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## **Introduction**

About this manual

This manual describes the installation and the application of TrueType fonts Barcode as well as the utility program belonging to it for the calculation of the check digit.

The input of the Barcodes in the aim-application can be made easier with the DDE-interfaces of the Barcodeprogram. An automatical calculation for data base applications is possible with DDE-programming. More details about this are in the relevant chapters of this manual. Some data examples will also be installed into the Barcode directory. Further information as well as examples are containt in the Online-Help.

## **Assisted Applications**

- Word for Windows, Wordperfect for Windows, Ami Pro
- Pagemaker, MS-Publisher, Corel Draw, Designer
- Excel, Lotus 1-2-3, Foxpro for Windows, MS-Access
- nearly all applications runs in Windows

The fonts can be scaled in all sizes assisting the respective application. All barcode fonts are also contained in the ATM format on the first disc (directory "\ATM"). Often the printing quality of ATM fonts is better than TrueType format.

## **Printer**

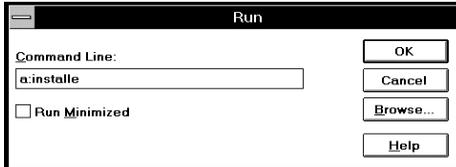
All printers installed with Windows 3.1 are applicable, matrix printers however are less suitable for some Barcodes. You get best results with Laserprinters within a resolution of 300 or 600 dpi.

## **Check digit calculation**

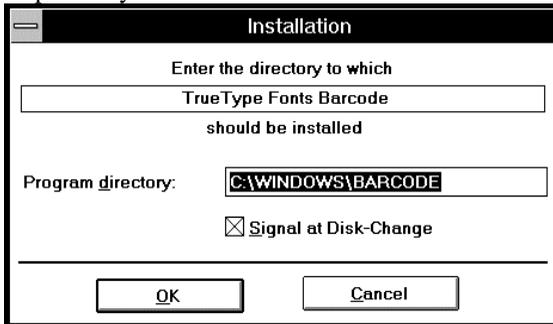
Availabe for the calculation of the check digit in the delivered barcode program.

## Installation of Barcode-program

Enter in the menu "File", "Run" of the Program-Manager the command "a:installe" respectively "b:installe" according to the used discdrive.



Install installs the software by default into the directory "c:\windows\barcode" you can also enter another directory respectively hard disk:



With it the required data is copied into the indicated register and a new program-group with the program icon is built.

All contained fonts are installed by the installation. Fonts not required can be removed again in the system control.

Now all installed TrueType fonts are available in all Windows applications by selecting font and size in the respective menu.

In case the new fonts do not appear in the font menu of your application, please look into your manual, what has to be observed by the installation of new fonts.

The postscript-fonts contained on the disk in the directory ATM can be added directly by means of the ATM control. Before installing ATM fonts you should remove the TrueType fonts of the similar fontnames.

### **Printer Options**

In case of printing the following should be observed:

- regulate highest possible resolution/screen quality, especially for Barcodes only having low tolerance limits as for example EAN and UPC.

Some printer drivers only allow a low resolution, because of velocity reasons. With laser printers you usually have a high resolution of 300-600 dpi, other printers up to 360 dpi.

- regulate black printing as "bright" as possible. Many laserprinters have a corresponding possibility of adjustment. With needle printers the distance of the printer`s head can be changed.

- Do not adjust laser printers on "Econo-Mode" or similar, use original toner, refilltoner can be too coarsely grained.

- Use Ink-Jet-Paper for ink-jet printers, respectively labels, as some kinds of papers cannot absorb the ink fast enough and have a tendency to run.

- Often you will get better results when using ATM fonts instead of TrueType fonts.

- Basically it goes: the higher the printer resolution and the higher the Barcode was printed, the better you can read it. The best way to find an optimum regulation is to try out the possible adjustments.

## Program "Barcode"

First the requested Barcode is clicked in the main dialog. Now the utilized digits can be entered.

According to the selected barcode only those chars are allowed for the input, which are also contained in the barcode. With EAN-codes these are for example only digits, invalid chars cannot be entered.

By pressing the Enter-key or by clicking on "Calculate" the check digit is calculated and at the same time the whole character string is copied into the clipboard.

The screenshot shows the 'Barcode' dialog box with the following details:

- Title Bar:** Barcode
- Menu Bar:** File Options Help
- Barcode:** Code 39 (selected)
- Additional data:**  Calculate checksum
- Relation of elements:**  2.0,  2.5,  3.0
- Enter your string here:** 1234ABCD
- Checksum:** D
- Calculate:** Button
- Whole character string:** \*1234ABCD\*, 1234ABCD
- End:** Button
- Copy plain text:**
- Font:** Code-39-30
- Font size:** 45
- Width:** 81.3 mm
- Height:** 15.9 mm
- Module width:** 409 µm
- Barcode:** 1234ABCD

Now you can change to your destination application (Alt+Tab) and paste the character string at the requested place with the key combination (CTRL+V). Finally the pasted character string is marked and formatted in the requested size by the corresponding barcode font. The font and size to be used you can see beside "fontname" in the Barcode Program. The font size can be entered in the field with the same name, in the preview field the whole Barcode is shown in original size.

Width and height of the made Barcodes are indicated in the corresponding fields. The width contains the Barcode as well as the quiet zone to be met. The indicated height goes without the eventual plain text line, as this one can usually be formatted as you like.

The size can deviate from the indicated size by a few percent according to application and printer.

Indication of element width: here the modular size (= width of a small element) calculated from the respective font size is indicated in  $\mu\text{m}$ . By that a control whether the selected font size results the necessary modular width is possible.

This calculated value can deviate at the output by the print increase. The actual element width can be measured again with suitable testing devices, if required.

After the installation the Barcode Program indicates to the input and indication fields an "Active Help", as soon as the mouse is moved to the corresponding field. This indication can be deactivated in the menu "help".

### **Copy also plain text**

If you have marked the field "copy also plain text" the actual digit as second line is copied also into the clipboard. After the insertion two lines appear:

example:           \*1234ABCDD\*  
                      1234ABCD

The first line contains the whole character string and is formatted with the corresponding Barcode font. The second line contains the actual digit and is formatted with a readable font. For it can be used as the delivered font "OCR-B", but also as every other font, which includes the normal ANSI character set.

example:  (font "Code39", 30 pt.)

1 2 3 4 ABCD

(font "OCR-B",

12 pt.)

### **Additional indications to the individual Barcodes**

Additional indications can be made with some Barcodes, for example an enlargement factor of EAN, start and stop symbols at Codabar etc. A description about these indications are contained in the chapters to the individual Barcodes.

### **Information**

- 1) Each barcode normally requires a quiet zone (blank field) left and right of the actual barcode. The minimum width is 2,5 mm, for distance readers 6,5 mm. Normally a quiet zone of 5-6 mm is sufficient.
- 2) The encoded symbols and digits normally do not correspond to the symbols at the keyboard, therefore the creation of the Barcode should be effected by the barcode program.
- 3) To prevent wrong inputs, start and stop symbols at the individual Barcodes are as far as possible on other places in the ANSI-code. In case of the Barcode shows a box as start and stop symbol:



It could be that the Barcode calculated by the program has not been formatted with the correct font.

