WINCOR NIXDORF

ND 210

Impact Printer

Programmers Guide

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With kind regards,

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Your opinion:

Contents

Control Sequences

Notation of the Command Description

XXXX Command Character or Command Sequence		
Function:	Name of the command	
Code:	Code Sequence (Notation)	
	Hexadecimal	= < >H
	Decimal	= < >
	Binary	= < >B
	Repeat bracket contents	= [ ] k Format
Range:	Describes the permitted range of values.	
Description:	Describes the function of the command.	
Notes:	Provides important information on settings.	
Default:	Describes the standard values.	
Example:	Examples of the command in use.	
Reference:	Reference to other commands	

NOTE: Some of the command descriptions may include additional conditions to be met.
In the sentence:
"This command is enabled only when put at the <u>beginning of a line</u>".
The meaning of the underlined part is:

1.   No print data (incl. spaces) are in the current print buffer.
2.   The print position is not specified by ESC \ or ESC $ commands.

Description of the Control Characters and Sequences

HT	
Function:	Horizontal tab
Code:	<09>H
Description:	Moves the print position to the next horizontal tab position.
Notes:	This command is ignored unless the next horizontal tab position has been set.
	If the next horizontal tab position is outside of the printing area, the printing position shifts to "printing area width + 1."
	Horizontal tab positions are set with **ESC D**.
	The default tab positions are at intervals of 8 characters (columns 9, 17, 25..) for the font B (7 x 9).
	When underline mode is turned on, the underline will not be printed under the tab space skipped by this command.
Reference:	ESC D

LF	
Function:	Print and line feed
Code:	<0A>H
Description:	Prints the data located in the print buffer and feeds one line based on the current line spacing.
Notes:	This command sets the next printing position to the beginning of the line.
Reference:	ESC 2, ESC 3

CR

Function:	Carriage Return
Code:	<0D>H
Description:	Prints the data in the print buffer.
	When AUTOFEED is enabled by configuration, a line feed is executed.
	When AUTOFEED is disabled, no line feed is executed
Note:	Sets the print starting position to the beginning of the line.
Reference:	LF

DLE EOT

Function:	Transmit real time status
Code:	<10>H <04>H <n>
Range:	1 ≤ n ≤ 4
Description:	Transmits the selected printer status specified by n in real time, according to the following parameters:

n	Function
1	Transmit printer status
2	Transmit off-line status
3	Transmit error status
4	Transmit paper roll sensor status

Notes:

The status information to be transmitted is shown in the following tables.

The printer starts processing data upon receiving this command.

When transmitting the status, only one (!) byte is send by the printer, without confirming the condition of the DSR signal.

This command is executed even if the printer is off-line, the receive buffer is full or when an error occurs.

The status is transmitted whenever the data sequence
<10>H <04>H <n> (1 ≤ n ≤ 4) is received.
Example:
in ESC * m nL nH [d] nL + 256 * nH,
d1 = <10>H, d2 = <04>H, d3 = <01>H

This command should not be used within the data sequence of another command that consists of 2 or more bytes.

This command is not available when using the ESC = (Select peripheral device) to deselect the printer.

If the value of n is out of the specified range the printer ignores this command.

When automatic status back (ASB) is enabled using the GS a command, than the status transmitted by the DLE EOT command and the ASB status must be differentiated according to the table on page 48.

n = 1: Printer status

Bit	Function	Value	
		0	**1**
0	Not used	Fixed to 0	
1	Not used	Fixed to 1	
2	Cash-drawer connector 3	Low	High
3	On-line / Off-line	On-line	Off-line
4	Not used	Fixed to 1	
5	Undefined		
6	Undefined		
7	Not used	Fixed to 0	

n = 2: Off-line status

Bit	Function	Value	
		0	**1**
0	Not used	Fixed to 0	
1	Not used	Fixed to 1	
2	Cover status	Closed	Open
3	Paper feeding with paper feed button	Except during paper feeding	During paper feeding
4	Not used	Fixed to 1	
5	Printing stop due to a paper end	No paper end stop	Printing stops
6	Error	No error	Error occurs
7	Not used	Fixed to 0	

Bit 5   is transmitted (printing stops) when printing stops due to paper sensor conditions, ESC c 4.

n = 3: Error status

Bit	Function	Value	
		0	**1**
0	Not used	Fixed to 0	
1	Not used	Fixed to 1	
2	Mechanical errors	No error	Error occurs
3	Auto cutter error	No error	Error occurs
4	Not used	Fixed to 1	
5	Unrecoverable error	No error	Error occurs
6	Print head temperature	No error	Error occurs
7	Not used	Fixed to 0	

Bit 2:   Mechanical errors include home position and carriage sensor errors.

Bit 2 and 3:

           If these errors occur due to paper jams, or the like, than it is possible to recover by correcting the cause of the error and executing DLE ENQ n (n=1, n=2).
           If an error occurs due to a circuit failure (e.g. broken head wire), it is impossible to recover.

Bit 6:   If the print head temperature becomes high, bit 6 is transmitted until the print head temperature drops significantly. The printer automatically recovers from such an error.

n = 4: Continuous paper sensor status

Bit	Function	Value	
		0	**1**
0	Not used	Fixed to 0	
1	Not used	Fixed to 1	
2	Receipt near end sensor	Paper present	No paper
3	Receipt near end sensor	Paper present	No paper
4	Not used	Fixed to 1	
5	Receipt paper sensor	Paper present	No paper
6	Receipt paper sensor	Paper present	No paper
7	Not used	Fixed to 0	

Reference: DLE ENQ , ESC u , ESC v , GS ENQ, GS a , GS r

See also the table for the Transmit Status Identification on page 48.

DLE ENQ n

Function: Real time request to printer

Code: <10>H<05>H<n>

Range: n=1, n=2

Description: Responds to a request from the host system. n specifies the request as follows:

n	Request
1	Recover from an error and restart printing from the line where the error occurred.
2	Recover from an error after clearing the receive and print buffers.

Note: The printer starts processing of data when receiving this command.

This command is also executed when the printer is off-line, the receive buffer is full, or an error occurs.

The status is also transmitted whenever the data sequence of <10>H <05>H <n> (n=1,n=2) is received.
Example:
    In ESC * m nL nH [d] nL + 256 * nH,
    d1 = <10> H, d2 = <05> H, d3 = <01> H

This command should not be used within the data sequence of another command that consists of two or more bytes.
Example:
    When attempting to transmit ESC 3 n to the printer, but
    DTR (DSR for the host computer) goes to MARK before n
    is transmitted, and DLE ENQ 2 interrupts before n
    received, the code <10>H for DLE ENQ 2 is processed as
    the code for ESC 3 <10>H.

DLE ENQ 1 starts printing from the line where an error occurred. This command is available only for errors that have the possibility of recovery, except print head temperature error.

DLE ENQ 2 enables the printer to recover from an error after clearing the data in the receive buffer and the print buffer.
The printer retains the settings (by ESC !, ESC 3, etc.) that were in effect when the error occurred. The printer can be initialized completely by using this command and ESC @. This command is enabled only for errors (possible to recover), except print head temperature errors.

When the printer is disabled with ESC = (Select peripheral device), the error recovery functions (DLE ENQ 1 and
DLE ENQ 2) are enabled, and the other functions are disabled.

If the value of n is out of the specified range, this command is ignored.

Reference: DLE EOT

See also the table for the Transmit Status Identification on page 48.

_____

DLE DC4 fn a b

Function:	Turn off the power
Code:	<10>H <14>H <02>H a b
Range:	fn=2, a=1, b=8
Description:	Executes the following in a power- off sequence:

• Saves the maintenance counter value

• Enters BUSY interface Control

• Switch off the printer

Notes:

This is a real- time command that the printer executes upon receiving it. Note the following when using this command.

If this command is embedded within the code string of another command, it is processed as a parameter of the other command, and the print result is not correct.

• If another command (such as bit image or defined data) has a code string in a parameter that is the same as this command, the printer starts processing this command.

This command is ignored in the following states:
• During transmission of block data (Header ~ NUL)
• When this command is disabled by GS (D

The printer executes this command even when it is in offline, receive buffer full, or error status.

This command is effective when the printer is disabled by ESC = (select peripheral device).

See also GS (E (a=80H) for setting the powerkey.

All information and data stored in RAM will be deleted by processing this command.

Reference: GS (D, GS (E

ESC SP n

Function:	Set right side character spacing
Code:	<1B>H <20>H <n>
Range:	0 ≤ n ≤ 255
Description:	Sets the right-side character spacing using the horizontal motion units. The right side character spacing is [n x (horizontal motion units)] inches.
Notes:	This command is effective when right side character spacing of normal width character [n x (horizontal motion units)] is 32/160 inches or less. If double-width mode is selected, the right side character spacing is 64/160 inches or less.
	The right side character spacing for double width mode is twice the normal value.
	If the value of n is out the specified range, this command is ignored.
Default:	n = 0
Reference:	
GS P	

ESC ! n

Function:	Select print mode(s)
Code:	<1B>H <21>H <n>
Range:	0 ≤ n ≤ 255
Description:	

- Selects print mode(s).
- Each bit of n is used in the following way:

Bit	Function	Value	
		0	**1**
0	Character font	9 x 9 font	7 x 9 font
1	Undefined		
2	Undefined		
3	Emphasized	Canceled	Selected
4	Double-height	Canceled	Selected
5	Double-width	Canceled	Selected
6	Undefined		
7	Underline	Canceled	Selected

Notes:	When both double-width mode and double-height mode are selected, than quadruple size characters are printed. Bidirectional printing may cause printing position misalignment between the upper and lower halves of the characters during double-high enlarged printing. Therefore, it is better to select unidirectional printing by using ESC U for double-high enlarged printing.
	If you turn on underline mode, some printed characters may be difficult to read, because the underline overlaps the lowest dots in the characters.
Default:	n = 0 or 1 depends on configuration setting.
Reference:	ESC E , ESC -

