

Compuprint 30X6 Programmer Manual



Contents

Commands	3
1 . Index for ESC/PK	3
2 . Command interpretation for ESC/PK	4
3 . Other Command Sets	16
AR Command Set	16
OKI Command Set	17
Interfaces	19
1. The Parallel Interface	19
Signals Description.....	19
Operating Phases	20
Parallel Interface Signals	20
Interface Timing.....	23
2. The Serial Interface	23
Serial Interface Signals.....	24
3. USB interface	24
4. Network interface	25

Commands

1 . Index for ESC/PK

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

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

2 . Command interpretation for ESC/PK

ESC (C Set page length in defined unit

Format

ASCII 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

$n_L = 2, n_H = 0$

$0 < ((m_H \square 256) + m_L) \square (\text{defined unit}) \square 22$

Function

Sets the page length in the specified number of units—previously defined with the ESC(U command—according to the following formula: $(\text{page length}) = ((m_H \square 256) + m_L) \square (\text{defined unit})$

ESC (U Set unit

Format

ASCII ESC (U $n_L n_H m$

Hex 1B 28 55 $n_L n_H m$

Decimal 27 40 85 $n_L n_H m$

Parameter range

$n_L = 1, n_H = 0$

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

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 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 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 n₁ n₂ . . . n_k NUL

Hex 1B 44 n₁ n₂ . . . n_k 00

Decimal 27 68 n₁ n₂ . . . n_k 0

Parameter range

0 ≤ k ≤ 32

1 ≤ n_i ≤ 255

$n_k > n_{(k-1)}$

Function

Sets horizontal tab positions (in the current character pitch) at the columns specified by n_1 to n_k , as measured from the left-margin position

ESC B Set vertical tabs

Format

ASCII ESC B $n_1 n_2 \dots n_k$ NUL

Hex 1B 42 $n_1 n_2 \dots n_k$ 00

Decimal 27 66 $n_1 n_2 \dots n_k$ 0

Parameter range

0 $\leq k \leq 16$

1 $\leq n \leq 255$

$n_k > n_{(k-1)}$

Function

Sets vertical tab positions (in the current line spacing) at the lines specified by n_1 to n_k , 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 $\leq n \leq 3$

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_L n_H d₁ . . . d_k

Hex 1B 2A m n_L n_H d₁ . . . d_k

Decimal 27 42 m n_L n_H d₁ . . . d_k

Parameter range

0 ≤ n_L ≤ 255

0 ≤ n_H ≤ 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	CR	Carriage return
2	ESC J n	Advance print position vertically
3	LF	Line feed
4	ESC 0	Select 1/8-inch line spacing
5	ESC + n	Set n/360-inch line spacing
6	ESC 2	Select 1/6-inch line spacing
7	ESC 3 n	Set n/180-inch line spacing
8	ESC A n	Set n/60-inch line spacing
9	ESC B n1 n2 ...n k NUL	Set vertical tabs
10	ESC C NUL n	Set page length in inches
11	ESC C n	Set page length in lines
12	ESC D n1 n2 ... n k NUL	Set horizontal tabs
13	ESC l n	Set left margin
14	ESC N n	Set bottom margin
15	ESC O	Cancel bottom margin
16	ESC Q n	Set right margin
17	ESC SP n	Set character space
18	FF	Form feed
19	HT	Tab horizontally
20	VT	Tab vertically
21	DC4	Cancel double-width printing (one line)
22	ESC - n	Turn underline on/off
23	ESC 4	Select italic font
24	ESC 5	Cancel italic font
25	ESC E	Select bold font
26	ESC F	Cancel bold font
27	ESC G	Select double-strike printing
28	ESC g	Select 15-cpi
29	ESC H	Cancel double-strike printing
30	ESC M	Select 12-cpi
31	ESC P	Select 10-cpi
32	ESC p n	Turn proportional mode on/off
33	ESC SO	Select double-width printing (one line)
34	ESC W n	Turn double-width printing on/off
35	ESC w n	Turn double-height printing on/off
36	ESC x n	Select LQ or draft