- 4) The input of start and stop symbols, as well as field separators with EAN is not allowed by the Utility-Program, as these symbols are automatically added to the whole character string when calculating.



### **EAN13**

Valid symbols: digits from 0 ... 9, 12 positions fixed.

Nominal size 100% (incl. quiet zone): width = 37,29 mm, height = 26,26 mm

Font: "Code-EAN". The Nominal size is printed out with a font size of 72 - 74 pt.

The Code can vary between 80% and 200%.

Possible enlargement factors:

Description	factor	font size (pt)	
SC 0	0,818	59	
SC 1	0,90	65	
SC 2	1,00	72	(= Nominal size)
SC 3	1,10	79	
SC 4	1,20	86	
SC 5	1,35	97	
SC 6	1,50	108	
SC 7	1,65	119	
SC 8	1,85	133	
SC 9	2,00	144	

The encoded actual digits incl. check digit are contained as plain text underneath the code, in the font "OCR-B".

Instead of font "Code-EAN" also the font "Code-EAN-HH" (= Half Height) can be used. Example printouts are in the annex.

Click on the fields "Enlargement Factors" and "Half Height" and the made Barcode as well as the font and size to be selected is correspondingly indicated in the program.

Additional information:

The check digit is calculated according to Modulo 10 with weighting 3, moving direction from the right to the left

Example:

actual digit      4 0 0 3 5 8 6 0 0 4 0 1  
weighting        1 3 1 3 1 3 1 3 1 3 1 3  
product           4 0 0 9 5 24 6 0 0 12 0 3  
sum                63  
Modulo 10        63 / 10 = 6 rest 3  
difference to 10 10 - 3 = 7 (= check digit 7)

The code consists of the character sets A, B and C. The left half of the Barcode is encoded of the character sets A and B, the right half of character set C.

The code is designated from right to the left. The 13th digit (= 1th position from the left) is encoded within the positions 12... 7 of character sets A and B, according to the following scheme:

13th digit	12th pos.	11th pos.	10th pos.	9th pos.	8th pos.	7th pos.
0	A	A	A	A	A	A
1	A	A	B	A	B	B
2	A	A	B	B	A	B
3	A	A	B	B	B	A
4	A	B	A	A	B	B
5	A	B	B	A	A	B
6	A	B	B	B	A	A
7	A	B	A	B	A	B
8	A	B	A	B	B	A
9	A	B	B	A	B	A

Encoding of the character set in the font:

- a) the character set A is on key bank underneath of the numbers, e. g.: "1" = q, "5" = t, from q to p.
- b) the character set B is on the second row underneath the numbers from a to "ö",
- c) character set C on the third row, from y to -.

d) The first digit (13th position) on the numerical keys.

As this input has a lot of errors, an input and a calculation with the Barcode program is recommended.

Additional following symbols:

Start and Stop = \*  
field separators = #,  
quiet zone = Space-key.

Character structure (left-right): First digit, quiet zone, guard bar , 5 positions from 12.7 of character set A respect. B, field separators, 6 positions from 6... 1 of character set C, guard bar, quiet zone.

example:

actual digit: 400358600401  
check digit: 7  
total character string 4 \*pöetkh#--v-ym\*

Examples about this see annex font "Code-EAN" and "Code-EAN-HH".

## **EAN 8**

Valid Symbols: digits from 0 ... 9, 7 position fixed.

Nominal size 100% (incl. quiet zone): width = 26,73 mm.

Font: "Code-EAN-HH". The nominal size is printed out with a font size of 72-74 pt.

Code can vary between 80% and 200%. Details see chapter "EAN 13".

The encoded digits are contained as plain text underneath the Codes.

Additional information:

The check digit is calculated according to Modulo 10 with weighting 3 from the right to the left.

example:

actual digit	4 0 1 2 3 4 5
weighting	3 1 3 1 3 1 3
products	12 0 3 2 9 4 15
sum	45
Modulo 10	$45 / 10 = 4 \text{ rest } 5$
difference to 10	$10 - 5 = 5$
= check digit	5

The Code consists of the character sets A and C. The left half of the barcode is encoded of the character set A, the right half of character set C.

Encoding of character sets in the font as well as start-stop-symbols and separators as with EAN 13.

Character structure (left-right): quiet zone, guard bar, 4 positions from 8...5 of character set A, field separation, 4 positions from 4...1 of character set C, guard bar, quiet zone.

example:  
actual digit                   4012345  
check digit                   5  
total character string       \*rpqw#cvbb\*

### **EAN Addon**

For the Barcodes EAN 13, EAN 8, as well as UPC A there is the possibility to enter a two- or five-placed additional code.

For this a two-or five-placed additional code is entered in the field "actual digit" in addition to the original actual digit. Than the program calculates the total character string incl. the necessary distance between EAN and Addon-Code. The distance can consist of 1 or 2 space characters.

Therefore the font size indicated for each enlargement factor has to be kept in the destination application.

## **EAN-Velocity**

Valid characters: digits from 0 ... 9.

Actual digit: up to max. 6 positions. If you enter less than 6 digits, the code of the barcode program is filled up with zeros from the left.

The first digit, as system code number, is always zero. Resulted by this is an actual digit range from 000000 to 999999.

Font: "Code-EAN". Alternatetively you can also select font "Code-EAN-HH" (=half height).

The encoded digits are below the codes as plain text.

EAN-Velocity serves as internal numbering and can be given independently.

Additional information:

Check digit calculation and encoding are effected as EAN 8.

## UPC A

Valid characters: digits from 0 ... 9, 11 positions fixed.

Nominal size: 100% (incl. quiet zone): width = 37,29 mm.

Font: "Code-EAN". The nominal size is printed out with a font of 72 - 74 pt.

The Code can vary between 80 % (= 59 pt) and 200% (= 144 pt).  
Details see chapter "EAN 13".

The encoded digits are below the codes as plain text.

Additional information:

The check digit is calculated according to Modulo 10 with the weighting 3, weighting from the right to the left.

examples:

actual digit	1	2	3	4	5	6	7	8	9	0	1
weighting	3	1	3	1	3	1	3	1	3	1	3
products	3	2	9	4	15	6	21	8	27	0	3
sum	98										
difference to 10	$10 - 8 = 2$ (Checksum is "2")										

The code consists of character set A and C. The left half of the Barcode is encoded of character set A, the right half of character set C.

The digits 12 and 1 are copied without plain text (according to capital letter at the keyboard, from "Q" to "P" for character set A and from "Y" to "\_" for character set C), these digits however as plain text are before and behind the Barcode.

Encoding of character sets in the font, guard bars-, separation- and space characters otherwise as with EAN.

Character format: placed in front digit, quiet zone, guard bar, 6 positions from 12...7 of character set A, field separation, 6 positions of 6...1 of character set C, guard bar, placed in back digit in plain text.

**example:**

actual digits	12345678901
total character string	1 *Qwertz#m,.-yX*2

## UPC E

Valid characters: digits from 0 ... 9.