ESC $ nL nH

Function:	Set absolute print position
Code:	<1B>H <24>H <nL> <nH>
Range:	0 ≤ n L ≤ 255 0 ≤ n H ≤ 255
Description:	This command sets the distance from the beginning of the line to the position at which subsequent characters are to be printed. The distance (inches) from the beginning of the line is calculated by the formula [(nL + nH x 256) x (horizontal motion units)] in inches.
Notes:	Any value outside the printable area is ignored.
Reference:	ESC \ ,

GS P

ESC % n

Function:	Select/cancel user-defined character set
Code:	<1B>H <25>H <n>
Range:	0 ≤ n ≤ 255
Description:	This command selects either the internal character set or the character set defined by the user. Using ESC &, the user can define a set of characters. While switching on the printer, the internally stored character set (PC437, USA) is copied into the loadable range for character sets (RAM). When n = <*******0>B, the user-defined character set is canceled and the internal character set is enabled. When n = <*******1>B, the user-defined character set is enabled.
Default:	n = 0
Notes:	A downloaded bit image and a user defined character set are useable at the same time!
Reference:	ESC &

_____

ESC & y c1 c2 [x[d]y * x] c2-c1+1

Function:	Define user-defined characters
Code:	<1B>H <26>H y c1 c2 [x d1 ...d2.....d(y*x)]c2-c1+1
Range:	$y = 2$
	$32 \leq c1 \leq c2 \leq 126$
	$0 \leq x \leq 12$ (9x9 font)
	$0 \leq x \leq 9$ (7x9 font)
	$0 \leq d1 .... dy*x \leq 255$
Description:	Defines user-defined characters for the specified character code.

This command makes it possible to define character codes for all characters (32 ... 126) for 7*9 and 9*9 fonts.
y specifies the number of bytes in the vertical direction.
x specifies the number of dots in the horizontal direction.
c1 specifies the beginning ASCII code for the definition, and c2 specifies the final code. For only one character, use c1 = c2.
d is the dot data for the characters. The dot pattern is in the horizontal direction from the left side. Any remaining dots on right side are blank.

Notes:	The allowable character code range is from ASCII code <20>H to <7E>H.

Horizontally adjacent dots cannot be printed.

Only the top bits in the secondary data bytes in the vertical direction are valid.

After user-defined character are defined, they are available until another definition is made, ESC @ is executed, the printer is resetted or the power is turned off.

If the values of y, c1, c2 or x are out of the specified range, the printer ignores the command and processes the following data as normal data.

Default:	The internal character set
Reference:	ESC % , ESC ?

Example: 7 * 9 font when the dot pattern for code 20H is defined as shown below:
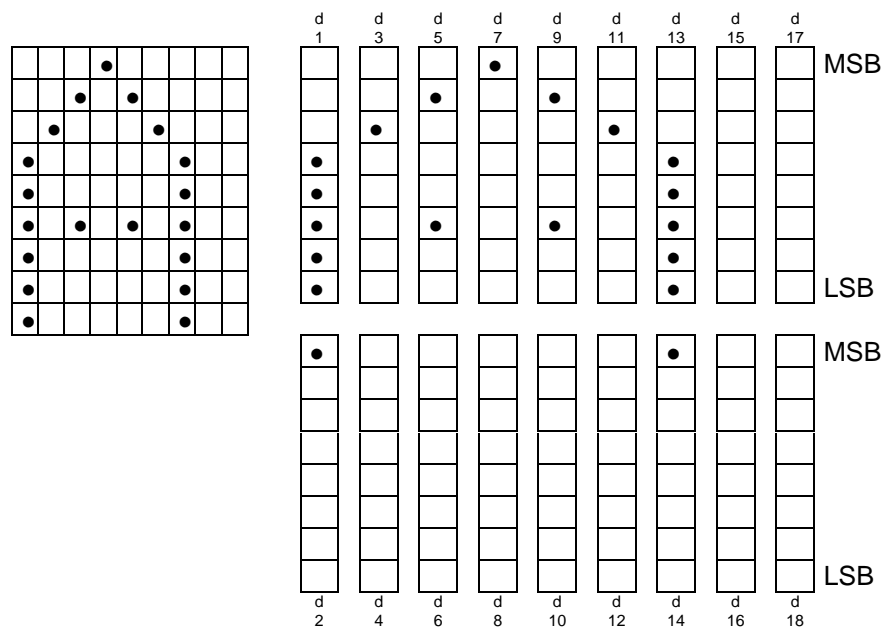
When the dot pattern for code 20H is defined as shown above.

```
        ESC &  y  c1 c2 x  d1 d2 d3 d4 d5 d6 d7 d8 d9 d10 d11 d12 d13 d14
HEX Code 1B  26 02 20 20 07 1F 80 20 00 44 00 80 00 44 00  20  00  1F  80
```

The corresponding bit is 1 when printing and 0 when not printing.

ESC * m nL nH [d] nL + 256 * nH

Function:	Select bit-image mode
Code:	<1B>H <2A>H <m> <nL> <nH> [<d>] nL + 256 * nH
Range:	m = 0 or 1
	$0 \leq nL \leq 255$
	$0 \leq nH \leq 3$
	k = nL + 256 * nH
	$1 \leq k \leq 1123$
	$0 \leq d \leq 255$
Description:	Selects a bit-image mode using m and for the number of dots using nL and nH.

The bit-image modes selectable by m are as follows:

m	No. of vertical Dots	Horizontal Direction		Maximal number of dots per paper width		
		Dot Density	Adjacent Dot	57,5 mm	69,5 mm	76 mm
0	8	Single Density	Permitted	150	180	200
1	8	Double Density	Prohibited	300	360	400

Activates the graphic printing (8 pins) of bit images and prints a graphic line in the resolution specified by m.

m determines the resolution of the graphic printing:
m = 0: single graphic density (75 dpi, corresponds to full dot)
m = 1: double graphic density (150 dpi, corresponds to half dot)

data indicates the bit image data. Set the corresponding bit to 1 to print a dot; to 0 not to print a dot.

Divide the number of dots to be printed by 256. The integer answer is nH and the reminder is nL. Therefore, the number of dots in the horizontal direction is calculated by nL + 256 * nH.

Notes: If the number of columns determined in this way is larger than the printing area of the selected printing station, the extra data bytes have no effect.

When the first data byte exceeds one line then the printing starts on the next line.

The number of vertical dots is always 8 dots.

If the values of m or nH are out of the specified range, the data following is processed as normal data.

After the graphic has been printed, the printer returns to the normal data processing mode.

Graphic lines with double density are printed at half the normal printing speed as dots cannot follow one another at full printing speed in the half-dot matrix.

No line feed is executed. The command ESC J with n = 16, for example, must be used for the line feed between graphic lines which are to be joined close together.

The following illustration shows the relationship between the image data bit and the dots to be printed:
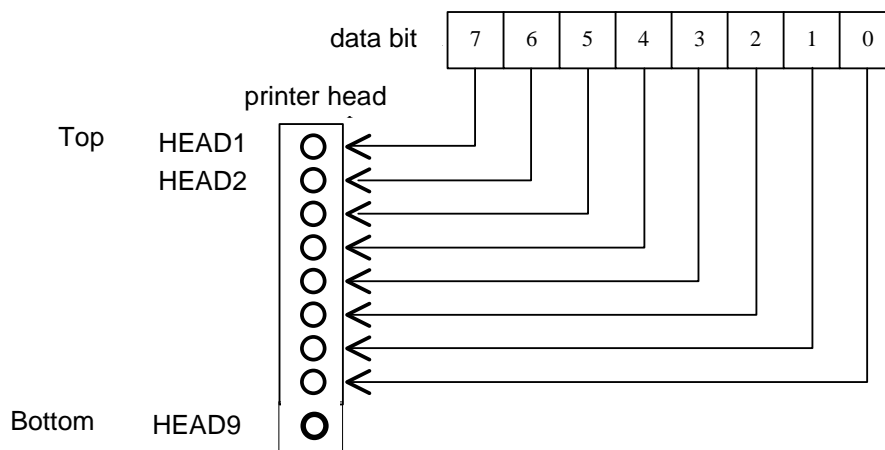
ESC - n

Function:	Turn underline mode on/off
Code:	<1B>H <2D>H <n>
Range:	n = 0, 1, 48, 49
Description:	Turns underline mode on/off. n = 0 or 48: Turns off underline mode. n = 1 or 49: Turns on underline mode.
Notes:	This command and ESC ! turn underline mode on or off in the same way. If the value of n is out of the specified range, the printer ignores the command.
Default:	n = 0
Reference:	ESC !

ESC 2

Function:	Set 1/6" line spacing
Code:	<1B>H <32>H
Description:	Set the line spacing to 1/6".

ESC 3 n

Function:	Set line spacing in n microsteps
Code:	<1B>H <33>H <n>
Range:	$0 \leq n \leq 255$
Description:	Sets the line spacing to [n * vertical motion units] inches.
Default:	n = 24 (1/6")
Reference:	
GS P	

ESC <

Function:	Return home
Code:	<1B>H <3C>H
Description:	Moves the print head to the home-position on the left side of the printer.
Notes:	The home position is detected by a home position sensor signal. This applies to this control command only, which thus also norms the location between the print head position and the half dot position in the line buffer. Otherwise, every position is detected by counting the carrier motor steps depending on the direction. Since the home-position is detected when this command is executed, the printing position may shift after this command has been executed.

ESC = n

Function: Select peripheral device

Code: <1B>H <3D>H <n>

Range: 0 ≤ n ≤ 255

Description: Selects the device to which the host system sends data.

