Related manuals

**TTP 5000 Kiosk Printers, Service Manual**
(Part No. SWC-803)

The Service Manuals contains information such as:

- Functional description
- Maintenance instructions
- Spare parts list
- Logic diagrams

Acknowledgments

*MS-DOS Windows* is a trademark of Microsoft Corporation,
*Centronics* is a registered trademark of Centronics Computers, *Adobe* and *Acrobat* are trademarks of Adobe Systems Incorporated

This is a publication of SWECOIN AB
Box 132, S-191 22 Sollentuna, Sweden

Phone int. +46 8 92 00 80
    nat. 08 92 00 80

Fax int. +46 8 96 50 54
    nat. 08 96 50 54

BBS int. +46 8 92 00 88
    nat. 08 92 00 88

© SWECOIN AB, 1995

All rights reserved. Reproduction in whole or in parts is prohibited without written consent of the copyright owner.

We have taken great care to ensure that the information in this manual is correct and complete. However, if you discover any errors or omissions, or if you wish to make suggestions for improvements, you are welcome to send your comments to us. SWECOIN AB disclaims any liability resulting from the use of this information and reserves the right to make changes without notice.

First edition, November 1995

Printed in Sweden
CONTENTS

1 INTRODUCTION ....................................................................................................... 3
   1.1 About this manual ......................................................................................... 3
   1.2 Updating ....................................................................................................... 3

2 SUMMARY OF CONTROL CODES & ESCAPE SEQUENCES ......................... 5
   2.1 Character and bit-image mode commands .............................................. 5
   2.2 Label- and other top-of-form-oriented commands .................................. 6

3 CHARACTER-MODE AND BIT-IMAGE-MODE COMMANDS ....................... 7

4 LABEL- AND OTHER TOP-OF-FORM ORIENTED PRINT ......................... 13

5 ERROR CODES ...................................................................................................... 23

6 CONTROL BOARD ................................................................................................. 25

7 COMMUNICATIONS PARAMETERS .................................................................... 27

8 TEST PRINT FUNCTIONS ...................................................................................... 29
   8.1 Self test off-line printout ......................................................................... 29
   8.2 HEX dump, on-line printout ...................................................................... 30

9 SERIAL PRINTER INTERFACE ............................................................................. 31

10 PARALLEL PRINTER INTERFACE ..................................................................... 33

11 WINDOWS PRINTER DRIVER ............................................................................. 35
   11.1 Installation ................................................................................................. 35
   11.2 Printer set-up ............................................................................................ 36
      11.2.1 Resolution ....................................................................................... 36
      11.2.2 Paper size ......................................................................................... 36
      11.2.3 Paper source ..................................................................................... 36
      11.2.4 Orientation ......................................................................................... 36
      11.2.5 Raster ................................................................................................. 36
      11.2.6 Intensity control ............................................................................... 36
      11.2.7 Paper quality ..................................................................................... 37

REGISTER NOW!

Please fill in the registration form inserted at the end of this manual and return it to us via mail or fax. This will put you on our mailing list for keeping you informed of product changes, manual updates etc.

Registration date (for your own records): ____________
This page intentionally left blank.
1 INTRODUCTION

1.1 About this manual

This manual contains the information required for installation and operation of the printers from a host computer, for example, a PC. From this edition, the manual title has been changed to "Installation".

The first chapter summarizes the applicable hardware/software interface commands supported by the printer processor firmware. The summary is followed by chapters describing the command syntax.

Other chapters of the manual contain information about the printer error codes, communications parameters, test print functions and specifications of the serial and parallel printer interfaces.

1.2 Updating

As, from time to time, printer functions and features may be added or amended, this manual will be updated. No automatic distribution of new editions is, however, planned. Registered manual owners (see registration form at the end of the manual) will be kept informed about new editions, product changes, etc. through our bulletin service. Updated manuals can be ordered by fax or phone.

You can also download the current manual edition from the Manuals area of our BBS (phone number at the back of the title page). The manual is supplied in the Adobe Acrobat file format. By downloading the free Acrobat Reader program from the same area in the BBS, you can view and print the manual locally without the need of any other program.

If you require functions not found in the manual edition at your disposal, please consult one of our offices for information.
### SUMMARY OF CONTROL CODES & ESCAPE SEQUENCES

