Dynamic Barcodes for Adobe Illustrator 21.11

User Guide

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ESKO

Contents

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2. What is a barcode ?

A barcode is a machine-readable representation of information in a visual format on a surface. Barcodes can be read by optical scanners, allowing quick and easy identification of all kind of goods.

Originally barcodes stored data in the widths and spacings of printed parallel lines, but today they also come in patterns of dots, concentric circles, and hidden in images.

The information contained in a barcode varies from numbers to complete ASCII texts. The drive to encode ever more information in combination with the space requirements of simple barcodes led to the development of matrix barcodes or 2D barcode, which do not consist of bars but rather a grid of square cells.

Barcodes are just the visible part of often quite large systems frequently referred to as automated identification systems. These systems are increasingly proving to be some of the most cost-effective management tools, since they enable organizations to keep track of their goods and stocks in all kinds of situations in a fast, accurate and efficient way.

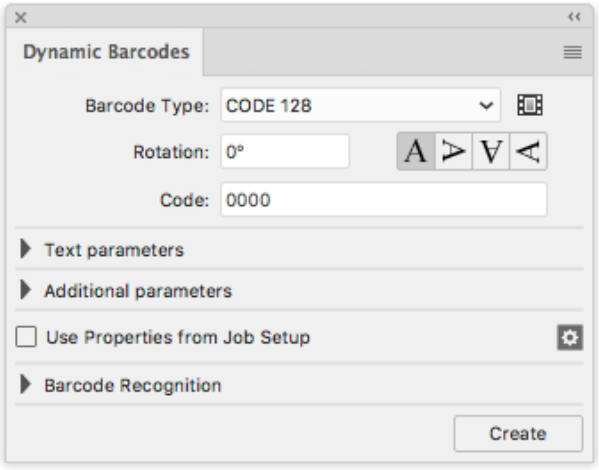
With the Dynamic Barcodes plug-in, you can add a dynamic barcode to your document without leaving your application. Dynamic means that your barcode settings can be changed later on, even after you saved, closed and reopened your document.

3. Getting Started with Dynamic Barcodes

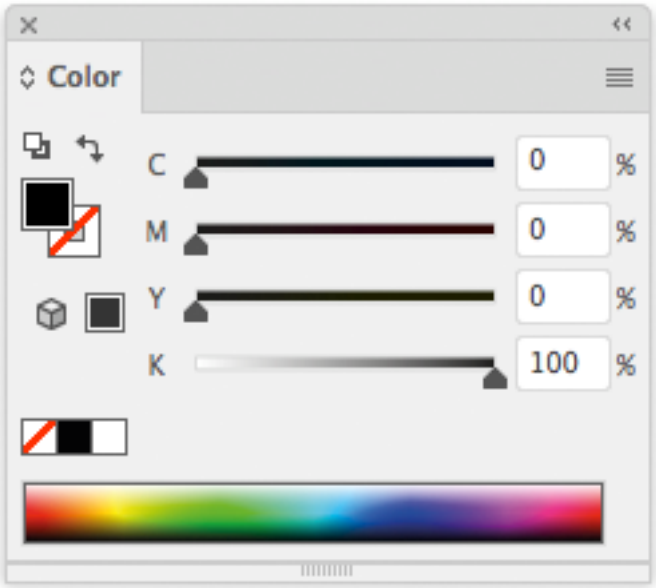
To introduce you to Dynamic Barcodes, here is how to make your first barcode in four simple steps.

1. Create a CMYK Illustrator document and go to **Windows** > **Esko** > **Dynamic Barcodes**.

   This opens the **Dynamic Barcodes** dialog.

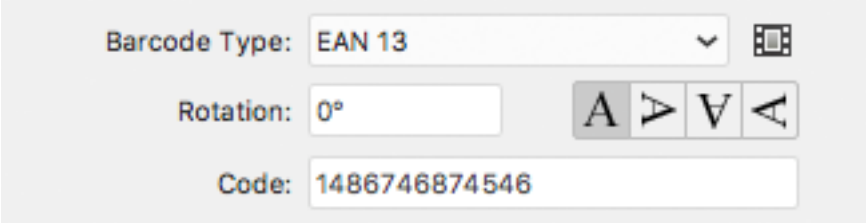


2. Define the color of the barcode: in your Illustrator color palette, define a single-color fill style and no stroke.

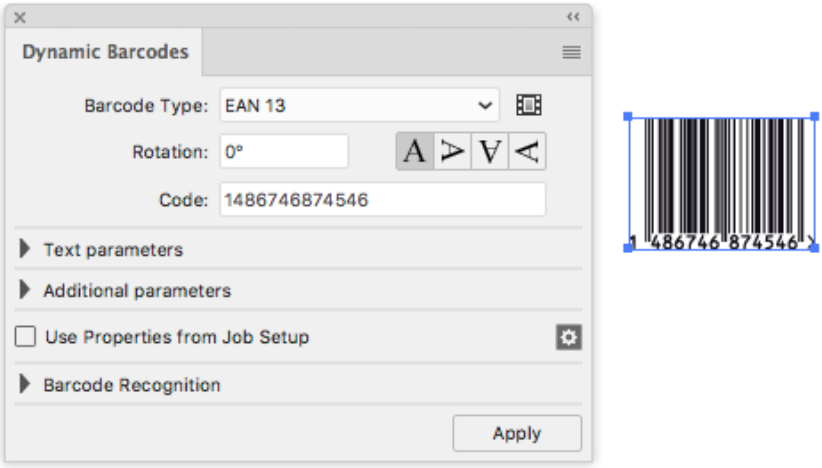


3. Enter the barcode parameters (**Barcode Type**, numeric **Code**...) in the **Dynamic Barcodes** dialog.

   For example, for an EAN 13 barcode, select **EAN 13** as **Barcode Type** and enter a 13 digit **Code**.



4. Click the **Create** button and Dynamic Barcodes will generate the barcode in your document.



4. Using Dynamic Barcodes in Unlicensed Mode

If you don't have a license for the Dynamic Barcodes plug-in, you still use it in unlicensed mode to perform limited operations. You can:

- Open documents containing barcodes created by Dynamic Barcodes without warning messages.
- Create barcode placeholders (with no data in them) in your design.

  See *Creating a Barcode Placeholder Quickly* on page 38.

You can also use the regular Illustrator functions to:

- change the barcode's position in your document,
- rotate it by multiples of 90 degrees (using **Object** > **Transform** > **Rotate**),

  Tip: You can rotate several barcodes at once.

- change its fill color (it is not possible to apply a stroke),

  Attention:

  Choose a fill color that is:

  - a process or a spot color (other colors might generate trapping problems),
  - not too light (or the barcode might be difficult to scan).

- copy and paste it.
- delete it.

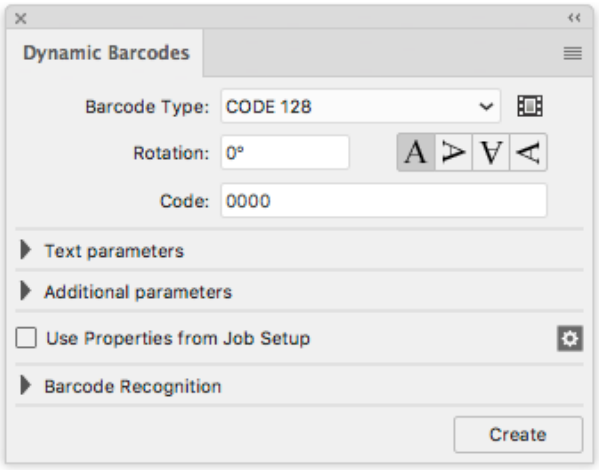
5. Dynamic Barcodes Basics

5.1. Creating a Barcode

1. Create a CMYK Illustrator document and go to **Windows** > **Esko** > **Dynamic Barcodes**.

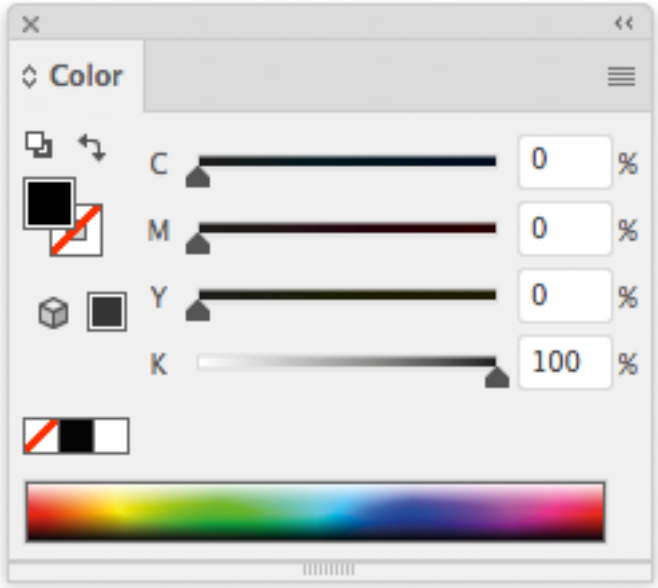
   You can also use the **Command + Option + 4** shortcut on Mac, or the **CTRL + Alt + 4** shortcut on PC.

   This opens the **Dynamic Barcodes** dialog.



2. Define the color of the barcode: in your Illustrator color palette, define a single-color fill style and no stroke.

   Dynamic Barcodes creates bars by generating rectangular objects and assigning the current fill style to them.



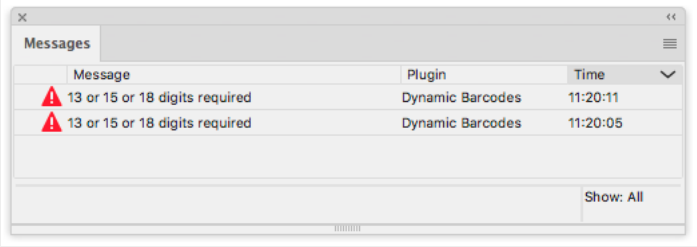
Attention:

Choose a fill color that is:

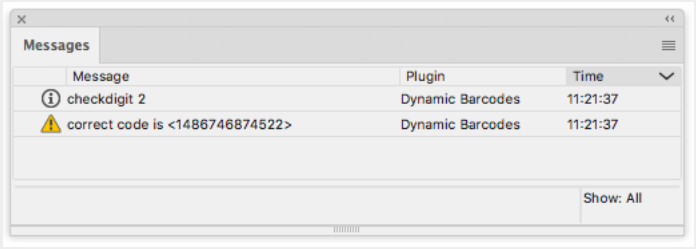
- a process or a spot color (other colors might generate trapping problems),
- not too light (or the barcode might be difficult to scan).

3. In the **Dynamic Barcodes** dialog, select your **Barcode Type**.
4. Enter a **Rotation** angle for your barcode, or use one of the rotation buttons. Choose the **Orientation** of your barcode using one of the buttons or by entering an angle.
5. Enter the barcode's data in the **Code** field. For most barcodes, you can choose to also show this data as a (human-readable) number.

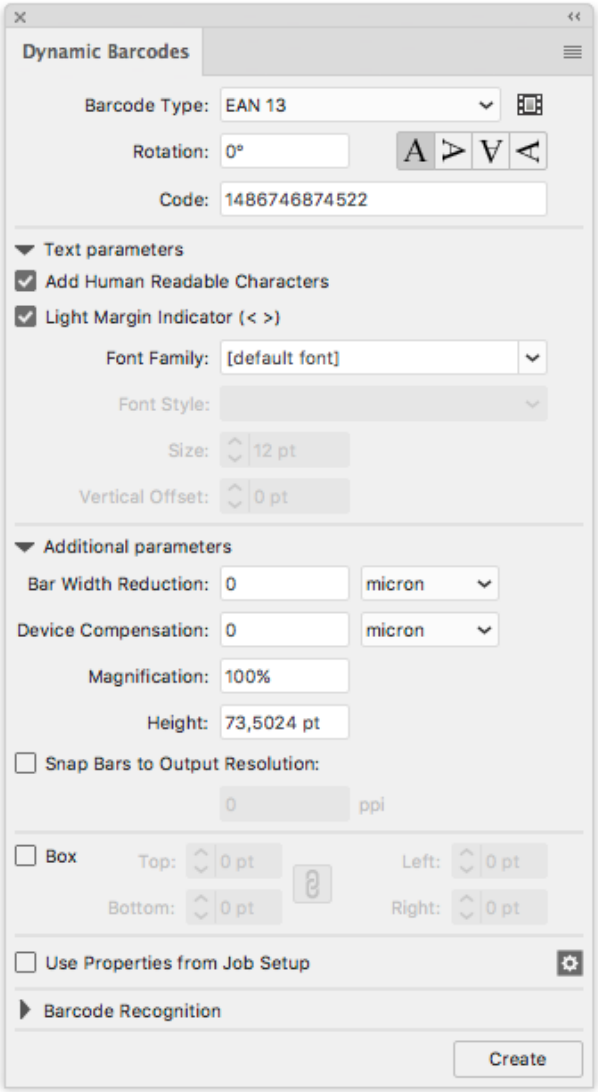
Attention: Make sure the barcode data you enter is valid for the barcode type you chose. If it isn't, a warning / error will pop up.



Note: If you enter a wrong check digit, Dynamic Barcodes can fix it automatically for you.



6. To fill in other parameters specific to the barcode type you chose, open the **Additional parameters** section and see *Barcode Types* on page 59.



7. Click the **Create** button.

- If you have the boostX plug-in installed, Dynamic Barcodes generates your barcode at the intersection of the boostX crosshair.
- If you don't have the boostX plug-in installed, Dynamic Barcodes generates your barcode in the center of the view.

5.2. Editing a Barcode

With Dynamic Barcodes, you can also edit existing barcodes.

1. Open the **Dynamic Barcodes**.
2. Select the barcode to edit in your Illustrator document.
3. Change its parameters as you wish in the **Dynamic Barcodes** dialog.

   Note:

   If you change the **Barcode Type** and the previous **Code** is not valid for this barcode type, Dynamic Barcodes will reset it to the (first) default code for this barcode type.

   This is the default code used for placeholder barcodes; you can see it in the preset barcodes dialog (see *Previewing and Creating a Barcode Placeholder* on page 39).