Each bit of n is used as follows:

Bit	Function	Value	
		0	**1**
0	Printer	Disabled	Enabled
1	Customer display	Disabled	Enabled
2	Undefined		
3	Undefined		
4	Undefined		
5	Undefined		
6	Undefined		
7	Undefined		

When the printer is disabled, it ignores transmitted data (except for DLE ENQ 1, DLE ENQ 2) until the PRINTER is enabled by this command.

Even if the printer is disabled, it may go off-line due to a manual printer operation.

When the printer is disabled, the customer display is still active.

ESC ? n

Function: Cancel user-defined characters

Code: <1B>H <3F>H <n>

Range: 32 ≤ n ≤ 126

Description: Cancels the specified user defined characters

Notes: This command deletes the defined pattern for the character code specified by n in the selected font.

After the defined pattern is deleted, the printer prints the same pattern for the internal characters.

The printer ignores this command when the value of n is out of the specified range and when the specified character code is not defined.

Reference: ESC & , ESC %

ESC @

Function:	Initialize printer
Code:	<1B>H <40>H
Description:	Clears the data in the print buffer and resets the printer mode to the mode that was in effect when power was turned on.
Notes:	The configuration setting are not checked again.
	The data in the receive buffer is not cleared.

ESC D

Function:	Set horizontal tab positions
Code:	<1B>H <44>H *n1...nk NUL*
Range:	$1 \leq n \leq 255$
	$0 \leq k \leq 32$
Description:	Sets horizontal tab positions.
	n specifies the column number (counted from the beginning of the line) for setting a horizontal tab position.
	k indicates the total number of horizontal tab positions to be set.
Notes:	The tab position is set at [character width x n] from the beginning of the line. The character width includes the right-side space of the character, and is twice the normal value when double-width is specified.
	This command deletes horizontal tab positions that have already been set.
	When " n = 8" has been set for the horizontal tab position, the printing position moves to the ninth digit when **HT** is executed.
	Up to 32 tab positions can be set. Data exceeding 32 tab positions is processed as normal data.
	Input < n>k in ascending order and place a NUL code <00>H at the end when < n>k is less than or equal to the preceding value <n>k-1, tab setting is finished and the following data is processed as normal data.
	ESC D NUL cancels all horizontal tabl positions.
	The previously specified horizontal tab positions do not change, even if the character width changes.
Default:	The default tab positions are at intervals of 8 characters (columns 9, 17, 25, ...) for the font B (7 x 9).
Reference:	HT

ESC E n

Function:	Turn emphasized mode on/off
Code:	<1B>H <45>H <n>
Range:	0 ≤ n ≤ 255
Description:	Turns emphasized mode on or off. n = <*******0>B turns off the emphasized mode. n = <*******1>B turns on the emphasized mode.
Notes:	The 2 - pass printing is slower in emphasized mode. This command and ESC ! turn on and off emphasized mode in the same way. Be careful when this command is used with ESC ! . Only the lowest bit of n is valid.
Default:	n = 0
Reference:	ESC !

ESC G n

Function:	Turn double-strike mode on/off
Code:	<1B>H <47>H <n>
Range:	0 ≤ n ≤ 255
Description:	Turns double strike mode on or off. n = <*******0>B turns off the double strike mode. n = <*******1>B turns on the double strike mode.
Notes:	Printer output is the same in double-strike mode and in emphasized mode. Only the lowest bit of n is valid.
Default:	n = 0
Reference:	ESC E

ESC J n

Function:	Print and feed paper
Code:	<1B>H <4A>H <n>
Range:	0 ≤ n ≤ 255
Description:	Prints the contents of the print buffer, and feeds the paper by the amount of [n * vertical motion unit] inches. Sets the printing position to the beginning of the line. The max. paper feed amount that can be set is 40". If more than 40" are specified than the is paper feed amount set to 40".
Notes:	This command should *not* be executed continuously more then once. If the paper feed amount exceeds 1 inch, the printer prints the data and does not feed the paper. Reverse direction paper feeding causes the problem that paper feed pitch is incorrect.
Reference:	

GS P

ESC K n

Function:	Print and reverse feed
Code:	<1B>H <4B>H <n>
Range:	0 ≤ n ≤ 144
Description:	Prints the contents of the print buffer, and feeds the receipt in the reverse direction by the amount of [n * vertical motion unit] inches. Sets the print starting position to the beginning of the line.
Reference:	
GS P	

ESC R n

Function:	Select an international character set
Code:	<1B>H <52>H <n>
Range:	0 ≤ n ≤ 10
Description:	Selects a country's character set using n as follows:

n	Character set
0	USA
1	France
2	Germany
3	Great Britain
4	Denmark I
5	Sweden
6	Italy
7	Spain
8	Japan
9	Norway
10	Denmark II

Notes:	If the value of n is out of the specified range, the command is ignored.
Default:	n = 0 => USA
Reference:	Character code tables on page 51.

ESC U n

Function:	Turn unidirectional printing mode on/off
Code:	<1B>H <55>H <n>
Range:	0 ≤ n ≤ 255
Description:	Turns unidirectional print mode on or off. n = <*******0>B turns off the unidirectional mode. n = <*******1>B turns on the unidirectional mode.
Notes:	When unidirectional printing mode is switched on, the printer prints from left to right.
	To avoid horizontal printing misalignment, unidirectional printing mode should be used.
	Only the lowest bit of n is valid.
Default:	n = 0

ESC \ nL nH

Function:	Set relative print position
Code:	<1B>H <5C>H <nL> <nH>
Range:	0 ≤ nL ≤ 255 0 ≤ nH ≤ 255
Description:	Sets the print starting position based on the current position.
Notes:	A positive number specifies movement to the right, and a negative number specifies a movement to the left.
	Use the supplement of N pitch movement to the left: - N pitch = 65536 - N
	The print starting position is [(nL+nH*256) * (horizontal motion unit)] inches calculated from the current position.
	Any value that falls outside the printable area is ignored.
Reference:	ESC $,
GS P	

ESC a n

Function:	Select justification
Code:	<1B>H <61>H <n>
Range:	0 ≤ n ≤ 2, 48≤ n ≤ 50
Description:	Aligns all the data in one line to the specified position. n selects the justification as follows:

n	Justification
0, 48	Left justification
1, 49	Centering
2, 50	Right justification

Notes: The command is enabled only when input at the beginning of the line.

This command justifies the space area according to ESC $ or ESC \.

If the value of n is out of the specified range, the printer ignores the command.

Default: n = 0

Example:

Left justification	Centering	Right justification
ABC	ABC	ABC
ABCD	ABCD	ABCD
ABCDE	ABCDE	ABCDE

ESC c 4 n

Function:	Select station sensors(s) to stop printing
Code:	<1B>H <63>H <34>H <n>
Range:	0 ≤ n ≤ 255
Description:	Selects the station sensors(s) used to stop printing when paper-end is detected. Each bit of n is used as follows:

Bit	Function	Value	
		0	**1**
0	Receipt near end sensor	Disabled	Enabled
1	Receipt near end sensor	Disabled	Enabled
2	Receipt-end sensor	Disabled	Enabled
3	Receipt-end sensor	Disabled	Enabled
4	Undefined	-	-
5	Undefined	-	-
6	Undefined	-	-
7	Undefined	-	-

Notes:	It is possible to select multiple sensors for print control to stop printing. Then if any sensor detects a paper end, the printer stops printing.
	When a paper end is detected, printing is stopped after printing the current line and feeding the paper.
	When a paper-end is detected by the receipt station sensor, the printer goes off-line after printing stops.
Default:	n = 12 => receipt end sensor

ESC c 5 n

Function:	Enable / disable panel buttons
Code:	<1B>H <63>H <35>H <n>
Range:	0 ≤ n ≤ 255
Description:	This command enables or disables the panel buttons (line feed receipt). When n = <*******0>B, the panel buttons are enabled. When n = <*******1>B, the panel buttons are disabled.
Notes:	Only the lowest bit of n is valid.
	When the panel buttons are disabled, no button on the panel is usable.
	For this printer, "panel switch" refers to the feed button.
Default:	n = 0

ESC d n

Function:	Print and feed paper n lines
Code:	<1B>H <64>H <n>
Range:	0 ≤ n ≤ 255
Description:	Prints the data in the print buffer and feeds n lines.
Notes:	This command sets the print starting position to the beginning of the line.
	The line spacing of one line feed can be set using the commands ESC 2 and ESC 3.
	The maximum paper feed amount is 40 inches. If the specified amount exceeds 40 inches, the paper feed amounts is automatically set to 40 inches.
Reference:	ESC 2, ESC 3 , ESC e

ESC e n

Function:	Print and reverse feed n lines
Code:	<1B>H <65>H <n>
Range:	0 ≤ n ≤ 6
Description:	Prints the data of the print buffer, then feeds n lines in the reverse direction at the receipt station.
Notes:	Sets the print starting position to the beginning of the line. It should *not* be executed continuously more then once.
	If the n line feed amount exceeds 1 inch, the printer prints the data and does not feed the paper.
	Paper feeding in the reverse direction causes the problem that the paper feed pitch is incorrect.
	The line spacing of one reverse line feed can be set using the commands ESC 2 and ESC 3.
Default:	1/6" line spacing
Reference:	ESC 2, ESC 3 , ESC d

ESC i

Function:	Execute full cut
Code:	<1B>H <69>H
Description:	Executes a full cut of the receipt station.
Notes:	The command is enabled only when input at the beginning of a line.
	4 linefeeds after the full cut, it is possible that the receipt, which was cut, falls in back of the printer.
Reference:	ESC m ,GS V

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ESC m	

Function:	Execute partial cut
Code:	<1B>H <6D>H
Description:	Executes a partial cut of the receipt station.
Notes:	The command is enabled only when input at the beginning of the line.
Reference:	ESC i ,GS V

ESC o	

Function:	Print software stamp
Code:	<1B>H <6F>H
Description:	The software stamp that has been loaded is printed on the receipt station. The software stamp is a bitmap graphic which can be loaded with a special utility into the flash memory of the printer.
Notes:	This command is available only when input at the beginning of a line.
	The software stamp is also available after power is switched off.