#### 2.1 Character and bit-image mode commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Hex.</th>
<th>Decimal</th>
<th>Function</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF</td>
<td>0A</td>
<td>10</td>
<td>Line feed</td>
<td>7</td>
</tr>
<tr>
<td>CR</td>
<td>0D</td>
<td>13</td>
<td>Carriage return</td>
<td>7</td>
</tr>
<tr>
<td>FF</td>
<td>0C</td>
<td>12</td>
<td>Form feed</td>
<td>7</td>
</tr>
<tr>
<td>RS</td>
<td>1E</td>
<td>30</td>
<td>Cut and eject paper</td>
<td>7</td>
</tr>
<tr>
<td>SI</td>
<td>0F</td>
<td>15</td>
<td>Reset from double width</td>
<td>8</td>
</tr>
<tr>
<td>SO</td>
<td>0E</td>
<td>14</td>
<td>Set double width print</td>
<td>8</td>
</tr>
<tr>
<td>ENQ</td>
<td>05</td>
<td>5</td>
<td>Clear presenter</td>
<td>8</td>
</tr>
<tr>
<td>CAN</td>
<td>18</td>
<td>24</td>
<td>Clear input buffer</td>
<td>8</td>
</tr>
<tr>
<td>ESC @</td>
<td>1B 40</td>
<td>27 64</td>
<td>Reset, initialize</td>
<td>8</td>
</tr>
<tr>
<td>ESC C n1 n2</td>
<td>1B 43 n1 n2</td>
<td>27 67 n1 n2</td>
<td>Set page length</td>
<td>9</td>
</tr>
<tr>
<td>ESC ENQ 1</td>
<td>1B 05 01</td>
<td>27 5 1</td>
<td>Status inquiry</td>
<td>9</td>
</tr>
<tr>
<td>ESC ENQ 2</td>
<td>1B 05 02</td>
<td>27 5 2</td>
<td>Status inquiry, paper near end</td>
<td>9</td>
</tr>
<tr>
<td>ESC FF n</td>
<td>1B 0C n</td>
<td>27 12 n</td>
<td>Eject only (after cut)</td>
<td>9</td>
</tr>
<tr>
<td>ESC f n</td>
<td>1B 66 n</td>
<td>27 102 n</td>
<td>Presenter motor drive</td>
<td>10</td>
</tr>
<tr>
<td>ESC J n</td>
<td>1B 4A n</td>
<td>27 74 n</td>
<td>Paper advance</td>
<td>10</td>
</tr>
<tr>
<td>ESC l n</td>
<td>1B 6C n</td>
<td>27 108 n</td>
<td>Line feeds before cut</td>
<td>10</td>
</tr>
<tr>
<td>ESC M n1 n2</td>
<td>1B 4Dn1 n2</td>
<td>27 77 n1 n2</td>
<td>Top-of-form detection</td>
<td>21</td>
</tr>
<tr>
<td>ESC p nnnn</td>
<td>1B 70 nnnn</td>
<td>27 112 nnnn</td>
<td>Custom logotype print</td>
<td>10</td>
</tr>
<tr>
<td>ESC q n</td>
<td>1B 71 n</td>
<td>27 113 n</td>
<td>Burn time adjustment</td>
<td>11</td>
</tr>
<tr>
<td>ESC R n</td>
<td>1B 52 n</td>
<td>27 82 n</td>
<td>Int'l character select</td>
<td>11</td>
</tr>
<tr>
<td>ESC RS</td>
<td>1B 1E</td>
<td>27 30</td>
<td>Cut only, no eject</td>
<td>11</td>
</tr>
<tr>
<td>ESC S n1 n2</td>
<td>1B 53 n1 n2</td>
<td>27 83 n1 n2</td>
<td>Select graphics mode</td>
<td>12</td>
</tr>
<tr>
<td>ESC SI</td>
<td>1B 0F</td>
<td>27 15</td>
<td>Reset from double height</td>
<td>12</td>
</tr>
<tr>
<td>ESC SO</td>
<td>1B 0E</td>
<td>27 14</td>
<td>Set double height print</td>
<td>12</td>
</tr>
<tr>
<td>ESC T n</td>
<td>1B 54 n</td>
<td>27 84 n</td>
<td>Reversed print on/off</td>
<td>12</td>
</tr>
</tbody>
</table>
## 2.2 Label- and other top-of-form-oriented commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Hex.</th>
<th>Decimal</th>
<th>Function</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC A n1n2n3</td>
<td>1B 41 n1n2n3</td>
<td>27 65 n1n2n3</td>
<td>Set document length</td>
<td>13</td>
</tr>
<tr>
<td>ESC BC b1</td>
<td>1B 42 43 b11</td>
<td>27 66 67 b1</td>
<td>Clear bar code area</td>
<td>13</td>
</tr>
<tr>
<td>ESC BS b1...b11</td>
<td>1B 42 53 b1...b11</td>
<td>27 66 83 b1...b11</td>
<td>Reset bar code block</td>
<td>14</td>
</tr>
<tr>
<td>ESC BW b1..NUL</td>
<td>1B 42 57 b1...00</td>
<td>27 66 87 b1...0</td>
<td>State bar code data</td>
<td>15</td>
</tr>
<tr>
<td>ESC DC d1</td>
<td>1B 44 43 d1</td>
<td>27 68 67 d1</td>
<td>Clear comment area</td>
<td>16</td>
</tr>
<tr>
<td>ESC DS d1...d7</td>
<td>1B 44 53 d1...d7</td>
<td>27 68 83 d1...d7</td>
<td>Reserve comment block</td>
<td>16</td>
</tr>
<tr>
<td>ESC DW d1..NUL</td>
<td>1B 44 57 d1...00</td>
<td>27 68 87 d1...0</td>
<td>Comment block data</td>
<td>18</td>
</tr>
<tr>
<td>ESC E</td>
<td>1B 45</td>
<td>27 69</td>
<td>Clear all label areas</td>
<td>18</td>
</tr>
<tr>
<td>ESC GC g1</td>
<td>1B 47 43 g1</td>
<td>27 71 67 g1</td>
<td>Clear graphics area</td>
<td>18</td>
</tr>
<tr>
<td>ESC GS g1...g8</td>
<td>1B 47 53 g1...g8</td>
<td>27 71 83 g1...g8</td>
<td>Reserve graphics area</td>
<td>19</td>
</tr>
<tr>
<td>ESC GW g1...gn</td>
<td>1B 47 57 g1...gn</td>
<td>27 71 87 g1...gn</td>
<td>Graphics data</td>
<td>19</td>
</tr>
<tr>
<td>ESC LC l1</td>
<td>1B 4C 43 l1</td>
<td>27 76 67 l1</td>
<td>Clear ruler line area</td>
<td>20</td>
</tr>
<tr>
<td>ESC LS l1...l10</td>
<td>1B 4C 43 l1...l10</td>
<td>27 76 83 l1...l10</td>
<td>Ruler line data</td>
<td>20</td>
</tr>
<tr>
<td>ESC P n1</td>
<td>1B 50 n1</td>
<td>27 80 n1</td>
<td>Print document (label)</td>
<td>21</td>
</tr>
<tr>
<td>ESC X n1 n2</td>
<td>1B 58 n1 n2</td>
<td>27 88 n1 n2</td>
<td>Sense top-of-form position</td>
<td>21</td>
</tr>
<tr>
<td>ESC x n1 n2</td>
<td>1B 78 n1 n2</td>
<td>27 120 n1 n2</td>
<td>Set internal top-of-form clock</td>
<td>22</td>
</tr>
<tr>
<td>ESC Y n1 n2</td>
<td>1B 59 n1 n2</td>
<td>27 89 n1 n2</td>
<td>Set start position</td>
<td>22</td>
</tr>
<tr>
<td>ESC Z</td>
<td>1B 5A</td>
<td>27 90</td>
<td>Go to next top-of-form</td>
<td>22</td>
</tr>
</tbody>
</table>
3  CHARACTER-MODE AND BIT-IMAGE-MODE COMMANDS

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF</td>
<td>Line feed</td>
</tr>
</tbody>
</table>

\((0AH), \ (10) \ decimal\)

Prints the data in the input buffer in the current mode and spaces as specified by the line spacing setting.

The command is ignored if immediately preceded by a CR.

<table>
<thead>
<tr>
<th>CR</th>
<th>Carriage return</th>
</tr>
</thead>
</table>

\((0DH), \ (13) \ decimal\)

Prints the data in the input buffer in the current mode and spaces as specified by the line spacing setting.

If the input buffer contains only line space data, line feed is effected. If the buffer contains no data the printer does not react to this command.

<table>
<thead>
<tr>
<th>FF</th>
<th>Form feed</th>
</tr>
</thead>
</table>

\((0CH), \ (12) \ decimal\)

Prints data from the buffer and feeds the paper to the top of the next page as identified by the page length definition set by ESC+C+n1+n2.

The TTP printer is placed in continuous print mode when turned on or Reset, (page length 0, print lines 0 and skip lines 0).

