

# **Compuprint 30X6 Programmer Manual**



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# Commands

## 1. Index for ESC/PK

NO	Command	Function
1	<b>ESC ( C</b>	Set page length in defined unit
2	<b>ESC ( U</b>	Set unit
3	<b>ESC C</b>	Set page length in lines
4	<b>ESC C NUL</b>	Set page length in inches
5	<b>ESC N</b>	Set bottom margin
6	<b>ESC O</b>	Cancel bottom margin
7	<b>ESC Q</b>	Set right margin
8	<b>ESC I</b>	Set left margin
9	<b>CR</b>	CR Carriage return
10	<b>LF</b>	Line feed
11	<b>FF</b>	Form feed
12	<b>ESC J</b>	Advance print position vertically
13	<b>HT</b>	Tab horizontally
14	<b>VT</b>	Tab vertically
15	<b>BS</b>	Backspace
16	<b>ESC 0</b>	Select 1/8-inch line spacing
17	<b>ESC 2</b>	Select 1/6-inch line spacing
18	<b>ESC 3</b>	Set n/180-inch line spacing
19	<b>ESC +</b>	Set n/360-inch line spacing
20	<b>ESC A</b>	Set n/60-inch line spacing
21	<b>ESC D</b>	Set horizontal tabs
22	<b>ESC B</b>	Set vertical tabs
23	<b>ESC t</b>	Select character table
24	<b>ESC R</b>	Select an international character set
25	<b>ESC %</b>	Select user-defined set
26	<b>ESC x</b>	Select LQ or draft
27	<b>ESC M</b>	Select 12-cpi
28	<b>ESC g</b>	Select 15-cpi
29	<b>ESC SP</b>	Set character space
30	<b>ESC 4</b>	Select italic font
31	<b>ESC 5</b>	Cancel italic font
32	<b>ESC G</b>	Select double-strike printing
33	<b>ESC H</b>	Cancel double-strike printing
34	<b>ESC q</b>	Select character style
35	<b>SO</b>	Select double-width printing (one line)
36	<b>ESC SO</b>	Select double-width printing (one line)

37	<b>DC4</b>	Cancel double-width printing (one line)
38	<b>ESC W</b>	Turn double-width printing on/off
39	<b>ESC w</b>	Turn double-height printing on/off
40	<b>ESC U</b>	Turn unidirectional mode on/off
41	<b>ESC *</b>	Select bit image
42	<b>ESC @</b>	Initialize printer
43	<b>CAN</b>	Cancel line
44	<b>DEL</b>	Delete last character in buffer
45	<b>ESC -</b>	Turn underline on/off
46	<b>ESC E</b>	Select bold font
47	<b>ESC F</b>	Cancel bold font
48	<b>ESC P</b>	Select 10-cpi
49	<b>ESC p</b>	Turn proportional mode on/off

### Additional commands

All these additional commands are only for your reference.

50	<b>ESC \$</b>	Set absolute horizontal print position
51	<b>ESC \</b>	Set relative horizontal print position
52	<b>ESC b</b>	Set vertical tabs in VFU channels
53	<b>ESC /</b>	Select vertical tab channel
54	<b>ESC &amp;</b>	Define user-defined characters
55	<b>ESC :</b>	Copy ROM to RAM
56	<b>ESC k</b>	Select typeface
57	<b>ESC !</b>	Master select
58	<b>ESC ( -</b>	Select line/score
59	<b>ESC S</b>	Select superscript/subscript printing
60	<b>ESC T</b>	Cancel superscript/subscript printing
61	<b>SI</b>	Select condensed printing
62	<b>ESC SI</b>	Select condensed printing
63	<b>DC2</b>	Cancel condensed printing
64	<b>ESC 6</b>	Enable printing of upper control codes
65	<b>ESC 7</b>	Enable upper control codes
66	<b>ESC &lt;</b>	Unidirectional mode (one line)
67	<b>BEL</b>	Beeper
68	<b>ESC 8</b>	Disable paper-out detector
69	<b>ESC 9</b>	Enable paper-out detector
70	<b>ESC s</b>	Select low-speed mode
71	<b>ESC ?</b>	Reassign bit-image mode
72	<b>ESC K</b>	Select 60-dpi graphics
73	<b>ESC L</b>	Select 120-dpi graphics
74	<b>ESC Y</b>	Select 120-dpi, double-speed graphics
75	<b>ESC Z</b>	Select 240-dpi graphics
76	<b>ESC ( B</b>	Bar code setup and print

