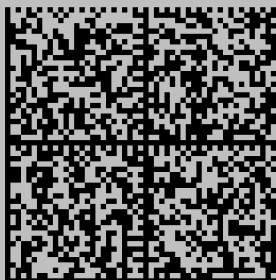


PSTricks

pst-barcode

A PSTricks package for drawing barcodes; v.0.19

April 16, 2023



Package author(s):
Terry Burton
Herbert Voß

Contents

1	Introduction	6
2	The options	6
2.1	The TeX options	6
2.2	The PostScript options	7
2.3	Examples for the TeX options	7
2.4	Examples for the PostScript options	9
3	Usage	9
4	Available Codes	10
5	Symbology Reference	11
5.1	Point of Sale	11
5.1.1	EAN-13	11
5.1.2	EAN-8	13
5.1.3	UPC-A	14
5.1.4	UPC-E	15
5.1.5	ISBN	16
5.1.6	ISMN	18
5.1.7	ISSN	19
5.2	Two-Dimensional	20
5.2.1	Aztec Code	20
5.2.2	Aztec Runes	22
5.2.3	Data Matrix	22
5.2.4	Data Matrix Rectangular	25
5.2.5	Data Matrix Rectangular Extension	26
5.2.6	Han Xin Code	27
5.2.7	MicroPDF417	27
5.2.8	PDF417	29
5.2.9	Compact PDF417	30
5.2.10	QR Code	31
5.2.11	Micro QR Code	32
5.2.12	Swiss QR Code	33
5.3	One-Dimensional	35
5.3.1	Code 128	35
5.3.2	Code 39	36
5.3.3	Code 39 Extended	37
5.3.4	Code 93	38
5.3.5	Code 93 Extended	39
5.3.6	Interleaved 2 of 5	39
5.4	Supply Chain	40
5.4.1	EAN-14	40
5.4.2	ITF-14	41
5.4.3	SSCC-18	41
5.4.4	GS1 DataMatrix	42
5.4.5	GS1 QR Code	43
5.4.6	GS1 Digital Link DataMatrix	44
5.4.7	GS1 QR Digital Link Code	44

5.4.8	GS1-128	45
5.4.9	GS1 DotCode	45
5.5	GS1 DataBar Family	46
5.5.1	GS1 DataBar Omnidirectional	46
5.5.2	GS1 DataBar Stacked Omnidirectional	47
5.5.3	GS1 DataBar Expanded	48
5.5.4	GS1 DataBar Expanded Stacked	49
5.5.5	GS1 DataBar Truncated	50
5.5.6	GS1 DataBar Stacked	50
5.5.7	GS1 DataBar Limited	51
5.5.8	GS1 North American Coupon Code	52
5.6	Postal Symbols	52
5.6.1	Australia Post 4 State Customer Code	52
5.6.2	Deutsche Post Identcode	53
5.6.3	Deutsche Post Leitcode	54
5.6.4	Japan Post 4 State Barcode	54
5.6.5	MaxiCode	55
5.6.6	Royal Mail 4 State Customer Code	56
5.6.7	Royal Mail Mailmark	57
5.6.8	Royal TNT Post 4 state barcode	57
5.6.9	USPS Intelligent Mail	57
5.6.10	USPS POSTNET	58
5.6.11	USPS PLANET	58
5.6.12	USPS FIM Symbols	59
5.7	Pharmaceutical Symbols	60
5.7.1	Italian Pharmacode	60
5.7.2	Pharmacode	60
5.7.3	Two-Track Pharmacode	61
5.7.4	PZN	61
5.8	HIBC Symbols	62
5.8.1	HIBC Code 39	63
5.8.2	HIBC Code 128	63
5.8.3	HIBC PDF417	63
5.8.4	HIBC MicroPDF417	63
5.8.5	HIBC QR Code	63
5.8.6	HIBC Data Matrix	64
5.8.7	HIBC Codablock F	64
5.9	Less-used Symbols	64
5.9.1	BC412	64
5.9.2	Channel Code	65
5.9.3	Codabar	66
5.9.4	Codablock F	67
5.9.5	Code 11	68
5.9.6	Code 16K	69
5.9.7	Code 25	70
5.9.8	DotCode	71
5.9.9	Ultracode	72
5.9.10	IATA 2 of 5	72
5.9.11	Matrix 2 of 5	73
5.9.12	Datalogic 2 of 5	73

5.9.13	COOP 2 of 5	73
5.9.14	Code 49	74
5.9.15	Code One	75
5.9.16	MSI Plessey	76
5.9.17	Plessey	77
5.9.18	PosiCode	78
5.9.19	Telepen	80
5.9.20	Telepen Numeric	81
5.10	GS1 Composite Symbols	82
5.10.1	EAN-13 Composite	83
5.10.2	EAN-8 Composite	84
5.10.3	UPC-A Composite	84
5.10.4	UPC-E Composite	84
5.10.5	GS1 DataBar Omnidirectional Composite	84
5.10.6	GS1 DataBar Stacked Omnidirectional Composite	85
5.10.7	GS1 DataBar Expanded Composite	85
5.10.8	GS1 DataBar Expanded Stacked Composite	85
5.10.9	GS1 DataBar Truncated Composite	85
5.10.10	GS1 DataBar Stacked Composite	85
5.10.11	GS1 DataBar Limited Composite	86
5.10.12	GS1-128 Composite	86
5.10.13	CC-A	86
5.10.14	CC-B	86
5.10.15	CC-C	87
5.11	Raw Symbols	87
5.11.1	DAFT	87
5.11.2	Flattermarken	87
5.11.3	Raw	87
5.12	Partial Symbols	88
5.12.1	EAN-2	88
5.12.2	EAN-5	88
5.13	GS1 Application Identifier Standard Format	89
6	Options Reference	89
6.1	Check Digits	89
6.1.1	includecheck	89
6.1.2	includecheckintext	89
6.2	Input Processing	90
6.2.1	parse	90
6.2.2	parsefnc	91
6.3	Symbol Dimensions	91
6.3.1	height	91
6.3.2	width	92
6.4	Element Properties	92
6.4.1	inkspread	92
6.4.2	inkspreadh	93
6.4.3	inkspreadv	93
6.4.4	dotty	93
6.5	Text Properties	93
6.5.1	includetext	93
6.5.2	textfont	94

6.5.3	textsize	94
6.5.4	textgaps	94
6.5.5	alttext	94
6.6	Text Positioning	95
6.6.1	textxalign	95
6.6.2	textyalign	95
6.6.3	textxoffset	95
6.6.4	textyoffset	95
6.7	Border Properties	95
6.7.1	showborder	95
6.7.2	borderwidth	96
6.7.3	borderleft	96
6.7.4	borderright	96
6.7.5	bordertop	96
6.7.6	borderbottom	96
6.8	Symbol Colors	96
6.8.1	barcolor	96
6.8.2	backgroundcolor	96
6.8.3	bordercolor	96
6.8.4	textcolor	96
6.9	EAN-UPC Add Ons	97
6.9.1	addontextfont	97
6.9.2	addontextsize	97
6.9.3	addontextxoffset	97
6.9.4	addontextyoffset	97
6.10	EAN-UPC Guards	97
6.10.1	guardwhitespace	97
6.10.2	guardwidth	98
6.10.3	guardheight	98
6.10.4	guardleftpos	98
6.10.5	guardrightpos	98
6.10.6	guardleftypos	98
6.10.7	guardrightypos	98
7	QR code in the margin	99
8	List of all optional arguments for pst-barcode	101
	References	101

The pstricks related package provides (essentially) one macro for printing barcodes. The type of the code is defined by a parameter and passed to postscript.

1 Introduction

The pstricks package provides (essentially) one macro for printing barcodes. The type of the code is defined by a parameter and passed to postscript. To install the package put the three files in a place, where T_EX will search for the files:

<i>name</i>	<i>meaning</i>	<i>target dir</i>
pst-barcode.tex	L ^A T _E X style file – wrapper	\$LOCALTEXMF/tex/generic/pstricks/
pst-barcode.sty	T _E X file – PS interface	\$LOCALTEXMF/tex/latex/pstricks/
pst-barcode.pro	PostScript file	\$LOCALTEXMF/dvips/pstricks/
pst-barcode-doc.tex	documentation source	\$LOCALTEXMF/doc/pstricks/
pst-barcode-doc.bib	bibliography source	\$LOCALTEXMF/doc/pstricks/
pst-barcode-doc.pdf	documentation	\$LOCALTEXMF/doc/pstricks/

There is only one macro `\psbarcode` with the usual PSTricks syntax

```
\psbarcode [Options] {text or filename}{PS options}{barcode type}
```

Important is the fact, that the barcode is printed in a T_EX box of zero dimension. If you want to save some space in your text, use the `pspicture` environment or the `\makebox` macro.

2 The options

2.1 The T_EX options

<i>name</i>	<i>default</i>	<i>remarks</i>
transx	0	horizontal shift
transy	0	vertical shift
scalex	1	horizontal scaling
scaley	1	vertical scaling
rotate	0	rotating angle in degrees
file	false	load an external file for the text

2.2 The PostScript options

<i>name</i>	<i>default</i>	<i>remarks</i>
height	1	dimension is inch
textsize	10	dimension is pt
textpos	-2	dimension is pt; it is the shift for additional code text
inkspread	0.15	dimension is pt
showborder	–	–
borderwidth	0.5	dimension in pt
borderleft	10	dimension in pt
borderright	10	dimension in pt
bordertop	1	dimension in pt
borderbottom	1	dimension in pt
borderwidth	0.5	dimension in pt
width	–	dimension in inch
font	/Helvetica	must be a PostScript font
includetext	–	enable human readable text
includecheck	–	enable check digit
includecheckintext	–	check digit visible in text
parse	–	parse variable field für decimal values, like ^032 for space, and convert them to ASCII

2.3 Examples for the TeX options



```

\psframebox{\begin{pspicture}(2.5,1in)
\psbarcode{01335583}{includetext}{ean8}
\end{pspicture}}\quad
\psframebox{\begin{pspicture}(-2.6,-1.5)(0.4,0.2in)
\psbarcode[rotate=180,linecolor=red]{01335583}{includetext guardwhitespace height=0.6}{ean8}
\end{pspicture}}\quad
\psframebox{\begin{pspicture}(3.8,1in)
\psbarcode[scalex=1.5,scaley=0.5,transy=1]{01335583}{includetext inkspread=0.5}{ean8}
\end{pspicture}}

```



```
\begin{pspicture}(2in,2in)  
  \psbarcode[file]{demo.tex}{}{qrcode}  
\end{pspicture}
```

The contents of the external file `demo.tex`:

```
\documentclass{article}  
\usepackage{pst-barcode,fancyvrb}  
\begin{document}  
\VerbatimInput{\jobname.tex}% test  
  
\begin{pspicture}(2in,2in)  
  \psbarcode[file]{\jobname.tex}{}{qrcode}  
\end{pspicture}  
\end{document}
```