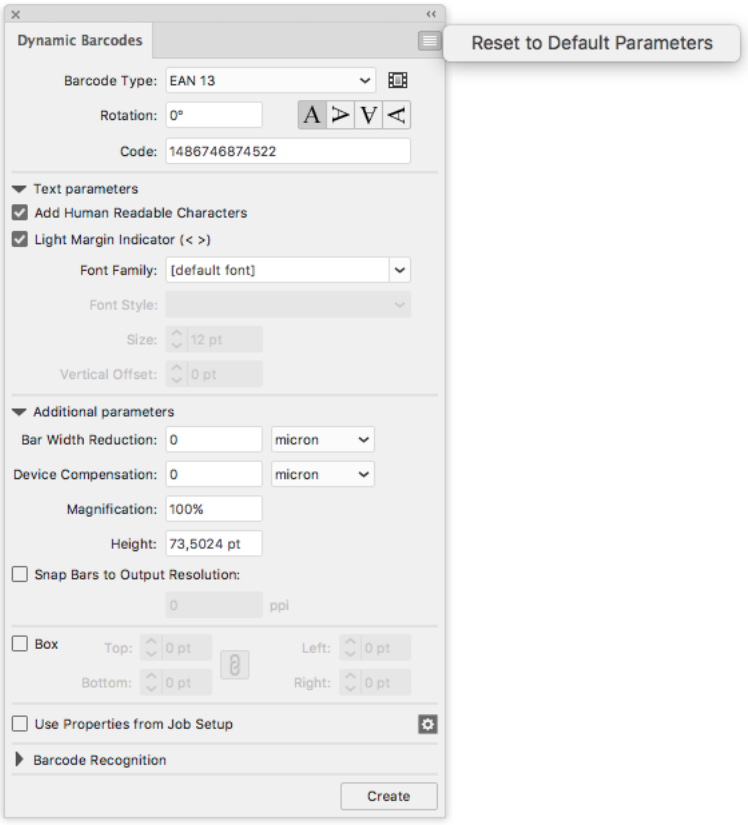
   You can then either:

   - enter your own valid code,
   - use this default code to create a placeholder barcode (see *Creating a Barcode Placeholder Quickly* on page 38).

4. Click the **Apply** button to apply your changes to the barcode.

5.3. Setting Barcode Parameters to Default

- To reset all the parameters of the selected barcode to default, click the palette menu  in the top right corner of the **Dynamic Barcodes** dialog then click **Set Default Parameters**.

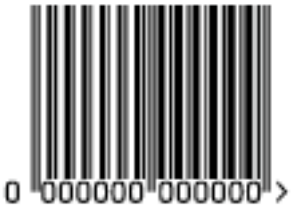


Note: The **Bar Width Reduction**, **Device Compensation** and **Snap Bars to Output Resolution** parameters are not reverted to the defaults, since these parameters are related to the press settings, and not related to the selected barcode.

5.4. Barcode Placeholders

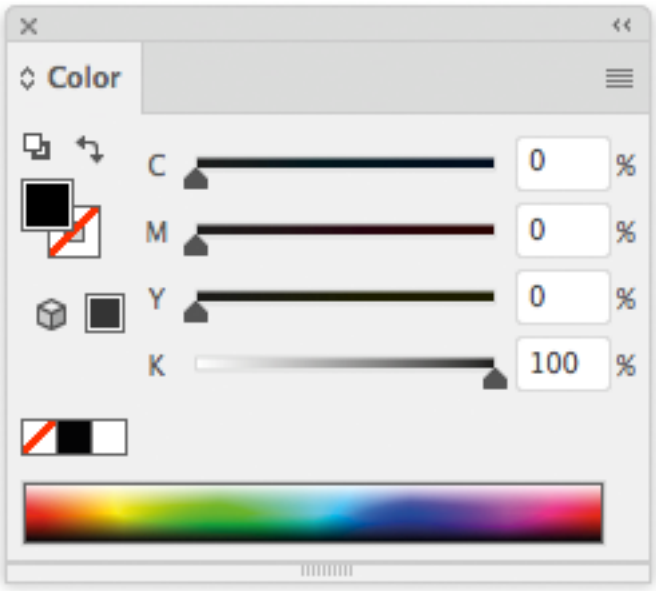
If you don't have the exact data to encode in your barcode yet, you can already create a barcode placeholder in your design.

This placeholder will have the correct symbol type for the barcode type you choose, but will only contain "empty" or "default" data (for example 0000000000000 for EAN 13).



5.4.1. Creating a Barcode Placeholder Quickly

1. Open the **Dynamic Barcodes** dialog from **Windows** > **Esko** > **Dynamic Barcodes**.
2. Define the color of the barcode: in your Illustrator color palette, define a single-color fill style and no stroke.



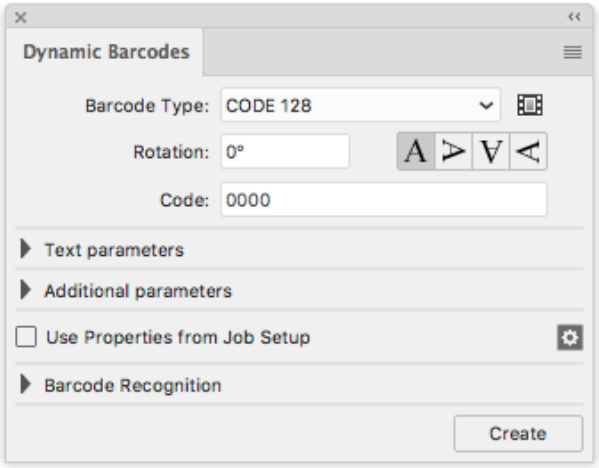
Attention:

Choose a fill color that is:

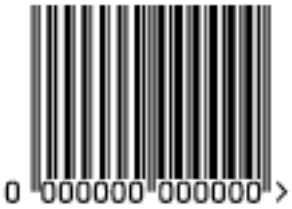
- a process or a spot color (other colors might generate trapping problems),
- not too light (or the barcode might be difficult to scan).

3. In the **Dynamic Barcodes** dialog, select your **Barcode Type**.

   The **Code** field is automatically filled out with a nul / default value that has the correct number of digits for your **Barcode Type** (for example 0000000000000 for EAN 13).



4. Click the **Create** button to create your barcode placeholder.

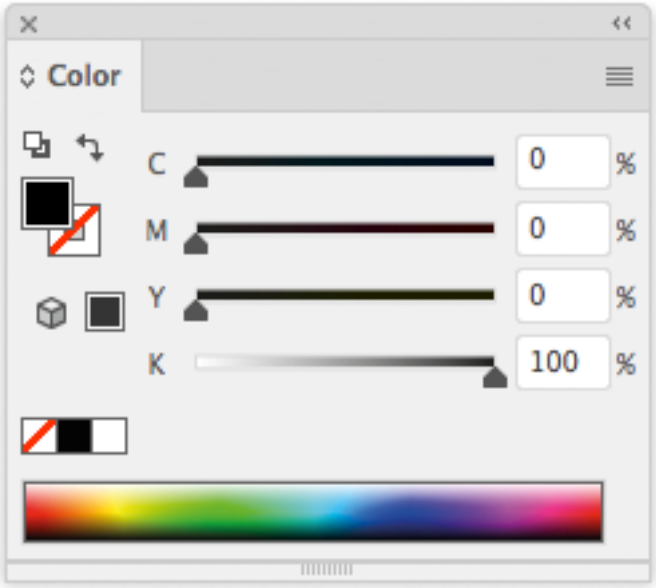


Note: You can also create a barcode placeholder in unlicensed mode (see *Using Dynamic Barcodes in Unlicensed Mode* on page 32).

5.4.2. Previewing and Creating a Barcode Placeholder

You can use Dynamic Barcodes to preview different barcode types before creating your barcode placeholder.

1. Open the **Dynamic Barcodes** dialog from **Window** > **Esko** > **Dynamic Barcodes**.
2. Define the color of the barcode: in your Illustrator color palette, define a single-color fill style and no stroke.



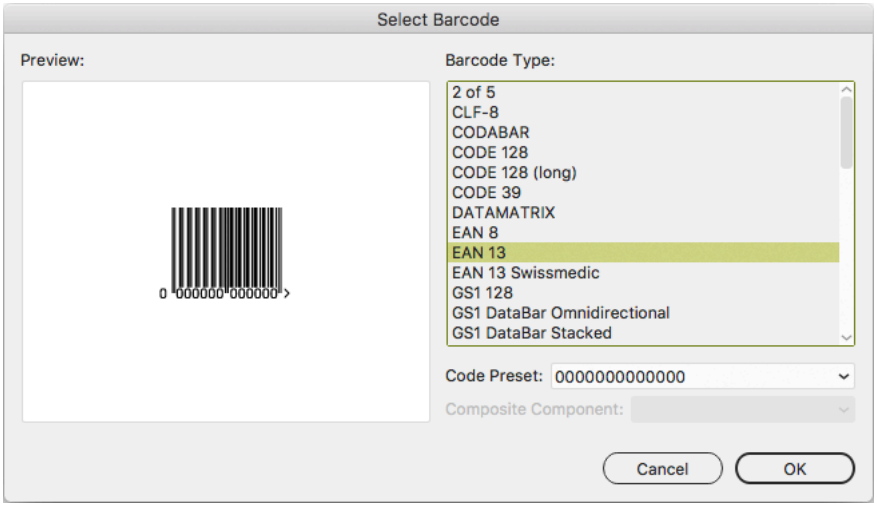
Attention:

Choose a fill color that is:

- a process or a spot color (other colors might generate trapping problems),
- not too light (or the barcode might be difficult to scan).

3. In the **Dynamic Barcodes** dialog, click the Pre-set barcodes icon  .

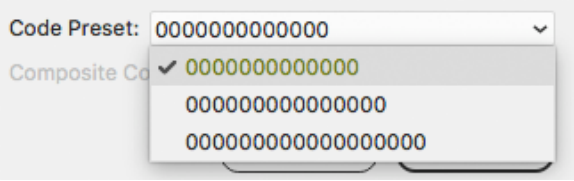
   This opens the **Select Barcode** dialog.



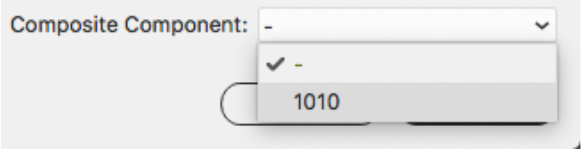
4. Select your **Barcode Type** on the right to see a **Preview** of it on the left.

Note: This shows previews of barcode placeholders. Your actual barcode (with data and specific parameters affecting its size) may look slightly different. For more information on barcode parameters, see *Barcode Types* on page 59.

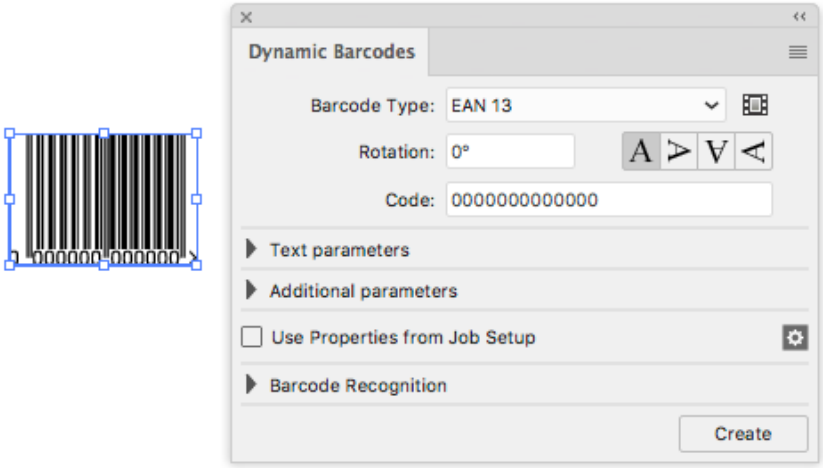
5. If your barcode data can have several possible lengths (for example EAN 13 can have 13, 15 or 18 digits), choose the length you want to preview in **Code Preset**.



6. If your barcode can have a **Composite Component** (some GS1 barcodes), you can choose to preview it with or without that component.



7. Click **OK** to use the preview parameters (**Barcode Type**, **Code Preset** and **Composite Component** as applicable) in the **Dynamic Barcodes** dialog and close the **Select Barcode** dialog.
8. In the **Dynamic Barcodes** dialog, click the **Create** button to create your barcode placeholder.



5.5. Expand

By using the **Expand** function, you can replace a barcode by regular objects (rectangles, text, ...) in a group, without any barcode information.

Note: Adobe Illustrator also contains an "Expand" function. However, since this does not remove the barcode metadata, the barcode remains editable.

1. Select the barcode you want to expand
2. From the fly-out menu of the Dynamic Barcodes panel, select **Expand**

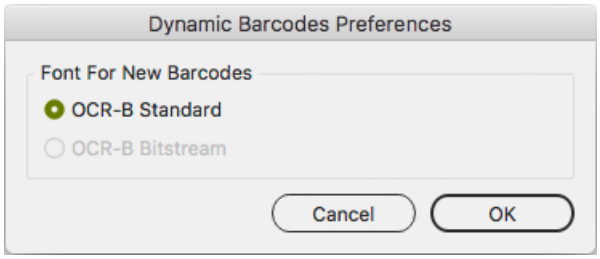
Note: Barcodes used by Dynamic Marks and Dynamic VDP can't be expanded.

6. Dynamic Barcodes Advanced

6.1. Choosing a Font Standard

You can choose between two font standards for the human-readable characters of your barcodes.

1. Go to **Illustrator** > **Preferences** > **Esko** > **Dynamic Barcodes Preferences...** to open the **Dynamic Barcodes Preferences** dialog.



2. Choose either **OCR-B Standard** or **OCR-B Bitstream** and click **OK**.

OCR-B Standard fonts are rounder and typically used in the Western market.	
OCR-B Bitstream fonts are typically used in the Asian market.	

Note: If the OCR-B Bitstream font is not installed on your system, the option will be disabled. Esko does not provide this font.

6.2. Using Dynamic Content with Dynamic Barcodes

You can use the **Dynamic Content** plug-in to turn barcodes created with Dynamic Barcodes into XML-driven objects. These barcodes update automatically when the XML files to which they are linked change.