ESC p m t1 t2	

Function:	Generate pulse (for cash drawer)
Code:	<1B>H <70>H <m> <t1> <t2>
Range:	m = 0, 1, 48, 49 $0 \leq t1 \leq 255$ $0 \leq t2 \leq 255$
Description:	The opening pulse defined by t1 and t2 is transmitted to the selected cash drawer.

m = 0, 48:	Open first cash drawer (connector pin 2)
m = 1, 49:	Open second cash drawer (connector pin 5).

The pulse ON time is [t1 * 10] ms (if t1 has an even value) and the OFF time is [t2 * 10] ms (if t2 has an even value).
If t1 has an uneven value, then the pulse ON time is
[(t1 + 1) * 10] ms;
if t2 has an uneven value, then the pulse OFF time is
[(t2 + 1) * 10] ms.

When t2 < t1, the printer processes t2 as t1.
If m is out of the specified range, the printer ignores the command and processes t1 and t2 as normal data.

Notes:	t1 = 5 and t2 = 255 are required for WN cash drawers. So an OFF time of 2,55 seconds is the maximal value which can be selected for this command, but please note that WN cash drawers need a OFF time of 6 seconds. This must be guaranteed by the application SW.

ESC t n

Function:	Select character code table
Code:	<1B>H <74>H <n>
Range:	0 ≤ n ≤ 5, 254 ≤ n ≤ 255
Description:	Selects page n of the character set from the following table.

n	Character code table
0	PC437 (USA, Standard Europe)
1	Katakana
2	PC850 (Multilingual)
3	PC860 (Portuguese)
4	PC863 (Canadian-French)
5	PC865 (Nordic)
19	PC858
254	Space page
255	Space page

Notes:	If the value of n is out of the specified range, the command will be ignored.
	The space page is the code page, which could be downloaded in the FLASH EPROM.
Default:	n = 0 or space page
Reference:	Character code tables page 51

ESC u n

Function: Transmit peripheral device status

Code: <1B>H <75>H <n>

Range: n = 0, 48

Description: Transmit the status of the cash drawer(s) upon receiving this command.

The meaning of the status byte is shown in the table below:

Bit	Meaning	Value	
		0	1
0	Cash drawer connector pin 3 voltage level	LOW	HIGH
1	Undefined	-	-
2	Undefined	-	-
3	Undefined	-	-
4	Not used	fixed to 0	
5	Undefined	-	-
6	Undefined	-	-
7	Not used	fixed to 0	

Notes: When DTR / DSR control is selected, the printer transmits only 1 byte after confirming that the host system is ready to receive data (DSR signal is space).

If the host computer is not ready to receive data (DSR signal is MARK), the printer keeps waiting until the host system is ready. When XON / XOFF control is selected, the printer transmits only 1 byte without checking the DSR signal.

If no cash drawer is connected, the value of bit 0 is always "1".

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

When Auto Status Back (ASB) is enabled using GS a, the status transmitted by ESC u and the ASB status must be differentiated using the *Transmit Status Identification* table on page 48.

If n is out of the specified range, the printer ignores the command.

Reference: DLE EOT, GS ENQ, GS a , GS r

ESC v

Function:	Transmit station sensor status
Code:	<1B>H <76>H
Description:	Transmits the current station sensor status.

The status to be transmitted is shown in the table below:

Bit	Function	Value	
		0	**1**
0	Receipt near end	Paper available	No paper
1	Receipt near end	Paper available	No paper
2	Receipt end	Paper available	No paper
3	Receipt end	Paper available	No paper
4	Not used	fixed 0	-
5	Undefined	-	-
6	Undefined	-	-
7	Not used	fixed 0	-

Notes:	The ESC v command is used for synchronization between host software and printer. The reply of this command is only transmitted when all previous print jobs have been carried out.
	When DTR/DSR control is selected, the printer transmits only 1 byte after confirming that the host is ready to receive data (DSR signal is SPACE). If the host computer is not ready to receive data (DSR signal is MARK), the printer waits until the host is ready. When XON/XOFF control is selected, the printer transmits only 1 byte without checking the DSR Signal.
	The 1 byte status data is transmitted after printing and paper feed operation completely stop (transmit timing differs from ESC u, GS I and GS r).
	This command is executed when the data is processed in the receive buffer. Therefore, there may be a time lag between receiving the command and transmitting the status, depending on the receive buffer status.
	When Auto Status Back (ASB) is enabled using GS a, the status transmitted by ESC u and the ASB status must be differentiated using the *Transmit Status Identification* table on page 48.
Reference:	DLE EOT, GS ENQ, GS a , GS r

ESC { n

Function:	Turns upside down printing mode on/off
Code:	<1B>H <7B>H <n>
Range:	$0 \leq n \leq 255$
Description:	Turns upside down printing mode on or off. When n = <*******0>B, upside-down printing mode is turned off. When n = <*******1>B, upside-down printing mode is turned on.
Notes:	Only the lowest bit of n is valid.
	In upside-down printing mode, the printer rotates the line to be printed by 180° and then prints it.
	This command is enabled only when input at the beginning of a line.
Default:	n = 0
Example:	
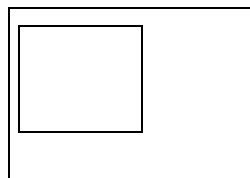
Upside-down-off   Upside-down-on

_____
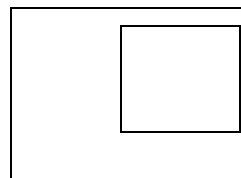
GS ENQ

Function:	Transmit real-time printer status.
Code:	<1D>H <05>H
Description:	Transmits the real-time printer status upon receiving this command..

Bit	Function	Value	
		0	1
0	Receipt near end	Paper present	No paper
1	Receipt near end	Paper present	No paper
2	Cover open / close	Closed	Open
3	Online / Offline	Online	Offline
4	Cash drawer connector pin 3 voltage level	LOW	HIGH
5	Undefined	-	-
6	Mechanical error state	No error	Error occurred
7	Not used	-	Fixed to 1

Bit 3: It becomes 1 when the printer is off-line due the paper-end stop or cover open.

Bit 6: It becomes 1 when an error occurred due to autocutting, home position detection, carriage detection, or print head high temperature error.

Notes: The printer transmits only one byte without checking the DSR signal.

This command is executed even if the printer is in off-line state, if the receive buffer is full, or in the mechanical error state.

The printer status is transmitted whenever the data sequence of <1D>H <05>H is received.
Example:
in ESC p m t1 t2: t1 = <1D>H, t2 = <05>H
in ESC * m nL nH [d] nL + 256 * nH:
d1 = <1D>H, d2 = <05>

This command should not be used within the data sequence of another command that consists of two or more bytes.

Example:
If you attempt to transmit ESC 3 n to the printer, be sure to transmit n before transmitting GS ENQ regardless of
the condition of the DTR signal (DSR for the host computer). If GS ENQ interrupts before n is received, n is processed as <1D>H.

If you attempt to transmit ESC 3 n to the printer, be sure to transmit n before transmitting GS ENQ regardless of the condition of the DTR signal (DSR from the host computer).
If GS ENG interrupts before n is received, n is processed as <1D> H.

When Auto Status Back (ASB) is enabled using GS a, the status transmitted by GS ENQ and the ASB status must be differentiated using the Transmit Status Identification table on 48.

Reference: DLE EOT, ESC u ,ESC v , GS a , GS r

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GS (A pl pH n m

Function:	Execute test prints.
Code:	<1D>H <28>H <41>H pL pH n m
Range:	pL = 2, pH = 0; n = 1, 49; m = 1, 2, 49, 50
Description:	Executes a specified test print.

n specifies paper used for the test print as follows:

n	Paper
1,49	Paper roll

m specifies a type of test print as follows:

m	Test print
2,50	Selftest
3,51	Statistic data

Notes:	This command is effective only when processed at the beginning of the line.
	After processing this command, the printer performs software resetting. The printer is in the status when the power is turned on by executing this command.
	When processing the self test printing m = 2, 50) and the statistic data printing = 3, 51), the printer does not process data reception and transmission between the host. ASB status and real- time commands cannot be used.

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GS (D

Function:	Enable/disable real-time commands
Code:	<1D>H <28>H <44>H pL pH m a b
Range:	pL = 3, pH = 0; m = 20; a = 2; b = 0, 1, 48, 49
Default:	b = 0 → DLE DC4 disabled
Description:	Specifies enable or disable of a real-time command.

a specifies the type of real- time command.
b specifies enable/ disable of real-time command processing.

b	Real-time command type
0,48	Disable DLE DC4
1,49	Enable DLE DC4

Notes:	The printer processes each real-time command that is enabled upon receiving it.

A real-time command specified as disabled is not processed.

The setting of this command is effective until ESC @ is executed, the printer is reset, or the power is turned off.

If you transmit a command for a bit image or defined data that contains the sequence DLE DC4, be sure to disable real-time command processing before transmitting the bit image or defined data command. Then the printer will process the sequence DLE DC4 as image data.

Reference:	DLE DC4

GS (E pL pH fn [parameter]

Function: Customize NV memory.