2.4 Examples for the PostScript options



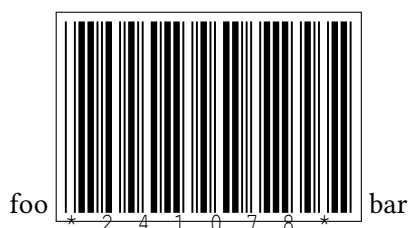
```
\begin{pspicture}(3.5,1.2in)
\psbarcode{01335583}{includetext guardwhitespace height=0.6}{ean8}
\end{pspicture}
\begin{pspicture}(3.5,1.2in)
\psbarcode{01335583}{textsize=15 includetext guardwhitespace height=0.6}{ean8}
\end{pspicture}
\begin{pspicture}(3.5,1.2in)
\psbarcode{01335583}{includetext inkspread=0.5}{ean8}
\end{pspicture}
\begin{pspicture}(3.5,1.2in)
\psbarcode{01335583}{includetext textpos=0}{ean8}
\end{pspicture}
```



```
\begin{pspicture}(3.5,1.2in)
\psbarcode{01335583}{includetext guardwhitespace}{ean8}
\end{pspicture}
\begin{pspicture}(3.5,1.2in)
\psbarcode{01335583}{textsize=15 includetext guardwhitespace width=2}{ean8}
\end{pspicture}
```

3 Usage

By default the barcode has a width and a height of zero. Using the `\parbox` macro or the `pspicture` environment can reserve the needed space for the barcode. The `\fbox` in the following examples is used only for demonstration.



```
foo
\fbox{%
\parbox[b][lin]{1.5in}{\psbarcode{241078}{includetext width=1.5 height=1}{code39}}}
bar
```



```
foo
\fbbox{%
\begin{pspicture}(0,-8pt)(1.5in,1in)
\psbarcode{241078}{includetext width=1.5 height=1}{
code39}
\end{pspicture}}
bar
```

4 Available Codes

- EAN-13 (EAN, UCC-13, JAN, JAN-13, EAN-13+2, EAN-13+5, EAN-99),
- EAN-8 (UCC-8, JAN-8, EAN-8+2, EAN-8+5, EAN-Velocity),
- UPC-A (UPC, UCC-12, UPC-A+2, UPC-A+5),
- UPC-E (UPC-E0, UPC-E1, UPC-E+2, UPC-E+5),
- ISBN (ISBN-13, ISBN-10, Bookland EAN-13),
- ISMN,
- ISSN,
- EAN-5 & EAN-2 (EAN/UPC add-ons),
- GS1 DataBar Omnidirectional (RSS-14),
- GS1 DataBar Stacked (RSS-14 Stacked),
- GS1 DataBar Stacked Omnidirectional (RSS-14 Stacked Omnidirectional),
- GS1 DataBar Truncated (RSS-14 Truncated),
- GS1 DataBar Limited (RSS Limited),
- GS1 DataBar Expanded (RSS Expanded),
- GS1 DataBar Expanded Stacked (RSS Expanded Stacked),
- GS1-128 (UCC/EAN-128, EAN-128, UCC-128),
- SSCC-18 (EAN-18, NVE),
- EAN-14 (UCC-14),
- ITF-14 (UPC SCS),
- QR Code (Quick Response Code),
- Micro QR Code,
- GS1 QR Code,
- Data Matrix (Data Matrix ECC 200, Data Matrix Rectangular Extension),
- GS1 DataMatrix,
- Aztec Code (Compact Aztec Code),
- Aztec Runes,
- PDF417,
- Compact PDF417 (Truncated PDF417),
- MicroPDF417,
- Han Xin Code (Chinese Sensible),
- MaxiCode (UPS Code, Code 6),
- Codablock F,
- Code 16K (USS-16K),
- Code 49 (USS-49),
- Code One (Code 1, Code 1S),
- USPS POSTNET,
- USPS PLANET,
- USPS Intelligent Mail (USPS OneCode),
- USPS FIM,
- Royal Mail (RM4SCC, CBC),
- Royal TNT Post (KIX),

- Japan Post,
- Australia Post,
- Deutsche Post Identcode (DHL Identcode),
- Deutsche Post Leitcode (DHL Leitcode),
- Pharmacode (Pharmaceutical Binary Code),
- Two-track Pharmacode (Two-track Pharmaceutical Binary Code),
- Italian-Pharmacode (Code 32, IMH),
- PZN (Pharmazentralnummer, PZN-8, PZN-7),
- Code 39 (Code 3 of 9, LOGMARS, Alpha39, USD-3, USD-2, USS-39),
- Code 39 Extended (Code 39 Full ASCII),
- Code 93 (USD-7, USS-93),
- Code 93 Extended (Code 93 Full ASCII),
- Code 128 (Code 128A, Code 128B, Code 128C, USD-6, USS-128),
- Code 25 (Code 2 of 5, Industrial 2 of 5),
- IATA-2 of 5,
- Datalogic 2 of 5,
- Matrix 2 of 5,
- COOP 2 of 5,
- Interleaved 2 of 5 (ITF, Code 2 of 5 Interleaved, USD-1, USS-Interleaved 2 of 5),
- Code 11 (USD-8),
- Codabar (Rationalized Codabar, Ames Code, NW-7, USD-4, USS-Codabar, Monarch, Code 2 of 7),
- Plessey (Anker Code),
- MSI Plessey (MSI, MSI Modified Plessey),
- Telepen (Telepen Alpha, Telepen Full ASCII),
- Telepen Numeric,
- Channel Code,
- PosiCode (PosiCode A, PosiCode B),
- BC412 (BC412 SEMI, BC412 IBM),
- GS1 Composite Symbols (EAN-13 Composite, EAN-8 Composite, UPC-A Composite, UPC-E Composite, GS1 DataBar Omnidirectional Composite,
- GS1 DataBar Stacked Composite, GS1 DataBar Stacked Omni Composite, GS1 DataBar Truncated Composite,
- GS1 DataBar Limited Composite, GS1 DataBar Expanded Composite, GS1 DataBar Expanded Stacked Composite,
- GS1-128 Composite),
- HIBC barcodes (HIBC Code 39, HIBC Code 128, HIBC Data Matrix, HIBC PDF417, HIBC MicroPDF417, HIBC QR Code, HIBC Codablock F)

5 Symbology Reference

5.1 Point of Sale

5.1.1 EAN-13

EAN-13 is an extension of the **UPC-A** barcode symbology that usually carries a GTIN-13. It was designed by the International Article Numbering Association in 1976 for identification of retail goods at point of sale outside of the US.

Also known as: EAN, UCC-13, European Article Number, International Article Number, JAN, JAN-13, IAN, WPC, SAAN, UCCET, ABAC, BCCI, ICA, MANA, KANC, ANA, ANC.

Variants:

- EAN-13+2 is an extension of EAN-13 that includes a **two-digit add-on**.

- EAN-13+5 is an extension of EAN-13 that includes a **five-digit add-on**.
- EAN-99 is a special form of EAN-13 starting with 99 that is used as an in-store coupon.
- **EAN-8** is a barcode symbology derived from EAN-13 that is designed for small packaging. It uses a distinct numbering system based on GTIN-8.
- **ISBN** is a variant of EAN-13 used to identify books.
- **ISMN** is a variant of EAN-13 used to identify printed music.
- **ISSN** is a variant of EAN-13 used to identify periodicals.
- **EAN-13 Composite** is a variant of EAN-13 that should be used when a CC-A or CC-B GS1 Composite 2D component is required.

Standards: ISO/IEC 15420, BS EN 797, GS1 General Specifications.

Data and Options

- The data field for a EAN-13 may contain twelve or thirteen digits, optionally followed by a space then two or five digits if an **EAN-2** or **EAN-5** add-on is required.
- If twelve digits of primary data are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.
- The **includetext** option should normally be supplied.
- The **guardwhitespace** option enables the display of whitespace guard marks.

Examples

Identical symbols, input provided with and without a check digit:

Data: 9771473968012
Options: includetext guardwhitespace
Encoder: ean13

Data: 977147396801
Options: includetext guardwhitespace
Encoder: ean13



A symbol that includes a **five-digit add-on**:

Data: 9771473968012 54499
Options: includetext guardwhitespace
Encoder: ean13



5.1.2 EAN-8

EAN-8 is derived from the **EAN-13** barcode symbology and is designed for small packaging. It usually carries a GTIN-8.

Also known as: UCC-8, JAN-8.

Variants:

- EAN-8+2 is an extension of EAN-8 that includes a **two-digit add-on**.
- EAN-8+5 is an extension of EAN-8 that includes a **five-digit add-on**.
- EAN-Velocity is a special form of EAN-8 starting with 0 that is used for in-store coupons.
- **EAN-13** is a longer variant of EAN-8 which has a distinct number system based on GTIN-13.
- **EAN-8 Composite** is a variant of EAN-8 that should be used when a CC-A or CC-B GS1 composite 2D component is required.

Standards: ISO/IEC 15420, BS EN 797, GS1 General Specifications.

Data and Options

- The data field takes either seven or eight digits, optionally followed by a space then two or five digits if an **EAN-2** or **EAN-5** add-on is required.
- If seven digits of primary data are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.
- The **includetext** option should normally be supplied.
- The **guardwhitespace** option enables the display of whitespace guard marks.

Examples

Identical symbols, input provided with and without a check digit:

Data: 01335583
Options: includetext
Encoder: ean8

Data: 0133558
Options: includetext
Encoder: ean8



Truncated with whitespace guards:

Data: 01335583
Options: includetext height=0.5 guardwhitespace
Encoder: ean8



5.1.3 UPC-A

The **UPC-A** barcode symbology is used for identification of retail goods at point of sale inside of the US. It usually carries a GTIN-12.

Also known as: UPC, UCC-12, Universal Product Code.

Variants:

- UPC-A+2 is an extension of UPC-A that includes a **two-digit add-on**.
- UPC-A+5 is an extension of UPC-A that includes a **five-digit add-on**.
- **UPC-E** is a barcode symbology derived from UPC-A that is designed for small packaging.
- **UPC-A Composite** is a variant of UPC-A that should be used when a CC-A or CC-B **GS1 composite** 2D component is required.
- A UPC-A symbol can be converted to an **EAN-13** symbol by prefixing the GTIN-12 with 0 to make the equivalent GTIN-13.

Standards: ISO/IEC 15420, BS EN 797, GS1 General Specifications.

Data and Options

- The data field for a UPC-A may contain eleven or twelve digits, optionally followed by a space then two or five digits if an **EAN-2** or **EAN-5** add-on is required.
- Alternatively, the data field may contain seven or eight digits of a **UPC-E** to produce the equivalent UPC-A symbol.
- If eleven digits of primary data are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.
- The **includetext** option should normally be supplied.

Examples

Identical symbols, input provided with and without a check digit:

Data: 788581014974

Options: includetext

Encoder: upca

Data: 78858101497

Options: includetext

Encoder: upca



A symbol that includes a **five-digit add-on**:

Data: 788581014974 54499

Options: includetext guardwhitespace

Encoder: upca



5.1.4 UPC-E

UPC-E is a compacted form of the **UPC-A** barcode symbology that usually carries a GTIN-12 with a number system of 0 or 1 that has been zero compressed.