<table>
<thead>
<tr>
<th>RS</th>
<th>Record separate</th>
</tr>
</thead>
</table>

\((1EH), \ (30) \ decimal\)

Effects paper cut-off and default length eject via the presenter module.
### SI  
**Shift in**

**{(0FH), (15) decimal}**

Resets from double-width mode printing, set by SO, to normal character mode. Valid only in double-width mode.

### SO  
**Shift out**

**{(0EH), (14) decimal}**

Sets double-width mode. The characters are printed in double width.

Normal width and double-width characters can be combined on the same print line.

Double-width mode can be combined with double-height mode for printing of "quadruple" characters.

### ENQ  
**Clear presenter and report status**

**{(05H), (5) decimal}**

Used to clear paper path in the presenter, for example, ejecting a document not removed from previous print/cut/eject operation. Response signal depending on DIP switch setting.

### CAN  
**Cancel**

**{(18H), (24) decimal}**

Cancels data in the input buffer, stored before the CAN command is issued. Command modes issued on the same line as the CAN command are not canceled.

### ESC+ @  
**Reset**

**{(1BH)+(40H), (27)+(64) decimal}**

Terminates processing and initializes the control board. The control board is reset to default values, same as at power on.
ESC+C+n1+n2 \hspace{1cm} \text{Set page length}

\((1BH)+(43H)+n1+n2\), \hspace{1cm} \((27)+(67)+n1+n2\) decimal

Sets the page length valid in character print mode.

A page consists of a printable area and a skip area at the bottom of the page. The printable area = the page length \(n1\) minus the skip area \(n2\).
The command is ignored when \(n1\) is smaller than or equal to \(n2\).
The printer is put into continuous print mode if \(n1 = 0\).
\(n1\) and \(n2\) must be 1-byte hexadecimal or decimal numbers.
The printer is placed in continuous print mode when turned on or reset.

ESC + ENQ + 1 \hspace{1cm} \text{Status inquiry}

\((1BH)+(05H)+(01H)\), \hspace{1cm} \((27)+(5)+(1)\) decimal

Status inquiry. Results in response ACK if all sensors are clear, NAK + code if one or more sensors report fault condition. See Chapter 5, Error Codes.

For “Paper near end” sensor, refer to separate Status inquiry (ESC ENQ 2)

Compare with ENQ command which also clears the Presenter

ESC + ENQ + 2 \hspace{1cm} \text{Status inquiry, paper near end}

\((1BH)+(05H)+(02H)\), \hspace{1cm} \((27)+(5)+(2)\) decimal

Status inquiry, paper near end (paper low). Response is returned from the printer in a 1-byte format as follows:

Value = (00H) indicates “No paper”
Value = (01H) indicates “Paper present” at the sensor position

Compare with ENQ command which also clears the Presenter

ESC + FF + n \hspace{1cm} \text{Eject only}

\((1BH)+(0CH)+n\), \hspace{1cm} \((27)+(12)+n\) decimal

Usually follows an ESC + RS command. ESC+FF+n effects eject, through the presenter module, of a previously cut-off document. \(n\) represents the number of eject steps, each of approximately 2 mm length. \(n\) maximum = 255.
The primary use is for determining if a document is to be fully or partially ejected (partly retained in the presenter module) or to partially eject a long document during ongoing processing, also without preceding Cut.
ESC + f + n  Presenter motor drive selection

(1BH)+(66H)+n,  (27)+(102)+n decimal

n = 0  Default value. Presenter motor catches leading paper edge, loops the paper for ejection after completed print and cut-off.

n = 1  Presenter sensor is ignored, the leading paper edge is fed straight through the presenter. This function can be turned on/off at any time during an ongoing operation.

ESC + J + n  Paper advance feed

(1BH)+(4AH)+n,  (27)+(74)+n decimal

The value n represents the number of dot lines (at 0.125 mm) at which the paper is to be transported forwards. Maximum value for n = 255, equal to approximately 32 mm.

(Reserved)

ESC + l + n  Line feeds before cut

(1BH)+(6CH)+n,  (27)+(108)+n decimal

Sets number of line feeds to be executed before a cut-off. Valid only in combination with the RS command.

ESC + p + nnnn  Logotype print

(1BH)+(70H)+nnnn,  (27)+(112)nnnn decimal

Effects print of customized logotype stored in EPROM.

nnnn  Represents a four-digit number assigned to customized logotype.
ESC + q + n

**Burn time adjustment**

(1BH)+(71H)+n,  (27)+(113)+n decimal

Parameter n represents the length of the thermal head resistor's ON time. This command adjusts the burn time to get the optimal print contrast for the paper quality that is used.

n = 5       Default value
n = 1—15    Adjustment range.

**Note:** Higher values than 5 affect the thermal head life expectancy negatively.

ESC + R + n

**Select international character set**

(1BH)+(52H)+n,  (27)+(82)+n decimal

Selects one of eight international character sets specified by n. Legitimate n values are listed below, Invalid values are ignored. At power ON, the value 1 is assumed.

n = 1       USA
n = 2       Germany
n = 3       England
n = 4       France
n = 5       Spain
n = 6       Italy
n = 7       Sweden
n = 8       Denmark

ESC + RS

**Cut paper**

(1BH) + (1EH),  (27) + (30) decimal

Effects paper cut-off only, no eject function even when such feature is present.
ESC+S+n1+n2  
Select graphics mode

\[(1BH)+(53H)+n1+n2, \ (27)+(83)+n1+n2 \text{ decimal}\]

Sets Bit Image Graphics Mode.

n1 and n2  High and low order byte. Determine the number of dot lines.

n1 and n2 must be 1-byte hexadecimal or decimal numbers

The printer is put in character mode if \(n1 = n2 = 0\)

Of commands issued before the ESC+S, only Reversed Printing (ESC+T+n) remains valid after execution of the ESC+S command.

In bit-image graphics mode, all character codes are disabled and processed as bit-image data.

Data overflowing the specified print area is treated as characters. If less data than specified is received, the printer may enter into a wait state, waiting for further data. It may handle subsequent character code or non-bit-image data as bit-image data. The host computer must supply as many data bytes as the byte count specified.

ESC + SI  
Reset double-height mode

\[(1BH)+(0FH), \ (27)+(15) \text{ decimal}\]

Resets the printer from double-height mode to normal mode (double-height mode was set with the ESC+SO command). Valid only in double-height mode.

ESC + SO  
Set double-height mode

\[(1BH)+(0EH), \ (27)+(14) \text{ decimal}\]

Places the printer in double-height mode, printing double-height characters.

A print line cannot contain both normal-height and double-height characters, but double height can be combined with double width for "quadruple" characters.

