User's Guide

Barcode Print +

Copyright

Trademarks

Table of Contents

1 Background

1.1 Overview

The Brother Barcode Print + software solution extends the barcode printing capability of Brother printers.

Features

- Uses the same BarDIMM commands as other printer vendors.
- Requires no additional hardware, such as a USB memory stick, compact flash card, or DIMM.
- Supports both 1D and 2D barcodes.

NOTE

To activate this solution, you need a valid license code and software that can send license codes to target machines. For more information, contact your local Brother office.

1.2 Supported Brother Machines

For a comprehensive list of all Brother machines compatible with Brother Barcode Print +, contact your local Brother office.

1.3 Supported Barcodes

Brother Barcode Print + supports many popular 1D and 2D barcodes.

Barcode category	Details
CODABAR	CODABAR
Code 128	Code 128 A, B, C
Code 128	Code 128 with Auto-Switch
Code 25 (2 of 5)	Code 25 Interleaved
Code 39 (3 of 9)	Code 39
Code 39 (3 of 9)	Code 39 + Chk Encode Space Before Data
Code 39 (3 of 9)	Code 39 + Mod 43Chk
Code 39 (3 of 9)	Code 39 Encode Space Before Data
Code 93	Code 93
Code 93	Code 93 Extended
EAN/JAN	EAN/JAN-13, EAN/JAN-13 +2
EAN/JAN	EAN/JAN-13 +5
EAN/JAN	EAN/JAN-8, EAN/JAN-8 +2
EAN/JAN	EAN/JAN-8 +5
EAN/JAN	GS1-128 (UCC/EAN 128)
GS1 DataBar	Standard, Limited, Expanded, Truncated, and Stacked
Interleave 25 (2 of 5)	Interleave 25 + Chk
MSI Plessey	MSI Plessey + Chk 10 and Chk 11
PDF-417	PDF-417 and Macro PDF-417
PostNet	PostNet 9 and PostNet 5
QR Code	QR Code
QR Code	Model 1
QR Code	Model 2
Swiss QR Code	Swiss QR Code
UPC	UPC-A, UPC-A +2, and UPC-A +5
UPC	UPC-E (UPC-E0 and UPC-E1)
UPC	UPC-E +2 and UPC-E +5
USPS	ZIP+4 PostNet 11

For a comprehensive list of all the barcodes compatible with Brother Barcode Print +, contact your local Brother office.

2 Breakdown of Control Codes

2.1 1-D Barcodes

Each barcode comprises a sequence of PCL commands and control codes. Control code parameters can be customised to change the code's size, shape, and content.

Example

Barcode Print PCL Command   **Barcode Data**

#	Name	Parameter	Comments
1	Escape code	`ESC(s`	ESC is ASCII value 27
2	Human-readable information	`#p`	Default value = 0p
3	Barcode height	`#v`	Default value = 0v
4	Barcode width	`#b`	Default value = ,,,b
5	Barcode space width	`#s`	Default value = ,,,s
6	Human-readable text font	`#h`	Default value = h
7	Barcode name	`PCL_BARCODE_NAMET`	See Overview of Barcode Types
8	Barcode data	N/A	User-defined information

NOTE
- To ensure good readability, each barcode must be programmed correctly.
- If the "b" and "s" parameters are identical, the "s" parameter does not need to be specified.
- Do not use decimal values (e.g. "1.5").

2.1.1 Human-readable information ("p")

Specifies if a caption is printed with the barcode.

`ESC(s0p30v,,,b,,,sh24600T123456789123`

Value	Description
0	Default (print)
1	Do not print human-readable text
2	Embed human-readable text
3	Half-embed human-readable text
4	Print human-readable text under the code

2.1.2 Barcode height ("v")

Specifies the barcode height in 1/60th of an inch.

<p style="text-align:center;"><code>ESC</code><code>(s0p<mark>30v</mark>,,,b,,,sh24600T123456789123</code></p>

In this example, 30/60th means that the barcode height will be 0.5 in. (12.7 mm).

2.1.3 Barcode width ("b")

Specifies the width of barcode bars.

