

# Barcoding letters fact sheet

Barcoding is an important part of Australia Post's strategy to improve services to customers mailing bulk quantities of letters.

## What is a barcode?

A barcode is a machine readable representation of information, usually printed as parallel lines. A barcode can be read by barcode readers or scanners and improves the speed and accuracy of data capture and processing, and also speeds up the processing and sorting of mail for delivery within Australia.

The barcode used by Australia Post is called a 4-state barcode.

## Barcoding provides the following benefits:

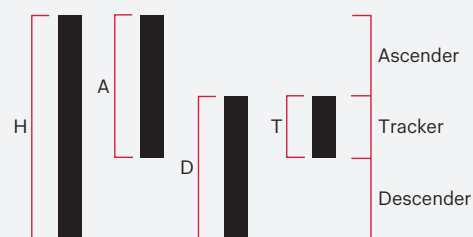
- **Simplified pre-sorting requirements.**
- **Enhanced service.** Barcodes can be read faster and more accurately than address text. This improves sorting efficiency.
- **Greater addressing flexibility.** Using barcodes, the range of fonts and envelope layouts is enhanced.
- **Simplified pricing structure.** The efficiencies created by barcoding means cost reductions can be passed on to customers.

## To take advantage of barcoding, customers need to:

- Review (and modify if necessary) their customer database on a regular basis to accommodate the eight digit Delivery Point Identifier (DPID).
- Validate their customer database against Australia Post's Postal Address File (PAF), using approved address-matching and correction software (AMAS). This software appends the correct DPID.
- Print the barcode using AMAS or alternative barcode printing software.

## Four states

The barcode used by Australia Post is called a 4-state barcode. It comprises four types of bars (states), each of which is identified by both a name and a value.



Each bar comprises a "tracker" (middle section), to which an "ascender" (top section) and/or "descender" (bottom section) may be added.

This creates four possible bar states:

- Tracker with ascender and descender (H) (value: 0)
- Tracker with ascender (A) (value: 1)
- Tracker with descender (D) (value: 2)
- Tracker on its own (T) (value: 3)

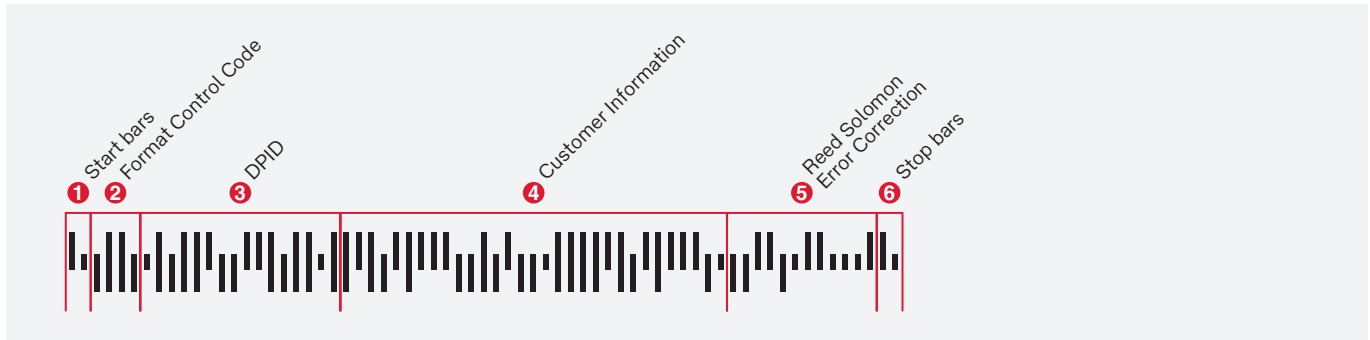
## Barcodes and bulk mail services

The table at right lists the bulk mail service and where a barcode is required for discounted postage rates.