For more information, see the Dynamic Content documentation.

6.3. Barcode Protection

Once you create a barcode with Dynamic Barcodes, this barcode is protected. This means that it won't be possible to edit it with most regular Illustrator tools. This protects the barcode against modifications that might render it invalid, for example distorting it or modifying its size.

The only transformation allowed is moving or rotating the barcode. When rotating the barcode, a message is shown in the Messages palette, and the barcode's Rotation parameter is adapted accordingly.

You can still edit the barcode's parameters at any time through the **Dynamic Barcodes** dialog.

6.3.1. Protecting a Barcode

You can protect a Dynamic Barcodes barcode that has been unprotected, or a barcode made in a previous version of Dynamic Barcodes.

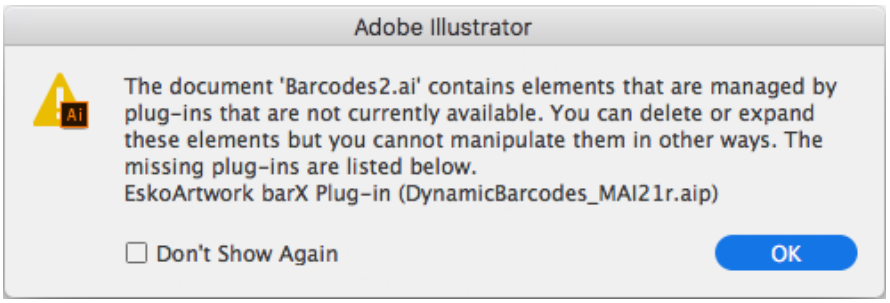
1. Open the Dynamic Barcodes plug-in.
2. Select the barcode to protect in your Illustrator document.
3. If necessary, change its parameters in the **Dynamic Barcodes** dialog.
4. Click the **Apply** button to apply the parameter changes and protect your barcode.

Tip: You can use this to fix some invalid barcodes.

6.3.2. Handling a Barcode without Dynamic Barcodes

Opening a Document Containing a Dynamic Barcodes Barcode without Dynamic Barcodes

When opening a document containing a Dynamic Barcodes barcode in an Illustrator application that doesn't have the Dynamic Barcodes plug-in, you will get the following warning:



This **doesn't create any problem in your file**, and you can continue to work with this file as you normally would, without editing the Dynamic Barcodes barcode.

If you need to edit the Dynamic Barcodes barcode with your Illustrator application, see *Editing a Document Containing a Dynamic Barcodes Barcode without Dynamic Barcodes* on page 45.

Editing a Document Containing a Dynamic Barcodes Barcode without Dynamic Barcodes

If you don't have the Dynamic Barcodes plug-in, you can still use Illustrator to do the following operations without rendering your barcode invalid.

If you don't have Dynamic Barcodes installed, you will **not** be able to

- move or scale the object using the Selection tool
- move or distort it (reflect, shear or scale)
- change a color

You will be able to

- expand the bar code
- Rotate by Selection or Free transform - this can lead to inconsistent results so we recommend not doing this.
- move, rotate and distort by the Transform Each command - this can lead to inconsistent results so we recommend not doing this.
- enclose it in the Envelope and distort
- delete it
- copy and paste it

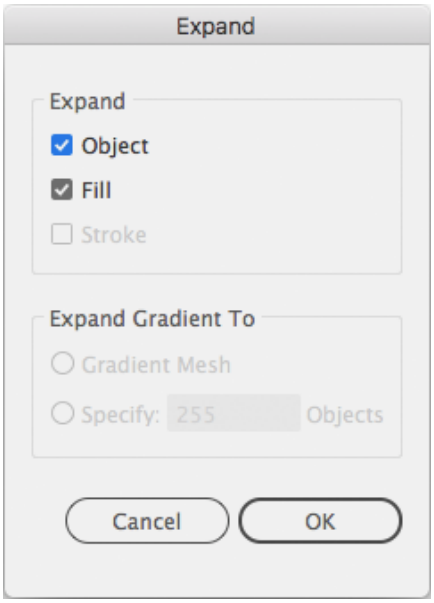
If the Dynamic Barcode plugin is installed, but without a valid license, you will be able to do everything that is allowed by the plugin, except modifying the content. This means for example moving and rotating is allowed, but due to the bar code protection, any potentially dangerous operations such as scale, reflect or shear are not allowed. You will also be able to change the color of the bar code.

Unprotecting a Dynamic Barcodes Barcode for Further Editing

You can expand your Dynamic Barcodes barcode to a regular Illustrator group art to be able to edit it further, but this is not recommended as it will **remove the barcode's protection**.

Attention: It will then be possible to make modifications that **might render the barcode invalid**.

1. To do this, go to **Object** > **Expand...** in the Illustrator menu.
2. Choose the object's characteristics to expand, then click **OK**.



This turns your barcode into a regular Illustrator object. You can now for example edit each bar of the barcode individually.

6.4. Exporting Documents with Barcodes

If you are using other Esko applications, you can export Illustrator documents containing barcodes to the Esko Normalized PDF format, preserving the barcodes' information and editability.

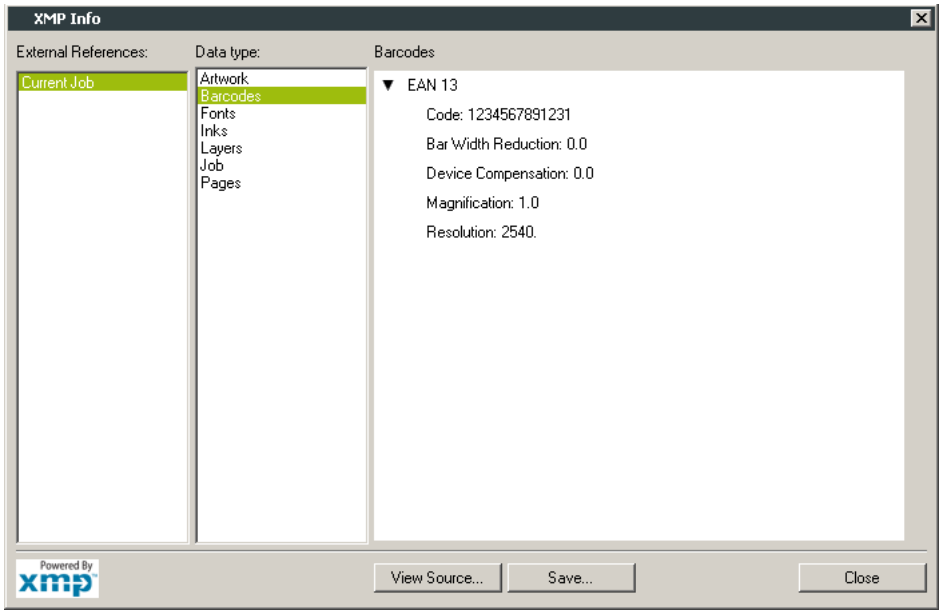
6.4.1. Viewing Barcode Information in Other Esko Applications

1. Export your Illustrator document to the Esko Normalized PDF format:
   - If you have Automation Engine, use **Shuttle** to launch the document into your chosen workflow. This converts it to Normalized PDF automatically.

     Note: See the Adobe Illustrator Client documentation for setup information.
   - If you don't have Automation Engine, use **File** > **Export** and choose Normalized PDF as the export format.
2. Select (in Automation Engine) or open (in PackEdge / Acrobat) your document and open the XMP information as explained below:

If you have...	go to...
Automation Engine	**File** > **Info**.
PackEdge	**File** > **XMP Info**.
the Esko XMP plug-in in Adobe Acrobat	**Esko** > **XMP Document Info...**

3. Click **Barcodes** in the **Data type** column (as below in PackEdge) to show the barcode information.



For more information, see the Shuttle, Automation Engine, PackEdge or XMP plug-in documentation.

6.4.2. Editing Barcodes in Other Esko Applications

The Dynamic Barcodes functionality is available both as a **DeskPack** plug-in and in **PackEdge**.

- To edit your document containing barcodes in **PackEdge**:
  a) Export your Illustrator document to the Esko Normalized PDF format:
     - If you have Automation Engine, use **Shuttle** to launch the document into your chosen workflow. This converts it to Normalized PDF automatically.

       Note: See the Adobe Illustrator Client documentation for setup information.

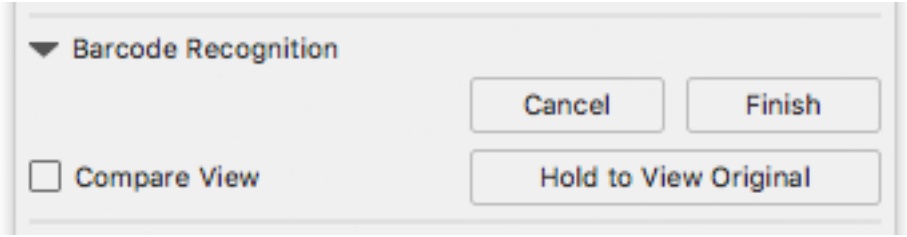
     - If you don't have Automation Engine, use **File** > **Export** and choose Normalized PDF as the export format.
  b) Open your document in **PackEdge**.
  c) Go to **Production** > **Bar Code...** to edit your barcode as you would edit it with Dynamic Barcodes.

  For more information, see the Shuttle and PackEdge documentation.

7. Barcode Recognition

Barcode Recognition is a new function in Dynamic Barcodes to convert vectorized (contourized) barcodes and images (e.g. a scanned in barcode) back into live editable barcodes.

1. Choose **Window** > **Esko** > **Dynamic Barcodes** to open the Dynamic Barcodes palette.



2. Select the objects (lineart or image) that you want to convert.
3. Click the **Extract** button.

   Dynamic Barcode will analyse the selected objects, and when possible a Dynamic Barcode is generated replacing the selection.

   a) Click and hold **Hold to View Original** to hide the converted barcode and see the original lineart or image.
   b) Change any of the barcode parameters and click **Apply** to modify the generated barcode.
   c) Enable **Compare View** to show the newly generated barcode semi transparent on top of the original objects. This allows you to easily change position and parameters of the new barcode to match the original.
4. When you're happy with the result, click the **Finish** button.

   This will remove the original objects from the document and close the Barcode Recognition session, leaving you with a barcode object that you can edit as needed.

Note: You can not do any other barcode recognition as long as the previous session wasn't ended, either by clicking the **Finish** or the **Cancel** button.

7.1. Supported Barcode Types and known limitations

The barcodes that are currently supported for Barcode Recognition are these:

- EAN-13 (including add-ons)
- EAN-8
- UPC-A (including add-ons)
- UPC-E (including add-ons)
- NDC-HRI
- Int. 2 of 5
- ITF-14

- ITF-16
- UPC-SCS
- Code-128
- Code-128 (long)
- HIBC-128
- GS1-128
- QR
- GS1-QR
- PZN
- PZN8

The barcode parameters that are currently recognized (when possible) are these:

- Barcode type
- Code
- Add-on presence
- Color (only when recognizing line art objects)
- HRI presence (only when recognizing line art objects)
- Height (only when recognizing line art objects)
- Rotation
- Magnification
- BWR (only when recognizing line art objects)
- Characters per unit
- Ratio

Other limitations:

- White Box, Light margin indicators, H gauges for ITF barcodes and HRI text parameters are not recognized.
- Device Compensation and Bar Width Reduction are both combined in the Bar Width Reduction
- An Int. 2 of 5 needs to have at least 6 digits.
- UPC-SCS with add-on is not recognized.
- If the original is an image, rotation is deduced from the rotation of the image. If the barcode inside the image is rotated over an angle other than a multiple of 90º, the recognizing will not work.
- Pre-defined barcode sizes for PZN barcodes may not always be recognized.

8. Barcode Types and Parameters

8.1. Supported Barcode Types

General Purpose Barcodes

1D	2D
• *Code 39* • *Code 93* on page 66 • *2 of 5* • *Interleaved 2 of 5* • *Codabar* • *Code 128* • *Code 128 (long)* • *Klebrand* on page 86 • *MSI* • *SICK Code* on page 101	• *DataMatrix* • *QR* • *MicroQR*

Retail Barcodes

1D	2D
• *EAN 13* • *EAN 8* • *UPC-A* • *UPC-E* • *GS1 DataBar Omnidirectional* • *GS1 DataBar Truncated* • *GS1 DataBar Stacked* • *GS1 DataBar Stacked Omnidirectional*	• *GS1 DataMatrix*

1D	2D
• *GS1 DataBar Limited* • *GS1 DataBar Expanded* • *GS1 DataBar Expanded Stacked* • *GS1 128* • *GS1 U.S. Coupon Interim* • *M+S 7* • *Marks & Spencer*	

Pharmaceutical, Healthcare and Cosmetic Barcodes

1D
• *Bobst* on page 60 • *NDC / HRI* • *EAN 13 Swissmedic* • *Kurandt* on page 87 • *Laetus Pharma Code* • *CLF-8* • *HIBC 39* • *HIBC 128* • *Paraf Italy* • *PZN* • *PZN8*

Shipment Container Barcodes

1D
• *ITF-14* • *ITF-16* • *UPC-SCS*

Identity Document Barcode

2D
• *PDF417* • *MicroPDF417*

8.1.1. GS1 Application Identifiers

These are the GS1 Application Identifiers available in Dynamic Barcodes:

AI	Data Content	Format (*)	FNC1 Required (*****)
00	Serial Shipping Container Code (SSCC)	N2+N18	
01	Global Trade Item Number (GTIN)	N2+N14	
02	GTIN of Contained Trade Items	N2+N14	
10	Batch or Lot Number	N2+X..20	(FNC1)
11 (**)	Production Date (YYMMDD)	N2+N6	
12 (**)	Due Date (YYMMDD)	N2+N6	
13 (**)	Packaging Date (YYMMDD)	N2+N6	
15 (**)	Best Before Date (YYMMDD)	N2+N6	
16 (**)	Sell By Date (YYMMDD)	N2+N6	
17 (**)	Expiration Date (YYMMDD)	N2+N6	
20	Internal product variant	N2+N2	
21	Serial Number	N2+X..20	(FNC1)
22	Consumer product variant	N2+X..20	(FNC1)
235	Third Party Controlled, Serialised Extension of GTIN (TPX)	N3+X..28	(FNC1)
240	Additional Item Identification	N3+X..30	(FNC1)
241	Customer Part Number	N3+X..30	(FNC1)
242	Made-to-Order Variation Number	N3+N..6	(FNC1)
243	Packaging Component Number	N3+X..20	(FNC1)
250	Secondary Serial Number	N3+X..30	(FNC1)
251	Reference to Source Entity	N3+X..30	(FNC1)
253	Global Document Type Identifier (GDTI)	N3+N13+X..17	(FNC1)
254	GLN Extension Component	N3+X..20	(FNC1)
255	Global Coupon Number (GCN)	N3+N13+N..12	(FNC1)