Variants:

- UPC-E0 is a UPC-E with a number system of 0.
- UPC-E1 is a UPC-E with a number system of 1.
- UPC-E+2 is an extension of UPC-E that includes a **two-digit add-on**.
- UPC-E+5 is an extension of UPC-E that includes a **five-digit add-on**.
- **UPC-A** is the full size form of UPC-E.
- **UPC-E Composite** is a variant of UPC-E that should be used when a CC-A or CC-B GS1 Composite 2D component is required.

Standards: ISO/IEC 15420, BS EN 797, GS1 General Specifications.

Data and Options

- The data field takes either seven or eight digits, optionally followed by a space then two or five digits if an **EAN-2** or **EAN-5** add-on is required.
- Alternatively, the data field may contain eleven or twelve digits of a **UPC-A** to produce the equivalent UPC-E symbol, provided that the input can be zero suppressed.
- If seven digits of primary data are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.
- The **includetext** option should normally be supplied.

Examples

Identical symbols, input provided with and without a check digit:

Data: 01234565
Options: includetext
Encoder: upce

Data: 0123456
Options: includetext
Encoder: upce



A truncated symbol:

Data: 01234565
Options: includetext height=0.5
Encoder: upce



5.1.5 ISBN

An **ISBN** barcode is a variant of **EAN-13** that is used to identify books.

Also known as: ISBN-13, International Standard Book Number, Bookland EAN-13.

Variants:

- ISBN-10 is a legacy format that was depreciated for public use after 1st January 2007.

Standards: ISO 2108, ISO/IEC 15420, BS EN 797, GS1 General Specifications.

Data and Options

- The data should contain twelve or thirteen digits separated appropriately by dash characters -.
- The data can also be provided in legacy ISBN-10 format as nine or ten digits separated appropriately by dash characters -. This will be automatically upgraded to the ISBN-13 format.
- If the last digit of the primary data is not given then the ISBN check digit is calculated automatically, otherwise it will be verified.
- The primary data can optionally be followed by a space then two or five digits if an **EAN-2** or **EAN-5** add-on is required.
- The **includetext** option should normally be supplied.
- The **guardwhitespace** option enables the display of whitespace guard marks.
- The following options are also relevant to this barcode symbology:
 - **isbntextfont**: PostScript font name for text above symbol
 - **isbntextsize**: Font size for the text above symbol, in points
 - **isbntextxoffset**: Horizontal position of ISBN text, in points
 - **isbntextyoffset**: Vertical position of ISBN text, in points
- *Deprecated.* The **legacy** option prevents ISBN-10 input from being upgraded to ISBN-13 and will result in a symbol that is obsolete and should not be used at point of sale.

Example ISBN

Identical symbols, input provided with and without an ISBN check digit:

Data: 978-1-873671-00-9
Options: includetext
Encoder: isbn

Data: 978-1-873671-00
Options: includetext
Encoder: isbn

ISBN 978-1-873671-00-9



An ISBN with a **five-digit add-on**:

Data: 978-1-873671-00-9 54499
Options: includetext guardwhitespace
Encoder: isbn

ISBN 978-1-873671-00-9



The following ISBN-10 input will be automatically upgraded to a valid ISBN-13 symbol:

Data: 1-86074-271-2
Options: includetext
Encoder: isbn

Data: 1-86074-271
Options: includetext
Encoder: isbn

ISBN 978-1-86074-271-2



Example ISBN-10

Note that ISBN-10 is legacy format not for use at P.O.S.
The following will generate an obsolete ISBN-10 symbol:

Data: 1-86074-271-8
Options: legacy includetext guardwhitespace
Encoder: isbn

Data: 1-86074-271
Options: legacy includetext guardwhitespace
Encoder: isbn

ISBN 1-86074-271-8



5.1.6 ISMN

An **ISMN** barcode is a variant of **EAN-13** with a prefix 979 that is used to identify printed music.

Also known as: International Standard Music Number, ISMN-13.

Variants:

- ISMN-10 is a legacy format that was depreciated for public use.

Standards: ISO 10957, ISO/IEC 15420, BS EN 797, GS1 General Specifications.

Data and Options

- The data should contain twelve or thirteen digits separated appropriately by dash characters -.
- The data can also be provided in legacy ISMN-10 format start *M-* then eight or nine digits separated appropriately by dash characters -. This will be automatically upgraded to the ISMN-13 format.
- If the last digit of the primary data is not given then the ISMN check digit is calculated automatically, otherwise it will be verified.
- The primary data can optionally be followed by a space then two or five digits if an **EAN-2** or **EAN-5** add-on is required.
- The **includetext** option should normally be supplied.
- The **guardwhitespace** option enables the display of whitespace guard marks.
- The following options are also relevant to this barcode symbology:
 - **ismntextfont**: PostScript font name for text above symbol
 - **ismntextsize**: Font size for the text above symbol, in points
 - **ismntextxoffset**: Horizontal position of ISMN text, in points
 - **ismntextyoffset**: Vertical position of ISMN text, in points
- *Deprecated.* The **legacy** option prevents ISMN-10 input from being upgraded to ISMN-13 and will result in a symbol that is obsolete and should not be used at point of sale.

Example ISMN

Identical symbols, input provided with and without an ISMN check digit:

Data: 979-0-2600-0043-8
Options: includetext
Encoder: ismn

Data: 979-0-2600-0043
Options: includetext
Encoder: ismn

ISMN 979-0-2600-0043-8



The following ISMN-10 input will be automatically upgraded to a valid ISMN-13 symbol:

Data: M-345-24680-5
Options: includetext
Encoder: ismn

Data: M-345-24680
Options: includetext
Encoder: ismn

ISMN 979-0-345-24680-5



Example ISMN-10

Note that ISMN-10 is a legacy format not for use at P.O.S.
The following will generate an obsolete ISMN-10 symbol:

Data: M-345-24680-5
Options: legacy includetext guardwhitespace
Encoder: ismn

Data: M-345-24680
Options: legacy includetext guardwhitespace
Encoder: ismn

ISMN M-345-24680-5



5.1.7 ISSN

An **ISSN** barcode is an **EAN-13** with prefix 977 used to identify periodicals.

Also known as: International Standard Serial Number.

Standards: ISO 3297, ISO/IEC 15420, BS EN 797, GS1 General Specifications.

Data and Options

- The data should contain the seven or eight digits ISSN separated by a dash characters -, followed by a two-digit sequence variant, optionally followed by two or five digits if a **two-digit add-on** or **five-digit add-on** is required.
- If the last digit of the ISSN data is not given then the ISSN check digit is calculated automatically, otherwise it will be verified.
- The **includetext** option should normally be supplied.
- The **guardwhitespace** option enables the display of whitespace guard marks.
- The following options are also relevant to this barcode symbology:
 - **issntextfont**: PostScript font name for text above symbol

- **issntextsize**: Font size for the text above symbol, in points
- **issntextxoffset**: Horizontal position of ISSN text, in points
- **issntextyoffset**: Vertical position of ISSN text, in points

A sequence variant is a two-digit number that usually starts at zero and is incremented whenever the recommended retail price is amended, where applicable.

Example

Identical symbols, input provided with and without an ISSN check digit and having sequence number 00:

Data: 0317-8471 00
Options: includetext guardwhitespace
Encoder: issn

Data: 0317-847 00
Options: includetext guardwhitespace
Encoder: issn



An ISSN with sequence number 03 and a **two-digit add-on** representing issue number 17:

Data: 0317-8471 03 17
Options: includetext guardwhitespace
Encoder: issn

Data: 0317-847 03 17
Options: includetext guardwhitespace
Encoder: issn



5.2 Two-Dimensional

5.2.1 Aztec Code

Aztec Code is a 2D matrix-style barcode symbology. It can encode full 256-character extended-ASCII. Variants:

- **Aztec Runes** are a set of small barcode symbols that are used for special applications.

Standards: ISO/IEC 24778, ANSI/AIM BC13 - ISS Aztec Code.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^ECI000000 to ^ECI999999: ECI indicators
- The **eclevel** option is used to specify the percentage of error correction to be applied when expanding the data, by default 23.
- The **ecaddchars** option is used to specify how many additional error correction characters to apply the data once expanded by the eclevel percentage, by default 3.
- The **layers** option is used to specify a particular number of layers in which to encode the data, between 1 and 32. By default the encoder will create a symbol with the minimal number of layers to encode the given data.
- The **format** option is used to select between format=full and format=compact symbol types. By default the encoder will choose the most appropriate format to create a symbol of minimal size.
- The **readerinit** option denotes that the symbol is used for programming the barcode reader.
- The **raw** option denotes that the data field is providing the input as a pre-encoded bitstream suitable for direct low-level encoding.
- *Deprecated: Use **Aztec Runes** instead.* The **format** option can also be used to create Aztec Code "runes", using format=rune. In this case the rune symbol number should be given in the data field.

Examples

Data: This is Aztec Code
Options:
Encoder: azteccode



Data: This is ^065ztec Code
Options: parse eclevel=50 ecaddchars=0
Encoder: azteccode



Data: ABC123
Options: layers=3 format=full
Encoder: azteccode



Data: ABC123
Options: format=compact
Encoder: azteccode



Data: 00100111001000000101001101111000010100111100101000000110
Options: raw
Encoder: azteccode



5.2.2 Aztec Runes

Aztec Runes are a set of small barcode symbols that are used for special applications.

Variants:

Aztec Code is a 2D matrix-style barcode symbology that can encode full 256 character extended-ASCII.

Standards: ISO/IEC 24778, ANSI/AIM BC13 - ISS Aztec Code.

Data and Options

- The data field contains the rune number 0 to 255.

Examples

Data: 25
Options:
Encoder: aztecrune



5.2.3 Data Matrix

The **Data Matrix** symbology is 2D matrix-style barcode that can encode full 256 character extended-ASCII.

Also known as: Data Matrix ECC 200, DataMatrix.

Variants:

- **Data Matrix Rectangular** is a variant of Data Matrix that uses rectangular symbols.
- **Data Matrix Rectangular Extension** is a variant of Data Matrix Rectangular that provides a greater range of symbol dimensions.
- **GS1 DataMatrix** is a variant of Data Matrix that should be used when encoding data that is in **GS1 Application Identifier standard format**.

- **GS1 Digital Link Data Matrix** is a variant of Data Matrix that should be used when encoding a GS1 Digital Link URI.
- **HIBC Data Matrix** is a variant of Data Matrix that should be used when encoding HIBC formatted data.
- **Royal Mail Mailmark** is a variant of Data Matrix that is used by the Royal Mail postal service on letters and other small mailpieces.

