



GS1 Identification Key Series - GTIN (Global Trade Item Number)

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1. Definition of a GTIN

'The GS1 Identification Key used to identify trade items. The key is comprised of a GS1 or U.P.C. Company Prefix followed by an Item Reference Number and a Check Digit.'

Global Trade Item Number (GTIN) is one of the main building blocks of the GS1 System and is used to uniquely identify trade items, which are products and services that are priced, ordered or invoiced at any point in the supply chain.

In simple terms this means things that are made or offered to be sold and would appear on a price list.

The GTIN is a unique identification key that can be used globally to identify the item. This could be at the checkout, in a warehouse or in an electronic catalogue. It may be produced as a GS1 bar code, or held in a GS1 EPC tag or used in a database or transmitted in an electronic message.

The function of a GTIN is to provide an identification point which can be used to retrieve information held in a database associated with the trade item the GTIN identifies – this is known as master data.

See below for links to more detailed information as to the specifics on the application and use of the GTIN.

1.1. Key GTIN attributes

The GTIN will identify an item **uniquely** thus ensuring that it is always identified correctly anywhere in the world. Each trade item that is different from another is allocated a separate, unique GTIN. The GTIN itself has no meaning and this allows the item to be **looked-up** in a database and its associated information retrieved at any point or location. GTINs will work in any business sector and across business sectors. For example healthcare items being sold in a retailer's pharmacy or through a Healthcare supply chain.

GTIN enables items to be sourced and traded globally in the knowledge that they can be scanned and data retrieved for them in any application that is GS1 compliant. If you are a retailer or manufacturer then this is a vital component of your business and will be or has already become an integral part of all your business systems. Other industries such as Healthcare are rapidly adopting GTIN to help reap the rewards seen in the Fast Moving Consumer Goods (FMCG) sector.



1.2. Benefits of using GTIN

- GTIN is already established as the standard in every country for trade items
- Allows companies to trade goods and services knowing that the identification will be compatible
- Uniquely identifies each level of packaging at that are traded
- Facilitates accurate scanning at checkout, warehouse or hospital
- Essential for accurate stock control and order replenishment
- Drives electronic communications systems like EDI, across trading partners
- Identifies trade items for data exchange between trading partners as a required component of a GDSN (Global Data Synchronisation Network)
- Is the building block for all GS1 Systems for global trade

- Ability to add additional information such as date codes, weight, batch numbers etc
- **PROVIDES ACCURACY, SPEED AND EFFICIENCY FOR YOUR BUSINESS**

1.3. GTIN Structure

GTIN's are usually composed of a GS1 Company Prefix, an Item Reference number and a Check Digit. There are four versions,

GTIN-8: Seven digits containing a GS1-8 prefix, an Item Reference plus a Check Digit. Ideal for small items like make-up where print space is at a premium

GTIN-12: Eleven digits containing a U.P.C Company Prefix, your Item Reference number plus a Check Digit. Ideal for all standard items

GTIN-13: Twelve digits containing a GS1 Company Prefix, your Item Reference number plus a Check Digit. Ideal for all standard items

GTIN-14: For use on items that will not be sold at the checkout and contain items that are themselves identified with a GTIN-8, GTIN-12 or GTIN-13 (e.g., a case of items).

Global Trade Item Number (GTIN-13 Structure)												
GS1 Company Prefix						Item Reference						Check Digit
N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃

- | | |
|--------------------------------------|---|
| GS1 Company Prefix | A globally unique number assigned to a GS1 member company |
| Item Reference number | The number assigned by a member company to the trade item |
| Check Digit
data integrity | A modulo-10 number calculated across the preceding digits to ensure |



Note: For items that are *intended for the checkout* in a retail outlet, one of the following three options must be used GTIN-8, GTIN-12 or GTIN-13.

Example: GTIN-13 in an EAN-13 bar code



Important: From January 2010 GS1 DataBar will be available for items that are intended for the checkout in a retail outlet.

Items *not intended for retail sale* (cases and pallets of product), may use the above or alternatively may use GTIN-14 and may be encoded in ITF-14, GS1-128, GS1DataBar, or GS1 DataMatrix bar codes, and EPC RFID tags.



This example shows a GTIN with additional information added by the use of GS1 Application Identifiers. This example includes GTIN, Expiration date and Lot code.

For further information on GS1 Application Identifiers please contact your local GS1 Member Organisation.

2. GTIN Applications

GTINs are used in all areas of modern business. They provide a quick way to identify an item which then can be looked up in a database and their use recorded. The look-up may typically be to get a price, record a sale, confirm a delivery or to identify an order.

The following are typical uses of GTIN in business applications. They are just a few of the most common uses but show how GTIN when combined with GS1 standards has become an integral part of modern business applications:

2.1. At a Retail outlet in a GS1 BarCode or EPC tag

- On retail items for checkout scanning operations
 - GTIN identified by scanner for price look-up to ensure customer charged correctly
 - Record of sale of product taken and inventory updated for re-ordering
 - GTIN allows control of Shelf Edge Labelling change management
 - An item will get a new GTIN when key shelf edge label information for customer changes
- In a store when moving stock from backroom to display area
 - Using GTIN in an EPC tag allows tracking of items around the store

2.2. At a Warehouse in a GS1 BarCode or EPC tag

- On pallets at a warehouse goods-in bay
 - GTIN scanned to confirm orders received
- On cases being picked in a warehouse
 - Scanning GTIN to confirm correct product picked
- On cases or pallets being conveyed or moved in a warehouse

2.3. At a Hospital in a GS1 BarCode or EPC tag

- On consumable items at point of use in hospitals
 - GTIN identified by scanner to assign use of item to patient and record stock use
 - May drive patient charging and treatment history
 - Updated stock-management
 - Item stocks can be held at GTIN level for re-ordering

2.4. In an electronic message

- From checkout scanner to back office for price look up
- From back office in store or hospital to central ordering system
- From central ordering system to supplier
 - For orders
 - For forecasting
 - For pricing
 - For delivery schedule

- From supplier to customer, at each stage the GTIN will identify the correct item
 - For order confirmation
 - For forecasting
 - For delivery information
 - For delivery confirmation
 - For payment

- In a global product catalogue
 - For new product selection
 - For transmitting product or price changes
 - For managing re-merchandising systems

3. Useful further information

3.1. GS1 Member Organisations

Your local GS1 Member Organisation is the ideal contact for information on the benefits that GTIN can deliver to your business. In addition they will be able to provide you with further information on all of GS1 standards. Full details can be found on: <http://www.gs1.org/contact/worldwide.php>

3.1.1. GS1 Global Office

- Further information on all GS1 standards is available on the GS1 Global site: <http://www.gs1.org/>
- The GTIN Allocation Rules Where you can find all the details about how GTIN can work in your business and when the number should change: <http://www.gs1.org/gtinrules/>
- A step by step guide useful to users who wish to allocate GTIN and associated bar codes for the first time: <http://www.gs1.org/productssolutions/barcodes/implementation/>
- Where you can search by GTIN to find the origin of the number: <http://directory.gs1.org/>
- GS1 on line training is available via GS1 Learn is the area where you can learn on-line how GTIN and all other areas of the GS1 system work: <http://learn.gs1.org/portal3/index.asp>