

PrecisionID Code 39 Barcode Fonts User Manual



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Code 39 Barcode Symbology Overview

Code 39 is also referred to as Code 3 of 9 and LOGMARS. [Code 39 Barcode Fonts](#) can easily encode uppercase letters, numbers and a few special characters such as the minus, period, space, asterisk, dollar sign, forward slash, plus and percent. Code 3 of 9 is a self-checking barcode type, which means that a check digit is not required in the barcode for the scanner to read it. All barcodes require start and stop characters. As a standard, Code 39 uses the asterisks “*” as the start and stop character. For example, to create a barcode encoding CODE39 you would need to type *CODE39* and then make sure that text has the Code 39 Font selected as the font for the text.

PrecisionID Code 39 Barcode Font Product Overview

This [Code 39 Barcode Font Package](#) contains 6 sizes of TrueType and PostScript fonts, each supplied with and without human readable text below the barcode. The package also contains complete documentation, specifications and implementation examples. Some implementations of Code 39 (such as LOGMARS) require a MOD43 check digit. For this purpose, we provide PrecisionID Font Formatting Components™ which include a Crystal Reports UFL, Microsoft VBA module for Excel and Access and Visual Basic source code which may also be used as a guide for conversion to other languages.

Installation

Microsoft Windows

Decompress the fonts in the supplied ZIP file with a decompression utility, such as WinZip. PrecisionID recommends using the supplied **exe** file to install the barcode fonts automatically in Windows. If you wish to manually install the fonts in Windows, open Control Panel and choose Fonts; then choose Install New Font and browse to the folder that contains the barcode fonts with the TTF extension extracted from the ZIP file. Some applications may require a restart of the computer.

Macintosh OS X

PrecisionID Barcode fonts are compatible with all versions of Macintosh OS Version 10.1 and greater (OSX). Decompress the barcode fonts in the supplied ZIP file with a decompression utility such as Stuffit Expander. Drag the barcode fonts with the TTF extension to the Library/Fonts folder of your hard drive. To activate the fonts, restart the application; some applications may require a restart of the computer.

Other Operating Systems

PrecisionID supplies Windows TrueType (TTF) fonts and both Binary (PFB) and ASCII (PFA) versions of PostScript fonts. Consult the documentation for your operating system about instructions and which fonts to install.

Font Encoders and Application Tutorials

PrecisionID supplies several different Font Encoders, that will format data to the font, calculate any check digits that are required, and provide easy application integration. Refer to the [Font Encoders](#) section of the website for a complete selection that is available for download.

Using PrecisionID Code 39 Barcode Fonts to Create Barcodes

PrecisionID Code 39 Barcode Fonts are designed for easy implementation in just about any application. After installing the fonts, simply follow the steps below to create a barcode.

1. Start with the data to encode in the barcode: TEST1234
2. Add an asterisks before and after the data: *TEST1234*
3. Change the font to a PrecisionID Code 39 Font: *TEST1234*
(this is the PrecisionID C39 04 Font)

Additional Notes:

4. For text under the barcode select a font with a “T” in it: *TEST1234*
(this is the PrecisionID C39 T04 Font)
5. For text without the asterisks, use parenthesis instead: (TEST1234)
(TEST1234)
6. For applications or printers that do not allow use of a space character, use the underscore, “_”, character to encode a space character in the barcode: (TEST_1234)
(TEST_1234)
7. Many applications allow this to be automated with a formula such as the following: =“*” & data &”*”
8. If you are not sure which font to use, we recommend [PrecisionID C39 T08](#) displayed in 12 point.

Adjusting the size of PrecisionID Code 39 Barcodes

Some barcode implementations may require the code 39 barcode to be a specific size. Additionally, printers may have specific requirements of the barcode as well. The following are guidelines and hints for selecting a point size and adjusting the overall size of a Code 39 Barcode.

Barcode Font Point Sizes and X Dimension (Narrow Bar Width)

PrecisionID fonts are designed to print with precision on both high resolution printers and low resolution printers such as 203 dpi thermal barcode printers. When printing at 203 dpi, the point size chosen should be a multiple of 6. When printing at 300 dpi, the point size should be a multiple of 4.

<i>Font point size</i>	<i>X Dimension (narrow bar width) measured in mils (1/1000 of an inch)</i>
6	5
8	7
12 (recommended)	10
16	13
20	16
24	20
36	30

Font Names and Bar Code Height

The numbers at the end of the barcode font name identifies the height of the barcode in millimeters when printed at 12 points. Barcode fonts with the letter “T” before the numbers include the data in human readable text below the barcode. The barcode in the text and non-text fonts are the same height.