Actual characters: 7 positions fixed, the left digit is a code number and always "0". Therefore only 6 digits can be put in the Barcode program, the left "0" is added automatically when calculating.

Nominal size 100% (incl. quiet zone): width = 23,76 mm.

Font: "Code-EAN". The nominal size is printed out with a font size of 72-74 pt.

The Code can vary between 80 % (= 59 pt.) and 200 % (= 144 pt.)  
Details see chapter "EAN 13".

The encoded digits are contained below the codes as plain text.

### **Additional information:**

The check digit is calculated according to Modulo 10 with the weighting 3, weighting from the right to the left.

examples:

actual digit	0 1 2 3 4 5 6
weighting	3 1 3 1 3 1 3
products	0 1 6 3 12 5 18
sum	45
Modulo 10	$45 / 10 = 4$ rest 5
difference to 10	$10 - 5 = 5$ (= check digit 5)

The Code consists of character sets A and B. The check digit is shown within the Codes of the change of character set A and B.

See following table:

7. digit	6. digit	5. digit	4. digit	3. digit	2. digit	check digit
B	B	B	A	A	A	0
B	B	A	B	A	A	1
B	B	A	A	B	A	2
B	B	A	A	A	B	3
B	A	B	B	A	A	4
B	A	A	B	B	A	5
B	A	A	A	B	B	6
B	A	B	A	B	A	7
B	A	B	A	A	B	8
B	A	A	B	A	B	9

Encoding of character sets in font otherwise edge and space character as with EAN 13.

Character format: front placed digit, quiet zone, guard bar, 6 positions from 7...2 of character set A respect. B, right guard bar, back placed digit (check digit) in plain text.

example:

actual digits: 0123456

total character string 0 \*awefgz~5

Printout in font "Code-EAN" in annex.

## Code 128

Valid characters: !#\$%&'()\*+,-

./0123456789:;<=>?@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^

\_`abcdefghijklmnopqrstuvwxyz{|}~

as well as space key.

Numbers of actual characters: as you like, according to max. possible scan width.

Font "Code-128". Activate the switch "double height", and the font "Code-128-DH" is indicated, which can be used for long Barcodes.

Recommended size: height minimum 6,5 mm or 15 % of the barcode length. Good reading rates from approx. 24 pt. font size.

By the calculation of the check digit in the Barcode program, the whole code is converted at the same time through the combination of control characters to the shortest possible length.

This is reached by switching to "Code C" as soon as 4 digits, one after the other, appear in the entered actual digit. "Code B" is valid for all other characters. Details about the applied rules, see annex bibliographical references.

If required this automatical conversion can be prevented by using "Code 128 B" respect. "Code 128 C". More details in the corresponding chapters.

### **Additional information:**

Control characters are contained in character set for Code 128, which for example can change within one character set to the other and do have similar functions.

All control characters in the barcode program except those changing from Code B to C and reversed can be entered by the keyboard. The change from B to C and reversed is automatically effected when calculating.

Valid for characters from 0-94 is the following chart, all symbols are on the key which corresponds to character of Code 128 B:

Ref.	128A	128B	128C		Ref.	128A	128B	128C
0	SP	SP	00		26	:	:	26
1	!	!	01		27	;	;	27
2	"	"	02		28	<	<	28
3	#	#	03		29	=	=	29
4	\$	\$	04		30	>	>	30
5	%	%	05		31	?	?	31
6	&	&	06		32	@	@	32
7	'	'	07		33	A	A	33
8	(	(	08		34	B	B	34
9	)	)	09		35	C	C	35
10	*	*	10		36	D	D	36
11	+	+	11		37	E	E	37
12	,	,	12		38	F	F	38
13	-	-	13		39	G	G	39
14	.	.	14		40	H	H	40
15	/	/	15		41	I	I	41
16	0	0	16		42	J	J	42
17	1	1	17		43	K	K	43
18	2	2	18		44	L	L	44
19	3	3	19		45	M	M	45
20	4	4	20		46	N	N	46
21	5	5	21		47	O	O	47
22	6	6	22		48	P	P	48
23	7	7	23		49	Q	Q	49
24	8	8	24		50	R	R	50
25	9	9	25		51	S	S	51

Ref.	128A	128B	128C		Ref.	128A	128B	128C
52	T	T	52		74	LF	j	74
53	U	U	53		75	VT	k	75
54	V	V	54		76	FF	l	76
55	W	W	55		77	CR	m	77
56	X	X	56		78	SO	n	78
57	Y	Y	57		79	SI	o	79
58	Z	Z	58		80	DLE	p	80
59	[	[	59		81	DC1	q	81
60	\	\	60		82	DC2	r	82
61	]	]	61		83	DC3	s	83
62	^	^	62		84	DC4	t	84
63	_	_	63		85	NAK	u	85
64	NUL	`	64		86	SYN	v	86
65	SOH	a	65		87	ETB	w	87
66	STX	b	66		88	CAN	x	88
67	ETX	c	67		89	EM	y	89
68	EOT	d	68		90	SUB	z	90
69	ENQ	e	69		91	ESC	{	91
70	ACK	f	70		92	FS		92
71	BEL	g	71		93	GS	}	93
72	BS	h	72		94	RS	~	94
73	HT	i	73					

Should you require characters from the character set Code 128 A, select Code 128 B in the barcode program, switch over to Code 128 A (key "Û") than you can enter the corresponding characters with the key at column "128 B" at a. m. chart. With key "Ö" you can switch back again to character set "Code 128 B".

Valid for all control characters (from pos. 95) in Code 128 A, B and C is the following table:

Ref.digit	128A	128B	128C	key	ANSI-code
95	US	DEL	95	´	0180
96	FNC3	FNC3	96	ä	0228
97	FNC2	FNC2	97	ö	0246
98	SHIFT	SHIFT	98	ü	0252
99	Code C	Code C	99	Ä	0196
100	Code B	FNC4	Code B	Ö	0214
101	FNC4	Code A	Code A	Ü	0220
102	FNC1	FNC1	FNC1	µ	0181
103	Start	Code A		À	0192
104	Start	Code B		Á	0193
105	Start	Code C		Â	0194
	Stop			È	0200
	Quiet	-zone		<	032
	Space			ß	0223

The entered space key is automatically converted to the char "ß", as some application cannot print out correctly a space key (ANSI 32) which contains bars.

Character format: quiet zone, start character Code B, actual digit, check digit, stop character, quiet zone.

Check digit calculation:

The check digit is calculated according to Modulo 103, the weighting starts with 1 and is increased with each character by 1 (from left to the right).

The character which is used as check digit is the calculated check digit which corresponds to the belonging reference number.

example:

actual digit           123ABC

sum of the Ref. Numbers  $104 + 1*17 + 2*18 + 3*19 + 4*33 + 5*34 + 6*35 = 726$

Modulo 103:        $726 / 103 = 7 \text{ rest } 5$

symb. with Ref.-Num. 5   = %

Character format: quiet zone, StartCode B, actual digit, check digit, stop symbol, quiet zone.

example:

actual digit           123ABC

total character string    $\text{Á}123\text{ABC}\%È$

An example about conversion according to the biggest information density you can find in the help file, topic "check digit calculation 128", further advices see specialist literature.