Standards: ISO/IEC 16022, ANSI/AIM BC11 - ISS Data Matrix.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value. This is useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1. *Recommendation: Use **GS1 DataMatrix** for encoding GS1 AI syntax data.*
 - ^PROG: PROG - Reader programming
 - ^ECI000000 to ^ECI999999: ECI indicators
- Whenever the data field contains suitable input, the encoder will compress ISO/IEC 15434 structured data (internally using the 05 Macro and 06 Macro codewords.)
- When the **dotty** option is specified the modules are rendered as dots rather than squares. The dot radius can be adjusted using the **inkspread** option.
- The **columns** and **rows** options are used to specify the size of the symbol.
- The **version** option can also be used to specify the symbol size, as version=RxC. Valid options are 10x10, 12x12, 14x14, 16x16, 18x18, 20x20, 22x22, 24x24, 26x26, 32x32, 36x36, 40x40, 44x44, 48x48, 52x52, 64x64, 72x72, 80x80, 88x88, 96x96, 104x104, 120x120, 132x132, 144x144
- If **columns**, **rows** and **version** are unspecified the encoder will default to creating a symbol of the specified **format** that is the minimum size to represent the given data.
- The **raw** option denotes that the data field is providing the input as pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.
- *Deprecated:* The **format** option is used to specify the shape of the symbol, either:
 - square (default)
 - rectangle: Use **Data Matrix Rectangular** for rectangular symbols.
- *Deprecated: Use **Data Matrix Rectangular Extension**.* The **dmre** option enables Data Matrix Rectangular Extension symbols based on the ISO/IEC standard, which increases the number of rectangular symbol sizes available.
- *Deprecated: Use **Data Matrix Rectangular Extension** with **dimdmre** option.* The **dindmre** option enables Data Matrix Rectangular Extension symbols based on the obsolete DIN standard.
- *Deprecated: For internal use.* The **mailmark** option signifies the requirement to use Mailmark-specific encoding.

Examples

Identical symbols, automatically sized, the latter showing use of the parse option:

```
Data:   This is Data Matrix
Options:
Encoder: datamatrix
```

```
Data:   This is ^068ata Matrix
Options: parse
Encoder: datamatrix
```



Identical symbols with a fixed size:

```
Data:   Fixed size
Options: version=48x48
Encoder: datamatrix
```

```
Data:   Fixed size
Options: rows=48 columns=48
Encoder: datamatrix
```



A rectangular symbol with a fixed size:

```
Data:   Rectangular
Options: format=rectangle version=16x48
Encoder: datamatrix
```



An advanced use containing "hidden data" in the padding codewords as used by some non-standard, "high-security" applications. The technique works by filling the symbol using raw codewords formed from the standard data immediately followed by the non-standard padding data beginning with ^129:

```
Data:   ^066^067^068^142^052^129^161^056^206^101^251^147
Options: version=16x16 raw
Encoder: datamatrix
```


5.2.4 Data Matrix Rectangular

The **Data Matrix Rectangular** symbology is a rectangular variant of **Data Matrix**.

Variants:

- **Data Matrix** is the standard square variant of the symbology.
- **Data Matrix Rectangular Extension** is a variant of Data Matrix Rectangular that provides a greater range of symbol dimensions.

Standards: ISO/IEC 16022, ANSI/AIM BC11 - ISS Data Matrix.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value. This is useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1. *Recommendation: Use **GS1 DataMatrix** for encoding GS1 AI syntax data.*
 - ^PROG: PROG - Reader programming
 - ^ECI000000 to ^ECI999999: ECI indicators
- Whenever the data field contains suitable input, the encoder will compress ISO/IEC 15434 structured data (internally using the 05 Macro and 06 Macro codewords.)
- When the **dotty** option is specified the modules are rendered as dots rather than squares. The dot radius can be adjusted using the **inkspread** option.
- *Deprecated: Use **Data Matrix Rectangular Extension**. The **dmre** option enables Data Matrix Rectangular Extension symbols based on the ISO/IEC standard, which increases the number of rectangular symbol sizes available.*
- *Deprecated: Standard is obsolete. Use **Data Matrix Rectangular Extension** with the **dindmre** option. The **dindmre** option enables Data Matrix Rectangular Extension symbols based on the obsolete DIN standard.*
- The **columns** and **rows** options are used to specify the size of the symbol.
- The **version** option can also be used to specify the symbol size, as version=RxC. Valid options are 8x18, 8x32, 12x26, 12x36, 16x36, 16x48.
- If **columns**, **rows** and **version** are unspecified the encoder will default to creating a symbol that is the minimum size to represent the given data.
- The **raw** option denotes that the data field is providing the input as pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.

Examples

A rectangular symbol with a fixed size:

```
Data:    Rectangular
Options: version=16x48
Encoder: datamatrixrectangular
```



5.2.5 Data Matrix Rectangular Extension

The **Data Matrix Rectangular Extension** symbology is an enhancement to **Data Matrix Rectangular** that provides a greater range of symbol dimensions.

Also known as: DMRE.

Variants:

- **Data Matrix** is the standard square variant of the symbology.
- **Data Matrix Rectangular** is the original rectangular variant of Data Matrix that provides a limited range of symbol dimensions.

Standards: ISO/IEC 21471.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value. This is useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^PROG: PROG - Reader programming
 - ^ECI000000 to ^ECI999999: ECI indicators
- Whenever the data field contains suitable input, the encoder will compress ISO/IEC 15434 structured data (internally using the 05 Macro and 06 Macro codewords.)
- When the **dotty** option is specified the modules are rendered as dots rather than squares. The dot radius can be adjusted using the **inkspread** option.
- The **columns** and **rows** options are used to specify the size of the symbol.
- The **version** option can also be used to specify the symbol size, as version=RxC. Valid options are 8x18, 8x32, 8x48, 8x64, 8x80, 8x96, 8x120, 8x144, 12x26, 12x36, 12x64, 12x88, 16x36, 16x48, 16x64, 20x36, 20x44, 20x64, 22x48, 24x48, 24x64, 26x40, 26x48, 26x64.
- If **columns**, **rows** and **version** are unspecified the encoder will default to creating a symbol that is the minimum size to represent the given data.
- The **raw** option denotes that the data field is providing the input as pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.
- *Deprecated: Standard is obsolete.* The **dindmre** option select Data Matrix Rectangular Extension symbols whose dimensions are based on the obsolete DIN standard, rather than the current ISO standard.
 - With dindmre the valid version **options** are 8x18, 8x32, 8x48, 8x64, 12x26, 12x36, 12x64, 16x36, 16x48, 16x64, 24x32, 24x36, 24x48, 24x64, 26x32, 26x40, 26x48, 26x64.

Examples

A DMRE symbol with a fixed size:

Data: 1234

Options: version=8x80

Encoder: datamatrixrectangularextension



5.2.6 Han Xin Code

The **Han Xin Code** symbology is a 2D matrix-style barcode symbology that can encode full 256 character extended-ASCII.

Also known as: Chinese Sensible.

Standards: GB/T 21049-2007.

Data and Options

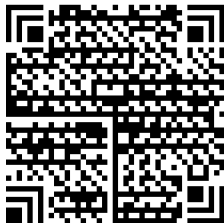
- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- The **eclevel** option is used to specify the error correction level:
 - eclevel=L1 - Lowest
 - eclevel=L2
 - eclevel=L3
 - eclevel=L4 - Highest
- The **version** option is used to specify the size of the symbol, 1 to 84.
- If unspecified the encoder will select the version of the symbol that is the minimum size to represent the given data at the selected error correction level.

Examples

Data: Han Xin Code

Options: version=10 eclevel=L4

Encoder: hanxin



5.2.7 MicroPDF417

The **MicroPDF417** barcode symbology is 2D stacked-linear barcode based on **PDF417** that can encode full 256 character extended-ASCII.

Variants:

- **PDF417** is a larger variant of the MicroPDF417 barcode.
- **HIBC MicroPDF417** is a variant of MicroPDF417 that should be used when encoding HIBC formatted data.

Standards: ISO/IEC 24728, AIM ISS - MicroPDF417.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^ECI000000 to ^ECI811799: ECI indicators
- The **columns** and **rows** options are used to specify the size of the symbol. Valid values are:
 - 1x11, 1x14, 1x17, 1x20, 1x24, 1x28, 2x8, 2x11, 2x14, 2x17, 2x20, 2x23, 2x26, 3x6, 3x8, 3x10, 3x12, 3x15, 3x20, 3x26, 3x32, 3x38, 3x44, 4x4, 4x6, 4x8, 4x10, 4x12, 4x15, 4x20, 4x26, 4x32, 4x38, 4x44
- If the **columns** and **rows** are unspecified the encoder will default to creating a symbol that is the minimum size to represent the given data.
- The **rowmult** option is used to specify how tall each bar is, with respect to the minimum module width. The default is 3.
- The **raw** option denotes that the data field is providing the input as a pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.
- *Deprecated: Internal use.* The **cca** option identifies this symbol as a CC-A 2D component of a **GS1 Composite** symbol.
 - Special size rules apply when the **cca** option is given, in which case the **columns** and **rows** options that are used to specify the size of the symbol must be one of:
 - * 2x5, 2x6, 2x7, 2x8, 2x9, 2x10, 2x12, 3x4, 3x5, 3x6, 3x7, 3x8, 4x3, 4x4, 4x5, 4x6, 4x7
- *Deprecated: Internal use.* The **ccb** option identifies this symbol as a CC-B 2D component of a **GS1 Composite** symbol.

Examples

Data: MicroPDF417

Options:

Encoder: micropdf417



Data: MicroP^068F417

Options: parse rows=15 columns=4

Encoder: micropdf417



5.2.8 PDF417

The **PDF417** barcode symbology is 2D stacked-linear barcode that can encode full 256 character extended-ASCII.

Variants:

- **Compact PDF417** is a shortened form of the PDF417 barcode that is used in applications where the space for the symbol is restricted.
- **MicroPDF417** is a smaller variant of the PDF417 barcode.
- **HIBC PDF417** is a variant of PDF417 that should be used when encoding HIBC formatted data.

Standards: ISO/IEC 15438, DD ENV 12925, AIM USS - PDF417.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^ECI000000 to ^ECI811799: ECI indicators.
- The **eclevel** option is used to specify the error correction level, from 1 to 5. The default is to choose a standard level of error correction that is determined by the encoded data length.
- The **columns** option specifies the number of columns (or groups of bars) in the output symbol, from 1 to 30.
- The **rows** option specifies the minimum number of rows in the symbol, from 3 to 90.
- If **rows** is unspecified the encoder will select a number that creates a symbol that is the minimum size to represent the given data.
- The **rowmult** option is used to specify how tall each bar is, with respect to the minimum module width. The default is 3.
- The **raw** option denotes that the data field is providing the input as a pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.
- *Deprecated: Use **Compact PDF417** instead. The **compact** option is used to create a compact/truncated PDF417 symbol that has fewer bars per row than a standard symbol and hence is more narrow.*
- *Deprecated: Internal use. The **ccc** option identifies this symbol as a CC-C 2D component of a **GS1 Composite** symbol.*

Examples

Data: PDF417

Options:

Encoder: pdf417



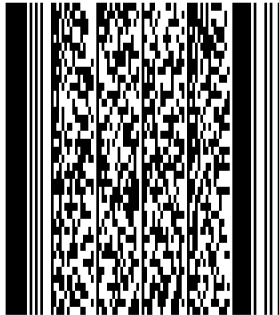
Data: P^068F417

Options: parse columns=2 rows=15

Encoder: pdf417



Data: Strong error correction
Options: columns=2 eclevel=5
Encoder: pdf417



Data: ^453^178^121^239
Options: raw columns=2
Encoder: pdf417



5.2.9 Compact PDF417

Compact PDF417 is a shortened form of the **PDF417** barcode that is used in applications where the space for the symbol is restricted.

