

GS1 BARCODES IMPLEMENTATION GUIDE



This document offers barcode designers and solution providers information on designing and incorporating GS1 barcode (EAN symbology) on the product so that it scans properly.



GTIN

Ensure that the GTIN (Global Trade Item Number) is correctly assigned to your product in DataKart.



Barcode Size

The following size guidelines should be kept in mind while designing barcodes for a SKU (primary unit). Barcodes that do not adhere to these size ranges will not scan properly.

Barcode Size	Magnification Factor	EAN-13 (In mm)		Quite Zones-light Margins (In mm)	
		Width (with quite zone)	Height	Left	Right
Minimum	0.80	29.83	20.73	2.90	1.85
Ideal	1.00	37.29	25.91	3.63	2.31
Maximum	2.00	74.58	51.82	7.26	4.62

Note:

1. The size of the thinnest bar or X-dimension should be kept between 0.264 and 0.66 mm.
2. Barcode size may be selected based on the space available in the packaging design.



Height

Reducing the height of the barcode image beyond the specified minimum size (to make it fit the package design) is not recommended as it causes scanning problems.



Colour

It is vital that the colour of the barcode and its background are recognised by scanners. Dark bars on a light background is essential for efficient scanning.



Print barcode

Once your barcode has the correct size, height and colour, it is important to ensure that it is not smudged or blurred while printing. It must show crisp, clear and well-defined bars. Imperfections in the barcode will confuse scanners.

Print contrast

Higher the contrast between the bars and its background, better will be the scan rate. If you are using a



material,
colour of

background to the barcode. Print an opaque

(white or light coloured) barcode background to avoid scanning errors.



transparent or semi-transparent packaging do not rely on the the content to provide

Quiet Zones

To read a barcode correctly, a scanner must be able to clearly read its start and end points. Areas to the left and right of every barcode (called quiet zones) must be kept clear of obstructions to avoid scanning difficulties.



(X = Nominal Bandwidth or width of the thinnest bar/ space)

Spectral reflectance

Spectral reflectance refers to the light-reflecting property of the packaging material on which the barcode is printed. If the surface is shiny and reflects too much light, it will make scanning less efficient. It is advisable to use low reflectance inks to print the barcode and its background.



Location & Orientation

Some thought must also be given to the placement of barcode on a product. GS1 has a set of recommendations, however, the product must be considered in its final form before the barcode can be applied. Seams, seals, additional labels, corners, overlapping materials, etc., can infringe

on a barcode, making it illegible to scanners. Few recommendations on barcode placements are:

- **Definite-shaped products:** Place barcodes on lower right corner on the rear of the package. The barcode should be on a flat surface with picket fence orientation.
- **Cylindrical products:** Barcodes should be placed close to the natural base of the product. It should be in ladder orientation with a human-readable number on the left.
- **Pouches:** Place barcodes on the flattest surface on the rear of the pouch, as close to the centre as possible. Picket fence orientation is ideal.



Correct placement of barcodes on products will help consumers and retail counter (PoS) staff to locate it quickly.

In particular, ensure that the GS1 barcode is not...

- **Hidden under flaps.**
- **Overlaid by folds of transparent packaging material (shrink wraps).**
 - **Bent awkwardly in a flexible package after the product is filled.**
- **Crumpled, disoriented or rendered invisible to scanner in any way.**

Refer *Chapter Six* of the [GS1 General Specifications Guide](#) for more information.

Verification Ensures Barcode Scannability

Once the barcode is designed, it is essential that it scans efficiently. Verification of a barcode will ensure this. Therefore, before submitting the final packaging artwork design to clients (manufacturers), solution providers or barcode designers must obtain a 'pass' Barcode Verification Report from GS1 India. This report ensures that the recommended GS1 standards are followed and the barcode will scan successfully in various scanning environments.

Verification of barcode should be done at the artwork stage before bulk printing of packaging material or labels. This will help you avoid reprinting cost to rectify mistakes or rejection of large quantities of printed packaging material.

Note: Scanning at your end does not equal verification. It is entirely possible that a barcode that you can scan successfully in your premises does not scan at the retailer's or buyer's end. This happens because there are hundreds of different kinds of scanners, which may yield conflicting results.

Barcode Design & Verification Services

GS1 India offers [Barcode Design and Barcode Verification](#) Services at a nominal fee.

- The Barcode Design Service helps with designing the barcode image as per GS1 guidelines.
- As part of the Verification Service a complete diagnostics on a barcode artwork image is performed to ensure it complies with ISO/GS1 specifications and scans efficiently with any type of barcode scanner in a variety of scanning environments.

Visit <http://www.gs1india.org/service/barcodeverification> for more information or write to us at implementation@gs1india.org

Support

For assistance with your barcode implementation you can contact our Implementation Team between 10:00 am and 6:00 pm, Monday to Friday

Regions	Name	Phone Number	Email
North & East	Amrit Garg	(011) 42890818	implementation@gs1india.org
West	Shweta Vichare	(022) 62847412	shweta@gs1india.org
South	Vipin Nair	(080) 23305553	vnair@gs1india.org

If your query remains unresolved for more than 5 working days, you may escalate your concern to the following officers:

Escalation	Region	Name	Mobile	Email
Level 1	All Regions	Nitesh Aggarwal	09990098335	nitesh@gs1india.org
Level 2	All Regions	Bijoy Peter	09999210702	bijoy@gs1india.org