30	Variable Count of Items (Variable Measure Trade Item)	N2+N..8	(FNC1)
310n (***)	Net weight, kilograms (Variable Measure Trade Item)	N4+N6	
311n (***)	Length or first dimension, metres (Variable Measure Trade Item)	N4+N6	
312n (***)	Width, diameter, or second dimension, metres (Variable Measure Trade Item)	N4+N6	
313n (***)	Depth, thickness, height, or third dimension, metres (Variable Measure Trade Item)	N4+N6	
314n (***)	Area, square metres (Variable Measure Trade Item)	N4+N6	
315n (***)	Net volume, litres (Variable Measure Trade Item)	N4+N6	
316n (***)	Net volume, cubic metres (Variable Measure Trade Item)	N4+N6	
320n (***)	Net weight, pounds (Variable Measure Trade Item)	N4+N6	
321n (***)	Length or first dimension, inches (Variable Measure Trade Item)	N4+N6	
322n (***)	Length or first dimension, feet (Variable Measure Trade Item)	N4+N6	
323n (***)	Length or first dimension, yards (Variable Measure Trade Item)	N4+N6	
324n (***)	Width, diameter, or second dimension, inches (Variable Measure Trade Item)	N4+N6	
325n (***)	Width, diameter, or second dimension, feet (Variable Measure Trade Item)	N4+N6	
326n (***)	Width, diameter, or second dimension, yards (Variable Measure Trade Item)	N4+N6	
327n (***)	Depth, thickness, height, or third dimension, inches (Variable Measure Trade Item)	N4+N6	
328n (***)	Depth, thickness, height, or third dimension, feet (Variable Measure Trade Item)	N4+N6	
329n (***)	Depth, thickness, height, or third dimension, yards (Variable Measure Trade Item)	N4+N6	
330n (***)	Logistic weight, kilograms	N4+N6	
331n (***)	Length or first dimension, metres	N4+N6	
332n (***)	Width, diameter, or second dimension, metres	N4+N6	

333n (***)	Depth, thickness, height, or third dimension, metres	N4+N6
334n (***)	Area, square metres	N4+N6
335n (***)	Logistic volume, litres	N4+N6
336n (***)	Logistic volume, cubic metres	N4+N6
337n (***)	Kilograms per square metre	N4+N6
340n (***)	Logistic weight, pounds	N4+N6
341n (***)	Length or first dimension, inches	N4+N6
342n (***)	Length or first dimension, feet	N4+N6
343n (***)	Length or first dimension, yards	N4+N6
344n (***)	Width, diameter, or second dimension, inches	N4+N6
345n (***)	Width, diameter, or second dimension, feet	N4+N6
346n (***)	Width, diameter, or second dimension, yard	N4+N6
347n (***)	Depth, thickness, height, or third dimension, inches	N4+N6
348n (***)	Depth, thickness, height, or third dimension, feet	N4+N6
349n (***)	Depth, thickness, height, or third dimension, yards	N4+N6
350n (***)	Area, square inches (Variable Measure Trade Item)	N4+N6
351n (***)	Area, square feet (Variable Measure Trade Item)	N4+N6
352n (***)	Area, square yards (Variable Measure Trade Item)	N4+N6
353n (***)	Area, square inches	N4+N6
354n (***)	Area, square feet	N4+N6
355n (***)	Area, square yards	N4+N6
356n (***)	Net weight, troy ounces (Variable Measure Trade Item)	N4+N6
357n (***)	Net weight (or volume), ounces (Variable Measure Trade Item)	N4+N6
360n (***)	Net volume, quarts (Variable Measure Trade Item)	N4+N6
361n (***)	Net volume, gallons U.S. (Variable Measure Trade Item)	N4+N6
362n (***)	Logistic volume, quarts	N4+N6
363n (***)	Logistic volume, gallons U.S.	N4+N6

364n (***)	Net volume, cubic inches (Variable Measure Trade Item)	N4+N6	
365n (***)	Net volume, cubic feet (Variable Measure Trade Item)	N4+N6	
366n (***)	Net volume, cubic yards (Variable Measure Trade Item)	N4+N6	
367n (***)	Logistic volume, cubic inches	N4+N6	
368n (***)	Logistic volume, cubic feet	N4+N6	
369n (***)	Logistic volume, cubic yards	N4+N6	
37	Count of Trade Items	N2+N..8	(FNC1)
390n (***)	Applicable Amount Payable or Coupon Value, local currency	N4+N..15	(FNC1)
391n (***)	Applicable Amount Payable with ISO Currency Code	N4+N3+N..15	(FNC1)
392n (***)	Applicable Amount Payable, single monetary area (Variable Measure Trade Item)	N4+N..15	(FNC1)
393n (***)	Applicable Amount Payable with ISO Currency Code (Variable Measure Trade Item)	N4+N3+N..15	(FNC1)
394n (***)	Percentage discount of a coupon	N4+N4	(FNC1)
395n (***)	Amount payable per unit of measure single monetary area (variable measure trade item)	N4+N6	(FNC1)
400	Customer's Purchase Order Number	N3+X..30	(FNC1)
401	Global Identification Number for Consignment (GINC)	N3+X..30	(FNC1)
402	Global Shipment Identification Number (GSIN)	N3+N17	(FNC1)
403	Routing Code	N3+X..30	(FNC1)
410	Ship to - Deliver to Global Location Number	N3+N13	
411	Bill to - Invoice to Global Location Number	N3+N13	
412	Purchased from Global Location Number	N3+N13	
413	Ship for - Deliver for - Forward to Global Location Number	N3+N13	
414	Identification of a Physical Location - Global Location Number	N3+N13	
415	Global Location Number of the Invoicing Party	N3+N13	
416	GLN of the production or service location	N3+N13	
417	Party GLN	N3+N13	
420	Ship to - Deliver to Postal Code Within a Single Postal Authority	N3+X..20	(FNC1)

421	Ship to - Deliver to Postal Code with ISO Country Code	N3+N3+X..9	(FNC1)
422	Country of Origin of a Trade Item	N3+N3	(FNC1)
423	Country of Initial Processing	N3+N3+N..12	(FNC1)
424	Country of Processing	N3+N3	(FNC1)
425	Country of Disassembly	N3+N3+N..12	(FNC1)
426	Country Covering full Process Chain	N3+N3	(FNC1)
427	Country Subdivision of Origin	N3+X..3	(FNC1)
4300	Ship-to / Deliver-to company name	N4+X..35	(FNC1)
4301	Ship-to / Deliver-to contact	N4+X..35	(FNC1)
4302	Ship-to / Deliver-to address line 1	N4+X..70	(FNC1)
4303	Ship-to / Deliver-to address line 2	N4+X..70	(FNC1)
4304	Ship-to / Deliver-to suburb	N4+X..70	(FNC1)
4305	Ship-to / Deliver-to locality	N4+X..70	(FNC1)
4306	Ship-to / Deliver-to region	N4+X..70	(FNC1)
4307	Ship-to / Deliver-to country code	N4+X2	(FNC1)
4308	Ship-to / Deliver-to telephone number	N4+X..30	(FNC1)
4310	Return-to company name	N4+X..35	(FNC1)
4311	Return-to contact	N4+X..35	(FNC1)
4312	Return-to address line 1	N4+X..70	(FNC1)
4313	Return-to address line 2	N4+X..70	(FNC1)
4314	Return-to suburb	N4+X..70	(FNC1)
4315	Return-to locality	N4+X..70	(FNC1)
4316	Return-to region	N4+X..70	(FNC1)
4317	Return-to country code	N4+X2	(FNC1)
4318	Return-to postal code	N4+X..20	(FNC1)
4319	Return-to telephone number	N4+X..30	(FNC1)
4320	Service code description	N4+X..35	(FNC1)
4321	Dangerous goods flag	N4+N1	(FNC1)
4322	Authority to leave	N4+N1	(FNC1)
4323	Signature required flag	N4+N1	(FNC1)
4324	Not before delivery date time	N4+N10	(FNC1)
4325	Not after delivery date time	N4+N10	(FNC1)
4326	Release date	N4+N6	(FNC1)

7001	NATO Stock Number (NSN)	N4+N13	(FNC1)
7002	UN/ECE Meat Carcasses and Cuts Classification	N4+X..30	(FNC1)
7003	Expiration Date and Time	N4+N10	(FNC1)
7004	Active Potency	N4+N..4	(FNC1)
7005	Catch Area	N4+X..12	(FNC1)
7006	First Freeze Date	N4+N6	
7007	Harvest Date	N4+N6..12	(FNC1)
7008	Species for Fishery Purposes	N4+X..3	(FNC1)
7009	Fishing Gear Type	N4+N..10	(FNC1)
7010	Production Method	N4+X..2	(FNC1)
7020	Refurbishment lot ID	N4+X..20	(FNC1)
7021	Functional status	N4+X..20	(FNC1)
7022	Revision status	N4+X..20	(FNC1)
7023	Global Individual Asset Identifier (GIAI) of an assembly	N4+X..30	(FNC1)
703s	Number of Processor with ISO Country Code	N4+N3+X..27	(FNC1)
7040	GS1 UIC with Extension 1 and Importer index	N4+N1X2+X3+X4	(FNC1)
710	National Healthcare Reimbursement Number (NHRN) – Germany PZN	N3+X..20	(FNC1)
711	National Healthcare Reimbursement Number (NHRN) – France CIP	N3+X..20	(FNC1)
712	National Healthcare Reimbursement Number (NHRN) – Spain CN	N3+X..20	(FNC1)
713	National Healthcare Reimbursement Number (NHRN) – Brasil DRN	N3+X..20	(FNC1)
714	National Healthcare Reimbursement Number (NHRN) - Portugal AIM	N3+X..20	(FNC1)
723s (****)	Certification reference	N4+X2+X...28	(FNC1)
7240	Clinical Trial Protocol ID	N4+X..20	(FNC1)
8001	Roll Products (Width, Length, Core Diameter, Direction, Splices)	N4+N14	(FNC1)
8002	Cellular Mobile Telephone Identifier	N4+X..20	(FNC1)
8003	Global Returnable Asset Identifier (GRAI)	N4+N14+X..16	(FNC1)
8004	Global Individual Asset Identifier (GIAI)	N4+X..30	(FNC1)
8005	Price Per Unit of Measure	N4+N6	(FNC1)

8006	Identification of the Components of a Trade Item	N4+N14+N2+N2	(FNC1)
8007	International Bank Account Number (IBAN)	N4+X..34	(FNC1)
8008	Date and Time of Production	N4+N8+N..4	(FNC1)
8010	Component / Part Identifier (CPID)	N4 + X..30	(FNC1)
8011	Component / Part Identifier Serial Number (CPID SERIAL)	N4 + N..12	(FNC1)
8012	Software version	N4+X..20	(FNC1)
8013	Global Model Number (GMN)	N4+X..30	(FNC1)
8017	Global Service Relation Number to identify the relationship between an organisation offering services and the provider of services	N4+N18	(FNC1)
8018	Global Service Relation Number to identify the relationship between an organisation offering services and the recipient of services	N4+N18	(FNC1)
8019	Service Relation Instance Number (SRIN)	N4+N..10	(FNC1)
8020	Payment Slip Reference Number	N4+X..25	(FNC1)
8026	ITIP of contained pieces	N4+N18	
8110	Coupon Code Identification for Use in North America	N4+X..70	(FNC1)
8111	Loyalty points of a coupon	N4+N4	(FNC1)
8112	Paperless coupon code identification for use in North America	N4+X..70	(FNC1)
8200	Extended Packaging URL	N4+X..70	(FNC1)
90	Information Mutually Agreed Between Trading Partners	N2+X..30	(FNC1)
91 to 99	Company Internal Information	N2+X..30	(FNC1)

Notes

- *: The first position indicates the length (number of digits) of the GS1 Application Identifier. The following value refers to the format of the data content.

  The following convention is applied:

n	implied decimal point position
N	numeric digit
X	any character
N3	3 numeric digits, fixed length
N..3	up to 3 numeric digits
X..3	up to 3 characters

- **: If only year and month are available, DD must be filled with two zeroes.
- ***: The fourth digit of this GS1 Application Identifier indicates the implied decimal point position. Example:
  - 3100 Net weight in kg without a decimal point
  - 3102 Net weight in kg with two decimal points
- FNC1: All GS1 Application Identifiers indicated with (FNC1) are defined as of variable length and shall be delimited unless this Element String is the last one to be encoded in the symbol. The delimiter shall be a Function 1 Symbol Character in GS1-128 Symbology, GS1 DataBar Expanded Versions and GS1 Composite Symbology and should be a Function 1 Symbol Character in GS1 DataMatrix and GS1 QR Code Symbology.
- ****: The fourth digit of this AI indicates the sequence number, allowing multiple occurrences of this AI
- *****: All GS1 Application Identifiers indicated with (FNC1) are defined as of variable length and shall be delimited unless this Element String is the last one to be encoded in the symbol. The delimiter shall be a Function 1 Symbol Character in GS1-128 Symbology, GS1 DataBar Expanded Versions and GS1 Composite Symbology and should be a Function 1 Symbol Character in GS1 DataMatrix and GS1 QR Code Symbology.

8.2. Barcode Types

To create a barcode of a specific type, select it in the **Barcode Type** parameter. This displays parameters specific to this barcode type in the **Dynamic Barcodes** dialog.

8.2.1. 2 of 5

About this Barcode...

2 of 5 is a numeric self-checking barcode, which can have a variable length. This barcode only encodes data in the bars. It is used for industrial applications, article numbering, photo development and ticketing.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108

- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Box* on page 117
- *Stroke Weight: Bearer Bars* on page 118

8.2.2. Bobst

About this Barcode...