Description: Customizes the NV user memory area. The table below explains the
                    functions available in this command. Executes commands related to the
                    user setting mode by specifying the function code fn.

fn	Format	Function
1	GS (E pL pH fn d1 d2	Changes into user setting mode
2	GS (E pL pH fn d1 d2 d3	Ends user setting mode (performs a soft reset).
3	GS (E pL pH fn [a1 b18…b11]… [ak bk8…bk1]	Sets value(s) for memory switch
4	GS (E pL pH fn a	Transmit the settings of the memory switch to host.
11	GS (E pL pH fn a d1…dk	Sets the communication conditions for the serial interface.
12	GS (E pL pH fn a	Tansmit the communication conditions for the serial interface

pL, pH specifies (pL + pH × 256) as the number of bytes after pH (fn and
[parameter]).

fn specifies the function

d1, d2, d3 vary, depending on the mode.

a specifies the type of data to be stored.

b8…b1 specifies the setting values for the memory switch.

nL, nH specifies the values to be set for the data specified by a.

Notes: The user setting mode is a special mode to change the values in the NV
                    memory with this command.

                    In Function 2, the printer performs software reset. Therefore, the printer
                    clears the receive and print buffers, and resets all settings (user-defined
                    characters, macros, and the character style) to the mode in effect at
                    power on.

                    The customized values can be known with Function 4 or 12, even though
                    the printer does not enter the user setting mode.

                    Frequent write commands by this command, may damage the NV
                    memory. Therefore, it is recommended to write to NV memory no more
                    than 10 times a day.

                    While processing this command, the printer is BUSY while writing data to
                    the NV memory and stops receiving data. Therefore it is prohibited to
                    transmit data including the real-time commands during the execution of
                    this command.

GS (E pL pH fn d1 d2

Code: <1D>H <28>H <45>H pL pH fn d1 d2

Range: pL = 3, pH = 0
                       fn = 1
                       d1 = 73
                       d2 = 78

Description: Enters the user setting mode and notifies that the mode has changed.

	Hexadecimal	Decimal	Number of data
Header	37H	55	1 byte
Flag	20H	32	1 byte
NULL	00H	0	1 byte

Notes: The following commands are enabled in the user setting mode. <Function 2> through <Function 12> of GS (E, GS I.

GS (E pL pH fn d1 d2 d3

Code: <1D>H <28>H <45>H pL pH fn d1 d2 d3

Range: pL = 4, pH = 0
                       fn = 2
                       d1 = 79
                       d2 = 85
                       d3 = 84

Description: Ends the user setting mode and performs a software reset. Therefore, the printer clears the receive and print buffers, and resets all settings (user-defined characters, downloaded bit images, macros, and the print mode) to the mode that was in effect at power on.

Notes: This function code (fn = 2) is enabled only in the user setting mode.

GS (E pL pH fn [a1 b18...b11]...[ak bk8...bk1]

Code: <1D>H <28>H <45>H pL pH fn [a1 b18...b11]...[ak bk8...bk1]

Range: $10 \leq (pL + pH * 256) \leq 28$
                     fn = 3
                     a = 1, 2, 80h
                     b = 48, 49, 50

Description: Changes the memory switch specified by a to the values specified
                     by b:
                     When b = 48, the applicable bit is turned to Off.
                     When b = 49, the applicable bit is turned to On.
                     When b = 50, the applicable bit is not changed.

                     For default set all switches to Off.

                     When a = 1, the memory switch 1 is set as follows:

Bit	Setting Value	Function
1-2	50	Reserved
3	48	Condition for BUSY: Receive buffer full or offline
	49	Condition for BUSY: Receive buffer full
4	48	Data processing for receiving error: Prints "?"
	49	Data processing for receiving error: Ignored
5	48	Automatic line feed: Disabled
	49	Automatic line feed: Enabled
6	50	Reserved
7	48	Pin 6 reset signal: Not used
	49	Pin 6 reset signal: Used
8	48	Pin 25 reset signal: Not used
	49	Pin 25 reset signal: Used

When a = 2, the memory switch 2 is set as follows:

Bit	Setting Value	Function
1	50	Reserved
2	48	Autocutter is installed
	49	Autocutter is not installed
3-8	50	Reserved

When a = 80h, the memory switch 80h is set as follows:

	Setting Value	Function
1	48	Character spacing: 2 dots
	49	Character spacing: 3 dots
2	48	Font selection: 7 x 9
	49	Font selection: 9 x 9
3	48	Print speed: fast
	49	Print speed: slow
4-5	48	Paperwidth selection (see below)
	49	
6	48	Powerkey enabled
	49	Powerkey disabled
7	48	Marksensor disabled
	49	Marksensor enabled
8	50	Reserved

Paper width selection:

Paper width	Bit 4	Bit 5
69,5 mm	48	48
57,5 mm	49	48
76 mm	48	49
76 mm full	49	49

Notes: This function code (fn = 3) is enabled only in the user setting mode.

GS (E pL pH fn a

Code: <1D>H <28>H <45>H pL pH fn a

Range: pL = 2, pH = 0
                       fn = 4
                       a = 1, 2, 80h

Description: Transmits the setting values of the memory switch by a.

	Hexadecimal	Decimal	Number of data
Header	37H	55	1 byte
Flag	20H	32	1 byte
Data	30H or 31H	48 or 49	8 bytes
NULL	00H	0	1 byte

Data for setting is transmitted as 8 bytes or a data string in the order from bit 8 to 1, as follows:
Off: hex = 30H / decimal = 48
On: hex = 31H / decimal = 49

Notes: If a is out of range, this command is ignored.

GS (E pL pH fn a d1..dk

Code: <1D>H <28>H <45>H pL pH fn a d1 dk

Range: 3 ≤ (pL + pH * 256) ≤ 28
                   fn = 11
                   1 ≤ a ≤ 3
                   48 ≤ d ≤ 57
                   1 ≤ k ≤ 5

Description: Sets the communication conditions of the serial interface specified by a
                   according to value d.

When a = 1, baud rate setting:

Baud rate (bps)	d1	d2	d3	d4	d5
4800	52	56	48	48	--
9600	57	54	48	48	--
19200 (default)	49	57	50	48	48
38400	51	56	52	48	48

When a = 2, parity setting:

Parity	d1
No parity	48
Odd parity (default)	49
Even parity	50

When a = 3, flow control setting:

Flow control	d1
DTR/DSR (default)	48
XON/XOFF	49

Notes: If the value specified with a, d1 is out of range, this command is ignored.
                   (the setting is not changed)

                   This function code (fn = 11) is enabled only in the user setting mode.

GS (E pL pH fn a

Code: <1D>H <28>H <45>H pL pH fn a

Range: pL = 2, pH = 0
                   fn = 12
                   1 ≤ a ≤ 3

Description: Transmits the communication conditions of the serial interface specified by
                   a.

	Hexadecimal	Decimal	Number of data
Header	37H	55	1 byte
Flag	20H	32	1 byte
Communication type	30H - 33H	48 - 51	1 byte
Separator	1FH	31	1 byte
Setting value	30H - 39H	48 - 57	1 – 6 bytes
NULL	00H	0	1 byte

Notes: If a is out of range, this command is ignored.

GS * x y [d] x * y * 8

Function: Defines a down-loaded bit-image

Code: <1D>H <2A>H <x> <y> [<d>] x * y * 8
Range:

1 ≤ x ≤ 255
1 ≤ y ≤ 255
x * y ≤ 404

Description: Defines a downloaded bit-image using the dots specified by x and y.

Notes: The number of dots is x*8 in the horizontal direction, and y*8 in the vertical direction.

The d indicates the bit-image data.

After a down-loaded bit-image is defined, it is available until another definition is made, ESC @ or ESC & is executed, the printer is reset or the power is turned off.

A user-defined character and a down-loaded bit-image cannot be defined simultaneously. When this command is executed, the user-defined character is cleared.

The following figure shows the relationship between the bit-image data and the dots to be defined:
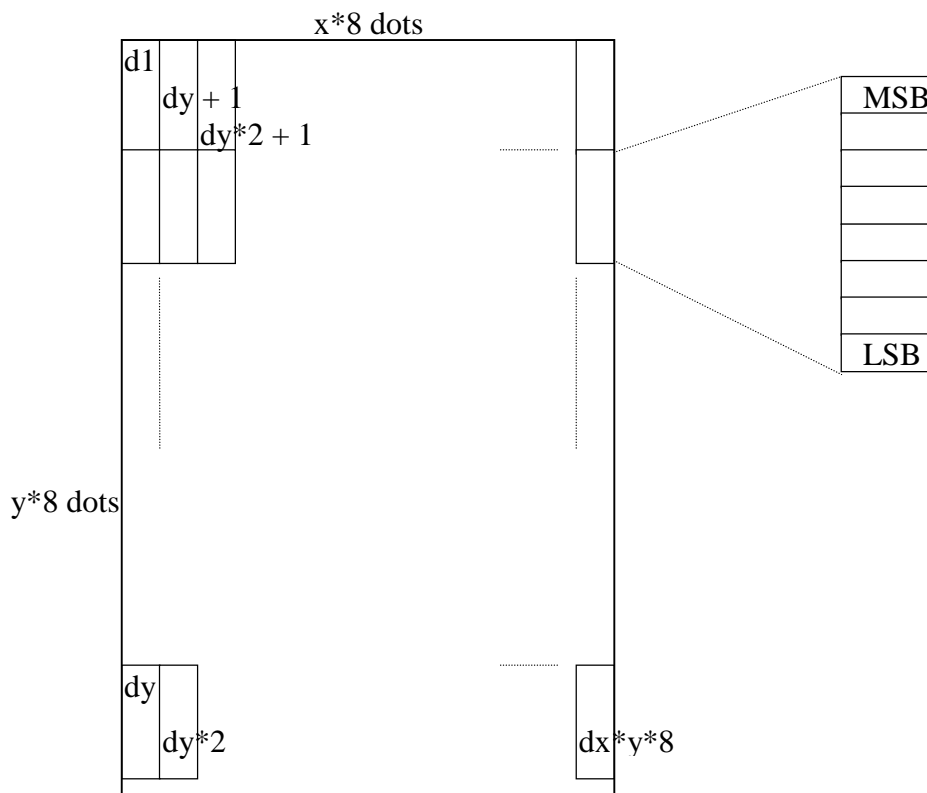
Reference: GS /