ESC + T + n  
Set reversed printing

\[(1BH)+(54H)+n, \ (27)+(84)+n \text{ decimal}\]

Selects normal or reversed print mode.

\[n = 0\]  Gives normal print (black on white)

\[n = 1\]  Gives reversed print (white on black)
This section discusses software commands used to print documents using functions such as label printing, bar code printing, enlarged character printing (comment block), landscape printing, graphics, ruler line and related functions.

**Set document (label) length**

(1BH)+(41H)+n1+n2+n3,  (27)+(65)+n1+n2+n3  \textit{decimal}

Determines the length of the document (label) to be printed.

The printer control board has approximately 50 K bytes of page memory available for data storage. With this page memory, the maximum available field length (lmax.) is 600 dot lines, equal to approximately 75 mm paper length in the 80 mm wide mechanism.

\textbf{n1} Specifies block No. (0—15). The total available document length can be divided into a total of 16 blocks. The blocks must be defined sequentially, starting at No. 0. Any n1 value other than 0—15 is ignored.

\textbf{n2} and \textbf{n3} Specifies effective document (label) length.
\textbf{n2} = higher order, \textbf{n3} = lower order
\textbf{n2} and \textbf{n3} are 1-byte hexadecimal or decimal numbers. The value specified by \textbf{n2} and \textbf{n3} must not exceed the maximum effective length specified above.

This command may be omitted if the block to be printed is positioned in block No. 0 only.

**Clear bar code area**

(1BH)+"BC"+b1,  (27)+"BC"+b1  \textit{decimal}

This command clears the bar code block area reserved by the command ESC + BS.

\textbf{b1} Specifies the bar code block No. (0—15). The blocks may be specified in any order but b1 values other than 0—15 are ignored.
(1BH)\"BS\"+b1+b2+...+b11,  (27)+\"BS\"+b1+b2+...+b11 decimal

Reserves a document block identified by the ESC + A command as a bar code area. The command also identifies the type, number of digits and the configuration of bars to be placed in the bar code area.

b1 Specifies the bar code block No. (0—15). The blocks may be specified in any order. Any value other than 0—15 is ignored.

b2b3 Specifies the X coordinate of the bar code block position. Parameter b2 is the higher order and b3 the lower order byte).

Parameters b2 and b3 must be 1-byte hexadecimal or decimal numbers. The value specified by b2b3 must not exceed the total dot count that can be handled by the printer mechanism (56 bytes, 72 bytes and 104 bytes for the 60, 80 and 112 mm mechanisms respectively).

b4b5 Specifies the Y coordinate of the bar code block position. Parameter b4 is the higher order and b5 the lower order byte.

Parameters b4 and b5 must be 1-byte hexadecimal or decimal numbers. The value specified by b4b5 must not exceed the effective length specified in the ESC+ A command.

b6 Specifies the number of bar code digits.

b7b8 Specifies the height of the bars. Parameters b7 and b8 must be 1-byte hexadecimal or decimal numbers. The value specified by b7 and b8 must not exceed the effective length specified in the ESC + A command.

b9 Specifies type of bar code. The following bar code types are supported.

b9 = 0, EAN 13 and UPC-A
b9 = 1, EAN 8
b9 = 6, Code 39
b9 = 8, Code 128
b9 = 9, EAN 128

---

**Note:**
*For EAN codes, the printer calculates the necessary check digit.*
*For Code 39, the start and stop character "*" is generated by the printer.*
*For UPC-A, use b9 value = 0 and insert a prefix "0" before the 11-digit data string.*
b10 Specifies the thickness of the narrow bar.

0 = 1 dot  3 = not applicable  6 = 7 dots
1 = 2 dots  4 = 5 dots  7 = 8 dots
2 = 3 dots  5 = 6 dots

All other values are invalid.

b11 Specifies the ratio of wide bar to narrow bar.

<table>
<thead>
<tr>
<th>b11 value</th>
<th>Narrow bar</th>
<th>Wide bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2.5 (may be difficult to read)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>3.5</td>
</tr>
</tbody>
</table>

The lower three bits of the b11 byte are significant (some ratio values may not be processed properly). The above values serve only as guidance values.

**ESC+BW+b1+b2...+NUL State bar code data**

(1BH)+"BW"+b1+b2...,  (27)+"BW"+b1+b2 decimal

Fills the bar code area reserved by the ESC+BS command with bar code data to be printed.

b1 Specifies the block (0—15). Blocks can be specified in any order but other values than 0—15 are ignored.

b2... Specifies bar code data bytes.

NUL Must be placed at the end of the bar code data.

Any invalid bar code character terminates the command.

Print-out is effected by an ESC + P command.
### ESC+DC+d1  Clear comment block area

**(1BH)+"DC"+d1,  (27)+"DC"+d1 decimal**

Clears the comment block area reserved by the ESC+DS command.

**d1** Specifies the comment block (0—15) to be cleared. Comment blocks can be specified in any sequence but other values than 0—15 are ignored.

Of command codes specified before this command, only ESC+T+n (reversed printing) remains in effect after execution of ESC+DC+d1.

### ESC+DS+d1+d2+...+d7  Reserve comment block area

**(1BH)+"DS"+d1+d2...,  (27)+"DS"+d1+d2... decimal**

Reserves a comment block area within a document length defined by the ESC+A command. The command also specifies the type, orientation and number of comment columns to be placed in the comment block area.

**d1** Specifies comment block number (0—15). Comment blocks can be specified in any sequence but other values than 0—15 are ignored.

**d2d3** Specifies the X coordinate of the comment block position, (d2 is the higher and d3 the lower order byte). Parameters d2 and d3 must be 1-byte hexadecimal or decimal numbers. The value specified by d2d3 must not exceed the total dot count that the selected printer mechanism can handle, 56 bytes, 72 bytes and 104 bytes for the 60 mm, 80 mm and 112 mm mechanisms respectively.

**d4d5** Specifies the Y coordinate of the comment block position, (d4 is the higher and d5 the lower order byte) and must be expressed in 1-byte hexadecimal or decimal numbers. The value specified in d4d5 must not exceed the effective length specified in the ESC+A command.

**d6** Specifies the number of comment columns.

**d7** Specifies the size and orientation of comment character

<table>
<thead>
<tr>
<th>Bit</th>
<th>Character type</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Orientation, 0 = Portrait, 1 = Landscape</td>
</tr>
<tr>
<td>6</td>
<td>Not used</td>
</tr>
<tr>
<td>5,4,3</td>
<td>Determines the character height. 8 different heights (0 - 7) can be selected.</td>
</tr>
<tr>
<td>2,1,0</td>
<td>Determine the character width. 8 different widths (0 - 7) can be selected</td>
</tr>
</tbody>
</table>

No more than one orientation and one type of character can appear in one comment block.
Use the following formula to calculate the value of d7:

\[
d7 = R + (H \times 8) + W
\]

where \( R \) represents the orientation,
- \( 0 \) = portrait mode
- \( 128 \) = landscape mode.