The Bobst barcode is part of the same "binary" barcode family as the Laetus Pharma Code, Kurandt and CLF-8. It is used in the pharmaceutical industry.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110

- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Wide Bar* on page 113
- *Gap* on page 113
- *Decimal Input* on page 114
- *Box* on page 117

8.2.3. CIP 39

About this Barcode...

Code 39 is a barcode based on the standard Code 39 barcode, used by the French pharma industry. The barcode accepts 7 (CIP7) or 13 (CIP13) digits. The last digit is a check digit; if 6 or 12 digits are entered, the check digit is added automatically. The CIP13 code must start with 340.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Narrow Bar* on page 113

- *Box* on page 117

8.2.4. CLF-8

About this Barcode...

The CLF-8 barcode is part of the same "binary" barcode family as the Laetus Pharma Code, Kurandt and Bobst barcode. It is used in the pharmaceutical industry.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Wide Bar* on page 113
- *Gap* on page 113
- *Decimal Input* on page 114

8.2.5. Codabar

About this Barcode...

The Codabar barcode is commonly used in libraries, blood banks, and the air parcel business. It can encode up to 126 characters of data and two control characters, using digits and the “-”, “$”, “:”, “/” and “+” characters.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- **Rational (Constant Bar Width)**: By enabling this option, you can create a "Rational" Codabar bar code.
- *Use "992" Prod. Family in UPC* on page 109
- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Box* on page 117

8.2.6. Code 128

About this Barcode...

Code 128 is a variable length, high density, alphanumeric barcode. It has the second highest density of all the 1D barcodes (after the GS1 Databar Expanded).

It can contain a set of control characters. These control characters can change the character encoding type. In the absence of control characters, the encoding type is chosen automatically, to optimize the content encoding.

To force the usage of the code-set A, precede your data with the `[a]` control character. To force the usage of the code-set B, precede your data with the `[b]` control character. To obtain an optimal utilization of the code-sets A and B but prevent the usage of the space saving code-set C, use the Code 128 (long) barcode type instead.

You can include FNC characters in your code by entering `[F1]` for FNC1, `[F2]` for FNC2 or `[F3]` for FNC3

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Light Margin Indicator* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Narrow Bar* on page 113
- *Width* on page 113
- *Box* on page 117
- *Stroke Weight: Bearer Bars* on page 118

8.2.7. Code 128 (long)

About this Barcode...

Code 128 (long) is a version of Code 128 that doesn't use the space-saving "C" character set. This makes Code 128 (long) barcodes generally longer.

You can include FNC characters in your code by entering `[F1]` for FNC1, `[F2]` for FNC2 or `[F3]` for FNC3

Parameters

General Parameters

Text Parameters

Additional Parameters

8.2.8. Code 39

About this Barcode...

Code 39 is a popular barcode in industrial barcoding systems, mainly in the U.S.A. It is used in the non-retail industry, particularly in the manufacturing, military, and health sectors. It can encode alphanumeric data.

Parameters

General Parameters

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Add Check Digit* on page 115
- *Box* on page 117

8.2.9. Code 93

About this Barcode...

Code 93 is a variable length, high density, alphanumeric barcode. It's an enhancement of the Code 93 using spaces as well as bars as a data carrier. It contains two check characters for higher data security. The Code 93 barcode allows encoding the first 128 characters of the ASCII table.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Narrow Bar* on page 113
- *Box* on page 117
- *Stroke Weight: Bearer Bars* on page 118

8.2.10. DataMatrix

About this Barcode...

DataMatrix is used for encoding large amounts of alphanumeric data and / or marking small objects. It can encode all the standard ASCII and extended ASCII characters.

The DataMatrix symbol size can adjust automatically depending on the amount of data.

Dynamic Barcodes doesn't generate human readable characters for DataMatrix symbols. The data to be encoded in a DataMatrix symbol can contain an FNC1 character but only at the beginning of the data.

Note: Dynamic Barcodes always generates DataMatrix symbols with the recommended ECC200 error correction scheme.

DataMatrix Macro functions

Using DataMatrix Macro sequences, you can reduce the amount of data to encode by omiting obvious headers and trailers. The structured data uses control characters, entered using their standard abbreviations between "<" and ">"

The Macro sequence contains different parts:

- The optional Macro header: `[)>`. This is optional, and can be omited
- One of the starting sequences: `<RS>05<GS>` or `<RS>06<GS>`
- The macro content in a structured format
- The ending sequence: `<RS><EOT>`

Here are a few examples of a valid Macro function:

- `[)><RS>05<GS>PAP16559-2<GS>S0<72>017<GS>IPWP4511<RS><EOT>`
- `<RS>05<GS>PAP16559-2<GS>S0<72>017<GS>IPWP4511<RS><EOT>`

Note that apart from the Macro functions, you can enter all control characters to a DataMatrix code. These are all accepted codes:

<NUL><SOH><STX><ETX><EOT><ENQ><ACK><BEL><BS><HT><LF><VT><FF><CR><SO><SI><DLE><DC1><

Note: If you want to use one of the control character substitutions literally (e.g. "<EOT>") it can be escaped by doubling the first character: <<EOT>

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Symbol Type* on page 115
- *Cell Size* on page 115
- *Width / Total Height* on page 116
- *Box* on page 117

8.2.11. EAN 8

About this Barcode...

EAN 8 is an abbreviated version of EAN 13, for use on smaller packages. It can encode eight digits, and can have two or five additional digits.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Light Margin Indicator* on page 107
- *Add-on Text On Top* on page 108

- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.12. EAN 13

About this Barcode...

European Article Numbering system or EAN is the standard for article numbering in Europe. It is also used in Japan where it is called JAN.

Note: EAN is the European equivalent of the UPC system in the U.S.A. and Canada. Both systems use the same size requirements and a similar encoding scheme. This means that most European and American retail barcode scanners can read both EAN and UPC barcodes. For more information on UPC, see *UPC-A* on page 102.

An EAN 13 is a numeric barcode of thirteen digits, and can have two or five additional digits.

Parameters

General Parameters

- *Rotation* on page 105

- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Light Margin Indicator* on page 107
- *Add-on Text On Top* on page 108
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.13. EAN 13 Swissmedic

About this Barcode...

EAN 13 Swissmedic is an EAN 13 barcode used for items licensed by the Swiss Agency for Theraputic Products

It always starts with "7680", uses a specific text positioning and adds the text "swissmedic" below the code.

For EAN 13 Swissmedic barcodes, only the default font settings can be used.

Parameters

General Parameters

- *Rotation* on page 105

- *Code* on page 105

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.14. Eberle

About this Barcode...

Eberle is a barcode using two bar and two space thicknesess to encode the data. The input can be both in decimal and quarternal numerical systems. In the quarternal numerical system the barcode allows numbers up to 30 digits (0, 1, 2 or 3).

In non-decimal mode, the minimal number is "0", while in decimal mode it is 1. Decimal "0" is not allowed.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Narrow Bar* on page 113

- *Decimal Input* on page 114
- *Box* on page 117

8.2.15. GS1 128

About this Barcode...

GS1 128 (formerly EAN 128) is a Code 128 barcode designed primarily to identify products.

It contains one or more FNC1 (GS1 Function Code 1) control characters and Application Identifiers. It shows parentheses around the human readable interpretation of the Application Identifiers, but those parentheses are not encoded in the barcode.

It is alphanumeric and can also contain composite symbols.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105
- *Composite Component* on page 106

Text Parameters

- *Add Human Readable Characters* on page 106
- *Put on Top* on page 107
- *Multiple Text Lines* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108

- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Narrow Bar* on page 113
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117
- *Stroke Weight: Bearer Bars* on page 118

8.2.16. GS1 DataBar Omnidirectional

About this Barcode...

Barcodes of the GS1 DataBar family (formerly Reduced Space Symbols or RSS) can identify small items, and encode more information than the current EAN or UPC barcodes.

They can include GS1 Application Identifiers such as serial numbers, lot numbers, expiration dates...

Note: GS1 DataBar codes are expected to replace most common EAN and UPC barcodes from 2010.

GS1 DataBar Omnidirectional encodes Global Trade Item Numbers (GTIN) in a linear symbol that can be scanned omnidirectionally by suitably programmed slot scanners.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105
- *Composite Component* on page 106

Text Parameters

- *Add Human Readable Characters* on page 106
- *Put on Top* on page 107
- *Multiple Text Lines* on page 107

- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Narrow Bar* on page 113
- *Snap Bars to Output Resolution* on page 114

8.2.17. GS1 DataBar Stacked

About this Barcode...

GS1 DataBar Stacked is a variation of the GS1 DataBar barcode, that is stacked in two rows and used when the normal barcode would be too wide for the product.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105
- *Composite Component* on page 106

Text Parameters

- *Add Human Readable Characters* on page 106
- *Multiple Text Lines* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Narrow Bar* on page 113

- *Snap Bars to Output Resolution* on page 114

8.2.18. GS1 DataBar Stacked Omnidirectional

About this Barcode...

GS1 DataBar14 Stacked Omnidirectional is taller version of GS1 DataBar14 Stacked, that can be read by omnidirectional scanners.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105
- *Composite Component* on page 106

Text Parameters

- *Add Human Readable Characters* on page 106
- *Put on Top* on page 107
- *Multiple Text Lines* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Narrow Bar* on page 113
- *Snap Bars to Output Resolution* on page 114

8.2.19. GS1 DataBar Truncated

About this Barcode...

GS1 DataBar Truncated (formerly RSS Limited) is similar to GS1 DataBar but the height of its bars is truncated.

It encodes Global Trade Item Numbers in a smaller symbol for use on small items. It cannot be scanned omnidirectionally.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105
- *Composite Component* on page 106

Text Parameters

- *Add Human Readable Characters* on page 106
- *Put on Top* on page 107
- *Multiple Text Lines* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Narrow Bar* on page 113
- *Snap Bars to Output Resolution* on page 114

8.2.20. GS1 DataBar Expanded

About this Barcode...

GS1 DataBar Expanded (formerly RSS Expanded) encodes regular barcode data ("primary item identification" data) and Application Identifiers. It can encode alphanumeric characters.

This barcode can be scanned omnidirectionally by suitably programmed slot scanners.

Parameters

General Parameters

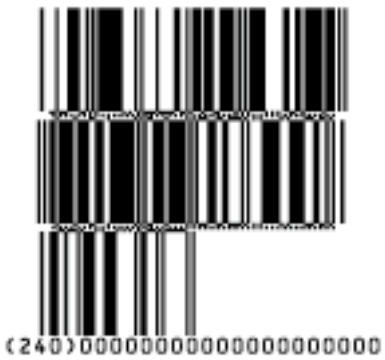
Text Parameters

Additional Parameters

8.2.21. GS1 DataBar Expanded Stacked

About this Barcode...

GS1 DataBar Expanded Stacked can encode the same amount of data as GS1 DataBar Expanded, but can also “stack” the barcode into several rows to save space.



Parameters

General Parameters

Text Parameters

Additional Parameters

8.2.22. GS1 DataBar Limited

About this Barcode...

GS1 Databar Limited is smaller than the GS1 DataBar barcode and can only encode Global Trade Item Numbers whose data part starts with "1".

Parameters

General Parameters

Text Parameters

- *Add Human Readable Characters* on page 106
- *Put on Top* on page 107
- *Multiple Text Lines* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Narrow Bar* on page 113
- *Snap Bars to Output Resolution* on page 114

8.2.23. GS1 DataMatrix

About this Barcode...

The GS1 Data Matrix barcode is a high density, high capacity, scalable 2D barcode. It is used to concentrate a lot of (alphanumeric) information in a very small space.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Put on Top* on page 107
- *Multiple Text Lines* on page 107
- *Light Margin Indicator* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108

- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Symbol Type* on page 115
- *Cell Size* on page 115
- *Width / Total Height* on page 116
- *Box* on page 117

8.2.24. GS1 QR

About this Barcode...

The GS1 QR barcode is a high density, high capacity, scalable 2D barcode. It is used to assembly multiple GS1 Application Identifiers to a barcode with limited space needs. The GS1 QR barcode can contain numbers, 0 - 9, upper case letters A -Z, and nine special characters: space $ % * + - . /

For more technical information on the QR code, see *QR* on page 98

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Put on Top* on page 107
- *Multiple Text Lines* on page 107
- *Light Margin Indicator* on page 107
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Symbol Type* on page 115
- *Cell Size* on page 115
- *Width / Total Height* on page 116

- *Box* on page 117

Specific Parameters

Minimum Symbol Size

Choose the number of cells to use for your barcode (in the format "horizontal cells x vertical cells").

Note: If the number of cells you choose for your symbol is too small to encode the data you entered in **Code**, Dynamic Barcodes will use a bigger symbol size automatically.

Error Correction

Error correction adds check sums to the barcode to detect and correct incorrect data. You can choose one of the following **Error correction** levels:

- Level **L**: 7% of codewords can be restored.
- Level **M**: 15% of codewords can be restored.
- Level **Q**: 25% of codewords can be restored.
- Level **H**: 30% of codewords can be restored.

Note: Keep in mind that a higher correction level makes the barcode bigger (as more check sums are added to the barcode) and may limit the maximum length of the encoded data.

Width / Height

The **Width** and **Height** parameters depend on the **Cell Size** and the number of cells used for the symbol (**Minimum Symbol Size**).

For example, a symbol of 25 x 25 cells where each cell is 2 mm gives a Width and Height of 50 x 50 mm.

8.2.25. GS1 U.S. Coupon Interim

About this Barcode...

GS1 U.S. Coupon Interim is an interim coupon barcode. It is used during the transition between UPC-A coupons and the new GS1 Databar Expanded Stacked coupons, that can encode more information.

It is made of both an old UPC-A coupon barcode, and a new Databar Expanded Stacked coupon barcode, to be readable by both old and new scanners.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108

Additional Parameters

- *Use "992" Prod. Family in UPC* on page 109
- *Max. Row Width* on page 109
- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Narrow Bar* on page 113
- *Gap* on page 113
- *Vertical alignment* on page 114

8.2.26. HIBC 128

About this Barcode...

This barcode is based on the Code 128 symbology.