Required	Optional	Not required
<ul style="list-style-type: none"> <li>• PreSort Letters</li> <li>• Charity Mail</li> <li>• Promo Post</li> <li>• Reply Paid</li> </ul>	<ul style="list-style-type: none"> <li>• Print Post</li> </ul>	<ul style="list-style-type: none"> <li>• Unaddressed Mail</li> </ul>

## Barcode components

Within a barcode, the bars are separated into six fields.



- Start bars:** are the first two bars in the barcode. These bars assist the barcode reader to identify the start of the barcode and always contain the bar values of 1 and 3. They ensure that the beginning of the barcode can never be mistaken, even when the barcode is upside down.
- Format Control Code (FCC):** is a two digit number that identifies the type of barcode and always comprises four bars. Invalid FCCs cause mail articles to be rejected.

FCC value	Description	Barcode length
00	Null Customer Barcode	37, 52 or 67 bars
11	Standard Customer Barcode	37 bars
59	Customer Barcode 2	52 bars
62	Customer Barcode 3	67 bars

- Delivery Point Identifier (DPID):** is an eight digit number that uniquely identifies a physical point to which Australia Post delivers mail. The point can be the letterbox of a house, a PO Box, a Rural Mailbag or other delivery point. Each delivery point in Australia is allocated a unique DPID. The DPID field comprises 16 bars in the barcode.
- Customer information:** This field is a section in the barcode reserved for customers to store their own information. It is only available in the 52 and 67 length barcodes. Bars can be coded by either of the two Encoding Tables, or customers can encode these bars themselves using their own proprietary techniques. Customer information can occupy 16 bars in the 52 length barcode, or 31 bars in the 67 length barcode.
- Reed Solomon Error Correction:** The field performs a backup or quality control function for the barcode. The bars enable the barcode to be resistant to errors or erasures caused by faulty printing, too much reflectance on window panels or smudging. There are always 12 of these bars in the barcode.
- Stop bars:** are the last two bars in the barcode. These bars assist the barcode reader to identify the end of the barcode and always contain the bar values of 1 and 3. Like Start bars, the Stop bars ensure that the bar is read correctly, even when the barcode is upside down.

## Printing the barcode

The 4-state barcode must be printed within certain specifications to ensure that the barcode can be read and processed efficiently by Australia Post's sorting equipment.

The barcode print requirements are:

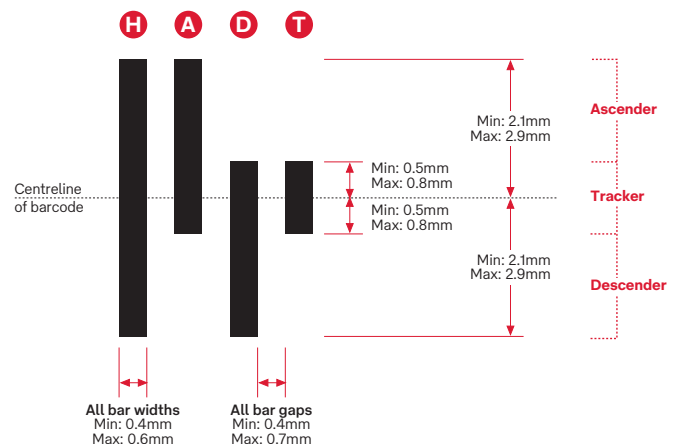
### Barcode length

When printed, each 4-state barcode has a minimum and maximum size it must comply with to ensure efficient reading of the barcode and processing of the mail article, as outlined below:

Barcode	Minimum – maximum length
37	Min. 37.0mm – Max. 42.2mm
52	Min. 52.2mm – Max. 59.5mm
67	Min. 67.5mm – Max. 76.8mm

### Bar dimensions

The individual bars and spaces within the barcode have their own minimum and maximum measurements. These are important because any major variations can cause the sorting equipment to reject the mail article. Each bar has a minimum and maximum height.