GS / m

Function:	Print down-loaded bit-image
Code:	<1D>H <2F>H <m>
Range:	0 ≤ m ≤ 1, 48 ≤ m ≤ 49
Description:	Prints a down-loaded bit-image using the mode specified by "m", see table below:

m	No. of Vertical Dots	Horizontal Direction		Maximal number of dots per paper width		
		Dot Density	Adjacent Dot	57,5 mm	69,5 mm	76 mm
0,48	8	Single Density	Permitted	150	180	200
1,49	8	Double Density	Prohibited	300	360	400

Notes:	This command is ignored if data exists in the print buffer.
	This command is ignored if a down loaded bit-image has not been defined.
	If a down-loaded bit-image to be printed exceeds one line, the excess data is not be printed
	If the value of m is out of the specified range, this command is ignored.

| **Reference:** | GS * |

GS E n

Function:	Select print speed.
Code:	<1D>H <45>H <n>
Range:	$0 \leq n \leq 255$
Description:	Selects the printing speed. Each bit of n is used as follows:

Bit	Function	Value	
		0	1
0	Undefined		
1	Undefined		
2	Undefined		
3	Undefined		
4	Printing speed	High	Low
5	Undefined		
6	Undefined		
7	Undefined		

Notes:	This command is enabled only when input at the beginning of a line.
Default:	n = 0

GS I n

Function:	Transmit printer ID
Code:	<1D>H <49>H <n>
Range:	0 ≤ n ≤ 3, 49 ≤ n ≤ 51, 65 ≤ n ≤ 69, 112
Description:	Transmit the specified printer ID. n specifies the ID of the printer as follows:

n	Printer ID	Specifications
1, 49	Model ID	0D H
2, 50	Type ID	See table below
3, 51	Firmware ID	Firmware version
65	Firmware version	Firmware version
66	Manufacturer	WINCOR-NIXDORF
67	Printer model	ND210
68	Serial number	Serialnumber of the printer
69	Font of language for each country	-

Notes:	When DTR / DSR control is selected, the printer transmits only one byte after confirming that the host system is ready to receive data (DSR signal is SPACE). If the host system is not ready to receive data (DSR signal is MARK), the printer waits until the host system is ready. When XON / XOFF control is selected, the printer transmits only one byte without confirming the condition of the DSR signal.
	The ID of the printer is transmitted when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the status, depending on the receive buffer status.
	The Firmware version may be changed.
	When Auto Status Back (ASB) is enabled using GS a, the status transmitted by GS I and the ASB status must be differentiated using the Transmit Status Identification table on page 48.
	When n is out of the specified range, this command is ignored.

n = 2 Type ID:

Bit	Function	Value	
		0	1
0	Two byte code characters	Not mounted	Mounted
1	Auto cutter	Not mounted	Mounted
2	Undefined		
3	Undefined		
4	Not used	Fixed to 0	
5	Undefined		
6	Undefined		
7	Not used	Fixed to 0	

Reference: See also the table for the Transmit Status Identification on page 48.

Notes:	Each printer information is composed of [header + printer information + NUL] (when 65 ≤ n ≤ 69).
	If the printer information is not prepared, [Header + NUL] (2 bytes) are sent.

Each printer information is composed of [header + printer information + NUL] (when 65 ≤ n ≤ 69).

If the printer information is not prepared, [Header + NUL] (2 bytes) are sent.

The firmware version can be confirmed by self test printing. Self test is executed by panel switch operation when power is turned on.

The printer goes BUSY immediately before sending the header, and it returns to READY after sending NUL. (This excludes situations when the printer goes to BUSY status for other reasons.)

Printer information is distinguished from other send data by the header of the block data. When the data sent from printer after printing GS I is [Hex = 5FH / Decimal = 95], process the data to NUL [Hex = 00H / Decimal = 0].

When communicating with printer by XON/ XOFF control, XOFF code might be transmitted into " Header to NUL."

GS P x y	
Function:	Set vertical motion unit
Code:	<1D>H <50>H <x> <y>
Range:	0 ≤ x ≤ 255 0 ≤ y ≤ 255
Description:	Sets the units for setting the values in the horizontal direction to 1/x inch, and in the vertical direction to 1/y inch. When setting x = 0 and y = 0, the values are reset to the default values.
Notes:	
	The current settings remain unchanged after this command is executed. The calculated result when using this command and the line spacing setting command is adjusted with the minimum pitch of the mechanism (horizontal:1/160 inches, vertical: 1/144 inches). The remainder is cut off.
Default:	x = 160, y = 144
Example:	When setting n = 48 in ESC 3 as a default, the amount of paper feeding is set to 48/144 (1/3 inch). When setting x = 0 and y = 240 in GS P and n = 48 in ESC 3, the amount of paper feeding is set to 48/240 (1/5 inch).

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①GS V m / ②GS V m n

Function:	Select cut mode and cut paper
Code:	① <1D>H <56>H m
	② <1D>H <56>H m n
Range:	① m = 0,48;1,49 ② m = 65,66,67; 0 ≤ n ≤ 255
Description:	Feeds paper for cutting position as follows:

m	Print mode
0,48	Full cut
1,49	Partial cut
65	Feeds paper for (cutting postion +[n*0.176 mm{1/144 inches}]), and full cut
66	Feeds paper for (cutting postion +[n*0.176 mm{1/144 inches}]), and half cut
67	Feeds paper to cutting position, full cut and feeds n lines (max. 6 lines) back

Notes:	This command is effective only at the beginning of a line.
	The Function m = 67 can be used for compensation of the headloss because of cutting.
Reference:	ESC i , ESC m

GS a n

Function:	Enable / disable automatic status back
Code:	<1D>H <61>H <n>
Range:	$0 \leq n \leq 255$
Description:	Selects a status for Automatic Status Back (ASB)

Each bit of n is used as follows:

Bit	Function	Value	
		0	**1**
0	Cash drawer connector pin 3	Disabled	Enabled
1	On-line / Off-line	Disabled	Enabled
2	Error	Disabled	Enabled
3	Paper roll sensor	Disabled	Enabled
4	Undefined		
5	Undefined		
6	Undefined		
7	Undefined		

Notes: If any status is not selected, ASB becomes disabled.

ASB is enabled if only one status is selected. The printer automatically transmits a status of 4 bytes whenever the status changes.

If ASB is enabled while processing this command, the current status is transmitted with no regulations.

When transmitting a status, the printer transmits only 4 bytes without confirming the condition of the DSR signal.

Four bytes of status data must be consecutive, except for XOFF code.

This command is executed when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the first status, depending on the receive buffer status.

When the printer is disabled by ESC = (Select peripheral device), this command is disabled, but the ASB which has been set is always enabled.

When using ESC u, ESC v, GS I, GS r, DLE EOT or GS ENQ, the status transmitted by this command, the ASB status, and the status transmitted by another command must be differentiated, according to table Transmit Status Identification (See also the table for the Transmit Status Identification on page 48.).

The status to be transmitted is as follows:

First byte (printer information)

Bit	Function	Value	
		0	**1**
0	Not used	Fixed to 0	
1	Not used	Fixed to 0	
2	Cash drawer connector pin 3 voltage level	LOW	HIGH
3	On-line / Off-line	On-line	Off-line
4	Not used	Fixed to 1	
5	Cover open / close	Close	Open
6	Paper feeding with paper feed button	Not during paper feed	During paper feed
7	Not used	Fixed to 0	

Second byte (error information)

Bit	Function	Value	
		0	**1**
0	Undefined		
1	Undefined		
2	Mechanical error	No error	Error occurs
3	Auto-cutter error	No error	Error occurs
4	Not used	Fixed to 0	
5	Error impossible to recover	No error	Error occurs
6	Head temperature	No error	Error occurs
7	Not used	Fixed to 0	

Third byte (paper sensor information)

Bit	Function	Value	
		0	**1**
0	Receipt near end sensor	Paper present	No paper
1	Receipt near end sensor	Paper present	No paper
2	Receipt end sensor	Paper present	No paper
3	Receipt end sensor	Paper present	No paper
4	Not used	Fixed to 0	
5	Undefined		
6	Undefined		
7	Not used	Fixed to 0	

_____

Forth byte (paper sensor information)

Bit	Function	Value	
		0	1
0	Undefined		
1	Undefined		
2	Undefined		
3	Undefined		
4	Not used	Fixed to 0	
5	Undefined		
6	Undefined		
7	Not used	Fixed to 0	

Default: n=0 when handshaking control is off,
n=2 when handshaking control is on

Reference: DLE EOT, ESC u , ESC v , GS ENQ, GS r

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GS g 0 m nL nH

Function: Initialize maintenance counter

Code: <1D>H <67>H <30>H

Range: m = 0
(nL + nH x 256) = 10, 11, 13, 50

Description: Initializes the resetable maintenance counter to 0:

Counter	Specification
10	Counts a paper feed of 1/6 inch as one line
11	Counts all fired dots
13	Counts the number of carriage passes when printing
50	Counts an autocutter operation

Notes: Frequent write command executions by this command may damage the NV memory. Therefore, it is recommended to write to the NV memory no more than 10 times a day.

While processing this command, the printer is BUSY while writing data to the user NV memory and stops receiving data. Therefore it is prohibited to transmit data including the real-time commands during the execution of this command.

