

Help! – my barcodes are hard to read

This Self Help sheet assumes that your Barcode Scanner is working, but not very well. This type of problem usually occurs suddenly, when something has changed.

New Barcode Scanner

If you suspect a new Barcode Scanner, take a few minutes to experiment with the Scanner. It might be designed to read barcodes at a greater or lesser distance than your other Scanners, or the beam alignment might be different to what you are expecting. Perhaps the new Scanner is more sensitive to strong ambient light, requiring an adjustment to your scan angle. Even if the new Scanner is of the same type as your existing Scanners, be aware that component changes and product improvements can change performance when compared to your older Scanners. Performance at one end of the operational scale might have been sacrificed for better performance at the other end.

New Barcode Labels

There are a number of common “Barcode Symbologies” such as Code 39 (used in libraries), Product Code (APN, EAN, UPC – used on the products we buy), and Code 128 (used in industry). All have a specific internal construction, specific clearances at each end, and must be printed to a standard. Errors can be made in the internal construction, usually relative widths of bar or space elements, the location of the barcode, or its printing. The result will be a barcode that is either hard or impossible to read. These are the common problems you need to look for:

- **Visual Inspection** – If you find it hard to clearly distinguish bars then so will your Scanner! A small magnifying glass can help with this assessment. Look for clear sharp edges with no bridging between elements. Usually problems you observe will fall into one or more of the following categories.
- **Quiet Zone** – This is the blank space at each end of a barcode. This should be around 6.5mm. Modern Scanners are usually tolerant of a little less than this, but we have seen Quiet Zones of less width than a wide bar, making the Scanner’s job impossible! We’ve also seen cases where a perfect barcode has been rendered unreadable because it has been trimmed with scissors to “fit”!
- **Ink Bleed** – Some printing technologies, if not carefully used, allow for white spaces to become narrower over time through bleeding of the ink, changing the internal construction of the barcode.
- **Insufficient Bar Spacing or Incorrect Widths** – Ink bleed can cause this, but so can poorly specified barcode fonts.
- **Barcodes Printed at Too High a Resolution** – In general terms the larger a barcode the easier it is to read. However sometimes printers increase resolution (make the bars and spaces finer) to squeeze the barcode onto a standard size label. There comes a point, depending on the printing technology, when the Scanner will find the barcode hard or impossible to read, particularly if they are laminated.
- **Laminating or Covering Barcodes** – Otherwise satisfactory barcodes can be comprised optically by laminating with “bubbles” or tape that obscures the sharp edges of bars. The problem is exacerbated by high resolution barcodes (very fine bars and spaces).
- **Black Printed with Coloured Ribbons on Barcoded Cards** – Occasionally the printers that make plastic cards will print black using multiple colours rather than true black. The effect is to “fuzz” the edges of barcode bars, making them harder to read as the apparent width of bars may change.

- **Coloured Barcodes or Backgrounds** – Barcodes are best printed black on white. High contrast is essential. Red bars simply won't work (because visible red is used for scanning).

Examples of Barcode Label Problems

The originals of these barcodes were scanned at 300dpi, with a 2 times blowup below.



High Resolution with bars touching due to bleed and insufficient spacing



High Resolution distorted by covering tape



High Resolution and glossy

Tips to Avoid Barcode Label Problems

1. Remember that slightly larger barcodes will be more reliable over a period. Their larger size makes them less likely to be damaged or affected by dirt.
2. If you are buying labels in, order against a sample. Test multiple samples, keep some, and make it clear on your order that you are relying on the production labels being to the same standard.
3. If you are printing your own labels, print samples and test them, then "spot check" labels as you print them to make sure your printing quality is consistent. This will guard against printing a long run of labels only to find out after you have attached them that a print head clogged, or toner ran out!
4. Finally, the best tip of all - order your pre-printed barcode labels direct from ASP, or use our Label+ or ASP Truetype Barcode Fonts to make your labels. Combine them with high quality Scanners from ASP. Any problems, just call for help.



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