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Introduction

When EPSON created the ESC/P printer control language, the industry standard for simple, sophisticated, efficient operation of dot-matrix printers was born.

With the scalable fonts, high-resolution color raster graphics, and advanced page handling available with ESC/P 2, EPSON has narrowed the gap between dot-matrix and page printers. Features previously found only on laser printers are now available at affordable dot-matrix printer prices.

This manual was developed as an aid in creating programs and drivers that take advantage of all the latest features of EPSON’s printers. It is assumed the reader understands basic concepts such as bytes, ASCII codes, commands, and parameters. It is also assumed the reader can use a programming language or application program to send commands to the printer. By following the recommendations within this manual, your programs will allow EPSON printers to perform at the optimum levels they were designed for.

With the introduction of our line of high-resolution color printers, we have expanded some existing ESC/P commands and added several new ones. This manual describes all ESC/P commands, including two new compressed raster graphics modes and MicroWeave, EPSON’s revolutionary technology that virtually eliminates banding in graphics.

In addition, we have provided a list of features and options available on all dot-matrix printers produced by EPSON for the American, European, and non-Japanese Pacific markets.
About This Manual

This manual is composed of four main sections.

Command Summary
Contains a detailed description of all commands available in EPSON ESC/ P, with new commands available in ESC/ P 2 clearly identified. Also, the following information is included:

- Differences between 9-pin and 24/ 48-pin commands
- Printers that do not feature particular commands
- Differences in command functions among printers

Recommended Operations
Detailed explanations on how to use commands to perform specific functions in the most efficient manner.

Command Table
Tables that show the commands and command parameters featured on all EPSON printers.

Feature Summary
Features and options available on all EPSON printer models, as well as DIP-switch settings on applicable printers.

In addition, the Appendix contains information on character tables, widths of proportional characters, and interfaces.

A Glossary and Index also provide convenient reference information.

The information in this manual will be updated on a regular basis to continually provide the most current information on commands and printer models.

Conventions Used in This Manual

A number of conventions are used in this manual to aid in describing commands and distinguishing between ESC/ P versions.

Icons

One or more of the following icons appear next to the command description, indicating availability to a particular printer type.

- **ESC/ P 2** Available on EPSON ESC/ P 2 printers
- **ESC/ P** Available on EPSON 24/ 48-pin printers featuring a previous ESC/ P level
- **9-Pin ESC/ P** Available on 9-pin printers
**Command names and parameters**

Command names are normally referred to in their ASCII code version. ESC ( v and ESC C NUL are examples. You can find the decimal or hexadecimal values of the ASCII codes listed in the ASCII code table in the Appendix. The decimal and hexadecimal values are also listed for each command in the Command Summary section.

Command parameters are listed as variables or as decimal numbers in the text.

**Information organization**

Commands in the Command Summary and explanations in the Recommended Operations section are organized according to the order described in Recommended Command Order.

Commands in the Command Table are organized according to ASCII order. Printer models in the Command Table are organized by date of first manufacture, with the most recent models listed first.

Printer models in the Feature Summary are divided into 24/ 48-pin and 9-pin sections and listed alphabetically.

**Nonrecommended and deleted commands**

As dot-matrix printer technology has developed, EPSON has added new commands and parameters to ESC/ P, and now ESC/ P 2. Because of these additions, the functions of several older commands have been duplicated or have become obsolete.

Deleted commands have been deleted from ESC/ P and are no longer featured on EPSON printers.

Nonrecommended commands are commands that are no longer necessary and will eventually be deleted, but remain temporarily in order to preserve compatibility with existing printer drivers. At some point, these commands will be deleted; do not use these commands in new printer programs.
**INT and MOD**

Some command parameters may exceed 256, and require two bytes of data. These variables are listed with the subscripts L for low and H for high (for example, n_L and n_H, or m_L and m_H).

To determine the value of these two bytes, this manual uses the INT and MOD conventions. INT indicates the integer (or whole number) part of a number, while MOD indicates the remainder of a division operation.

For example, to break the value 520 into two bytes, use the following two equations:

\[
\begin{align*}
    n_H &= \text{INT}\left(\frac{520}{256}\right) \\
    n_L &= \text{MOD}\left(\frac{520}{256}\right)
\end{align*}
\]

INT simply deletes the fraction part of the number, and the value of n_H is calculated as shown below.

\[
\begin{align*}
    n_H &= \text{INT}\left(\frac{2}{256}\right) \\
    n_H &= 2
\end{align*}
\]

MOD, on the other hand, results in the remainder of the division operation of the fraction part as shown below.

\[
\begin{align*}
    n_L &= \text{MOD}\left(\frac{8}{256}\right) \\
    n_L &= 8
\end{align*}
\]
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## Command List by Function

The following section lists commands by their function. The shaded areas are discontinued or nonrecommended commands. For alternative command recommendations, see the command description.

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| ESC ( c  | Set page format                  | ⬤ | — | — | C-11 |
| ESC C    | Set page length in lines         | ⬤ | ⬤ | ⬤ | C-13 |
| ESC C NUL| Set page length in inches        | ⬤ | ⬤ | ⬤ | C-15 |
| ESC N    | Set bottom margin                | ⬤ | ⬤ | ⬤ | C-17 |
| ESC O    | Cancel bottom margin             | ⬤ | ⬤ | ⬤ | C-19 |
| ESC Q    | Set right margin                 | ⬤ | ⬤ | ⬤ | C-21 |
| ESC I    | Set left margin                  | ⬤ | ⬤ | ⬤ | C-23 |
### Moving the print position
| CR       | Carriage return                  | ⬤ | ⬤ | ⬤ | C-25 |
| LF       | Line feed                        | ⬤ | ⬤ | ⬤ | C-27 |
| FF       | Form feed                        | ⬤ | ⬤ | ⬤ | C-29 |
| ESC $    | Set absolute horizontal print position | ⬤ | ⬤ | ⬤ | C-31 |
| ESC \    | Set relative horizontal print position | ⬤ | ⬤ | ⬤ | C-33 |
| ESC V    | Set absolute vertical print position | ⬤ | — | — | C-37 |
| ESC ( v  | Set relative vertical print position | ⬤ | — | — | C-39 |
| ESC J    | Advance print position vertically | ⬤ | ⬤ | ⬤ | C-41 |
| HT       | Tab horizontally                 | ⬤ | ⬤ | ⬤ | C-43 |
| VT       | Tab vertically                   | ⬤ | ⬤ | ⬤ | C-45 |
| ESC f    | Horizontal/vertical skip         | ⬤ | — | — | C-47 |
| BS       | Backspace                        | ⬤ | ⬤ | ⬤ | C-48 |
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<p>| ESC ( U  | Set unit                         | ⬤ | — | — | C-50 |
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| ESC 2    | Select 1/6-inch line spacing      | ⬤ | ⬤ | ⬤ | C-53 |
| ESC 3    | Set n/180-inch line spacing      | ⬤ | ⬤ | — | C-55 |
| ESC 3    | Set n/216-inch line spacing      | — | — | ⬤ | C-56 |
| ESC +    | Set n/360-inch line spacing      | ⬤ | ⬤ | — | C-57 |
| ESC A    | Set n/60-inch line spacing       | ⬤ | ⬤ | — | C-58 |
| ESC A    | Set n/72-inch line spacing       | — | — | ⬤ | C-59 |
| ESC 1    | Select 7/72-inch line spacing    | — | — | ⬤ | C-60 |
| ESC D    | Set horizontal tabs              | ⬤ | ⬤ | ⬤ | C-61 |
| ESC B    | Set vertical tabs                | ⬤ | ⬤ | ⬤ | C-63 |
| ESC b    | Set vertical tabs in VFU channels | — | ⬤ | ⬤ | C-65 |
| ESC /    | Select vertical tab channel      | — | ⬤ | ⬤ | C-67 |
| ESC e    | Set fixed tab increment          | — | — | ⬤ | C-69 |</p>
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<td>ESC P Select 10-cpi</td>
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<td>ESC M Select 12-cpi</td>
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<td>ESC 4 Select italic font</td>
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<td>ESC 5 Cancel italic font</td>
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<tr>
<td>ESC ! Master select</td>
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<tr>
<td>ESC H Cancel double-strike printing</td>
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<tr>
<td>ESC S Select superscript/subscript printing</td>
<td>⬤</td>
<td>⬤</td>
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<tr>
<td>ESC T Cancel superscript/subscript printing</td>
<td>⬤</td>
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<td>ESC q Select character style</td>
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<td>SI Select condensed printing</td>
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<tr>
<td>ESC SI Select condensed printing</td>
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<tr>
<td>ESC SO Select double-width printing (one line)</td>
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<tr>
<td>DC4 Cancel double-width printing (one line)</td>
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<tr>
<td>ESC W Turn double-width printing on/off</td>
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<td>ESC w Turn double-height printing on/off</td>
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<td>Command names</td>
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<td><strong>Control-code character printing</strong></td>
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<td>ESC (^)</td>
<td>Print data as characters</td>
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<td>ESC 6</td>
<td>Enable printing of upper control codes</td>
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<tr>
<td>ESC 7</td>
<td>Enable upper control codes</td>
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<td>ESC I</td>
<td>Enable printing of control codes</td>
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<td>ESC m</td>
<td>Select printing of upper control codes</td>
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<td><strong>Mechanical control</strong></td>
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<td>Control paper loading/ejecting</td>
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<td>ESC U</td>
<td>Turn unidirectional mode on/off</td>
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<td>ESC &lt;</td>
<td>Unidirectional mode (one line)</td>
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<td>Beeper</td>
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<td>ESC 8</td>
<td>Disable paper-out detector</td>
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<td>—</td>
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<td>ESC 9</td>
<td>Enable paper-out detector</td>
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<td>Select low-speed mode</td>
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<td>Select 60-dpi graphics</td>
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<td>ESC L</td>
<td>Select 120-dpi graphics</td>
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<td>ESC Y</td>
<td>Select 120-dpi, double-speed graphics</td>
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<td>ESC Z</td>
<td>Select 240-dpi graphics</td>
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<td>ESC ^</td>
<td>Select 60/120-dpi, 9-pin graphics</td>
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<td>Select printing color</td>
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<td>Select printer</td>
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<td>Deselect printer</td>
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<td>ESC #</td>
<td>Cancel MSB control</td>
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# Command List by ASCII Order

The following section lists commands by their ASCII order. The shaded areas are discontinued or nonrecommended commands. For alternative command recommendations, see the specific command description. For discontinued commands, see “Deleted commands” on page C-5.

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</tr>
<tr>
<td>ESC z</td>
<td>Select 240-dpi graphics</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>DEL</td>
<td>Select 240-dpi graphics</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

**Binary mode commands for ESC . 2**

- **<XFER>** Transfer raster graphics data • — — C-217
- **<MOVX>** Set relative horizontal position • — — C-218
- **<MOVY>** Set relative vertical position • — — C-219
- **<COLR>** Select printing color • — — C-220
- **<CR>** Carriage return to left-most print position • — — C-221
- **<EXIT>** Exit TIFF compressed mode • — — C-222
- **<MOVXBYTE>** Set <MOVX> unit to 8 dots • — — C-223
- **<MOVXDOT>** Set <MOVX> unit to 1 dot • — — C-224

---

C-8  Command List by ASCII Order
Individual Command Explanations

The following section describes the commands available in all ESC/P versions.

At the head of each command is the command title and one or more icons. The meaning of these icons is as follows:

- **ESC/P 2** The command explanation applies to 24/48-pin printers featuring ESC/P 2. “Function” explanations are based on ESC/P 2.
- **ESC/P** The command explanation applies to 24/48-pin printers featuring previous ESC/P levels.
- **9-Pin ESC/P** The command explanation applies to 9-pin printers.

If an ESC/P 2 command is also available in previous ESC/P levels, any differences in function are explained under the “Model-dependent variations” heading.

The explanations in these commands apply to the printers listed below:

**ESC/P 2**
- ActionPrinter 3250
- ActionPrinter 3260
- ActionPrinter 5000
- ActionPrinter 5000+
- DLQ-3000 (‘96 ~)
- LQ-300
- LQ-670
- LQ-1070+
- LQ-2170
- Stylus 800
- Stylus COLOR
- ActionPrinter 3260
- ActionPrinter 5500
- DLQ-3000
- LQ-100
- LQ-570
- LQ-870
- LQ-1170
- Stylus 300
- Stylus 800+
- SQ-870
- ActionPrinter 5000
- DLQ-3000
- LQ-150
- LQ-570+
- LQ-1070
- LQ-2070
- Stylus 400
- Stylus 1000
- SQ-1170

**ESC/P**
- ActionPrinter 3000
- ActionPrinter 4000
- ActionPrinter L-750
- ActionPrinter 4500
- ActionPrinter L-1000
- DLQ-2000
- LQ-200
- LQ-400
- LQ-510
- LQ-550
- LQ-850
- LQ-850+
- LQ-860
- LQ-860+
- LQ-1050
- LQ-1050+
- LQ-1060
- LQ-1060+
- SQ-2550
- TLQ-4800
- ActionPrinter Apex 80
- ActionPrinter T-750
- ActionPrinter T-1000
- ActionPrinter T-2250
- ActionPrinter 2000
- ActionPrinter 2250
- ActionPrinter 2500
- DFX-5000
- DFX-5000+
- DFX-8000
- FX-850
- FX-870
- FX-1050
- FX-1170
- FX-2170
- LX-100
- LX-300
- LX-400
- LX-800
- LX-810
- LX-850
- LX-1050
- LX-1050+
**Format**

**ASCII**  \[ \text{ESC} \ ( \ C \ n_L \ n_H \ m_L \ m_H \]  
**Hex**  \[ 1B \ 28 \ 43 \ n_L \ n_H \ m_L \ m_H \]  
**Decimal**  \[ 27 \ 40 \ 67 \ n_L \ n_H \ m_L \ m_H \]  

**Parameter range**

\[ n_L = 2, \ n_H = 0 \]  
\[ 0 < ((m_H \times 256) + m_L) \times \text{(defined unit)} \leq 22 \]  

**Function**

Sets the page length in the specified number of units—previously defined with the ESC (U command—according to the following formula:

\[
(n_{\text{page length}}) = (m_H \times 256) + m_L \times \text{(defined unit)}
\]

\[
m_H = \text{INT} \left( \frac{(n_{\text{page length}})}{256} \right)
\]

\[
m_L = \text{MOD} \left( \frac{(n_{\text{page length}})}{256} \right)
\]

**Default**

Depends on default-setting mode or DIP-switch setting

**Notes**

- This command is available only on printers featuring ESC/ P 2.
- Set the page length before paper is loaded or when the print position is at the top-of-form position. Otherwise, the current print position becomes the top-of-form position (this results in undesirable contradictions between the actual and logical page settings).
- Setting the page length cancels the top and bottom-margin settings.
- Changing the defined unit does not affect the current page-length setting.

**Printers not featuring this command**

All non-ESC/ P 2 printers

**Model-dependent variations**

None

**Related topics**

ESC (U, ESC (c, ESC C, FF, LF, ESC N, Set the Print Area, Setting page length
ESC (c  Set page format

**Format**

- **ASCII**
  - ESC ( c  nl  nh  tl  th  bl  bh
- **Hex**
  - 1B  28  63  nl  nh  tl  th  bl  bh
- **Decimal**
  - 27  40  99  nl  nh  tl  th  bl  bh

**Parameter range**

- \( n_L = 4, n_H = 0 \)
- \( ((b_H \times 256) + b_l) < ((b_H \times 256) + b_h) \)  \text{ top margin < bottom margin}
- \( ((b_H \times 256) + b_L) \times \text{(defined unit)} \leq 22 \)  \text{ bottom margin < 22 inches}

**Function**

Sets the top and bottom margins in the defined units—set with the ESC ( U command—according to the following formulas:

\[
(t_{\text{op margin}}) = \left( (b_H \times 256) + b_l \right) \times \text{(defined unit)}
\]

\[
t_H = \left\lceil \frac{(t_{\text{op margin}}) \times \frac{1}{\text{(defined unit)}}}{256} \right\rceil
\]

\[
t_L = \text{MOD}\left(\frac{(t_{\text{op margin}}) \times \frac{1}{\text{(defined unit)}}}{256}\right)
\]

\[
(b_{\text{op margin}}) = \left( (b_H \times 256) + b_L \right) \times \text{(defined unit)}
\]

\[
b_H = \left\lceil \frac{(b_{\text{op margin}}) \times \frac{1}{\text{(defined unit)}}}{256} \right\rceil
\]

\[
b_L = \text{MOD}\left(\frac{(b_{\text{op margin}}) \times \frac{1}{\text{(defined unit)}}}{256}\right)
\]

**Default**

- Continuous paper: None
- Single-sheet paper:
  - (top margin) = top-of-form position
  - (bottom margin) = last printable line
Notes

• This command is available only on printers featuring ESC/P 2.
• Measure both top and bottom margins from the top edge of the page.
• The baseline for printing characters on the first line is 20/180 inch below the top-margin position.
• Send this command before paper is loaded, or when paper is at the top-of-form position. Otherwise, the current print position becomes the top-margin position (this results in undesirable contradictions between the actual and logical page settings).
• This command cancels any previous top and bottom-margin settings.
• Changing the defined unit does not affect the current page-length setting.

Printers not featuring this command

All non-ESC/P 2 printers

Model-dependent variations

None

Related topics

ESC (U, ESC ( C, ESC C, FF, LF, ESC (V, ESC (v, ESC N, Set the Printing Area, Setting top and bottom margins
**ESC C**  
Set page length in lines

**Format**

ASCII ESC C n  
Hex 1B 43 n  
Decimal 27 67 n

**Parameter range**

\[ 1 \leq n \leq 127 \]
\[ 0 < n \times (\text{current line spacing}) \leq 22 \text{ inches} \]

**Function**

Sets the page length to \( n \) lines in the current line spacing

**Default**

Depends on default-setting mode or DIP-switch setting

**Notes**

- Set the page length before paper is loaded or when the print position is at the top-of-form position. Otherwise, the current print position becomes the top-of-form position.
- Setting the page length cancels the top and bottom margin settings.
- Changing the line spacing does not affect the current page-length setting.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC ( C, ESC N, FF, LF, Set the Printing Area, Setting page length
**ESC C**  
Set page length in lines

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>C</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B</td>
<td>43</td>
<td></td>
<td>n</td>
</tr>
</tbody>
</table>

**Parameter range**

\[1 \leq n \leq 127\]

\[0 < n \times \text{(current line spacing)} \leq 22 \text{ inches}\]

**Function**

Sets the page length to \(n\) lines in the current line spacing

**Default**

Depends on default-setting mode or DIP-switch setting

**Notes**

- Set the page length before paper is loaded or when the print position is at the top-of-form position. Otherwise, the current print position becomes the top-of-form position.
- Setting the page length cancels the bottom margin setting.
- Changing the line spacing does not affect the current page-length setting.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC N, FF, LF, Set the Printing Area, Setting page length
ESC C NUL  Set page length in inches

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>C</th>
<th>NUL</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>43</td>
<td>00</td>
<td>n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>67</td>
<td>0</td>
<td>n</td>
</tr>
</tbody>
</table>

Parameter range

\[ 1 \leq n \leq 22 \]

Function

Sets the page length to \( n \) inches

Default

Depends on default-setting mode or DIP-switch setting

Notes

- This command sets the page length in 1-inch increments only.
- Set the page length before paper is loaded or when the print position is at the top-of-form position. Otherwise, the current print position becomes the top-of-form position.
- Setting the page length cancels the top and bottom-margin settings.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC ( C, ESC N, FF, LF, Set the Printing Area, Setting page length

**ESC C NUL**  
Set page length in inches

**Format**

- **ASCII**: ESC C NUL n
- **Hex**: 1B 43 00 n
- **Decimal**: 27 67 0 n

**Parameter range**

\[ 1 \leq n \leq 22 \]

**Function**

Sets the page length to \( n \) inches

**Default**

Depends on default-setting mode or DIP-switch setting

**Notes**

- This command sets the page length in 1-inch increments only.
- Set the page length before paper is loaded or when the print position is at the top-of-form position. Otherwise, the current print position becomes the top-of-form position.
- Setting the page length cancels the bottom-margin setting.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC N, FF, LF, Set the Printing Area, Setting page length
**ESC N  Set bottom margin**

**Format**

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>ESC</th>
<th>N</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascii</td>
<td>ESC</td>
<td>N</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Hex</td>
<td>1B</td>
<td>4E</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>78</td>
<td>n</td>
<td></td>
</tr>
</tbody>
</table>

**Parameter range**

- $0 < n \leq 127$
- $0 < (\text{current line spacing}) \times n < (\text{page length})$

**Function**

Sets the bottom margin on continuous paper to $n$ lines (in the current line spacing) from the top-of-form position on the next page.

**Default**

Either no margin or 1-inch margin, depending on the DIP-switch setting.

**Notes**

- The bottom margin set with the ESC N command is ignored when printing on single sheets.
- With ESC/P 2 printers, use the ESC ( c command instead; this allows you to set both top and bottom margins on continuous and single-sheet paper.
- Sending this command cancels the top-margin setting.
- This was formerly called the “Set skip-over-perforation” command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC ( C, ESC ( c, ESC C, FF, LF, Set the Printing Area, Setting bottom margin
**ESC N  Set bottom margin**

**Format**

- ASCII: ESC N n
- Hex: 1B 4E n
- Decimal: 27 78 n

**Parameter range**

- $0 < n \leq 127$
- $0 < \text{(current line spacing)} \times n < \text{(page length)}$

**Function**

Sets the bottom margin on continuous paper to n lines (in the current line spacing) from the top-of-form position on the next page.

**Default**

Either no margin or 1-inch margin, depending on the default-setting mode or DIP-switch setting.

**Notes**

- The bottom margin is ignored when printing on single sheets.
- This was formerly called the "Set skip-over-perforation" command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC C, FF, LF, Set the Printing Area, Setting bottom margin
**ESC O  Cancel bottom margin**

**Format**

- ASCII: ESC 0
- Hex: 1B 4F
- Decimal: 27 79

**Function**

Cancels the top and bottom margin settings

**Notes**

This was formerly called the “Cancel skip-over-perforation” command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC N, ESC ( C, ESC ( c, ESC C, FF, LF, Set the Printing Area, Setting bottom margin
**Format**

- ASCII: ESC O
- Hex: 1B 4F
- Decimal: 27 79

**Function**

Cancels the top and bottom margin settings

**Notes**

This was formerly called the “Cancel skip-over-perforation” command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC N, ESC C, FF, LF, Set the Printing Area, Setting bottom margin
**ESC Q  Set right margin**

**Format**

ASCII  ESC  Q  n  
Hex    1B  51  n  
Decimal 27  81  n

**Parameter range**

\[1 \leq n \leq 255\]

(left margin) \( \leq \) (current pitch) \( \times \) n \( \leq \) (printable area width)

**Function**

Sets the right margin to n columns in the current character pitch, as measured from the left-most printable column.

**Default**

The right-most column

**Notes**

- Set the right margin at the beginning of a line; the printer ignores any data preceding this command on the same line in the buffer.
- The following commands affect character pitch: ESC P, ESC M, ESC g, ESC W, ESC p, ESC SP, SI, SO, ESC !, ESC X, and ESC c.
- The printer calculates the right margin based on 10 cpi if proportional spacing is selected with the ESC p command.
- Always set the pitch before setting the margins. Do not assume what the pitch setting will be.
- Always set the margins at the beginning of a print job.
- Always set the right margin to be at least one column (at 10 cpi) larger than the left.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC I, ESC $, ESC \, HT, ESC D, Set the Printing Area, Setting left and right margins
ESC Q  Set right margin

Format

    ASCII  ESC  Q  n
    Hex    1B  51  n
    Decimal  27  81  n

Parameter range

    1 ≤ n ≤ 255
    (left margin) < (current pitch) × n ≤ (printable area width)

Function

    Sets the right margin to n columns in the current character pitch, as measured from the left-most printable column

Default

    The right-most column

Notes

    • Set the right margin at the beginning of a line; the printer ignores any data preceding this command on the same line in the buffer.
    • The following commands affect character pitch: ESC P, ESC M, ESC g, ESC W, ESC p, ESC SP, SO, ESC !, and SI.
    • The printer calculates the right margin based on 10 cpi if proportional spacing is selected with the ESC p command.
    • Always set the pitch before setting the margins. Do not assume what the pitch setting will be.
    • Always set the margins at the beginning of a print job.
    • Always set the right margin to be at least two columns (at 10 cpi) greater than the left.