77	<b>DC1</b>	Select printer
78	<b>DC3</b>	Deselect printer
79	<b>ESC #</b>	Cancel MSB control
80	<b>ESC =</b>	Set MSB to 0
81	<b>ESC &gt;</b>	Set MSB to 1
82	<b>ESC j</b>	Reverse paper feed

## 2. Command interpretation for ESC/PK

### ESC ( C      Set page length in defined unit

#### Format

ASCII      ESC ( C n<sub>L</sub> n<sub>H</sub> m<sub>L</sub> m<sub>H</sub>

Hex      1B 28 43 n<sub>L</sub> n<sub>H</sub> m<sub>L</sub> m<sub>H</sub>

Decimal    27 40 67 n<sub>L</sub> n<sub>H</sub> m<sub>L</sub> m<sub>H</sub>

#### Parameter range

n<sub>L</sub> = 2, n<sub>H</sub> = 0

0 < ((m<sub>H</sub> · 256) + m<sub>L</sub>) · (defined unit) · 22

#### Function

Sets the page length in the specified number of units—previously defined with the ESC( U command—according to the following formula: (page length) = ((m<sub>H</sub> · 256) + m<sub>L</sub>) · (defined unit)

### ESC ( U      Set unit

#### Format

ASCII      ESC ( U n<sub>L</sub> n<sub>H</sub> m

Hex      1B 28 55 n<sub>L</sub> n<sub>H</sub> m

Decimal    27 40 85 n<sub>L</sub> n<sub>H</sub> m

#### Parameter range

n<sub>L</sub> = 1, n<sub>H</sub> = 0

m = 10, 20, 30, 40, 50, 60

#### Function

Sets the unit to m/3600 inch. The printer uses this unit when moving the print position,

### ESC C      Set page length in lines

#### Format

ASCII      ESC C n

Hex      1B 43 n

Decimal    27 67 n

#### Parameter range

1 ≤ n ≤ 127

0 < n · (current line spacing) · 22 inches

#### Function

Sets the page length to n lines in the current line spacing

## **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 . n . 22

### **Function**

Sets the page length to n inches

## **ESC N        Set bottom margin**

### **Format**

ASCII        ESC N n

Hex         1B 4E n

Decimal 27 78 n

### **Parameter range**

0 < n . 127

0 < (current line spacing) . n < (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.

## **ESC O        Cancel bottom margin**

### **Format**

ASCII        ESC O

Hex         1B 4F

Decimal 27 79

### **Function**

Cancels the top and bottom margin settings

## **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 leftmost printable column

## **ESC I        Set left margin**

**Format**

ASCII        ESC 1 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 leftmost printable column

**CR     Carriage return****Format**

ASCII        CR  
Hex         0D  
Decimal 13

**Function**

Moves the print position to the left-margin position

**LF     Line feed****Format**

ASCII        LF  
Hex         0A  
Decimal 10

**Function**

Advances the vertical print position one line (in the currently set line spacing)

**FF     Form feed****Format**

ASCII        FF  
Hex         0C  
Decimal 12

**Function**

Advances the vertical print position on continuous paper to the top-margin position of the next page