GS g 2 m nL nH

Function:	Initialize maintenance counter
Code:	<1D>H <67>H <32>H
Range:	m = 0
	(nL + nH x 256) = 10, 11, 13, 50, 138, 139, 141, 142, 178, 198
Description:	Transmits the value of the specified maintenance counter.:

Counter	Specification
10,138	Number of a paper feed of 1/6 inch as one line
11,139	Number of all fired dots
13,141	Number of carriage passes when printing
142	Number of all power on
50,178	Number of an autocutter operation
198	Number of hours the power has been on
238	Reset counter for paper feed count
239	Reset counter for fired dots count
240	Reset counter for autocutter operation count
241	Reset counter for carriage passes count

Notes:	The printer transmits [Header + Data + NUL] collectively without confirming whether the host is ready to receive data. To receive all data correctly, adequate capacity is required in the receive buffer of the host.
	During data transmission, the printer ignores the real-time commands. Also, the printer does not transmit ASB even when the ASB is enabled. Therefore, the user cannot confirm changes in the printer status during these periods.
	The counter values may be different from actual counting depending on the time difference or the error occurring.
	The maintenance counter value consists of [Header + data + NUL], as follows:
	Header: Hexadecimal = 5FH/ Decimal = 95: 1- byte data
	Data: Counter value = 30H~ 39H/ Decimal = 48~ 57: 1- byte data
	NUL: Hexadecimal = 00H/ Decimal = 0: 1- byte data
	When the counter values are transmitted, the printer converts them to character codes corresponding to the decimal value and transmits from the most significant bit.
	Example: When the counter value is 120, the transmission data for " 120" is 3 bytes, consisting of 49, 50 and 48.

GS r n

Function:	Transmit status
Code:	<1D>H <72>H <n>
Range:	0 ≤ n ≤ , 49 ≤ n ≤ 50
Description:	Transmits the status specified by n as follows:

n	Function
1, 49	Transmits paper sensor status (same as ESC v)
2, 50	Transmits cash drawer connector status (same as ESC u 0)

Notes:

When DTR / DSR is selected, the printer transmits only one byte after confirming the host system is ready to receive data (DSR signal is SPACE). If the host system is not ready to receive data (DSR signal is MARK), the printer transmits only one byte without confirming the condition or the DSR signal.

This command is executed when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the first status, depending on the receive buffer status.

When Auto Status Back (ASB) is enabled using GS a, the status transmitted by GS r and the ASB status must be differentiated according to the table on page 48.

If the value of n is out of the specified range, the printer ignores this command

The status bytes to be transmitted are shown below:

n = 1: Station sensor status

Bit	Function	Value	
		0	1
0	Receipt near end sensor	Paper present	No paper
1	Receipt near end sensor	Paper present	No paper
2	Receipt sensor	Paper present	No paper
3	Receipt sensor	Paper present	No paper
4	Not used	Fixed to 0	
5	Undefined		
6	Undefined		
7	Not used	Fixed to 0	

n = 2: Cash drawer kick-out connector status

Bit	Function	Value	
		0	1
0	Cash drawer connector pin 3 voltage level	LOW	HIGH
1	Undefined		
2	Undefined		
3	Undefined		
4	Not used	Fixed to 0	
5	Undefined		
6	Undefined		
7	Not used	Fixed to 0	

Reference: DLE EOT, ESC u , ESC v , GS ENQ, GS a

The following table shows the **Transmit Status Identification**:

Command + Function	Status reply
ESC u	<0**0****>B
ESC v	<0**0****>B
GS I	<0**0****>B
GS r	<0**0****>B
XON	<000100001>B
XOFF	<000100011>B
DLE EOT(1 to 5)	<0**1**10>B
ASB (1st byte)	<0**1**00>B
ASB (2nd to 4th byte)	<0**0****>B
GS ENQ	<1*******>B

The following table shows the possible adjustments and how it can be changed.

Parameter		Value	Changeable with		Test with	
			Conftool	Esc Sequence	Verifyer	Esc Sequence
Cutter		not mounted, enable, disable	yes	ESC (E	yes	ESC (E
Parity		no, even odd	yes	ESC (E	yes	ESC (E
Baudrate		4800, 9600, 19200,38400	yes	ESC (E	yes	ESC (E
Handshake		Hardware, Software	yes	ESC (E	yes	ESC (E
Busy Condition		Offline, Receive buffer full	yes	ESC (E	yes	ESC (E
Receive Error		Prints "?", Ignored	yes	ESC (E	yes	ESC (E
Autolinefeed		enable, disable	yes	ESC (E	yes	ESC (E
Characterspacing		2 dots, 3 dots	yes	ESC (E	yes	ESC (E
Fontselection		7x9, 9x9	yes	ESC (E	yes	ESC (E
Print speed		Fast, slow	yes	ESC (E	yes	ESC (E
Paper		58, 70, 76 mm, 76 mm full	yes	ESC (E	yes	ESC (E
Reset		Pin 6, Pin 25, Pin 6 & 25, no	yes	ESC (E	yes	ESC (E
Power Key		enable, disable	no	ESC (E	no	ESC (E
Power Supply		Auto, < 75 W, >75 W	yes	no	yes	no
Headtemperatur		50 - 128 °C	no	no	yes	ESC + (fe)
Serialnumber		4294967295	no	ESC (91) (01)	yes	GS I D
Revision		99	no	ESC (91) (03)	yes	no
Firmwareversion		99.99	no	no	yes	GS I A
Whole	Linefeeds	4294967295	no	no	yes	GS g 2
	Dots	4294967295	no	no	yes	GS g 2
	Carrier Movements	4294967295	no	no	yes	GS g 2
	Cuts	4294967295	no	no	yes	GS g 2
	Power ons	4294967295	no	no	yes	GS g 2
	Power on hours	1000000000	no	no	yes	GS g 2

Parameter		Value	Changeable with		Test with	
			Conftool	Esc Sequence	Verifyer	Esc Sequence
Resetable	Linefeeds	4294967295	yes	GS g 0	yes	GS g 2
	Dots	4294967295	yes	GS g 0	yes	GS g 2
	Carrier Movements	4294967295	yes	GS g 0	yes	GS g 2
	Cuts	4294967295	yes	GS g 0	yes	GS g 2
Changeable	Linfeed mechanism	255	yes	GS g 0	yes	GS g 2
	Printhead	255	yes	GS g 0	yes	GS g 2
	Flex cable	255	yes	GS g 0	yes	GS g 2
	Cutterunit	255	yes	GS g 0	yes	GS g 2

Character Set

With the sequence *ESC t* the following character code tables could be selected:

PC437   USA, Standard Europe
Katakana
PC850   Multilingual (Denmark, Norway)
PC860   Portuguese
PC863   Canadian-French
PC865   Nordic
PC858

Additionally a user defined page - the space page - could be loaded into the FLASH (two pages from the character code 80H to the character code FFH, 7x9 or 9x9).

This code pages could be loaded with a special utility and will be available after a power off.

Space pages are also available as default character sets, i.e. after power on the space page is the default page instead of the page PC437.

User defined characters could also be loaded by the sequence *ESC &.* It is possible to define one page from the character code 20H to the character code 7EH for 7x9 and for 9x9. This characters will be loaded into the RAM and are not available after power off.

With the sequence ESC R it is possible to select an international character set.

In the following tables the implemented code pages are shown:

International character set

	Country	HEX DEC	23 35	24 36	40 64	5B 91	5C 92	5D 93	5E 94	60 96	7B 123	7C 124	7D 125	7E 126
									ASCII code					
0	U.S.A.		≠	$	@	[	\	]	^	`	{	¦	}	~
1	France		≠	$	à	°	ç	§	^	`	é	ù	è	¨
2	Germany		≠	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
3	U.K.		£	$	@	[	\	]	^	`	{	¦	}	~
4	Denmark I		≠	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
5	Sweden		≠	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy		≠	$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain		Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
8	Japan		≠	$	@	[	¥	]	^	`	{	¦	}	~
9	Norway		≠	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark II		≠	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

Character code table PC437: USA, Standard Europe

HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0 0000	NUL [00]	DLE [16]	SP [32]	0 [48]	@ [64]	P [80]	` [96]	p [112]	Ç [128]	É [144]	á [160]	░ [176]	└ [192]	┴ [208]	α [224]	≡ [240]
1 0001	[01]	XON [17]	! [33]	1 [49]	A [65]	Q [81]	a [97]	q [113]	ü [129]	æ [145]	í [161]	▒ [177]	┴ [193]	┬ [209]	ß [225]	± [241]
2 0010	[02]	[18]	" [34]	2 [50]	B [66]	R [82]	b [98]	r [114]	é [130]	Æ [146]	ó [162]	▓ [178]	┬ [194]	τ [210]	Γ [226]	≥ [242]
3 0011	[03]	XOFF [19]	# [35]	3 [51]	C [67]	S [83]	c [99]	s [115]	â [131]	ô [147]	ú [163]	│ [179]	├ [195]	└ [211]	π [227]	≤ [243]
4 0100	EOT [04]	[20]	$ [36]	4 [52]	D [68]	T [84]	d [100]	t [116]	ä [132]	ö [148]	ñ [164]	┤ [180]	─ [196]	└ [212]	Σ [228]	⌠ [244]
5 0101	ENQ [05]	[21]	% [37]	5 [53]	E [69]	U [85]	e [101]	u [117]	à [133]	ò [149]	Ñ [165]	┤ [181]	┼ [197]	┌ [213]	σ [229]	⌡ [245]
6 0110	[06]	[22]	& [38]	6 [54]	F [70]	V [86]	f [102]	v [118]	å [134]	û [150]	ª [166]	┤ [182]	├ [198]	┌ [214]	μ [230]	÷ [246]
7 0111	[07]	[23]	' [39]	7 [55]	G [71]	W [87]	g [103]	w [119]	ç [135]	ù [151]	º [167]	┐ [183]	├ [199]	┼ [215]	τ [231]	≈ [247]
8 1000	[08]	CAN [24]	([40]	8 [56]	H [72]	X [88]	h [104]	x [120]	ê [136]	ÿ [152]	¿ [168]	┐ [184]	└ [200]	┼ [216]	Φ [232]	° [248]
9 1001	HT [09]	[25]	) [41]	9 [57]	I [73]	Y [89]	i [105]	y [121]	ë [137]	Ö [153]	⌐ [169]	┤ [185]	┌ [201]	┘ [217]	θ [233]	• [249]
A 1010	LF [10]	[26]	* [42]	: [58]	J [74]	Z [90]	j [106]	z [122]	è [138]	Ü [154]	¬ [170]	▌ [186]	┴ [202]	┌ [218]	Ω [234]	· [250]
B 1011	[11]	ESC [27]	+ [43]	; [59]	K [75]	[[91]	k [107]	{ [123]	ï [139]	¢ [155]	½ [171]	┐ [187]	┬ [203]	■ [219]	δ [235]	√ [251]
C 1100	FF [12]	[28]	, [44]	< [60]	L [76]	\ [92]	l [108]		[124]	î [140]	£ [156]	¼ [172]	┘ [188]	├ [204]	■ [220]	∞ [236]	ⁿ [252]
D 1101	CR [13]	GS [29]	- [45]	= [61]	M [77]	] [93]	m [109]	} [125]	ì [141]	¥ [157]	¡ [173]	┘ [189]	─ [205]	■ [221]	ø [237]	² [253]
E 1110	[14]	[30]	. [46]	> [62]	N [78]	^ [94]	n [110]	~ [126]	Ä [142]	₧ [158]	« [174]	┘ [190]	┼ [206]	■ [222]	∈ [238]	■ [254]
F 1111	[15]	[31]	/ [47]	? [63]	O [79]	_ [95]	o [111]	SP [127]	Å [143]	ƒ [159]	» [175]	┐ [191]	┴ [207]	■ [223]	∩ [239]	SP [255]