Printers not featuring this command

    None

Model-dependent variations

    None

Related topics

    ESC I, ESC $, ESC \, HT, ESC D, Set the Printing Area, Setting left and right margins
ESC l Set left margin

Format

ASCII ESC l n
Hex 1B 6C n
Decimal 27 108 n

Parameter range

1 ≤ n ≤ 255
0 ≤ (left margin) < (right margin)
80-column printers: 0 ≤ (left margin) ≤ 4.50 inches
110-column printers: 0 ≤ (left margin) ≤ 7.00 inches
136-column printers: 0 ≤ (left margin) ≤ 8.00 inches

Function

Sets the left margin to n columns in the current character pitch, as measured from the left-most printable column.

Default

The left-most column (column 1)

Notes

- Set the left margin at the beginning of a line; the printer ignores any data preceding this command on the same line in the buffer.
- The following commands affect character pitch: ESC X, ESC c, ESC P, ESC M, ESC g, ESC W, ESC p, ESC SP, SO, ESC ! and SI.
- Always set the pitch before setting the margins. Do not assume what the pitch setting will be.
- Always set the margins at the beginning of a print job.
- Always set the left margin to be at least one column (at 10 cpi) less than the right.
- The printer calculates the left margin based on 10 cpi if proportional spacing is selected with the ESC p command.
- Moving the left-margin position moves the tab settings by the same distance.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC Q, ESC $, ESC \, ESC D, HT, Set the Printing Area, Setting left and right margins
ESC I  Set left margin

Format

ASCII  ESC I  n
Hex    1B  6C  n
Decimal 27  108  n

Parameter range

1 ≤ n ≤ 255
0 ≤ (left margin) < (right margin)

Function

Sets the left margin to n columns in the current character pitch, as measured from the left-most printable column

Default

The left-most column (column 1)

Notes

• Set the left margin at the beginning of a line; the printer ignores any data preceding this command on the same line in the buffer.
• The following commands affect character pitch: ESC P, ESC M, ESC g, ESC W, ESC p, ESC SP, and SI.
• The printer calculates the left margin based on 10 cpi if proportional spacing is selected with the ESC p command.
• Always set the pitch before setting the margins. Do not assume what the pitch setting will be.
• Always set the margins at the beginning of a print job.
• Always set the left margin to be at least two columns (at 10 cpi) less than the right.
• Moving the left margin position moves the tab settings by the same distance.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC Q, ESC $, ESC \, ESC D, HT, Set the Printing Area, Setting left and right margins
**CR**  Carriage return

**Format**

- **ASCII**: CR
- **Hex**: 0D
- **Decimal**: 13

**Function**

Moves the print position to the left-margin position

**Notes**

- Always send a CR command at the end of each line of text or graphics data.
- When automatic line-feed is selected (through DIP-switch or panel setting), the CR command is accompanied by a LF command.

**Printers not featuring this command**

None

**Model-dependent variations**

On non-ESC/P 2 printers:
The printer prints all data in the line buffer after receiving a CR command.

**Related topics**

- LF, ESC I, ESC SO, SO, ESC <, ESC ., <CR>, Recommended command order, Moving the horizontal position, Send print data
CR Carriage return

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0D</td>
</tr>
<tr>
<td>Decimal</td>
<td>13</td>
</tr>
</tbody>
</table>

Function

- Moves the print position to the left margin position
- Prints all data in the line buffer

Notes

- Always send a CR command at the end of each line of text or graphics data.
- When automatic line-feed is selected (through DIP-switch or panel setting), the CR command is accompanied by a LF command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

LF, ESC I, ESC SO, SO, ESC <, ESC ., Recommended command order, Moving the horizontal position, Send print data
**LF** Line feed

**Format**

- **ASCII** LF
- **Hex** 0A
- **Decimal** 10

**Function**

- Advances the vertical print position one line (in the currently set line spacing)
- Moves the horizontal print position to the left-margin position

**Notes**

- You should always send a CR command before the LF command.
- The LF command cancels one-line double-width printing selected with the SO or ESC SO commands.
- If the LF command moves the print position below the bottom margin on continuous paper, the printer advances to the top-of-form position on the next page.
- If the LF command moves the print position below the bottom-margin position, or beyond the end of the printable area on single-sheet paper, the printer ejects the paper.

**Printers not featuring this command**

None

**Model-dependent variations**

On non-ESC/P 2 printers:

- Prints all data in the line buffer
- Advances paper to the top-of-form position on the next page if the LF command moves the print position below the bottom-margin position set with the ESC N command
- Ejects single-sheet paper if the LF command moves the print position beyond the end of the printable area

**Related topics**

FF, ESC l, ESC SO, SO, ESC <, ESC ., ESC C, ESC N, Recommended command order, Select the print position, Graphics mode, Moving the vertical position, Send print data
**LF**  
**Line feed**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>LF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0A</td>
</tr>
<tr>
<td>Decimal</td>
<td>10</td>
</tr>
</tbody>
</table>

**Function**

- Advances the vertical print position one line (in the currently set line spacing)
- Moves the horizontal print position to the left-margin position
- Prints all data in the buffer

**Notes**

- You should always send a CR command before the LF command.
- The LF command cancels one-line double-width printing selected with the SO or ESC SO commands.
- If the LF command moves the print position below the bottom margin on continuous paper, the printer advances to the top-of-form position on the next page.
- If the LF command moves the print position beyond the end of the printable area on single-sheet paper, the printer ejects the paper.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

FF, ESC I, ESC SO, SO, ESC <, ESC ., ESC C, ESC N, Recommended command order, Select the print position, Graphics mode, Moving the vertical position, Send print data
**FF** Form feed

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0C</td>
</tr>
<tr>
<td>Decimal</td>
<td>12</td>
</tr>
</tbody>
</table>

**Function**

- Advances the vertical print position on continuous paper to the top-margin position of the next page
- Ejects single-sheet paper
- Moves the horizontal print position to the left-margin position
- Prints all data in the buffer

**Notes**

- Always send a FF command at the end of each page and each print job.
- It is recommended to always send a CR command before the FF command.
- The FF command cancels one-line double-width printing selected with the SO or ESC SO commands.

**Printers not featuring this command**

None

**Model-dependent variations**

On non-ESC/P 2 printers:

Advances continuous paper to the current top-of-form position on the next page

**Related topics**

LF, ESC I, ESC SO, SO, ESC <, ESC., ESC C, ESC N, Recommended Command Order, Graphics mode, Moving the vertical position, Send Print Data
**FF**  
**Form feed**

### Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0C</td>
</tr>
<tr>
<td>Decimal</td>
<td>12</td>
</tr>
</tbody>
</table>

### Function

- Advances the vertical print position on continuous paper to the top-of-form position of the next page
- Ejects single-sheet paper
- Moves the horizontal print position to the left-margin position
- Prints all data in the buffer

### Notes

- Always send a FF command at the end of each page and each print job.
- It is recommended to always send a CR command before the FF command.
- The FF command cancels one-line double-width printing selected with the SO or ESC SO commands.

### Printers not featuring this command

None

### Model-dependent variations

None

### Related topics

LF, ESC I, SO, ESC <, ESC C, ESC N, Recommended Command Order, Graphics mode, Moving the vertical position, Send Print Data
Set absolute horizontal print position

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>$</th>
<th>n_L</th>
<th>n_H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>24</td>
<td>n_L</td>
<td>n_H</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>36</td>
<td>n_L</td>
<td>n_H</td>
</tr>
</tbody>
</table>

**Parameter range**

\[ 0 \leq n_H \leq 127 \]
\[ 0 \leq n_L \leq 255 \]

**Function**

Moves the horizontal print position to the position specified by the following formula:

\[
(\text{horizontal position}) = ((n_H \times 256) + n_L) \times (\text{defined unit}) + (\text{left margin})
\]

\[
\begin{align*}
  n_H &= \text{INT}\left(\frac{(\text{horizontal position}) - (\text{left-margin position}) \times (\text{defined unit})}{256}\right) \\
  n_L &= \text{MOD}\left(\frac{(\text{horizontal position}) - (\text{left-margin position}) \times (\text{defined unit})}{256}\right)
\end{align*}
\]

**Notes**

- Set the defined unit with the ESC (U command.
- The default defined unit setting for this command is 1/60 inch.
- The new position is measured from the current left-margin position.
- The printer ignores this command if the specified position is to the right of the right margin.

**Printers not featuring this command**

None

**Model-dependent variations**

On non-ESC/P 2 printers:

The unit of movement is fixed at 1/60 inch.

**Related topics**

- ESC \, ESC I, ESC Q, HT, CR, LF, FF, ESC (U, Moving the horizontal position
ESC $  Set absolute horizontal print position

Format

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>Hex</th>
<th>Decimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCII ESC $ nH nL</td>
<td>1B 24</td>
<td>27 36</td>
<td></td>
</tr>
<tr>
<td>Hex 1B 24 nH nL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decimal 27 36 nH nL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Parameter range

- $0 \leq n_H \leq 127$
- $0 \leq n_L \leq 255$

Function

Moves the horizontal print position to the position specified by the following formula:

$$ \begin{align*}
  (\text{horizontal position}) &= ((n_H \times 256) + n_L) \times (1/60 \text{ inch}) + (\text{left margin}) \\
  n_H &= \text{INT} \left( \frac{(\text{horizontal position}) - (\text{left-margin position}) \times \frac{1}{(1/60 \text{ inch})}}{256} \right) \\
  n_L &= \text{MOD} \left( \frac{(\text{horizontal position}) - (\text{left-margin position}) \times \frac{1}{(1/60 \text{ inch})}}{256} \right)
\end{align*} $$

Notes

- The new position is measured from the current left-margin position.
- The printer ignores this command if the specified position is to the right of the right margin.

Printers not featuring this command


Model-dependent variations

None

Related topics

ESC \, ESC I, ESC Q, HT, CR, LF, FF, Moving the horizontal position
Set relative horizontal print position

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC \ nL nH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 5C nL nH</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 92 nL nH</td>
</tr>
</tbody>
</table>

Parameter range

0 ≤ nH ≤ 127
0 ≤ nL ≤ 255

Function

Moves the horizontal print position left or right from the current position, as specified by the following formula:

\[(\text{horizontal position}) = ((n_H \times 256) + n_L) \times (\text{defined unit}) + (\text{current position})\]

For positive (right) movement:

\[
n_H = \text{INT}\left(\frac{(\text{horizontal position}) - (\text{current position}) \times \frac{1}{(\text{defined unit})}}{256}\right)
\]

\[
n_L = \text{MOD}\left(\frac{(\text{horizontal position}) - (\text{current position}) \times \frac{1}{(\text{defined unit})}}{256}\right)
\]

For negative (left) movement:

\[
n_H = 32768 - \text{INT}\left(\frac{(\text{current position}) - (\text{horizontal position}) \times \frac{1}{(\text{defined unit})}}{256}\right)
\]

\[
n_L = 32768 - \text{MOD}\left(\frac{(\text{current position}) - (\text{horizontal position}) \times \frac{1}{(\text{defined unit})}}{256}\right)
\]

Notes

- Set the defined unit with the ESC ( U command.
- The default defined unit for this command is 1/120 inch in draft mode, and 1/180 inch in LQ mode.
- The printer ignores this command if it would move the print position outside the printing area.
Printers not featuring this command

None

Model-dependent variations

On non-ESC/ P 2 printers, the unit of movement is fixed at 1/ 120 inch in draft mode and 1/ 180 inch in LQ mode.

Related topics

ESC $, ESC I, ESC Q, ESC ( U, HT, CR, LF, FF, Moving the horizontal position
ESC \ Set relative horizontal print position

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC \ n_L n_H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 5C n_L n_H</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 92 n_L n_H</td>
</tr>
</tbody>
</table>

Parameter range

0 ≤ n_H ≤ 127
0 ≤ n_L ≤ 255

Function

Moves the horizontal print position left or right from the current position, as specified by the following formula:

\[(\text{horizontal position}) = ((n_H \times 256) + n_L) \times \frac{1}{(1/120 \text{ inch})} + \text{(current margin)}\]

For positive (right) movement:

\[
n_H = \text{INT} \left( \frac{(\text{horizontal position}) - (\text{current position}) \times \frac{1}{(1/120 \text{ inch})}}{256} \right)
\]

\[
n_L = \text{MOD} \left( \frac{(\text{horizontal position}) - (\text{current position}) \times \frac{1}{(1/120 \text{ inch})}}{256} \right)
\]

For negative (left) movement:

\[
n_H = 32768 - \text{INT} \left( \frac{(\text{current position}) - (\text{horizontal position}) \times \frac{1}{(1/120 \text{ inch})}}{256} \right)
\]

\[
n_L = 32768 - \text{MOD} \left( \frac{(\text{current position}) - (\text{horizontal position}) \times \frac{1}{(1/120 \text{ inch})}}{256} \right)
\]

Notes

The printer ignores this command if it would move the print position outside the printable area.
Printers not featuring this command


Model-dependent variations

DFX-5000, DFX-8000: This command can be used only in LQ mode.

Related topics

ESC \, ESC I, ESC Q, HT, CR, LF, FF, Moving the horizontal position
Esc ( V Set absolute vertical print position

Format

ASCII  ESC ( V nL nH mL mH
Hex    1B 28 56 nL nH mL mH
Decimal 27 40 86 nL nH mL mH

Parameter range

nL = 2, nH = 0
0 ≤ mL ≤ 255, 0 ≤ mH ≤ 127

Function

Moves the vertical print position to the position specified by the following formula:

\[(\text{vertical position}) = ((mH \times 256) + mL) \times (\text{defined unit}) + (\text{top-margin position})\]

\[mH = \text{INT}\left(\frac{((\text{vertical position}) - (\text{top-margin position}) \times \frac{1}{\text{(defined unit)}})}{256}\right)\]

\[mL = \text{MOD}\left(\frac{((\text{vertical position}) - (\text{top-margin position}) \times \frac{1}{\text{(defined unit)}})}{256}\right)\]

Notes

- This command is available only on printers featuring ESC/ P 2.
- Set the defined unit using the ESC ( U command.
- The default defined unit for this command is 1/360 inch.
- The new position is measured in defined units from the current top-margin position.
- Moving the print position below the bottom-margin position produces the following results:
  - Continuous paper — Moves the vertical print position to the top-margin position on the next page
  - Single-sheet paper — Ejects the paper
- The printer ignores this command under the following conditions:
  - The command would move the print position more than 179/360 inch in the negative direction
  - The command would move the print position in the negative direction after a graphics command is sent on the current line, or above the point where graphics have previously been printed
Printers not featuring this command

   All non-ESC/ P 2 printers

Model-dependent variations

   None

Related topics

   CR, LF, FF, VT, ESC B, ESC ( U, Moving the vertical position
ESC ( v Set relative vertical print position

Format

ASCII  ESC ( v  nL  nH  mL  mH
Hex    1B  28  76  nL  nH  mL  mH
Decimal 27  40  118  nL  nH  mL  mH

Parameter range

nL = 2, nH = 0
0 ≤ mL ≤ 255, 0 ≤ mH ≤ 127

Function

Moves the vertical print position up or down from the current position, as specified by the following formula:

(horizontal position) = ((mH × 256) + mL) × (defined unit) + (current position)

For positive (down) movement:

mH = INT \left( \frac{(vertical position) - (current position) \times 1}{(defined unit) \times 256} \right)
mL = MOD \left( \frac{(vertical position) - (current position) \times 1}{(defined unit) \times 256} \right)

For negative (up) movement:

mH = 32768 - INT \left( \frac{(current position) - (vertical position) \times 1}{(defined unit) \times 256} \right)
mL = 32768 - MOD \left( \frac{(current position) - (vertical position) \times 1}{(defined unit) \times 256} \right)

Notes

- This command is available only on printers featuring ESC/ P 2.
- Set the defined unit using the ESC ( U command.
- The default defined unit for this command is 1/360 inch.
- The new position is measured in defined units from the current position.
Moving the print position below the bottom-margin position produces the following results:

- **Continuous paper**: Moves the vertical print position to the top-margin position on the next page.
- **Single-sheet paper**: Ejects the paper.

The printer ignores this command under the following conditions:

- The command would move the print position more than 179/360 inch in the negative direction.
- The command would move the print position in the negative direction after a graphics command is sent on the current line, or above the point where graphics have previously been printed.
- The command would move the print position above the top-margin position.

**Printers not featuring this command**

All non-ESC/P 2 printers

**Model-dependent variations**

None

**Related topics**

CR, LF, FF, VT, ESC (U, ESC B, Moving the vertical position
ESC J  Advance print position vertically

Format

ASCII ESC J n
Hex 1B 4A n
Decimal 27 74 n

Parameter range

0 ≤ n ≤ 255

Function

Advances the vertical print position n/180 inch

Notes

• ESC J does not affect the horizontal print position.
• Moving the print position below the bottom-margin position produces the following results:
  Continuous paper  Moves the vertical print position to the top-margin position on the
  next page
  Single-sheet paper  Ejects the paper

Printers not featuring this command

None

Model-dependent variations

On non-ESC/ P 2 printers:

• Prints all data in the line buffer
• Advances paper to the top-of-form position on the next page if the ESC J command
  moves the print position below the bottom-margin position set with the ESC N
  command
• Ejects single-sheet paper if the ESC J command moves the print position beyond the
  end of the printable area (and paper was loaded by cut-sheet feeder)
• Ejects single-sheet paper and advances the next single sheet the remaining distance if
  the ESC J command moves the print position beyond the end of the printable area (and
  paper was loaded manually)

Related topics

CR, LF, FF, VT, ESC ( U, ESC B, ESC ( V, ESC ( v, Moving the vertical position
**ESC J**  
**Advance print position vertically**

### Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>J</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>4A</td>
<td>n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>74</td>
<td>n</td>
</tr>
</tbody>
</table>

### Parameter range

\[0 \leq n \leq 255\]

### Function

- Prints data in buffer
- Advances the vertical print position \(\frac{n}{216}\) inch

### Notes

- ESC J does not affect the horizontal print position.
- If the ESC J command moves the print position on continuous paper below the bottom-margin position set with the ESC N command, the printer advances to the top-of-form position on the next page.
- If ESC J moves the print position on single-sheet paper below the end of the printable area, the printer ejects the paper (if loaded by cut-sheet feeder) or ejects paper and then feeds next sheet remaining distance (if loaded manually).

### Printers not featuring this command

None

### Model-dependent variations

None

### Related topics

CR, LF, FF, VT, ESC B, Moving the vertical position
HT  Tab horizontally

Format

  ASCII   HT
  Hex     09
  Decimal 9

Function

  Moves the horizontal print position to the next tab to the right of the current print position

Notes

  • The printer ignores this command if no tab is set to the right of the current position or if the next tab is to the right of the right margin.
  • Character scoring (underline, overscore, and strikethrough) is not printed between the current print position and the next tab when this command is sent.

Printers not featuring this command

  None

Model-dependent variations

  None

Related topics

  ESC D, ESC $, ESC \, ESC I, ESC Q, CR, Moving the horizontal position
HT Tab horizontally

Format

ASCII     HT
Hex        09
Decimal    9

Function

Moves the horizontal print position to the next tab to the right of the current print position

Notes

- The printer ignores this command if no tab is set to the right of the current position or if the next tab is to the right of the right margin.
- Underlines are not printed between the current print position and the next tab when this command is sent.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC D, ESC $, ESC \, CR, ESC I, ESC Q, Moving the horizontal position
VT  Tab vertically

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>VT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0B</td>
</tr>
<tr>
<td>Decimal</td>
<td>11</td>
</tr>
</tbody>
</table>

Function

- Moves the vertical print position to the next vertical tab below the current print position
- Moves the horizontal print position to the left-margin position

Notes

- The printer advances to the top-margin position of the following page if the next tab is below the bottom-margin position or if no tab is set below the current position.
- The VT command functions the same as a CR command (moves the horizontal print position to the left-margin position) if all tabs have been canceled with the ESC B NUL command.
- The VT command functions the same as an LF command (advances one line in the current line spacing and moves the horizontal print position to the left-margin position) if no tabs have been set since the printer was turned on or was reset with the ESC @ command.
- The VT command functions the same as an FF command (advances to the top-margin position on the next page) if some tabs have been set, but no tab is set between the current print position and the bottom-margin position.
- This command cancels double-width printing set with the SO or ESC SO command.

Printers not featuring this command

None

Model-dependent variations

On non-ESC/ P 2 printers:

- The printer advances to the top-of-form position on the next page if the next tab is beyond the currently set page length.
- The printer ignores a VT command that would move the print position inside the bottom margin.

Related topics

ESC ( V, ESC ( v, ESC B, CR, LF, FF, Moving the vertical position
VT  Tab vertically

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>VT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0B</td>
</tr>
<tr>
<td>Decimal</td>
<td>11</td>
</tr>
</tbody>
</table>

Function

- Moves the vertical print position to the next vertical tab below the current print position
- Moves the horizontal print position to the left-margin position

Notes

- The printer advances to the top-of-form position on the following page if the next tab is beyond the currently set page length, or beyond the bottom-margin position.
- The VT command functions the same as a CR command (moves the horizontal print position to the left-margin position) if all tabs have been canceled with the ESC B NUL command.
- The VT command functions the same as an LF command (advances one line in the current line spacing and moves the horizontal print position to the left-margin position) if no tabs have been set since the printer was turned on or was reset with the ESC @ command.
- This command cancels double-width printing set with the SO or ESC SO command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC B, CR, LF, FF, Moving the vertical print position
**ESC f**  
**Horizontal/vertical skip**

**Format**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCII</td>
<td>ESC</td>
<td>f</td>
<td>m</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Hex</td>
<td>1B</td>
<td>66</td>
<td>m</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>102</td>
<td>m</td>
<td>n</td>
<td></td>
</tr>
</tbody>
</table>

**Parameter range**

\[
0 \leq n \leq 127 \\
m = 0, 1
\]

**Function**

Moves the print position depending on the value of m, as follows:

- \( m = 0 \)  
  Prints \( n \) spaces in the current pitch.
- \( 1 \)  
  Performs \( n \) line feeds, in the current line spacing  
  Moves the horizontal print position to the left-margin position.

**Notes**

- This is a nonrecommended command.
- Underline is performed between the current and final print positions when this command is used to move the print position horizontally \((m = 0)\).
- Using this command to move the print position vertically \((m = 1)\) cancels double-width printing selected with the SO or ESC SO command.

**Printers not featuring this command**

ActionPrinter T-750, ActionPrinter 2500, DFX-5000+, DFX-5000, DFX-8000, FX-850, FX-1050

**Model-dependent variations**

None

**Related topics**

HT, VT, LF, ESC $, ESC \, Moving the vertical position
BS  Backspace

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>BS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>08</td>
</tr>
<tr>
<td>Decimal</td>
<td>8</td>
</tr>
</tbody>
</table>

Function

Moves the print position to the left a distance equal to one character in the current character pitch plus any additional intercharacter space.

Notes

- This is a nonrecommended command.
- The printer ignores this command if it would move the print position to the left of the left margin.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC $, ESC \, HT, DEL, Moving the horizontal position
BS  Backspace

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>BS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>08</td>
</tr>
<tr>
<td>Decimal</td>
<td>8</td>
</tr>
</tbody>
</table>

Function

Moves the print position to the left a distance equal to one character in the current pitch plus any additional intercharacter space.

Notes

- This is a nonrecommended command.
- The printer ignores this command if it would move the print position to the left of the left margin.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC $, ESC \, HT, CR, Moving the horizontal position
## ESC (U Set unit

### Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC ( U nL nH m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 28 55 nL nH m</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 40 85 nL nH m</td>
</tr>
</tbody>
</table>

### Parameter range

\[ nL = 1, nH = 0 \]
\[ m = 5, 10, 20, 30, 40, 50, 60 \]

### Function

Sets the unit to \( m/3600 \) inch. The printer uses this unit when moving the print position, setting the page length, and setting the top and bottom margins with the following commands: ESC (V, ESC (v, ESC \, ESC $, ESC (C, ESC (c, <MOVX>, and <MOVY>.

### Default

The default unit varies depending on the command and print quality, as follows:

<table>
<thead>
<tr>
<th>Command</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC (V</td>
<td>1/360 inch</td>
</tr>
<tr>
<td>ESC (v</td>
<td>1/360 inch</td>
</tr>
<tr>
<td>ESC (C</td>
<td>1/360 inch</td>
</tr>
<tr>
<td>ESC (c</td>
<td>1/360 inch</td>
</tr>
<tr>
<td>ESC \ (LQ mode)</td>
<td>1/180 inch</td>
</tr>
<tr>
<td>ESC \ (draft mode)</td>
<td>1/120 inch</td>
</tr>
<tr>
<td>ESC $</td>
<td>1/60 inch</td>
</tr>
<tr>
<td>&lt;MOVX&gt; (dot)</td>
<td>1/360 inch</td>
</tr>
<tr>
<td>&lt;MOVY&gt;</td>
<td>1/360 inch</td>
</tr>
</tbody>
</table>

### Notes

- This command is available only on printers featuring ESC/P 2.
- The parameter and related commands highlighted in bold are new to this command and only apply to the Stylus COLOR and later inkjet printer models.