### **Code 128B**

By using Code 128 exclusively, the following has to be regarded:

Valid characters: !#\$%&'()\*+,-  
./0123456789:;<=>?@ABCDEFGHIJKLMN  
OPQRSTUVWXYZ[\]^\_`  
abcdefghijklmnopqrstuvwxyz{|}~  
as well as space key.

Font and size as described in chapter regarding Code 128.

Here it is started with start symbol "Code B", by entering "A" it can also be changed to Code 128 C, entered digits however will not be converted into the corresponding character, that means no rules are used for the biggest information density.

## Code 128C

Valid characters: digits from 0 ... 9

Numbers of actual characters: as you like, but however even number of digits. Otherwise as with Code 128.

Font and size: see advices Code 128.

Additional advices:

The entered digit couple corresponds to numbers from 0-99 (= reference numbers). The number couples are encoded with a symbol character. The input of control characters for Code 128 C is not possible with the Barcode program, otherwise Code 128 B has to be used.

The check digit is calculated according to Modulo 103, the weighting starts with 1 and is increased by one with each couple of digits (from left to right).

The digit used as check digit is the calculated check number, which corresponds to the reference number belonging to.

example:

actual digits:                   123456  
sum of Ref.-Numbers:         $105 + 1*12 + 2*34 + 3*56 = 353$   
modulo 103:                    $353 / 103 = 3 \text{ rest } 44$   
symbols with Ref.-Number 44 = "L"

Character format: quiet zone, StartCode C, actual digit, check number, stop symbol, quiet zone.

example:

actual digits:       123456,   check digit = "L"  
2 couple of numbers each   12 = ",",   34 = "B",   56 = "X"  
total character string         $\hat{A}$  , BXL $\hat{E}$

## EAN 128

Valid characters: !#\$%&'()\*+,-

./0123456789:;<=>?@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^

\_`abcdefghijklmnopqrstuvwxyz{|}~

as well as space key.

Number of actual characters: up to 48 symbols, the whole character string should not have more than 35 symbols (incl. start and stop symbols as well as control characters).

Font "Code-128". Activate switch "double height" and font "Code-128-DH" is indicated, which for example is used for long Barcodes.

Recommended size: height minimum 20 mm. The valid enlargement factors (0,25 ... 1,20) can be adjusted in the Barcode program. The font size corresponding to it is indicated in field "font size". In this field the input of the font size cannot be effected directly.

By the calculation of the check digit in the Barcode program the whole code is converted at the same time through the combination of control characters to the shortest possible length. Details see chapter "Code 128".

In the Code "EAN 128" several data contents within one code can be displayed (e. g. article number, date of manufacture, weight, product variant, serial number, post code of the recipient etc.). Placed in front at each possible data contents is a data designator (2-4 placed numbers).

The individual data contents can have fixed (e. g. EAN-numbers) or variable lengths (e. g. serial numbers). Each data contents **must have a separator placed in front with variable length.**

Used as separator is the control character "FNC 1". The input of it can be effected by symbol "μ" (key <AltGr><m> simultaneous).

More details about EAN 128, especially the use of data designators are contained in the corresponding manuals of the CCG.

Each data contents can have an own check digit (e. g. EAN-numbers), this check digit is also entered as component of the actual digit and consequently not calculated by the barcode program. Exception: the NVE can be calculated and added.

A symbol error detection character (SPZ) is calculated from the whole entered actual digit string by the Barcode program. The symbol error detection character is calculated according to Modulo 103, corresponding Code 128.

Example:

symboltype	data design. (DB)	actual digit	check-digit
EAN of the trade unit	01	0401230000315	1
Chargen-Nr. serial-nr.	10 21	659344 1678	none none

the following total character string is resulted:  
StartC, FNC1, DB 01, EAN, check digit of EAN, DB 10, chargen-number, FNC1, DB 21, serial-number, SPZ, stop character.

Therefore the following character string has to be entered:  
010401230000315110659344µ211678

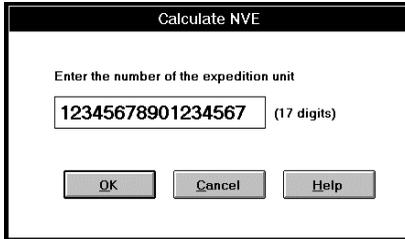
Through this the barcode program calculates the character string:  
 Åµ!\$!7ßß?S\*a}LÖµÄ50nöÈ  
 010401230000315110659344µ211678

The first line in font "Code-128", 30 pt. is:



## NVE, numbers of the transport unit

Click on "NVE calculate" in the barcode program, in this way you can enter in the input field the exact 17-placed NVE.



Calculate NVE

Enter the number of the expedition unit

12345678901234567 (17 digits)

OK Cancel Help

By pressing the <Enter>-key or "OK" the check digit required for this is calculated, and in the barcode program the calculated character string (incl. EAN-data designator for "NVE", (=00)). All other data designator have to be entered manually.

Here the total character string can be calculated or even further characters can be entered.

In case of one code contains a NVE, enlargement factors between 0,50 and 0,90 for the whole Barcode are allowed!

## **UPS 128**

Valid characters:

0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

Number of actual digits: 15 characters fixed, plus FACT-data identification ("1Z") and check digit. Entered small letters are automatically changed into capital letters by the Barcode program.

This data identification is automatically added to the actual digit by the barcode program, if it has not been entered.

Font "Code-128-DH".

Recommended size: height 25,4 mm minimum, this height is reached with a font size of min. 36 pt. Quiet zone right and left min. 6,35 mm, up and down min. 1,59 mm.

### **Format of actual digit:**

position 1-2 = FACT-data identification ("1Z")  
position 3-8 = UPS client No., with letters  
position 9-10 = servicecode  
position 11-17 = continual numbers  
position 18 = check digit

servicecode: 53 = UPS-Standard collecting 54 = UPS express plus,  
55 = UPS express, 56 = UPS standard.

After the positions 2, 5, 8, 10 and 14 the plain text line has a space character. This formatting is made by the barcode program automatically, as far as the option "copy plain text" is activated.

The whole code in the barcode program is converted to the shortest possible length through the combination of control characters.

Further information about the use of UPS-Barcodes and for the making of address labels, see corresponding brochure in the bibliographical references at the end of this manual.

## **Code 39**

Valid characters:

0123456789ABCDEFGHIJKLMNPOQRSTUVWXYZ-./+%

as well as space key.

The symbols: +, -, ., /, % and \$ can have a control function depending on the programming of the used decoder.

Entered small letters are automatically changed into capital letters by the barcode program.

Numbers of actual digits: as you like, recommended up to 20 characters, depending on scan width.

Font: "Code-39-25". The proportion for this font is wide to small element 2,5 : 1.

There is the possibility to produce barcodes with a proportion of 2,0 : 1 (font "Code-39-20") and 3,0 : 1 (font "Code-39-30"). The proportion 2,0 : 1 is only allowed to be used from a font size of 55 pt. (Modular width = 0,5 mm) Generally: the higher the proportion, the wider is the print out barcode with same contents, but even better is readability.

