



NFi

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Bar Codes

There are a large variety of bar code symbologies and variations of those symbologies. Presented here are the most commonly used bar code types along with general guidelines for their use. At NFi we can produce nearly every type of barcode available to date, so feel free to call us if you have questions about a particular bar code type you'd like to use.

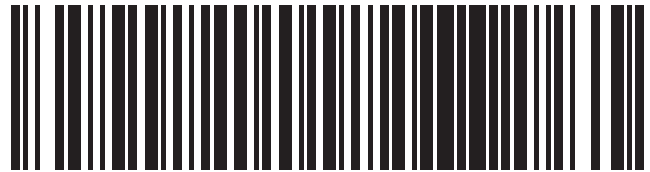
Code 39



508-998-9021

The Code 39 format is by far the most popular code in use in industrial settings for things like inventory control, product identification, and shop floor tracking. Available in low, medium, and high-density versions, the density affects the thickness of the bars with low-density producing thick bars and high-density resulting in the thinnest. The barcode can vary in height but the length is determined by the data contained within. Code 39 bar codes can be comprised of 43 alphanumeric characters consisting of A to Z (uppercase only), numeric 0 to 9, and special characters / . SPACE - + \$ %. The maximum message length is typically limited to 30-40 characters by most bar code readers. A checksum digit can be added at the end of the string and human-readable characters are optional. Code 39 is sometimes referred to as Code 3 of 9. Leading and trailing quiet space is required to ensure the readability of this bar code.

Code 128



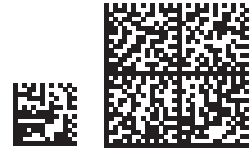
508-998-9021

The Code 128 bar code can encode the entire set of 128 ASCII characters. Because Code 128 uses only one bar code character for each ASCII character as opposed to Code 39 and Code 93 which use two bar code characters. This means you can encode more information in a smaller area horizontally. Human readable characters are optional (as shown in above sample). A check digit character is added to Code 128 barcodes so barcode readers can automatically self-check the scanned data. Leading and trailing quiet space is required to ensure the readability of this bar code.

UPC/EAN/ISBN

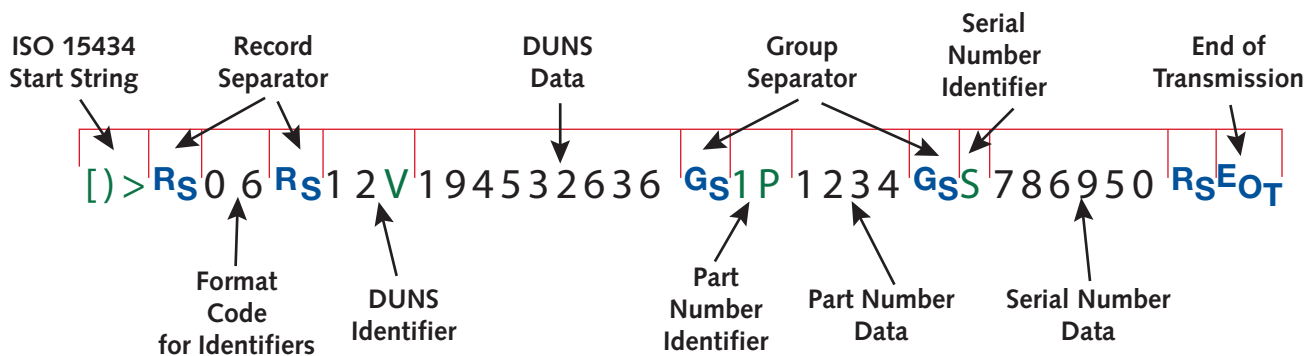


The UPC (Universal Product Code) encompasses the UPC/EAN/ISBN bar codes which look similar to the one above (UPC-A pictured). We can print UPC-A, UPC-E, EAN-13, and EAN-8 bar codes, with or without 2 or 5-digit supplements. Use UPC-A for 5-digit Mfg. Number/5-digit Product Codes. Use UPC-E for 6-digit product codes. Use EAN-13 for 13-character fixed-length codes which typically include a 2-digit country code. The same EAN-13 code is used for ISBN (International Standard Book Number) codes where the first three digits encode the prefix of the numbering organization and the next 9 digits represent the book ID number. The 13th digit is an error-checking digit. EAN-8 is the shorter version of the EAN-13 symbology.



2-D Datamatrix / UID

Data Matrix is a 2-D matrix code designed to pack a lot of information in a very small space. A Data Matrix symbol can store between one and 500 characters. The symbol is also scalable between a 1-mil (.001") square to a 14-inch square. The most popular applications for Datamatrix is the marking of small items such as integrated circuits and printed circuit boards. This popularity is due to the code's ability to encode approximately fifty characters of data in a 2 or 3mm square area and the fact that the code can be read with as little as a 20 percent contrast ratio. You may see the specification for this type of barcode indicated as 2-D barcode, datamatrix barcode, UID barcode, or by its ECC number. ECC-200 is the most typical symbology incorporating the popular Reed-Solomon error correction techniques. 2-D Datamatrix codes can vary greatly in size and complexity depending on the amount and type of data encoded. Modules are often grouped together as shown in the larger example above which reads "Nameplates for Industry is located at 213 Theodore Rice Blvd." The smaller of the two is encoded with just our phone number : "508-998-9021". Markings for U.S. Military use are governed primarily by MIL-STD-130M using the syntax of ISO/IEC 15434. The string of data encoded in the UID must conform to the following format, which means we must be provided with the specific information to create the bar codes:



Confusing, isn't it? The ASCII Code for RS is "030", for GS it's "029" and for EOT it's "004". When testing the scanability of this type of UID, the RS, GS, and EOT codes will scan as their ASCII equivalents unless your barcode scanner or reading software is set up to interpret them, so the above code would look like this when scanned:

[]>0300603012V1945326360291P1234029S786950030004

For more information and for the complete military specification visit www.milstd.net or download it from our website under the Forms menu.

QR Barcodes

A QR code (abbreviated from Quick Response code) is a specific two-dimensional code that is readable by dedicated QR barcode readers and camera telephones. The code consists of black modules arranged in a square pattern on a white background. The information encoded may be text, URL, or other data. There are a number of resources on the web to generate your own QR barcode. You may notice that this particular type of barcode appears on marketing materials, magazine ads, and product packaging to name a few. Smartphone apps are readily available to scan these codes and will even take you directly to a website. At NFi we can generate all of the various types of QR barcodes and can even incorporate variable and serialized data.