### Printers not featuring this command

All non-ESC/P 2 printers

### Model-dependent variations

None

### Related topics

HT, VT, CR, LF, FF, Set the Printing Area, Select the print position, Graphics mode
ESC 0  Select 1/8-inch line spacing

Format

<table>
<thead>
<tr>
<th>Format</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCII</td>
<td>ESC</td>
<td>0</td>
</tr>
<tr>
<td>Hex</td>
<td>1B</td>
<td>30</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>48</td>
</tr>
</tbody>
</table>

Function

Sets the line spacing to 1/8 inch

Default

1/6-inch line spacing

Notes

- Changing the line spacing does not affect previous settings for vertical tabs or page length.
- This command uses the ASCII code for the character 0 (zero), not a capital O or the number 0.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 2, ESC 3, ESC +, ESC C, ESC N, ESC B, LF, Setting page length, Moving the vertical position
**ESC 0**  Select 1/8-inch line spacing

**Format**

```plaintext
ASCII  ESC  0  
Hex    1B  30  
Decimal 27  48
```

**Function**

Sets the line spacing to 1/8 inch

**Default**

1/6-inch line spacing

**Notes**

- Changing the line spacing does not affect previous settings for vertical tabs or page length.
- This command uses the ASCII code for the character 0 (zero), not the number 0.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC 2, ESC 3, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
**ESC 2** Select 1/6-inch line spacing

**Format**

- **ASCII**: ESC 2
- **Hex**: 1B 32
- **Decimal**: 27 50

**Function**

Sets the line spacing to 1/6 inch

**Default**

1/6-inch line spacing

**Notes**

- This command uses the ASCII code for the character 2, not the number 2.
- Changing the line spacing does not affect previous settings for vertical tabs or page length.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC 0, ESC 3, ESC +, ESC C, ESC N, ESC B, LF, Setting page length, Moving the vertical position
ESC 2 Select 1/6-inch line spacing

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 32</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 50</td>
</tr>
</tbody>
</table>

Function

Sets the line spacing to 1/6 inch

Default

1/6-inch line spacing

Notes

- This command uses the ASCII code for the character 2, not the number 2.
- Changing the line spacing does not affect previous settings for vertical tabs or page length.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 0, ESC 3, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
ESC 3 **Set n/180-inch line spacing**

**Format**

- **ASCII**: ESC 3 n
- **Hex**: 1B 33 n
- **Decimal**: 27 51 n

**Parameter range**

\[ 0 \leq n \leq 255 \]

**Function**

Sets the line spacing to \( n/180 \) inch

**Default**

1/6-inch line spacing

**Notes**

- This command uses the ASCII code for the character 3, not the number 3.
- Changing the line spacing does not affect previous settings for vertical tabs or page length.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC 0, ESC 2, ESC +, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
**ESC 3  Set n/216-inch line spacing**

**Format**

- **ASCII**: ESC 3 n
- **Hex**: 1B 33 n
- **Decimal**: 27 51 n

**Parameter range**

\[ 0 \leq n \leq 255 \]

**Function**

Sets the line spacing to \( n/216 \) inch

**Default**

1/6-inch line spacing

**Notes**

- This command uses the ASCII code for the character 3, not the number 3.
- Changing the line spacing does not affect previous settings for vertical tabs or page length.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC 0, ESC 2, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
**Format**

- **ASCII**: ESC + n
- **Hex**: 1B 2B n
- **Decimal**: 27 43 n

**Parameter range**

\[ 0 \leq n \leq 255 \]

**Function**

Sets the line spacing to \( n/360 \) inch

**Default**

1/6-inch line spacing

**Notes**

- Changing the line spacing does not affect previous settings for vertical tabs or page length.
- This command is available only on 24/48-pin printers.
- This is the recommended command for setting line spacing.

**Printers not featuring this command**

- ActionPrinter L-1000, ActionPrinter 3000, LQ-200, LQ-400, LQ-500

**Model-dependent variations**

None

**Related topics**

- ESC 0, ESC 2, ESC 3, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
ESC A Set n/60-inch line spacing

Format

ASCII ESC A n  
Hex 1B 41 n  
Decimal 27 65 n

Parameter range

0 ≤ n ≤ 85

Function

Sets the line spacing to n/60 inch

Default

1/6-inch line spacing

Notes

• This is a nonrecommended command; use the ESC + or ESC 3 command instead.
• Changing the line spacing does not affect previous settings for vertical tabs or page length.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC +, ESC 0, ESC 2, ESC 3, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
ESC A  Set n/72-inch line spacing

Format

ASCII  ESC  A  n
Hex    1B  41  n
Decimal 27  65  n

Parameter range

0 ≤ n ≤ 85

Function

Sets the line spacing to n/ 72 inch

Default

1/ 6-inch line spacing

Notes

• This is a nonrecommended command; use the ESC 3 command instead.
• Changing the line spacing does not affect previous settings for vertical tabs or page length.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 0, ESC 2, ESC 3, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
ESC 1 Select 7/72-inch line spacing

Format

ASCII ESC 1
Hex 1B 31
Decimal 27 49

Function

Sets the line spacing to 7/72 inch

Default

1/6-inch line spacing

Notes

• This is a nonrecommended command; use the ESC 3 command instead.
• This command is available only on 9-pin printers.
• This command uses the ASCII code for the character 1, not the number 1.
• Changing the line spacing does not affect previous settings for vertical tabs or page length.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 0, ESC 2, ESC 3, ESC N, ESC C, ESC B, LF, Setting page length, Moving the vertical position
ESC D  Set horizontal tabs

Format

ASCII  ESC  D  n₁  n₂  ...  nk  NUL
Hex    1B  44  n₁  n₂  ...  nk  00
Decimal 27  68  n₁  n₂  ...  nk  0

Parameter range

0 ≤ k ≤ 32
1 ≤ n ≤ 255
n_k > n(k-1)

Function

Sets horizontal tab positions (in the current character pitch) at the columns specified by n₁ to nk, as measured from the left-margin position.

Default

Every eight characters

Notes

- The values for n must be in ascending order; a value of n less than the previous n ends tab setting (like the NUL code).
- Changing the character pitch does not affect current tab settings.
- Send an ESC D NUL command to cancel all tab settings.
- The tab settings move to match any movement in the left margin.
- A maximum of 32 horizontal tabs can be set.
- The printer does not move the print position to any tabs beyond the right-margin position. However, all tab settings are stored in the printer’s memory; if you move the right margin, you can access previously ignored tabs.
- The printer calculates tab positions based on 10 cpi if proportional spacing is selected with the ESC p command.
- Sending the ESC D command clears any previous tab settings.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC $, ESC \, ESC P, ESC M, ESC p, ESC I, ESC Q, Setting the left and right margins, Moving the horizontal position
ESC D  Set horizontal tabs

Format

ASCII ESC D n1 n2 ... nk NUL
Hex 1B 44 n1 n2 ... nk 00
Decimal 27 68 n1 n2 ... nk 0

Parameter range

0 ≤ k ≤ 32
1 ≤ n ≤ 255
nk > n(k-1)

Function

Sets horizontal tab positions (in the current character pitch) at the columns specified by n1 to nk, as measured from the left-margin position.

Default

Every eight characters

Notes

- The values for n must be in ascending order; a value of n less than the previous n ends tab setting (like the NUL code).
- Changing the character pitch does not affect current tab settings.
- Send an ESC D NUL command to cancel all tab settings.
- The tab settings move to match any movement in the left margin.
- A maximum of 32 horizontal tabs can be set.
- The printer does not move the print position to any tabs beyond the right-margin position. However, all tab settings are stored in the printer’s memory; if you move the right margin, you can access previously ignored tabs.
- The printer calculates tab positions based on 10 cpi if proportional spacing is selected with the ESC p command.
- Sending the ESC D command clears any previous tab settings.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC $, ESC \, ESC P, ESC M, ESC p, ESC I, ESC Q, Setting the left and right margins, Moving the horizontal position
**Format**

ASCII: ESC B n1 n2 ... nk NUL

Hex: 1B 42 n1 n2 ... nk 00

Decimal: 27 66 n1 n2 ... nk 0

**Parameter range**

0 ≤ k ≤ 16
1 ≤ n ≤ 255
nk > n(n-1)

**Function**

Sets vertical tab positions (in the current line spacing) at the lines specified by n1 to nk, as measured from the top-margin position.

**Notes**

- The values for n must be in ascending order; a value of n less than the previous n ends tab setting (just like the NUL code).
- Changing the line spacing does not affect previous tab settings.
- The tab settings move to match any subsequent movement in the top-margin position.
- Send an ESC B NUL command to cancel all tab settings.
- A maximum of 16 vertical tabs can be set.
- The printer stores all tab settings, even if outside the printing area; if you increase the page length to include previously set tabs, you can move to those positions with the VT (tab vertically) command.
- Sending the ESC B command clears any previous tab settings.

**Printers not featuring this command**

None

**Model-dependent variations**

On non-ESC/P 2 printers:

- Vertical tabs are measured from the top-of-form position.
- Setting vertical tabs with ESC B is the same as setting the vertical tabs in VFU channel 0.

**Related topics**

ESC ( V, ESC ( v, ESC J, ESC ( C, ESC ( c, ESC ( c, ESC C, ESC N, ESC 0, ESC 2, ESC 3, ESC +, Setting page length, Setting top and bottom margins, Moving the vertical position
**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>B</th>
<th>n₁</th>
<th>n₂</th>
<th>. . .</th>
<th>nᵢ</th>
<th>NUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>42</td>
<td>n₁</td>
<td>n₂</td>
<td>. . .</td>
<td>nᵢ</td>
<td>00</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>66</td>
<td>n₁</td>
<td>n₂</td>
<td>. . .</td>
<td>nᵢ</td>
<td>0</td>
</tr>
</tbody>
</table>

**Parameter range**

0 ≤ k ≤ 16
1 ≤ n ≤ 255
nᵢ > nᵢ₋₁

**Function**

Sets vertical tab positions (in the current line spacing) at the lines specified by n₁ to nᵢ, as measured from the top-of-form position.

**Notes**

- The values for n must be in ascending order; a value of n less than the previous n ends tab setting (like the NUL code).
- Changing the line spacing does not affect previous tab settings.
- Send an ESC B NUL command to cancel all tab settings.
- A maximum of 16 vertical tabs can be set.
- The printer stores all tab settings, even if outside the printing area; if you increase the page length to include previously set tabs, you can move to those positions with the VT (tab vertically) command.
- Sending the ESC B command clears any previous tab settings.
- Setting vertical tabs with ESC B is the same as setting the vertical tabs in VFU channel 0.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC J, ESC C, ESC N, ESC 0, ESC 2, ESC 3, Setting page length, Setting bottom margin, Moving the vertical position
**ESC b**  Set vertical tabs in VFU channels

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC b m n1 . . . nk NUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 62 m n1 . . . nk 00</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 98 m n1 . . . nk 0</td>
</tr>
</tbody>
</table>

**Parameter range**

- $0 \leq m \leq 7$
- $1 \leq n \leq 255$
- $n_k > n_{k-1}$
- $1 \leq k \leq 16$

**Function**

Sets vertical tab positions at the lines specified by $n_1$ to $n_k$ (in the current line spacing) in tab set $m$, as measured from the top-of-form position.

**Notes**

- This is a nonrecommended command.
- This command is deleted in ESC/P 2.
- Up to eight sets of tabs can be set.
- The value for $m$ specifies the number of the tab set being changed; these sets of tabs are called vertical formatting unit (VFU) channels.
- The values for $n$ must be in ascending order; a value of $n$ less than the previous $n$ ends tab setting (just like the NUL code).
- Send the ESC / command to select a VFU channel other than channel 0; the VT (tab vertically) command then uses the settings for the selected channel.
- Changing the line spacing does not affect previous tab settings.
- Sending the ESC b command clears any previous tab settings in that tab set.
- Send an ESC b m NUL command to cancel all tab settings in tab set $m$.
- A maximum of 16 vertical tabs can be set in each VFU channel.
- The printer stores all tab settings, even if outside the printing area; if you increase the page length to include previously set tabs, you can move to those positions with the VT (tab vertically) command.

**Printers not featuring this command**

- All ESC/P 2 printers, ActionPrinter 3000, LQ-200

**Model-dependent variations**

- None

**Related topics**

- ESC \, VT, ESC 0, ESC 2, ESC 3, ESC +, Setting page length, Setting bottom margin, Moving the vertical position
**ESC b**  
Set vertical tabs in VFU channels

### Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC b m n₁ . . . nₖ NUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 62 m n₁ . . . nₖ 00</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 98 m n₁ . . . nₖ 0</td>
</tr>
</tbody>
</table>

### Parameter range

- $0 \leq m \leq 7$
- $1 \leq n \leq 255$
- $nₖ > nₖₙ₋₁$
- $1 \leq k \leq 16$

### Function

Sets vertical tab positions at the lines specified by $n₁$ to $nₖ$ (in the current line spacing) in tab set $m$, as measured from the top-of-form position.

### Notes

- This is a nonrecommended command.
- Up to eight sets of tabs can be set.
- The value for $m$ specifies the number of the tab set being changed; these sets of tabs are called vertical formatting unit (VFU) channels.
- The values for $n$ must be in ascending order; a value of $n$ less than the previous $n$ ends tab setting (like the NUL code).
- Send the ESC / command to select a VFU channel other than channel 0; the VT (tab vertically) command then uses the settings for the selected channel.
- Changing the line spacing does not affect previous tab settings.
- Sending the ESC b command clears any previous tab settings in that tab set.
- Send an ESC b m NUL command to cancel all tab settings in tab set $m$.
- A maximum of 16 vertical tabs can be set in each VFU channel.
- The printer stores all tab settings, even if outside the printing area; if you increase the page length to include previously set tabs, you can move to those positions with the VT (tab vertically) command.

### Printers not featuring this command

None

### Model-dependent variations

None

### Related topics

- ESC /, VT, ESC 0, ESC 2, ESC 3, Setting page length, Setting bottom margin, Moving the vertical position
ESC / Select vertical tab channel

Format

ASCII   ESC / m
Hex      1B 2F m
Decimal  27 47 m

Parameter range

0 ≤ m ≤ 7

Function

Selects vertical tab set m

Default

Tab channel 0

Notes

• This is a nonrecommended command.
• This command is deleted in ESC/P 2.
• The value for m specifies the number of the tab set being changed; these sets of tabs are called vertical formatting unit (VFU) channels.
• You must use this command to select a tab set (VFU channel) other than set 0; the VT (tab vertically) command then uses the settings for the selected channel.
• You can select from eight sets of tabs (VFU channels).

Printers not featuring this command

All ESC/P 2 printers, ActionPrinter 3000, LQ-200

Model-dependent variations

None

Related topics

ESC b, ESC B, VT, Moving the vertical position
ESC / Select vertical tab channel

Format

ASCII ESC / m
Hex 1B 2F m
Decimal 27 47 m

Parameter range

0 ≤ m ≤ 7

Function

Selects vertical tab set m

Default

Tab channel 0

Notes

- This is a nonrecommended command.
- The value for m specifies the number of the tab set being changed; these sets of tabs are called vertical formatting unit (VFU) channels.
- You must use this command to select a tab set (VFU channel) other than set 0; the VT (tab vertically) command then uses the settings for the selected channel.
- You can select from eight sets of tabs (VFU channels).

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC b, ESC B, VT, Moving the vertical position
**Format**

- **ASCII**: ESC e m n
- **Hex**: 1B 65 m n
- **Decimal**: 27 101 m n

**Parameter range**

- **m = 0, 1**
  - Horizontal tabs (m=0)
    - $0 \leq n \leq 21$ for 10 cpi
    - $0 \leq n \leq 25$ for 12 cpi
    - $0 \leq n \leq 36$ for Condensed printing
  - Vertical tabs (m=1)
    - $0 \leq n \leq 127$
  - (line spacing) × n < (page length)

**Function**

Sets fixed tabs, as follows:

- **m = 0**: Sets vertical tabs every n lines in the current line spacing, as measured from the top-of-form position
- **1**: Sets horizontal tabs every n characters in the current character pitch

**Default**

- **Horizontal tabs**: Every eight characters
- **Vertical tabs**: None

**Notes**

- This is a nonrecommended command.
- Use the VT command to move to the next vertical tab or the HT command to move to the next horizontal tab.
- The ESC e command clears previously set tabs.
- The printer ignores this command if the value for n would make the vertical tab increment longer than the current page length, or if n is greater than the maximum for the current character pitch.
Printers not featuring this command

DFX-5000+, DFX-5000, DFX-8000, FX-850, FX-1050

Model-dependent variations

None

Related topics

VT, HT, ESC B, ESC D, ESC P, ESC M, SO, ESC 0, ESC 2, ESC 3, Moving the horizontal position, Moving the vertical position
ESC a  Select justification

Format

ASCII  ESC a  n
Hex    1B  61  n
Decimal 27  97  n

Parameter range

0 ≤ n ≤ 3

Function

Selects from four types of justification, as follows:

n = 0 or 48  Flush left
1 or 49  Centered
2 or 50  Flush right
3 or 51  Full justification (flush right and left)

Default

Flush left

Notes

• This is a nonrecommended command.
• This command has been deleted in ESC/P 2 printers.
• Always set justification at the beginning of a line.
• The printer performs full justification only if the width of the current line is greater than 75% of the printing area width. If the line width is less than 75%, the printer left-justifies text.
• You should not use commands that adjust the horizontal print position during full justification. These commands are: DEL, HT, BS, ESC f 0, ESC $, and ESC \. 
• Justification is based on the font selected when the justification command is sent. Changing the font after setting justification can cause unpredictable results.

Printers not featuring this command

All ESC/P 2 printers, ActionPrinter 3000, LQ-200

Model-dependent variations

None

Related topics

ESC P, ESC M, ESC g, SO, ESC SP, ESC $, ESC \, Moving the horizontal position, Selecting the pitch
Format

ASCII: ESC a n
Hex: 1B 61 n
Decimal: 27 97 n

Parameter range

0 ≤ n ≤ 3, 48 ≤ n ≤ 51

Function

Selects from four types of justification, as follows:

n = 0 or 48  Flush left
1 or 49  Centered
2 or 50  Flush right
3 or 51  Full justification (flush right and left)

Default

Flush left

Notes

• This is a nonrecommended command.
• Always set justification at the beginning of a line.
• The printer performs full justification only if the width of the current line is greater than 75% of the printing area width. If the line width is less than 75%, the printer left-justifies text.
• You should not use commands that adjust the horizontal print position during full justification. These commands are: DEL, HT, BS, ESC f 0, ESC $, and ESC \.
• Justification is based on the font selected when the justification command is sent. Changing the font after setting justification can cause unpredictable results.

Printers not featuring this command

None

Model-dependent variations

ActionPrinter Apex 80, ActionPrinter T-1000, ActionPrinter 2250, LX-100, LX-300, LX-800, LX-810. Justification is available only in LQ mode.

Related topics

ESC P, ESC M, SO, ESC SP, ESC $, ESC \, Moving the horizontal position, Selecting the pitch
Individual Command Explanations

ESC ( t Assign character table

Format

ASCII ESC ( t nL nH d1 d2 d3
Hex 1B 28 74 nL nH d1 d2 d3
Decimal 27 40 116 nL nH d1 d2 d3

Parameter range

nL = 3, nH = 0
0 ≤ d1 ≤ 3, 48 ≤ d1 ≤ 51
0 ≤ d2 ≤ 255
0 ≤ d3 ≤ 255

Function

Assigns the d2 registered character table to the d1 character table according to the following values (the d1 character table is one of the four tables selectable with the ESC t command):

<table>
<thead>
<tr>
<th>d2</th>
<th>d3</th>
<th>Table name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>Italic</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>PC437 (US)</td>
</tr>
<tr>
<td>1</td>
<td>16</td>
<td>PC437 Greek</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>PC932 (Japanese)</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>PC850 (Multilingual)</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>PC851 (Greek)</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>PC853 (Turkish)</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>PC855 (Cyrillic)</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>PC860 (Portugal)</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>PC863 (Canada-French)</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>PC865 (Norway)</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>PC852 (East Europe)</td>
</tr>
<tr>
<td>11</td>
<td>0</td>
<td>PC857 (Turkish)</td>
</tr>
<tr>
<td>12</td>
<td>0</td>
<td>PC862 (Hebrew)</td>
</tr>
<tr>
<td>13</td>
<td>0</td>
<td>PC864 (Arabic)</td>
</tr>
<tr>
<td>13</td>
<td>32</td>
<td>PC AR864</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>PC866 (Russian)</td>
</tr>
<tr>
<td>14</td>
<td>16</td>
<td>(Bulgarian ASCII****)</td>
</tr>
<tr>
<td>14</td>
<td>32</td>
<td>PC866 LAT. (Latvian)</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>PC869 (Greek)</td>
</tr>
<tr>
<td>16</td>
<td>0</td>
<td>USSR GOST (Russian)</td>
</tr>
<tr>
<td>17</td>
<td>0</td>
<td>ECMA-94-1</td>
</tr>
<tr>
<td>18</td>
<td>0</td>
<td>KU42 (K.U. Thai)</td>
</tr>
<tr>
<td>19</td>
<td>0</td>
<td>TIS11 (TS 988 Thai)</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>TIS18 (GENERAL Thai)</td>
</tr>
<tr>
<td>21</td>
<td>0</td>
<td>TIS17 (SIC STD. Thai)</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>TIS13 (IBM STD. Thai)</td>
</tr>
<tr>
<td>23</td>
<td>0</td>
<td>TIS16 (SIC OLD Thai)</td>
</tr>
<tr>
<td>24</td>
<td>0</td>
<td>PC861 (Iceland)</td>
</tr>
<tr>
<td>25</td>
<td>0</td>
<td>BRASCII</td>
</tr>
<tr>
<td>d₂</td>
<td>d₁</td>
<td>Table name</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>26</td>
<td>0</td>
<td>Abicomp</td>
</tr>
<tr>
<td>27</td>
<td>0</td>
<td>MAZOWIA (Poland)</td>
</tr>
<tr>
<td>28</td>
<td>0</td>
<td>Code MJK (CSFR)</td>
</tr>
<tr>
<td>29</td>
<td>7</td>
<td>ISO8859-7 (Latin/Greek)</td>
</tr>
<tr>
<td>29</td>
<td>16</td>
<td>ISO8859-1 (Latin 1)</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>TSM/WIN (Thai system manager)</td>
</tr>
<tr>
<td>31</td>
<td>0</td>
<td>ISO Latin 1T (Turkish)</td>
</tr>
<tr>
<td>32</td>
<td>0</td>
<td>Bulgaria</td>
</tr>
<tr>
<td>33</td>
<td>0</td>
<td>Hebrew 7</td>
</tr>
<tr>
<td>34</td>
<td>0</td>
<td>Hebrew 8</td>
</tr>
<tr>
<td>35</td>
<td>0</td>
<td>Roman 8</td>
</tr>
<tr>
<td>36</td>
<td>0</td>
<td>PC774 (Lithuania)</td>
</tr>
<tr>
<td>37</td>
<td>0</td>
<td>Estonia (Estonia)</td>
</tr>
<tr>
<td>38</td>
<td>0</td>
<td>ISCI (ISO Latin 1)</td>
</tr>
<tr>
<td>39</td>
<td>0</td>
<td>PC-ISCII</td>
</tr>
<tr>
<td>40</td>
<td>0</td>
<td>PC APTEC</td>
</tr>
<tr>
<td>41</td>
<td>0</td>
<td>PC708</td>
</tr>
<tr>
<td>42</td>
<td>0</td>
<td>PC720</td>
</tr>
<tr>
<td>112</td>
<td>0</td>
<td>OCR-B</td>
</tr>
<tr>
<td>127</td>
<td>1</td>
<td>ISO Latin 1</td>
</tr>
<tr>
<td>127</td>
<td>2</td>
<td>ISO 8859-2 (ISO Latin 2)</td>
</tr>
<tr>
<td>127</td>
<td>7</td>
<td>ISO Latin 7 (Greek)</td>
</tr>
</tbody>
</table>

**Printers not featuring this command**

All non-ESC/P 2 printers

**Model-dependent variations**

Not all models feature all character tables. See the Command Table section for the character tables available on each printer model.