**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

## **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

## **VT        Tab vertically**

### **Format**

ASCII        VT

Hex         0B

Decimal    11

### **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

## **BS            Backspace**

### **Format**

ASCII        BS

Hex         08

Decimal    8

### **Function**

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

## **ESC 0        Select 1/8-inch line spacing**

### **Format**

ASCII        ESC 0

Hex         1B 30

Decimal    27 48

### **Function**

Sets the line spacing to 1/8 inch

## **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

## **ESC 3        Set n/180-inch line spacing**

### **Format**



ASCII        ESC 3 n

Hex         1B 33 n

Decimal 27 51 n

**Parameter range**

0 . n . 255

**Function**

Sets the line spacing to n/180 inch

**ESC +            Set n/360-inch line spacing**

**Format**

ASCII        ESC + n

Hex         1B 2B n

Decimal 27 43 n

**Parameter range**

0 . n . 255

**Function**

Sets the line spacing to n/360 inch

**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

**ESC D        Set horizontal tabs**

**Format**

ASCII        ESC D n<sub>1</sub> n<sub>2</sub> . . . n<sub>k</sub> NUL

Hex         1B 44 n<sub>1</sub> n<sub>2</sub> . . . n<sub>k</sub> 00

Decimal 27 68 n<sub>1</sub> n<sub>2</sub> . . . n<sub>k</sub> 0

**Parameter range**

0 . k . 32

1 . n . 255

n<sub>k</sub> > n<sub>(k-1)</sub>

**Function**

Sets horizontal tab positions (in the current character pitch) at the columns specified by n<sub>1</sub> to n<sub>k</sub>, as measured from the left-margin position

**ESC B            Set vertical tabs**

**Format**

ASCII        ESC B n<sub>1</sub> n<sub>2</sub> . . . n<sub>k</sub> NUL

Hex 1B 42 n<sub>1</sub> n<sub>2</sub> . . . n<sub>k</sub> 00

Decimal 27 66 n<sub>1</sub> n<sub>2</sub> . . . n<sub>k</sub> 0

**Parameter range**

0 . k . 16

1 . n . 255

n<sub>k</sub> > n<sub>(k-1)</sub>

**Function**

Sets vertical tab positions (in the current line spacing) at the lines specified by n<sub>1</sub> to n<sub>k</sub>, as measured from the top-margin position

**ESC t      Select character table**

**Format**

ASCII      ESC t n

Hex      1B 74 n

Decimal 27 116 n

**Parameter range**

0 . n . 3

**Function**

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

n = 0 Character table 0

1 Character table 1

2 Character table 2

3 Character table 3

**Default**

table 0 Italic

table 1 PC437

table 2 User-defined characters

table 3 PC437

**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

**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

## **ESC %    Select user-defined set**

### **Format**

ASCII        ESC % n

Hex         1B 25 n

Decimal 27 37 n

### **Parameter range**

n = 0, 1

### **Function**

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

n = 0 Normal (ROM) characters

1 User-defined (RAM) characters

## **ESC x    Select LQ or draft**

### **Format**

ASCII        ESC x n

Hex         1B 78 n

Decimal 27 120 n

### **Parameter range**

n = 0, 1

### **Function**

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

n = 0 Draft printing

1 Letter-quality printing

## **ESC M    Select 12-cpi**

### **Format**

ASCII        ESC M

Hex         1B 4D

Decimal 27 77

### **Function**

Selects 12-cpi character pitch

## **ESC g    Select 15-cpi**

### **Format**

ASCII        ESC g

Hex 1B 67

Decimal 27 103

### **Function**

Selects 15-cpi character printing

## **ESC SP Set character 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

## **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

## **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)

## **ESC G Select double-strike printing**

### **Format**

ASCII ESC G

Hex 1B 47

Decimal 27 71

### **Function**

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

## **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

**ESC q      Select character style**

**Format**

ASCII      ESC q n

Hex        1B 71 n

Decimal 27 113 n

**Parameter range**

0 , n , 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

**SO            Select double-width printing (one line)**

**Format**

ASCII      SO

Hex        0E

Decimal 14

**Function**

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

**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 character spacing (set with the ESC SP command) following this command on the same line.

