

Interleaved 2 of 5



Interleaved 2 of 5 is a numeric-only barcode widely used in warehouse and industrial applications. The data must consist of an even number of digits.

Each data character is composed of 5 elements, either 5 bars or 5 spaces. Of these 5 elements, two are wide and three are narrow. Adjacent characters are interleaved, alternating the spaces from one character with the bars of the other

- Valid characters are 0-9.

2 of 5 (Code 25)

Standard 2 of 5 is a self-checking numeric-only barcode. Unlike Interleaved 2 of 5, all of the information is encoded in the bars; the spaces are fixed width and are used only to separate the bars. Standard 2 of 5 is used primarily for warehouse sorting, photo finishing, and airline ticket marking.

3 of 9 (Code 39)



Code 39 is widely used in many industries and is the standard for many government barcode specifications, including the U.S. Department of Defense. Code 39 is defined in American National Standards Institute (ANSI) standard MH10.8M-1983, and is also known as USD-3 and 3 of 9.

The Code 39 character set includes the digits 0-9, the letters A-Z (upper case only), and the following symbols: space, minus (-), plus (+), period (.), dollar sign (\$), slash (/), and percent (%). A special start/stop character is placed at the beginning and end of each barcode. The barcode may be of any length, although more than 25 characters really begins to push the bounds.

- Valid characters are 0-9, A-Z and the characters: - . \$ / + % SPACE
- The implementation currently doesn't support the extended character set.
- The character '*' is only used as start and stop character and may not be used in the message. The '*' character is automatically added before and after the message even though you may not see it in the human-readable part. (See also "display-start-stop" and "display-checksum" values)

- **display-start-stop** controls whether the start and stop characters should be included in the human-readable part. Setting **display-start-stop** to true, automatically sets **display-checksum** to true, too.
- **display-checksum** controls whether the calculated checksum should be included in the human-readable part.

EAN 128 (Code 128)



Code 128 provides excellent density for all-numeric data and good density for alphanumeric data. It is often selected over Code 39 in new applications because of its density and because it offers a much larger selection of characters. The Code 128 standard is maintained by AIM (Automatic Identification Manufacturers).

The Code 128 character set includes the digits 0-9, the letters A-Z (upper and lower case), and all standard ASCII symbols and control codes



- **Valid characters:** The full 7 bit ASCII (US-ASCII) character set is supported
- **Functions 1 to 4** may be used. They are encoded as ASCII characters 0xF1 (241), 0xF2 (242), 0xF3 (243) and 0xF4 (244) in the message.

Codabar



Codabar can encode the digits 0 through 9, six symbols (-:.\$/+), and the start/stop characters A, B, C, D, E, *, N, or T. The start/stop characters must be used in matching pairs and may not appear elsewhere in the barcode. Codabar is used in libraries, blood banks, the overnight package delivery industry, and a variety of other information processing applications.

There is no checksum defined as part of the Codabar standard, but some industries (libraries, for example) have adopted their own checksum standards. Many libraries use the following system which includes 13 digits plus a checksum; here is a description of the method used by Ameritech Library Services (Provo, Utah).



- Digit 1 indicates the type of barcode: 2 = patron, 3 = item (book)
- Digits 2-5 identify the institution
- The next 6 digits (00010 586) identify the individual patron or item
- Digit 14 is the checksum
- Valid characters are 0-9, the characters: - \$: / . +
- Start and stop characters are: a b c d e * n t

UPC – A



UPC-A is used for marking products which are sold at retail in the USA. The barcode identifies the manufacturer and specific product so point-of-sale cash register systems can automatically look up the price. The UPC-A Code and the assignment of manufacturer ID numbers is controlled in the U.S.A. by the Uniform Code Council located in Dayton, Ohio

- Valid characters are 0-9
- Message length must be 11 or 12 characters depending on the checksum mode.
- Behavior when checksum-mode is set to auto: If a 11-character message is passed in, the check character is added. If a 12-character message is passed in, the check character is checked.
- Supplementals are supported (2 and 5 characters). You can add them by appending a "+" along with the supplemental message to the barcode message. Example: 037145007991+51528

UPC – E



UPC-E is a variation of the UPC-A symbol that is used for number system 0. By suppressing zeroes, UPC-E codes can be printed in a very small space and are used for labeling small items.