**Related topics**

ESC t, Assign character tables, Selecting the character table
**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC ( t nL nH d1 d2 d3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 28 74 nL nH d1 d2 d3</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 40 116 nL nH d1 d2 d3</td>
</tr>
</tbody>
</table>

**Parameter range**

- \( n_L = 3, n_H = 0 \)
- \( 0 \leq d_1 \leq 1, 48 \leq d_1 \leq 49 \)
- \( 0 \leq d_2 \leq 255 \)
- \( 0 \leq d_3 \leq 255 \)

**Function**

Assigns the \( d_2 \) registered character table to the \( d_1 \) character table according to the following values (the \( d_1 \) character table is one of the four tables selectable with the ESC t command):

<table>
<thead>
<tr>
<th>( d_2 )</th>
<th>( d_3 )</th>
<th>Table name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>Italic</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>PC437 (US)</td>
</tr>
<tr>
<td>1</td>
<td>16</td>
<td>PC437 Greek</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>PC932 (Japanese)</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>PC850 (Multilingual)</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>PC851 (Greek)</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>PC853 (Turkish)</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>PC855 (Cyrillic)</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>PC860 (Portugal)</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>PC863 (Canada-French)</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>PC865 (Norway)</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>PC852 (East Europe)</td>
</tr>
<tr>
<td>11</td>
<td>0</td>
<td>PC857 (Turkish)</td>
</tr>
<tr>
<td>12</td>
<td>0</td>
<td>PC862 (Hebrew)</td>
</tr>
<tr>
<td>13</td>
<td>0</td>
<td>PC864 (Arabic)</td>
</tr>
<tr>
<td>13</td>
<td>32</td>
<td>PC AR864</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>PC866 (Russian)</td>
</tr>
<tr>
<td>14</td>
<td>16</td>
<td>(Bulgarian ASCII****)</td>
</tr>
<tr>
<td>14</td>
<td>32</td>
<td>PC866 LAT. (Latvian)</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>PC869 (Greek)</td>
</tr>
<tr>
<td>16</td>
<td>0</td>
<td>USSR GOST (Russian)</td>
</tr>
<tr>
<td>17</td>
<td>0</td>
<td>ECMA-94-1</td>
</tr>
<tr>
<td>18</td>
<td>0</td>
<td>KU42 (K.U. Thai)</td>
</tr>
<tr>
<td>19</td>
<td>0</td>
<td>TIS11 (TS 988 Thai)</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>TIS18 (GENERAL Thai)</td>
</tr>
<tr>
<td>21</td>
<td>0</td>
<td>TIS17 (SIC STD. Thai)</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>TIS13 (IBM STD. Thai)</td>
</tr>
<tr>
<td>23</td>
<td>0</td>
<td>TIS16 (SIC OLD Thai)</td>
</tr>
<tr>
<td>24</td>
<td>0</td>
<td>PC861 (Iceland)</td>
</tr>
<tr>
<td>25</td>
<td>0</td>
<td>BRASCII</td>
</tr>
<tr>
<td>(d_2)</td>
<td>(d_1)</td>
<td>Table name</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>26</td>
<td>0</td>
<td>Abicomp</td>
</tr>
<tr>
<td>27</td>
<td>0</td>
<td>MAZOWIA (Poland)</td>
</tr>
<tr>
<td>28</td>
<td>0</td>
<td>Code MJK (CSFR)</td>
</tr>
<tr>
<td>29</td>
<td>7</td>
<td>ISO8859-7 (Latin/Greek)</td>
</tr>
<tr>
<td>29</td>
<td>16</td>
<td>ISO8859-1 (Latin 1)</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>TSM/WIN (Thai system manager)</td>
</tr>
<tr>
<td>31</td>
<td>0</td>
<td>ISO Latin 1T (Turkish)</td>
</tr>
<tr>
<td>32</td>
<td>0</td>
<td>Bulgaria</td>
</tr>
<tr>
<td>33</td>
<td>0</td>
<td>Hebrew 7</td>
</tr>
<tr>
<td>34</td>
<td>0</td>
<td>Hebrew 8</td>
</tr>
<tr>
<td>35</td>
<td>0</td>
<td>Roman 8</td>
</tr>
<tr>
<td>36</td>
<td>0</td>
<td>PC774 (Lithuania)</td>
</tr>
<tr>
<td>37</td>
<td>0</td>
<td>Estonia (Estonia)</td>
</tr>
<tr>
<td>38</td>
<td>0</td>
<td>ISCII</td>
</tr>
<tr>
<td>39</td>
<td>0</td>
<td>PC-ISCII</td>
</tr>
<tr>
<td>40</td>
<td>0</td>
<td>PC APTEC</td>
</tr>
<tr>
<td>41</td>
<td>0</td>
<td>PC708</td>
</tr>
<tr>
<td>42</td>
<td>0</td>
<td>PC720</td>
</tr>
<tr>
<td>112</td>
<td>0</td>
<td>OCR-B</td>
</tr>
<tr>
<td>127</td>
<td>1</td>
<td>ISO Latin 1</td>
</tr>
<tr>
<td>127</td>
<td>2</td>
<td>ISO 8859-2 (ISO Latin 2)</td>
</tr>
<tr>
<td>127</td>
<td>7</td>
<td>ISO Latin 7 (Greek)</td>
</tr>
</tbody>
</table>

**Printers not featuring this command**


**Model-dependent variations**

Not all models feature all character tables. See the Command Table section for the character tables available on each printer model.

**Related topics**

ESC t, Assign character tables, Selecting the character table
ESC t  Select character table

Format

ASCII  ESC  t  n
Hex     1B  74  n
Decimal 27  116  n

Parameter range

0 ≤ n ≤ 3, 48 ≤ n ≤ 51

Function

Selects the character table to be used for printing from among the four character tables described below:

n = 0 or 48  Character table 0
1 or 49    Character table 1
2 or 50    Character table 2
3 or 51    Character table 3

Default

table 0  Italic
table 1  PC437
table 2  User-defined characters
table 3  PC437

Notes

• Use the ESC ( t command to assign any registered character table to any character table.
• To copy user-defined characters (that have been created with the ESC & or ESC : commands) to the upper half of the character table, send the ESC % 0 command, followed by the ESC t 2 command. However, you cannot copy user-defined characters using ESC t 2 if you have previously assigned another character table to table 2 using the ESC ( t command.

Printers not featuring this command

None
Model-dependent variations

On non-ESC/ P 2 printers:

- Selects the character table to be used for printing from between the two below:
  - \( n = 0 \) Italic character table
  - 1 Graphic character table
- When \( n = 2 \), this command copies the user-defined characters from positions 0 to 127 to positions 128 to 255.

Related topics

ESC ( t, Selecting the character table, Assign character tables, Switching to RAM character printing
ESC t  Select character table

Format

ASCII  ESC  t  n
Hex    1B  74  n
Decimal 27  116  n

Parameter range

n = 0, 1, 48, 49

Function

Selects from between the two character sets described below:

n = 0 or 48  Character table 0
1 or 49     Character table 1

Default

table 0  Italic
table 1  PC437 (US)

Notes

Use the ESC ( t command to assign any registered character table to any character table.

Printers not featuring this command

None

Model-dependent variations


Selects from between only the two character sets described below:

n = 0 or 48  Italic character table
1 or 49     Graphic character table

Related topics

ESC ( +, Selecting the character table
ESC R  Select an international character set

Format

ASCII  ESC    R    n
Hex     1B  52    n
Decimal 27  82    n

Parameter range

0 ≤ n ≤ 13, n = 64

Function

Selects the set of characters printed for specific character codes, as listed below:

n = 0   USA
1   France
2   Germany
3   United Kingdom
4   Denmark I
5   Sweden
6   Italy
7   Spain I
8   Japan (English)
9   Norway
10   Denmark II
11   Spain II
12   Latin America
13   Korea
64   Legal

Default

Depends on DIP-switch or default mode setting
Notes

The characters printed for each international character set are listed below:

<table>
<thead>
<tr>
<th>n</th>
<th>Set name</th>
<th>Dec</th>
<th>Hex</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>USA</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>1</td>
<td>France</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>3</td>
<td>UK</td>
<td>£</td>
<td>$</td>
</tr>
<tr>
<td>4</td>
<td>Denmark I</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>5</td>
<td>Sweden</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>6</td>
<td>Italy</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>7</td>
<td>Spain I</td>
<td>Pt</td>
<td>$</td>
</tr>
<tr>
<td>8</td>
<td>Japan (Eng)</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>9</td>
<td>Norway</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>10</td>
<td>Denmark II</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>11</td>
<td>Spain II</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>12</td>
<td>Lat America</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>13</td>
<td>Korea</td>
<td>#</td>
<td>$</td>
</tr>
<tr>
<td>64</td>
<td>Legal</td>
<td>#</td>
<td>$</td>
</tr>
</tbody>
</table>

Printers not featuring this command

None

Model-dependent variations

ActionPrinter L-1000, LQ-400, LQ-500. The Legal set (n=64) and Korea set (n=13) are not available.

Related topics

Selecting an international character set
ESC R  Select an international character set

Format

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>ESC</th>
<th>R</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>52</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>82</td>
<td>n</td>
<td></td>
</tr>
</tbody>
</table>

Parameter range

\[0 \leq n \leq 13\]

Function

Selects the set of characters printed for specific character codes, as listed below:

- \(n = 0\)  USA
- 1  France
- 2  Germany
- 3  United Kingdom
- 4  Denmark I
- 5  Sweden
- 6  Italy
- 7  Spain I
- 8  Japan (English)
- 9  Norway
- 10 Denmark II
- 11 Spain II
- 12 Latin America

Default

Depends on DIP-switch or default mode setting
Notes

The characters printed for each international character set are listed below:

<table>
<thead>
<tr>
<th>n</th>
<th>Set name</th>
<th>Dec Hex 23 24 35 36 64 91 92 93 94 96 123 124 125 126</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>USA</td>
<td># $ @ [ \ ] ^ ` {</td>
</tr>
<tr>
<td>1</td>
<td>France</td>
<td># $ à ° ç § ^ ` é ü è ~</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td># $ § Ä Ö Ü ^ ` ä ö ü ß</td>
</tr>
<tr>
<td>3</td>
<td>UK</td>
<td>£ $ @ [ \ ] ^ ` {</td>
</tr>
<tr>
<td>4</td>
<td>Denmark I</td>
<td># $ @ Ä Ö È Ü é ä ö ü</td>
</tr>
<tr>
<td>5</td>
<td>Sweden</td>
<td># = É Á Ö Å Ü é a ö a ü</td>
</tr>
<tr>
<td>6</td>
<td>Italy</td>
<td># $ @ ° \ é ^ ü à ö é í</td>
</tr>
<tr>
<td>7</td>
<td>Spain I</td>
<td>Pt $ @ i Ñ ñ ^ ` ~ ñ } ~</td>
</tr>
<tr>
<td>8</td>
<td>Japan (Eng)</td>
<td># $ @ [ ¥ ] ^ ` {</td>
</tr>
<tr>
<td>9</td>
<td>Norway</td>
<td># = É Ä Ø Å Ü é æ ø à ü</td>
</tr>
<tr>
<td>10</td>
<td>Denmark II</td>
<td># $ É Ä Ø Å Ü é æ ø à ü</td>
</tr>
<tr>
<td>11</td>
<td>Spain II</td>
<td># $ á i Ñ ñ é ` í ñ ó ú</td>
</tr>
<tr>
<td>12</td>
<td>Lat America</td>
<td># $ á i Ñ ñ é ü í ñ ó ú</td>
</tr>
</tbody>
</table>

Printers not featuring this command

None

Model-dependent variations

None

Related topics

Selecting an international character set
Define user-defined characters

Format

ASCII  ESC &  NUL  n  m  [a₀  a₁  a₂  d₁  d₂  ...  dₖ]
Hex    1B  26  00  n  m  [a₀  a₁  a₂  d₁  d₂  ...  dₖ]
Decimal 27  38  0  n  m  [a₀  a₁  a₂  d₁  d₂  ...  dₖ]

Parameter range

0 ≤ n ≤ 127
0 ≤ m ≤ 127
n ≤ m

LQ mode

0 ≤ a₁ ≤ 37
0 ≤ a₀ + a₁ + a₂ ≤ 42

Draft mode

0 ≤ a₁ ≤ 15
0 ≤ a₀ + a₁ + a₂ ≤ 18

Function

Sets the parameters for user-defined characters and then sends the data for those characters, as described below:

n  Character code of the first character to be user-defined
m  Character code of the last character to be user-defined
a₀  Space to the left of each proportional user-defined character
a₁  Actual width of user-defined characters
a₂  Space to the right of each proportional user-defined character
d₁  ...  dₖ  Character data

Notes

- The data within brackets in the Format section above is repeated for each character you define.
- Defining characters when the following attributes are set results in the user-defined characters having those attributes: superscript, subscript, proportional spacing, draft mode, and LQ mode.
- Always cancel italic characters with the ESC 5 command before defining characters. After defining user-defined characters, you can italicize them by sending the ESC 4 command.
- User-defined characters with differing attributes cannot exist at the same time. For example, if normal-size user-defined characters have already been defined, and you use this command to define subscript characters, the previous normal-size characters are lost.
- Do not define continuous horizontal dots on the same row; the printer ignores the second of two continuous dots.
• The following maximum character widths are recommended.

<table>
<thead>
<tr>
<th>Print quality</th>
<th>10 cpi</th>
<th>12 cpi</th>
<th>15 cpi</th>
<th>Proportional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft Normal size</td>
<td>24×12</td>
<td>24×10</td>
<td>24×8</td>
<td>Not Available</td>
</tr>
<tr>
<td>Draft Super/subscript</td>
<td>16×12</td>
<td>16×10</td>
<td>16×8</td>
<td>Not Available</td>
</tr>
<tr>
<td>LQ Normal size</td>
<td>24×36</td>
<td>24×30</td>
<td>24×24</td>
<td>24×42</td>
</tr>
<tr>
<td>LQ Super/subscript</td>
<td>16×36</td>
<td>16×30</td>
<td>16×24</td>
<td>16×42</td>
</tr>
</tbody>
</table>

• Send the ESC % 1 command to switch to user-defined characters.
• Use the ESC ( ^ command to print characters between 0 and 32.
• Send the ESC % 0 command followed by the ESC t 2 command to copy current user-defined characters to the upper half of the character table. The lower half of the character table is then normal ROM characters.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC %, ESC ( ^, ESC 6, ESC 7, ESC :, ESC t, ESC ( t, Defining user-defined characters, Sending user-defined character data to printer
**ESC & Define user-defined characters**

**Format**

The format for this command depends on whether you are defining draft characters or NLQ characters.

**Draft:**

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>ESC &amp; NUL</th>
<th>n</th>
<th>m</th>
<th>[a</th>
<th>d₁</th>
<th>d₂</th>
<th>...</th>
<th>dₖ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>26</td>
<td>00</td>
<td>n</td>
<td>m</td>
<td>a</td>
<td>d₁</td>
<td>d₂</td>
<td>...</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>38</td>
<td>0</td>
<td>n</td>
<td>m</td>
<td>a</td>
<td>d₁</td>
<td>d₂</td>
<td>...</td>
</tr>
</tbody>
</table>

**NLQ:**

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>ESC &amp; NUL</th>
<th>n</th>
<th>m</th>
<th>[a</th>
<th>0</th>
<th>d₁</th>
<th>d₂</th>
<th>...</th>
<th>dₖ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>26</td>
<td>00</td>
<td>n</td>
<td>m</td>
<td>a</td>
<td>0</td>
<td>d₁</td>
<td>d₂</td>
<td>...</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>38</td>
<td>0</td>
<td>n</td>
<td>m</td>
<td>a</td>
<td>0</td>
<td>d₁</td>
<td>d₂</td>
<td>...</td>
</tr>
</tbody>
</table>

**Parameter range**

**Draft (FX):**

- $0 \leq a \leq 255$
- $0 \leq m \leq 255$
- $0 \leq n \leq 255$
- $m \leq n$
- $0 \leq d \leq 255$

**draft (LX):**

- $0 \leq a \leq 255$
- $58 \leq m \leq 63$
- $58 \leq n \leq 63$
- $m \leq n$
- $0 \leq d \leq 255$

**NLQ:**

- $0 \leq a \leq 12$
- $58 \leq m \leq 63$
- $58 \leq n \leq 63$
- $m \leq n$
- $0 \leq d \leq 255$

**Function**

Sets the parameters for user-defined characters and then sends the data for those characters, as described below:

- $n$ Character code of the first character to be user-defined
- $m$ Character code of the last character to be user-defined
- $a$ Sets parameters for characters to be user-defined
- $d₁ \ldots dₖ$ Character data
Notes

- The data within brackets in the Format section above is repeated for each character you define.
- The format of the attribute byte “a” is different for draft and NLQ characters.

Draft

You can define characters 11-dots wide by 8-dots high. You must specify whether to define the upper or lower 8 dots of the 9 dots available. You can also specify the columns not printed on the left and right of the characters during proportional spacing. Set both these parameters with the a parameter, as described below:

<table>
<thead>
<tr>
<th>Attribute byte table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Column</td>
</tr>
<tr>
<td>Column number</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Add up the values for all three settings; the value for a is this total.

NLQ

The attribute byte a equals the width of the character, between 1 and 12 dot columns.

- Only NLQ characters can be defined on LX printers, ActionPrinter Apex 80, ActionPrinter 2000, ActionPrinter 2250, and ActionPrinter T-1000.
- When you switch to NLQ printing on FX printers, the printer enhances user-defined characters to appear as NLQ-mode characters.
- Defining characters during draft or NLQ mode results in the user-defined characters having the draft or NLQ attribute. You cannot define characters of different attributes at the same time; previously defined characters will be deleted.
- Always cancel italic characters with the ESC 5 command before defining characters. After defining user-defined characters, you can italicize them by sending the ESC 4 command.
- Do not define continuous dots on the same row during draft mode; the printer ignores the second of two continuous dots.
- Send the ESC % 1 command to switch to user-defined characters.
- Send the ESC I 1 command to allow you to print the characters between 128 and 159 and the non-control code characters between 0 and 31.
Printers not featuring this command

None

Model-dependent variations


Only the 6 characters between 58 and 63 can be defined.

Related topics

ESC %, ESC :, ESC I, ESC 6, ESC 7, Defining user-defined characters, Sending user-defined character data to printer
ESC : Copy ROM to RAM

Format

ASCII ESC : NUL n m
Hex 1B 3A 00 n m
Decimal 27 58 0 n m

Parameter range

0 ≤ n ≤ 127
m = 0

Function

Copies the data for the characters between 0 and 126 of the n typeface from ROM to RAM memory

Notes

- The following attributes are reflected in the copied font: typeface, international character set, size (super/ subscript or normal), and quality (draft/ LQ). Do not change any attributes before modifying characters in the copied font.
- Always cancel italics with the ESC 5 command before copying ROM characters to RAM. You can italicize characters after copying by sending the ESC 4 command.
- Sending this command clears any previous characters copied to RAM.
- The printer ignores this command if the specified typeface is not available in ROM.
- See ESC k for a list of the selectable fonts.

Printers not featuring this command

None

Model-dependent variations

- On non-ESC/ P 2 printers:
  - The Orator and Orator-S fonts cannot be copied.
  - The Script C font is not available

Related topics

ESC %, ESC &, ESC ( ^, ESC x, ESC k, Copying ROM characters to RAM memory
**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC :</th>
<th>NUL</th>
<th>n</th>
<th>m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>3A</td>
<td>00</td>
<td>n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>58</td>
<td>0</td>
<td>n</td>
</tr>
</tbody>
</table>

**Parameter range**

n = 0, 1  
m = 0

**Function**

Copies the data for the characters between 0 and 255 of the Roman or Sans Serif typeface from ROM to RAM memory according to the following values:

n = 0  Roman  
1  Sans serif

**Notes**

- Sending this command clears any previous characters copied to RAM.
- Characters from 128 to 255 are copied from the italic character table

**Printers not featuring this command**

None

**Model-dependent variations**

DFX-5000, ActionPrinter T-750  
- Only draft characters can be copied to RAM.

- Only characters from 58 to 63 can be copied to RAM.

**Related topics**

ESC %, ESC &, ESC x, Copying ROM characters to RAM memory
**ESC %  Select user-defined set**

**Format**

ASCII ESC % n  
Hex 1B 25 n  
Decimal 27 37 n

**Parameter range**

n = 0, 1, 48, 49

**Function**

Switches between normal and user-defined characters, as follows:

- n = 0 or 48 Normal (ROM) characters
- 1 or 49 User-defined (RAM) characters

**Default**

Normal (ROM) characters

**Notes**

Switch to ROM characters (ESC % 0) before selecting user-defined characters using the ESC t 2 command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC :, ESC &, ESC t, ESC ( t, Switching to RAM character printing
ESC %  Select user-defined set

Format

ASCII  ESC  %  n
Hex    1B  25  n
Decimal 27  37  n

Parameter range

n = 0, 1, 48, 49

Function

Switches between normal and user-defined characters, as follows:

n = 0 or 48    Normal (ROM) characters
1 or 49    User-defined (RAM) characters

Default

Normal (ROM) characters

Printers not featuring this command

None

Model-dependent variations

FX-850 and FX-1050

Draft user-defined characters are converted to LQ characters during LQ mode.

Related topics

ESC :, ESC &, ESC 6, ESC 7, Switching to RAM character printing
ESC x  Select LQ or draft

Format

ASCII ESC x n
Hex 1B 78 n
Decimal 27 120 n

Parameter range

n = 0, 1, 48, 49

Function

Selects either LQ or draft printing according to the following values:

n = 0 or 48  Draft printing
1 or 49  Letter-quality printing

Notes

If you select proportional spacing with the ESC p command during draft printing, the printer prints an LQ font instead. When you cancel proportional spacing with the ESC p command, the printer returns to draft printing.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC k, Print quality (draft, LQ, or N LQ)
**ESC x Select NLQ or draft**

**Format**

- **ASCII**: `ESC x n`
- **Hex**: `1B 78 n`
- **Decimal**: `27 120 n`

**Parameter range**

- \( n = 0, 1, 48, 49 \)

**Function**

Selects either NLQ or draft printing according to the following values:

- \( n = 0 \) or \( 48 \) Draft printing is selected
- \( 1 \) or \( 49 \) NLQ printing is selected

**Notes**

Double-strike printing is not possible when NLQ printing is selected

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

- `ESC k`, Print quality (draft, LQ, or N LQ)
**ESC k  Select typeface**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x1B</td>
<td>0x6B</td>
<td></td>
<td>n</td>
</tr>
</tbody>
</table>

**Parameter range**

\[0 \leq n \leq 9\]

**Function**

Selects the typeface for LQ printing according to the following values:

<table>
<thead>
<tr>
<th>(n)</th>
<th>Typeface</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Roman</td>
</tr>
<tr>
<td>1</td>
<td>Sans serif</td>
</tr>
<tr>
<td>2</td>
<td>Courier</td>
</tr>
<tr>
<td>3</td>
<td>Prestige</td>
</tr>
<tr>
<td>4</td>
<td>Script</td>
</tr>
<tr>
<td>5</td>
<td>OCR-B</td>
</tr>
<tr>
<td>6</td>
<td>OCR-A</td>
</tr>
<tr>
<td>7</td>
<td>Orator</td>
</tr>
<tr>
<td>8</td>
<td>Orator-S</td>
</tr>
<tr>
<td>9</td>
<td>Script C</td>
</tr>
<tr>
<td>10</td>
<td>Roman T</td>
</tr>
<tr>
<td>11</td>
<td>Sans serif H</td>
</tr>
<tr>
<td>30</td>
<td>SV Busaba</td>
</tr>
<tr>
<td>31</td>
<td>SV Jittra</td>
</tr>
</tbody>
</table>

**Default**

\(n = 0\) (Roman)

**Notes**

- The printer ignores this command if the user-defined character set is selected.
- The Roman typeface is selected if the selected typeface is not available.
- If draft mode is selected when this command is sent, the new LQ typeface will be selected when the printer returns to LQ printing.

**Printers not featuring this command**

None

**Model-dependent variations**

Not all printers feature all typefaces; see the Command Table section for the typefaces available on each printer model.

**Related topics**

ESC x, ESC X, ESC %, ESC :; Selecting the typeface, Copying ROM characters to RAM memory
**ESC k  Select typeface**

**Format**

- **ASCII**
  - ESC k n
  
- **Hex**
  - 1B 6B n

- **Decimal**
  - 27 107 n

**Parameter range**

- n = 0, 1

**Function**

Selects the typeface for LQ font printing according to the following values:

- 0 Roman
- 1 Sans serif

**Default**

- n = 0 (Roman)

**Notes**

- The printer ignores this command if the user-defined character set is selected.
- If draft mode is selected when this command is sent, the new typeface will be selected when the printer returns to LQ printing.