Recommended size: height 20 mm minimum or 25% of the width. Readable from 18 pt. font size (=high density), good readability rates are reached from approx. 24 pt. (=medium density).

Code 39 can also be used without check digit as requested, this however is only valid for certain cases of application, normally the check digit will be calculated too.

### **Additional information:**

The check digit is calculated according to Modulo 43, assigned to the calculated number is a character, corresponding to the reference number, of the character set Code 39.

examples:

actual digit

12ABCXY

sum of reference numbers

$1+2+10+11+12+33+34 = 103$

Modulo 43

$103 / 43 = 2 \text{ rest } 17$

check digit

"H", = reference number 17

Valid for the reference numbers is the following table:

Ref.	C. 39								
00	0	09	9	18	I	27	R	36	-
01	1	10	A	19	J	28	S	37	.
02	2	11	B	20	K	29	T	38	Space
03	3	12	C	21	L	30	U	39	\$
04	4	13	D	22	M	31	V	40	/
05	5	14	E	23	N	32	W	41	+
06	6	15	F	24	O	33	X	42	%
07	7	16	G	25	P	34	Y		
08	8	17	H	26	Q	35	Z		

guard bars

= key "\*"

space

= key "ß".

quiet zone

= Space key.

all other symbols at corresponding keys.

When entering the actual digit the space key is automatically converted to "ß".

Character format: quiet zone, guard bar, actual digit, check digit, guard bar, quiet zone.

example:

actual digit

12ABCXY

total character string

\*12ABCXYH\*

### **Code 39 extended**

Valid characters:

!#\$%&'()\*+,-

./0123456789:;<=>?@ABCDEFGHIJKLMN<sup>O</sup>PQRSTU<sup>V</sup>WXY<sup>Z</sup>[\]^

\_`abcdefghijklmnopqrstu<sup>v</sup>wxyz{<sup>|</sup>}~

as well as space key.

Numbers of actual characters: as Code 39, several characters (e. g. small letters) however are made of two symbols in the bar code, which can increase the effective width compared with Code 39. The barcode program converts automatically these combinations when entering the actual digit.

Font: "Code-39-25", see advices Code 39.

Recommended size: as Code 39.

According to specification the beginning of Code 39 extended with control character: \*+\$\* and the end with: \*-\$\* is communicated to the Decoder. These control characters are in the character set on the relevant keys, that they can be entered directly into the desired application, if required.

Some decoders can also be programmed directly to the extended character set ("Full ASCII") so that control characters are not required.

### **Additional information:**

The characters of Code 39 and -extended are identically. Check digit calculation, character set codification and symbol format as well.

The allowed characters, not existing in the character set (e. g. small letters) are combined of two characters each.

Not directly existing characters are combined in Code 39 extended according to the following table:

ASCII	39ext								
!	/A	-	-	]	%M	i	+I	u	+U
"	/B	.	.	^	%N	j	+J	v	+V
#	/C	/	/O	_	%O	k	+K	w	+W
\$	/D	:	/Z	`	%W	l	+L	x	+X
%	/E	;	%F	a	+A	m	+M	y	+Y
&	/F	<	%G	b	+B	n	+N	z	+Z
'	/G	=	%H	c	+C	o	+O	{	%P
(	/H	>	%I	d	+D	p	+P		%Q
)	/I	?	%J	e	+E	q	+Q	}	%R
*	/J	@	%V	f	+F	r	+R	~	%S
+	/K	[	%K	g	+G	s	+S	DEL	%T
,	/L	\	%L	h	+H	t	+T		

## **PZN, Pharma-Zentral-Number**

Valid characters: digits from 0 ... 9

Number of actual digits: 6 positions fixed, 1 check digit

Font: "Code-39-25", see advices Code 39.

Activate the option "copy also plain text" and the character string "PZN" is also copied before the actual digit.

Recommended size: height 6 mm minimum. Readable from 18 pt. font size (=high density), good reading rates are reached from approx. 24 pt. (=medium density).

### **Additional information:**

The characters of PZN and the character format are identical with Code 39. Used as starting symbol is "\*" in combination with "-".

Check digit calculation: 1. position \* 2, 2. position \* 3 .... 6. position \* 7, all products are added. The result is divided by 11, the rest (Modulo 11) is the check digit.

Should the check digit be a "10", consequently this number is not acceptable as PZN.

example:

actual digit	095619
products	$0 + 27 + 20 + 30 + 6 + 63 = 146$
result	$146 / 11$ 13 rest 3
check digit	3

total character string	*-0956193*
	PZN - 095619 (= plain text)

### Code 93

Valid characters:

0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-./+%

as well as space key.

Entered small letters are automatically changed into capital letters by the barcode program.

Number of actual characters: as you like, recommended up to 30 characters depending on scanwidth.

Font: "Code-93". For presenting start- and stop symbols ("□" = ANSI 0144) in the optional plain text line the fonts "OCR-B" and "OCR-A" are available.

Recommended size: height 20 mm minimum or 25% of the width.  
Good readable rates are reached from approx. 24 pt. (=medium density)

Additional information:

Code 93 uses two check digits, these are calculated according to Modulo 47. One reference number is allocated to each character. The reference numbers are added from the right to the left with a weighting 1, 2, 3, etc. According to the reference table, one symbol is allocated to the rest of the division.

example:

actual digit      12ABC

products             $5*1 + 4*2 + 3*10 + 2*11 + 1*12 = 77$

result               $77 / 47 = 1 \text{ rest } 30$

first check digit C:      "U", because ref.figure for 30 = "U"

than check digit K:

character string    12ABCU

products:             $6*1 + 5*2 + 4*10 + 3*11 + 2*12 + 1*30 = 143$

result  $143 / 47 = 3 \text{ rest } 2$

check digit K:      "2", because ref.figure for 2 = "K"

Valid for the reference numbers is the following table:

Ref.Z	C. 93								
00	0	10	A	20	K	30	U	40	/
01	1	11	B	21	L	31	V	41	+
02	2	12	C	22	M	32	W	42	%
03	3	13	D	23	N	33	X	43	o
04	4	14	E	24	O	34	Y	44	±
05	5	15	F	25	P	35	Z	45	<b>2</b>
06	6	16	G	26	Q	36	-	46	<b>3</b>
07	7	17	H	27	R	37	.		
08	8	18	I	28	S	38	Space		
09	9	19	J	29	T	39	\$		

margin symbol (start a. stop) = ANSI 0144  
 limitation bar = key "ü"  
 space = key "ß".  
 quiet zone = space key.  
 control characters:  
 \$ = key "A"  
 % = key "ä"  
 / = key "Ö"  
 + = key "ö"

all other symbols on the corresponding keys.

symbol format: quiet zone, margin symbol, actual digit, check digit C, check digit K, margin symbol, limitation bar, quiet zone.

example:  
 actual digit: 12ABC  
 total character string •12ABCU2•ü

### **Code 93 extended**

Valid characters:

!#\$%&'()\*+,-

./0123456789:;<=>?@ABCDEFGHIJKLMN<sup>O</sup>PQRSTU<sup>V</sup>WXY<sup>Z</sup>[\]^

\_`abcdefghijklmnopqrstu<sup>v</sup>wxyz{<sup>}</sup>~

as well as space key.