<p style="text-align:center;"><code>ESC</code><code>(s0p30v<mark>,,,b</mark>,,,sh24600T123456789123</code></p>

This setting affects the total barcode width. To print smaller barcodes, specify smaller values.
For 1D codes, four values need to be specified in 1/600th of an inch:

1. First (thin) bar width
2. Second bar width
3. Third bar width
4. Fourth bar width

Alternatively, default values (",,,") can be used. The "`ESC`` (s0p30v,,,b…`" sequence will then give the same output as "`ESC``(s0p30v8,16,24,32b…`".

Example

For UPC-A barcodes to be printed correctly, four different bar thicknesses are required.
The output will vary depending on the specified values:

Greater Values	Smaller Values

NOTE

Not all barcode readers may be able to read small barcodes.

2.1.4 Barcode space width ("s")

Specifies the width of the spaces between bars in a barcode.

<p style="text-align:center;"><code>ESC</code><code>(s0p30v,,,b<mark>,,,s</mark>h24600T123456789123</code></p>

For 1D codes, four values need to be specified in 1/600th of an inch:

1. First (thin) space width
2. Second space width
3. Third space width
4. Fourth space width

2.1.5 Human-readable text font ("h")

Specifies the font used for barcode captions.

<p align="center"><code>ESC(s0p30v,,,b,,,sh24600T123456789123</code></p>

Value	Description
0 (or no value)	Default (Courier)
1	Letter gothic
2	Universe
3	Universe condensed
5	OCR-B

2.1.6 Barcode type ("T")

Specifies the barcode type.

<p align="center"><code>ESC(s0p30v,,,b,,,sh24600T123456789123</code></p>

For more information, see <u>Overview of Barcode Types</u>.

2.1.7 Barcode data

The actual user-defined information.

<p align="center"><code>ESC(s0p30v,,,b,,,sh24600T123456789123</code></p>

ASCII control code characters (ASCII code 0–30) can be specified for Code93 Extended, Code128A, and Code128 With-AutoSwitch as follows:

<p align="center"><code>ESC&p#X<00></code></p>

Where:

#	is the number of control code characters
<00>	is an example control code character

<u>Example</u>
To specify two ASCII control code characters "0" and "1" with Code 128A, use: `24850TESC&p2X<00><01>`
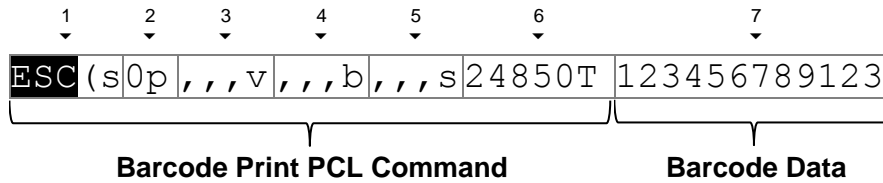
2.2 PDF417

2.2.1 Barcode composition

Each barcode comprises a sequence of PCL commands and control codes. Control code parameters can be customised to change the code's size, shape, and content. Each PDF417 barcode (also called "symbol") can consist of several modules.

<u>Example</u>

Barcode Print PCL Command　　　**Barcode Data**

#	Name	Parameter	Comments	
1	Escape command	`ESC(s`	ESC is ASCII value 27	
2	Error correction	`#p`	Default value = 0p	
3	Barcode height	`#v`	Default value = , , , v	
4	Barcode (symbol) size	`#b`	Default value = , , , b	
5	Module size	`#s`	Default value = , , , s	
6	Barcode name	`PCL_BARCODE_NAMET`	▪ PDF417:	24850
			▪ MacroPDF417:	24855
7	Barcode data	N/A	User-defined information	

NOTE
- To ensure good readability, each barcode must be programmed correctly.
- Do not use decimal values (e.g. "1.5").

2.2.2 Error Correction ("p")

Specifies the error correction level or ratio against the data size.

`ESC(s0p,,,v,,,b,,,s24850T123456789123`

Error Correction Level	Error Correction Data Code
0	2
1	4
2	8
3	16
4	32
5	64
6	128
7	256
8	512

You can also choose a value between 1000 and 1400 to define the error correction level in percent (0–400%), based on the ratio between the size of the codeword and the data size.

2.2.3 Barcode height ("v")

Specifies the barcode height.