**Printers not featuring this command**

- None

**Model-dependent variations**

- None

**Related topics**

- ESC x, ESC %, ESC :, Selecting the typeface, Copying ROM characters to RAM
**ESC X Select font by pitch and point**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>X</th>
<th>m</th>
<th>n&lt;sub&gt;L&lt;/sub&gt;</th>
<th>n&lt;sub&gt;H&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>58</td>
<td>m</td>
<td>n&lt;sub&gt;L&lt;/sub&gt;</td>
<td>n&lt;sub&gt;H&lt;/sub&gt;</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>88</td>
<td>m</td>
<td>n&lt;sub&gt;L&lt;/sub&gt;</td>
<td>n&lt;sub&gt;H&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

**Parameter range**

- 5 \( \leq m \leq 127 \)  m = 0, 1
- 0 \( \leq n<sub>L</sub> \leq 255 \)
- 0 \( \leq n<sub>H</sub> \leq 127 \)

**Function**

Puts the printer in multipoint (scalable font) mode, and selects the pitch and point attributes of the font according to the following formulas:

**Pitch:**

- \( m = 0 \)  No change in pitch
- \( m = 1 \)  Selects proportional spacing
- \( m \geq 5 \)  Selects fixed pitch equal to \( 360/m \) cpi

**Point size:**

\[
\text{(point size)} = \left(\frac{n<sub>H</sub> \times 256 + n<sub>L</sub>}{2}\right) \quad \text{1 point equals 1/72 inch}
\]

\[
n<sub>H</sub> = \text{INT}\left(\frac{\text{(point size)} \times 2}{256}\right)
\]

\[
n<sub>L</sub> = \text{MOD}\left(\frac{\text{(point size)} \times 2}{256}\right)
\]

- \( n<sub>H</sub> = n<sub>L</sub> = 0 \)  No change in point size

**Default**

- Pitch = 10 cpi (\( m = 36 \))
- Point = 10.5 (\( n<sub>H</sub> = 0, n<sub>L</sub> = 21 \))

**Notes**

- This command is available only on printers featuring ESC/ P 2.
- This command overrides the current pitch setting.
- Only the following point sizes are available: 8, 10 (10.5), 12, 14, 16, 18, 20 (21), 22, 24, 26, 28, 30, 32
- Selecting a combination of 15 cpi and 10 or 20-point characters results in 15-cpi ROM characters being chosen; the height of these characters is about 2/3 that of normal characters. Select the pitch with the ESC C command to obtain normal height 10 or 20-point characters at 15 cpi.
• During multipoint mode the printer ignores the ESC W, ESC w, ESC SP, SI, ESC SI, SO, and ESC SO commands.
• The following commands cancel multipoint mode, returning the printer to 10.5-point characters: ESC P, ESC M, ESC g, ESC p, ESC !, and ESC @

Printers not featuring this command

All non-ESC/ P 2 printers

Model-dependent variations

Not all fonts are scalable; see the Command Table section for details on which fonts are scalable on each printer model.

Related topics

ESC c, ESC P, ESC M, ESC g, ESC p, ESC !, Selecting the point size, Selecting the pitch
**ESC c**  
Set horizontal motion index (HMI)

**Format**

ASCII  
ESC c nL nH

Hex  
1B 63 nL nH

Decimal  
27 99 nL nH

**Parameter range**

\[0 \leq n_H \leq 4\]
\[0 \leq n_L \leq 255\]
\[0 < ((n_H \times 256) + n_L) \leq 1080 ; HMI \leq 3.00 \text{ inches}\]

**Function**

Fixes the character width (HMI) according to the following formula:

\[
HMI = \frac{(n_H \times 256) + n_L}{360} \text{ inch}
\]

\[
n_H = \text{INT} \left( \frac{HMI \times 360}{256} \right)
\]

\[
n_L = \text{MOD} \left( \frac{HMI \times 360}{256} \right)
\]

**Default**

Depends on panel or DIP-switch setting

**Notes**

- This command is available only on printers featuring ESC/ P 2.
- This command cancels additional character space set with the ESC SP command.
- The HMI setting made with this command is canceled when the printer receives the following commands: SO, SI, DC2, DC4, ESC W, ESC P, ESC M, ESC g, ESC p, ESC !, ESC SP, and ESC @
- Use this command to set the pitch if you want to print normal-height 10 or 20-point characters at 15 cpi during multipoint mode. Selecting 15 cpi for 10 or 20-point characters with the ESC X command results in characters being printed at 2/3 their normal height.

**Printers not featuring this command**

All non-ESC/ P 2 printers

**Model-dependent variations**

None

**Related topics**

ESC X, ESC P, ESC M, ESC g, ESC p, ESC !, Selecting the pitch
ESC P        Select 10.5-point, 10-cpi

Format

- ASCII ESC P
- Hex 1B 50
- Decimal 27 80

Function

Selects 10.5-point, 10-cpi character printing

Default

10.5-point, 10-cpi characters

Notes

- This command cancels the HMI set with the ESC c command.
- This command cancels multipoint mode.
- If you change the pitch with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC M, ESC g, ESC p, ESC X, ESC c, ESC !, Selecting the pitch
**ESC P  Select 10-cpi**

**Format**

- **ASCII**: ESC P
- **Hex**: 1B 50
- **Decimal**: 27 80

**Function**

Selects 10-cpi character pitch

**Default**

10-cpi characters

**Notes**

If you change the fixed-pitch setting with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC M, ESC p, ESC !, Selecting the pitch
**ESC M  Select 10.5-point, 12-cpi**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 4D</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 77</td>
</tr>
</tbody>
</table>

**Function**

Selects 10.5-point, 12-cpi character printing

**Default**

10.5-point, 10-cpi characters

**Notes**

- This command cancels the HMI set with the ESC c command.
- This command cancels multipoint mode.
- If you change the pitch with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC P, ESC g, ESC p, ESC X, ESC c, ESC !, Selecting the pitch
ESC M  Select 12-cpi

Format

ASCII  ESC  M
Hex     1B  4D
Decimal 27  77

Function

Selects 12-cpi character pitch

Default

10-cpi characters

Notes

If you change the pitch with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC P, ESC p, ESC !, Selecting the pitch
**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>67</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>103</td>
</tr>
</tbody>
</table>

**Function**

Selects 10.5-point, 15-cpi character printing

**Default**

10.5-point, 10-cpi characters

**Notes**

- This command cancels the HMI set with the ESC c command.
- This command cancels multipoint mode.
- If you change the pitch with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC M, ESC P, ESC p, ESC c, ESC X, Selecting the pitch
ESC g   Select 15-cpi

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>67</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>103</td>
</tr>
</tbody>
</table>

**Function**

Selects 15-cpi character printing

**Default**

10-cpi characters

**Notes**

If you change the fixed-pitch setting with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

**Printers featuring this command**

FX-2170, DFX-5000+

**Model-dependent variations**

None

**Related topics**

ESC M, ESC P, ESC p, ESC !, Selecting the pitch
**ESC p**  
**Turn proportional mode on/off**

**Format**

ASCII  ESC  p  n  
Hex  1B  70  n  
Decimal  27  112  n  

**Parameter range**

n = 0, 1, 48, 49

**Function**

Selects either proportional or fixed character spacing according to the following values:

n = 0 or 48  Returns to current fixed character pitch  
1 or 49  Selects proportional spacing

**Default**

Fixed character spacing

**Notes**

- This command cancels the HMI set with the ESC c command.
- This command cancels multipoint mode.
- Changes made to the fixed-pitch setting with the ESC P, ESC M, or ESC g commands during proportional mode take effect when the printer exits proportional mode.
- The printer automatically switches to LQ printing when proportional spacing is selected.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC M, ESC P, ESC g, ESC l, ESC X, ESC c, Selecting the pitch
**ESC p** Turn proportional mode on/off

### Format

- **ASCII** `ESC p n`
- **Hex** `1B 70 n`
- **Decimal** `27 112 n`

### Parameter range

$n = 0, 1, 48, 49$

### Function

Selects either proportional or fixed character spacing according to the following values:

- $n = 0$ or $48$ Returns to current fixed character pitch
- $1$ or $49$ Selects proportional character spacing

### Default

Fixed character spacing

### Notes

- Changes made to the fixed-pitch setting with the ESC P, ESC M, or ESC g commands during proportional mode take effect when the printer exits proportional mode.
- Condensed mode is not available when proportional spacing is selected.

### Printers not featuring this command


### Model-dependent variations

None

### Related topics

- ESC M, ESC P, ESC I, Selecting the pitch
ESC SP  Set intercharacter space

Format

ASCII  ESC SP  n
Hex    1B  20  n
Decimal 27  32  n

Parameter range

0 ≤ n ≤ 127

Function

Increases the space between characters by n/180 inch in LQ mode and n/120 inch in draft mode

Default

No extra space

Notes

- This command cancels the HMI (horizontal motion unit) set with the ESC c command.
- The extra space set with this command doubles during double-width mode.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC c, ESC M, ESC P, ESC g, ESC l, ESC l, ESC Q, ESC D, HT, Selecting the pitch, Setting left and right margins
**ESC SP  Set intercharacter space**

**Format**

- **ASCII**: ESC SP n
- **Hex**: 1B 20 n
- **Decimal**: 27 32 n

**Parameter range**

0 ≤ n ≤ 127

**Function**

Increases the space between characters by n/120 inch

**Default**

No extra space

**Notes**

The extra space set with this command doubles during double-width mode.

**Printers not featuring this command**


**Model-dependent variations**

None

**Related topics**

ESC M, ESC P, ESC I, ESC I, ESC Q, ESC D, HT, Selecting the pitch, Setting left and right margins
ESC E  Select bold font

Format

ASCII  ESC  E
Hex    1B  45
Decimal 27  69

Function

Sets the weight attribute of the font to bold

Default

Normal (nonbold) weight

Notes

This command increases the weight of printed lines and characters, resulting in bolder printing.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC F, ESC G, ESC H, Select a font, Selecting the weight
**ESC E  Select bold font**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>45</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>69</td>
</tr>
</tbody>
</table>

**Function**

Sets the weight attribute of the font to bold

**Default**

Normal (nonbold) weight

**Notes**

This command increases the weight of printed lines and characters, resulting in bolder printing.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC F, ESC G, ESC H, Select a font, Selecting the weight
**Format**

<table>
<thead>
<tr>
<th>Format</th>
<th>ESC F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCII</td>
<td>ESC F</td>
</tr>
<tr>
<td>Hex</td>
<td>1B 46</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 70</td>
</tr>
</tbody>
</table>

**Function**

Sets the weight attribute of the font to normal (cancels the bold weight previously set with the ESC E command).

**Default**

Normal (nonbold) weight

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC E, ESC G, ESC H, Select a font, Selecting the weight
ESC F  Cancel bold font

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hex</td>
<td>1B</td>
<td>46</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>70</td>
</tr>
</tbody>
</table>

Function

Sets the weight attribute of the font to normal (cancels the bold weight previously set with the ESC E command)

Default

Normal (nonbold) weight

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC E, ESC G, ESC H, Select a font, Selecting the weight
**ESC 4  Select italic font**

**Format**

- ASCII: ESC 4
- Hex: 1B 34
- Decimal: 27 52

**Function**

Sets the style attribute of the font to italic

**Default**

Normal (non-italic) style

**Notes**

- This command selects italic printing even if the italic character table is not selected.
- Always cancel italics before defining user-defined characters.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC 5, Select a font, Selecting the style
ESC 4  Select italic font

Format

ASCII   ESC  4
Hex     1B  34
Decimal 27  52

Function

Sets the style attribute of the font to italic

Default

Normal (non-italic) style

Notes

• This command selects italic printing even if the italic character table is not selected.
• Always cancel italics before defining user-defined characters.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 5, Select a font, Selecting the style
Format

ASCII  ESC  5
Hex    1B  35
Decimal 27  53

Function

Sets the style attribute of the font to normal (cancels the italic style attribute previously selected with the ESC 4 command)

Default

Normal (non-italic) style

Notes

Always cancel italics before defining user-defined characters.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 4, Select a font, Selecting the style
ESC 5  Cancel italic font

Format

ASCII  ESC  5
Hex     1B  35
Decimal 27  53

Function

Sets the style attribute of the font to normal (cancels the italic style attribute previously selected with the ESC 4 command)

Default

Normal (non-italic) style

Notes

Always cancel italics before defining user-defined characters.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 4, Select a font, Selecting the style
**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC ! n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 21 n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 33 n</td>
</tr>
</tbody>
</table>

**Parameter range**

\[ 0 \leq n \leq 255 \]

**Function**

Selects any combination of several font attributes and enhancements by setting or clearing the appropriate bit in the \( n \) parameter, as shown below:

<table>
<thead>
<tr>
<th>Bit</th>
<th>On/Off</th>
<th>Hex</th>
<th>Dec</th>
<th>Function</th>
<th>Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Selects 10 cpi</td>
<td>ESC P</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>01</td>
<td>1</td>
<td>Selects 12 cpi</td>
<td>ESC M</td>
</tr>
<tr>
<td>1</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels proportional</td>
<td>ESC p 0</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>02</td>
<td>2</td>
<td>Selects proportional</td>
<td>ESC p 1</td>
</tr>
<tr>
<td>2</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels condensed</td>
<td>DC2</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>04</td>
<td>4</td>
<td>Selects condensed</td>
<td>SI</td>
</tr>
<tr>
<td>3</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels bold</td>
<td>ESC F</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>08</td>
<td>8</td>
<td>Selects bold</td>
<td>ESC E</td>
</tr>
<tr>
<td>4</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels double-strike</td>
<td>ESC H</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>10</td>
<td>16</td>
<td>Selects double-strike</td>
<td>ESC G</td>
</tr>
<tr>
<td>5</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels double-width</td>
<td>ESC W 0</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>20</td>
<td>32</td>
<td>Selects double-width</td>
<td>ESC W 1</td>
</tr>
<tr>
<td>6</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels italics</td>
<td>ESC 5</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>40</td>
<td>64</td>
<td>Selects italics</td>
<td>ESC 4</td>
</tr>
<tr>
<td>7</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels underline</td>
<td>ESC - 0</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>80</td>
<td>128</td>
<td>Selects underline</td>
<td>ESC - 1</td>
</tr>
</tbody>
</table>

Add the numbers of the features to be selected and send the total as the parameter \( n \).

**Notes**

- This command cancels multipoint mode.
- This command cancels the HMI selected with the ESC c command.
- This command cancels any attributes or enhancements that are not selected.
- All attributes or enhancements may not be available on some models. For details, see the explanation for the equivalent command listed in the table above.
Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC X, ESC c, Select a font
ESC !  Master select

Format

ASCII ESC ! n
Hex 1B 21 n
Decimal 27 33 n

Parameter range

0 ≤ n ≤ 255

Function

Selects any combination of several font attributes and enhancements by setting or clearing the appropriate bit in the n parameter, as shown below:

<table>
<thead>
<tr>
<th>Bit</th>
<th>On/Off</th>
<th>Hex</th>
<th>Dec</th>
<th>Function</th>
<th>Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Selects 10 cpi</td>
<td>ESC P</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>01</td>
<td>1</td>
<td>Selects 12 cpi</td>
<td>ESC M</td>
</tr>
<tr>
<td>1</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels proportional</td>
<td>ESC p 0</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>02</td>
<td>2</td>
<td>Selects proportional</td>
<td>ESC p 1</td>
</tr>
<tr>
<td>2</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels condensed</td>
<td>DC2</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>04</td>
<td>4</td>
<td>Selects condensed</td>
<td>ESC SI, SI</td>
</tr>
<tr>
<td>3</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels bold</td>
<td>ESC F</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>08</td>
<td>8</td>
<td>Selects bold</td>
<td>ESC E</td>
</tr>
<tr>
<td>4</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels double-strike</td>
<td>ESC H</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>10</td>
<td>16</td>
<td>Selects double-strike</td>
<td>ESC G</td>
</tr>
<tr>
<td>5</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels double-width</td>
<td>ESC W 0</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>20</td>
<td>32</td>
<td>Selects double-width</td>
<td>ESC W 1</td>
</tr>
<tr>
<td>6</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels italics</td>
<td>ESC 5</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>40</td>
<td>64</td>
<td>Selects italics</td>
<td>ESC 4</td>
</tr>
<tr>
<td>7</td>
<td>Off</td>
<td>00</td>
<td>0</td>
<td>Cancels underline</td>
<td>ESC - 0</td>
</tr>
<tr>
<td></td>
<td>On</td>
<td>80</td>
<td>128</td>
<td>Selects underline</td>
<td>ESC - 1</td>
</tr>
</tbody>
</table>

Add the numbers of the features to be selected and send the total as the parameter n.

Notes

• This command cancels any attributes or enhancements that are not selected.
• All attributes or enhancements may not be available on some models. For details, see the command explanation for the equivalent command listed in the above table.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

Select a font
ESC G  Select double-strike printing

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>47</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>71</td>
</tr>
</tbody>
</table>

Function

Prints each dot twice, with the second slightly below the first, creating bolder characters

Default

Normal (nondouble-strike) printing

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC H, ESC E, ESC F, Double-strike
ESC G  Select double-strike printing

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>47</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>71</td>
</tr>
</tbody>
</table>

Function

Prints each dot twice, with the second slightly below the first, creating bolder characters

Default

Normal (nondouble-strike) printing

Notes

LQ mode overrides double-strike printing; double-strike printing resumes when LQ mode is canceled.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC H, ESC E, ESC F, Double-strike
ESC H  Cancel double-strike printing

Format

    ASCII  ESC  H
    Hex    1B  48
    Decimal  27  72

Function

    Cancels double-strike printing selected with the ESC G command

Default

    Normal (nondouble-strike) printing

Printers not featuring this command

    None

Model-dependent variations

    None

Related topics

    ESC G, ESC E, ESC F, Double-strike
**ESC H**  Cancel double-strike printing

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>48</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>72</td>
</tr>
</tbody>
</table>

**Function**

Cancels double-strike printing selected with the ESC G command

**Default**

Normal (nondouble-strike) printing

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC G, ESC E, ESC F, Double-strike
**Format**

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII ESC - n</th>
<th>Hex 1B 2D n</th>
<th>Decimal 27 45 n</th>
</tr>
</thead>
</table>

**Parameter range**

\[ n = 0, 1, 48, 49 \]

**Function**

Turns on/off printing of a line below all characters and spaces following this command:

- \( n = 1 \) or \(49\) Turns underline on
- \(0\) or \(48\) Turns underline off

**Default**

Normal (non-underlined) printing

**Notes**

- The underline is printed with the following characteristics: draft, LQ, bold, or double-strike.
- The underline is not printed across the distance the horizontal print position is moved with the following commands:
  - `ESC $`
  - `ESC \` (when the print position is moved to the left)
  - `HT`
- Graphics characters are not underlined.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

`ESC (`, `-`, `Score`
**Format**

ASCII  ESC  -  n
Hex  1B  2D  n
Decimal  27  45  n

**Parameter range**

n = 0, 1, 48, 49

**Function**

Turns on/ off printing of a line below all characters and spaces following this command:

n = 1 or 49  Turns on underline
n = 0 or 48  Turns off underline

**Default**

Normal (non-underlined) printing

**Notes**

- The underline is printed with the following characteristics: draft, LQ, bold, or double-strike.
- The underline is not printed across the distance the horizontal print position is moved with the following commands:
  - ESC $
  - ESC \ (when the print position is moved to the left)
  - HT
- Graphics characters are not underlined.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

Score
**ESC ( - Select line/score**

Format

```
ASCII ESC ( - \nl \nH m d1 d2
Hex  1B 28 2D \nl \nH m d1 d2
Decimal 27 40 45 \nl \nH m d1 d2
```

Parameter range

- \nl = 3, \nH = 0
- m = 1
- 1 ≤ d1 ≤ 3
- d2 = 0, 1, 2, 5, 6

Function

Turns on/off scoring of all characters and spaces following this command, according to the parameters below:

- d1 = 1 Underline
  2 Strikethrough
  3 Overscore
- d2 = 0 Turn off scoring
  1 Single continuous line
  2 Double continuous line
  5 Single broken line
  6 Double broken line

Default

No scoring

Notes

- This command is only available on 24 and 48-pin printers.
- Each type of scoring is independent of other types; any combination of scoring methods may be set simultaneously.
- The position and thickness of scoring depends on the current point size setting.
- The score is printed with the following characteristics: draft, LQ, bold, or double-strike.
- Graphics characters are not scored.
- Scoring is not printed across the distance the horizontal print position is moved with the following commands:
  - ESC $
  - ESC \ (when the print position is moved to the left)
  - HT
Printers not featuring this command

ActionPrinter L-1000, LQ-400, LQ-500, LQ-2550

Model-dependent variations

None

Related topics

ESC -, Score
ESC S  Select superscript/subscript printing

Format

ASCII: ESC S n
Hex: 1B 53 n
Decimal: 27 83 n

Parameter range

n = 0, 1, 48, 49

Function

Prints characters that follow at about 2/3 their normal height; the printing location depends on the value of n as follows:

n = 1 or 49     Lower part of the character space
0 or 48        Upper part of the character space

Default

Normal (non-super/subscript) characters

Notes

• This command does not affect graphics characters.
• The width of super/subscript characters when using proportional spacing differs from that of normal characters; see the super/subscript character proportional width table in the Appendix.
• The underline strikes through the descenders on subscript characters during underlining.
• Use the ESC T command to cancel super/subscript printing.
• When point sizes other than 10 (10.5) and 20 (21) are selected in multipoint mode, super/subscript characters are printed at the nearest point size less than or equal to 2/3 the current size.
• When 8-point characters are selected, super/subscript characters are also 8-point characters.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC T, Super/subscript
**ESC S Select superscript/subscript printing**

**Format**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCII</td>
<td>ESC</td>
<td>S</td>
<td>n</td>
</tr>
<tr>
<td>Hex</td>
<td>1B</td>
<td>53</td>
<td>n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>83</td>
<td>n</td>
</tr>
</tbody>
</table>

**Parameter range**

\[ n = 0, 1, 48, 49 \]

**Function**

Prints characters that follow at about 2/3 their normal height; the printing location depends on the value of \( n \) as follows:

\[ n = 1 \text{ or } 49 \quad \text{Lower part of the character space} \]
\[ 0 \text{ or } 48 \quad \text{Upper part of the character space} \]

**Default**

Normal (non-super/subscript) characters

**Notes**

- This command does not affect graphics characters.
- The width of super/subscript characters when using proportional spacing is the same as that of normal characters.
- The underline strikes through the descenders on subscript characters during underline mode.
- Use the ESC T command to cancel super/subscript printing.

**Printers not featuring this command**

None

**Model-dependent variations**

FX-850, FX-1050

Selecting double-height printing overrides super/subscript printing; super/subscript printing resumes when double-height printing is canceled.

**Related topics**

ESC T, Super/subscript
ESC T  Cancel superscript/subscript printing

Format

ASCII      ESC  T
Hex         1B  54
Decimal     27  84

Function

Cancels super/subscript printing selected by the ESC S command

Default

Normal (non-super/subscript) printing

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC S, Super/subscript
**ESC T**  Cancel superscript/subscript printing

**Format**

- **ASCII**: ESC T
- **Hex**: 1B 54
- **Decimal**: 27 84

**Function**

Cancels super/subscript printing selected by the ESC S command.