Number of actual characters: as Code 93, some characters (e. g. small letters) are made of two symbols in the bar code, what can increase the effective width with regard to Code 93.

Font: "Code-93".

Recommended size: as Code 93.

Many of the common scanners cannot read Code 93 extended correctly, if necessary, a test should be made with the scanner to be used.

Additional information:

The characters of Code 93 and -extended are identically, check digit calculation, character set codification and character format as well.

The allowed characters (e. g. small letters) which do not exist in the character string are combined of two characters each. Additional notes, see bibliographical references.

## Code 2/5 Industrial

Valid characters: digits from 0 ... 9.

Numbers of actual characters: as you like, depending on scan width.

Font: "Code-25-Ind". Recommended size: from 18 pt font size (=high density), you will get good reading rate from approx. 26 pt. (=medium density)

Additional information:

The standard proportion from the wide to the small element is 2,5 : 1 therefore the making of a High-Density-Codes is possible.

The check digit is calculated according to Modulo 10 with weighting 3, weighting from the right to the left.

example:

check digit	1 2 3 4 5
weighting	3 1 3 1 3
product	3 2 9 4 15
result	33
modulo 10	$33 / 10 = 3$ rest 3
difference to 10	$10 - 3 = 7$ (= check digit 7).

Encoding of the character set in the font:

startsymbol = key "<"

stopsymbol = key ">"

quiet zone = Space key.

all other symbols at the corresponding keys (only digits).

symbol format: quiet zone, start symbol, actual digit, check digit, stop symbol, quiet zone, e. g.:

actual digit	12345
total character string	<123457>

## Code 2/5 Interleaved

Valid characters: digits from 0 ... 9.

Numbers of actual characters: any however even number of digits (incl. check digit). If required the barcode program updates the actual digit with a front placed "0", respect. deletes a left "0".

Font: "Code-25-25-Int". The proportion for this font of wide to small element is 2,5 : 1.

There is the possibility to produce barcodes with a proportion of 2,0 : 1 (font "Code-25-20-Int") and 3,0 : 1 (font "Code-25-30-Int"). The proportion 2,0 : 1 is only allowed to be used from a font size of 55 pt. (modular width = 0,5 mm). Generally: the higher the proportion the wider is the printed barcode with the same contents, but also better is readability.

Recommended size: from 18pt font size (=high density), you will get good reading rate approx. 26pt (=medium density).

### Additional information:

Calculation of check digit according to Code 2/5 Industrial (Mod. 10, weighting 3).

Encoding of character set in the font:

start symbol	= key "<" (ANSI 0139)
stop symbol	= key ">" (ANSI 0155)
quiet zone	= space key (ANSI 032).

digit couples from ... to:	ANSI-Code:
00 ... 26	100 ... 126
27	133
28 ... 32	128 ... 132
33 ... 99	033 ... 099

Symbol format: quiet zone, start symbol, actual digit, check digit,  
stop symbol, quiet zone, e. g.:

actual digit        12345

check digit        7

digit couples     12 = "p", 34 = "", 57 = "9"

total character string    <p"9>

## **Leit- and Identcode**

Code 2/5 Interleaved is used for the Leit- and Identcode of the Deutsche Post AG, however a changed check digit algorithm is utilized, an example about it is included in the online help. This barcode type is used only in Germany.

Valid symbols: digits from 0...9

Number of actual digits: 13 digits for Leitcode, 11 digits for Identcode, plus check digit.

Font: "Code-25-25-DH", respectively "..20" and "..30". This description "DH" refers to the double height compared with the font "Code-25-25-Int", otherwise the notes according Code 2/5 Interleaved are valid.

Recommended size: height 25 mm minimum, this height is reached with the a. m. font with a font size of approx. 42 pt. According to this font size the modular size is approx. 381  $\mu\text{m}$ . Maximum font size is 55 pt in accordance with a modular size of approx. 499  $\mu\text{m}$ .

The font "Code-25-20-DH" should only be used with a font size of 55 pt., details see chapter "Code 2/5 Interleaved".

Quiet zone right and left at least 5 mm.

### **format of actual digit for Leitcode:**

positions 1-5 = postcode (Postleitzahl)

positions 6-8 = indication figure of streets

positions 9-11 = number of the house (Hausnummer)

positions 12-13 = productcode (Produktcode)

position 14 = check digit (Prüfziffer)

### **format of Identcode:**

positions 1-2 = Abgangsfrachtpostzentrum

positions 3-5 = indication of customers (Kundenkennung)

positions 6-11 = Einlieferungsnummer

position 12 = check digit (Prüfziffer)

The indication of customers is allotted by the Deutsche Post AG and can have 1-5 positions. The quantity of positions can be entered in

the barcode program, depending on the formatting of the plain text line.

The plain text line each has a point between the individual position precinct, the check digit emphasise a bit by a space character. This format is made automatically through the barcode program, as far as the option "copy also plain text" is activated, printouts see annex.

Further information about the use of Leit- and Identcodes and the construction of address labels see corresponding brochure of the Deutsche Post AG in the bibliographical references at the end of this manual.

**Additional information:**

The check digit calculation is effected with the weighting 4 and 9, different as normally with Code 2/5 Interleaved. The check digit is calculated according to Modulo 10.

The overall construction of the character string corresponds to Code 2/5 Interleaved.

## **Codabar**

Valid characters: digits from 0 ... 9, as well as symbols - \$ : / . +

Number of utility characters: arbitrary, depending on scan width.

Font: "Code-Codabar". Recommended size: 18 - 36 pt font size.

Click on "Codabar" in the barcode program and a dialog box for the input of start and stop symbol appears, furthermore the check digit calculation can be suppressed. Normally "A" is used for start and stop symbol, as well as a check digit is calculated.

### **Additional information:**

The standard proportion from wide to small element is 2,5 : 1, by that the making of a High-Density-Codes is possible.

The check digit is calculated according to Modulo 16, assigned to the calculated number is again a symbol of the reference table.

example:

start- and stop symbol each "A"

actual digit	A 1 2 3 4 A
reference digits	16 1 2 3 4 16
sum of ref. digits	42
modulo 16	$42 / 16 = 2 \text{ rest } 10$
difference to 15	$16 - 10 = 6$
check digit	"6", = reference digit for 6

Valid for the reference numbers is the following table:

Ref.num	Codabar	Ref.num	Codabar
00	0	10	-
01	1	11	\$
02	2	12	:
03	3	13	/
04	4	14	.
05	5	15	+
06	6	16	A
07	7	17	B
08	8	18	C
09	9	19	D

Encoding of character set in the font:

quiet zone = space key

All other symbols correspond to the keyboard, start- and stop symbols cannot be entered directly in the barcode program.

Symbol structure: quiet zone, start symbol, actual digit, check digit, stop symbol, quiet zone.

example:

actual digit	1234
start- and stop each "A"	
total character string	A12346A

Example see annex.