It encodes the organization's primary and / or secondary Labeler Identification Code (LIC). This encoding begins with the "+" character. If both primary and secondary Labeler Identification Codes are encoded in one barcode, they are divided by the "/" character.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108

- *Vertical Offset* on page 108

Additional Parameters

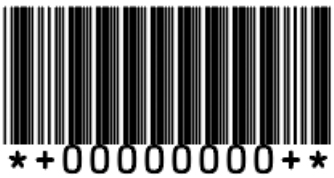
- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Narrow Bar* on page 113
- *Width* on page 113
- *Box* on page 117
- *Stroke Weight: Bearer Bars* on page 118

8.2.27. HIBC 39

About this Barcode...

This barcode is based on the Code 39 symbology.

It encodes the organization's primary and / or secondary Labeler Identification Code (LIC). This encoding begins with the "+" character. If both primary and secondary Labeler Identification Codes are encoded in one barcode, they are divided by the "/" character.



Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109

- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Box* on page 117

8.2.28. ITF-14

About this Barcode...

ITF-14 is a standardized version of the Interleaved 2 of 5 barcode, containing 14 digits, the last being a check digit.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Text Format* on page 109
- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114

- *Total Height* on page 116
- *Smax / Smin* on page 116
- *Box* on page 117

8.2.29. ITF-16

About this Barcode...

ITF-16 is a standardized version of the Interleaved 2 of 5 barcode, containing 16 digits, the last being a check digit.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Text Format* on page 109
- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Total Height* on page 116
- *Smax / Smin* on page 116

- *Box* on page 117

8.2.30. Interleaved 2 of 5

About this Barcode...

Interleaved 2 of 5 (or Int. 2 of 5) is a barcode originally used for transportation packaging, that can have any even number of digits. Since this type of packaging consists mainly of cardboard boxes printed in low quality, the Interleaved 2 of 5 barcode is more tolerant to distortion than other barcodes.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Box* on page 117
- *Stroke Weight: Bearer Bars* on page 118

8.2.31. Klebrand

About this Barcode...

Klebrand is a barcode used in the packaging industry. It uses four different bar thicknesess to encode the data. The barcode uses the quarternal numerical system and each bar thickness represents one of

four numbers allowed in the non-decimal input (0, 1, 2 and 3). It can have up to 30 bars. The input can be both in decimal and quarternal numerical systems.

- In non-decimal (quarternal) mode all digits are encoded, including any leading zeroes. For example "0031" is encoded to 4 bars.
- In decimal mode you can define the number of bars in total, by enter e.g. "6/4". The first number (6) defines the total number of bars, the second (4) defines the value to be encoded. If you you enter a single number without defining the number of bars, the minimal number of bars needed for the value is used, and the code is adjusted accordingly. If you for example enter "9", the value will change to "4/9", as you need at least 4 bars to encode this value. The text below the barcode (if enabled) only shows the decimal value itself.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Wide Bar* on page 113
- *Gap* on page 113
- *Decimal Input* on page 114
- *Box* on page 117

8.2.32. Kurandt

About this Barcode...

The Kurandt barcode is part of the same "binary" barcode family as the Laetus Pharma Code, Bobst and CLF-8. It is used in the pharmaceutical industry.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Wide Bar* on page 113
- *Gap* on page 113
- *Decimal Input* on page 114
- *Box* on page 117

8.2.33. Laetus Pharma Code

About this Barcode...

The Laetus Pharma Code is part of the same barcode family as the Kurandt, Bobst and CLF-8 barcode. It was developed specifically to meet the requirements of the pharmaceutical packaging process. It has established itself as the worldwide pharmaceutical industry barcode standard. It can encode numeric or binary data.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- **Miniature**: Use this option to create a miniature version of the bar code
- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Wide Bar* on page 113
- *Gap* on page 113
- *Decimal Input* on page 114
- *Box* on page 117

8.2.34. M+S 7

About this Barcode...

The M+S 7 barcode is an EAN 8 barcode modified by Marks & Spencer's, for use on own-brand products sold in their stores.

To make the M+S 7 barcode, the initial "0" is removed and the extra letters "M" and "S" are added to the human readable characters.

This means that the human readable characters contain seven digits plus the "M" and "S" letters.

Note: This doesn't affect the data encoded in the barcode (it still encodes eight digits), so you should enter eight digits when creating a M+S 7 barcode.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.35. MSI

About this Barcode...

MSI, also known as Modified Plessey, was developed by the MSI Data Corporation, based on the original Plessey Code. It is a numeric barcode used primarily to mark retail shelves for inventory control.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108

- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Box* on page 117

8.2.36. Marks & Spencer's

About this Barcode...

The Marks & Spencer's barcode is also an EAN 8 barcode modified by Marks & Spencer's for use on own-brand products.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109

- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.37. NDC / HRI

About this Barcode...

The NDC / HRI barcode is a variant of the UPC barcode with special human readable interpretation formats compliant to the US National Drug Code definition.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Text Format* on page 109
- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110

- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.38. Paraf Italy

About this Barcode...

This barcode is a variant of Code 39 used by the Italian Health and Cosmetics Industry. It is also called Code 32.

Use **Code Base32** when your barcode data is encoded in the Base 32 format. This format uses case-insensitive alphanumeric characters to encode data.

Use **Code Base10**when your barcode data is in decimal format. Paraf Italy barcodes in decimal format should start with an "A" (included automatically by Dynamic Barcodes), have 8 digits of data and end with a check digit (calculated automatically by Dynamic Barcodes).

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Narrow Bar* on page 113
- *Box* on page 117

8.2.39. PDF417

About this Barcode...

PDF417 is a 2D barcode mainly used in security printing (passports, identity cards, driving licences...).

It is a "self-checking" barcode that can have different levels of error correction.

It can encode data using one of three "compaction" modes: Text (to encode all alphanumeric and punctuation characters in the ISO-8859-1 character set), Numeric (to encode only numeric characters) or Binary (to encode 8-bit characters).

It can use the three compaction modes in a single barcode if necessary, but you can choose to disable the Text and/or Numeric compaction modes.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Narrow Bar* on page 113
- *Box* on page 117

Specific Parameters

Columns

You can give your barcode between 1 and 30 **Columns**. The number of columns corresponds to the number of PDF417 codewords.

Rows

You can give your barcode between 3 and 90 **Rows**.

Truncated

Choose **Truncated** to make the symbol less wide by truncating the end character (which is not part of the encoded data) and the end pattern. In the example below, the top PDF417 barcode is not truncated, and the bottom barcode is truncated (but encodes the same data).

Initialize in Alpha Submode

Choose this option to generate a "shift to Text mode" character at the beginning of the barcode when using Text compaction mode. This makes the encoding clear for barcode scanners.

Allow Text Compaction

Choose this to let Dynamic Barcodes switch to Text compaction mode automatically when your barcode contains text data.

This encodes the text data in your barcode more efficiently (it makes that part of your barcode smaller).

Allow Numeric Compaction

Choose this to let Dynamic Barcodes switch to Numeric compaction mode automatically when your barcode contains numeric data.

This encodes the numeric data in your barcode more efficiently.

Note:

Dynamic Barcodes can always switch to the Binary compaction mode if your barcode contains binary data.

If you don't enable either **Allow Text Compaction** or **Allow Numeric Compaction**, Dynamic Barcodes will only use Binary compaction mode.

Error Correction Level

Error correction adds check sums to the barcode to detect and correct incorrect data. You can choose an **Error correction level** from 0 to 8.

The higher the correction level, the more check sums are added to the barcode and the more incorrect data can be corrected. Keep in mind that a higher correction level makes the barcode bigger and may limit the maximum length of the encoded data.

Note: Level 0 means that there is only one check sum added to the data, so incorrect data can be detected but not corrected.

You can choose **Automatic** to let the plug-in pick the best error correction level for the data encoded.

8.2.40. MicroPDF417

About this Barcode...

MicroPDF417 is a 2D multi-row barcode derived from PDF417, for use on smaller areas. It can encode up to 150 bytes.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110

- *Narrow Bar* on page 113
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

Specific Parameters

Columns

You can give your barcode between 1 and 4 **Columns**.

Rows

You can give your barcode between 4 and 44 **Rows**.

Allow Text Compaction

Choose this to let Dynamic Barcodes switch to Text compaction mode automatically when your barcode contains text data.

This encodes the text data in your barcode more efficiently (it makes that part of your barcode smaller).

Allow Numeric Compaction

Choose this to let Dynamic Barcodes switch to Numeric compaction mode automatically when your barcode contains numeric data.

This encodes the numeric data in your barcode more efficiently.

Note:

Dynamic Barcodes can always switch to the Binary compaction mode if your barcode contains binary data.

If you don't enable either **Allow Text Compaction** or **Allow Numeric Compaction**, Dynamic Barcodes will only use Binary compaction mode.

8.2.41. PZN

About this Barcode...

The PZN (Pharma-Zentral-Nummer) barcode is used for distribution of pharmaceutical and healthcare products in Germany. The PZN code is written in the format “PZN-nnnnnnn” but only the numeric part including the leading dash is encoded.

PZN-0000000

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Size* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Box* on page 117

8.2.42. PZN8

About this Barcode...

The PZN8 (Pharma-Zentral-Nummer) barcode is used for distribution of pharmaceutical and healthcare products in Germany. The PZN code is written in the format "PZN-nnnnnnnn" but only the numeric part including the leading dash is encoded.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Size* on page 110
- *Height* on page 110
- *Characters per unit* on page 111
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Box* on page 117

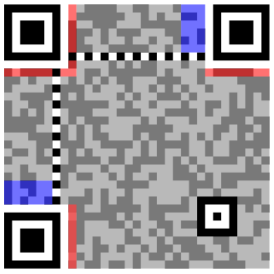
8.2.43. QR

About this Barcode...

The QR barcode is a 2-dimensional barcode used for commercial tracking and convenience-oriented applications aimed at mobile phone users (known as "mobile tagging").

QR codes storing addresses and URLs may appear in magazines, on signs, buses, business cards, or other objects... Users with a camera phone equipped with the correct reader application can scan the QR code to display text, contact information, connect to a wireless network, or open a web page in the phone's browser.

QR codes have the following structure:



-  Position pattern (required)
-  Alignment pattern (required)
-  Timing pattern (required)
-  Version information
-  Format information
-  Data and error correction keys

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Cell Size* on page 115
- *Width / Total Height* on page 116
- *Box* on page 117

Specific Parameters

Minimum Symbol Size

Choose the number of cells to use for your barcode (in the format "horizontal cells x vertical cells").

Note: If the number of cells you choose for your symbol is too small to encode the data you entered in **Code**, Dynamic Barcodes will use a bigger symbol size automatically.

Error Correction

Error correction adds check sums to the barcode to detect and correct incorrect data. You can choose one of the following **Error correction** levels:

- Level **L**: 7% of codewords can be restored.
- Level **M**: 15% of codewords can be restored.

- Level **Q**: 25% of codewords can be restored.
- Level **H**: 30% of codewords can be restored.

Note: Keep in mind that a higher correction level makes the barcode bigger (as more check sums are added to the barcode) and may limit the maximum length of the encoded data.

Width / Height

The **Width** and **Height** parameters depend on the **Cell Size** and the number of cells used for the symbol (**Minimum Symbol Size**).

For example, a symbol of 25 x 25 cells where each cell is 2 mm gives a Width and Height of 50 x 50 mm.

8.2.44. MicroQR

About this Barcode...

The Micro QR Code is a very small QR Code for use on smaller spaces (for example to encode the ID of printed circuit boards and electronics parts).

It works with smaller amounts of data (maximum 35 numeric characters), and uses only one position pattern.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Cell Size* on page 115
- *Width / Total Height* on page 116
- *Box* on page 117

Specific Parameters

Minimum Symbol Size

Choose the number of cells to use for your barcode (in the format "horizontal cells x vertical cells").

Note: If the number of cells you choose for your symbol is too small to encode the data you entered in **Code**, Dynamic Barcodes will use a bigger symbol size automatically.

Error Correction

Error correction adds check sums to the barcode to detect and correct incorrect data. You can choose one of the following **Error correction** levels:

- Level **L**: 7% of codewords can be restored.
- Level **M**: 15% of codewords can be restored.
- Level **Q**: 25% of codewords can be restored.
- Level **H**: 30% of codewords can be restored.

Note: Keep in mind that a higher correction level makes the barcode bigger (as more check sums are added to the barcode) and may limit the maximum length of the encoded data.

Width / Height

The **Width** and **Height** parameters depend on the **Cell Size** and the number of cells used for the symbol (**Minimum Symbol Size**).

For example, a symbol of 15 x 15 cells where each cell is 2 mm gives a Width and Height of 30 x 30 mm.

8.2.45. SICK Code

About this Barcode...

SICK is a bar code used in the German packaging industry. It's a binary bar code, using a thick bar for a 0, and a thin bar for a 1. It can have up to 12 bars. It can encode numeric or binary data.

- In binary mode all digits are encoded including leading zeroes, ie. "0001" is encoded as a three thin and one thick bar.
- In decimal mode you can define the number of bars in total, by enter e.g. "6/4". The first number (6) defines the total number of bars, the second (4) defines the valueto be encoded. If you don't define the number of bars, in other words if you enter a single number, the minimal number of bars needed for the value is used, and the code is adjusted accordingly. If you for example enter "9", the value will change to "4/9", as you need at least 4 bars to encode this value.
- The defaults follow the mostly used standard "Codetype A", for generating the "Codetype B" should be changed the barcode parameters as following: Narrow Bar to 1.25mm (from 0.5mm), Wide Bar to 3.75mm (from 1.5mm) and Gap to 2.5mm (from 1mm)

By default, the values for the Narrow Bar (0.5mm), Wide Bar (1.5mm) and Gap (1mm) are set for the mostly used standard "Codetype A". If you want to generate a SICK code using "Codetype B", you should set the Narrow Bar to 1.25mm, the Wide Bar to 3.75mm and the Gap to 2.5mm

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Alignment* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Height* on page 110
- *Ratio* on page 113
- *Narrow Bar* on page 113
- *Wide Bar* on page 113
- *Gap* on page 113
- *Decimal Input* on page 114
- *Box* on page 117

8.2.46. UPC-A

About this Barcode...

Universal Product Code or UPC is the standard for article numbering in the U.S.A. and Canada. It is similar to the EAN system and compatible with it. For more information on EAN, see *EAN 13* on page 69.

