Partner Hub
WOOLWORTHS GROUP

# Reference Guide: GS1 DataMatrix

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**What is a GS1 DataMatrix?** GS1 DataMatrix barcode symbol is a two-dimensional (2D) matrix barcode, consisting of black and white “cells” or modules that can be arranged in a square or rectangular matrix Allowing the printing of variable information in a barcode data carrier, at high production rates.

## GS1 DataMatrix


Human Readable GTIN printed with the GS1 DataMatrix including AI (01)

**What Application Identifiers (AI’s) are needed in the GS1 DataMatrix barcode**

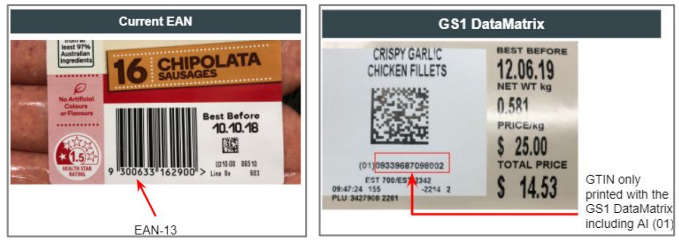
| Embedded Data | (AI) | Mandatory / Optional |
|---|---|---|
| GTIN | (01) | M |
| Sell Price | (3922) | M |
| Actual Weight (kg) | (3103) | M |
| Use by Date<br>Best Before Date | (17)<br>(15) | M |
| Batch/Lot ID # | (10) | O |
| Serial Number | (21) | O |

## Variable Weights


**Note:** A new GTIN is required for each variable weight article, as the price will no longer be part of the VMN.

**Important!** Transition from Price Embedded Variable Measure Number (VMN) barcode numbers to GTIN

## Fixed Weight




**Fixed weight articles** do not require a new GTIN as the current GTIN can be used on GS1 DataMatrix barcode. GS1 DataMatrix uses Application Identifiers, AI (01) needs to be added, and it uses 14 digits. Therefore a GTIN-13 is preceded by a leading ”0”

In the above example:
Current GTIN-13 is 9300633162900
DataMatrix GTIN will be **(01)0**9300633162900

***Specifications:***

Barcode size: **22 rows and 22 columns** with a target **X-Dimension >0.625mm (0.0246in)** but less than <0.8mm (0.0315in)**.**
Printing Quality: **ISO Symbol Grade: 4.0 /A.** Dark symbology on a light background (white provides the highest contrast) for optimal results printers should be **203-dpi or greater**.

GS1 Specifications can be found - https://www.gs1.org/sites/default/files/docs/barcodes/GS1_General_Specifications.pdf - Figure 5.10.3.1-1. GS1 symbol specification table 1 page 332.

- It is mandatory to print the GTIN underneath the barcode in the human readable interpretation. This enables manual processing of the GTIN at POS when the barcode is not readable.
- **Do not encode the brackets** around the Application Identifiers in the GS1 DataMatrix. The Application Identifiers should only be between brackets in the human readable text underneath the barcode.

For more information to please contact GS1 Australia at ce.retail@gs1au.org

**Handy Tip!** **GS1 DataMatrix** is not the same as ‘plain’ DataMatrix; with the difference being the control character Function 1 (FNC1) embedded at the start of the data string. The decoder then generates a symbol identifier **]d2** to identify it as GS1 DataMatrix.

# Reference Guide: GS1 DataMatrix & Other Considerations

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## Additional Information

| | |
|---|---|
| A GS1 DataMatrix is not the same barcode as a DataMatrix, which is not a GS1 symbology. | ○ **Correct:** GS1 DataMatrix (FNC1 - control character: **]d2**)<br>○ Incorrect: Datamatrix |
| A GTIN-13 (= Global Trade Item Number) is not a number starting with a 2 or 02. A GTIN contains the GS1 company prefix of the brand owner. | ○ **Correct:** 9300633162900 with 9300633 as the GS1 Company prefix<br>○ Incorrect: 2862501010005 |
| AI (01) must be followed by 14 digits. A GTIN-13 must therefore be preceded by a meaningless zero. | ○ **Correct:** (01)**0**9300633162900<br>○ Incorrect: (01)9300633162900 |
| A GTIN-14 starting with indicator 9 can only be used for variable measure outer packages that are not scanned at POS. A GTIN-13 encoded after AI (01) must be preceded by a meaningless 0. | ○ **Correct:** **0**9300633162900<br>○ Incorrect: 99300633162903 |
| At the end of **any variable length AI** where the content of the AI is shorter than the maximum length a control character **<GS>** is required unless this is the last AI in the data string. In the case of Sell Price AI 3922, this AI can hold up to 15 characters and is populated with 6 characters therefore would need a control character. | ○ **Correct:** ]d2010933968709800239220012101<GS>151905293103000484<br>○ Incorrect: ]d0109339687098002392200121015190529310300048 4 |