## **TrueType-font OCR-B**

Herewith, if required, the actual digits can be shown as plain text

0123456789

abcdefghijklmnopqrstuvwxyz

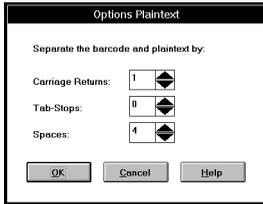
ABCDEFGHIJKLMNOPQRSTUVWXYZ

## Further options of the barcode program

The possibilities of the barcode programm described in the following chapters are not necessary for the fundamental use, but constitute an individual possibility of adaption.

### Menu Options, plain text

Here additional details can be made to the also copied plain text.

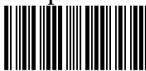


The lines between barcode and plain text is fixed with the number of Carriage Returns. A "1" places the plain text directly below the barcode, if the number is increased, a corresponding number of lines is added between barcode and plain text.

With tab-stops and the space character the plain text line is moved to the right. A reasonable number is determined by text printouts with the corresponding formatted barcode. You should use either tab-stops or space characters, not both coincident.

example:

no space:



1 2 3 4

5 space characters:



1 2 3 4

1 tab-stop:



1 2 3 4

### Menu Options, additional chars

Here additional character strings can be entered, which are also copied via the clipboard before respectively behind the barcode character string. These can be e. g. additional text or also individual ANSI-characters.

Some ANSI-characters will not be entered directly, but as replacement characters, the following characters are valid:

input:	character	ASCII-Code (dec.)
\n	or \N return + line feed	013 + 010 (CR+LF)
\r	or \R return	013 (CR)
\l	or \L linefeed	010 (LF)
\s or \S	space (space key)	032
\t	or \T tab-stop	009
\\	backslash	092
\001 to \255	character of 3-position ANSI-Code (decimal),	

ANSI-characters not reachable with the keyboard can be entered directly that way. In case of indicating 2 positions or one number higher than 255, the input is not valid as ANSI-character.

**Example 1:**

A carriage return character is required at the end of the barcode character string. For this the character string "\n" has to be entered in the dialog box in field behind the Barcode.

**Example 2:**

The word "" should appear before the barcode character string. For this the a. m. word is entered. The space key is automatically changed to "\s".

Entered check digit e. g.: 1 2 3 4  
 as total character string appears: Code 1 2 8 : Â , Br È

If additional options have been made, they are valid for all barcodes, with or without plain text.

Attention: Should you have entered one or more return respectively linefeed-character and several horizontal skip in option/plain text as well, these line distance are added up, if you add the character string in your destination application.

## **DDE-Programming**

With the help of DDE-programming it is possible to automate the input in certain applications (e. g. Excel or data base applications) by means of a macro carrying out the instructions needed and create complete barcode series.

Additional programming examples (e. g. for Paradox) are contained in the Online-Help of the barcode program, topic "DDE-programming", "examples". The source text can be picked up directly to another application via the menu "Edit", "Copy" in the Windows-Help.

The makro respectively program consists of the following basis:

- 1) Establish communication. Should the contacting between the programs go wrong (because e. g. the barcode program is not started), you get a error message in your application.
- 2) Make certain adjustments in the barcode program, e. g. select requested barcode. Should these instructions not be sent, this barcode is used in the barcode program which has been selected in the interactive modus last.
- 3) Sending of actual digit to the barcode program. This one can be contained in a cell or a data base field.
- 4) Calculation of actual digit, executed by sending "BarCodeDDECommand"
- 5) Inquire the calculated total char string of the barcode program and transfer it to a certain cell respectively field in the actual data record.
- 6) Termination of DDE-connection.

Additional indications as "Addon", "Half Height" etc. are directly activated in the barcode program.

## Examples for DDE-programming

1) The first Excel macro selects "Code 39" in the barcode program, sends the contents of cell [a1] to the barcode program, calculates, inquiring the total sequence of the program and writes this one into cell [b1]. Into cell [b2] the (formatted) actual digit is added.

```
Sub DDE_Beispiel1()  
    Channel = App.DDEInitiate("Barcode"; "Hauptdialog")  
    DDEEX "MINI"  
    DDEEX "Code 39"  
    App.DDEPoke Channel; "Nutznummer"; [a1]  
    DDEEX "BERECHNEN"  
    [b1].Font.Name=App.DDERequest(Channel;"Schriftart")  
    [b1].Font.Size=App.DDERequest(Channel;"Schriftgr")  
    [b1] = App.DDERequest(Channel; "Gesamtfolge")  
    App.DDETerminate Channel  
End Sub  
  
Sub DDEEX(sz As string)  
    x = [IV16384]  
    [IV16384] = sz  
    App.DDEPoke Channel; "BarCodeDDECommand"; [IV16384]  
    [IV16384] = x  
End Sub
```

The function "DDEEX()" emulates the DDE command "DDEExecute", this function needs to be available for all barcode-calculating modules.

2) The next Excel macro executes this procedure for several cells of one column (5), for which the corresponding actual digits already exist in another column:

```
Sub DDE_Beispiel_2()
    Channel = App.DDEInitiate("Barcode"; "Hauptdialog")
    DDEEX "MINI"
    DDEEX "EAN 13"
    For i = 1 To 10
        App.DDEPoke Channel; "Nutznummer"; Cells(i; 4)
        DDEEX "BERECHNEN"
        Cells(i; 5).Font.Name = App.DDERequest(Channel;
"Schriftart")
        Cells(i; 5) = App.DDERequest(Channel;"Gesamtfolge")
    Next i
    App.DDETerminate Channel
End Sub
```

3) FoxPro: Calculates for all data records the field "Art-No" in the FoxPro example and the total char string is written into the field "Barcode".

```
PUBLIC Channel, Folge
Channel = DDEInitiate ("Barcode", "Hauptdialog")
= DDEPoke (Channel, "BarcodeDDECommand", "MINI")
= DDEPoke (Channel, "BarcodeDDECommand", "Code 39")
USE ARTIKEL
GO TOP
DO WHILE .NOT. EOF()
    = DDEPoke (Channel, "Nutznummer", Rtrim(Ltrim(Art-
Nr)))
    = DDEPoke (Channel, "BarcodeDDECommand", "BERECHNEN")
    folge = DDERequest (Channel, "Gesamtfolge")
    REPLACE Barcode WITH folge
SKIP
ENDDO
```

4) In WinWord a character string is entered and marked. If the macro is executed, the entered character string is changed automatically into barcode "Code 39":

```
Sub MAIN
  Channel = DDEInitiate("Barcode", "Hauptdialog")
  DDEPoke Channel, "BarCodeDDECommand", "MINI"
  DDEPoke Channel, "BarCodeDDECommand", "Code 39"
  nutz$ = Markierung$()
  DDEPoke Channel, "Nutzziffer", nutz$
  DDEPoke Channel, "BarCodeDDECommand", "BERECHNEN"
  gesamt$ = DDERequest$(Channel, "Gesamtfolge")
  schr_art$ = DDERequest$(Channel, "Schriftart")
  schr_gr$ = DDERequest$(Channel, "Schriftgr")
  Schriftart schr_art$, Val(schr_gr$)
  Paste gesamt$
  DDETerminate Channel
End Sub
```

#### Instructions and DDE-addresses in the barcode program

The addresses required for the communication of an application with the barcode program are as follows:

application:	=	"Barcode"
subject	=	"Hauptdialog"
element1	=	"Nutzziffer"

The variables can be scanned by the barcode program and than processed as follows:

element2	=	"Gesamtfolge"
name of the font	=	"Schriftart"
font size	=	"Schriftgr"

In some destination applications only the barcode character string is transferred via the DDE-interface without plain text not dependent on whether the corresponding option in the barcode program is activated or not.

