Fontware™

# Barcode Solutions - EAN 13

## What is EAN 13?

EAN 13 consists of 12 characters of data. The 13th digit is the check digit.

## How do I calculate the check digit?

This is easy, lets look at some data. Our Data **800377350000**

All odd numbers are multiplied by 1 and the even number by 3.

| Example. | Char. Pos | O | E | O | E | O | E | O | E | O | E | O | E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Data | 8 | 0 | 0 | 3 | 7 | 7 | 3 | 5 | 0 | 0 | 0 | 0 |
| | Multiply | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 |
| | Results | 8 | 0 | 0 | 9 | 7 | 21 | 3 | 15 | 0 | 0 | 0 | 0 |

The total minus the Modula 10 value of the total give you the check digit number.

## What is the Layout of the Barcode?

Below is a simple layout of the barcode.

| Start Character | Defining Parity | Left Hand Digits | Center Bar | Right Hand Data | Check Digit | Stop Character |
|---|---|---|---|---|---|---|
| 1 Digit | 1 Digit | 6 Digits | 1 Digit | 5 Digits | 1 Digit | 1 Digit |

## How do I encode the Barcode?

Ok, to start with we have a parity table, this table gives details of how the Barcode is compiled according to varying data. The first digit is used to define the parity. So in our case, the defining digit is the number 8.

A parity table encodes the Barcode to use the correct characters in the Font.

In the table below you will notice the letter A & B. These denote parity and the parity in the fonts is defined as follows.

**Parity Set A**
Uses characters

| Font Character | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| Numeric Pos | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Parity Set B**

| Font Character | a | b | c | d | e | f | g | h | i | j |
|---|---|---|---|---|---|---|---|---|---|---|
| Numeric Pos | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Parity Set C**

| Font Character | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Numeric Pos | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Parity Table**

| 13th Digit | Left Hand Character Values 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 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 |

Below is a table giving showing our data using the parity value of the number 8.

| | Parity | Left Data | | | | | | Right Data | | | | | Check Digit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data String | 8 | 0 | 0 | 3 | 7 | 7 | 3 | 5 | 0 | 0 | 0 | 0 | 7 |
| Index | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Parity Set | | A | B | A | B | B | A | C | C | C | C | C | C |
| Result | | 0 | a | 3 | h | h | 3 | F | A | A | A | A | H |

## How do I put it all together?

Simple, we have our final encoded data, now all we need to do is to add our additional control characters.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Result taken from above | 0 | a | 3 | h | h | 3 | F | A | A | A | A | H |

Start & Stop Characters is ( or ASCII code 40 Center Bar Character is - or ASCII code 45

Our Final Barcode looks like this **(0a3hh3-FAAAAH(**

To add the digit at the front simply take the first digit from original data, which is "8". Use the characters from Q-Z for number 0-9, so 8 is Y. To add the ">" symbol add the ">" to the end of the encoded text to give you
**Y(0a3hh3-FAAAAH(>**

## Barcode Font Example