Also known as: Truncated PDF417

Variants:

- **PDF417** is the larger, more popular variant.
- **MicroPDF417** is a smaller variant of the PDF417 barcode.
- **HIBC PDF417** is a variant of PDF417 that should be used when encoding HIBC formatted data.

Standards: ISO/IEC 15438, DD ENV 12925, AIM USS - PDF417.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^ECI000000 to ^ECI811799: ECI indicators
- The **eclevel** option is used to specify the error correction level, from 1 to 5. The default is to choose a standard level of error correction that is determined by the encoded data length.

- The **columns** option specifies the number of columns (or groups of bars) in the output symbol, from 1 to 30.
- The **rows** option specifies the minimum number of rows in the symbol, from 3 to 90.
- If **rows** is unspecified the encoder will select a number that creates a symbol that is the minimum size to represent the given data.
- The **rowmult** option is used to specify how tall each bar is, with respect to the minimum module width. The default is 3.
- The **raw** option denotes that the data field is providing the input as a pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.

Examples

Data: A truncated PDF417
Options: columns=4
Encoder: pdf417compact



5.2.10 QR Code

The **QR Code** symbology is a 2D matrix-style barcode symbology that can encode full 256 character extended-ASCII.

Also known as: Quick Response Code.

Variants:

- **Micro QR Code** is a small QR Code that is used in applications that require a small symbol space.
- **GS1 QR Code** is a variant of Data Matrix that should be used when encoding data that is in **GS1 Application Identifier standard format**.
- **GS1 Digital Link QR Code** is a variant of Data Matrix that should be used when encoding a GS1 Digital Link URI.
- **HIBC QR Code** is a variant of QR Code that should be used when encoding HIBC formatted data.
- **Swiss QR Code** is a variant of the QR Code for use with the QR-bill application supporting Swiss payments.

Standards: ISO/IEC 18004, JIS X 0510, ITS - QR Code, AIM ISS - QR Code.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1. *Recommendation: Use **GS1 QR Code** for encoding GS1 AI syntax data.*
 - ^ECI000000 to ^ECI999999: ECI indicators
- The **eclevel** option is used to specify the error correction level:
 - eclevel=L - Low

- eclevel=M - Medium (default)
- eclevel=Q - Quality
- eclevel=H - High
- The **version** option is used to specify the size of the symbol, 1 to 40.
- If unspecified the encoder will select the version of the symbol that is the minimum size to represent the given data at the selected error correction level.
- *Deprecated*: The **format** option is used to specify the symbol type, either:
 - full (default)
 - micro: Use **Micro QR Code** for Micro QR Code symbols.
 - rmqr: The standard is still in draft.

Examples

Data: QR Code
Options:
Encoder: qrcode

Data: QR ^067ode
Options: parse
Encoder: qrcode



Data: QR CODE 1234
Options: version=10 eclevel=Q
Encoder: qrcode



5.2.11 Micro QR Code

The **Micro QR Code** symbology is a smaller variant of **QR Code** that is used in applications that require a small symbol space.

Also known as: Micro Quick Response Code.

Variants:

- **QR Code** is the more popular, larger variant.

Standards: ISO/IEC 18004, JIS X 0510, ITS - QR Code, AIM ISS - QR Code.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
- An appropriate size will be selected to work around the following restrictions:
 - An M1 symbol is only compatible with numeric data.
 - An M2 symbol is only compatible with alphanumeric data.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- The **version** option is used to specify the size of the symbol, either version=M1, version=M2, version=M3 or version=M4.
- The **eclevel** option is used to specify the error correction level:
 - eclevel=L - Low (default)
 - eclevel=M - Medium; Not compatible with M1 symbols
 - eclevel=Q - Quality; Only compatible with M4 symbols
- If unspecified the encoder will select the version of the symbol that is the minimum size to represent the given data at the selected error correction level.

Examples

Data: 01234567
Options:
Encoder: microqrcode



5.2.12 Swiss QR Code

Swiss QR Code is a variant of the **QR Code** barcode symbology for use with the QR-bill application supporting Swiss payments.

Standards: Swiss Implementation Guidelines QR-bill, ISO/IEC 18004, ITS - QR Code

Data and Options

- The data field input is provided in the format described in the Swiss Implementation Guidelines QR-bill document.
- The **version** option is used to specify the size of the symbol, 5 to 25. This is not typically specified.
- If the **version** is unspecified the encoder will default to creating a symbol that is the minimum size to represent the given data at the selected error correction level.

Note: Swiss QR Code specifies that the image shall be 46mm x 46mm (excluding quiet zone), irrespective of QR Code version, and is overlaid with a fixed 7mm x 7mm Swiss Cross pattern. The Swiss Cross pitch bears no relation to the module width of the QR symbol, so we must assume that the application provides sufficient resolution throughout the print process that defects produced by issues such as pixel grazing are insignificant. Therefore, unlike most other encoders, we do not pick a fixed module width to assist with grid fitting but rather ensure that the image is scaled to a fixed size, per the specification.

Example

Data:

SPC
0200
1
CH5800791123000889012
S
Robert Schneider AG
Rue du Lac
1268
2501
Biel
CH

199.95
CHF
K
Pia-Maria Rutschmann-Schnyder
Grosse Marktgasse 28
9400 Rorschach

CH
SCOR
RF18539007547034

EPD

Options:

Encoder: swissqrcode



5.3 One-Dimensional

5.3.1 Code 128

Code 128 is an arbitrarily long, high-density barcode symbology that can be used to encode full 256 character extended-ASCII.

Also known as: USD-6, USS-128, Code 128A, Code 128B, Code 128C.

Variants:

- **GS1-128** is a variant of Code 128 that should be used when encoding data that is in **GS1 Application Identifier standard format**.
- **HIBC Code 128** is a variant of Code 128 that should be used when encoding HIBC formatted data.

Standards: ISO/IEC 15417, ANSI/AIM BC4 - ISS Code 128, BS EN 799.

Data and Options

- The data field input can consist of any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
- The mandatory check digit is calculated automatically.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII or extended-ASCII value, useful for specifying unprintable characters, e.g. ^029 for GS, ^209 for Ñ, etc.
- **FNC4** function characters will be inserted automatically to allow the encoding of extended ASCII characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1. *Recommendation: Use **GS1-128** for encoding GS1 AI syntax data.*
 - ^FNC2: FNC2
 - ^FNC3: FNC3

- The **raw** option denotes that the data field is providing the input as pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.
- *Deprecated: For internal use.* When the **parsefnc** option is specified, the special pseudo characters ^LNKA and ^LNKC at the end of the symbol indicate that a GS1-128 symbol includes a CC-A/B or CC-C GS1 composite 2D component.

Example

Data: Count0123456789!
Options: includetext
Encoder: code128



5.3.2 Code 39

The **Code 39** barcode symbology is discrete, variable length and self-checking.

Also known as: Code 3 of 9, LOGMARS, Alpha39, USD-3, USS-39.

Variants:

- **Code 39 Extended** is a variant of Code 39 that can be used to encode full 128 character ASCII with the use of shift character combinations.
- **HIBC Code39** is a variant of Code 39 that should be used when encoding HIBC formatted data.
- AIM USD-2 is a subset of Code 39 containing the characters A-Z, 0-9, *space*, - and ..

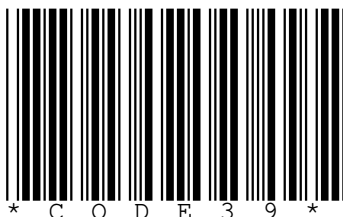
Standards: ISO/IEC 16388, ANSI/AIM BC1 - USS Code 39, BS EN 800, MIL STD 1189.

Data and Options

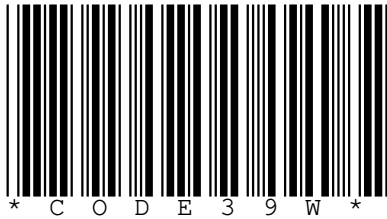
- The data field can hold any of the following:
 - Numbers 0-9
 - Capital letters A-Z
 - Symbols - . \$ / + % * and *space*
- The **includecheck** option calculates the check digit.
- The **includecheckintext** option makes the calculated checksum appear in the human readable text.
- The **hidestars** option suppresses the asterisks in the human readable text.

Examples

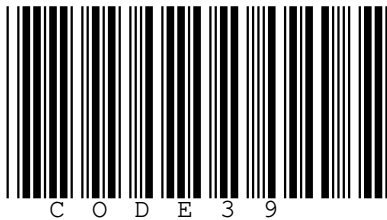
Data: CODE39
Options: includetext
Encoder: code39



```
Data:    CODE39
Options: includecheck includetext includecheckintext
Encoder: code39
```



```
Data:    CODE39
Options: hidestars includecheck includetext
Encoder: code39
```



5.3.3 Code 39 Extended

The **Code 39 Extended** barcode symbology is discrete, variable length and self-checking. It is based on **Code 39** but can encode full 128 character ASCII by using shift combinations.

Also known as: Code 39 Full ASCII.

Variants:

- **Code 39** is a simpler variant of Code 39 Extended.

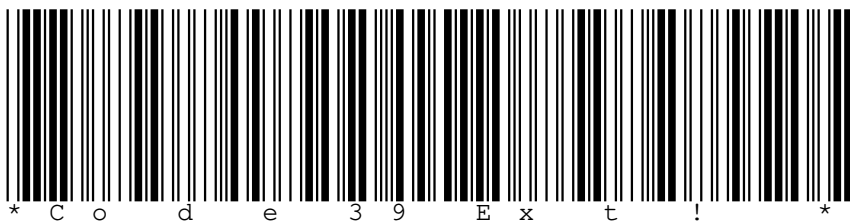
Standards: ISO/IEC 16388, ANSI/AIM BC1 - USS Code 39, BS EN 800.

Data and Options

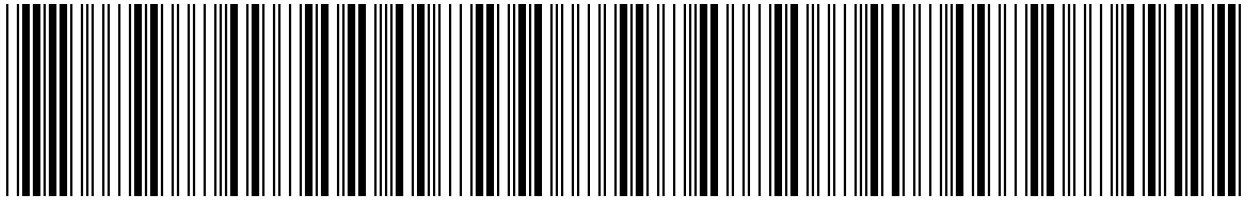
- The data field can consist of any ASCII data.
- When the **parse** option is specified, any instances of **^NNN** in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters, e.g. **^029** for **GS**, etc.
- The **includecheck** option calculates the check digit.
- The **includecheckintext** causes the calculated check digit to appear in the human readable text.
- The **hidestars** option suppresses the asterisks in the human readable text.