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# Reference Guide: GS1 DataMatrix & Other Specifications

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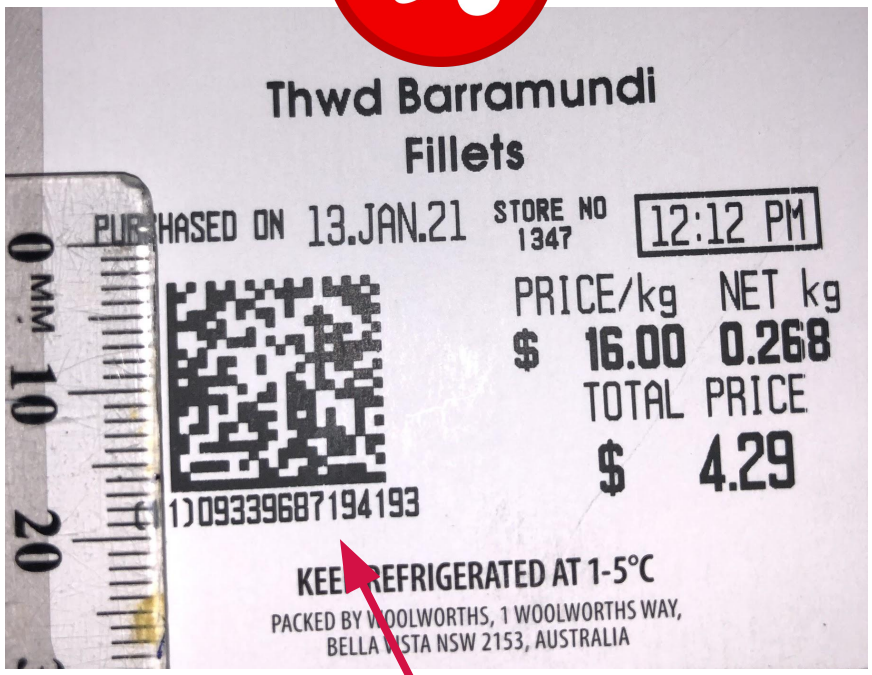
## Additional Information


Minimum **Quiet Zone** (white space) around the barcode **>1.3mm**




Incorrect no **Quiet Zone** (white space) around the barcode

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**Handy Tip!**

- **Min Print Area** required for a GS1 DataMatrix barcode and the Human Readable GTIN is **30 mm square.**
- Dark symbology on a **light background** (**white provides the highest contrast**).
- Barcode should be printed and applied on a even flat surfaces in the pack avoiding wrinkles, edges or crests.

# Reference Guide: GS1 DataMatrix - FAQs

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## Frequently Asked Questions

| | |
|---|---|
| Can I use any printer with GS1 DataMatrix barcodes? | So long as you can achieve the require ISO Grade 4.0 / A yes. For optimal results printers should be **203 dpi or greater.** |
| Can I use my phone to check if GS1 DataMatrix scans? | There are Apps available to check the content of the barcode, however these Apps aren't a true representation of verification, there is a minimum ISO standard which can be checked through a certified verifier. |
| Can we use QR Codes? | Woolworths has not enabled the use of QR Codes at Point of Sale yet. Other carriers may be enabled in the medium to long term based on the roadmap of implementation of Data Embedded Barcodes for on-pack coding. |
| Why GS1 DataMatrix barcodes instead of QR Codes? | Both GS1 DataMatrix and QR Codes are two-dimensional (2D) matrix barcodes, consisting of black and white "cells" or modules that can be arranged in a square matrix allowing the printing of variable information in a barcode data carrier. QR Codes are primarily used for connecting to URL sites and not for Point-Of-Sale currently. |
| What are the benefits for suppliers of using GS1 DataMatrix barcodes? | GS1 DataMatrix barcodes provide the ability to embed additional information about the article such as expiration date, batch/lot identification, serial number, among other attributes. In the event of a recall/withdrawal, Suppliers can benefit from a more targeted recall/withdrawal due to the extra level of traceability the GS1 DataMatrix barcode provides. Other benefits from Suppliers is an extra level of verification / QA as it may provide additional information in your production environment. |
| What if our labels have pre-printed barcodes? | That's ok. We will work with you to plan changes to the packaging artwork and trade through existing labels or packaging with pre-printed barcodes before changing over to GS1 DataMatrix. |
| What if we supply proprietary products to other retailers that can't use GS1 DataMatrix barcodes? | That's ok. We are working with all relevant Industries to agree on the standard for the transition of current barcodes to GS1 DataMatrix barcodes. We will work with you to plan changes on a case-by-case basis. |

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