The actual digit can be inquired by the barcode program with the following variables:

native actual digit= "Nutzziffer"  
formatted actual digit = "Nutzfolge"

The formatted actual digit corresponds to the also copied plain text line in the interactive mode (useful for e. g. UPS-Code).

These DDE-instructions can be interpreted by the barcode program:

- "BERECHNEN" prompt the calculation of the sent actual digit. This corresponds to the calculation of the interactive mode.
- "MINI" shows the barcode program as Icon.
- "NORM" shows the barcode program in normal size.
- "ENDE" or "BEENDEN" terminates the barcode program.
- "IMMERSICHTBAR" shows the program always on top. This is useful, if the barcode program has been made smaller by "MINI" and a complete series of Barcodes is calculated, as the actual digit beeing in process is displayed as line in the Icon.
- "NORMALSICHTBAR" shows the barcode program normal.
- "MITKLARTET" sends also the plain text.
- "OHNEKLARTEXT" does not send the plain text.
- "MIT\_PRÜFZIFFER" calculates the checksum.
- "OHNE\_PRÜFZIFFER" does nto calculate the checksum.

These commands can be sent, if its also possible in the appropriate option of the barcode program.

- "LEITCODE" and "IDENTCODE" for the selection of the corresponding options in Code "2/5 Post".

- Sending of the Barcode-names as instruction selects the corresponding barcode; same style as in list field barcode program.

**Valid are:**

"EAN 13", "EAN 8", "EAN-VELOCITY", "UPC A", "UPC E",  
"CODE 128", "CODE 128 B", "CODE 128 C", "CODE EAN 128",  
"CODE UPS 128", "CODE 39", "CODE 39 EXTENDED", "PZN",  
"CODE 93", "CODE 93 EXTENDED",  
"2/5 INDUSTRIE", "2/5 Post", "2/5 INTERLEAVED", "CODABAR".

## **Error Correction**

The user is responsible for the correct input in the destination application of actual digits be sent.

The same conventions are valid for the character-string which is sent to the barcode program by DDE as well as for the interactive input, details in corresponding chapters.

If a character string is sent to the barcode program, invalid characters respectively character strings are treated as follows:

Too many positions => surplus positions beeing ignored.

Example: the character string "1234567890123" (13 positions) is sent as "EAN 13". The program uses the first 12 positions and calculates out of it the total character string from the 13. position all further characters are cut off.

Invalid characters => these are ignored in the character string.

Example: the character string "1234abc5678" is sent as "2/5 INTERLEAVED". The barcode program eliminates the characters "abc" and calculates the total string "12345678".

Not enough positions => the usual error message is shown, which can be acknowledged with "OK" . As total string a space character string is passed back.

Space field sent => here a space field is passed back.

## Problems and Solutions

Error messages when starting barcode program

In case of the following error message appears when starting barcode program.



make sure that the corresponding data file has not already been loaded by another program. Exit Windows and start it again.

Fonts are not indicated

- Does the Barcode fonts are installed in the control panel?
- Does in the menu "Control panel" , "Fonts", "TrueType" the option "enable TrueType-Font Types" is activated?

Message "Font Code ... not installed"

In case of this error message appears when starting barcode program the cause of this can be that a standard printer is defined in the system control, which cannot make graphics (e.g. "Universal/only text")

Wrong indication of Barcodes

- Is the inserted character string formatted with the correct font type?  
With this only the Barcode character string is formatted, the also copied plain text is formatted with a readable font.
- In some Windows applications (e. g. AmiPro) are display problems with Barcode fonts with reduced height (e. g. Code-EAN-HH). This however only concerns the screen display, the printout should be effected correctly.

Preview of pages does not indicate Barcodes

For the page preview many applications use a system font which normally only includes standard symbols. Therefore the bars included in the TrueType font are not constituted as those in the page preview. The printout however is correct.

Incorrect printing of ATM-fonts

In case of using fonts in ATM-format activate switch "print ATM-fonts as graphics" in the ATM control.

Message "Invalid Property Value"

Should this message appears on your screen when starting the program or calculation the check digit, make sure that the barcode-fonts are installed in Windows. It makes sence to leave Windows and start it again.

### **Printer Problems**

In case of the TrueType fonts not beeing printed correctly on your printer or your screen and above all you use more font types within one document, check the following points:

- Do you have sufficient storage location on your hard disk? Some Windows applications prepare temporary files while printing which need some MB hard disk storages in case of extensive printouts.
- Make sure that the latest graphic- and printer-drivers are used.

Laserprinter

- Do you have the right adjustment for the storage size of your printer?
- Have you adjusted the correct graphic definition (300, respectively 600 dpi)?
- Many laserprinters allow to "Print TrueType as Graphics", therefore you start "Control panel", "Printers", "Setup", "Options".

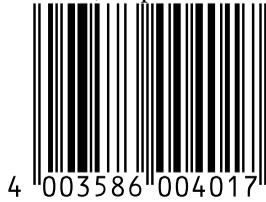
Postscript-Printer

In case of problems with a Postscript-Printer (font print too bold or too fine) go on as follows:

- Select in menu "system control", "printer", "install", "options", "further options".
- Here in field "send to the printer as:" the modulation "Bitmap (type3)" should be indicated.

Affix  
Sample printouts

EAN 13, 72 pt:



EAN-HH 8, HalfHeight, 72 pt:



EAN-HH 13, Addon 2:



EAN-HH 8:



UPC A, 72 pt:



UPC E, HalfHeight, 72 pt:



UPS 128, 36 pt:



Code-128\_DH, 30 pt:



Code-128, 30 pt:



Code 39, 30 pt:



Code 39 extended, 30 pt:



Codabar, 30 pt:



PZN (Code-39-25), 24 pt:



Code 93, 30 pt:



Code 2/5 Industrie, 30 pt:



Code 2/5 Interleaved, 30 pt:



## **Deinstallation**

If you wish to remove the barcode program from your hard disk, go as follows:

- Start Control Panel, click on Icon "Software" and remove the Barcode Software.
- If you just want to delete barcode fonts: in the Control Panel click on "Fonts" and remove them (font names start with "Code-.....")
- Delete the file "barcode.ini" in directory "\\WINDOWS".

## Bibliographical hint

Hansen / Lenk, Codiertechnik, Ident Verlag

Pötter / Jesse, Barcode Einführung und Anwendungen, Heise Verlag

Werner Wiessner, Der Strichcode und seine Anwendung, mi-Verlag

Strichcode-Fibel, DATALOGIC GmbH, Erkenbrechtsweiler

"EAN 128", CCG, Köln

"Richtlinien für die Erstellung von Barcodes für den UPS Versand",

"Identcode und Leitcode für die Postpakete", Deutsche Post AG,

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