Character code table Katakana

HEX		8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	— 128	⊥ 144	SP 160	— 176	タ 192	ミ 208	= 224	× 240
1	0001	▬ 129	⊤ 145	° 161	ア 177	チ 193	ム 209	╞ 225	円 241
2	0010	▬ 130	⊣ 146	「 162	イ 178	ツ 194	メ 210	╪ 226	年 242
3	0011	▬ 131	⊢ 147	」 163	ウ 179	テ 195	モ 211	╡ 227	月 243
4	0100	▬ 132	─ 148	、 164	エ 180	ト 196	ヤ 212	◢ 228	日 244
5	0101	▮ 133	— 149	・ 165	オ 181	ナ 197	ユ 213	◣ 229	時 245
6	0110	▮ 134	│ 150	ヲ 166	カ 182	ニ 198	ヨ 214	◥ 230	分 246
7	0111	▮ 135	│ 151	ア 167	キ 183	ヌ 199	ラ 215	◤ 231	秒 247
8	1000	│ 136	┌ 152	イ 168	ク 184	ネ 200	リ 216	♠ 232	〒 248
9	1001	▌ 137	┐ 153	ウ 169	ケ 185	ノ 201	ル 217	♥ 233	市 249
A	1010	▌ 138	└ 154	エ 170	コ 186	ハ 202	レ 218	♦ 234	区 250
B	1011	▌ 139	┘ 155	オ 171	サ 187	ヒ 203	ロ 219	♣ 235	町 251
C	1100	▌ 140	╭ 156	ヤ 172	シ 188	フ 204	ワ 220	● 236	村 252
D	1101	▌ 141	╲ 157	ユ 173	ス 189	ヘ 205	ン 221	○ 237	人 253
E	1110	▌ 142	╲ 158	ヨ 174	セ 190	ホ 206	゛ 222	/ 238	▒ 254
F	1111	┼ 143	╱ 159	ッ 175	ソ 191	マ 207	゜ 223	\ 239	SP 255

Character code table PC850: Multilingual

HEX	8	9	A	B	C	D	E	F
HEX / BIN	1000	1001	1010	1011	1100	1101	1110	1111
0 / 0000	Ç 128	É 144	á 160	░ 176	└ 192	ð 208	Ó 224	— 240
1 / 0001	ü 129	æ 145	í 161	▒ 177	┴ 193	Ð 209	ß 225	± 241
2 / 0010	é 130	Æ 146	ó 162	▓ 178	┬ 194	Ê 210	Ô 226	‗ 242
3 / 0011	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 243
4 / 0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	õ 228	¶ 244
5 / 0101	à 133	ò 149	Ñ 165	Á 181	┼ 197	ı 213	Õ 229	§ 245
6 / 0110	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7 / 0111	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8 / 1000	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	Þ 232	° 248
9 / 1001	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A / 1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B / 1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	█ 219	Ù 235	¹ 251
C / 1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ý 236	³ 252
D / 1101	ì 141	Ø 157	¡ 173	¢ 189	═ 205	¦ 221	Ý 237	² 253
E / 1110	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	■ 254
F / 1111	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	SP 255

Character code table PC860: Portuguese

HEX		8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	░ 176	└ 192	┴ 208	α 224	≡ 240
1	0001	ü 129	À 145	í 161	▒ 177	┴ 193	┬ 209	ß 225	± 241
2	0010	é 130	È 146	ó 162	▓ 178	┬ 194	┬ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	└ 211	π 227	≤ 243
4	0100	ã 132	õ 148	ñ 164	┤ 180	─ 196	└ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	┤ 181	┼ 197	┌ 213	σ 229	⌡ 245
6	0110	Á 134	Ú 150	ª 166	┤ 182	├ 198	┌ 214	μ 230	÷ 246
7	0111	ç 135	ù 151	º 167	┐ 183	├ 199	┼ 215	τ 231	≈ 247
8	1000	ê 136	Ì 152	¿ 168	┐ 184	└ 200	┼ 216	Φ 232	° 248
9	1001	Ê 137	Õ 153	Ò 169	┤ 185	┌ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	┴ 202	┌ 218	Ω 234	· 250
B	1011	Í 139	¢ 155	½ 171	┐ 187	┬ 203	■ 219	δ 235	√ 251
C	1100	Ô 140	£ 156	¼ 172	┘ 188	├ 204	▬ 220	∞ 236	ⁿ 252
D	1101	ì 141	Ù 157	¡ 173	┘ 189	─ 205	▌ 221	ø 237	² 253
E	1110	Ã 142	Pt 158	« 174	┘ 190	┼ 206	▐ 222	∈ 238	■ 254
F	1111	Â 143	Ó 159	» 175	┐ 191	─ 207	▬ 223	∩ 239	SP 255

Character code table PC863: Canadian-French

HEX		8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	¦ 160	░ 176	└ 192	┴ 208	α 224	≡ 240
1	0001	ü 129	È 145	´ 161	▒ 177	┴ 193	┬ 209	ß 225	± 241
2	0010	é 130	Ê 146	ó 162	▓ 178	┬ 194	┬ 210	Γ 226	≥ 242
3	0011	â 131	Ô 147	ú 163	│ 179	├ 195	└ 211	π 227	≤ 243
4	0100	Â 132	Ë 148	¨ 164	┤ 180	─ 196	└ 212	Σ 228	⌠ 244
5	0101	à 133	Ï 149	¸ 165	╡ 181	÷ 197	┌ 213	σ 229	⌡ 245
6	0110	¶ 134	û 150	³ 166	╢ 182	╞ 198	┌ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	‾ 167	╖ 183	╟ 199	┼ 215	τ 231	≈ 247
8	1000	ê 136	¤ 152	Î 168	╕ 184	╚ 200	┼ 216	Φ 232	° 248
9	1001	ë 137	Ô 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	ⁿ 252
D	1101	═ 141	Ù 157	¾ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	À 142	Û 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	§ 143	ƒ 159	» 175	┐ 191	┴ 207	▀ 223	∩ 239	SP 255

Character code table PC865: Nordic

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	░ 176	└ 192	┴ 208	α 224	≡ 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	┬ 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▓ 178	┬ 194	┬ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	└ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	└ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	┤ 181	┼ 197	┌ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	┤ 182	├ 198	┌ 214	μ 230	÷ 246
7	0111	ç 135	ù 151	º 167	┐ 183	├ 199	┼ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	┐ 184	└ 200	┼ 216	Φ 232	° 248
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	┌ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	┴ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	ø 155	½ 171	┐ 187	┬ 203	█ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	┘ 188	├ 204	▄ 220	∞ 236	ⁿ 252
D	1101	ì 141	Ø 157	¡ 173	┘ 189	─ 205	█ 221	ø 237	² 253
E	1110	Ä 142	Pt 158	« 174	┘ 190	┼ 206	█ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	─ 207	▄ 223	∩ 239	SP 255

Character code table PC858

HEX	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▓ 176	└ 192	ð 208	Ó 224	— 240
1	0001	ü 129	æ 145	í 161	▓ 177	⊥ 193	Ð 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▓ 178	⊤ 194	Ê 210	Ô 226	— 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	— 196	È 212	õ 228	244
5	0101	à 133	ò 149	Ñ 165	Á 181	┼ 197	€ 213	Õ 229	§ 245
6	0110	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	1000	ê 136	ÿ 152	¿ 168	© 184	└ 200	Ï 216	Þ 232	° 248
9	1001	ë 137	Ö 153	® 169	╣ 185	┌ 201	┘ 217	Ú 233	¨ 249
A	1010	è 138	Ü 154	¬ 170	║ 186	┴ 202	┌ 218	Û 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	┬ 203	■ 219	Ù 235	¹ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	├ 204	▄ 220	ý 236	³ 252
D	1101	ì 141	Ø 157	¡ 173	¢ 189	— 205	¦ 221	Ý 237	² 253
E	1110	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	238	■ 254
F	1111	Å 143	ƒ 159	» 175	¬ 191	¤ 207	▀ 223	´ 239	SP 255