\( H \) represents character height, numbers 0—7
\( W \) represents character width, numbers 0—7

Example: Assume landscape mode, character height = 6, character width = 4

\[
d7 = 128 + (5 \times 8) + 3 = 171
\]

This can be written in Basic as:

REM Select Landscape mode
R=128
REM Select character height 6
H=5 \( \text{ (height 5 is the 6th alternative of alternatives 0—7) } \)
REM Select character width 4
W=3 \( \text{ (width 3 is the 4th alternative of alternatives 0—7) } \)
REM Convert to ASCII characters and print
Print CHR$(R+(H\times8)+W)

Smallest character size is 12 dots high and 8 dots wide. This is represented by \( H = 0, W = 0 \).

Largest character size is 96 dots high, \( (8\times12) \) and 64 dots wide \( (8\times8) \).

Any combination of \( H \) and \( W \) are permissible although a number of combinations are impractical. Resolution in both directions is 8 dots/mm.

Coordinates d2d3 and d4d5, specifying the X and Y location of a comment block, always refer to the top left-hand corner of the first character in the block both in portrait and in landscape mode.
ESC+DW+d1+d2...+NUL  State comment block data

(1BH)+"DW"+d1+d2...+NUL,  (27)+"DW"+d1+d2...+NUL decimal

Fills the comment block area reserved by the ESC+DS command with comment data.

d1 Specifies the comment block number (0—15) that can be specified in any sequence. Values other than 0—15 are ignored

d2... Specifies one or more comment data bytes

NUL Must be placed at the end of the comment data. Any invalid command character terminates the ESC+DW command.

Of commands specified before ESC+DW, only ESC+T+n (reversed printing) remains in effect after execution of the ESC+DW command.

Print-out is effected by an ESC + P command.

ESC + E  Clear all label areas

(1BH)+(45H),  (27)+(69) decimal

Clears all label areas.

Of command codes specified before this command, only ESC+T+n (reversed printing), remains in effect after execution of ESC+E.

ESC+GC+g1  Clear graphics area

(1BH)+"GC"+g1,  (27)+"GC"+g1 decimal

Clears graphics block area reserved by ESC+GS command.

g1 Specifies graphics block (0—15) in any sequence. Values other than 0—15 are ignored.

Of command codes specified before this command, only ESC+T+ (reversed printing) remains in effect after execution of ESC+GC.
SC+GS+g1+g2+...+g8  Reserve graphics block area

(1BH)+"GS"+g1+g2+...+g8,  (27)+"GS"+g1+g2+...+g8 decimal

Reserves a block area defined in an ESC+A command as a graphics block area. The command also defines the size of the graphics block.

- **g1** Specifies graphics block number (0—15). Graphics blocks may be specified in any order but values other than 0—15 are ignored.
- **g2g3** Specifies X coordinate of the graphics block position. Parameter g2 is the higher-order and g3 the lower-order byte. Parameters g2 and g3 must be 1-byte hexadecimal or decimal numbers and the value specified must not exceed the total dot count that can be handled by the printer mechanism, (56, 72 or 104 bytes for 60, 80 and 112 mm paper widths respectively).
- **g4g5** Specifies the Y coordinate of the graphics block position. Parameter g4 is the higher-order and g5 the lower-order byte and they must be 1-byte hexadecimal or decimal numbers. The value specified by g4g5 must not exceed the effective length specified in the ESC + A command.
- **g6** Specifies the number of bytes in the X-direction.
  - Max. 56 bytes for the 60 mm mechanism
  - Max. 72 bytes for the 80 mm mechanism
  - Max. 104 bytes for the 112 mm mechanism
- **g7g8** Specifies the number of lines in the Y direction, (g7 is the higher-order and g8 the lower-order byte). Parameter g7g8 must be 1-byte hexadecimal or decimal numbers. The value specified by g7g8 must not exceed the effective length specified by ESC+A.

ESC+GW+g1+g2+...+gn  State graphics data

(1BH)+"GW"+g1+g2+...+gn,  (27)+"GW"+g1+g2+...+gn decimal

Fills the graphics block area reserved by the ESC+GS command with graphics data.

- **g1** Specifies graphics block number (0—15) in any order. Other g1 values than 0—15 are ignored.
- **g2...** Specifies graphics data bytes. Number of data bytes g2...gn: (number of bytes in X direction) multiplied by number of lines in Y direction.

All character and control codes are invalid, the printer will process any code as bit image data. Any data overflowing the specified graphics block is ignored.

If less data than specified in this command is received, the printer may either enter into a wait state, waiting for further data or it may handle subsequent character codes or non-bit-image data as bit image data. The host computer must supply as many data bits as the data bit count specified in this command.

Of command codes specified before this command, only ESC+T+n (reversed printing) remains in effect after execution of the ESC+GW command.

Print-out is effected by an ESC + P command.
**ESC + LC + I1**  
**Clear ruler line area**

\[ (1BH) + "LC" + I1, \ (27) + "LC" + I1 \text{ decimal} \]

Clears ruler line area

\( I1 \) Specifies ruler line No, (1—15) in any order. Values other than 0—15 are ignored.

Of command codes specified before this command, only ESC+T+n remains valid after execution of this command.

**ESC+LS+I1+I2...+I10**  
**Set ruler line data**

\[ (1BH) + "LS" + I1 + I2...+I10, \ (27) + "LS" + I1 + I2...+I10 \text{ decimal} \]

Draws a horizontal or vertical ruler line in the block area defined by the ESC + A command. The command also defines the thickness of the ruler line.

\( I1 \) Specifies the ruler line number (0—15) in any order. Values other than 0—15 are ignored.

\( I2I3 \) Specifies the X coordinate of the ruler line starting point (\( I2 \) is the high-order and \( I3 \) the low-order byte). \( I2 \) and \( I3 \) must be 1-byte hexadecimal or decimal numbers. The value specified by \( I2 \) and \( I3 \) must not exceed the total dot count that can be handled by the printer.

\( I4I5 \) Specifies the Y coordinate of ruler line starting point (\( I4 \) is the high-order and \( I5 \) the low-order byte). \( I4 \) and \( I5 \) must be 1-byte hexadecimal or decimal numbers and the value specified by \( I4I5 \) must not exceed the effective length specified in the ESC + A command.

\( I6I7 \) Specifies the X coordinate of the end of the ruler line (\( I6 \) is the high-order and \( I7 \) the low-order byte). \( I6 \) and \( I7 \) must be 1-byte hexadecimal or decimal numbers and the value specified by \( I6I7 \) must not exceed the total dot count that can be handled by the selected printer mechanism.