37	SO	Select double-width printing (one line)
38	ESC R n	Select an international character set
39	ESC t n	Select character table
40	ESC % n	Select/deselect user-defined set
41	ESC * m nL nH	Select bit image
42	CAN	Cancel line
43	DEL	Delete last character in buffer
44	BS	Backspace
45	ESC @	Initialize printer
46	ESC U n	Turn unidirectional mode on/off
47	ESC X n1 n2	Set the left/right margin
48	ESC f	Set forward feeding
49	ESC v	Set reverse feeding

OKI Command Set

NO	Command	Function
1	DC1	Set on-line status
2	DC3	Set off-line status
3	CAN	Clear the buffer
4	ESC k	Set SHIFT JIS mode
5	ESC I	Cancel SHIFT JIS mode
6	LF	Line feed
7	ESC 6	Set the 1/6 inch line spacing
8	ESC 8	Set the 1/8 inch line spacing
9	ESC % 9 n1 n2	Set the n/120 inch line spacing
10	ESC % 5 n	Forward paper by n/120 inch
11	ESC F n1 n2	Set the page length
12	FF	Form feed
13	ESC G n1 n2	Set the perforation
14	DC4	Set vertical tab
15	VT	Tab vertically
16	CR	Carriage return
17	ESC % 4 n1 n2	Move the print head leftward
18	BS	Backspace
19	ESC % 6 n1 n2	Set the carriage return position
20	ESC % 3 n1 n2	Move the print head rightward
21	ESC (n1 n2	Set left margin

22	ESC) n1 n2	Set right margin
23	ESC L	Set horizontal tab
24	HT	Tab horizontally
25	ESC N	Set Pica HS ANK character mode
26	ESC H	Set Pica HD ANK character mode
27	ESC B	Set Elite HS ANK character mode
28	ESC E	Set Elite HD ANK character mode
29	ESC % 1 n1 n2	Figure data transfer
30	ESC % 2 n1 n2	Horizontal double extended figure data transfer
31	ESC D	Set high speed printing
32	ESC I	Set high density printing
33	ESC X	Set underline printing mode
34	ESC Y	Cancel the underline printing mode
35	ESC U	Set double extended printing mode
36	ESC R	Cancel the horizontal extended mode for ANK character
37	ESC <	Cancel horizontal compress printing mode
38	ESC >	Cancel horizontal compress printing mode
39	ESC [Set vertical extended printing mode
40	ESC]	Cancel vertical extended printing mode
41	ESC i	Set bold printing mode
42	ESC j	Cancel bold printing mode
43	ESC % U	Set unidirectional printing mode
44	ESC % B	Set bi-directional printing mode
45	ESC m	Set repeat printing mode
46	ESC n	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 / HOST	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		
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.

Signal Name	Pin N°	Source	Description
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.
AUTOFEEDX T	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.

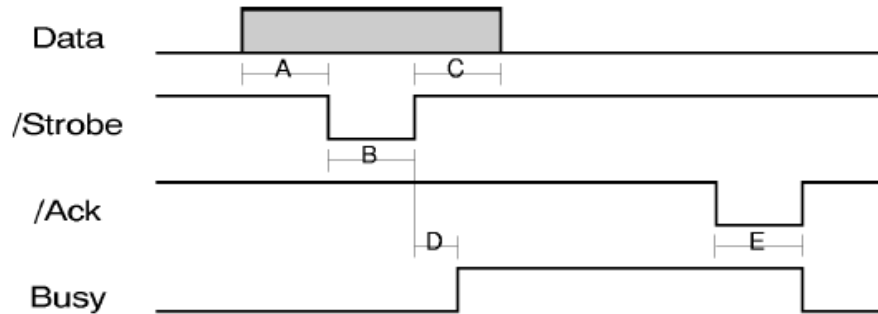
1284 Mode signal names are shown with their Compatibility mode (Centronics) names in parenthesis () for the bidirectional link.

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.
AD2 (Data 2)	3	21	
AD3 (Data 3)	4	22	NOT USED in Nibble mode.
AD4 (Data 4)	5	23	BIDIRECTIONAL in Byte mode.
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 μs

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