Examples

```
Data:    Code39 Ext!
Options: includetext includecheck
Encoder: code39ext
```



Data: Code39^029Extended
 Options: parse includecheck
 Encoder: code39ext



5.3.4 Code 93

Code 93 is a continuous, variable length, self-checking barcode symbology.

Also known as: USD-7, USS-93.

Variants:

- **Code 93 Extended** is a variant of Code 93 that can be used to encode full 128 character ASCII with the use of special shift character combinations.

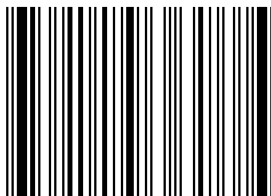
Standards: ANSI/AIM BC5 - USS Code 93, ITS 93i.

Data and Options

- The data field can hold any of the following:
 - Numbers 0-9
 - Capital letters A-Z
 - Symbols - . \$ / + % * and *space*
- The **includecheck** option calculates the two check digits.
- *Deprecated: For internal use.* The **parsefnc** option allows the special shift characters to be supplied as escape sequences:
 - ^SFT\$: (\$)
 - ^SFT%: (%)
 - ^SFT/: (/)
 - ^SFT+: (+)

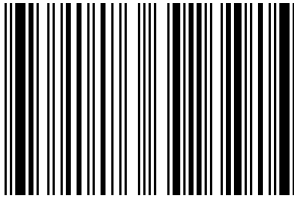
Examples

Data: CODE93
 Options: includecheck
 Encoder: code93



Code 93 including a special shift combination (/)A representing !:

Data: CODE93^SFT/A
 Options: parsefnc includecheck
 Encoder: code93



5.3.5 Code 93 Extended

The **Code 93 Extended** barcode symbology is continuous, variable length and self-checking. It is based on **Code 93** but can encode full 128 character ASCII using four additional shift characters: (\$) (%) (/) (+)

Also known as: Code 93 Full ASCII.

Variants:

- **Code 93** is a simpler variant of the Code 93 Extended barcode symbology.

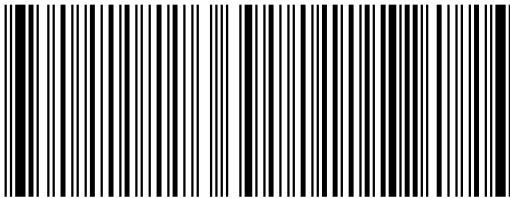
Standards: ANSI/AIM BC5 - USS Code 93, ITS 93i.

Data and Options

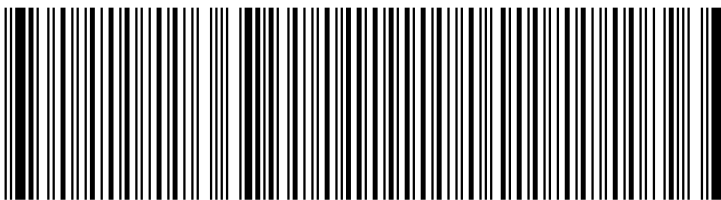
- The data field can consist of any ASCII data.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters, e.g. ^029 for GS, etc.
- The **includecheck** option calculates the two check digits.

Examples

```
Data:    Code93Ext!
Options: includecheck
Encoder: code93ext
```



```
Data:    Code93^029Extended
Options: parse includecheck
Encoder: code93ext
```



5.3.6 Interleaved 2 of 5

Interleaved 2 of 5 is a high-density numeric barcode symbology.

Also known as: ITF, Code 2 of 5 Interleaved, USD-1, USS-Interleaved 2 of 5.

Variants:

- **ITF-14** is a variant of Interleaved 2 of 5 that should be used when encoding a fourteen-digit GTIN.

Standards: ISO/IEC 16390, ANSI/AIM BC2 - USS Interleaved 2 of 5, BS EN 801.

Data and Options

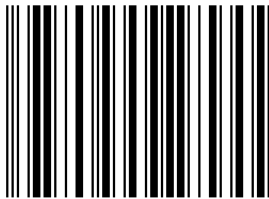
- The data can consist of any number of digits.
- If the length of the symbol including the possible check digit would be odd then the data is prefixed by *0*.
- The **includecheck** option calculates the check digit.
- The **includecheckintext** option makes the calculated checksum appear in the human readable text.

Examples

Data: 0123456789

Options:

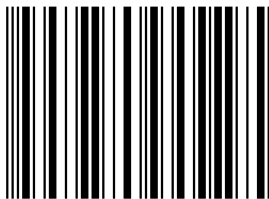
Encoder: interleaved2of5



Data: 2401234567

Options: includecheck includetext includecheckintext

Encoder: interleaved2of5



5.4 Supply Chain

5.4.1 EAN-14

EAN-14 is an implementation of the **GS1-128** barcode symbology with *AI (01)* that is used to encode a lone GTIN-14.

Also known as: UCC-14.

Standards: ISO/IEC 15417, ANSI/AIM BC4-1999 ISS, BS EN 799, GS1 General Specifications.

Data and Options

- The data field input must be a solitary *AI (01)* with thirteen or fourteen digits of a GTIN, i.e. (01)....
- Arbitrary spacing may be placed between the digits to format the human readable text without interfering with the encoded data.
- If thirteen digits of primary data are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.

Examples

Identical symbols, input provided with and without a check digit:

Data: (01)04601234567893
Options: includetext
Encoder: ean14

Data: (01)0460123456789
Options: includetext
Encoder: ean14



5.4.2 ITF-14

ITF-14 is an implementation of the **Interleaved 2 of 5** barcode symbology that is typically used to encode a GTIN-14, GTIN-13 or GTIN-12.

Also known as: UPC Shipping Container Symbol, SCS, UPC Case Code.

Standards: ISO/IEC 16390, ANSI/AIM BC2-1995 USS, BS EN 801, GS1 General Specifications.

Data and Options

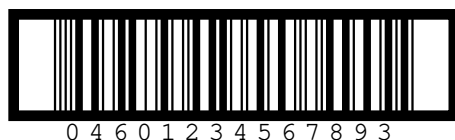
- The data consists of either thirteen or fourteen digits.
- Arbitrary spacing may be placed between the digits to format the human readable text without interfering with the encoded data.
- If thirteen digits are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.

Examples

Identical symbols, input provided with and without a check digit:

Data: 04601234567893
Options: includetext
Encoder: itf14

Data: 0460123456789
Options: includetext
Encoder: itf14



5.4.3 SSCC-18

SSCC-18 is an implementation of the **GS1-128** barcode symbology with *AI (00)* that is typically used to encode an eighteen-digit shipping container serial number.

Also known as: EAN-18, NVE.

Standards: ISO/IEC 15417, ANSI/AIM BC4-1999 ISS, BS EN 799, GS1 General Specifications.

Data and Options

- The data field input must be a solitary *AI (00)* with seventeen or eighteen digits of a Serial Shipping Container Code, i.e. (00)....
- Arbitrary spacing may be placed between the digits to format the human readable text without interfering with the encoded data.
- If seventeen digits of primary data are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.

Example

Identical symbols, input provided with and without a check digit:

Data: (00)006141411234567890
Options: includetext
Encoder: ssccl8

Data: (00)00614141123456789
Options: includetext
Encoder: ssccl8



5.4.4 GS1 DataMatrix

GS1 DataMatrix is an implementation of the **Data Matrix** (ECC 200) barcode symbology with **GS1 formatted** data.

Standards: ISO/IEC 16022, ANSI/AIM BC11 ISS, GS1 General Specifications.

Data and Options

- The data field input is provided in **GS1 Application Identifier standard format** starting with the mandatory (01) Application Identifier.
- Note that it is not necessary to specify *FNC1* characters since the encoder will insert these automatically where necessary.
- *Deprecated.* The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- The **format** option is used to specify the shape of the symbol, either square (default) or rectangle.
- The **columns** and **rows** options are used to specify the size of the symbol.
- The **version** option can also be used to specify the symbol size, as version=RxC. Valid options are:
 - With format=square: 10x10, 12x12, 14x14, 16x16, 18x18, 20x20, 22x22, 24x24, 26x26, 32x32, 36x36, 40x40, 44x44, 48x48, 52x52, 64x64, 72x72, 80x80, 88x88, 96x96, 104x104, 120x120, 132x132, 144x144
 - With format=rectangle: 8x18, 8x32, 12x26, 12x36, 16x36, 16x48
- If **columns**, **rows** and **version** are unspecified the encoder will default to creating a symbol of the specified **format** that is the minimum size to represent the given data.

Example

Data: (01)95012345678903(3103)000123
Options:
Encoder: gs1datamatrix



5.4.5 GS1 QR Code

GS1 QR Code is an implementation of the **QR Code** barcode symbology with **GS1 formatted data**.

Standards: ISO/IEC 18004, ITS - QR Code, GS1 General Specifications.

Data and Options

- The data field input is provided in **GS1 Application Identifier standard format** starting with the mandatory (01) and (8200) Application Identifiers.
- Note that it is not necessary to specify *FNC1* characters since the encoder will insert these automatically where necessary.
- *Deprecated.* The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- The **eclevel** option is used to specify the error correction level:
 - eclevel=L - Low
 - eclevel=M - Medium (default)
 - eclevel=Q - Quality
 - eclevel=H - High
- The **version** option is used to specify the size of the symbol, 1 to 40.
- If the **version** is unspecified the encoder will default to creating a symbol that is the minimum size to represent the given data at the selected error correction level.

Example

Data: (01)03453120000011(8200)http://www.abc.net
Options:
Encoder: gs1qrcode



Data: (01)03453120000011(8200)http://abc.net(10)XYZ(410)9501101020917
Options:
Encoder: gs1qrcode



5.4.6 GS1 Digital Link DataMatrix

GS1 Digital Link DataMatrix is an implementation of the **Data Matrix** (ECC 200) barcode symbology containing a GS1 Digital Link URI.

Standards: ISO/IEC 16022, ANSI/AIM BC11 ISS, GS1 Digital Link Standard: URI Syntax.

Data and Options

- The data field input is provided as a GS1 Digital Link URI.
- *Deprecated.* The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- The **format** option is used to specify the shape of the symbol, either square (default) or rectangle.
- The **columns** and **rows** options are used to specify the size of the symbol.
- The **version** option can also be used to specify the symbol size, as version=RxC. Valid options are:
 - With format=square: 10x10, 12x12, 14x14, 16x16, 18x18, 20x20, 22x22, 24x24, 26x26, 32x32, 36x36, 40x40, 44x44, 48x48, 52x52, 64x64, 72x72, 80x80, 88x88, 96x96, 104x104, 120x120, 132x132, 144x144
 - With format=rectangle: 8x18, 8x32, 12x26, 12x36, 16x36, 16x48
- If **columns**, **rows** and **version** are unspecified the encoder will default to creating a symbol of the specified **format** that is the minimum size to represent the given data.

Example

Data: `https://id.gs1.org/01/12312312312333/22/ABC%2d123?99=XYZ%2f987#test`

Options:

Encoder: `gs1dldatamatrix`

5.4.7 GS1 QR Digital Link Code

GS1 Digital Link QR Code is an implementation of the **QR Code** barcode symbology containing a GS1 Digital Link URI.

Standards: ISO/IEC 18004, ITS - QR Code, GS1 Digital Link Standard: URI Syntax.