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

**Format**

ASCII      DC4

Hex        14

Decimal 20

**Parameter range**

No parameters

**Function**

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

## **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

### **Function**

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

n = 1 Turns on double-width

0 Turns off double-width

## **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

### **Function**

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

n = 1 Turns on double-width

0 Turns off double-width

## **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

### **Function**

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

n = 0 Bidirectional printing

1 Unidirectional printing

## **ESC \*            Select bit image**

### **Format**

ASCII      ESC \* m n<sub>L</sub> n<sub>H</sub> d<sub>1</sub> . . . d<sub>k</sub>

Hex        1B 2A m n<sub>L</sub> n<sub>H</sub> d<sub>1</sub> . . . d<sub>k</sub>

Decimal 27 42 m n<sub>L</sub> n<sub>H</sub> d<sub>1</sub> . . . d<sub>k</sub>

**Parameter range**

0 . n<sub>L</sub> . 255

0 . n<sub>H</sub> . 31

m = 0, 1, 2, 3, 6, 32, 33, 38, 39, 40

**Function**

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

**ESC @ Initialize printer****Format**

ASCII ESC @

Hex 1B 40

Decimal 27 64

**Function**

Resets the printer to its default settings

**CAN Cancel line****Format**

ASCII CAN

Hex 18

Decimal 24

**Function**

Clears all printable characters and bit-image graphics on the current line

**DEL Delete last character in buffer****Format**

ASCII DEL

Hex 7F

Decimal 127

**Function**

Deletes the last printable character in the print buffer's current line

**ESC - Turn underline on/off****Format**

ASCII ESC - n

Hex 1B 2D n

Decimal 27 45 n

**Parameter range**

n = 0, 1

**Function**

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

n = 1 Turns underline on

0 Turns underline off

**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

**ESC F Cancel bold font****Format**

ASCII        ESC F

Hex         1B 46

Decimal 27 70

**Function**

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

**ESC P Select 10-cpi****Format**

ASCII        ESC P

Hex         1B 50

Decimal 27 80

**Function**

Selects 10-cpi character 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

**Function**

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

n = 0 Returns to current fixed character pitch

1 Selects proportional spacing

**3. Other Command Sets****AR Command Set**

NO	Command	Function
1	<b>CR</b>	Carriage return
2	<b>ESC J n</b>	Advance print position vertically



3	<b>LF</b>	Line feed
4	<b>ESC 0</b>	Select 1/8-inch line spacing
5	<b>ESC + n</b>	Set n/360-inch line spacing
6	<b>ESC 2</b>	Select 1/6-inch line spacing
7	<b>ESC 3 n</b>	Set n/180-inch line spacing
8	<b>ESC A n</b>	Set n/60-inch line spacing
9	<b>ESC B n1 n2 ...n k NUL</b>	Set vertical tabs
10	<b>ESC C NUL n</b>	Set page length in inches
11	<b>ESC C n</b>	Set page length in lines
12	<b>ESC D n1 n2 ... n k NUL</b>	Set horizontal tabs
13	<b>ESC l n</b>	Set left margin
14	<b>ESC N n</b>	Set bottom margin
15	<b>ESC O</b>	Cancel bottom margin
16	<b>ESC Q n</b>	Set right margin
17	<b>ESC SP n</b>	Set character space
18	<b>FF</b>	Form feed
19	<b>HT</b>	Tab horizontally
20	<b>VT</b>	Tab vertically
21	<b>DC4</b>	Cancel double-width printing (one line)
22	<b>ESC - n</b>	Turn underline on/off
23	<b>ESC 4</b>	Select italic font
24	<b>ESC 5</b>	Cancel italic font
25	<b>ESC E</b>	Select bold font
26	<b>ESC F</b>	Cancel bold font
27	<b>ESC G</b>	Select double-strike printing
28	<b>ESC g</b>	Select 15-cpi
29	<b>ESC H</b>	Cancel double-strike printing
30	<b>ESC M</b>	Select 12-cpi
31	<b>ESC P</b>	Select 10-cpi
32	<b>ESC p n</b>	Turn proportional mode on/off
33	<b>ESC SO</b>	Select double-width printing (one line)
34	<b>ESC W n</b>	Turn double-width printing on/off
35	<b>ESC w n</b>	Turn double-height printing on/off
36	<b>ESC x n</b>	Select LQ or draft
37	<b>SO</b>	Select double-width printing (one line)
38	<b>ESC R n</b>	Select an international character set
39	<b>ESC t n</b>	Select character table
40	<b>ESC % n</b>	Select/deselect user-defined set
41	<b>ESC * m nL nH</b>	Select bit image
42	<b>CAN</b>	Cancel line
43	<b>DEL</b>	Delete last character in buffer

