CodeFacts
AIDC (Automated Identification and Data Collection) Technical & Informational Documents
Written for Everyone

A Primer on the Use of Bar Code Technology in Libraries

A bar code symbol is simply an array of bars and spaces which represent a group of numbers and/or letters. These characters, in turn, typically represent something tangible: a product code, serial number, employee ID, etc. In the case of library applications, the symbol is typically one-of-a-kind and printed on a label, applied to a book, CD, or other piece of library material. The data encoded in this single symbol—which is essentially a significant database field—is related back to a record in a database, which contains all of information related to that book or item, such as title, author, etc. Multiple copies of the same title all get labels with different symbols on them, as each title is tracked as a single, unique copy of the library item.

Once a bar code symbol is applied to a book and the symbol is linked to a database record, the book will circulate through the automated system by scanning the bar code symbol into the computer software's circulation function. Scanning bar codes is much faster than keying in the data, and infinitely more accurate.

Bar Code Symbols

There are two avenues available to libraries regarding the bar code labeling of library materials. The first, and most popular, is by adopting the North American de facto library standard of a 14-digit label, using the Codabar symbology. (A symbology is much like a language of bar codes.) This 14-digit symbol is broken down in the following way:

Digit #	Description
1	Either '2' or '3'. 2 signifies a patron label, 3 a title label
2	Four-digit library identifier
5-13	Consecutive number
14	Check digit

The main reason for this standard, to our understanding, was to allow the circulation of library materials from one library system to another (i.e., interlibrary loans) by keeping a

consistent method of identifying the materials. This, in practice, may only apply to larger library systems, such as municipal and university libraries.

The other avenue is to not adopt the de facto standard and to simply identify library materials with five, six or seven digit Code 39 or Code 128 symbology labels. As a rule, the name of the library is always printed on the top of the bar code label to identify the owner.

Our library bar code labels can be produced using one of two print technology methods: digital or thermal transfer. (A printing technology known as photocomposition is no longer used.) Each has its distinct advantages.

Digital Print Labels

The bar code images on these labels are formed with black toner, in much the same way a laser printer works. Such labels are available in sheets in butt-cut format, or continuous (fanfolded or on rolls) in die-cut format. Butt-cut means that the labels have square corners and are butted up against each other on the sheet. Die-cut labels have round corners and have a space between them, making them much easier to remove from the backer.

Digitally-printed labels have a print resolution of at least 600 dots-per-inch. The face of the label may be unprotected, requiring Mylar overlaminate to be placed over the label to allow it to survive through normal wear and tear. Alternately, the labels may be obtained in prelaminated format, with the clear plastic coating being die-cut with the label.

Thermal Transfer Labels

Despite being produced at a print quality of 300 dots-per-inch, the quality of thermal transfer-printed symbols can be of equal or better quality digital. The attributes of the text on the label, however, are not quite as good as the other print methods, mostly due to thermal transfer print technology using a square dot to form images.

Thermal transfer labels are available with either a paper substrate, or polyester. The latter are substantially more durable, longer lasting, and "scratchproof" and typically eliminate any need to add an extra overlaminate to protect the labels.

Bar Code Readers

Our bar code readers are very simple to connect and configure for attachment to most any computer system in the PC family, Macintosh or "dumb" terminals. All of our bar code readers are guaranteed to operate flawlessly with *any* library software sold in North America. (Don't ever be swayed into thinking someone's library system is "proprietary" as far as bar code scanning goes, with one rare exception that we've found—it's just not true.)

Essentially, two components make up the bar code reading system: a decoder and an input device. The decoder forms the "brains" of the system and the input device is the "eyes." These two components used to come separately, but these days the decoder chip is actually embedded into the scanner 99% of the time.

Input devices can take the form of a contact scanning device, typically referred to as a wand (pen) or they can be of the non-contact variety and use a CCD (charge coupled device), imager, or laser to scan the bar codes.

The wand (often erroneously referred to as a light pen, which is a completely different device) has been a popular reader in libraries, mostly because of its relatively low cost. It does, however, typically present more scanning problems than the other systems. There is definitely a developed "knack" to using a wand, a knack that some folks find difficult to master! Wands are almost extinct and often cost more than the more "automatic" types of scanners.

Laser and imager scanners offer the greatest ease of use; pretty well "point and shoot." The former are becoming less common, being supplanted by the superior technology of imagers. An imager scanner has no moving parts (unlike a laser scanner) and uses a digital camera-like component to read bar codes!

Laser and imager scanners can be operated in hand-held mode by simply aiming an emitted beam of light at the bar code symbol from about six inches away and pulling the scanner's trigger. Alternately, they can be placed in a hands-free countertop stand and operated automatically simply by placing an item beneath the cradled scanner. The versatility of being able to easily move from hand-held to hands-free mode allows for the easy scanning of borrowed library materials through a circulation desk, or the en masse scanning of returned books from a wheeled cart beside the scanning station, gives the ultimate in flexibility in a library situation.

Summary

Effectively, like most things in life, when it comes to bar code labels and scanners, you get what you pay for. That is why, recognizing that many libraries are under extremely tight budget restrictions, we provide a range of products in many price ranges. If you can't seem to get a handle on just what makes, say, an imager scanner so much better than a wand, just give us a call. We'll arrange to loan you a system for a few days so that you can try it out and judge for yourselves just what is the most cost-effective solution in your situation.

CodeFacts *are whitepaper documents written and provided with no obligation by Aurora Bar Code Technologies, a systems integrator and developer that has furnished solutions that use bar code and RFID (Radio Frequency Identification) technologies since 1987. We hope that you find* ***CodeFacts*** *to be interesting and informative and look forward to providing you with the necessary hardware, software, media, and consultation to make your system need a reality.*

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