<i>Font Name</i>	<i>Approximate Font Height at 12 points</i>
PrecisionID C39 04	.18” or 04mm
PrecisionID C39 08	.30” or 08mm
PrecisionID C39 12	.45” or 12mm
PrecisionID C39 16	.62” or 16mm
PrecisionID C39 20	.84” or 20mm
PrecisionID C39 30	1.2” or 30mm

If the Code 39 Barcode needs to be a specific overall size...

1. First create the barcode.
2. Adjust the length by increasing/decreasing the font point size.
3. Adjust the height by selecting a specific barcode font as detailed above.

Tutorials for Specific Applications

The results for the following tutorials are saved in the [examples](#) folder of the product zip file. Please examine the examples provided in this folder.

Microsoft Excel

1. This example will create a Code 39 barcode in cell B10 using the data from cell A10 for the barcode.

	A	B
9	Text Data	Barcode
10	TEST1234	

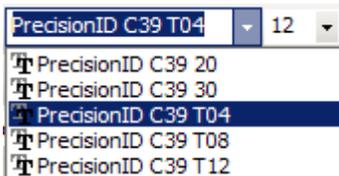
2. In cell B10, enter the formula `= "*" & A10 & "*"` which will append the start/stop character to the data.

	A	B
9	Text Data	Barcode
10	TEST1234	<code>= "*" & A10 & "*" </code>

3. The text is now formatted for the barcode in the spreadsheet with asterisks before and after the text from column A10.

	A	B
9	Text Data	Barcode
10	TEST1234	*TEST1234*

4. With cell B10 selected, choose the [PrecisionID C39 T04](#) font, which is specifically formatted for use in Microsoft Excel, and choose 12 for the point size. PrecisionID also recommends centering the text in this cell so the barcode will contain white space before and after the barcode. If you have multiple barcode fonts on your system, you must select a PrecisionID Code 39 barcode font.



5. After selecting the Code 39 barcode font, the barcode will appear. Adjust the column width so there is white space before and after the bars of the barcode.

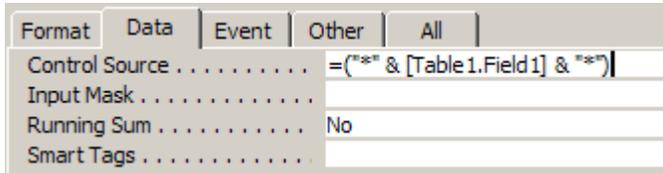
	A	B
9	Text Data	Barcode
10	TEST1234	

6. To create an entire column of barcodes, choose Edit – Copy with cell B10 selected.
7. Highlight cells you wish to add barcodes to and choose Edit - Paste. The formula will automatically adjust.

Microsoft Access

To create a barcode in a Microsoft Access report:

1. In design view, add a text box to the report.
2. Right click on the text box to choose properties.
3. Place the formula `=("*" & [Table1.Field1] & "*")` in the control source property of the text box where Table1 is the table and Field1 is the field that contains the data for the barcode.



4. With the text box selected, choose a PrecisionID Code 39 Barcode font and a point size. We suggest **PrecisionID C39 T08** in 12 point for the font. If other barcode fonts are installed on your system, be sure to select a Code 39 barcode font.
5. Size the text box so it is large enough to contain the entire barcode. You will need to adjust the height and width of the text box.



6. Save and run the report. You will see the barcode appear in the text box.



Microsoft Word Mail-merge

1. Open the mail merge document.
2. Place the parenthesis characters around the brackets for the merge field(s) you want to barcode. For example: `(«FirstName»)`. You can combine merge fields to create a single barcode from them. To do this you may place a space between them, using the underscore. For example, here we place the “(” before and “)” after: `(«FirstName»_«LastName»)`
3. Carefully select only the parenthesis and everything in between them and choose the **PrecisionID C39 T12** font. Select 12 point font size.
4. After the PrecisionID barcode font is chosen, examine the area after the last `>>` symbol. If there is more than 5 bars in the barcode after the last `>>` symbol, highlight the area after the first 4 bars and change the font to a text font (Arial, etc.). This is necessary and important because a space or carriage return after the closing parenthesis will produce an extra barcode character and render the barcode invalid.
5. Finally, PrecisionID recommends only using parenthesis as start and stop characters in Microsoft Word. Sometimes Microsoft Word will interpret asterisks as a formatting command and will **bold** the data and drop the asterisks rendering an invalid barcode. The parentheses avoid this problem.

Crystal Reports

This example was created in Crystal Reports version 9. Implementation in other versions of Crystal Reports are very similar if not identical.

1. **Copy the formula object to the clipboard.**

Extract and open the “Crystal Reports Font Formulas.rpt” file that is in the \examples\ folder of the product zip file. Right-click on the font formula that is needed and choose Copy.



