BARCODE BASICS
standard barcode practices

The Universal Product Code (UPC) is a barcode symbology that is widely used in the United States and Canada for tracking retail merchandise. This type of code is used on a single retail item (one "piece" to be scanned at the point of purchase). To obtain a reliable code, you will need professional bar code software or a bar code production service.

THE UPC: UNIVERSAL PRODUCT CODE

There are many different types of barcodes: The two most commonly used packaging barcodes are the UPC code and the ITF-14.

HOW TO GET A NEW UPC

To create a new UPC you must apply to GS1 US (formerly the Uniform Code Council). The GS1 US will assign your company a Manufacturer ID #. After you have received your ID#, you can create a Global Trade Item Number (GTIN) for each retail product. The most common GTIN is 12 digits long (the UPC-A), comprised of your ID#, your product reference number, plus a check digit. There is a mathematical formual used to determine the UPC check digit (see below). Or you can use the calculator on the GS1 US web site.

For more info go to the GS1 US web site: www.gs1us.org

Check Digit Formula:
- Add the digits in the odd-numbered positions (first, third, fifth, etc.) together and multiply by three.
- Add the digits in the even-numbered positions (second, fourth, sixth, etc.) to the result.
- If the last digit of the result is 0, then check digit is 0.
- If the last digit of the result is not zero, then subtract the last digit from 10. The answer must equal the check digit.

FOR SCANNING ACCURACY

There will always be a "quiet zone" (an area of blank space) around the code, so the scanner may detect where the code starts and ends. Most codes should have a bearer bar around the quiet zone, to ensure even pritining, and therefore accurate scanning. If a code should not scan, the "human readable" numbers are printed under the symbol so they may be entered manually.

UPC-A
A 12 code for retail packaging, scanned at the point of sale.

UPC-E
6 digit compressed code used for very small packages.

Helpful Tip:

Bar codes should be printed with the highest contrast to the background color. Black ink on white is the best contrast, with the best results. Colors other than black may be used, but avoid light color tones, especially red.

WHERE & WHAT SIZE?

UPC placement rules are very detailed; please refer to the UCC Symbol Placement Guidelines, found under the Quality section of the GS1 US Product Catalog for accurate use. The magnification factor refers to the size of the code. Bar code software will need the GTIN, the type of code required, and the desired magnification factor to produce a good code. The program will create an accurate code, based upon the magnification factor (producing a specific height and width of the bars, proportional to each other,which should NOT be reduced or stretched in size).

- Place UPC in the lower right corner of back panel
- Ideal size = 1.125" high X 1.5" wide (100%)*
- Smallest size = .906" high x 1.188" wide (80%)*
- Largest Size = 2.25" high x 3.0" wide (200%)*

*These sizes are specific to corrugated packaging.

THE ITF-14: INTERWEAVED TWO OF FIVE

ITF-14 is used commercially on case packs containing multiple units, of the same product, marked with a UPC or EAN (if different items are mixed inside the case, use a GS1-128 formatted code). The ITF-14 will always encode 14 digits: the 12 digit GTIN and a 2 digit wharehouse code. The symbology is called "2 of 5" due to the fact that each digit is encoded with 5 bars, 2 of which are always wide. Interleaved means placing something between.

- **A high density code used on corrugated shipping cartons**
- **The 14 digit code consists of the UPC + 2 digits for inventory tracking**
- **May also be noted as "ITF 2/5" or "Int 2of5"**

THE ITF-14: WHERE & WHAT SIZE?

The standard placement for the ITF-14 is centered on the 2 length panels of the shipping carton. However, many large retailers often have specific requests for carton codes and other related package markings. If the ITF-14 does not fit on the shipping carton, please discuss this concern with your distributor (a larger case pack may be requested).

- Place on 2 length panels
- Ideal size = 1.625" high X 5.063" wide (100%)*
- Smallest size = 1.375" high x 4.625" wide (80%)*
- Largest Size = 1.875" high x 7.25" wide (120%)*

These sizes are specific to corrugated packaging.

THE SSCC: SERIAL SHIPPING CONTAINER CODE

The Serial Shipping Container Code (SSCC) is the globally unique GS1 System identification number used for logistics units, such as pallets, cases, and cartons. The SSCC acts as a "license plate" to efficiently move products through shipping and receiving processes. The ideal SSCC should have 18 digits, but it could contain less, depending on the enclosed items.

- **For shipping/receiving pallets or case cartons, distributed globally**
- **18 digit code (extension digit, GS1 company prefix, serial numbers & check digit)**
- **Uses a GS1-128 code format**

SSCC - Serial Shipping Container Code (SSCC)

(00) 0 0718908 562723189 6

GS1 US: BARCODE GUIDELINES

The GS1 System of standards is the most widely used supply chain standards system in the world. GS1 was formed when the Uniform Code Council (UCC) and the Electronic Commerce Council of Canada (ECCC) joined EAN International. UCC has become GS1 US and ECCC has become GS1 Canada. (3.GS1) Thurough documention about bar code development and usuage is available to GS1 members. To apply for a GS1 US membership, complete the online application, or call GS1 US Customer Service.

The GS1 will not supply barcode files. To receive an actual barcode digital file, you will need barcode software. Using the software, input the GTIN, the type of code, the magnigication factor, and the bar width reduction. The "reduction factor" will be determined by the packaging printer. If you must place a dummy code into the art layout file, please mark it with an FPO notation. Avoid using barcode fonts. If software is not available, we suggest contacting Symbology Inc. (they can provide an EPS bar code file, for a small fee).

Mon - Fri, 8:00 AM - 6:00 PM ET
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