**Default**

Normal (non-super/subscript) printing

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC S, Super/subscript
**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>q</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>71</td>
<td>n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>113</td>
<td>n</td>
</tr>
</tbody>
</table>

**Parameter range**

\(0 \leq n \leq 3\)

**Function**

Turns on/ off outline and shadow printing, according to the parameters below:

- \(n = 0\) Turn off outline/ shadow printing
- 1 Turn on outline printing
- 2 Turn on shadow printing
- 3 Turn on outline and shadow printing

**Default**

Outline/ shadow printing off

**Notes**

- This command is available only on 24 and 48-pin printers.
- This command does not affect graphics characters.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

Shadow/ outline
**Select condensed printing**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0F</td>
</tr>
<tr>
<td>Decimal</td>
<td>15</td>
</tr>
</tbody>
</table>

**Function**

Enters condensed mode, in which character width is reduced as follows:

<table>
<thead>
<tr>
<th>Selected pitch</th>
<th>Condensed pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cpi</td>
<td>17.14 cpi</td>
</tr>
<tr>
<td>12 cpi</td>
<td>20 cpi</td>
</tr>
<tr>
<td>Proportional</td>
<td>1/2 width</td>
</tr>
</tbody>
</table>

**Default**

Noncondensed printing

**Notes**

- This command is ignored under the following two conditions:
  - The printer is in multipoint mode.
  - 15-cpi printing has been selected with the ESC g command.
- This command cancels the HMI (horizontal motion index) set with the ESC c command.
- This command reduces character width by about 50% when proportional spacing is selected with the ESC p command.
- Cancel condensed printing with the DC2 command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

DC2, Selecting the pitch
SI  Select condensed printing

Format

<table>
<thead>
<tr>
<th></th>
<th>ASCII</th>
<th>Hex</th>
<th>Decimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>SI</td>
<td>0F</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Function

Enters condensed mode, in which character width is reduced as follows:

<table>
<thead>
<tr>
<th>Selected pitch</th>
<th>Condensed pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cpi</td>
<td>17.14 cpi</td>
</tr>
<tr>
<td>12 cpi</td>
<td>20 cpi</td>
</tr>
</tbody>
</table>

Default

Noncondensed printing

Notes

Cancel condensed printing with the DC2 command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

DC2, Selecting the pitch
ESC SI  Select condensed printing

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>0F</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>15</td>
</tr>
</tbody>
</table>

Function

Enters condensed mode, in which character width is reduced as follows:

<table>
<thead>
<tr>
<th>Selected pitch</th>
<th>Condensed pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cpi</td>
<td>17.14 cpi</td>
</tr>
<tr>
<td>12 cpi</td>
<td>20 cpi</td>
</tr>
<tr>
<td>Proportional</td>
<td>1/2 width</td>
</tr>
</tbody>
</table>

Default

Noncondensed printing

Notes

- This is a nonrecommended command; use the SI command instead.
- This command is ignored under the following two conditions:
  - The printer is in multipoint mode.
  - 15-cpi printing has been selected with the ESC g command.
- This command cancels the HMI (horizontal motion index) set with the ESC c command.
- This command reduces character width by about 50% when proportional spacing is selected with the ESC p command.
- Cancel condensed printing with the DC2 command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

DC2, SI, Selecting the pitch
**ESCAPE SI Select condensed printing**

### Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B OF</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 15</td>
</tr>
</tbody>
</table>

### Parameter range

No parameters

### Function

Enters condensed mode, in which characters width is reduced as follows:

<table>
<thead>
<tr>
<th>Selected pitch</th>
<th>Condensed pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cpi</td>
<td>17.14 cpi</td>
</tr>
<tr>
<td>12 cpi</td>
<td>20 cpi</td>
</tr>
</tbody>
</table>

### Default

Noncondensed printing

### Notes

- This is a nonrecommended command; use the SI command instead.
- Cancel condensed printing with the DC2 command.

### Printers not featuring this command

None

### Model-dependent variations

None

### Related topics

SI, DC2, Selecting the pitch
Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>DC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>12</td>
</tr>
<tr>
<td>Decimal</td>
<td>18</td>
</tr>
</tbody>
</table>

Function

Cancels condensed printing selected by the SI or ESC SI commands

Default

Normal (noncondensed) printing

Notes

This command cancels the HMI (horizontal motion index) set with the ESC c command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

SI
DC2  Cancel condensed printing

Format

ASCII  DC2
Hex  12
Decimal  18

Function

Cancels condensed printing selected by the SI or ESC SI commands

Default

Normal (noncondensed) printing

Printers not featuring this command

None

Model-dependent variations

None

Related topics

SI
SO  Select double-width printing (one line)

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>SO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0E</td>
</tr>
<tr>
<td>Decimal</td>
<td>14</td>
</tr>
</tbody>
</table>

Function

Doubles the width of all characters, spaces, and intercharacter spacing (set with the ESC SP command) following this command on the same line.

Default

Normal (nondouble-width) printing

Notes

- This command is canceled when the buffer is full, or the printer receives the following commands: LF, FF, VT, DC4, ESC W 0.
- This command is not canceled by the VT command when it functions the same as a CR command.
- This command cancels the HMI (horizontal motion index) set with the ESC c command.

Printers not featuring this command

None

Model-dependent variations

On non-ESC/ P 2 printers:

This command is also canceled when the printer receives the following commands: CR and VT (when it functions the same as a CR command).

Related topics

ESC W, DC4
**SO**  Select double-width printing (one line)

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>SO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>0E</td>
</tr>
<tr>
<td>Decimal</td>
<td>14</td>
</tr>
</tbody>
</table>

**Function**

Doubles the width of all characters, spaces, and intercharacter spacing (set with the ESC SP command) following this command on the same line.

**Default**

Normal (nondouble-width) printing

**Notes**

This command is canceled when the buffer is full, or the printer receives the following commands: CR, LF, FF, VT, DC4, ESC W 0.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC W, DC4
**ESC SO**  Select double-width printing (one line)

**Format**

ASCII  ESC  SO  
Hex  1B  0E  
Decimal  27  14

**Function**

Doubles the width of all characters, spaces, and intercharacter spacing (set with the ESC SP command) following this command on the same line.

**Default**

Normal (nondouble-width) printing

**Notes**

- This is a nonrecommended command; use the SO command instead.
- This command is canceled when the buffer is full, or the printer receives the following commands: LF, FF, VT, DC4, ESC W 0.
- This command is not canceled by the VT command when it functions the same as a CR command.
- This command cancels the HMI (horizontal motion index) set with the ESC c command.

**Printers not featuring this command**

None

**Model-dependent variations**

On non-ESC/ P 2 printers:

This command is also canceled when the printer receives the following commands: CR and VT (when it functions the same as a CR command).

**Related topics**

SO, DC4
ESC SO  Select double-width printing (one line)

Format

ASCII  ESC  SO
Hex    1B  0E
Decimal 27  14

Function

Doubles the width of all characters, spaces, and intercharacter spacing (set with the ESC SP command) following this command on the same line.

Default

Normal (nondouble-width) printing

Notes

- This is a nonrecommended command; use the SO command instead.
- This command is canceled when the buffer is full, or the printer receives the following commands: CR, LF, FF, VT, DC4, ESC W 0.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

SO, DC4, ESC W
**Format**

- **ASCII**: DC4
- **Hex**: 14
- **Decimal**: 20

**Parameter range**

No parameters

**Function**

Cancels double-width printing selected by the SO or ESC SO commands

**Default**

Normal (nondouble-width)

**Notes**

- This command cancels the HMI (horizontal motion index) set with the ESC c command.
- This command does not cancel double-width printing selected with the ESC W command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

SO
**DC4**  
Cancel double-width printing (one line)

**Format**

<table>
<thead>
<tr>
<th></th>
<th>ASCII</th>
<th>DC4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Decimal</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

**Function**

Cancels double-width printing selected by the SO or ESC SO commands.

**Default**

Normal (nondouble-width) printing

**Notes**

This command does not cancel double-width printing selected with the ESC W command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

SO
**ESC W** Turn double-width printing on/off

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC W n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 57 n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 87 n</td>
</tr>
</tbody>
</table>

**Parameter range**

n = 0, 1, 48, 49

**Function**

Turns on/off double-width printing of all characters, spaces, and intercharacter spacing (set with the ESC SP command) following this command as follows:

n = 1 or 49  Turns on double-width
0 or 48  Turns off double-width

**Default**

Normal (nondouble-width) printing

**Notes**

This command cancels the HMI (horizontal motion index) set with the ESC c command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

SO, DC4
**ESC W**  
**Turn double-width printing on/off**

**Format**

- **ASCII**: ESC W n
- **Hex**: 1B 57 n
- **Decimal**: 27 87 n

**Parameter range**

n = 0, 1, 48, 49

**Function**

Turns on/off double-width printing of all characters, spaces, and intercharacter spacing (set with the ESC SP command) following this command as follows:

n = 1 or 49  
Turns on double-width

0 or 48  
Turns off double-width

**Default**

Normal (nondouble-width) printing

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

SO, DC4
**ESC w** Turn double-height printing on/off

**Format**

ASCII ESC w n  
Hex 1B 77 n  
Decimal 27 119 n

**Parameter range**

n = 0, 1, 48, 49

**Function**

Turns on/off double-height printing of all characters, as measured from the current baseline:

n = 1 or 49  Turns on double-width  
0 or 48  Turns off double-width

**Default**

Standard-height printing

**Notes**

- This command does not affect line spacing.
- The first line of a page is not doubled if ESC w is sent on the first printable line; all following lines are printed at double-height.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

Selecting the point size
**ESC w**  
**Turn double-height printing on/off**

**Format**

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>ESC</th>
<th>w</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>77</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>119</td>
<td>n</td>
<td></td>
</tr>
</tbody>
</table>

**Parameter range**

n = 0, 1, 48, 49

**Function**

Turns on/off double-height printing of all characters, as measured from the current baseline:

n = 1 or 49   Turns on double-width  
0 or 48       Turns off double-width

**Default**

Standard-height printing

**Notes**

- This command does not affect line spacing.
- The first line of a page is not doubled if the ESC w command is sent on the first line; all following lines are printed at double-height.
- Double-height printing overrides super/subscript, condensed, and high-speed draft printing; super/subscript, condensed, and high-speed draft printing resume when double-height printing is canceled.

**Printers not featuring this command**

ActionPrinter Apex 80, ActionPrinter T-1000, DFX-5000, DFX-5000+, LX-Series printers

**Model-dependent variations**

None

**Related topics**

Selecting the point size
**Format**

| Format | ASCII | 27 40 94 n | \( n \) | \( d_1 \ldots d_k \) |
|--------|--------|-----------|--------|
| Hex    | 1B 28 5E n | \( n \) | \( d_1 \ldots d_k \) |
| Decimal| 27 40 94 n | \( n \) | \( d_1 \ldots d_k \) |

**Parameter range**

- \( 0 \leq n_H \leq 127 \)
- \( 0 \leq n_L \leq 255 \)

**Function**

- Prints data bytes \( d_1 \) through \( d_k \) as characters, not control codes
- The amount of data to be sent is calculated as follows:

\[
\begin{align*}
  k &= (n_H \times 256) + n_L \\
  n_H &= \text{INT} \left( \frac{k}{256} \right) \\
  n_L &= \text{MOD} \left( \frac{k}{256} \right)
\end{align*}
\]

**Default**

Control-code data treated as control codes

**Notes**

- This command is available only on printers featuring ESC/P 2.
- The printer ignores data if no character is assigned to that character code in the currently selected character table.

**Printers not featuring this command**

All non-ESC/P 2 printers

**Model-dependent variations**

None

**Related topics**

ESC 6, ESC 7
ESC 6  Enable printing of upper control codes

Format

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>ESC</th>
<th>Hex</th>
<th>Decimal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ESC</td>
<td>6</td>
<td>1B</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td>54</td>
</tr>
</tbody>
</table>

Function

Tells the printer to treat codes from 128 to 159 as printable characters instead of control codes

Default

Codes 128 to 159 are treated as printable characters

Notes

- This command has no effect when the italic character table is selected; no characters are defined for these codes in the italic character table.
- This command remains in effect even if you change the character table.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC ( ^, ESC 7
ESC 6  Enable printing of upper control codes

Format

ASCII ESC 6
Hex 1B 36
Decimal 27 54

Function

Tells the printer to treat codes from 128 to 159 as printable characters instead of control codes.

Default

Codes 128 to 159 are treated as control codes.

Notes

- This command has no effect when the italic character table is selected; no characters are defined for these codes in the italic character table.
- This command remains in effect even if you change the character table.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC I, ESC 7
**ESC 7  Enable upper control codes**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>37</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>55</td>
</tr>
</tbody>
</table>

**Function**

Tells the printer to treat codes from 128 to 159 as control codes instead of printable characters.

**Default**

Codes 128 to 159 are treated as printable codes.

**Notes**

This command remains in effect even if you change the character table.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC ( \^, ESC 6
ESC 7  Enable upper control codes

Format

ASCII  ESC    7
Hex    1B   37
Decimal 27   55

Function

Tells the printer to treat codes from 128 to 159 as control codes instead of printable characters

Default

Codes 128 to 159 are treated as control codes

Notes

This command remains in effect even if you change the character table.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC 6, ESC I
ESC I Enable printing of control codes

Format

ASCII ESC I n
Hex  1B 49 n
Decimal 27 73 n

Parameter range

n = 0, 1

Function

n = 1    Tells the printer to treat codes 0-6, 16, 17, 21-23, 25, 26, 28-31, and 128-159 as printable characters
0        Tells the printer to treat these codes as unprintable characters

Default

Codes are treated as control codes

Notes

• This command has no effect when the italic character table is selected; no characters are defined for these codes in the italic character table.
• This command remains in effect even if you change the character table.

Printers not featuring this command


Model-dependent variations

None

Related topics

ESC 6, ESC 7
ESC \textit{m} \textbf{Select printing of upper control codes}

\textbf{Format}

\begin{itemize}
  \item \textit{ASCII} \hspace{1em} \texttt{ESC \textit{m} \ n}
  \item \texttt{Hex} \hspace{1em} \texttt{1B 6D \ n}
  \item \texttt{Decimal} \hspace{1em} \texttt{27 109 \ n}
\end{itemize}

\textbf{Parameter range}

\begin{itemize}
  \item \texttt{n} = 0, 4
\end{itemize}

\textbf{Function}

Selects between the following:

\begin{itemize}
  \item \texttt{n} = 0 \hspace{1em} Tells the printer to treat codes from 128 to 159 as printable characters
  \item \texttt{4} \hspace{1em} Tells the printer to treat codes from 128 to 159 as control codes
\end{itemize}

\textbf{Default}

Codes 128 to 159 treated as control codes

\textbf{Notes}

\begin{itemize}
  \item This is a nonrecommended command; use the ESC I, ESC 6, or ESC 7 commands instead, when possible.
  \item This command has no effect when the italic character table is selected; no characters are defined for these codes in the italic character table.
  \item This command remains in effect even if you change the character table.
\end{itemize}

\textbf{Printers not featuring this command}


\textbf{Model-dependent variations}

None

\textbf{Related topics}

ESC 6, ESC 7, ESC I
Control paper loading/ejecting

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>EM</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1B</td>
<td>19</td>
<td>n</td>
</tr>
</tbody>
</table>

**Parameter range**

\[ n = 49, 50, 66, 70, 82 \]

**Function**

Controls feeding of continuous and single-sheet paper, according to the parameters below:

- \( n = 49 \) “1” Selects loading from bin 1 of the cut-sheet feeder
- \( 50 \) “2” Selects loading from bin 2 of the cut-sheet feeder
- \( 66 \) “B” Loads paper from the rear tractor
- \( 70 \) “F” Loads paper from the front tractor
- \( 82 \) “R” Ejects one sheet of single-sheet paper

**Notes**

- This command was formerly known as “Control cut-sheet feeder.”
- The former parameters “0” and “4” that control cut-sheet feeder mode are non-recommended, and have been discontinued in ESC/P 2. ESC/P 2 printers do not have a separate cut-sheet feeder mode; the former cut-sheet feeder mode is now integrated into normal printer operation.
- The parameter “R” ejects the currently loaded single-sheet paper without printing data from the line buffer; this is not the equivalent of the FF command (which does print line-buffer data).

**Printers not featuring this command**

None

**Model-dependent variations**

On non-ESC/P 2 printers:

- Only use this command when a cut-sheet feeder is installed.
- The following additional parameters are available:
  - \( n = 48 \) “0” Exits cut-sheet feeder mode
  - \( 52 \) “4” Enters cut-sheet feeder mode
- However, these parameters are non-recommended; cut-sheet feeder mode should be selected by DIP switch instead.

**Related topics**

Set the Printing Area
**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>EM</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>19</td>
<td>n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>25</td>
<td>n</td>
</tr>
</tbody>
</table>

**Parameter range**

\[ n = 48, 49, 50, 52, 66, 70, 82 \]

**Function**

Controls feeding of continuous and single-sheet paper, according to the parameters below:

- \( n = 48 \) “0” Exits cut-sheet feeder mode
- \( n = 49 \) “1” Selects loading from bin 1 of the cut-sheet feeder
- \( n = 50 \) “2” Selects loading from bin 2 of the cut-sheet feeder
- \( n = 52 \) “4” Enters cut-sheet feeder mode
- \( n = 66 \) “B” Loads paper from the rear tractor
- \( n = 70 \) “F” Loads paper from the front tractor
- \( n = 82 \) “R” Ejects one sheet of single-sheet paper

**Notes**

- This command was formerly known as “Control cut-sheet feeder.”
- The parameters “0” and “4” that control cut-sheet feeder mode are nonrecommended; cut-sheet feeder mode should be selected by DIP switch instead.

**Printers not featuring this command**

DFX-5000, DFX-5000+

**Model-dependent variations**

None

**Related topics**

Set the Printing Area
**ESC U  Turn unidirectional mode on/off**

**Format**

- ASCII: ESC U n
- Hex: 1B 55 n
- Decimal: 27 85 n

**Parameter range**

n = 0, 1, 48, 49

**Function**

Selects bidirectional or unidirectional printing, according to the parameters below:

- n = 0 or 48: Bidirectional printing
- 1 or 49: Unidirectional printing

**Default**

Bidirectional printing (may depend on DIP-switch setting)

**Notes**

- Unidirectional printing provides better alignment of vertical lines, while bidirectional printing is faster.
- If unidirectional is selected by DIP switch, you cannot select bidirectional printing with this command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

- Selecting unidirectional print head movement
**ESC U**  Turn unidirectional mode on/off

**Format**

ASCII  ESC  U  n  
Hex   1B  55  n  
Decimal  27  85  n  

**Parameter range**

n = 0, 1, 48, 49

**Function**

Selects bidirectional or unidirectional printing, according to the parameters below:

n = 0 or 48   Bidirectional printing
1 or 49   Unidirectional printing

**Default**

Bidirectional printing (may depend on DIP-switch setting)

**Notes**

- Unidirectional printing provides better alignment of vertical lines, while bidirectional printing is faster.
- If unidirectional is selected by DIP switch, you cannot select bidirectional printing with this command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

Selecting unidirectional print head movement
ESC <  Unidirectional mode (one line)

Format

ASCII  ESC  <
Hex     1B  3C
Decimal 27  60

Function

Moves the print head to the extreme left position so the next line will print left to right

Default

Bidirectional printing (may depend on DIP-switch setting)

Notes

This is a nonrecommended command; use the ESC U command instead.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC U
ESC <  Unidirectional mode (one line)

Format

ASCII  ESC <
Hex  1B  3C
Decimal  27  60

Function

Moves the print head to the extreme left position so the next line will print left to right

Default

Bidirectional printing (may depend on DIP-switch setting)

Notes

This is a nonrecommended command; use the ESC U command instead.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC U
**BEL** Beeper

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>BEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>07</td>
</tr>
<tr>
<td>Decimal</td>
<td>7</td>
</tr>
</tbody>
</table>

**Function**

Sounds the printer's beeper for 1/10 second

**Notes**

This is a nonrecommended command.

**Printers not featuring this command**

None

**Model-dependent variations**

None
**BEL Beeper**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>BEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>07</td>
</tr>
<tr>
<td>Decimal</td>
<td>7</td>
</tr>
</tbody>
</table>

**Function**

Sounds the printer’s beeper for 1/10 second

**Notes**

This is a nonrecommended command.

**Printers not featuring this command**

None

**Model-dependent variations**

None
ESC 8  Disable paper-out detector

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>38</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>56</td>
</tr>
</tbody>
</table>

Function

- The printer continues printing when the end of the paper is reached.
- No beeper sounds when the end of paper is reached, but the printer sets the PE (printer-error) signal to high and the parallel interface error signal to low.

Default

Paper-out detector enabled

Notes

This is a nonrecommended command.

Printers not featuring this command

DFX-5000, DFX-8000, DFX-5000+

Model-dependent variations

None

Related topics

ESC 9
ESC 9  Enable paper-out detector

Format

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII</th>
<th>ESC</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>

Function

- The printer stops printing when the end of the paper is reached
- The beeper sounds when the end of paper is reached, and the printer sets the PE (printer-error) signal to high and the parallel interface error signal to low

Default

Paper-out detector is enabled

Notes

This is a nonrecommended command.

Printers not featuring this command

DFX-5000, DFX-8000, DFX-5000+

Model-dependent variations

None

Related topics

ESC 8
ESC \textasciicircum{} s Select low-speed mode

Format

\begin{verbatim}
    ASCII    ESC     s     n
    Hex      1B  73  n
    Decimal  27 115 n
\end{verbatim}

Parameter range

\( n = 0, 1, 48, 49 \)

Function

Controls printing speed as follows:

\( n = 0 \) or \( 48 \) \hspace{1em} \text{Prints at normal speed}
\( 1 \) or \( 49 \) \hspace{1em} \text{Prints at low speed}

Default

Normal-speed printing

Notes

\begin{itemize}
  \item This is a nonrecommended command.
  \item This command has been deleted in ESC/ P 2.
\end{itemize}

Printers not featuring this command


Model-dependent variations

None
ESC s Select low-speed mode

Format

ASCII    ESC s n
Hex       1B  73  n
Decimal   27  115 n

Parameter range

n = 0, 1, 48, 49

Function

Controls printing speed as follows:

n = 0 or 48   Prints at normal speed
1 or 49      Prints at low speed

Default

Normal-speed printing

Notes

This is a nonrecommended command.

Printers not featuring this command

DFX-5000, DFX-8000, DFX-5000+

Model-dependent variations

None
**Format**

ASCII: \( \text{ESC} \ G \ n_L \ n_H \ m \)

Hex: \(1B \ 28 \ 47 \ n_L \ n_H \ m\)

Decimal: \(27 \ 40 \ 71 \ n_L \ n_H \ m\)

**Parameter range**

- \(n_L = 1\)
- \(n_H = 0\)
- \(m = 1, 49\)

**Function**

Selects graphics mode (allowing you to print raster graphics)

**Notes**

- This command is available only on printers featuring ESC/P 2.
- Exit graphics mode by sending the ESC @ (Initialize printer) command.
- This command clears all user-defined characters and tab settings.
- Text printing is not possible during graphics mode.
- Do not mix text and graphics-mode printing on the same page.
- Only the following commands are available in graphics mode; the printer ignores all other commands:

```
LF Line feed
FF Form feed
CR Carriage return
ESC EM Control paper loading/ ejecting
ESC @ Initialize printer (exit graphics mode)
ESC . Print raster graphics
ESC . 2 Enter TIFF compressed mode*
ESC ( i Select MicroWeave print mode*
ESC ( c Set page format
ESC ( C Set page length in defined unit
ESC ( V Set absolute vertical print position
ESC ( v Set relative vertical print position
ESC \ Set relative vertical print position
ESC $ Set absolute horizontal print position
ESC r Select printing color
ESC U Turn unidirectional mode on/ off
ESC + Set n/ 360-inch line spacing
ESC ( U Set unit
```

* The ESC . 2 and ESC ( i commands are available only with the Stylus COLOR and later inkjet printer models.
Printers not featuring this command

All non-ESC/P 2 printers

Model-dependent variations

None

Related topics

ESC ., ESC . 2, ESC ( i, Sending graphics data, Graphics mode, Binary Mode Commands
**ESC ( i Select MicroWeave print mode**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC ( i 01 00 n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 28 69 01 00 n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 40 105 01 00 n</td>
</tr>
</tbody>
</table>

**Parameter range**

$n = 0, 1, 48, 49$

**Function**

Turns MicroWeave print mode off and on:

- $n = 0$ or $48$: MicroWeave off
- $1$ or $49$: MicroWeave on

**Notes**

- MicroWeave printing takes longer, but improves printout appearance by reducing banding.
- This command is only available during raster graphics printing.
- Sending an ESC @ or ESC ( G command turns MicroWeave printing off.
- Always send this command before loading paper.