- Valid characters are 0-9
- Message length must be 7 or 8 characters depending on the checksum mode.
- Behavior when checksum-mode is set to auto: If a 7-character message is passed in, the check character is added. If a 8-character message is passed in, the check character is checked.
- The first character (number system) must be 0 or 1.

- You can pass in a UPC-A message (12 or 13 characters) to generate a UPC-E barcode. If the UPC-A message cannot be converted to a UPC-E message you'll get an exception.
- Supplementals are supported (2 and 5 characters). You can add them by appending a "+" along with the supplemental message to the barcode message. Example: 0123413+77

EAN – 13



EAN-13 is used world-wide for marking retail goods. The symbol encodes 13 characters: the first two or three are a country code which identify the country in which the manufacturer is registered (not necessarily where the product is actually made). The country code is followed by 9 or 10 data digits (depending on the length of the country code) and a single digit checksum. 2-digit and 5-digit supplemental barcodes may be added for a total of 14 or 17 data digits. Valid characters are 0-9

- Message length must be 12 or 13 characters depending on the checksum mode.
- Behaviour when checksum-mode is set to auto: If a 12-character message is passed in, the check character is added. If a 13-character message is passed in, the check character is checked.
- Supplementals are supported (2 and 5 characters). You can add them by appending a "+" along with the supplemental message to the barcode message. Example: 9783468111242+56789

EAN – 8



EAN-8 is a shortened version of the EAN-13 code. It includes a 2 or 3 digit country code, 4 of 5 data digits (depending on the length of the country code), and a checksum digit. While it is possible to add a 2-digit or 5-digit extension barcode, the primary purpose of the EAN-8 code is to use as little space as possible.

- Valid characters are 0-9
- Message length must be 7 or 8 characters depending on the checksum mode.
- Behaviour when checksum-mode is set to auto: If a 7-character message is passed in, the check character is added. If a 8-character message is passed in, the check character is checked.
- Supplementals are supported (2 and 5 characters). You can add them by appending a "+" along with the supplemental message to the barcode message. Example: 22139337+12

MSI



The MSI Plessey barcode is a variant of the Plessey barcode. It is a pulse-width modulated non-self checking code, and is used primarily in store shelf labeling. Each character consists of eight elements, four bars and four spaces. The character set includes the digits 0 through 9. A Modulo 10 checksum is appended to the end of the code.

PostNet



The PostNet barcode is used by the United States Postal Service to automatically sort mail. The PostNet code consists of evenly spaced bars of two different heights. Each character is represented by five bars, two tall and three short. The character set includes the digits 0 through 9. The code begins and ends with a tall bar ('frame bar'), and may contain a 5-digit ZIP code, a 9-digit ZIP+4 code, or an 11-digit Delivery Point Code. A Modulo 10 check digit ('correction character') is inserted after the ZIP code and before the ending frame bar.

The check digit is calculated on the content of each ZIP code. The check digit is simply the number that, when added to the sum of the digits in the ZIP code, will produce an even multiple of 10.

- Valid characters are 0-9
- display-checksum controls whether the calculated checksum should be included in the human-readable part

ISBN



The total length of the publisher and the title identifier is 8 digits. When an identifier is assigned to a publisher, the ISBN agency takes into account the number of titles which the publisher believes will be needed. Larger publishers are given a shorter publisher identification number in order to make more digits available for title identification. Here is a sample ISBN from a publisher (ID number 55615) who has been assigned 3 digits for use as title identifiers:

ISBN 1-55615-678-2

ISBNs are printed on books using the EAN-13 barcode symbology. In normal use, the first two or three digits of an EAN-13 barcode identify the country of origin. The country prefixes 978 and 979 were set aside for 'Bookland' (only the 978 prefix is in current use). To print an ISBN as a Bookland EAN barcode, add the 978 prefix at the front of the ISBN and remove the ISBN check digit from the end; an EAN check digit will be added in its place. Thus the Bookland EAN code for the sample shown above would look like this (the ISBN check digit 2 is replaced by the EAN check **digit 6**):