\( I8I9 \) Specifies the Y coordinate of the end of the ruler line (\( I8 \) is the high-order and \( I9 \) the low-order byte). \( I8 \) and \( I9 \) must be 1-byte hexadecimal or decimal numbers. The value specified by \( I8I9 \) must not exceed the effective length specified in the ESC + A command.

\( I10 \) Specifies the thickness of the ruler line:

\[
\begin{align*}
0 & = 1 \text{ dot} & 3 & = 4 \text{ dots} & 6 & = 7 \text{ dots} \\
1 & = 2 \text{ dots} & 4 & = 5 \text{ dots} & 7 & = 8 \text{ dots} \\
2 & = 3 \text{ dots} & 5 & = 6 \text{ dots} 
\end{align*}
\]

The lower 3 bits of \( I10 \) byte are significant.

\( I2I3 \) must be smaller than \( I6I7 \).

\( I4I5 \) must be smaller than \( I8I9 \).

Any invalid parameter combination is ignored.

The printer cannot draw slanted lines.
Of commands specified before the ESC + LS command, only ESC + T (reversed printing) remains in effect after execution of ESC + LS.

Print-out is effected by an ESC + P command.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESC + M + n1 + n2</strong></td>
<td><strong>Top-of-form detection</strong></td>
</tr>
</tbody>
</table>
| (1BH)+(4DH)+n1+n2, (27)+(77)+n1+n2 decimal | Identifies maximum (n1) and minimum (n2) length respectively, expressed in dot lines at 0.125 mm, of Top-of-Form mark, (printed on the paper reverse side) to be used for identification of Top-of-Form for the next document. Active transition is from "black" to "white".  
  n1 maximum valid value is 160 dot lines, (20 mm)  
  n1 minimum valid value is 15 dot lines, (1.8 mm)  
  n1 Default value = 30 dot lines at 0.125 mm  
  n2 Default value = 12 dot lines at 0.125 mm. |

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESC + P + n1</strong></td>
<td><strong>Print document (label)</strong></td>
</tr>
</tbody>
</table>
| (1BH)+(50H)+n1, (27)+(80)+n1 decimal | Prints document (label).  
  n1 Specifies document number (0—15) of the document (label) to be printed.  
  n1 value = <7FH> (or decimal <127>) specifies that all document (label) areas are to be printed (approximately 50 Kbytes of page memory).  
  Any n1 value other than those indicated here are ignored. |

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESC + X + n1 + n2</strong></td>
<td><strong>Sense top-of-form position</strong></td>
</tr>
</tbody>
</table>
| (1BH)+(58H)+n1+n2 (27)+(88)+n1+n2 decimal | Reports if a top-of-form position marker is sensed within the area specified by n1n2, starting at the current position.  
  n1n2 Specifies the area to be searched for position marker. n1 is the high-order and n2 the low-order byte. Parameter n1n2 must be 1-byte hexadecimal or decimal numbers.  
  The printer enters into an error mode if no position marker is found while it is feeding paper (searching for position marker) within the area specified in this command. |
**ESC + x + n1 + n2**  
Set internal counter at $256 \times n1 + n2$  

$(1BH)+(78H)+n1+n2$,  
$(27)+(120)+n1+n2$ **decimal**  

Sets an internal counter at $256 \times n1 + n2$ dot lines. The counter is decremented when a black mark (TOF-indication) is detected. At counter value 0 (zero), top-of-form is assumed, for example, for cut.

**ESC + Y + n1 + n2**  
Set document (label) starting position  

$(1BH)+(59H)+n1+n2$,  
$(27)+(89)+n1+n2$ **decimal**  

Defines the number of dot lines between the top of form position sensed by the mechanism paper sensor and the position at which the printing is to start. The printer advances the paper by the number of dot lines specified in this command before printing starts.  

$n1n2$ Specifies the number of dot lines by which the paper is to be transported forwards before printing starts. $n1$ is the high-order and $n2$ the low-order byte. $n1$ and $n2$ must be 1-byte hexadecimal or decimal numbers.  

The printer enters into an error mode if a paper empty condition occurs while it is feeding the paper as specified by $n1n2$ in this command.  

The paper feed length $n1n2$ must be greater than or equal to the thickness (length in paper transport direction) of the Top-of-Form position marker. The printer will signal a Paper Empty condition if the paper feed length is smaller than the length of the paper positioning marker.

**ESC + Z**  
Execute line feeds to next top-of-form  

$(1BH)+(5AH)$,  
$(27)+(90)$ **decimal**  

Executes line feeds as identified by internal clock with ESC+$x+n1+n2$ minus such dot line feeds that have been effected after detection of black mark.
5 ERROR CODES

The printer systems are equipped with a number of sensors for the purpose of detecting various error conditions such as out-of-paper, previous printout not removed etc. In serial interface applications, the two software commands ENQ and ESC ENQ 1 can be used to get error condition responses from the printer.

Sending an ENQ (05H) *Clear Presenter and Report Status* or an ESC ENQ 1(1BH 05H 01H) *Report Status Only* to the printer, results in the printer sending a status report to the host computer. This status report reflects the status of the available sensors in the printer system and identifies possible error conditions.

The table below shows the various conditions reported following the ENQ and ESC ENQ 1 commands to the printer.

*Note:* The printers offer a choice between Reporting and Silent Modes via the control board DIP-switch No. 4. ON = ACK/NAK, OFF = Silent.

<table>
<thead>
<tr>
<th>Printer response</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACK</td>
<td>Conditions OK</td>
</tr>
</tbody>
</table>
| NAK + 01         | Paper in presenter module  
a) ENQ. Attempt made to clear conditions had been made but failed.  
b) ESC ENQ. No attempt to clear has been made. |
| NAK + 02         | Cutter not in home position |
| NAK + 03         | Printer out of paper |
| NAK + 04         | Print head lifted |

The possible error conditions are reported in the above order and the first error condition detected is reported. This means that an ENQ or ESC/ENQ has to be sent until an ACK is received before the host computer can be certain that all error conditions have been cleared.

The ENQ and ESC ENQ functions do not wait for a reported error to be cleared. The operator has to determine and take the correct action, for example, replacing the paper roll.
CONTROL BOARD

The figure below shows the control board SWC-492 mounted in the printer. This board has a 10-pole ribbon-cable-type serial interface connector J3 (also see Chapter 9). Other components that might be of interest are:

- J1 Print head connector
- J2 Power supply connector
- J3 Serial interface connector
- J4 Stepper motor connector
- J6 Cutter motor connector
- J7 Presenter motor connector
- J8 Paper end sensor connector
- J9 Presenter sensor connector
- J10 Paper-low sensor (optional)
- J11 Print head-open sensor connector
- J12 Paper feed button and lamp connector
- SW1 DIP switches
- U3 Firmware (printer program) PROM

Parallel interface is achieved by mounting the piggy-back board SWC-561 (not shown) on top of the control board (also see Chapter 10).

