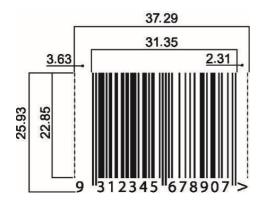# EAN-13 barcode

Fact Sheet

The EAN-13 barcode is used to encode a GTIN-13 and can be scanned in both a retail Point-of-Sale (POS) and a 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 specified magnification (X-dimension) range for an EAN-13 barcode is:

- Retail POS: 80% - 200% (X-dimension 0.26mm - 0.66mm).
- General Distribution: 150% - 200% (X-dimension 0.50mm – 0.66mm). (automated scanning)

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 0.26 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 OCR-B at a height of 2.75mm at nominal size (100% magnification, X-dimension 0.33mm). This typeface is a recommendation only and alternative type fonts and character sizes are acceptable provided the digits are clearly legible.

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.

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.