`ESC(s0p,,,v,,,b,,,s24850T123456789123`

1. (MacroPDF417 only) The number of blocks displayed as one column (default: 1)

   Example
   `2v`: If the number of blocks is three, the first column will show the first and second block, and the second column will show the third block.
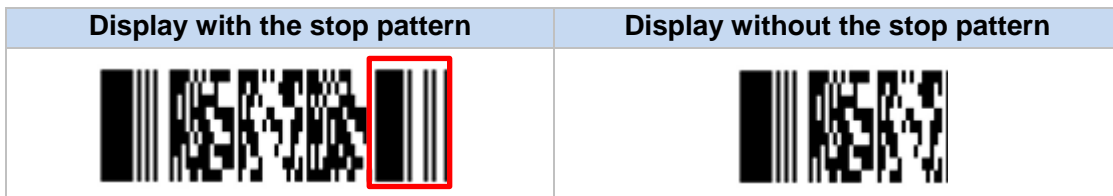
2. (MacroPDF417 only) Unused
3. Maximum block width (unit: 1/600th of an inch)
4. Maximum block height (unit: 1/600th of an inch)

2.2.4 Symbol size ("b")

Specifies the PDF symbol size.

`ESC(s0p,,,v,,,b,,,s24850T123456789123`

1. Maximum number of rows for the PDF symbol
2. Maximum number of columns for the PDF symbol
3. PDF symbol size control:
   - 0: The size specified in 1 and 2 is set as the maximum for rows and columns (default)
   - 1: The size specified in 1 and 2 is set as the mandatory values for rows and columns
4. PDF symbol content control:
   - 0: The code is displayed with the stop pattern (default)
   - 1: The code is displayed without the stop pattern

Display with the stop pattern	Display without the stop pattern

2.2.5 Module size ("s")

Specifies the module size.

ESC(s0p,,,v,,,b,,,s24850T123456789123

1. Module height to width ratio (1–10, default: 3)
2. Symbol length in the length to width ratio (default: 2)
3. Symbol width in the length to width ratio (default: 3)
4. Minimum module width (1–100, default: 10, unit: 1/100 of an inch)

Example
1,3,2,5s
(Module: square; Symbol length: 1.5 x width; Module width: 0.05 in.)

2.2.6 Barcode type ("T")

Specifies the barcode type.

ESC(s0p,,,v,,,b,,,s24850T123456789123

Value	Code Type
24850	PDF417
24855	MacroPDF417

2.2.7 Barcode data

The actual user-defined information:

ESC(s0p,,,v,,,b,,,s24850T123456789123

ASCII control code characters (ASCII code 0–31) can be specified for PDF417 as follows:

ESC&p#X<00>

Where:
  #   is the number of control code characters
  <00>   is an example control code character

Example
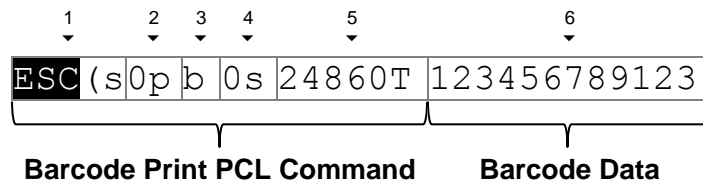To specify two ASCII code characters "0" and "1" with PDF417, use: 24850TESC&p2X<00><01>

2.3 QRCode

2.3.1 Barcode composition

Each barcode comprises a sequence of PCL commands and control codes. Control code parameters can be customised to change the code's size, shape, and content.

Example

```
  1      2  3  4     5              6
  ▼      ▼  ▼  ▼      ▼              ▼
ESC (s 0p b 0s 24860T  123456789123
```

Barcode Print PCL Command　　**Barcode Data**

#	Name	Parameter	Comments		
1	Escape command	ESC(s	ESC is ASCII value 27		
2	Error correction	#p	Default value = 0p		
3	Barcode height	#b	Default value = b		
4	Data type	#s	Default value = 0s		
5	Barcode name	*PCL_BARCODE_NAME*T	▪ QRCode Model 1:	24860	
			▪ QRCode Model 2:	24861	
			▪ Swiss QRCode:	24862	
6	Barcode data	N/A	User-defined information		

NOTE
- To ensure good readability, each barcode must be programmed correctly.
- Do not use decimal values (e.g. "1.5").