Data and Options

- The data field input is provided as a GS1 Digital Link URI.
- *Deprecated.* The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- The **eclevel** option is used to specify the error correction level:
 - eclevel=L - Low
 - eclevel=M - Medium (default)
 - eclevel=Q - Quality
 - eclevel=H - High
- The **version** option is used to specify the size of the symbol, 1 to 40.
- If the **version** is unspecified the encoder will default to creating a symbol that is the minimum size to represent the given data at the selected error correction level.

Example

Data: `https://id.gs1.org/01/12312312312333/22/ABC%2d123?99=XYZ%2f987#test`

Options:

Encoder: `gs1dlqrqr`

5.4.8 GS1-128

GS1-128 is an implementation of the **Code 128** barcode symbology which carries **GS1 formatted** data, including a GTIN-14.

Also known as: UCC/EAN-128, EAN-128, UCC-128.

Variants:

- **GS1-128 Composite** is a variant of GS1-128 that should be used when a CC-A, CC-B or CC-C GS1 composite 2D component is required.
- **EAN-14** is a variant of GS1-128 that should be used when encoding a lone fourteen-digit GTIN.
- **SSCC-18** is a variant of GS1-128 that should be used when encoding a lone eighteen-digit SSCC.

Standards: ISO/IEC 15417, ANSI/AIM BC4-1999 ISS, BS EN 799, GS1 General Specifications.

Data and Options

- The data field input is provided in **GS1 Application Identifier standard format**.
- Note that it is not necessary to specify *FNC1* characters since the encoder will insert these automatically where necessary.
- *Deprecated.* The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- *Deprecated: For internal use.* The **linkagea** option specifies that the symbol includes a CC-A or CC-B GS1 composite 2D component.
- *Deprecated: For internal use.* The **linkagec** option specifies that the symbol includes a CC-C GS1 composite 2D component.

Examples

GTIN 95012345678903; Weight 0.123kg:

Data: (01)95012345678903(3103)000123

Options: includetext

Encoder: gs1-128

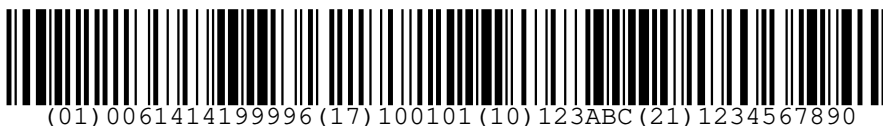


GTIN 0061414199996; Expiration date 1st Jan 2010; Batch 123ABC; Serial 1234567890:

Data: (01)0061414199996(17)100101(10)123ABC(21)1234567890

Options: includetext

Encoder: gs1-128



5.4.9 GS1 DotCode

GS1 DotCode is an implementation of the **DotCode** barcode symbology with **GS1 formatted** data.

Standards: AIM - ISS DotCode, GS1 General Specifications.

Data and Options

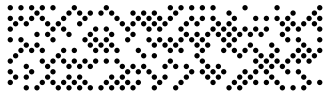
- The data field input is provided in **GS1 Application Identifier standard format**.
- Note that it is not necessary to specify *FNC1* characters since the encoder will insert these automatically where necessary.
- *Deprecated*. The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- The **ratio** is used to specify the aspect ratio of the symbol. The default is 1.5.
- The **columns** and **rows** options are used to specify the size of the symbol. When these are not specified a symbol is generated that maintains the selected aspect ratio.
- *Deprecated: Use only if performance is a concern*. The **fast** option is used to enable the optional high-speed symbol masking algorithm.

Examples

Data: (235)5vBZIF%!**<**B;?oa%(01)01234567890128(8008)19052001

Options: rows=16

Encoder: gs1dotcode



5.5 GS1 DataBar Family

5.5.1 GS1 DataBar Omnidirectional

GS1 DataBar Omnidirectional is a fixed-length, linear barcode symbology that can be used to encode a GTIN-14 for use at point of sale.

Also known as: RSS-14

Variants:

- **GS1 DataBar Stacked Omnidirectional** is a variant of GS1 DataBar Omnidirectional for use where a taller, narrower symbol is required.
- **GS1 DataBar Omnidirectional Composite** is a variant of GS1 DataBar Omnidirectional that should be used when a CC-A or CC-B GS1 composite 2D component is required.

Standards: ISO/IEC 24724, ITS Reduced Space Symbology (RSS), AIM ISS - Reduced Space Symbology (RSS), GS1 General Specifications.

Data and Options

- The data field input must be a solitary *AI (01)* with thirteen or fourteen digits of a GTIN, i.e. (01)....
- If thirteen digits of *AI (01)* data are supplied then the check digit is calculated automatically, otherwise the provided check digit will be verified.
- *Deprecated: For internal use*. The **linkage** option signifies the presence of a GS1 composite 2D component.

Examples

Identical symbols, input provided with and without a check digit:

Data: (01)24012345678905
Options:
Encoder: databaromni

Data: (01)2401234567890
Options:
Encoder: databaromni



5.5.2 GS1 DataBar Stacked Omnidirectional

GS1 DataBar Stacked Omnidirectional is a fixed-length, stacked linear barcode symbology that can be used to encode a GTIN-14 for use as a point of sale.

Also known as: RSS-14 Stacked Omnidirectional.

Variants:

- **GS1 DataBar Omnidirectional** is a variant of GS1 DataBar Stacked Omnidirectional for use where a shorter, wider symbol is required.
- **GS1 DataBar Stacked Omnidirectional Composite** is a variant of GS1 DataBar Stacked Omnidirectional that should be used when a CC-A or CC-B **GS1 composite** 2D component is required.

Standards: ISO/IEC 24724, ITS Reduced Space Symbology (RSS), AIM ISS - Reduced Space Symbology (RSS), GS1 General Specifications.

Data and Options

- The data field input must be a solitary *AI (01)* with thirteen or fourteen digits of a GTIN, i.e. (01)....
- If thirteen digits of *AI (01)* data are supplied then the check digit is calculated automatically, otherwise the provided check digit will be verified.
- *Deprecated: For internal use.* The **linkage** option signifies the presence of a GS1 composite 2D component.

Examples

Identical symbols, input provided with and without a check digit:

Data: (01)24012345678905
Options:
Encoder: databarstackedomni

Data: (01)2401234567890
Options:
Encoder: databarstackedomni



5.5.3 GS1 DataBar Expanded

GS1 DataBar Expanded is a variable-length, linear barcode symbology that can be used to encode a GTIN-14 alongside a number of other application identifiers for use at point of sale.

Also known as: RSS Expanded.

Variants:

- **GS1 DataBar Expanded Stacked** is a variant of GS1 DataBar Expanded for use where a taller, narrower symbol is required.
- **GS1 DataBar Expanded Composite** is a variant of GS1 DataBar Expanded that should be used when a CC-A or CC-B GS1 composite 2D component is required.
- **GS1 North American Coupon Code** is an applicaiton of GS1 DataBar Expanded for use with a paperless coupon system.

Standards: ISO/IEC 24724, ITS Reduced Space Symbology (RSS), AIM ISS - Reduced Space Symbology (RSS), GS1 General Specifications.

Data and Options

- The data field input is provided in **GS1 Application Identifier standard format**.
- Note that it is not necessary to specify *FNC1* characters since the encoder will insert these automatically where necessary.
- *Deprecated.* The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- If the data contains a number of application identifiers matching any of the specifications below then they should be provided in this given order for maximum encoding efficiency:
 - (01)9... (3103)...
 - (01)9... (3202)...
 - (01)9... (3203)...
 - (01)9... (310x/320x)... (11/13/15/17)...
 - (01)9... (310x/320x)...
 - (01)9... (392x)...
 - (01)9... (393x)...
 - (01)...
- *Deprecated: For internal use.* The **linkage** option signifies the presence of a GS1 composite 2D component.

Examples

Data: (01)95012345678903(3103)000123

Options:

Encoder: databarexpanded



5.5.4 GS1 DataBar Expanded Stacked

GS1 DataBar Expanded Stacked is a variable-length, stacked-linear barcode symbology that can be used to encode a GTIN-14 alongside a number of other application identifiers for use at point of sale.

Also known as: RSS Expanded Stacked.

Variants:

- **GS1 DataBar Expanded** is a variant of GS1 DataBar Expanded Stacked for use where a shorter, wider symbol is required.
- **GS1 DataBar Expanded Stacked Composite** is a variant of GS1 DataBar Expanded Stacked that should be used when a CC-A or CC-B GS1 composite 2D component is required.
- **GS1 North American Coupon Code** is an application of GS1 DataBar Expanded for use with a paperless coupon system.

Standards: ISO/IEC 24724, ITS Reduced Space Symbology (RSS), AIM ISS - Reduced Space Symbology (RSS), GS1 General Specifications.

Data and Options

- The data field input is provided in **GS1 Application Identifier standard format**.
- Note that it is not necessary to specify *FNC1* characters since the encoder will insert these automatically where necessary.
- *Deprecated.* The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- If the data contains a number of application identifiers matching any of the specifications below then they should be provided in this given order for maximum encoding efficiency:
 - (01)9... (3103)...
 - (01)9... (3202)...
 - (01)9... (3203)...
 - (01)9... (310x/320x) ... (11/13/15/17) ...
 - (01)9... (310x/320x) ...
 - (01)9... (392x) ...
 - (01)9... (393x) ...
 - (01) ...
- The **segments** option is used to specify the maximum number of segments per row which must be an even number. The default is 4.
- *Deprecated: For internal use.* The **linkage** option signifies the presence of a GS1 composite 2D component.

Examples

Data: (01)95012345678903(3103)000123

Options: segments=4

Encoder: databarexpandedstacked



5.5.5 GS1 DataBar Truncated

GS1 DataBar Truncated is a fixed-length, linear barcode symbology that can be used to encode a GTIN-14 for in-house applications.

Also known as: RSS-14 Truncated.

Variants:

- **GS1 DataBar Stacked** is a variant of GS1 DataBar Truncated for use where a taller, narrower symbol is required.
- **GS1 DataBar Truncated Composite** is a variant of GS1 DataBar Truncated that should be used when a CC-A or CC-B GS1 composite 2D component is required.

Standards: ISO/IEC 24724, ITS Reduced Space Symbology (RSS), AIM ISS - Reduced Space Symbology (RSS), GS1 General Specifications.

Data and Options

- The data field input must be a solitary *AI (01)* with 13 or 14 digits of a GTIN, i.e. (01) . . .
- If thirteen digits of *AI (01)* data are supplied then the check digit is calculated automatically, otherwise the provided check digit will be verified.
- *Deprecated: For internal use.* The **linkage** option signifies the presence of a GS1 composite 2D component.

Examples

Identical symbols, input provided with and without a check digit:

Data: (01)24012345678905

Options:

Encoder: databartruncated

Data: (01)2401234567890

Options:

Encoder: databartruncated



5.5.6 GS1 DataBar Stacked

GS1 DataBar Stacked is a fixed-length, stacked linear barcode symbology that can be used to encode a GTIN-14 for in-house applications.

Also known as: RSS-14 Stacked.