**Printers featuring this command**

Stylus COLOR

**Model-dependent variations**

None

**Related topics**

ESC ., ESC . 2, ESC ( G, ESC @, Sending graphics data, Graphics mode
**ESC . Print raster graphics**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC .</th>
<th>c</th>
<th>v</th>
<th>h</th>
<th>m</th>
<th>n_L</th>
<th>n_H</th>
<th>d_1</th>
<th>d_2</th>
<th>...</th>
<th>d_k</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 2E</td>
<td>c</td>
<td>v</td>
<td>h</td>
<td>m</td>
<td>n_L</td>
<td>n_H</td>
<td>d_1</td>
<td>d_2</td>
<td>...</td>
<td>d_k</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 46</td>
<td>c</td>
<td>v</td>
<td>h</td>
<td>m</td>
<td>n_L</td>
<td>n_H</td>
<td>d_1</td>
<td>d_2</td>
<td>...</td>
<td>d_k</td>
</tr>
</tbody>
</table>

**Parameter range**

- c = 0
- c = 1
- v = 5, 10, 20
- h = 5, 10, 20
- m = 1, 8, 24
- 0 ≤ n_L ≤ 255
- 0 ≤ n_H ≤ 127
- 0 ≤ d ≤ 255

The following vertical and horizontal printing resolution combinations are available:

<table>
<thead>
<tr>
<th>v</th>
<th>h</th>
<th>v (dpi)</th>
<th>h (dpi)</th>
<th>m</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>20</td>
<td>180</td>
<td>180</td>
<td>1, 8, or 24</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>180</td>
<td>360</td>
<td>1, 8, or 24</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>360</td>
<td>360</td>
<td>1, 8, or 24</td>
</tr>
</tbody>
</table>

Stylus COLOR only

| 5  | 5  | 720 | 720 | 1 (with special paper) |

**Function**

- Prints dot graphics in raster format (row by row, left to right)
- Allows compression of graphics data during raster graphics printing; counters can be included with data to specify the number of times to repeat a particular byte of data
- Parameters are used as described below:

  - c = 0  Full graphics mode (noncompressed)
  - c = 1  Compressed raster graphics (Run Length Encoding) mode
  - v  Vertical resolution in dpi—720, 360, 180 (3600/ v dpi)
  - h  Horizontal resolution in dpi—720, 360, 180 (3600/ h dpi)
  - m  Vertical dot count (rows of dot graphics)
  - n_L, n_H  Horizontal dot count (columns of dot graphics), according to the following formula:

    \[
    n_H = \text{INT} \left( \frac{\text{horizontal dot count}}{256} \right) \\
    n_L = \text{MOD} \left( \frac{\text{horizontal dot count}}{256} \right)
    \]
k  Total number of data bytes, according to the following formula:

\[ k = m \times \text{INT} \left( \frac{(n_i \times 256) + n_l + 7}{8} \right) \]

d  During full graphics mode:
     Graphics data

During RLE compressed raster graphics mode (ESC .1):
The first data byte is treated as a counter. Graphics data bytes then alternate
with a data counter byte (run-length data compression), as follows:

\[ 0 \leq (\text{counter byte}) \leq 127 \]

Counter specifies the number of data bytes following according to the
formula below.

\[ (\text{counter byte}) + 1 = (\text{number of data bytes to follow}) \text{ or} \]
\[ (\text{counter byte}) = (\text{number of data bytes to follow}) - 1 \]
\[ 128 \leq (\text{counter byte}) \leq 255 \]

Counter specifies the number of times to repeat the next byte of data
according to the formula below.

\[ 256 - (\text{counter byte}) + 1 = (\text{number of times to repeat next byte}) \]
\[ (\text{counter byte}) = 257 - (\text{number of times to repeat next byte}) \]

Notes

- Use only one image density and do not change this setting once in raster graphics
  mode.
- Parameters in bold are new to this command and apply to the Stylus COLOR and later
  printer models.
- When MicroWeave is selected, the image height \( m \) must be set to 1.
- Special coated stock paper available from EPSON is required when printing raster
  graphics at 720 dpi.
- This command is available only on printers featuring ESC/P 2.
- This command can be used only during graphics mode, entered by sending the ESC ( G
  command.
- The combination of \( v = 10 \) and \( h = 20 \) (360 dpi by 180 dpi) is not possible.
- You can specify the horizontal dot count in 1-dot increments. If the dot count is not a
  multiple of 8, the remaining data in the data byte at the far right of each row is ignored.
- The final print position is the dot after the far right dot on the top row of the graphics
  printed with this command.
- Repetitive data bytes can be mixed with data blocks in the same command.
- You cannot move the print position in a negative direction (up) while in graphics mode.
  Also, the printer ignores commands moving the vertical print position in a negative
direction if the final position would be above any graphics printed with this command.
• Print data that exceeds the right margin is ignored.
• Do not specify the vertical movement in increments smaller than the current print density.

Printers not featuring this command

All non-ESC/P ² printers

Model-dependent variations

Vertical and horizontal resolutions of 720 dpi are available only with the Stylus COLOR.

Related topics

ESC ( G, Sending graphics data, Raster graphics
**ESC . 2 Enter TIFF compressed mode**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC . 2 v h 1 0 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 2E 2 v h 1 0 0</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 46 2 v h 1 0 0</td>
</tr>
</tbody>
</table>

**Parameter range**

- \( v = 5, 10, 20 \) vertical resolutions in dpi—720, 360, 180 (3600/v dpi)
- \( h = 5, 10, 20 \) horizontal resolutions in dpi—720, 360, 180 (3600/h dpi)

The following vertical and horizontal printing resolution combinations are available:

<table>
<thead>
<tr>
<th>v</th>
<th>h</th>
<th>v (dpi)</th>
<th>h (dpi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>20</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>180</td>
<td>360</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>360</td>
<td>360</td>
</tr>
</tbody>
</table>

**Stylus COLOR only**

| 5 | 5 | 720 | 720 (with special paper) |

**Function**

- Enters TIFF raster graphics compressed mode
- The following commands are available in TIFF mode (all other codes are ignored):
  - `<XFER>` Transfer raster graphics data
  - `<MOVX>` Set relative horizontal position
  - `<MOVy>` Set relative vertical position
  - `<COLR>` Select printing color
  - `<CR>` Carriage return to left-most print position
  - `<EXIT>` Exit TIFF mode
  - `<MOVXBYTE>` Set `<MOVX>` unit to 8 dots
  - `<MOVXDOT>` Set `<MOVX>` unit to 1 dot

- This mode allows compression of graphics data during raster graphics printing.

**Notes**

- This command can be used only during graphics mode, which is entered by sending the ESC ( G command.
- This command pertains only to Stylus COLOR and later printer models.
- Use only one image density and do not change this setting after entering raster graphics mode.
- Do not overwrite image data.
- The horizontal positioning should be a multiple of 8, otherwise the printer’s throughput will decline.
- The combination of \( v = 10 \) and \( h = 20 \) (360 vertical dots by 180 horizontal dots) is not possible.
- Special coated stock paper available from EPSON is required when printing raster graphics at 720 dpi.
- Do not specify the vertical movement in increments smaller than the current print density.

**Printers featuring this command**

Stylus COLOR

**Model-dependent variations**

None

**Related topics**

ESC ., ESC ( G, ESC @ Sending graphics data, Graphics mode, Binary Mode Commands
**Format**

<table>
<thead>
<tr>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCII</td>
<td><code>ESC * m n_L n_H d_1 ... d_k</code></td>
</tr>
<tr>
<td>Hex</td>
<td><code>1B 2A m n_L n_H d_1 ... d_k</code></td>
</tr>
<tr>
<td>Decimal</td>
<td><code>27 42 m n_L n_H d_1 ... d_k</code></td>
</tr>
</tbody>
</table>

**Parameter range**

0 ≤ n_L ≤ 255
0 ≤ n_H ≤ 31
m = 0, 1, 2, 3, 4, 6, 32, 33, 38, 39, 40, 71, 72, 73

**Function**

Prints dot-graphics in 8, 24, or 48-dot columns, depending on the following parameters:

- **m** Specifies the dot density (see table below)
- **n_L, n_H** Specifies the total number of columns of graphics data that follow

\[
\text{(number of dot columns)} = \left( n_H \times 256 \right) + n_L
\]

\[
\begin{align*}
n_H &= \text{INT} \left( \frac{\text{(number of dot columns)}}{256} \right) \\
n_L &= \text{MOD} \left( \frac{\text{(number of dot columns)}}{256} \right)
\end{align*}
\]

- **d_1 ... d_k** Bytes of graphics data; k is determined by multiplying the total number of columns times the number of bytes required for each column (see the table below)
<table>
<thead>
<tr>
<th>Parameter m in ESC * command</th>
<th>Horizontal density (dpi)</th>
<th>Vertical density (dpi)</th>
<th>Adjacent dot printing</th>
<th>Dots per column</th>
<th>Bytes per column</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>60</td>
<td>60</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>120</td>
<td>60</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
<td>60</td>
<td>No</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>240</td>
<td>60</td>
<td>No</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>80</td>
<td>60</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>90</td>
<td>60</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>32</td>
<td>60</td>
<td>180</td>
<td>Yes</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>33</td>
<td>120</td>
<td>180</td>
<td>Yes</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>38</td>
<td>90</td>
<td>180</td>
<td>Yes</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>39</td>
<td>180</td>
<td>180</td>
<td>Yes</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>40</td>
<td>360</td>
<td>180</td>
<td>No</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>71</td>
<td>180</td>
<td>N/A</td>
<td>360</td>
<td>Yes</td>
<td>48</td>
</tr>
<tr>
<td>72</td>
<td>360</td>
<td>N/A</td>
<td>360</td>
<td>No</td>
<td>48</td>
</tr>
<tr>
<td>73</td>
<td>360</td>
<td>N/A</td>
<td>360</td>
<td>Yes</td>
<td>48</td>
</tr>
</tbody>
</table>

**Notes**

- Not all values for m are available on all printers; see the Command Table for a list of which values are available on your printer.
- Printing 48-dot columns is available only on 48-dot printers.

**Printers not featuring this command**

None

**Model-dependent variations**


A vertical print density of 360 dpi can be achieved on 24-pin printers that feature the ESC + command. Advance the paper 1/360 inch (using the ESC + command) and then overprint the previous graphics line.

**Related topics**

Sending graphics data, Bit-image graphics
**ESC * Select bit image**

**Format**

ASCII

ESC * m nL nH d1 ... dk

Hex

1B 2A m nL nH d1 ... dk

Decimal

27 42 m nL nH d1 ... dk

**Parameter range**

- \(0 \leq n_L \leq 255\)
- \(0 \leq n_H \leq 31\)
- \(m = 0, 1, 2, 3, 4, 5, 6, 7\)

**Function**

Prints dot-graphics in 8-dot columns, depending on the following parameters:

- **m**: Specifies the dot density (see table below)
- **nL, nH**: Specify the total number of columns (k) of graphics data following, according to the formula

\[
\text{number of dot columns} = \left(\frac{n_H \times 256 + n_L}{256}\right)
\]

\[
n_{H} = \text{INT} \left(\frac{\text{number of dot columns}}{256}\right)
\]

\[
n_{L} = \text{MOD} \left(\frac{\text{number of dot columns}}{256}\right)
\]

- **d1...dk**: Bytes of graphics data

**Dot density**

<table>
<thead>
<tr>
<th>Parameter m in ESC * command</th>
<th>Horizontal density</th>
<th>Vertical density</th>
<th>Adjacent dot printing</th>
<th>Dots per column</th>
<th>Bytes per column</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>60</td>
<td>72</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>120</td>
<td>72</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
<td>72</td>
<td>No</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>240</td>
<td>72</td>
<td>No</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>80</td>
<td>72</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>72</td>
<td>72</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>90</td>
<td>72</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>144</td>
<td>72</td>
<td>Yes</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>

**Notes**

- Graphics data that would print beyond the right-margin position is ignored.
- Bit-image graphics can be printed on the same line as text.
- Not all values for m are available on all printers; see the Command Table for a list of which values are available on your printer.
Printers not featuring this command

None

Model-dependent variations


Parameter 7 (144 dot horizontal density) is not available.

Related topics

Sending graphics data, Bit-image graphics
**ESC ? Reassign bit-image mode**

**Format**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>n</th>
<th>m</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCII</td>
<td>ESC ? n m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hex</td>
<td>1B 3F n m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decimal</td>
<td>27 63 n m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Parameter range**

n = 75, 76, 89, 90
m = 0, 1, 2, 3, 4, 6, 32, 33, 38, 39, 40, 71, 72, 73

**Function**

Assigns the dot density used during the ESC K, ESC L, ESC Y, or ESC Z commands to the density specified by parameter m in the ESC * command.

**Default**

ESC K is assigned density 0
ESC L is assigned density 1
ESC Y is assigned density 2
ESC Z is assigned density 3

**Notes**

- This is a nonrecommended command; use the ESC * command to print graphics rather than the ESC K, ESC L, ESC Y, or ESC Z commands.
- Bit-image modes that handle data in 48-dot columns can only be printed on 48-dot printers.

**Printers not featuring this command**

None

**Model-dependent variations**

See the Command Table for the m values that can be reassigned in each printer model.

**Related topics**

ESC *
ESC ?  Reassign bit-image mode

Format

ASCII  ESC  ?  n  m
Hex    1B  3F  n  m
Decimal 27  63  n  m

Parameter range

n = 75, 76, 89, 90
m = 0, 1, 2, 3, 4, 5, 6, 7

Function

Assigns the dot density used during the ESC K, ESC L, ESC Y, or ESC Z commands to the density specified by parameter m in the ESC * command.

Default

ESC K is assigned density 0
ESC L is assigned density 1
ESC Y is assigned density 2
ESC Z is assigned density 3

Notes

This is a nonrecommended command; use the ESC * command to print graphics rather than the ESC K, ESC L, ESC Y, or ESC Z commands.

Printers not featuring this command

None

Model-dependent variations

See the Command Table for the m values that can be reassigned in each printer model.

Related topics

ESC *
ESC K  Select 60-dpi graphics

Format

ASCII  ESC  K  n_L  n_H  d_1  d_2  ...  d_k
Hex    1B  4B  n_L  n_H  d_1  d_2  ...  d_k
Decimal 27  75  n_L  n_H  d_1  d_2  ...  d_k

Parameter range

0 ≤ n_L ≤ 255
0 ≤ n_H ≤ 31
0 ≤ d ≤ 255

Function

Prints bit-image graphics in 8-dot columns, at a density of 60 horizontal by 60 vertical dpi, according to the following parameters:

n_L, n_H  Specify the total number of columns (k) of graphics data following, according to the formula

k = (n_H × 256 + n_L)

n_H = INT k / 256

n_L = MOD k / 256

d_1 ... d_k  Bytes of graphics data

Notes

• This is a nonrecommended command. The ESC * 0 command is identical to this command; use ESC * 0 instead of this command.
• The dot density printed with this command can be redefined with the ESC ? command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC *
ESC K  Select 60-dpi graphics

Format

ASCII  ESC  K  n_{L}  n_{H}  d_{1}  d_{2}  \ldots  d_{k}
Hex    1B  4B  n_{L}  n_{H}  d_{1}  d_{2}  \ldots  d_{k}
Decimal 27  75  n_{L}  n_{H}  d_{1}  d_{2}  \ldots  d_{k}

Parameter range

0 \leq n_{L} \leq 255
0 \leq n_{H} \leq 31
0 \leq d \leq 255

Function

Prints bit-image graphics in 8-dot columns, at a density of 60 horizontal by 72 vertical dpi, according to the following parameters:

\[ k = (n_{H} \times 256) + n_{L} \]
\[ n_{H} = \text{INT} \left( \frac{k}{256} \right) \]
\[ n_{L} = \text{MOD} \left( \frac{k}{256} \right) \]

\[ d_{1} \ldots d_{k} \]  Bytes of graphics data

Notes

- This is a nonrecommended command. The ESC * 0 command is identical to this command; use ESC * 0 instead of this command.
- The dot density printed with this command can be redefined with the ESC ? command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC *
**ESC L**  **Select 120-dpi graphics**

**Format**

ASCII ESC L n_L n_H d_1 d_2 . . . d_k
Hex 1B 4C n_L n_H d_1 d_2 . . . d_k
Decimal 27 76 n_L n_H d_1 d_2 . . . d_k

**Parameter range**

0 ≤ n_L ≤ 255
0 ≤ n_H ≤ 31
0 ≤ d ≤ 255

**Function**

Prints bit-image graphics in 8-dot columns, at a density of 120 horizontal by 60 vertical dpi, according to the following parameters:

n_L, n_H Specify the total number of columns (k) of graphics data following, according to the formula

\[ k = (n_H \times 256) + n_L \]
\[ n_H = \text{INT} \left( \frac{k}{256} \right) \]
\[ n_L = \text{MOD} \left( \frac{k}{256} \right) \]

d_1 . . . d_k Bytes of graphics data

**Notes**

- This is a nonrecommended command. The ESC * 1 command is identical to this command; use ESC * 1 instead of this command.
- The dot density printed with this command can be redefined with the ESC ? command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC *
ESC L  Select 120-dpi graphics

Format

ASCII  ESC  L  n_L  n_H  d_1  d_2  ...  d_k
Hex    1B  4C  n_L  n_H  d_1  d_2  ...  d_k
Decimal 27  76  n_L  n_H  d_1  d_2  ...  d_k

Parameter range

0 ≤ n_L ≤ 255
0 ≤ n_H ≤ 31
0 ≤ d ≤ 255

Function

Prints bit-image graphics in 8-dot columns, at a density of 120 horizontal by 72 vertical dpi, according to the following parameters:

n_L, n_H  Specify the total number of columns (k) of graphics data following, according to the formula

\[ k = (n_H \times 256) + n_L \]

n_H = INT \( \frac{k}{256} \)

n_L = MOD \( \frac{k}{256} \)

d_1 . . . d_k  Bytes of graphics data

Notes

• This is a nonrecommended command. The ESC * 1 command is identical to this command; use ESC * 1 instead of this command.
• The dot density printed with this command can be redefined with the ESC ? command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC *
ESC Y  Select 120-dpi, double-speed graphics

Format

ASCII  ESC Y  n_L  n_H  d_1  d_2  ...  d_k
Hex   1B  59  n_L  n_H  d_1  d_2  ...  d_k
Decimal  27  89  n_L  n_H  d_1  d_2  ...  d_k

Parameter range

0 ≤ n_L ≤ 255
0 ≤ n_H ≤ 31
0 ≤ d_i ≤ 255

Function

Prints bit-image graphics in 8-dot columns, at a density of 120 horizontal by 60 vertical dpi, according to the following parameters:

n_L, n_H: Specify the total number of columns (k) of graphics data following, according to the formula

k = ((n_H × 256) + n_L)

n_H = INT k

n_L = MOD k

d_1 . . . d_k: Bytes of graphics data

Notes

• This is a nonrecommended command. The ESC * 2 command is identical to this command; use ESC * 2 instead of this command.
• The speed is double because consecutive horizontal dots cannot be printed; the printer ignores the second continuous horizontal dot.
• The dot density printed with this command can be redefined with the ESC ? command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC *
ESC Y Select 120-dpi, double-speed graphics

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC Y nL nH d1 d2 ... dk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 59 nL nH d1 d2 ... dk</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 89 nL nH d1 d2 ... dk</td>
</tr>
</tbody>
</table>

Parameter range

- \(0 \leq n_L \leq 255\)
- \(0 \leq n_H \leq 31\)
- \(0 \leq d \leq 255\)

Function

Prints bit-image graphics in 8-dot columns, at a density of 120 horizontal by 72 vertical dpi, according to the following parameters:

\(n_L, n_H\) Specify the total number of columns (k) of graphics data following, according to the formula

\[
k = ((n_H \times 256) + n_L)
\]

\[
 n_H = \text{INT} \left( \frac{k}{256} \right)
\]

\[
 n_L = \text{MOD} \left( \frac{k}{256} \right)
\]

\(d_1 \ldots d_k\) Bytes of graphics data

Notes

- This is a nonrecommended command. The ESC * 2 command is identical to this command; use ESC * 2 instead of this command.
- The speed is double because consecutive horizontal dots cannot be printed; the printer ignores the second continuous horizontal dot.
- The dot density printed with this command can be redefined with the ESC ? command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC *
**ESC Z**  Select 240-dpi graphics

**Format**

ASCII ESC Z nL nH d1 d2 . . . dk

Hex 1B 5A nL nH d1 d2 . . . dk

Decimal 27 90 nL nH d1 d2 . . . dk

**Parameter range**

0 ≤ nL ≤ 255
0 ≤ nH ≤ 31
0 ≤ d ≤ 255

**Function**

Prints bit-image graphics in 8-dot columns, at a density of 240 horizontal by 60 vertical dpi, according to the following parameters:

nL, nH Specify the total number of columns (k) of graphics data following, according to the formula

\[ k = ((nH \times 256) + nL) \]

\[ nH = \text{INT} \left( \frac{k}{256} \right) \]

\[ nL = \text{MOD} \left( \frac{k}{256} \right) \]

d1 . . . dk Bytes of graphics data

**Notes**

- This is a nonrecommended command. The ESC * 3 command is identical to this command; use ESC * 3 instead of this command.
- The speed is double because consecutive horizontal dots cannot be printed; the printer ignores the second continuous horizontal dot.
- The dot density printed with this command can be redefined with the ESC ? command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC *
ESC Z  Select 240-dpi graphics

**Format**

ASCII: ESC Z n_L n_H d_1 d_2 ... d_k

Hex: 1B 5A n_L n_H d_1 d_2 ... d_k

Decimal: 27 90 n_L n_H d_1 d_2 ... d_k

**Parameter range**

- $0 \leq n_L \leq 255$
- $0 \leq n_H \leq 31$
- $0 \leq d \leq 255$

**Function**

Prints bit-image graphics in 8-dot columns, at a density of 240 horizontal by 72 vertical dpi, according to the following parameters:

$n_L$, $n_H$  Specify the total number of columns (k) of graphics data following, according to the formula

\[
k = ((n_H \times 256) + n_L)
\]

\[
n_H = \text{INT} \frac{k}{256}
\]

\[
n_L = \text{MOD} \frac{k}{256}
\]

$d_1$ ... $d_k$  Bytes of graphics data

**Notes**

- This is a nonrecommended command. The ESC * 3 command is identical to this command; use ESC * 3 instead of this command.
- The speed is double because consecutive horizontal dots cannot be printed; the printer ignores the second continuous horizontal dot.
- The dot density printed with this command can be redefined with the ESC ? command.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC *
Format

ASCII ESC ^ m n_L n_H d_1 ... d_k
Hex 1B 5E m n_L n_H d_1 ... d_k
Decimal 27 94 m n_L n_H d_1 ... d_k

Parameter range

0 ≤ n_L ≤ 255
0 ≤ n_H ≤ 31
m = 0, 1

Function

Prints dot-graphics in 9-dot columns, depending on the following parameters:

m Specifies the dot density (see table below)

n_L, n_H Specify the total number of graphics data bytes (two bytes per column)

\[
\text{(number of dot columns)} = ((n_H \times 256) + n_L) \\
\text{n_H} = \text{INT} \left( \frac{\text{(number of dot columns)}}{256} \right) \\
\text{n_L} = \text{MOD} \left( \frac{\text{(number of dot columns)}}{256} \right)
\]

d_1 ... d_k Bytes of graphics data

Dot density

<table>
<thead>
<tr>
<th>Parameter m</th>
<th>Horizontal density (dpi)</th>
<th>Vertical density (dpi)</th>
<th>Adjacent dot printing</th>
<th>Dots per column</th>
<th>Bytes per column</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>60</td>
<td>72</td>
<td>Yes</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>120</td>
<td>72</td>
<td>Yes</td>
<td>9</td>
<td>2</td>
</tr>
</tbody>
</table>

Each dot column requires two bytes of data. The first byte represents the top 8 dots in the print head. Bit 0 (the LSB) in the second byte represents the ninth (bottom) dot in the print head; the remaining 7 bits are ignored.

Notes

- This is a nonrecommended command; use the ESC * command instead.
- Graphics data that would print beyond the right-margin position is ignored.
- Bit-image graphics can be printed on the same line as text.
Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC *
**ESC r**  **Select printing color**

**Format**

<table>
<thead>
<tr>
<th>Format</th>
<th>ASCII ESC r n</th>
<th>Hex 1B 72 n</th>
<th>Decimal 27 114 n</th>
</tr>
</thead>
</table>

**Parameter range**

$0 \leq n \leq 6$

**Function**

Selects the color of printing, according to the parameters below:

- $n = 0$ Black
- 1 Magenta
- 2 Cyan
- 3 Violet
- 4 Yellow
- 5 Red
- 6 Green

**Default**

$n = 0$ (Black)

**Notes**

- The printer ignores this command if color printing is not available.
- Print yellow first when overlapping colors.
- Only black, magenta, cyan, and yellow are available during graphics mode selected with the ESC ( G command.

**Printers not featuring this command**


**Model-dependent variations**

None

**Related topics**

<COLR>, Selecting print color
**Format**

ASCII  ESC  r  n  
Hex  1B  72  n  
Decimal  27  114  n  

**Parameter range**

\(0 \leq n \leq 6\)

**Function**

Selects the color of printing, according to the parameters below:

\[
\begin{align*}
  n = 0 & \quad \text{Black} \\
  1 & \quad \text{Magenta} \\
  2 & \quad \text{Cyan} \\
  3 & \quad \text{Violet} \\
  4 & \quad \text{Yellow} \\
  5 & \quad \text{Red} \\
  6 & \quad \text{Green}
\end{align*}
\]

**Default**

\(n = 0\) (Black)

**Notes**

- The printer ignores this command if color printing is not available.
- Print yellow first when overlapping colors.

