EAN-13 barcode
Fact Sheet

The EAN-13 barcode is used to encode a GTIN-13 and can be scanned in both retail Point-of-Sale (POS) and General Distribution scanning environment.

Figure 1: EAN-13 barcode at nominal size (100%)

Note: Figure is not to scale. Measurements are in millimetres.

Magnification (X-dimension)

The x-dimension is the specified width of the narrowest element of a barcode. The element refers to the barcode's bars and spaces. The x-dimension is not a set size, and instead can range between a minimum and maximum value, and a target x-dimension.

The specified magnification (X-dimension) range for an EAN-13 barcode is:
- Retail POS: 80% - 200% (X-dimension 0.264mm - 0.660mm).
- General Distribution: 150% - 200% (X-dimension 0.495mm – 0.660mm). (Automated scanning)

The target x-dimension for an EAN-13 barcode is:
- Retail POS: 0.330mm
- General Distribution: 0.660mm

These barcodes may only be printed using magnification below 80% (X-dimension below 0.26mm) under the following conditions:

- The allowance for X-dimensions between 0.249 mm and 0.264 mm is only applicable to on demand (e.g., thermal, laser) print processes. For all other printing processes, an X-dimension of 0.264 millimetre (magnification of 80%) is attainable and is the minimum allowable size.

When printing a minimum symbol with any method of printing, the area provided for printing the symbol and the required Quiet Zone SHOULD never be less than the area required for an X-dimension of 0.26 mm (or magnification of 80%).

Human Readable Interpretation

The Human Readable Interpretation should be printed beneath the barcode and must show all the digits encoded in the barcode.

The recommended typeface for the Human Readable Interpretation is a monospaced font type, such as OCR-B, Sans serif or Arial. Bold, italics, light or narrow versions of a font SHOULD NOT be used.

Symbol Height

The dark bars forming the left, centre and right guard bar patterns shall be extended downward by 5X (e.g., 1.65mm at X-dimension 0.33mm). See Table 1 for height of bars at various X-dimensions.

Currently the retail industry is undergoing a worldwide transition to next generation 2D barcodes. For more information please refer to - https://www.gs1au.org/standards/2d-barcodes

Table 1: EAN-13 barcode dimensions

Magnification	X-dimension	Width	Bar Height	Left Quiet Zone	Right Quiet Zone
80%	0.26	25.08	18.28	2.90	1.85
85%	0.28	26.65	19.42	3.09	1.96
90%	0.30	28.22	20.57	3.27	2.08
95%	0.31	29.78	21.71	3.45	2.19
100%	0.33	31.35	22.85	3.63	2.31
105%	0.35	32.92	23.99	3.81	2.43
110%	0.36	34.49	25.14	3.99	2.54
115%	0.38	36.05	26.28	4.17	2.66
120%	0.40	37.62	27.42	4.36	2.77
125%	0.41	39.19	28.56	4.54	2.89
130%	0.43	40.76	29.71	4.72	3.00
135%	0.45	42.32	30.85	4.90	3.12
140%	0.46	43.89	31.99	5.08	3.23
145%	0.48	45.46	33.13	5.26	3.35
150%	0.50	47.03	34.28	5.45	3.47
155%	0.51	48.59	35.42	5.63	3.58
160%	0.53	50.16	36.56	5.81	3.70
165%	0.54	51.73	37.70	5.99	3.81
170%	0.56	53.30	38.85	6.17	3.93
175%	0.58	54.86	39.99	6.35	4.04
180%	0.59	56.43	41.13	6.53	4.16
185%	0.61	58.00	42.27	6.72	4.27
190%	0.63	59.57	43.42	6.90	4.39
195%	0.64	61.13	44.56	7.08	4.50
200%	0.66	62.70	45.70	7.26	4.62

Notes:

- Width = width of barcode excluding Quiet Zones.
- Bar Height = bar height excluding guard bar patterns.
- To allow for possible ink spread, allow slightly more than the minimum required Quiet Zone.

  All measurements are in millimetres.