Bar type	Minimum height	Maximum height
T (Tracker on its own)	1.0 mm	1.6 mm
A (Tracker with ascender)	2.6 mm	3.7 mm
D (Tracker with descender)	2.6 mm	3.7 mm
H (Tracker with ascender and descender)	4.2 mm	5.8 mm

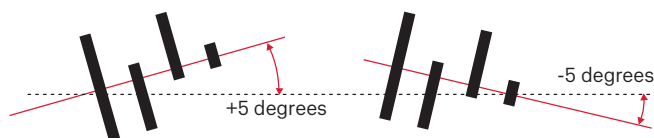
As well as the height of each bar, the width and gap also have a minimum and maximum size:

	Minimum width	Maximum width
Bar gap (the distance between each bar)	0.4 mm	0.7 mm
Bar width (the width of the individual bars)	0.4 mm	0.6 mm

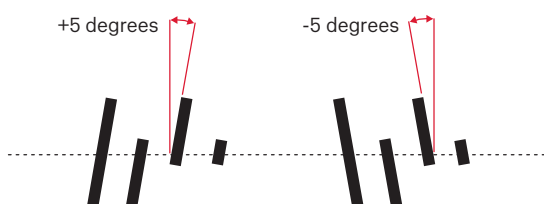
### Barcode "Skew"

Occasionally a barcode may not be printed straight ("skewed"). This can happen if the mail article was not lined up correctly when moving through the printer or it shifted during the print process. A certain amount of skew ("tolerance") is allowed, as the sorting equipment is still able to read slightly skewed barcodes without causing any processing issues. There are two types of skew:

**Code skew** – refers to the skew of the whole barcode in relation to the bottom edge of the mail article. A code skew of +/- 5 degrees is acceptable.



**Bar skew** – refers to the skew of individual bars within the barcode. A bar skew of +/- 5 degrees is acceptable.



If a barcode is skewed both ways (code and bar), the combined skew must be less than 5 degrees.

### Reflectance

"Reflectance" is the degree to which light reflects from a surface. Since the colour of the envelope, patterns in the envelope and colour of ink used to print the barcode can affect machine reading of the barcode, the reflectance of the barcode needs to be within a specific range. Barcode reader devices are sensitive to the reflectance of the following:

- the printed barcode
- the space around the barcode
- the window material through which barcodes are scanned, when a window face envelope is used.

### Spectral range

Barcode reader devices operate within the spectral range of 400 to 650 nanometers. Within this range, the following measurements must be met:

- maximum bar reflectance (Rb) is 25 per cent
- minimum space reflectance (Rs) is 50 per cent

The reflectance difference (MRD) must be greater than 50 per cent, where MRD is defined as follows:

$$\text{MRD} = R_s - R_b > 50 \text{ per cent}$$

The Print Contrast Signal (PCS) must be greater than 0.75 where PCS is defined as follows:

$$\text{PCS} = (R_s - R_b) / R_s > 0.75$$

### Opacity of the substrate

The material on which the barcode is printed (the "substrate") must be opaque, to prevent unwanted information showing through and obscuring the barcode. This requirement is met if the MRD is at least 50 per cent when the material is backed with a black surface having a reflectance below 5 per cent.

### Quiet Zone

The Quiet Zone refers to the area around the printed barcode. This area needs to be kept clear to ensure that the barcode can be detected by the reader and processed correctly. If there is any "noise", such as other printing, patterns and textures, this may affect the ability of the barcode to be scanned.

There is a minimum requirement of Quiet Zone around the barcode:

- 2mm above and below the barcode
- 6mm on the left and right of the barcode.



### For more information

The information in this fact sheet is a summary only. If you would like more information about barcoding letters:

- contact your Account Manager
- email [bulkmailproducts@auspost.com.au](mailto:bulkmailproducts@auspost.com.au)
- go to [auspost.com.au/bulkmail](https://auspost.com.au/bulkmail)
- call **13 11 18**

Although every effort has been made to ensure the accuracy of the contents of this Fact Sheet at the time of publication, information is updated from time to time and may be subject to change.