**Printers not featuring this command**


**Model-dependent variations**

None

**Related topics**

Selecting print color
### Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC (B n_L n_H k m s v_1 v_2 c BarCodeData</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 28 42 n_L n_H k m s v_1 v_2 c BarCodeData</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 40 66 n_L n_H k m s v_1 v_2 c BarCodeData</td>
</tr>
</tbody>
</table>

**Parameter range**

- $0 \leq n_L \leq 255$
- $0 \leq n_H \leq 127$
- $0 \leq k \leq 7$
- $2 \leq m \leq 5$
- $-3 \leq s \leq 3$
- $0 \leq v_1 \leq 255$
- $0 \leq v_2 \leq 127$
- $0 \leq c \leq 255$

**Function**

- Prints bar codes.
- Parameters are used as described below:

  $n_L$, $n_H$  Total number of data bytes to follow, determined by the following equation:

  $\text{(number of data bytes)} = 6 \text{ bytes} + \text{BarCodeData bytes} = (n_H \times 256) + n_L$

  (where 6 bytes are $k$, $m$, $s$, $v_1$, $v_2$, and $c$)

  $n_H = \text{INT} \left( \frac{\text{number of data bytes}}{256} \right)$

  $n_L = \text{MOD} \left( \frac{\text{number of data bytes}}{256} \right)$

  $k$  Bar code type

<table>
<thead>
<tr>
<th>$k$ (Hex)</th>
<th>Bar code type</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>EAN-13</td>
</tr>
<tr>
<td>01</td>
<td>EAN-8</td>
</tr>
<tr>
<td>02</td>
<td>Interleaved 2 of 5</td>
</tr>
<tr>
<td>03</td>
<td>UPC-A</td>
</tr>
<tr>
<td>04</td>
<td>UPC-E</td>
</tr>
<tr>
<td>05</td>
<td>Code 39</td>
</tr>
<tr>
<td>06</td>
<td>Code 128</td>
</tr>
<tr>
<td>07</td>
<td>POSTNET</td>
</tr>
</tbody>
</table>

$m$  Module width

<table>
<thead>
<tr>
<th>$m$ (unit 1/180 inch)</th>
<th>24-pin printer</th>
<th>9-pin printer (unit 1/120 inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 (default)</td>
<td>2 dots</td>
<td>2 dots</td>
</tr>
<tr>
<td>03</td>
<td>3 dots</td>
<td>3 dots</td>
</tr>
<tr>
<td>04</td>
<td>4 dots</td>
<td>4 dots</td>
</tr>
<tr>
<td>05</td>
<td>5 dots</td>
<td>5 dots</td>
</tr>
</tbody>
</table>
s  Space adjustment value

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24-pin printer</td>
<td>-3 ≤ s ≤ 3 (unit 1/360 inch)</td>
</tr>
<tr>
<td>9-pin printer</td>
<td>-3 ≤ s ≤ 3 (unit 1/240 inch)</td>
</tr>
</tbody>
</table>

v₁, v₂  Bar length

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24-pin printer</td>
<td>bar length = v₁ + v₂ × 256 (unit 1/180 inch)</td>
</tr>
<tr>
<td>9-pin printer</td>
<td>bar length = v₁ + v₂ × 256 (unit 1/72 inch)</td>
</tr>
</tbody>
</table>

The v₁ and v₂ values are ignored when POSTNET is selected.
Long bar length of POSTNET is always 0.125 inch.
Short bar length of POSTNET is always 0.050 inch.

c  Control flag

<table>
<thead>
<tr>
<th>c</th>
<th>Control flag</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Check digit</td>
</tr>
<tr>
<td></td>
<td>0: A check digit is not added by the printer.</td>
</tr>
<tr>
<td></td>
<td>1: A check digit is added by the printer.</td>
</tr>
<tr>
<td>1</td>
<td>Human readable character</td>
</tr>
<tr>
<td></td>
<td>0: The human readable characters are added by the printer.</td>
</tr>
<tr>
<td></td>
<td>1: The human readable characters are not added by the printer.</td>
</tr>
<tr>
<td>2</td>
<td>Position of flag character (for EAN-13 and UPC-A only)</td>
</tr>
<tr>
<td></td>
<td>0: Center</td>
</tr>
<tr>
<td></td>
<td>1: Under</td>
</tr>
<tr>
<td>3</td>
<td>(reserved)</td>
</tr>
<tr>
<td>4</td>
<td>(reserved)</td>
</tr>
<tr>
<td>5</td>
<td>(reserved)</td>
</tr>
<tr>
<td>6</td>
<td>(reserved)</td>
</tr>
<tr>
<td>7</td>
<td>(reserved)</td>
</tr>
</tbody>
</table>

BarCodeData  Corresonds to the bar code symbology.
The data number of each bar code type is constant.
The bar code is not printed if the number of bar code characters are incorrect.

<table>
<thead>
<tr>
<th>Bar code type</th>
<th>Number of valid characters 1 (HEX)</th>
<th>Number of valid characters 2 (HEX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAN-13</td>
<td>0D</td>
<td>0C</td>
</tr>
<tr>
<td>EAN-8</td>
<td>08</td>
<td>07</td>
</tr>
<tr>
<td>Interleaved 2 of 5</td>
<td>02 to FF</td>
<td>02 to FF</td>
</tr>
<tr>
<td>UPC-A</td>
<td>0C</td>
<td>0B</td>
</tr>
<tr>
<td>UPC-E</td>
<td>0C or 8</td>
<td>0B or 7</td>
</tr>
<tr>
<td>Code 39</td>
<td>01 to FF</td>
<td>01 to FF</td>
</tr>
<tr>
<td>Code 128</td>
<td>02 to FF</td>
<td>02 to FF</td>
</tr>
<tr>
<td>POSTNET</td>
<td>06 or 0A or 0C</td>
<td>05 or 09 or 0B</td>
</tr>
</tbody>
</table>

Number of valid characters 1: control flag c bit 0 = 0
Number of valid characters 2: control flag c bit 0 = 1
The valid data of each bar code type are following. If an invalid data is included in the BarCodeData string, the bar code is not printed.

<table>
<thead>
<tr>
<th>Bar code type</th>
<th>Valid range of BarCodeData</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAN-13</td>
<td>0-9 (30H-39H)</td>
</tr>
<tr>
<td>EAN-8</td>
<td>0-9 (30H-39H)</td>
</tr>
<tr>
<td>Interleaved 2 of 5</td>
<td>0-9 (30H-39H)</td>
</tr>
<tr>
<td>UPC-A</td>
<td>0-9 (30H-39H)</td>
</tr>
<tr>
<td>UPC-E</td>
<td>0-9 (30H-39H)</td>
</tr>
<tr>
<td>Code 39</td>
<td>0-9 (30H-39H), (41H-5AH)</td>
</tr>
<tr>
<td></td>
<td>(20H, 24H, 25H, 2BH, 2DH, 2EH, 2FH)</td>
</tr>
<tr>
<td>Code 128</td>
<td>Code Set A, Set B, Set C</td>
</tr>
<tr>
<td>POSTNET</td>
<td>0-9 (30H-39H)</td>
</tr>
</tbody>
</table>

**Notes**

- Bar code printing is always performed unidirectionally.
- The bar code is not printed when part of the bar code is out of the right margin.
- Bar code and text data are mixed in a line.
- A kind of Code 128 character sets (A, B or C) is identified by the first data of Code 128. The first data must be a hexadecimal 41 (A), 42 (B) and 43 (C).
- When Code 128 Character Set C and Interleaved 2 of 5 is selected and the number of characters are ODD, “0” is added to the data string.

**Printers featuring this command**

DLQ-3000 (’96 ~), LQ-670, LQ-2070, LQ-2170

**Model-dependent variations**

None

**Related topics**

ESC <, ESC Q, ESC U, Printing Bar Codes
ESC @ Initialize printer

Format

ASCII ESC @
Hex 1B 40
Decimal 27 64

Function

Resets the printer to its default settings

Notes

- This command does not affect user-defined characters or control panel (SelecType) settings.
- See each command explanation, for the settings after the ESC @ command is received.
- Use this command to exit graphics mode entered with the ESC ( G command.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

Recommended command order
**ESC @ Initialize printer**

**Format**

- **ASCII**: ESC @
- **Hex**: 1B 40
- **Decimal**: 27 64

**Function**

Resets the printer to its default settings

**Notes**

- This command does not affect user-defined characters or control panel (SelecType) settings
- See each command explanation for the settings after the ESC @ command is received.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

Recommended command order
CAN Cancel line

Format

ASCII   CAN
Hex     18
Decimal 24

Function

• Clears all printable characters and bit-image graphics on the current line
• Moves the print position to the left-margin position

Notes

• This is a nonrecommended command.
• This command does not affect (clear) control codes.

Printers not featuring this command

None

Model-dependent variations

None
**CAN**  
**Cancel line**

**Format**

- **ASCII**: CAN
- **Hex**: 18
- **Decimal**: 24

**Function**

- Clears all printable characters and bit-image graphics on the current line
- Moves the print position to the left-margin position

**Notes**

- This is a nonrecommended command.
- This command does not affect (clear) control codes.

**Printers not featuring this command**

None

**Model-dependent variations**

None
### DELETE (DEL)

Delete last character in buffer

#### Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>Hex</th>
<th>Decimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEL</td>
<td>7F</td>
<td>127</td>
</tr>
</tbody>
</table>

#### Function

Deletes the last printable character in the print buffer’s current line.

#### Notes

- This is a nonrecommended command.
- This command only deletes printable characters; printer control codes are not affected.
- The printer ignores this command if it follows a command that moves the horizontal print position (ESC $, ESC \, or HT).

#### Printers not featuring this command

None

#### Model-dependent variations

None
**DEL**  Delete last character in buffer

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>DEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>7F</td>
</tr>
<tr>
<td>Decimal</td>
<td>127</td>
</tr>
</tbody>
</table>

**Function**

Deletes the last printable character in the print buffer’s current line.

**Notes**

- This is a nonrecommended command.
- This command only deletes printable characters; printer control codes are not affected.
- The printer ignores this command if it follows a command that moves the horizontal print position (ESC $, ESC \, or HT)

**Printers not featuring this command**

None

**Model-dependent variations**

None
DC1  Select printer

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>11</td>
</tr>
<tr>
<td>Decimal</td>
<td>17</td>
</tr>
</tbody>
</table>

Function

Selects the printer after it has been deselected with the DC3 command.

Default

Printer is selected.

Notes

- This is a nonrecommended command. The SLCT IN signal on the interface must be high to use this command. This command is nearly always unnecessary.
- The printer ignores this command if the user has set the printer off line by pressing the on-line button.

Printers not featuring this command

None

Model-dependent variations

None
**DC1 Select printer**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>11</td>
</tr>
<tr>
<td>Decimal</td>
<td>17</td>
</tr>
</tbody>
</table>

**Function**

Selects the printer after it has been deselected with the DC3 command.

**Default**

Printer is selected.

**Notes**

- This is a nonrecommended command. The SLCT IN signal on the interface must be high to use this command. This command is nearly always unnecessary.
- The printer ignores this command if the user has set the printer off line by pressing the on-line button.

**Printers not featuring this command**

None

**Model-dependent variations**

None
DC3  Deselect printer

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>DC3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>13</td>
</tr>
<tr>
<td>Decimal</td>
<td>19</td>
</tr>
</tbody>
</table>

Function

Deselects the printer

Default

Printer is selected

Notes

- This is a nonrecommended command. The SLCT IN signal on the interface must be high to use this command. This command is nearly always unnecessary.
- The printer remains deselected until it receives a DC1 command, or power is turned off then on again. The printer ignores the ESC @ command (initialize printer) when it is deselected.
- The printer cannot be reselected by pressing the on-line button.

Printers not featuring this command

None

Model-dependent variations

None
### DC3 Dekselect printer

**Format**

- **ASCII**: DC3
- **Hex**: 13
- **Decimal**: 19

**Function**

Deselects the printer

**Default**

Printer is selected

**Notes**

- This is a nonrecommended command. The SLCT IN signal on the interface must be high to use this command. This command is nearly always unnecessary.
- The printer remains deselected until it receives a DC1 command, or power is turned off then on again. The printer ignores the ESC @ command (initialize printer) when it is deselected.
- The printer cannot be reselected by pressing the on-line button.

**Printers not featuring this command**

None

**Model-dependent variations**

None
**ESC # Cancel MSB control**

**Format**

- ASCII: ESC #
- Hex: 1B 23
- Decimal: 27 35

**Function**

Cancels any controls on the MSB (bit number 7) set by the ESC = or ESC > commands; printer then accepts all MSB data as is.

**Default**

No MSB control

**Notes**

This is a nonrecommended command; most computer systems no longer require MSB control.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC =, ESC >
**ESC # Cancel MSB control**

**Format**

- **ASCII**: ESC #
- **Hex**: 1B 23
- **Decimal**: 27 35

**Function**

Cancels any controls on the MSB (bit number 7) set by the ESC = or ESC > commands; printer then accepts all MSB data as is.

**Default**

No MSB control

**Notes**

This is a nonrecommended command; most computer systems no longer require MSB control.

**Printers not featuring this command**


**Model-dependent variations**

None

**Related topics**

ESC =, ESC >
**ESC = Set MSB to 0**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC =</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 3D</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 61</td>
</tr>
</tbody>
</table>

**Function**

Sets the MSB (bit number 7) of all incoming data to 0

**Default**

No MSB control

**Notes**

- This is a nonrecommended command; most computer systems no longer require MSB control.
- All data is affected, including graphics data.

**Printers not featuring this command**

None

**Model-dependent variations**

None

**Related topics**

ESC #, ESC >
**ESC = Set MSB to 0**

**Format**

- **ASCII**  ESC  =
- **Hex**     1B  3D
- **Decimal** 27  61

**Function**

Sets the MSB (bit number 7) of all incoming data to 0

**Default**

No MSB control

**Notes**

- This is a nonrecommended command; most computer systems no longer require MSB control.
- All data is affected, including graphics data.

**Printers not featuring this command**


**Model-dependent variations**

None

**Related topics**

- ESC #, ESC >
ESC > Set MSB to 1

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>3E</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>62</td>
</tr>
</tbody>
</table>

Function

Sets the MSB (bit number 7) of all incoming data to 1

Default

No MSB control

Notes

- This is a nonrecommended command; most computer systems no longer require MSB control.
- All data is affected, including graphics data.

Printers not featuring this command

None

Model-dependent variations

None

Related topics

ESC = ESC #
**ESC > Set MSB to 1**

**Format**

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC</th>
<th>&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B</td>
<td>3E</td>
</tr>
<tr>
<td>Decimal</td>
<td>27</td>
<td>62</td>
</tr>
</tbody>
</table>

**Function**

Sets the MSB (bit number 7) of all incoming data to 1

**Default**

No MSB control

**Notes**

- This is a nonrecommended command; most computer systems no longer require MSB control.
- All data is affected, including graphics data.

**Printers not featuring this command**


**Model-dependent variations**

None

**Related topics**

ESC =, ESC #
ESC \text{j} \hspace{1cm} \text{Reverse paper feed}

**Format**

- **ASCII**: ESC \text{j} \ n
- **Hex**: 1B 6A n
- **Decimal**: 27 106 n

**Parameter range**

\[0 \leq n \leq 255\]

**Function**

- Reverse feeds paper (moves the print position in the negative direction) \(n / 216\) inch
- Prints any data in the buffer

**Default**

None

**Notes**

- This is a deleted command.
- Do not reverse-feed paper more than \(1/2\) inch; the vertical print position may not be accurate otherwise.

**Printers featuring this command**

Only these printers feature this command: EX-800, EX-1000, FX-80, FX-85, FX-100, FX-185, FX-286, JX-80

**Model-dependent variations**

None

**Related topics**

CR, LF, Moving the vertical position
ESC i Select immediate print mode

Format

<table>
<thead>
<tr>
<th>ASCII</th>
<th>ESC i n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>1B 69 n</td>
</tr>
<tr>
<td>Decimal</td>
<td>27 105 n</td>
</tr>
</tbody>
</table>

Parameter range

n = 0, 1

Function

Switches between character and line printing, as follows:

n = 1  Prints data on a character by character basis
       If no print data is sent for a short period, moves the vertical print position so that all print is visible

       0  Prints data on a line by line basis

Default

Printing on a line by line basis

Notes

This is a deleted command.

Printers featuring this command

Only these printers feature this command: EX-800, EX-1000, FX-80, FX-85, FX-100, FX-185, FX-286, JX-80

Model-dependent variations

None
Binary Mode Commands

To accommodate the high-resolution printing capabilities of the Stylus COLOR printer, EPSON has added a raster graphics data compression mode to the existing ESC/P 2 graphics command set: ESC . 2 TIFF compression. This new compression mode also required the introduction of a set of binary commands. For detailed information on programming in compressed raster graphics mode, see the discussion in Recommended Operations.

Binary commands are available only when a compressed raster graphics mode is selected with the ESC . 2 command. In this mode the band height m is always set to 1. The binary commands applicable to the TIFF compression mode are listed below.

<XFER> Transfer raster graphics data
<MOVX> Set relative horizontal position
<MOVY> Set relative vertical position
<COLR> Select printing color
<CR> Carriage return to left-most print position
<EXIT> Exit TIFF compressed mode
<MOVXBYTE> Set <MOVX> unit to 8 dots (one byte)
<MOVXDOT> Set <MOVX> unit to 1 dot

The command descriptions for the binary mode commands follow.
**Format**

Class 3
ASCII: `<XFER> n d1 ... dn`
Binary: `001F xxxxB n d1 ... dn`

**Parameter range**

#BC = Low nibble value
F = 0 then #BC = number of raster image data, where 0 ≤ #BC ≤ 15
F = 1 then #BC = number of raster image data counter, where #BC = 1, 2
number of raster data = n1 or n1 + n2 × 256

**Function**

Horizontal print position is moved to the next dot after this command is received

(TIFF format)
- Moves raster data to the band buffer of the selected color.
- Current data does not affect next raster data.

**Notes**

- This command is available when the ESC . 2 TIFF compressed graphics mode is selected.
- The compressed data format is the same as that for current ESC/ P raster compression (ESC . 1).
- This command does not affect the vertical print position.
- Current data does not affect subsequent raster data.
- Do not change the image density in raster graphics mode.
- Do not specify the vertical movement in increments smaller than the current print density.
- Print data that exceeds the right margin is ignored.

**Printers featuring this command**

Stylus COLOR

**Model-dependent variations**

None

**Related topics**

ESC . 2, ESC ( i, ESC ( G
<MOVX>  Set relative horizontal position

Format

Class 2
ASCII <MOVX> n_L n_H
Binary 010F xxxxB n_L n_H

Parameter range

#BC = Low nibble value
F = 0, 1
0 ≤ n_L ≤ 255
0 ≤ n_H ≤ 127

<table>
<thead>
<tr>
<th>F</th>
<th>#BC value</th>
<th>Positioning parameter (k)</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>#BC = k</td>
<td>#BC (–8 ~ 7)</td>
<td>&lt;MOVX&gt;</td>
</tr>
<tr>
<td>1</td>
<td>#BC = 1</td>
<td>n_L (–128 ~ 127)</td>
<td>&lt;MOVX&gt; n_L</td>
</tr>
<tr>
<td>2</td>
<td>#BC = 2</td>
<td>n_L + n_H × 256</td>
<td>&lt;MOVX&gt; n_H</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n_H (–32768 ~ 32767)</td>
<td></td>
</tr>
</tbody>
</table>

F = 0 then #BC = parameter where -8 ≤ #BC ≤ 7
F = 1 then #BC = number of parameter counter where #BC = 1, 2
Increment unit is 8 or 1 and is selected by the <MOVXDOT> or <MOVXBYTE> command

Function

• This command is available when the ESC . 2 TIFF compressed graphics mode is selected.
• Sets relative horizontal position. The new horizontal position = current position + (parameter) × <MOVX> unit.
• <MOVX> unit is set by the <MOVXDOT> or <MOVXBYTE> command.
• If #BC has a negative value, it is described with two's complement.

Notes

• The unit for this command is determined by the ESC ( U set unit command.
• The parameter of the new horizontal position should be a multiple of eight when the dot unit horizontal move is used.
• Settings that exceed the right or left margin will be ignored.

Printers featuring this command

Stylus COLOR

Model-dependent variations

None

Related topics

ESC . 2, ESC ( U, <MOVXDOT>, <MOVXBYTE>
<MOVY>  Set relative vertical position

Format

Class 2
ASCII <MOVY> nl nh
Binary 011F xxxxB nl nh

Parameter range

#BC = Low nibble value
0 ≤ nl ≤ 255
0 ≤ nh ≤ 127

<table>
<thead>
<tr>
<th>F</th>
<th>#BC value</th>
<th>Positioning parameter (k)</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>F = 0</td>
<td>#BC = k</td>
<td>#BC (0 ~ 15)</td>
<td>&lt;MOVX&gt;</td>
</tr>
<tr>
<td>F = 1</td>
<td>#BC = 1</td>
<td>nl (16 ~ 255)</td>
<td>&lt;MOVX&gt; nl</td>
</tr>
<tr>
<td></td>
<td>#BC = 2</td>
<td>nl + nh × 256</td>
<td>&lt;MOVX&gt; nh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nh (0 ~ 32767)</td>
<td></td>
</tr>
</tbody>
</table>

F =0 then #BC = parameter where 0 ≤ #BC ≤ 15
F =1 then #BC = number of parameter counter where #BC = 1, 2

Function

- Moves relative vertical position by dot. The new vertical position = current position + (parameter).
- Moves the horizontal print position to 0 (left-most print position).
- Positive value only is allowed. The print position cannot be moved in a negative direction (up).

Notes

- This command is available when the ESC . 2 TIFF compressed graphics mode is selected.
- The unit for this command is determined by the ESC ( U set unit command.
- After the vertical print position is moved, all seed row(s) are copied to the band buffer.
- Settings beyond 22 inches are ignored.

Printers featuring this command

Stylus COLOR

Model-dependent variations

None

Related topics

ESC . 2, ESC i, ESC U, ESC G
Select printing color

Format

Class 2
ASCII <COLR>
Binary 1000 xxxxB

Parameter range

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 0000B</td>
<td>Black</td>
</tr>
<tr>
<td>1000 0001B</td>
<td>Magenta</td>
</tr>
<tr>
<td>1000 0010B</td>
<td>Cyan</td>
</tr>
<tr>
<td>1000 0100B</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

Function

Moves the horizontal print position to 0 (left-most print position).

(TIFF format)
Selects the band buffer color.

Notes

- This command is available when the ESC . 2 TIFF compressed graphics mode is selected.
- Parameters other than those listed above are ignored.
- Combinations of colors are not available and will be ignored.

Printers featuring this command

Stylus COLOR

Model-dependent variations

None

Related topics

ESC . 2, ESC r, ESC ( G
<CR>  Carriage return to left-most print position

Format

Class  1
ASCII  <CR>
Binary  1110 0010B

Function

Moves the horizontal print position to 0 (left-most print position).

Printers featuring this command

Stylus COLOR

Model-dependent variations

None

Related topics

ESC . 2, ESC ( G
Exit TIFF compressed mode

Format

Class 1
ASCII <EXIT>
Binary 1110 0011B

Function

• Exits TIFF compressed raster graphics mode.
• Starts printing of stored data.
• Moves the horizontal print position to 0 (left-most print position).

Notes

This command is available when the ESC . 2 TIFF compressed mode is selected.

Printers featuring this command

Stylus COLOR

Model-dependent variations

None

Related topics

ESC . 2, ESC (i, ESC (G
<MOVXBYTE> Set <MOVX> unit to 8 dots

Format

Class 1
ASCII <MOVXBYTE>
Binary 0010 0100B

Function

- Sets the increment of <MOVX> unit to 8.
- Starts printing of stored data.
- Moves the horizontal print position to 0 (left-most print position).
- Does not move the vertical print position.

Notes

- The unit for this command is determined by the ESC ( U set unit command.
- This command is available when ESC . 2 TIFF compressed mode is selected.
- Execute command ESC ( G before sending this command.
- Execute this command immediately after entering raster graphics mode by sending the ESC . 2 command.

Printers featuring this command

Stylus COLOR

Model-dependent variations

None

Related topics

ESC . 2, ESC ( i, ESC ( G
**MOVXDOT** Set <MOVX> unit to 1 dot

**Format**

Class 1

ASCII `<MOVXDOT>`

Binary 0010 0101B

**Function**

- Sets the increment of <MOVX> unit to 1.
- Starts printing of stored data.
- Moves the horizontal print position to 0 (left-most print position).
- Does not move the vertical print position.

**Notes**

- The unit for this command is determined by the ESC ( U set unit command.
- This command is available when ESC . 2 TIFF compressed mode is selected.
- Execute command ESC ( G before sending this command.
- Execute this command immediately after entering raster graphics mode by sending the ESC . 2 command.

**Printers featuring this command**

Stylus COLOR

**Model-dependent variations**

None

**Related topics**

ESC . 2, ESC ( i, ESC ( G