GS1 UK

The Global Language of Business

How to...

...barcode variable measure items

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A product whose price is dependent on a measurement which can constantly change can't be identified by a standard fixed measure Global Trade Item Number (GTIN). Instead we have a standard national structure across retail, which has its own reserved prefixes. These prefixes mean that systems can be programmed to pick out the information necessary to calculate the price at a consumer level, or measurement information at a traded level.

This guide will give you an overview into what should be identified using a variable measure barcode and how to do it. We'll cover both consumer and traded level items, finishing with some print and systems considerations for you.

These numbering structures are only valid in the UK as the price is encoded in sterling, however if you wish to trade outside of the UK, please contact us for advice.

Barcoding consumer level items

A variable measure retail trade item is defined as an item whose price is continuously dependent on a measurement, e.g. its weight. Products that are divided into measurement bands and priced in steps according to the band into which they fall are NOT included. In this case each band should be allocated a standard fixed measure GTIN. Products that are commonly sold by weight or measurement include fish, fruit, cheese, vegetables, deli goods, carpets, timber and fabrics.

There are two ways of identifying variable measure items:

Branded variable measure items

Manufacturers can identify variable measure items for sale in the UK by using a barcode number starting with the GS1 prefix 20, which can be licensed from us, additional to your membership. You can order these from **www.gs1uk.org/additional-numbers.**

The number is formatted as follows:

Branded Variable	Item reference	Price Verifier	Price in sterling	Check digit
20XXX	XX	V	PPPP	C

Once you have your prefix from us, the item reference is allocated by you and specific for that type of product i.e. a whole chicken or block of cheese. If the item is to be sold at different unit prices, a new reference should be allocated for each separate agreed unit price. For example: Retailer X sells the cheese at £1.49 per lb, but Retailer Y at £1.59 per lb.

The price verifier is calculated using the four price digits, according to a special algorithm. The item price is calculated from the specific measurement and the unit price of that measurement and is expressed in sterling ££pp. The check digit is calculated in the normal way.

Variable measure numbers with prefix 20 may only be constructed to this format and must never be used to identify fixed measure items. These numbers are always represented in EAN-13 barcodes.

UK in-store variable measure items

This way of identifying items should only be used in a closed environment, such as a particular retail chain and not across multiple retailers to ensure they are unique and unambiguous. This closed system allows the retailer to allocate, and reallocate, the numbers when necessary according to the need of their stock range, giving a greater flexibility.

The number is formatted as follows:

Internal item reference	Price verifier	Price in sterling	Check digit
02XXX	XX	PPPPP	C

As previously, the item reference is allocated by the retailer and the price verifier calculated using the item price digits, with the exception that it is using five digits, rather than the four in branded format. The check digit is calculated as normal. Examples of this way of identifying items include products requested at a deli counter or carpet cut to size in-store.

Barcoding traded level items

Traded level items as those not crossing the retail point of sale, but instead are items sold and distributed between trading partners, for example items ordered in bulk later to be sold by measure such as a kilo of vegetables or a length of cable etc.

These items must be identified using a GS1-128 barcode, rather than the GTIN-13 or 14. Here is an example of how they should be.

Within the GS1-128, the product identification number is a unique GTIN-14 starting with an indicator digit of 9 (reserved for identifying variable measure items). The GTIN must be prefixed by the Application Identifier 01.

Application Identifier	Indicator digit	GS1 Company Prefix	Item reference	Check digit	Application Identifier (AI)	Measure
01	9	5012345	00002	5	3102	001156

In this example the variable measure GTIN is 95012345000025 and the net weight in kilograms of the item is 11.56kg (represented by the application identifier 310N, where N shows the decimal position within the measurement field).

More details on the GS1-128 barcode can be found in the GS1 General Specifications, available at **www.gs1uk.org/standards**.

Points to remember

The indicator digit of 9 must prompt systems to retrieve the measurement values held in the barcode

- 14-digit variable measure identification numbers not crossing the retail point of sale must be held as 14 digit numbers in the database. The 9 is an integral part of the number and must not be removed
- Variable measure Application Identifiers (except the ones for quantity) are normally four digits in length, with the fourth digit being the decimal point indicator
- The measurement Application Identifiers contain an indication of the decimal point position which must be inserted into the number when held in a database
- All variable measure items crossing the retail point of sale begin with 20and 02. When scanned, the price should be retrieved from the barcode and charged to the customer

The full specifications for numbering and symbol marking weight trade items are contained in the GS1 General Specifications, available at **www.gs1uk.org/standards**.

Print considerations

Retail variable weight numbers are shown in EAN-13 barcodes. Non-retail items must be barcoded with GS1-128 barcodes that can encode the additional information required. A summary of print requirements for both symbols can be found below for your information.

	EAN-8, EAN-13. UPC-E and UPC-A	GS1-128
Consumer unit	✓	✖
Traded unit	✓ (except UPC-E and EAN-8)	✓
Traded unit with short shelf life	✖	✓
Number of barcodes on consumer unit	1	
Number of barcodes on traded unit	2 [1]	1
Range of X-dimension sizes	0.264 mm to 0.66 mm [2]	0.495 mm to 1.016 mm
Magnification range	80% to 200% [3]	48.7% to 100%
Target size for consumer units (X-dimension in mm)	100% (0.33 mm)	
Target size for traded units (X-dimension in mm)	150% (0.495 mm)	48.7% (0.495 mm)
Target bar height for 100% sized EAN/UPC symbols	For EAN-13, UPC-A and UPC-E, 23 mm. For EAN-8, 18.5 mm	
Absolute minimum bar height for consumer units [4]	16 mm	
Minimum bar height for traded units	32 mm	32 mm
Bearer bar	✖	✓
Optical Quiet Zone indicators [5]	✓	✓
Minimum verification grade	C	C

[1] A minimum of one EAN/UPC symbol is required when the traded unit is also a customer unit.
[2] A minimum X-dimension of 0.25 mm is allowed for on-demand barcode production.
[3] A minimum magnification of 75.8% is allowed for on-demand barcode production.
[4] Any shortening in the height of the barcodes may cause problems and might be unacceptable outside the UK.
[5] Quiet Zone indicators are not formally required but they may be used to provide a visual indication of the space required to the left and right of each symbol.

Additional support

Further information can be found at **www.gs1uk.org/standards**
Our Member Support Team can also help you with any query.

Contact us

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J336835 - 08/16