44	<b>BS</b>	Backspace
45	<b>ESC @</b>	Initialize printer
46	<b>ESC U n</b>	Turn unidirectional mode on/off
47	<b>ESC X n1 n2</b>	Set the left/right margin
48	<b>ESC f</b>	Set forward feeding
49	<b>ESC v</b>	Set reverse feeding

### OKI Command Set

NO	Command	Function
1	<b>DC1</b>	Set on-line status
2	<b>DC3</b>	Set off-line status
3	<b>CAN</b>	Clear the buffer
4	<b>ESC k</b>	Set SHIFT JIS mode
5	<b>ESC I</b>	Cancel SHIFT JIS mode
6	<b>LF</b>	Line feed
7	<b>ESC 6</b>	Set the 1/6 inch line spacing
8	<b>ESC 8</b>	Set the 1/8 inch line spacing
9	<b>ESC % 9 n1 n2</b>	Set the n/120 inch line spacing
10	<b>ESC % 5 n</b>	Forward paper by n/120 inch
11	<b>ESC F n1 n2</b>	Set the page length
12	<b>FF</b>	Form feed
13	<b>ESC G n1 n2</b>	Set the perforation
14	<b>DC4</b>	Set vertical tab
15	<b>VT</b>	Tab vertically
16	<b>CR</b>	Carriage return
17	<b>ESC % 4 n1 n2</b>	Move the print head leftward
18	<b>BS</b>	Backspace
19	<b>ESC % 6 n1 n2</b>	Set the carriage return position
20	<b>ESC % 3 n1 n2</b>	Move the print head rightward
21	<b>ESC ( n1 n2</b>	Set left margin
22	<b>ESC ) n1 n2</b>	Set right margin
23	<b>ESC L</b>	Set horizontal tab
24	<b>HT</b>	Tab horizontally
25	<b>ESC N</b>	Set Pica HS ANK character mode
26	<b>ESC H</b>	Set Pica HD ANK character mode
27	<b>ESC B</b>	Set Elite HS ANK character mode
28	<b>ESC E</b>	Set Elite HD ANK character mode
29	<b>ESC % 1 n1 n2</b>	Figure data transfer
30	<b>ESC % 2 n1 n2</b>	Horizontal double extended figure data transfer
31	<b>ESC D</b>	Set high speed printing
32	<b>ESC I</b>	Set high density printing
33	<b>ESC X</b>	Set underline printing mode

34	<b>ESC Y</b>	Cancel the underline printing mode
35	<b>ESC U</b>	Set double extended printing mode
36	<b>ESC R</b>	Cancel the horizontal extended mode for ANK character
37	<b>ESC &lt;</b>	Cancel horizontal compress printing mode
38	<b>ESC &gt;</b>	Cancel horizontal compress printing mode
39	<b>ESC [</b>	Set vertical extended printing mode
40	<b>ESC ]</b>	Cancel vertical extended printing mode
41	<b>ESC i</b>	Set bold printing mode
42	<b>ESC j</b>	Cancel bold printing mode
43	<b>ESC % U</b>	Set unidirectional printing mode
44	<b>ESC % B</b>	Set bi-directional printing mode
45	<b>ESC m</b>	Set repeat printing mode
46	<b>ESC n</b>	Cancel repeat printing mode

# Interfaces

This appendix provides technical information for the parallel and serial interfaces

## 1. The Parallel Interface

The parallel interface of this printer fully supports the Centronics protocol plus the specific features requested by the EPSON and IBM printer connection in monodirectional mode and the Compatibility and Nibbles modes in bidirectional mode, plus the negotiation phases and the device identifier (as IEEE P1284).

The parallel interface is available on a specific 36 contact connector type AMPHENOL 57-40360-12-D56 or equivalent connector for 1284 Type B.