UPC-A is a numeric barcode of up to twelve digits, plus two or five additional digits.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.47. UPC-E

About this Barcode...

UPC-E is an abbreviated version of UPC-A, for use on smaller packages. It is a numeric barcode of eight digits, with an optional 2 or 5 digits add-on. You can also directly enter the 12-digit code of UPC-A codes that can be represented in 8 digits.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

- *Bar Width Reduction* on page 109
- *Device Compensation* on page 110
- *Magnification* on page 110
- *Height* on page 110
- *Snap Bars to Output Resolution* on page 114
- *Box* on page 117

8.2.48. UPC-SCS

About this Barcode...

The UPC-SCS (Shipping Container Symbol) barcode is a version of the Interleaved 2 of 5 barcode that has a structure very similar to the Universal Product Code's (UPC) and specific formatting of the human readable interpretation.

Parameters

General Parameters

- *Rotation* on page 105
- *Code* on page 105

Text Parameters

- *Add Human Readable Characters* on page 106
- *Font Family, Style and Size* on page 108
- *Vertical Offset* on page 108

Additional Parameters

8.3. Barcode Parameters

8.3.1. Rotation

To rotate your barcode by 90, 180 or 270 degrees, use the **Rotation** buttons.

To rotate it by any other angle, enter that angle in the **Rotation** field.

8.3.2. Code

Enter the data to encode in your bar code.

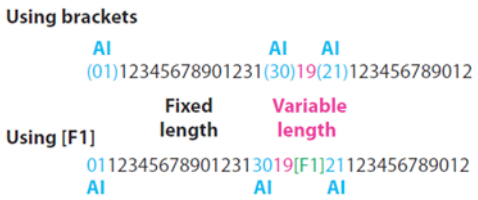
Dynamic Barcodes checks that the data you have entered is valid for your chosen **Barcode Type**. If it isn't, a warning / error will pop up.

Code for GS1 Bar Codes

When entering data to be encoded in GS1 bar codes, you can either enter Application Identifiers (AI) including the brackets, or you can enter the code without brackets, using FNC1 code at the end of each variable-length element in the data. The FNC1 code will be represented by [F1] when entering the code (with an exception for the GS1 DataMatrix barcode, which also allows the ASCII 29 <GS> control character as a seprator).While entering GS1 data, following remarks should be taken into account:

- Do not add the mandatory FNC1 character at the beginning of the data. Dynamic Barcodes will add it automatically.
- For GS1 bar codes intended for encoding AI (01) only, AI has to be omitted, i.e. don't enter '01' at the beginning. It doesn't matter if entered with or without brackets.

- The Composite Component can be created using the same rules for using brackets and [F1]. It's not necessary to keep the same way of entering the Composite Component and the main code.
- If you don't use brackets for entering AI, type [F1] at the end of each variable-length element in the data, to represent a FNC1 terminating character, except when the variable-length element is placed at the end of the whole code.
- You don't need to type [F1] at the end of fixed-length elements.
- Do not mix using [F1] as terminators of variable AI and entering brackets around the AI.



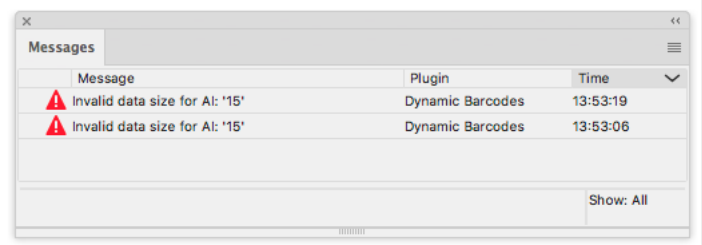
Dynamic Barcodes also checks the validity of the Application Identifiers you enter in the **Code** and / or in the **Composite Component** of GS1 bar codes.

8.3.3. Composite Component

A **Composite Component** is a 2D symbol placed on top of a GS1 barcode, that encodes extra information (batch number, expiration date...).

If you want your barcode to have a **Composite Component**, enter the (alphanumeric) data to encode in this field.

Note: Dynamic Barcodes checks the data you enter for the Composite Component (for example to see if the Application Identifiers you entered are correct), and displays a warning if it is invalid.



8.3.4. Add Human Readable Characters

This parameter adds "human readable" characters (numeric or alphanumeric characters) under your barcode.

This is the same barcode with and without human readable characters:

8.3.5. Put on Top

This parameter allows you to put the Human Readable Characters above instead of below the barcode bars.

8.3.6. Multiple Text Lines

Select this parameter if you want the human readable characters to be printed on multiple lines below the barcode. Dynamic Barcodes will start a new line for every element of the barcode data (starting with the Application Identifier).

Note: When opening your document in PackEdge, the characters will be placed back on a single line.

8.3.7. Light Margin Indicator

This parameter adds "<" and ">" signs (or only ">" depending on the barcode type) at the bottom of your barcode. This indicates the width the barcode should have for optimal reading.

Note: When creating a bar code, the current Light Margin Indicator setting is stored for the specific barcode type. This means that the next time you select the same barcode type (e.g. when creating a new barcode of that same type) the Light Margin Indicator setting will be adjusted.

8.3.8. Add-on Text On Top

This parameter allows you to put the add-on HRI text above instead of below the barcode bars. By default, this option is enabled.

8.3.9. Font Family, Style and Size

These options can be used to define the font family, style and size to be used for the human readable characters. By choosing **[default font]**, all other Text Parameters are disabled, as the default values are used.

Note: If the font used in a bar code is not available when opening the file, Adobe Illustrator will warn about a missing font. You can however only fix the problem using the Dynamic Barcode palette, since Adobe Illustrator's "Find Font" feature can not be used.

8.3.10. Alignment

When using human readable characters, in combination with custom font settings, you can set text alignment to **Left**, **Center** or **Right**.

8.3.11. Vertical Offset

This parameter allows you to add extra space between your barcode bars and the human readable characters.

Note: When opening your document in PackEdge, the characters will be placed just below the bars again.

8.3.12. Use “992” Prod. Family in UPC

Enable this parameter to use the special “992” product family in your barcode (for specific offers like discounts on the customer's next purchase or on variable weight items...).

8.3.13. Max. Row Width

Use this parameter to define how many segments of data (groups of bars encoding several digits) can fit in one row. If the barcode contains more segments, they will be stacked.

In the example below, the first barcode has a **Max. Row Width** of 8 segments. When reducing this to 4 segments, the segments that don't fit in the row width anymore are stacked, forming a second row (second barcode).

The GS1 Max Row Width parameter applies to the GS1 Databar Expanded Stacked component of the GS1 U.S. Coupon Interim barcode.

8.3.14. Text Format

Choose a text format for the human readable characters of your barcode.

For NDC/HRI barcodes, you can choose a variant of the U.S. National Drug Code.

For ITF-14, ITF-16 and UPC-SCS barcodes, you can choose a variant of the Shipping Container Symbol.

8.3.15. Bar Width Reduction

Use this to adjust the width of barcode bars, in order to compensate for ink bleeding when printing on your substrate.

Your printer or customer will usually provide you with the value to use. For example if your printer tells you that the line width will increase by 0.01mm, you should use a **Bar Width Reduction** value of 0.01 mm.

You can enter the **Bar Width Reduction** in microns, milliinches ("mil"), millimeters or inches.

Tip: You can enter a negative value if you want to print thicker and not thinner bars.

8.3.16. Device Compensation

Use this if your printer gave you a separate device bleed value. This parameter adjusts the bar's width to compensate for bleed caused by the plate or film making process.

You can enter the **Device Compensation** in microns, milliinches ("mil"), millimeters or inches.

Note: If you use both a Bar Width Reduction and a Device Compensation value, Dynamic Barcodes will add them to adjust the bar's width.

Tip: You can enter a negative value if you want to print thicker and not thinner bars.

8.3.17. Magnification

Use this parameter to increase or decrease the barcode size proportionally.

In the example below, you can see the same barcode at 80%, 100% and 120% magnification.

8.3.18. Size

Choose to give your PZN barcode a **Small**, **Normal** or **Large** size. Those are predefined sizes for this barcode. The actual Height, Characters per unit, Ratio and Narrow Bar values are shown underneath.

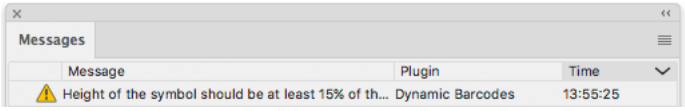
By selecting **Custom**, you can manually edit these four parameters.

8.3.19. Height

Enter the height to give to your barcode's bars. They need to be tall enough to be read easily by barcode scanners.

Code 128

In Dynamic Barcodes, you can create Code 128 barcodes shorter than the minimum height. Dynamic Barcodes will just display a warning, but if you export the document to EPF and open it in PackEdge, PackEdge will extend the barcode to its minimum required height.



Bars and Digits

For:

- EAN 8 & 13
- HIBC 128 and 39
- M+S 7, and Marks & Spencer's
- NDC / HRI
- UPC-A and UPC-E

For the bar codes listed above, the height you enter is the combined height of the bars and the human readable characters). Your barcode needs to be tall enough to be read easily by barcode scanners.

Attention: Do not change the **Height** of the barcode before entering a **Magnification** value. The **Height** will change again according to the **Magnification** factor you define.

8.3.20. Characters per unit

This parameter allows you to define your barcode's width based on the encoding of (numeric or alphanumeric) characters.

You can choose the unit to use: **micron**, **mil** (milliinches), **mm** or **inch**.

For example, choose **mm** and use `1` **Character per unit** in the **Dynamic Barcodes** dialog if you want the bars needed to encode one character to take up 1 mm.

Increase the **Characters per unit** value to make the barcode narrower, or decrease it to make the barcode wider. For example, if you choose `0.5` **Character per unit**, the bars needed to encode one character will take up 2 mm.

Note: Barcodes like Interleaved 2 of 5 encode two characters together in a group of black and white bars. For these barcodes, Dynamic Barcodes takes half of the group of black and white bars to measure one character.

8.3.21. Ratio

The **Ratio** is the factor between the width of the narrow bar and the width of the wide bar in your barcode. For example, enter 3 if you want your wide bar to be three times as wide as your narrow bar.

8.3.22. Narrow Bar

This parameter determines the width of the narrowest bar of your barcode. In some cases (for example GS1 DataBar barcodes) this affects the size (height and width) of your barcode proportionally.

8.3.23. Width

This parameter determines the width of the barcode from the leftmost bar to the rightmost bar. Changing the Width will update the Narrow Bar and Characters per unit settings to achieve the desired size.

The Light Margin Indicators and Box are not included.

8.3.24. Wide Bar

This parameter determines the width of the widest bar of your barcode.

8.3.25. Gap

Enter the width of the white space between the bars.

Note: The **Ratio** influences the **Gap** size: increasing the Ratio also increases the **Gap** size.

8.3.26. Vertical alignment

Dynamic Barcodes allows you to resize either the UPC-A or the GS1 Databar Expanded Stacked coupon barcode, so they are aligned vertically with each other. You can choose:

- **None** to keep the original size of both the UPC and the GS1 barcodes,

- **Resize UPC to GS1** to resize the UPC barcode so it has the same height as the GS1 barcode,

- **Resize GS1 to UPC** to resize the GS1 barcode so it has the same height as the UPC barcode.

8.3.27. Snap Bars to Output Resolution

Use this to adjust the barcode size parameters (**Bar Width Reduction**, **Device Compensation** and **Magnification**) so that the bars' width and height take up a complete number of pixels or dots.

Enable **Snap Bars to Output Resolution** and enter the resolution you will use to print your barcode in ppi.

8.3.28. Decimal Input

Use this parameter to change the type of data you can enter in the **Code** field.

- Disable it to enter the data to encode in binary or quaternal format.
- Enable it to enter the data in decimal instead of binary/quaternal format.

Note: When using binary format for the Laetus Pharma Code, CLF-8, Bobst or Kurandt barcode data, you need to use a special "Pharma" binary format.

To convert a decimal number into a Pharma binary number, do the following:

1. Add `1` to your decimal number.
2. Convert the result to a binary number using a regular binary conversion algorithm.
3. Remove the first digit (which is `1`).

You now have your Pharma binary input for the Laetus Pharma Code, CLF-8, Bobst or Kurandt barcode.

For example, you want to encode the number `3`.

1. 3+1=4
2. 4 in binary is 100.
3. Without the first digit, it's 00.

Enter `00` in the **Code** field of your Laetus Pharma Code, CLF-8, Bobst or Kurandt barcode.

8.3.29. Add Check Digit

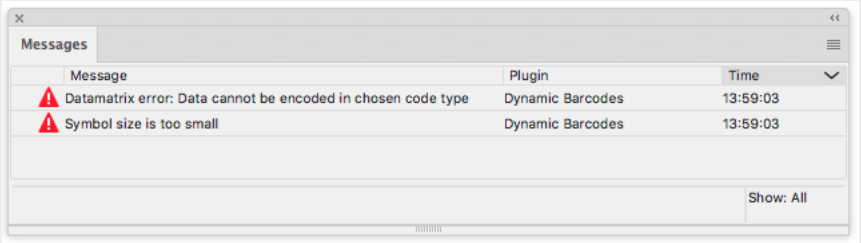
Use this parameter to add a check digit to your barcode data.

Note: Code 39 doesn't usually contain a check digit but it can be required in some cases.

8.3.30. Symbol Type

Choose the number of cells to use for your barcode (in the format "horizontal cells x vertical cells").

Note: If the number of cells you choose for your symbol is too small to encode the data you entered in **Code**, Dynamic Barcodes will display an error.



You can choose **Best Fit** to make Dynamic Barcodes automatically adapt the number of cells to the amount of data you entered in **Code**.

8.3.31. Cell Size

Enter the size you want to give to each cell of the symbol. This affects the size of the whole symbol.

The unit used is the one you chose as Illustrator's **General** unit in the **Units & Display Performance Preferences**.

In the example below, the first symbol has a 1 mm cell size (cells sides are 1 mm), and the second one a 2 mm cell size.

8.3.32. Width / Total Height

The **Width** and **Total Height** parameters depend on the **Cell Size** and the number of cells used for the symbol (**Symbol Type**).

