(01)10847976100016(11)171226(10)ABC123

PREMIUM TURKEY BREAST

25 Pounds
Product of
USA
FoodLogiQ Connect
123 Main Street

Production Date

Dec 26

Powered By FoodLogiQ

19**09**

Example GS1-128 food case label

A key component to traceability of food is the identification of cases by product ID and lot code. A consistent, case-level labeling schema enables trading partners within the supply chain to capture product information and track a product by lot/batch.

From a food safety standpoint, designating each case at the lot level will ensure that, in the event of a recall or stock withdrawal, all affected product can be identified and removed from the supply chain.

Common Mistakes on GS1-128 Barcode Implementation
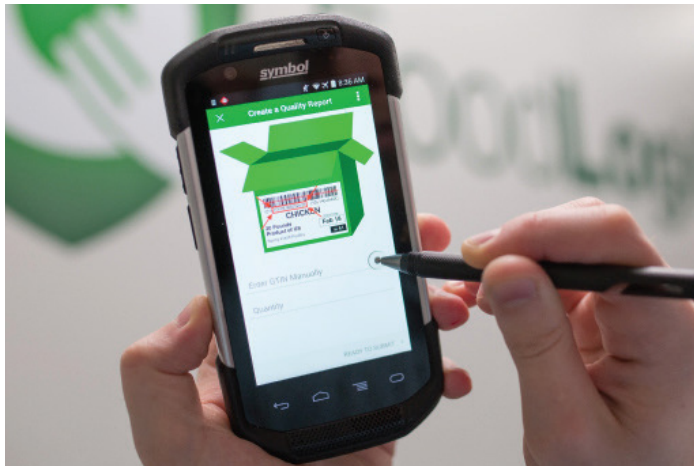
1 GS1-128 vs. Code 128

The GS1-128 is a subset of the Code 128 barcode. Although the barcodes look the same, they are not. GS1-128 barcodes include a Function 1 Symbol Character Code (FNC1). This is covered in section 5.4 of the GS1 General Specification.

2 Valid GS1-128 Barcodes

Valid GS1-128 barcodes begin with special/unprintable characters. Confirm barcode symbology begins with the Function 1 Code (FNC1). Utilize commercially available barcode software that specifically generates GS1-128 and confirm your barcodes. GS1 US offers barcode verification services or there are several apps for use on smartphones, such as Manatee Works.

3 Direct Print on Brown Corrugate

Printing a GS1-128 barcode directly on brown (kraft) corrugated boxes does not deliver the same contrast as an ITF-14 barcode. Print quality grades differ between the GS1-128 and ITF-14, therefore a GS1-128 may not scan accurately if directly printed on brown corrugate. Please see Getting Started with GS1-128 Barcodes for more information.

4 Barcode scanner compatibility

Some barcode scanners may not be able to "read" the GS1-128 barcode because the functionality is not activated. Consult with your scanner manufacturer in order to turn-on the capability of scanning a GS1-128 barcode. There is no need to purchase a new scanner/imager.

5 GS1-128 Barcode Size limitation is 48 characters

Be careful not to exceed the 48 character limit within a GS1-128 barcode. The Application Identifiers and data elements are included in that count. For example, the GTIN + the Application Identifiers = 16 characters (2 for the AI (01) and 14 for the GTIN itself). Review your trading partner's GS1-128 barcoding requirements in addition to GS1 Industry Guidelines.

6 Proper GS1-128 barcode formatting

The GS1 Application Identifiers are displayed in parenthesis

e.g., AI (10), in the human readable information below the barcode, but the parenthesis are not to be encoded within the barcode, therefore the data packet/message should not have any parentheses within it. Fixed length fields should be left justified and variable length fields such as Lot Code should be at the end of the barcode.

7 | Proper Barcode Size, Placement, and Positioning

There are standards for proper barcode placement on cases, for example proper placement is having a barcode on 2-adjacent sides of the case and 1.25" from the bottom of the base of the case and 0.75" away from the vertical edge of the case. See Section 6.7 of the GS1 General Specification for the full details on placement.

8 | Application Identifier Positioning

When creating a GS1-128 barcode, best practice is to place the Application Identifiers (AIs) in the following order: First is the GS1 Identifier, GTIN AI (01), next include any fixed length data such as the Pack Date AI (13) or Sell-By Date AI (15), then last is the variable length fields, such as the Batch/Lot Number, AI (10) or Serial Number, AI (21). These AI's are used as examples and following the best practice can ensure proper barcode creation. Please note the Function Code 1 (FNC1) character must be encoded within the barcode. Therefore, if you chose the encode a Batch/Lot Number AND a Serial Number, the Function Code 1 is needed to separate the two. This is needed for all Variable length AIs. For more information on Application Identifiers, please see Section 3 of the GS1 General Specification.