- Drive Capability  
Up to 15 feet (5 m) on AWG26 min. wire size of twisted conductors on TTL receiver. The max. reachable distance is conditioned by the host drive capability and by the noise level along the interface cable path.
- Printer Connector Type  
36 pins, 1284 Type B
- Cable Connector  
25 pin, 1284 A Type

## Signals Description

According to the IEEE - P1284 Standard, the pins assume different meanings and are identified by different names depending on the actual handshaking mode as follows:

- Compatibility mode (Centronics)  
This is the lower level mode provides an asynchronous, byte-wide forward (host-to-peripheral) channel with data and status lines used according to their original definitions. The interfaces power up in the compatibility Mode Idle phase.
- Nibble Mode  
This mode provides an asynchronous, reverse (peripheral-to-host) channel, under control of the host. In this mode, peripheral device to host data bytes are sent as two sequential, four-bit nibbles using the four peripheral-to-host status lines. These two modes cannot be active simultaneously.
- Byte Mode  
This mode provides an asynchronous, byte-wide reverse (peripheral-to host) channel based on eight data lines of the interface for data and the control/status lines for handshaking. Byte mode is under host control and it cannot be simultaneously active with compatibility mode.

## Operating Phases

The link protocol is mainly based on the following three phases:

- Negotiation Phase

This phase is activated always by the host, only when in compatibility mode, and defines:

- whether a bidirectional link protocol can be established.
- the handshaking mode as well as the communications mode to be used.
- the device identification, if supported.

- Communication Phase

This phase is based on well defined handshaking rules which depend upon the selected link mode.

- Termination Phase

This phase is initiated by the host and returns the interface to the compatibility mode.

## Parallel Interface Signals

Description of the signals in monodirectional link:

Signal Name	Pin N°	Source	Description
STROBE	1	HOST	Clock signal which controls data transmission with its falling edge.
ACK	10	PRINTER	Negative pulsed signal indicating that the printer has received data and is ready to accept the next set of data. Also sent when the printer is switched from off-line to on-line and at the end of the initialization time. The BUSY line is always active.
DATA BIT 1	2	PRINTER /	Data 8 is the most significant bit. These are the data lines used by host to transfer control code or ASCII codes.
DATA BIT 2	3	HOST	
DATA BIT 3	4		
DATA BIT 4	5		
DATA BIT 5	6		
DATA BIT 6	7		
DATA BIT 7	8		
DATA BIT 8	9		
BUSY	11	PRINTER	When high, this signal indicates that the printer cannot accept data or control codes. This signal goes high during data processing, in test and program modes, during initialization, when the buffer is full, and when a paper jam, paper end or paper size error occurs, in case of a power-on reset, the reception of a STROBE signal, while the register was not yet read, or when the INIT line is still active.
PE	12	PRINTER	When high, this signal indicates that printer is out of paper .
SELECT	13	PRINTER	When high, this signal indicates that the printer is on-line.

Signal Name	Pin N°	Source	Description
AUTOFEEDXT	14	HOST	Active low level signal.
GND	16	-	Logical ground level (0V).
CHASSIS GND	17	-	Frame ground.
+ 5 VDC	18	PRINTER	Is the DC voltage supplied by a component that limits the driven capability up to 100 mA.
SIGNAL GND	19-30	-	Signal ground.
INIT	31	HOST	Active low level signal. Indicates, that the printer is initializing. The BUSY signal is forced high.
ERROR	32	PRINTER	When low, this signal indicates that the printer is off-line, there is an off-line request from the operator panel, or the printer is in an error state .
+5V	35	PRINTER	Pulled up to signal.
SELECTIN	36	HOST	Active low level signal. Enables the printer.

The pins 1 to 14 of the printer are connected to the pins with the same number of the parallel port of the host.

The pins 19 to 30 of the printer are connected to the pins 18 to 25 of the parallel port of the host.

The pins 31, 32 and 36 of the printer are connected respectively to the pins 16, 15 and 17 of the parallel port of the host.

