



GS1 DataBar in the Retail World

Introduction

In 2006, GS1 adopted GS1 DataBar bar codes after a global task force reviewed a comprehensive business case promoting the symbology for various retail applications. This task force included 26 parties with interests in the impact of such an adoption, including retailers, consumer goods manufacturers, pharmaceutical companies, GS1 member organizations and trade associations. GS1 conducted an analysis of the business case and discussed implementation details and a timeline for the Sunrise mandate for this new symbology.

This paper discusses GS1 DataBar, its benefits and its impact on the retail industry going forward, and provides a brief overview of the GS1 organization itself.

The Organization

GS1 is made up of member organizations (MOs) worldwide, committed to developing global standards and solutions designed to streamline processes in supply and demand chains in various sectors and industries. The organization's GS1 System is a set of standards that improves efficiency and economy in supply chain management, and is widely used throughout the world. These standards ease business operations between companies of all sizes, operating in all segments of the supply chain, such as manufacturers, distributors, retailers and small local stores.

While GS1 standards were initially created to improve distribution practices in supermarkets, the organization now has a presence in 108 countries and reaches across many sectors such as healthcare, transportation and logistics, and defense in addition to the retail supply chain. GS1's member organizations provide a framework for their member companies to simplify their supply chain operations. MOs are responsible for allocating unique numbers for a comprehensive set of standards and provide training and support for these standards, including bar coding, Radio Frequency Identification (RFID), Electronic Data Interchange (EDI) and Global Data Synchronization Network (GDSN).

GS1 DataBar Symbology – A New Standard

Formerly Reduced Space Symbology (RSS), GS1 DataBar symbols encode more information than the typical UPC/EAN bar code and allow Global Trade Item Number (GTIN) identification on small items and products difficult to mark, such as jewelry and fresh foods. GS1 DataBar also supports GS1 Application Identifiers (AIs) such as serial numbers, lot numbers and expiration dates. For retailers and manufacturers, more information in a smaller footprint means increased visibility of the products they sell and the quantities being consumed, and additional space for communication to prospective customers combined with the potential for smaller packaging.

GS1's endorsement of the GS1 DataBar bar code for global unrestricted trade item identification is its first since the adoption of UPC/EAN.

While UPC/EAN bar codes revolutionized retail operations over 30 years ago, today's demanding business environment calls for something more. For instance, although EAN-8 and UPC-E bar codes were designed for identifying smaller items, their 8-digit limitation restricts the amount of information they can include. And as an alternative, if manufacturers use truncated EAN-13 or UPC-A symbols in order to encode more information, some point-of-sale scanners may encounter difficulty reading them. Coupons provide another example, traditionally imprinted with UPC-A codes that cannot carry all information about the issuer or purchase requirements.

After comprehensive research, GS1 has determined that the DataBar symbol can effectively address current retail requirements. These symbols encode GTIN in a significantly smaller space than EAN-13 and UPC-A, alleviating limitations typical to small item marking. And the structure of GS1 DataBar, which allows for more information, will greatly benefit the coupon industry.








GTIN and AI

The Global Trade Item Number (GTIN) uniquely identifies trade items worldwide, and consists of a company prefix, which GS1 assigns to denote the manufacturer, and an item reference number, which the manufacturer assigns to identify the specific product. Traditionally, GTINs are encoded in UPC/EAN bar codes of varying lengths (8, 12, and 13), and retailers worldwide have systems in place that decode and process these symbols.

GTIN is a type of Application Identifier (AI) developed by GS1. An AI includes a 2-to-4 digit identifier, followed by varying multiple digits. GTIN, for instance, uses the 2-digit identifier 01 followed by 14 digits. AIs identify certain aspects of the trade item such as location, serial number, and/or price, and all together form a reference database for GS1 systems worldwide. The new GS1 DataBar symbols also encode GTIN, and now support a length of 14 in order to accommodate more information. However, retailers are not yet required to accept these bar codes, and in fact the 2010 Sunrise effort prohibits encoding GTIN-14 in GS1 DataBar until an agreement is reached by trading partners. But as we'll see, implementing a system which supports these new symbols will significantly benefit retailers in the long run.

The GS1 DataBar Family

The following table lists the types of GS1 DataBar symbols along with an example and typical applications for each.

| The GS1 DataBar Family | | | |
|-------------------------------------|---|---|--|
| Name | Characters | Applications | Example |
| GS1 DataBar Omnidirectional | 16 numeric (AI + GTIN only) | Small item marking such as cosmetics, jewelry, or hardware |  (01) 00614141999996 |
| GS1 DataBar Stacked Omnidirectional | 16 numeric (AI + GTIN only) | Small item marking such as cosmetics, jewelry, or hardware; loose produce |  (01) 00614141999996 |
| GS1 DataBar Expanded | 74 numeric or 41 alphanumeric (AI + GTIN + Expanded Data) | Variable-measure packaged food, coupons |  (01) 00614141999996 |
| GS1 DataBar Expanded Stacked | 74 numeric or 41 alphanumeric (AI + GTIN + Expanded Data) | Variable-measure packaged food, coupons |  (01) 00614141999996 |
| GS1 DataBar Truncated | 16 numeric (AI + GTIN only) | Healthcare |  (01) 00614141999996 |
| GS1 DataBar Limited | 16 numeric (AI + GTIN only) | Healthcare |  (01) 00614141999996 |
| GS1 DataBar Stacked | 16 numeric (AI + GTIN only) | Healthcare |  (01) 00614141999996 |

GS1 DataBar and Retailers – A Winning Combination

The GS1 DataBar bar code has the potential to revolutionize supply chain processes in the fresh foods industry and beyond, providing a multitude of advantages for both retailers and manufacturers. This symbol can supply identification data currently not available, promoting traceability, product management, shrink control, and category management in variable-measure packaged foods and loose produce, while making the coupon industry more robust. Following are a few applications most poised to take advantage of this new symbology.