In the example below, a symbol of 10 x 10 cells where each cell is 3 mm gives a Width and Total Height of 30 x 30 mm.

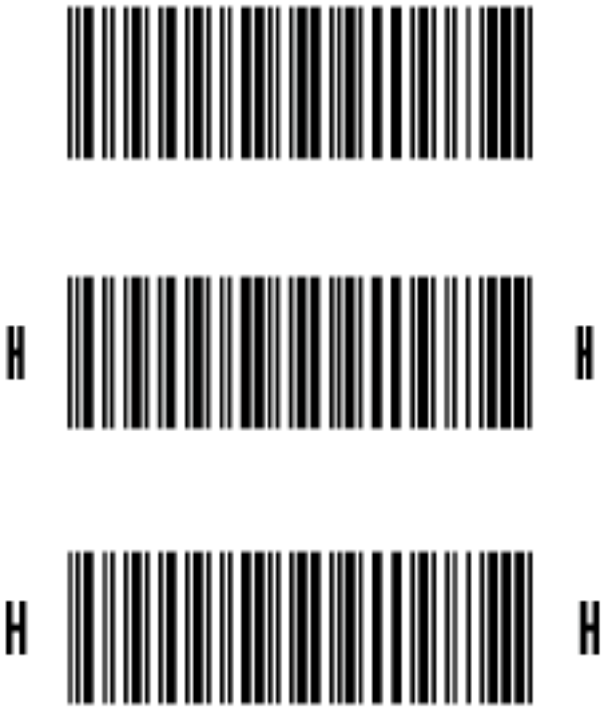
8.3.33. Total Height

Enter the total height you want to give to your barcode. This is the combined height of the bars, the human readable characters and the box. If your barcode doesn't contain human readable characters or a box, the **Total Height** is the same as the bars' **Height**.

8.3.34. Smax / Smin

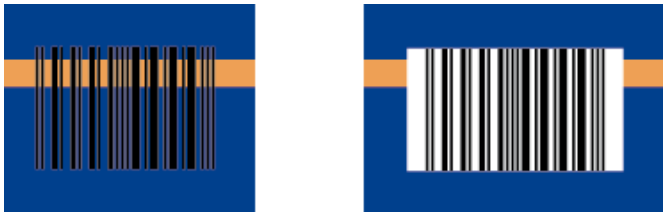
Use these parameters to define the width of the printability gauges ("H" marks) either side of your barcode. **Smax** defines the width of the left "H", **Smin** defines the width of the right "H". Enter `0` in both fields if you don't want printability gauges.

In the example below, the top barcode has a value of 0 for both **Smax** and **Smin**, the middle one has a value of 4 and the bottom one has a value of 8 (the maximum).



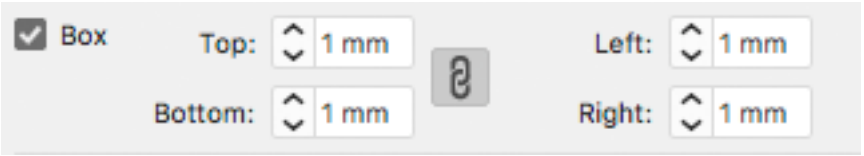
8.3.35. Box

Use this parameter to create an opaque white box under your barcode.



Use the **Top**, **Bottom**, **Left** and **Right** fields to add a white margin around your barcode and make the box bigger.

By default, Dynamic Barcodes links the four margins' values so that when you change one of them, the other ones are updated automatically.



If you want to change them independently, click the link symbol to make it look detached  .

For ITF, UCP and UPC-SCS bar codes, the box will be transparent.

Note: When creating a bar code, the current Box parameters are stored for the specific barcode type. This means that the next time you select the same barcode type (e.g. when creating a new barcode of that type) the Box parameters will be adjusted.

8.3.36. Stroke Weight: Bearer Bars

For **ITF-14**, **ITF-16** and **UPC-SCS** barcodes, enabling the **Box** option will create a transparent box, always with bearer bars around it. The **Stroke Weight** parameter defines the width of the bearer bars. In this case, it can't be set to zero.

For **2 of 5**, **Code 128**,**Code 128 long**, **Code 93**,**GS1 128**, **HIBC 128** and **Int 2 of 5** barcodes, the **Stroke Weight** defines the width of the bearer bars, but also define if bearer bars should be added: if the value is set to zero, no bearer bars are added, even if **Box** is enabled. If the value is not zero, bearer bars will be added, even if the **Box** option is disabled.

The bearer bars are positioned at the outside of the defined box, taking into account the margins (even if the **box** option is disabled for the barcode types mentioned above). See also *Box* on page 117.

The option **Only Top and Bottom Bars** limits the bearer bars to only the top and bottom line.

9. Barcode Parameters from the Job Folder

Automation Engine stores information related to the printing jobs within the Job Folder. Each Job Folder can hold various job-related technical information, including barcode parameters.

The following barcode parameters can be set in Automation Engine Pilot:

Parameter	Note	Link
Type	The type of barcode. You can't have two different bar codes of the same type in one job.	
Sub Type	The size of the symbol for Datamatrix barcodes.	*Symbol Type* on page 115
Code	The encoded value including check digits.	*Code* on page 105
Composite Code	For barcodes with a Composite Component - mainly GS1 Databar codes	*Composite Component* on page 106
Output Resolution		*Snap Bars to Output Resolution* on page 114
Bar Width Reduction		*Bar Width Reduction* on page 109
Device Compensation		*Device Compensation* on page 110
Narrow Bar	Main size parameter for Code 128, Code 39, Interleaved 2 of 5, Codabar or MSI based barcodes, for GS1 DataBar barcodes, and for binary barcodes. For 2D barcodes such as DataMatrix, the parameter is used to set the **Cell Size**.	*Narrow Bar* on page 113 and *Cell Size* on page 115
Magnification	Main proportional size parameter for EAN and UPC based barcodes	*Magnification* on page 110
Ratio	Used for Int2of5 barcodes	*Ratio* on page 113

Important: Automation Engine does not check the parameters. All listed parameters are available for all barcode types, even if they are not valid for the given barcode type. Make sure you're entering the valid inputs, including a correct Code with its check digit.

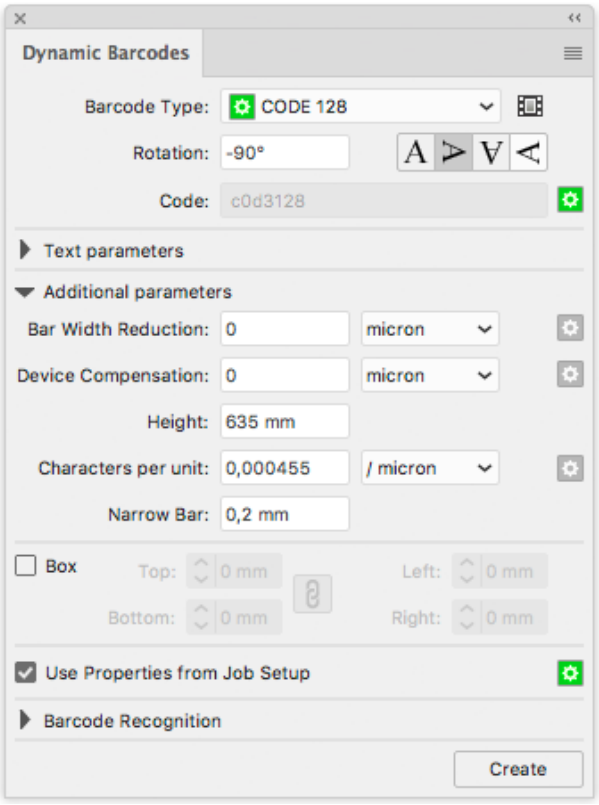
Note: It is not necessary to have the parameters already set on the Job Setup when creating barcodes: as soon as the Job Setup contains the settings for connected barcodes, these barcode parameters will be applied. This allows you to create templates or placeholders before the actual data (code for the barcode, etc) is available.

9.1. Connecting to a Job Folder

In order to take parameters from an Automation Engine Job Folder, you need to be connected to an Automation Engine, and open the file from the Automation Engine Job Folder. For easy locating the file on the server, you can use **File** > **Job Folder** > **Open from Job folder**

For more information on how to connect to Automation Engine, and on opening from a Job Folder, we refer to the Esko DataExchange documentation. See *http://help.esko.com/products/Esko%20Data%20Exchange%20for%20Adobe%20Illustrator*

9.2. Connect Dynamic Barcodes to Job Setup



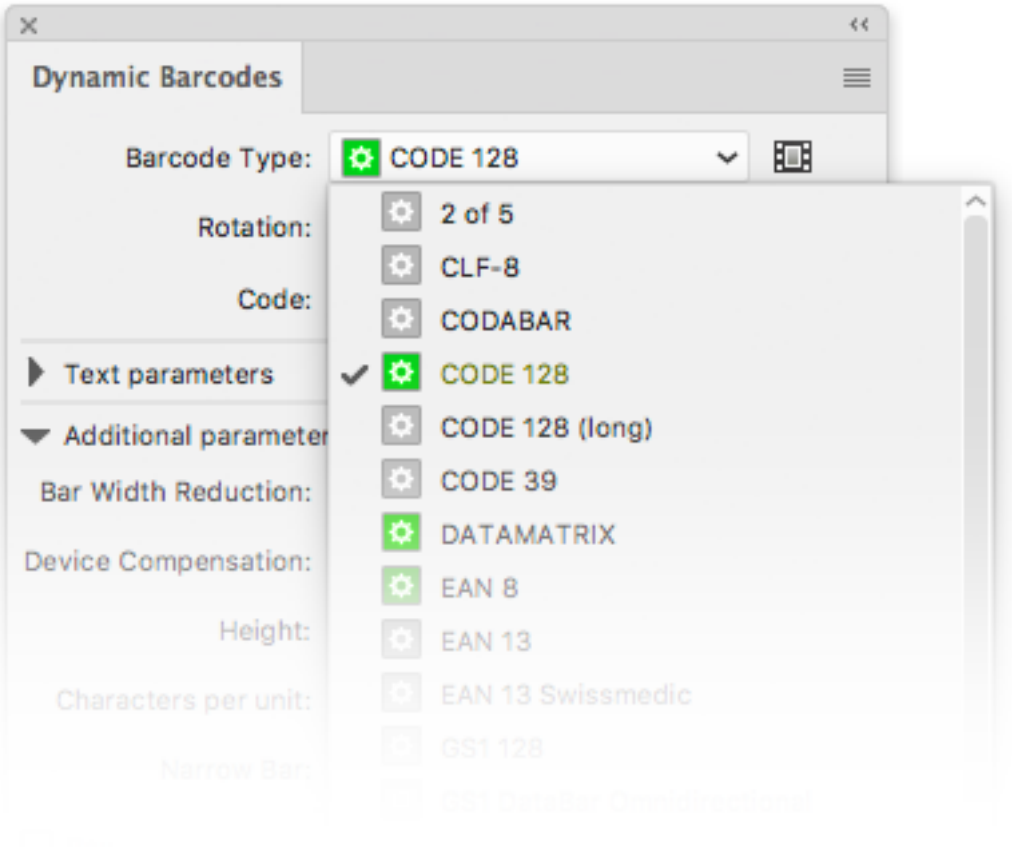
To use the Barcode properties from the Job Folder, enable the **Get Properties from Job Setup**.

When enabled, the icon on the right will indicate the status:

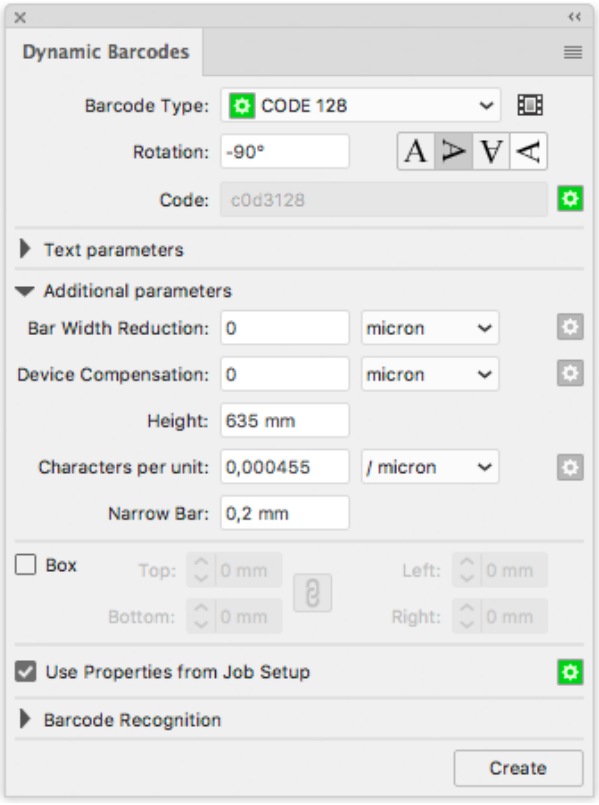
- Gray: the feature is disabled
- Green: the connection is established
- Red: the file is not in a Job Folder, or the connection is down.

9.3. Use Barcode parameters from Job Setup

To use the barcode parameters from Job Setup, select a barcode type from the Barcode Type list that is defined in the Job setup. You can recognize these barcode types by the green icon in front.



As soon as you select one of the barcode types defined in the Job Setup, all parameters that are defined in the job setup will be entered (and no longer be editable), indicated by the same green icon.



In the example above, only the **Code** is defined in the Job Setup. All other parameters can be entered freely.

9.4. Updating barcode parameters from Job Setup

If a barcode is connected to the Job Setup, any changes to the barcode parameters in the Job Setup, whether it is a changed parameter or a newly added parameter, will automatically and immediately be taken into account in Dynamic Barcodes.

When opening a file, all barcodes with the **Get Properties from Job Setup** option enabled will be updated automatically

If a barcode type is removed from the Job Setup, the corresponding barcodes in the job will no longer be connected, so the **Get Properties from Job Setup** option is disabled.

A barcode will also be disconnected and the **Get Properties from Job Setup** option will be disabled in case the barcode parameters in the Job Setup are invalid for the given barcode type. You will need to change the parameters in the Job Setup. Note that after correcting the parameters, you need to manually reconnect the barcode by enabling **Get Properties from Job Setup**.