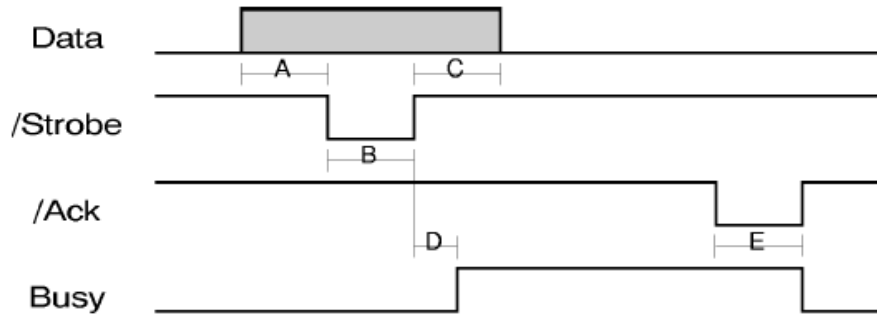
1284 Mode signal names are shown with their Compatibility mode (Centronics) names in parenthesis ( ) for the bidirectional link.

Signal Name	Pin N° for Signal Wire	Pin N° for Return Wire	Source
HostClk (nStrobe)	1	19	HOST
AD1 (Data 1)	2	20	HOST in Compatibility mode and negotiation phase. NOT USED in Nibble mode.  BIDIRECTIONAL in Byte mode.
AD2 (Data 2)	3	21	
AD3 (Data 3)	4	22	
AD4 (Data 4)	5	23	
AD5 (Data 5)	6	24	
AD6 (Data 6)	7	25	
AD7 (Data 7)	8	26	
AD8 (Data 8)	9	27	
PrtClk (nAck)	10	28	PRINTER
PrtBusy (Busy)	11	29	PRINTER
AckDataReq (PError)	12	28	PRINTER
Xflag (Select)	13	28	PRINTER
HostBusy (nAutofd)	14	30	HOST
Peripheral Logic High (+ 5V)	18		PRINTER
n.a. (nInit)	31	30	HOST
nDataAvail (NFault)	32	29	PRINTER
1284 Active (NSelectIn)	36	30	
Common Logic Ground	16 and Return Wires		
Chassis Ground	17		

## Interface Timing

Timing and Handshaking depend upon the connection mode.

Mode Centronics:



Our Centronics mode supports the BUSY-WHILE-STROBE busy signal timing and ACK-WHILE-BUSY as BUSY-ACK relationship.

Legend	Time Interval	Min	Max
A	Data setup time	0.5	
B	Strobe pulse width	0.5	500
C	Data hold time	0.5	
D	Busy delay	0	
E	Ack pulse width	2.5	

All times in  $\mu\text{s}$

## 2. The Serial Interface

This printer provides the RS-232/C serial interfaces. The interface mode is selected via EDS menu.

- Transmission Type  
Data is sent and received in start/stop (asynchronous) transmission.
- Character Format  
Each character is transmitted in the following format:

1 START BIT + 8 DATA BITS + 1 PARITY BIT + 1 STOP BIT



The least significant bit of the data bits is sent first after the start bit. The number of data bits is selected via menu. The parity bit, when present, follows the data bits. The start bit is a logical "0" and the stop bit is a logical "1". The start and stop bits are used as character framing bits.

- Printer Connector  
Male DB9 .
- Drive Capability  
Max. 50 feet (15 m) for all supported data rates.

### Serial Interface Signals

The following table lists the RS-232/C serial interface signals used:

Pin Number	Description	Signal Name
1	Not Connected 5V Power Supply if necessary	
2	Receive Data	RXD
3	Transmit Data	TXD
4	Data Terminal Ready	DTR
5	Signal Ground	GND
6	Data Set Ready	DSR

### 3. USB interface

USB interface accords with USB 1.1 criterion.

Cable connector:

B Type

The following table lists the USB interface signals used:

USB Pin	Description
1	USB 5V Power Supply
2	USB D-
3	USB D+
4	USB GND

## 4. Network interface

Cable connector:

8pin, RJ45

The following table lists the network interface signals used:

Pin	Name	Description
1	TX+	Tranceive Data+
2	TX-	Tranceive Data-
3	RX+	Receive Data+
4	n/c	Not connected
5	n/c	Not connected
6	RX-	Receive Data-
7	n/c	Not connected
8	n/c	Not connected

Note: This manual is subject to change without notice.