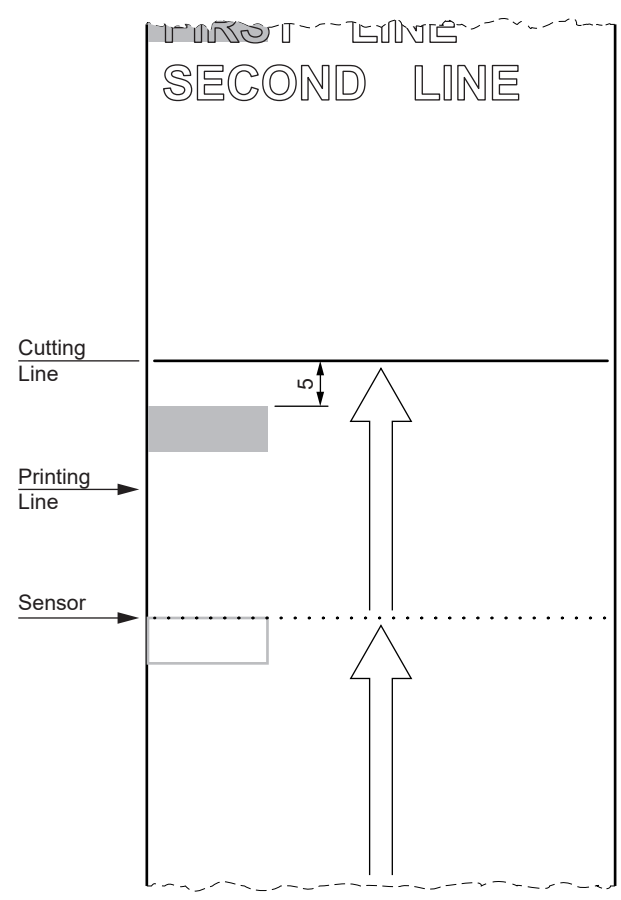
Command for text printing:

'TICKET 1', 0x0A, 'FIRST LINE', 0x0A, 'SECOND LINE', 0x0A



Alignment command 0x1D 0xF8.

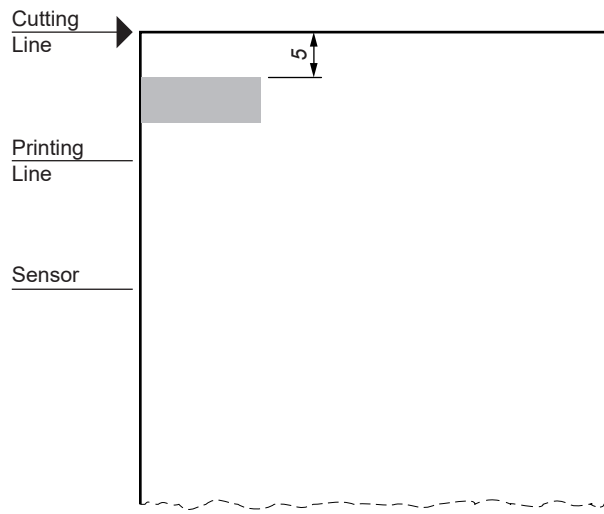
Paper is fed. The black mark is recognized by the sensor and aligned at a distance of 5 mm ("Black Mark Distance") from the cutting line.





Cut command `0x1B 0x69`.

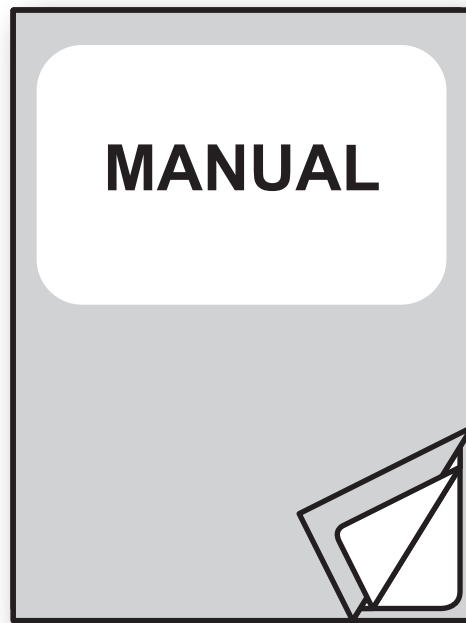
The paper is cut.





# PAGE MODE





For details on the Page Mode commands of the device,  
refer to the manual with code **0577200M000073**

# CUSTOM<sup>®</sup>

**CUSTOM S.p.A.**

World Headquarters

**Via Berettine, 2/B - 43010 Fontevivo, Parma ITALY**

**Tel. +39 0521 680111 - Fax +39 0521 610701**

**info@custom.biz - www.custom.biz**

*All rights reserved*

[www.custom.biz](http://www.custom.biz)