Figure 1. Control board SWC-492
This page intentionally left blank.
## COMMUNICATIONS PARAMETERS

The printer control board has a DIP-switch module (SW1) with 8 switches. These are used to identify communications protocol and handshaking parameters as follows:

<table>
<thead>
<tr>
<th>DIP switch</th>
<th>Function</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Baud rate</td>
<td>OFF = 9600&lt;br&gt;ON = 19200</td>
</tr>
<tr>
<td>2</td>
<td>Handshaking</td>
<td>OFF = RTS/CTS&lt;br&gt;ON = XON/XOFF</td>
</tr>
<tr>
<td>3</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Error reporting</td>
<td>OFF = Silent&lt;br&gt;ON = ACK/NAK + error code</td>
</tr>
<tr>
<td>5 and 6</td>
<td>Mechanism width</td>
<td>5 OFF, 6 OFF = 80 mm mechanism&lt;br&gt;5 ON, 6 OFF = 60 mm mechanism&lt;br&gt;5 OFF, 6 ON = 112 mm mechanism&lt;br&gt;5 ON, 6 ON = Not defined</td>
</tr>
<tr>
<td>7</td>
<td>Not used</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Not used</td>
<td></td>
</tr>
</tbody>
</table>
This page intentionally left blank.
8 TEST PRINT FUNCTIONS

The following two types of test prints can be obtained:

- Self test off-line printout
- HEX dump on-line printout

The two printout alternatives described below apply to a printer having a paper feed button connected to connector J12 at the back of the printer.

![Figure 2. Position of connector J12 (rear view of the printer).](image)

If there is no paper feed button installed (during maintenance for example), connect a jumper between pins 2 and 3 in connector J12 when you are instructed to press the paper feed button. Removing the jumper corresponds to releasing the button.

8.1 Self test off-line printout

1. Verify that the power is switched OFF.
2. Push the paper feed button and keep it depressed.
3. Switch the power ON and keep the paper feed button depressed for at least 5 seconds. This produces a printout showing the firmware program (PROM) version, DIP switch settings, number of dots in the printhead, burn time, maximum characters per line, and (repeatedly) all characters in the character generator.
4. Release the paper feed button to stop the printing. The printer cuts and ejects the document but remains in the self test mode. Renewed actuation of the paper feed button produces a demo test print out followed by cut and eject.
5. Exit the self test mode by switching the power OFF.

**Note!** — The printer cannot receive any data while in the self test off-line mode.
8.2 HEX dump, on-line printout

1. Verify that the power is switched OFF.
2. Lower the print head lever to horizontal position.
3. Depress the paper feed button and keep it depressed.
4. Power ON the printer and release the paper feed button.
5. Raise the print head release lever to vertical position. The printer is now in a HEX dump mode and all on-line communication is printed in both HEX format and ASCII character format. The HEX print mode is formatted for 60 mm wide paper and 16 characters print width irrespective of the paper width used in the printer. If the last line contains fewer that 16 characters, this line will not be printed until you execute the next step.
6. Depress the paper feed button temporarily. This ensures that the last transmitted characters become printed. The printer cuts the paper and feeds it out.
7. Exit from the HEX dump mode by switching the printer OFF.
8. Switch the power ON again to resume normal on-line operation.
The printer control board SWC-492 is equipped with a 10-pole ribbon-cable type connector. The printer can be connected to a standard D-sub 9-pole male connector through a straight ribbon cable (see Figure 3). The following table shows the pin assignment of the 10-pole connector:

<table>
<thead>
<tr>
<th>10-pole conn.</th>
<th>9-pole D-sub</th>
<th>Signal name</th>
<th>Direction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>Not connected</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td>Not connected</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>RXD</td>
<td>To printer</td>
<td>Receive data</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>RTS</td>
<td>From printer</td>
<td>Request to send</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>TXD</td>
<td>From printer</td>
<td>Transmit data</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>CTS</td>
<td>To printer</td>
<td>Clear to send</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>DTR</td>
<td>From printer</td>
<td>Data terminal ready</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td></td>
<td></td>
<td>Not connected</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>GND</td>
<td></td>
<td>Ground</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>Not connected</td>
</tr>
</tbody>
</table>

*Figure 3. Serial interface adaptor cable (SWC00602-200)*
The printer indicates that it is powered ON by setting DTR high. When initialized, RTS will be set high to indicate to the host computer that it is ready to receive data. RTS will be set low when the buffer is almost full, thereby telling the computer to stop sending data until RTS is pulled high.

The CTS circuit is ignored by the printer and can be left unconnected.

The following table shows alternative ways of designing an interface cable between the printer and a PC. The 9-pole D-sub-connector on the printers side is the connector on the optional serial interface adaptor cable SWC00602-200.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RXD</td>
<td>3</td>
<td>2</td>
<td></td>
<td>TXD</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>TXD</td>
<td>5</td>
<td>3</td>
<td></td>
<td>RXD</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>RTS</td>
<td>4</td>
<td>7</td>
<td></td>
<td>CTS</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>DTR</td>
<td>7</td>
<td>4</td>
<td></td>
<td>DSR</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>GND</td>
<td>9</td>
<td>5</td>
<td></td>
<td>GND</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>
PARALLEL PRINTER INTERFACE

Operating the printer through a parallel interface requires that the parallel interface piggyback board SWC-561 is mounted on top of the control board SWC-492.

The parallel interface board has a 40-pole ribbon cable type connector. The printer can be connected to a standard Centronics 36-pole connector using a straight ribbon cable such as the adaptor cable SWC00601 (see Figure 4). The following table shows the pin assignment in the 40-pole connector:

(The table continues on the next page)