2. **Paste the object into your report.**

Open your Crystal Report and switch to design mode. Choose Edit – Paste or CTRL-V where the object is needed and size it appropriately to contain the entire symbol.



3. **Change the data source in the formula of the object.**

Right-click on the object and choose Edit – Formula. Modify DataToEncode= to connect to the data source; for example: DataToEncode = ({Table.Field})

If an error such as "A string is required" appears, the data will need to be converted to a string with a crystal function such as ToText or cStr. For example: DataToEncode = ToText({Table.Field})

4. The barcode should now be visible when you run the report.



Calculating Check Digits

In some cases a check digit is required with Code 39. PrecisionID has provided a VBA module that will calculate this for you, [PrecisionID_C39_Module.bas](#). This module may be imported into Microsoft Excel or Access via the Visual Basic Editor and will enable access to the [PrecisionID_C39M43\(data\)](#) function. In the Excel example on page 6, the formula =PrecisionID_C39M43(A10) would be placed in cell B10.

The easiest method of creating source code for a check digit in a custom application is to use the supplied [PrecisionID_C39_Module.bas](#) module as a guide. The module was written to be compatible with Visual Basic 6 and Microsoft Office VBA and may be viewed with a text editor. The function uses basic text and math functions and is easily translated into most programming languages.

Combining Multiple Fields in a Single Barcode

Multiple fields may be combined in a single barcode if desired. When doing this, it is usually necessary to encode a function between the fields. To encode a function such as a tab or return in the symbol between fields, you need to (1) enable extended Code 39 in your scanner and (2) use \$I for a

tab and \$M for a return according to the Extended Code 39 Chart on Page 10. Below, we include a few examples of formulas that insert a tab between the fields in common applications:

Microsoft Access Report: ="*" & [Table1.Field1] & "\$I" & [Table1.Field2] & "*")

Microsoft Excel: ="*" & C10 & "\$I" & D10 & "*"

Microsoft Word Mail-Merge: («FirstName»\$I«LastName»)

Crystal Reports: "*" & {Table1.Field1} & "\$I" & {Table1.Field2} & "*"

Specifications

The Extended Code 39 Character Chart

Standard Code 39 barcodes can encode uppercase letters, numbers and a few special characters, specifically the minus, period, space, dollar sign, forward slash, plus and percent. Note that the asterisk is encoded in the barcode but interpreted as a Start and/or Stop character.

If Extended Code 39 characters are enabled in your scanner, additional characters can be encoded by using character combinations as noted in the following table. Generally, the dollar sign, percent, forward slash, and plus characters are used like a "shift key" to output an additional character. See the table below for these additional characters.

Table: Extended Code 39 Character Set

<i>ASCII</i>	<i>Code39</i>	<i>ASCII</i>	<i>Code39</i>	<i>ASCII</i>	<i>Code39</i>	<i>ASCII</i>	<i>Code39</i>
NUL	%U	SP	_	@	%V	`	%W
SOH	\$A	!	/A	A	A	a	+A
STX	\$B	"	/B	B	B	b	+B
ETX	\$C	#	/C	C	C	c	+C
EOT	\$D	\$	/D	D	D	d	+D
ENQ	\$E	%	/E	E	E	e	+E
ACK	\$F	&	/F	F	F	f	+F
BEL	\$G	'	/G	G	G	g	+G
BS	\$H	(	/H	H	H	h	+H
HT	\$I	)	/I	I	I	i	+I
LF	\$J	*	/J	J	J	j	+J
VT	\$K	+	/K	K	K	k	+K
FF	\$L	,	/L	L	L	l	+L
CR	\$M	-	/M	M	M	m	+M
SO	\$N	.	/N	N	N	n	+N
SI	\$O	/	/O	O	O	o	+O
DLE	\$P	0	0	P	P	p	+P
DC1	\$Q	1	1	Q	Q	q	+Q
DC2	\$R	2	2	R	R	r	+R
DC3	\$S	3	3	S	S	s	+S
DC4	\$T	4	4	T	T	t	+T
NAK	\$U	5	5	U	U	u	+U
SYN	\$V	6	6	V	V	v	+V
ETB	\$W	7	7	W	W	w	+W
CAN	\$X	8	8	X	X	x	+X
EM	\$Y	9	9	Y	Y	y	+Y
SUB	\$Z	:	/Z	Z	Z	z	+Z
ESC	%A	;	%F	[	%K	{	%P
FS	%B	<	%G	\	%L	|	%Q
GS	%C	=	%H	]	%M	}	%R
RS	%D	>	%I	^	%N	~	%S
US	%E	?	%J	_	%O	DEL	%T