Loose Produce

With the expanding choices in fresh foods today, the current Price Look-up (PLU) stickers on loose produce are past their prime. Their values are limited

and don't indicate the supplier. Whereas a PLU number will identify an item as an apple, it will not indicate whether the fruit originated from Dole or Del Monte for instance. As consumers become more selective in their buying habits, small GS1 DataBar symbols imprinted on a sticker, encoding the full GTIN, can precisely identify the individual item and its source.

While retailers may need to upgrade systems to reconcile the new GTINs and the current PLU numbers, they will reap benefits from accurate sales and inventory tracking, reduced shrinkage, and enhanced category management. This will also facilitate checkout as POS systems can quickly scan bar codes as an alternative to cashiers (or customers in self-checkout) manually entering PLU codes. And marking with GS1 DataBar in addition to the current PLU stickers will accommodate early GS1 adopters as well as permitting other grocers to switch over in their own timeframe.



Variable Measure

Like loose produce, variable measure items, such as packaged meat and bakery goods, are currently identified with UPC-A symbols. These bar codes indicate the price of the item, but do

not reflect the product type or manufacturer. GS1 DataBar Expanded codes, on the other hand, can indicate not only the price, but the manufacturer, the weight, and the sell-by date.

Again, stores may have to update and/or add software to accommodate the additional information GS1 DataBar provides. But the advantages afforded through the unique identification of unlimited items will soon outweigh these initial efforts, fostering traceability, brand identification, category management, and shrink control.



Small Items

Currently, manufacturers must label items that are too small to accommodate full EAN-13 and UPC-A bar codes with either limited-information EAN-8 and UPC-E symbols, or truncated

EAN-13 and UPC-A that can be difficult to decode for some POS scanners. Now suppliers have the option of using GS1 DataBar on jewelry, cosmetics, small hardware items, or anything too small to carry a larger UPC/EAN bar code.

The new symbols encode a full GTIN in a fraction of the space, so manufacturers can use more package space for additional product information. While retailers must work with the manufacturers to ensure their POS systems adapt to the transition, they will achieve improvements in speed and accuracy at point-of-sale by eliminating the need to support tiny, difficult to read UPC/EAN labels.



Healthcare

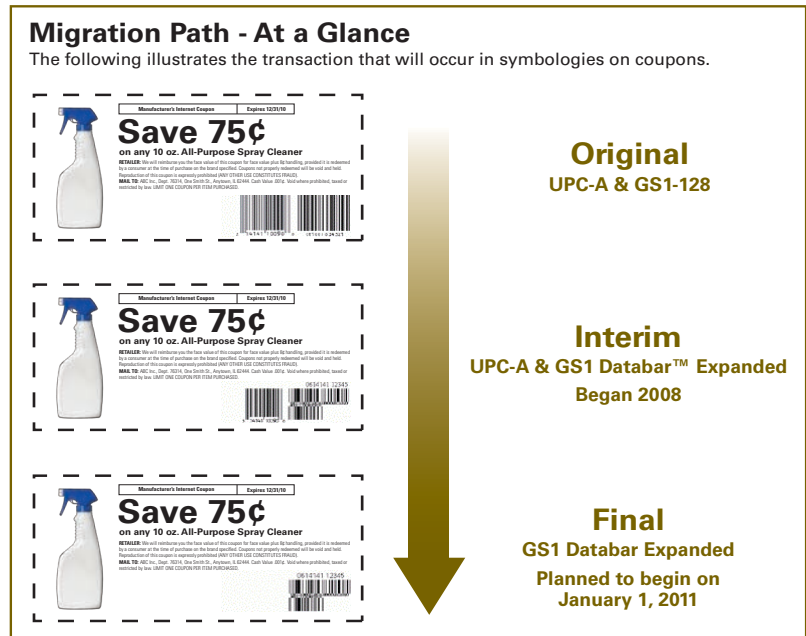
Drug packaging and small items used in healthcare are typically not bar code branded, or marked with extremely truncated symbols that can be difficult to read. As the healthcare industry continues

to adopt GTINs on their pharmaceutical and medical product labels to enhance accuracy and efficiency and ensure patient safety, the small variants of GS1 DataBar are perfectly positioned to fit this.

Coupons

Today's coupons use UPC-A bar codes which cannot identify the coupon issuer and provide only limited data. Using GS1 DataBar Expanded symbols on new coupons can significantly increase the information they provide, potentially revolutionizing the coupon industry in the United States. These coupons can encode the company prefix segment of the GTIN, as well as more detailed offer specifications.

As manufacturers transition coupon codes from UPC/EAN to GS1 DataBar, interim coupons will contain both UPC-A and GS1 DataBar Expanded codes to minimize the impact on retailers. As the Sunrise mandate occurs, requiring the use of only GS1 DataBar on coupons, retailers must ensure their scanning systems can read the new coupons and upgrade their coupon processing software. However, the comprehensive offer requirements and coupon value encoded in the new coupons allow thorough validation at the POS, providing a significant advantage to retailers.



Motorola Products Ease the Transition

When purchasing bar code management equipment, retailers can be confident that Motorola products are GS1 DataBar 2010 Sunrise ready. Whether your retail application requirements are point-of-sale for a small corner store, or a wide range of operational needs for the entire supply chain, Motorola offers a complete line of reliable, high-performance laser scanners, imagers, and scan engines that already supports the entire family of GS1 DataBar symbols.



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