



BAR CODE PRINTING ON PP20X

The PSi PP20x in the DL24C/DL24C+ emulation's supports 8 industrial standard Barcodes

Codabar, EAN 13, EAN 8, Code 3 of 9, 2 of 5 Industrial, 2 of 5 interleaved, Matrix 2 of 5, UPC Type A

Barcode sequence (header and Data)

ASCII	ESC	DC4	(b)	R	(c)	(w)	(h)	(a)	(ch1)	(chn)
Decimal	27	20	(b)	82	(c)	(w)	(h)	(a)	(ch1)	(chn)
HEX	1B	14	(b)	52	(c)	(w)	(h)	(a)	(ch1)	(chn)

Where lower case letters are enclosed in parentheses, e.g. (b), they should be replaced with a single byte parameter as defined later.

note: The MSB of all parameters are ignored.
The command length varies defined by parameter (b)

Parameters

(b) Byte Count

This specifies the number of subsequent bytes, including the byte count itself, in the command sequence e.g. if the data to be barcoded are 5 characters then (b) should be set to 11(decimal or 0B (HEX)

Parameters (c) **Coding System**
Barcode type

Parameter Value	Barcode Type
1 (31) HEX	Codabar
2 (32) HEX	EAN 13
3 (33) HEX	EAN 8
4 (34) HEX	Code 3 of 9
5 (35) HEX	2 of 5 industrial
6 (36) HEX	2 of 5 interleaved
7 (37) HEX	Matrix 2 of 5
A (41) HEX	UPC Type A

(w) **Width of the narrow bars**

This specifies the width of the narrow bars, in units of 1/1440 inch, the barcode will be printed in units of 1/180th inch

Parameter Value	Number of Dots 180 dpi
0 to 19	2
20 to 27	3
28 to 127	4

(h) **Height of bars**

This specifies the height of the bars, in relation to the width of the narrow bars (w)

Height (h) is determined as follows: $H=(h) / (w)$ units 1/1440 inch

When (h) is less than 192 (24 dots at **240 dpi**), the barcode will be printed using a default (see following table)

Thin bar width	EAN 13	EAN 8	Others
2 dots	0.9 inch	0.7 inch	0.6 inch
3 dots	1.3 inch	1.0 inch	0.75 inch
4 dots	1.7 inch	1.4 inch	0.9 inch

Parameters

(a) **Barcode Attributes**

This parameter is used to define a byte which contains 8 binary flags.
This byte switches the specific barcode attributes

Bit	Specification	Value	Meaning
Bit 0	Check Digit (*1)	0	added
		1	not added
Bit 1	OCR characters	0	printed
		1	not printed
Bit 2	Flag character	0	left of barcode
		1	lower left of barcode

*1 The check digit is always added for EAN and UPC barcodes. For Codabar no check digit is added (flag not needed).

(ch 1)...(ch n) **Barcode Data**

Definition of barcode range and type characters.

^c Barcode type	Character set	range of data item (n)
Codabar	Numeric: 0-9 Signs: +,-,\$,/,: Start/Stop:A,a,B,b,C,c,D,d, T,t,N,n,*,E,e	up to 34 character including start/stop
EAN13	Numeric: 0-9	n = 12
EAN 8	Numeric: 0-9	n = 7
Code 39	Numeric: 0-9 Alpha: A-Z Special:+,-,%,\$,.,Space Start/Stop:*	up to 32 characters including check digit
2 of 5 industrial	Numeric: 0-9	as above
2 of 5 interleaved	Numeric: 0-9	as above
Matrix 2 of 5	Numeric: 0-9	as above
UPC Type A	Numeric: 0-9	n = 11

The data have to be set as ASCII characters corresponding to the character set used for each type of barcode. If they are not in a valid range, the command is canceled and the remaining data are skipped.

**Barcode
specifig
restriction**

- **Codarbar**

The Start/Stop character is not checked by the printer. Barcode is printed based on the input data. The start/stop code must be set by the user.
(Start/Stop codes : A,a,B,b,C,c,D,d,T,t,N,n,m,*,E,e) - both upper and lower characters can be used. OCR characters are printed in upper characters.

- **Code 3 of 9**

Only uppercase alpha characters can be used. The Start/Stop code (*) will be printed automatically as the first and last character in the output data string. Start/Stop code will be printed as OCR characters. Detection of the start/stop code in the input data causes an error.

- **2 of 5 interleaved**

**Barcode
printing**

The barcode requires an even number of the data code digits. In case of an odd number of digits, a „0“ character precedes the input data. The start/stop code is placed automatically by the printer

- The barcode printing command is treated as a single vertically and horizontally enlarged character by the printer in relation to other commands or characters, and can be positioned anywhere in the text

note: the barcode patterns are usually larger than standard text - for some barcode types exist restrictions

- If the barcode pattern is exceeding the defined right margin the barcode will not be printed
- The barcode pattern is printed from the current position even though the pattern may extend beyond the bottom margin
- The Flag character for EAN and UPC barcode is not printed if the barcode pattern is printed at the left margin without any previous spaces or characters.

Barcode sample •

Barcode sample EAN 13

this sample generates and outputs a barcode file „pp204.prn“

```

10 DS = „123456789012“           `printing data
20 CLEN = LEN (DS) + 6           `total numbers of parameters
30 CODE$ = „2“                   `barcode type EAN 13 (2)
40 BWIDTH = &H06                 `width of barcode 6/1440 inch
50 BHEIGHT = &H60                `height of barcode 60/1440 inch
60 ATTRIB = &H1                  `barcode attribute
65 OPEN „pp204.prn“ FOR OUTPUT AS #1
70 PRINT #1, CHR$(27);CHR$(20);CHR$(CLEN);
80 PRINT #1, „R“;
90 PRINT #1, CODE$;CHR$(BWIDTH);CHR$(BHEIGHT);
100 PRINT #1, CHR$(ATTRIB);
110 PRINT #1, DS;CHR$(10);CHR$(13);CHR$(10);CHR$(10);
120 PRINT #1, CHR$(10);CHR$(10);
130 PRINT #1, BARCODE TEST PRINTOUT PP204 EAN 13“
    
```

The result in the file „pp204.prn“ is

```

000000: 1b 14 12 52 32 06 60 01 31 32 33 34 35 36 37 38 |...R2..12345678|
000016: 39 30 31 32 0a 0d 0a 0d 0a 0d 0a 0d 0a 0d 0a 42 |9012.....B|
000032: 41 52 43 4f 44 45 20 54 45 53 54 20 50 52 49 4e |ARCODE TEST PRIN|
000048: 54 4f 55 54 20 50 50 32 30 34 20 45 41 4e 20 31 |TOUT PP204 EAN 1|
000064: 33 0d 0a                                     |3..|
    
```



Barcode