2.3.2 Error Correction ("p")

Specifies the error correction level.

```
ESC (s0pb0s24860T123456789123
```

Error Correction Level	Correction Ratio Against All Code Words
0 (Default)	M (~15%)
1	L (~7%)
2	M (~15%)
3	Q (~25%)
4	H (~30%)

2.3.3 Barcode height ("b")

Specifies the maximum height of the small module (unit: 1/600th in.).

`ESC(s0pb0s24860T123456789123`

2.3.4 Data type ("s")

Specifies the barcode data type.

`ESC(s0pb0s24860T123456789123`

Parameter	Barcode Data Type
0 (default)	Automatic (JIS/ShiftJIS)
1	Numerical (0–9)
2	Alphanumeric (0–9, uppercase A to Z, space $%*+-. /:)
3	Binary 8-bits/byte data (JIS 8-bit character set)
4	Kanji (Shift JIS values 8140h – 9FFCh and E040h – EAA4h)

Example
`2s` (Alphanumeric data)

2.3.5 Barcode type ("T")

Specifies the barcode type.

`ESC(s0pb0s24860T123456789123`

Value	Code Type
24860	QRCode Model1
24861	QRCode Model2
24862	Swiss QRCode

2.3.6 Barcode data

The actual user-defined information:

`ESC(s0pb0s24860T123456789123`

ASCII control code characters (ASCII code 0–30) can be specified for QRCode as follows:

`ESC&p#X<00>`

Where:
    `#`   is the number of control code characters
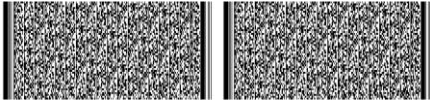   `<00>`   is an example control code character

Example
To specify two ASCII code characters "0" and "1" with QRCode, use: `24850TESC&p2X<00><01>`

3 Overview of Barcode Types

Barcode Type	PCL Barcode Name	Barcode Sample
BOI:GTIN12-UPC-A	24600	1 23456 78912 8
B02:UPC-A +2	24601	0 12345 67891 2 12
B03:UPC-A +5	24602	0 01234 56789 5 12345
B04:GTIN12-UPC-E	24610	0 323453 9
B05:UPC-E +2	24611	0 321459 6 12
B06:UPC-E +5	24612	0 321459 6 12345
B07:GTIN/EAN/JAN-8	24620	0078 3491
B08:EAN/JAN-8 +2	24621	0123 4565 12
B09:EAN/JAN-8 +5	24622	1234 5670 12345
B10:GTIN/EAN/JAN-13	24630	0 123456 789012
B11:EAN/JAN-13 +2	24631	0 123456 789012 12
B12:EAN/JAN-13 +5	24632	0 123456 789012 12345

Barcode Type	PCL Barcode Name	Barcode Sample
B13:25 (2 of 5) Interleaved	24640	
B14:25 Interleaved + CHK	24641	
B15:39 (3 of 9)	24670	
B16:39 + CHK	24671	
B17:39 (3of9) Encode Space	24672	
B18:39 + CHK Encode Space	24673	
B19:93	24690	
B20:93 Extended	24691	
B21:128 Autoswitch	24700	
B22:128 A	24701	
B23:128 B	24702	
B24:128 C	24704	
B25:GS1-128/EAN-UCC-128	24720	

Barcode Type	PCL Barcode Name	Barcode Sample
B26:CODABAR	24750	
B27:CODABAR +CHKmod16	24751	
B28:MSI	24760	
B29:MSI +CHK10	24761	
B30:MSI+CHK10 +CHK10	24762	
B31:MSI+CHK11+CHK10	24763	
B32:ZIP+4 POSTNET 5	24770	
B33:ZIP+4 POSTNET 9	24771	
B34:ZIP+4 POSTNET 11	24772	
B35:GS1 DataBar-14/RSS-14	24810	
B36:GS1 DataBar-14/RSS Tru	24811	
B37:GS1 DataBar-14/RSS Sta	24812	
B38:GS1 DataBar-14/RSS Limited	24814	

3

Barcode Type	PCL Barcode Name	Barcode Sample
B39:GS1 DataBar-14/RSS Exp	24815	
PDF417	24850	
Macro PDF417	24855	
B01:QRCode Model 1	24860	
B02:QRCode Model 2	24861	
B03:Swiss QR Code	24862	