

Barcodes and Product Codes, Using UPC Codes and Creating Your Store's Own Inventory Organization Plan

Barcodes offer a fast, efficient way of identifying products in a point-of-sale (POS) application or inventory control application. A scanning device "reads" the code translating it into letter and numbers, thus saving considerable time and avoiding mistakes as occurs when typing in the information by hand. Assuming such combination of letters and numbers are in a database as part of the point-of-sale or inventory control program, the item is matched to the database and such information as price, quantity on hand, vendor, cost etc. are identified and made available to the user of the POS system.

Definition of Terms: , Barcode, UPC Code, Product Code

First of all what are these different codes? A *barcode* is a series of vertical lines (horizontal depending on how you hold the printed code) which can come in some twenty formats. Combinations of the lines represent numbers and alphabetic letters. The various formats create barcodes of different sizes and densities, that is the thickness of lines and the distances between the lines. More on why this is important later.

UPC stands for Uniform Product Code, this is a unique numeric code that is assigned by the Uniform Code Council (www.uc-council.org), an Ohio based organization that acts as a central clearing house and a kind of referee so that no two products have the same code. Manufacturers of products pay an annual fee to the council and receive a unique *Manufacturer Identification Number*. The manufacturer then creates product numbers in combination with the manufacturer number. Thus, "04901134" will always be Diet Coke, no matter what store or POS system is selling and scanning the can of Diet Coke. A common misconception is that the UPC contains price or other information; no a UPC or a product code simply identify the product, a POS system must match that code to a code in its database to determine price and other information.

A *product* code is simply the code for a product created and assigned by a business. Any business, with the appropriate software, printer and labels can create any type of code they want and affix it to an item.

More than you ever wanted to know about barcodes

The fact that there are different code formats becomes significant depending on how the codes are scanned. Different technologies can "read" different types of codes. For example a "code 128" is a so called, "low density" code, the printed bars are comparatively large as are the spaces between them, the code therefore is larger, and it can be read by less expensive low density barcode reading devices such as "Closed Coupled Devices" (CCD). Typically CCD barcode scanners are only 1/4 the cost of a laser barcode scanner. Most low density codes are printed on 2 5/8" x 1", address size labels.

Higher density barcodes may be only 1/4" high and easily fit on a 3/4" x 3/4" label. These higher density formats have comparatively thin lines and small spaces between them. Such small formats must be "read" by devices capable of discerning the subtle differences of dark and light. Usually laser barcode scanning devices are employed to read such small labels.

An important consideration when creating barcodes is the fact that alphabetic letters take many more lines and spaces than numbers, that is one reason way all UPC codes are numbers only, so that they do not take up much space on a label.

Creating your own barcodes

The main reason a store will want to create their own codes is that the items in their inventory do not have UPC codes, or manufacturer product codes. Most stores will also create their own codes and labels if only part of their inventory is barcoded. Labeling with barcodes is also done as method of identifying products sold in a specific store, important when similar products are sold by stores nearby and returning of items occurs.

While it is perfectly permissible to simply sequentially number the inventory items, creating a unique numeric identifier for the entire inventory beginning with, "1" and running into the tens, hundreds, or even thousands. However; if you are going to go through the trouble of printing barcodes and labeling you might as well have the codes mean something.

If the code can be understood by visually observing the label, it would be possible to convey such useful information as: the department the item belongs to, the date or season the item was purchased, the manufacturer / designer / vendor, the type of item, style, color, size etc. Typically, clothing stores code the season or purchase date so that clerks can locate older items and move them to sale racks quickly. Department codes, or aisle codes allow items to be easily returned to the right location, all of this means less time spent on “house keeping” tasks and more time spent on productive customer service and selling.

Creating the plan.

In order for the code to be most easily read visually, alternating alphabetic letter and numbers are used to separate information; however, remember that letters take up more space so if the product code is printed it must be tested to make sure it will fit on the label. (Some POS programs allow use of sequentially numbered item codes *and* product codes, the item code is printed as a barcode to save space and the product code is printed as letter and numbers for visual identification.)

The first step in designing you own product code is to determine the type of information that is useful. Then decide how that information is best shown. Some choices are obvious, dates and sizes are generally shown as numbers and thus are best kept that way. If there are a limited number of different possibilities that particular item of information is a good candidate for a simple numeric code. Thus if you have only 5 to 10 departments (more than 10 departments is generally considered too hard to remember and too complicated to use) or 10 vendors they could be 0 through 9, even sizes if they are small, medium and large could be 1,2 and 3.

When you do use letters it is a good idea to keep them to no more than three (3) characters long thus the following is a representative plan for colors:

White	WHT
Black	BLK
Brown	BRN
Red	RED
Blue	BLU
Green	GRN
Yellow	YLO
Orange	ORN

A completed code will look like this:

“ACC002MAN3YLO”

ACC = Accessories, a Department
 200 = year and season
 MAN = Manufacturer
 3 = Size
 YLO = Yellow Color

Printing the Labels

Barcode labels can generally be printed, in one of two ways: a barcode printer or a conventional home or office computer laser printer. The dedicated barcode printer is a specialty or task only printer. Peel and stick labels are printed from a roll of labels. The rolls of labels are generally available in widths from ¾ “ to 4 “. The label printer is designed to sense the beginning and end of a label by either a “gap” or “bar” process. The gap method actually senses the light between the individual labels on the roll, the bar method “reads” a printed ¼” black bar on the back of each label. Labels must be purchased as either gap or bar to coincide with the method used by the printer. The print process for barcode printer is either direct thermal or thermal transfer. Direct Thermal uses heat which serves as a catalyst causing a chemical reaction on special chemically treated paper. Thermal transfer uses heat to transfer a special ink from a ribbon to plain paper. The thermal transfer method is more expensive but lasts longer; average life is 3 years verses 1 year with the direct thermal process. The Cognitive, Barcode Blaster is probably the most popular printer on the market and sells for \$550 for the direct thermal process and \$650 for the thermal transfer.

A conventional laser printer can also be used printing 8.5” x 11” sheets of labels. For an initial run of all inventory items this works well but printing small batches will waste the remainder of a full sheet as each print secession prints from the top left across and down.

While the process of setting up a point-of-sale and inventory control system is time consuming; it is an investment worth it in the long term for increased accuracy, reducing shrinkage and developing better pricing as more information becomes available on exactly what is selling, where and when.

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