9 | Proper GS1 Encoding Rules on 4-Digit Application Identifiers (AIs)

Some of the 4-digit AIs have a 4th position for encoding that is reserved for an implied decimal point position and cause confusion in the supply chain if not properly followed. For example, for the AI on Net Weight in Pounds can drastically alter the stored value based on the decimal point position. If the Net Weight was AI (3200) and the value contained is 000400, then the value is stored as 400 LBS., but if the AI is AI (3202) and the same value is contained, 000400, then the value is stored as 4 LBS. The rules are highlighted in Section 3 of the GS1 General Specification.

10 | Barcode Print Quality

Confirm the barcode is clear; old or worn print heads can produce distorted or smudged barcodes. Contrast between the printed barcode image and the background is important for scan-ability (printing on white background or labels is preferable). Barcodes that wrap around case corners or are wrinkled will not scan properly, glossy tape applied over barcode or other items obscuring the image may also create scan problems.

11 | Proper GS1-128 Human Readable Text

The human readable text on a barcode such as the date format, and Lot Code are different for different types of products. Confirm all human readable elements match what is encoded in barcode. Product type specific guidelines on the human readable text formatting can be found in the Getting Started with GS1-128 Barcodes document.

Implementing Best Practice GS1-128 Case Labels

Within the food industry several groups have defined best practice standards for labeling, including the Produce Traceability Initiative (PTI), Meat & Poultry Data Standards (mpXML) and Dairy/Deli/Bakery. These guidelines all utilize the GS1-128 barcode on cases to capture information about the product, lot, and other relevant data. In addition, many brand owners in foodservice and retail have defined required elements that must be included on labels. Private label and proprietary product manufacturers should always defer to the specific requirements of their customers first.

Encoding GTIN, Production Date, and Batch/Lot Number

(01)10847976100016(11)171226(10)ABC123

AI (01)10847976100016 denotes the GTIN
AI (11)171226 signifies a Production Date of December 26, 2017
AI (10) ABC123 denotes the Batch/Lot Number

Building Properly Formatted GS1-128 Barcodes

The standard barcode symbology for foodservice and retail food traceability is the GS1-128 barcode. A GS1-128 barcode can have up to 48 characters (alphanumeric) and is easily recognizable with the parenthesis used to indicate the application identifiers in the human readable text below the barcode. In a properly formatted GS1-128 barcode, the application identifiers (AI) precede the associated data and tell the scanning application what the data values indicate. Below is a listing of typically used AI's for foodservice with their associated length (note: not all of these AI's may not be required by your customers or even permitted):

Application Identifier	Format	Length
01 - Global Trade Item Number (GTIN)	Numeric	14 digits
10 – Batch/Lot Number	Alphanumeric	Variable length / up to 20 characters
11 - Production Date	YYMMDD	6 digits
13 - Packaging Date (Pack date)	YYMMDD	6 digits
15 - Best Before Date	YYMMDD	6 digits
16 - Sell By Date	YYMMDD	6 digits
17 - Expiration Date (Use By Date)	YYMMDD	6 digits
21 - Case Serial Number	Alphanumeric	Variable length / up to 20 characters
3202 - Net Weight in Pounds	Numeric	6 digits total, where the decimal is implied between the 4th and 5th position (e.g. 000500 = 5.00 lbs)

See Voluntary GS1-128 Barcode Guideline for Cases/Cartons in the Foodservice Industry for more commonly used AIs.

Manufacturers must consider AI field length as it relates to the 48-character limit for the GS1-128 barcode when choosing elements to include in the barcode. The two or four digit AI's count against the 48-character length limit but the parenthesis do not and are not actually encoded into the barcode. For example, since a GTIN takes up 16 positions (14 plus 2 digit AI) and the date uses 8 positions, a manufacturer has up to 22 characters remaining for the Lot Code (24 minus the 2 digit Lot Code AI). Best practice is to left justify all fixed length AI's (GTIN, dates) and then variable length (Batch/Lot).

In Summary

To ensure a successful implementation, work directly with your trading partners and solution providers to:
• Understand customer requirements and timelines
• Follow industry best practices and guidelines for GS1-128 labeling
• Apply standardized formats for attributes (i.e., YYMMDD for dates)
• Confirm human readable elements match what is encoded in the barcode
• Verify GS1-128 barcode scan-ability

References

GS1-128 Guideline for Foodservice

GS1-128 Implementation Milestones

GS1 General Specifications, Sections 3 and 5.4

GS1
US
Solution Partner

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