

Magnetic Ink Character Recognition E13B Fonts

ConnectCode MICR E13B

<http://www.barcoderesource.com/micrfont.shtml>

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1. What is MICR?

1.1 Magnetic Ink Character Recognition (MICR)

MICR is a character recognition system that is widely used in the banking industry for check processing. It involves using a stylized font and magnetic ink to print characters in a document. When this document needs to be decoded, it passes through a special machine or equipment, which magnetizes the ink and then translates the magnetic information into characters. If required, the same information in the document can also be read optically through OCR. Over the years, MICR has been proven to be a secure and high performance mechanism for processing information.

The numbers commonly found at the bottom of a check comprising of the check number, sort number and account number, are usually printed in magnetic ink for use in MICR.

1.2 ConnectCode MICR E13B Fonts package

ConnectCode MICR E13B is a Magnetic Ink Character Recognition fonts' package based on the E13-B industry standard. The font adheres strictly to the ISO 1004:1995 specifications which is a widely accepted standard in the US, Canada, Australia and many other countries. This character set comprises of ten numbers (0..9) and four special symbols (Amount, Domestic, BSB and Dash).

1.2.1 Font Information

ConnectCode MICR E13B is a professional and comprehensive package that contains over 60 MICR E13B fonts. This includes the following:

- **TrueType fonts**
For use in Microsoft Windows environment.
- **Calibration fonts**
For overcoming printer misalignment or toner problems. These fonts can be found in the CalibrationFonts subdirectory.
- **PostScript fonts**
For supporting high-end image setters. These fonts can be found in the PostScript subdirectory.
- **OpenType fonts**
For universal support across different machines, platforms and locales. These fonts can be found in the OpenType subdirectory.

All the MICR E13B fonts can be **embedded into PDF** (Portable Document Format) files without any limitations.

1.2.2 Default Font

ConnectCode MICR E13B is extremely easy to use despite being a package that provides one of the most comprehensive numbers of fonts.

In most cases, users will only need to use the default MICR E13B font provided in the package. This is the font that we have tuned, optimized and found to work on all widely used MICR hardware. We have distributed MICR fonts for many years and this is the font that has helped users simplify the deployment of their MICR solution significantly.

This is also the font we recommend for users without prior MICR experience or the font to get started with when using ConnectCode MICR E13B package. The following table provides the general information of this font.

Font File Name (True Type)	ConnectCodeMICR.ttf
Font Name	CCodeMICR
Font Size	12 Points (Fixed)

1.2.3 Font Characters

The following table contains the character mappings of the MICR E13B font. The mappings apply to all the MICR E13B fonts bundled in ConnectCode MICR E13B package.

Font Character	MICR Character
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	A
B	B
C	C
D	D

2. MICR E13B Fonts Calibration

ConnectCode MICR E13B has been designed and developed according to the industry specification ISO 1004:1995. The fonts have been tested vigorously on many different types of MICR hardware internally and also by many different organizations externally. However depending on the users' printer, paper or toner used, slight misalignment in the characters may still occur. Some printers can also be prone to alignment inaccuracies. Calibration can be performed to improve misalignment (if any) and ensure optimal scanning of the characters.

2.1 Calibration

1. Print out this document (or this section specifically) on the printer that you intend to print your checks. It is important to use the actual MICR toner and the actual paper for your checks. This is to make sure that the environment for the calibration is similar to what you intend to use for the printing of the checks.
2. Determine the optimal Length

Measure the string "01111222233334444000555566667777888899990" in the table below. The measurement should be taken from the **right most edge** (touching the right most edge of the first zero) of the first 0 to the **right most edge** of the last 0. Determine which of the string below has a length nearest to 5 inches (25.4cm). Use Length 3 (L3) if the length measurements are all very near to 5 inches.

Length 1 (L1) 0 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 0 0 0 5 5 5 5 6 6 6 6 7 7 7 7 8 8 8 8 9 9 9 9 0
Length 2 (L2) 0 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 0 0 0 5 5 5 5 6 6 6 6 7 7 7 7 8 8 8 8 9 9 9 9 0
Length 3 (L3) 0 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 0 0 0 5 5 5 5 6 6 6 6 7 7 7 7 8 8 8 8 9 9 9 9 0
Length 4 (L4) 0 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 0 0 0 5 5 5 5 6 6 6 6 7 7 7 7 8 8 8 8 9 9 9 9 0
Length 5 (L5) 0 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 0 0 0 5 5 5 5 6 6 6 6 7 7 7 7 8 8 8 8 9 9 9 9 0

3. Determine the optimal Darkness

Determine which character has a tone/darkness that is nearest to the characters of the checks you will like to print. This could be determined by comparing to a sample provided by the bank. If you are still not sure, use the default Darkness 2 (D2).

Darkness 1 (D1) 0 1 2 3 4 5 6 7 8 9
Darkness 2 (D2) 0 1 2 3 4 5 6 7 8 9
Darkness 3 (D3) 0 1 2 3 4 5 6 7 8 9
Darkness 4 (D4) 0 1 2 3 4 5 6 7 8 9

4. Determine the font to use.

The font to be used can be identified based on the results in step 2 and 3. The fonts are stored in the CalibrateFonts subdirectory of the installed package. For example, a Darkness 2 and Length 3 font maps to CodeMICR_ **D2L3** as shown in the section below.

2.2 Calibration Fonts Table

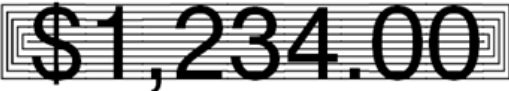



	Length 1 (L1)	Length 2 (L2)	Length 3 (L3)	Length 4 (L4)	Length 5 (L5)
Darkness1 (D1)	CCodeMICR_D1L1	CCodeMICR_D1L2	CCodeMICR_D1L3	CCodeMICR_D1L4	CCodeMICR_D1L5
Darkness2(D2)	CCodeMICR_D2L1	CCodeMICR_D2L2	CCodeMICR_D2L3	CCodeMICR_D2L4	CCodeMICR_D2L5
Darkness3(D3)	CCodeMICR_D3L1	CCodeMICR_D3L2	CCodeMICR_D3L3	CCodeMICR_D3L4	CCodeMICR_D3L5
Darkness4(D4)	CCodeMICR_D4L1	CCodeMICR_D4L2	CCodeMICR_D4L3	CCodeMICR_D4L4	CCodeMICR_D4L5

Note:

The default font CCodeMICR is actually CCodeMICR_D2L3. This is the recommended font to use without calibration.

3. Security Fonts

ConnectCode MICR E13B package provides additional value by including 4 professional security fonts (in the SecurityFonts subdirectory) to print payee names and check amounts securely. Users can choose from the standard form or a form with text printed below each character. The Security Fonts help prevent alteration and forgery.

Standard	With Text
 The image shows the amount \$1,234.00 rendered in a standard security font. The digits are enclosed in a decorative, multi-lined rectangular border.	 The image shows the amount \$1,234.00 in a security font. Below the digits, the words "DOLLAR ONE TWO THREE FOUR ZERO ZERO" are printed in a smaller font, aligned with the corresponding digits.
 The image shows the amount 1,234.00 in a standard security font. The digits are enclosed in a decorative, multi-lined rectangular border.	 The image shows the amount 1,234.00 in a security font. Below the digits, the words "ONE TWO THREE FOUR ZERO ZERO" are printed in a smaller font, aligned with the corresponding digits.

Check amounts can be specified in Dollars, Pounds Sterling, Euros or Yen. Payee names in both upper and lower case characters are also supported.