<table>
<thead>
<tr>
<th>40-pole conn.</th>
<th>Centronics</th>
<th>Signal</th>
<th>Direction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>STROBE</td>
<td>To printer</td>
<td>Strobe signal</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>D0</td>
<td>To printer</td>
<td>Data bit 0</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>D1</td>
<td>To printer</td>
<td>Data bit 1</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>D2</td>
<td>To printer</td>
<td>Data bit 2</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>D3</td>
<td>To printer</td>
<td>Data bit 3</td>
</tr>
<tr>
<td>11</td>
<td>6</td>
<td>D4</td>
<td>To printer</td>
<td>Data bit 4</td>
</tr>
<tr>
<td>13</td>
<td>7</td>
<td>D5</td>
<td>To printer</td>
<td>Data bit 5</td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>D6</td>
<td>To printer</td>
<td>Data bit 6</td>
</tr>
<tr>
<td>17</td>
<td>9</td>
<td>D7</td>
<td>To printer</td>
<td>Data bit 7</td>
</tr>
<tr>
<td>19</td>
<td>10</td>
<td>ACK</td>
<td>From printer</td>
<td>Acknowledge signal</td>
</tr>
<tr>
<td>21</td>
<td>11</td>
<td>BUSY</td>
<td>From printer</td>
<td>Busy signal</td>
</tr>
<tr>
<td>23</td>
<td>12</td>
<td>Paper out</td>
<td>From printer</td>
<td>Paper out signal</td>
</tr>
<tr>
<td>25</td>
<td>13</td>
<td>Select</td>
<td>From printer</td>
<td>Selected (on line)</td>
</tr>
<tr>
<td>26</td>
<td>31</td>
<td>Init</td>
<td>To printer</td>
<td>Printer initialization</td>
</tr>
<tr>
<td>27</td>
<td>14</td>
<td>Autofeed</td>
<td>To printer</td>
<td>Not used in this printer</td>
</tr>
<tr>
<td>28</td>
<td>32</td>
<td>ERROR</td>
<td>From printer</td>
<td>Error signal</td>
</tr>
<tr>
<td>35</td>
<td>18</td>
<td>+5V</td>
<td>From printer</td>
<td>+5V through 47 kohm</td>
</tr>
<tr>
<td>36</td>
<td>36</td>
<td>Select In</td>
<td>To printer</td>
<td>Not used in this printer</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>21</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>22</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>23</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>24</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>25</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-pole conn.</td>
<td>Centronics</td>
<td>Signal</td>
<td>Direction</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>--------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>16</td>
<td>26</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>27</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>28</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>29</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>30</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>33</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>16</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>17</td>
<td>Frame GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>15</td>
<td></td>
<td>Not connected</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>34</td>
<td></td>
<td>Not connected</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>35</td>
<td></td>
<td>Not connected</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td></td>
<td></td>
<td>Not connected</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td></td>
<td>Not connected</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
<td></td>
<td>Not connected</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td>Not connected</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4. Parallel interface cable (SWC00601-400)
11 WINDOWS PRINTER DRIVER

The supplied MS-DOS Windows driver SWC5000.DRV (version 1.1) supports all printers with parallel interface in the TTP 5000 series. This driver gives the possibility to use the TTP 5000 printer as an output device for any Windows program, but with a number of restrictions on printout quality etc., in comparison with common printers such as laser printers.

The driver is distributed on a 3½" diskette containing two files:

- SWC5000.DRV, the actual driver file
- SWC5000.WRI, a brief installation instruction (almost the same as the description below)

NOTE! The version of the firmware PROM (U3) on the control board must be 4.93 or higher. See Section 8.1 on how to print the firmware PROM version.

11.1 Installation

Use the following procedure to install the printer driver:

1. Insert the distribution disk into drive A:.
2. Open the Windows Control Panel and select the Printer icon.
3. Select the Add Printer box.
4. Select Install.
5. Select OK.
6. You will now see a list of the printer drivers supplied on the disk. Select SWC5000 and press OK.
7. Select printer functions and parameters according to Section 11.2.
8. Check that the printer is connected to LTP1 or LTP2. This is important since the SWC5000 driver only works correctly when the printer is connected to the parallel port.

The driver is now installed and ready to be used together with your standard Windows applications.

IMPORTANT NOTES!

The TTP5000 is a high-speed printer. In order to obtain the best possible performance, it is absolutely necessary to setup the Windows Print Manager to use the highest priority. Please consult your Windows documentation for details.

If the SWC5000 Windows driver installation is unsuccessful, and the PC asks for "UNIDRV.DLL", install this file by making an installation of a standard printer from the available Windows printer driver assortment, for example, Epson FX.
11.2 **Printer set-up**

The TTP 5000 Windows driver can be configured to different mechanism widths, to different paper sensitivities, etc. The following is a list of the currently defined alternatives that you will find by selecting the Windows Program Manager — Control Panel — Printer — SWECOIN 5000 — etc.

11.2.1 **Resolution**

The resolution is fixed at 200 dots per inch (actually 8 dots per mm)

11.2.2 **Paper size**

The print with should be set based on the TTP 5000 printer version (60 / 80 / 112 mm) that is to be used.

<table>
<thead>
<tr>
<th>Paper width</th>
<th>Select print width</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 mm</td>
<td>56 mm</td>
</tr>
<tr>
<td>80 mm</td>
<td>72 mm</td>
</tr>
<tr>
<td>112 mm</td>
<td>104 mm</td>
</tr>
</tbody>
</table>

11.2.3 **Paper source**

Roll paper

This alternative makes the printer start the printing at the current paper position. The top-of-page margin is therefore approximately 20 mm.

Roll paper with reverse before print

Causes the printer to reverse before starting to print. This reduces the top-of-page margin to approximately 4 mm. This function may cause excessive printhead wear.

11.2.4 **Orientation**

Portrait

Printing across the paper path (latitudinal).

Landscape

Printing along the paper path (longitudinal)

11.2.5 **Raster**

No raster

Coarse

Fine

Line

11.2.6 **Intensity control**

Continuous adjustment with a slide bar.
### 11.2.7 Paper quality

This option enables the use of different types of thermal paper.

The printer driver will send a command to the printer according to the following table. Please consult Section 2.1 for further information.

<table>
<thead>
<tr>
<th>Paper Quality</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard sensitivity</td>
<td>Sends an &lt;ESC&gt; + q + 5</td>
</tr>
<tr>
<td>Low sensitivity</td>
<td>Sends an &lt;ESC&gt; + q + 10</td>
</tr>
<tr>
<td>Very low sensitivity</td>
<td>Sends an &lt;ESC&gt; + q + 15</td>
</tr>
<tr>
<td>High sensitivity</td>
<td>Sends an &lt;ESC&gt; + q + 2</td>
</tr>
</tbody>
</table>
This page intentionally left blank.
User Registration Form

SWC-00761-A

After you have returned this registration form to us we will keep you informed of product changes, manual updates, etc. through our bulletin service. Do not return this form if you already have registered a previous edition of this manual.

You may also use this form to inform us about changed registration data (name, address, phone No., etc.), but please tick the Changed information box in that case.

☐ New registration  ☐ Changed information

Name

Organization

Postal address /street, box, area, etc.)

Zip / Postal code  City

State  Country

Telephone  Fax  E-mail

Please return by mail to

Swecoin Promakon AB
Box 132
S-191 22 SOLLENTUNA
Sweden

or by fax to

Int.: +46 8 96 50 54
Nat.: 08 96 50 54
This page intentionally left blank.