Variants:

- **GS1 DataBar Truncated** is a variant of GS1 DataBar Stacked for use where a shorter, wider symbol is required.
- **GS1 DataBar Stacked Composite** is a variant of GS1 DataBar Stacked that should be used when a CC-A or CC-B GS1 composite 2D component is required.

Standards: ISO/IEC 24724, ITS Reduced Space Symbology (RSS), AIM ISS - Reduced Space Symbology (RSS), GS1 General Specifications.

Data and Options

- The data field input must be a solitary *AI (01)* with thirteen or fourteen digits of a GTIN, i.e. (01)....
- If thirteen digits of *AI (01)* data are supplied then the check digit is calculated automatically, otherwise the provided check digit will be verified.
- *Deprecated: For internal use.* The **linkage** option signifies the presence of a GS1 composite 2D component.

Examples

Identical symbols, input provided with and without a check digit:

Data: (01)24012345678905

Options:

Encoder: databarstacked

Data: (01)2401234567890

Options:

Encoder: databarstacked



5.5.7 GS1 DataBar Limited

GS1 DataBar Limited is fixed-length, linear barcode symbology that can be used to encode a GTIN-14 beginning with *0* or *1* for in-house applications.

Also known as: RSS Limited.

Variants:

- **GS1 DataBar Limited Composite** is a variant of GS1 DataBar Limited that should be used when a CC-A or CC-B GS1 composite 2D component is required.

Standards: ISO/IEC 24724, ITS Reduced Space Symbology (RSS), AIM ISS - Reduced Space Symbology (RSS), GS1 General Specifications.

Data and Options

- The data field input must be a solitary *AI (01)* with thirteen or fourteen digits of a GTIN starting with *0* or *1*, i.e. (01)0... or (01)1....
- If thirteen digits of *AI (01)* data are supplied then the check digit is calculated automatically, otherwise the provided check digit will be verified.
- *Deprecated: For internal use.* The **linkage** option signifies the presence of a GS1 composite 2D component.

Examples

Identical symbols, input provided with and without a check digit:

Data: (01)15012345678907

Options:

Encoder: databarlimited

Data: (01)1501234567890

Options:

Encoder: databarlimited



5.5.8 GS1 North American Coupon Code

GS1 North American Coupon Code is an implementation of the **GS1 DataBar Expanded** barcode symbology with AI (8110) that is used as a paperless coupon system at point of sale.

Also known as: GS1 DataBar Coupon, U.S. Coupon Code.

Standards: North American Coupon Application Guideline Using GS1 DataBar Expanded Symbols, ISO/IEC 24724, GS1 General Specifications.

Data and Options

- The data field input is provided in **GS1 Application Identifier standard format** and must be a solitary AI (8110).
- The **segments** option is used to specify the maximum number of segments per row which must be an even number. The default is 4.

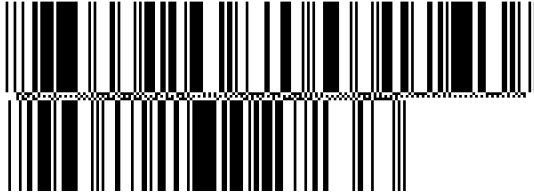
Examples

Data: (8110)106141416543213500110000310123196000

Options: includetext segments=8

Encoder: gslnorthamericancoupon

0614141-654321



5.6 Postal Symbols

5.6.1 Australia Post 4 State Customer Code

The **Australia Post 4 State Customer Code** is a barcode used by the Australian Postal Service to encode the data on letter mail.

Data and Options

- The first two characters of the data field are digits used to specify the mandatory FCC type of the symbols, either 11, 45, 59 or 67.
- The next eight characters are digits that specify the mandatory DPID.
- The number of remaining characters varies according to the given FCC code and these specify the contents of the customer information field in one of two alphabets:
 - The **custinfoenc** option should be supplied as custinfoenc=numeric if the customer information field is to be encoded using the numeric alphabet which can contain the digits 0-9.
 - Otherwise the customer information field is encoded using the default character encoding, custinfoenc=character, which permits any of the following characters:
 - * Upper case letters A-Z
 - * Lower case letters a-z
 - * Digits 0-9
 - * Symbols space and #

Examples

FCC 62 symbol with character customer data:

Data: 6279438541AaaB 155
Options: custinfoenc=character
Encoder: auspost



FCC 59 symbol with numeric customer data:

Data: 593221132401234567
Options: custinfoenc=numeric
Encoder: auspost



5.6.2 Deutsche Post Identcode

Deutsche Post Identcode is an implementation of the **Interleaved 2 of 5** barcode symbology that is used by German Post for mail routing.

Also known as: DHL Identcode.

Data and Options

- The data consists of a consecutive string of eleven or twelve digits consisting of:
 - Two-digit primary distribution centre identifier
 - Three-digit customer identifier
 - Six-digit mail piece identifier
 - One-digit check digit (may be omitted)
- If eleven digits are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.

Example

Identical symbols, input provided with an without a check digit:

Data: 563102430313
Options: includetext
Encoder: identcode

Data: 56310243031
Options: includetext
Encoder: identcode



5.6.3 Deutsche Post Leitcode

The **Deutsche Post Leitcode** barcode symbology is an implementation of the **Interleaved 2 of 5** barcode that is used by German Post for mail routing.

Also known as: DHL Leitcode.

Data and Options

- The data consists of a consecutive string of thirteen or fourteen digits consisting of:
 - Five-digit postal code
 - Three-digit street identifier
 - Three-digit house number
 - Two-digit product code
 - One-digit check digit (may be omitted)
- If thirteen digits are supplied then the check digit is calculated automatically. Otherwise the provided check digit will be verified.

Examples

Identical symbols, input provided with and without a check digit:

Data: 21348075016401
Options: includetext
Encoder: leitcode

Data: 2134807501640
Options: includetext
Encoder: leitcode



5.6.4 Japan Post 4 State Barcode

The **Japan Post 4 state barcode** symbology is used by the Japan Post service to encode the delivery point identifier on letter mail.

Data and Options

- The data may contain any of the following characters:
 - Capital letters A-Z
 - Digits 0-9
 - Hyphen -

Example

Data: 6540123789-A-K-Z
Options:
Encoder: japanpost



5.6.5 MaxiCode

The **MaxiCode** barcode symbology is a 2D barcode based on a hexagonal matrix surrounding a bulls eye pattern. It can encode a structured carrier message and full 256 character extended-ASCII.

Also known as: UPS Code, Code 6, Dense Code.

Standards: ISO/IEC 16023, ANSI/AIM BC10 - ISS MaxiCode.

Data and Options

- The **mode** option is used to specify how the data is structured in the symbol:
 - mode=2 - Formatted data containing a Structured Carrier Message with a numeric (US domestic) postal code.
 - mode=3 - Formatted data containing a Structured Carrier Message with an alphanumeric (international) postal code.
 - mode=4 - Unstructured extended ASCII data using standard error correction.
 - mode=5 - Unstructured extended ASCII data using enhanced error correction.
 - mode=6 - Barcode reader programming.
- If **mode** is unspecified the encoder will default to selecting mode=5 if the encoded length of the input data permits enhanced error correction, otherwise it will select mode=4 which provides standard error correction.
- The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^ECI000000 to ^ECI999999: ECI indicators
- If mode=4, mode=5 or mode=6 the data field may contain any extended ASCII data.
- If mode=2 or mode=3 the data field must begin with a properly structured carrier message, followed by any extended ASCII data.
- The structured carrier message contains a postal code, three-digit class of service and a three-digit ISO country code separated by GS (ASCII 29) characters. It is formatted in the data field as follows: [postal code]^029[country code]^029[service class]^029. If mode=2 the postcode must be numeric, whilst if mode=3 the postcode may contain up to six digits, upper case letters and spaces.
- Alternatively, messages may begin with the special application field identifier []>{RS}01{GS}yy where {RS} represents ASCII value 30, {GS} represents ASCII value 29 and yy is a two-digit year. In parse mode this is represented as []>^03001^0299. If mode=2 or mode=3 this must be immediately followed by the structured carrier message.

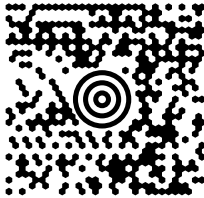
Examples

```
Data:   This is MaxiCode
Options:
Encoder: maxicode
```

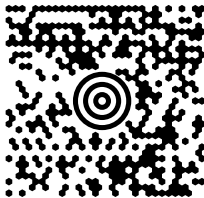
```
Data:   This is Maxi^067ode
Options: parse
Encoder: maxicode
```



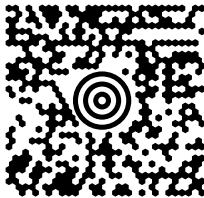
Data: 152382802^029840^029001^0291Z00004951^029UPSN^02906X610^029159^0291234567^0291/1^029^029Y^029634 ALPHA
Options: mode=2 parse
Encoder: maxicode



Data: ABC123^029840^029001^0291Z00004951^029UPSN^02906X610^029159^0291234567^0291/1^029^029Y^029634 ALPHA
Options: mode=3 parse
Encoder: maxicode



Data: [\]>^03001^02996152382802^029840^029001^0291Z00004951^029UPSN^02906X610^029159^0291234567^0291/1^029^029Y^029634 ALPHA
Options: mode=2 parse
Encoder: maxicode



5.6.6 Royal Mail 4 State Customer Code

The **Royal Mail 4 State Customer Code** is a barcode symbology used by the British Postal Service to encode the postcode and delivery point identifier on letter mail.

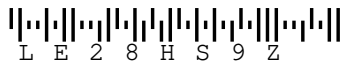
Also known as: RM4SCC, CBC, BPO 4 State Code

Data and Options

- The data may contain any of the following characters from the postcode and DPID:
 - Capital letters A-Z
 - Digits 0-9
- The mandatory checksum digit is calculated automatically and must not be included in the data field

Example

Data: LE28HS9Z
Options: includetext
Encoder: royalmail

**5.6.7 Royal Mail Mailmark**

Royal Mail Mailmark is an implementation of the **Data Matrix** (ECC 200) barcode symbology for application within the Royal Mail postal system.

Standards: Royal Mail Mailmark Barcode Definition Document

Data and Options

- The data field input consists of 45 characters of Mailmark structured data (including required space padding) followed by variable-length, free-formatted customer data.
- Note: Due to the fixed-length field format of the message data it is important to carefully preserve spaces in the data field.
- The mandatory **type** option is used to specify the size of the symbol, either 7, 9 or 29.

Example

Data: JGB 012100123412345678AB19XY1A 0 www.xyz.com
Options: type=29
Encoder: mailmark

5.6.8 Royal TNT Post 4 state barcode

The **Royal TNT Post 4 state barcode** symbology is used by the Dutch Postal Service to encode the delivery point identifier on letter mail.

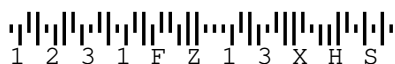
Also known as: KIX, Klant Index.

Data and Options

- The data may contain any of the following characters from the DPID:
 - Capital letters A-Z
 - Digits 0-9

Example

Data: 1231FZ13XHS
Options: includetext
Encoder: kix

**5.6.9 USPS Intelligent Mail**

The **USPS Intelligent Mail** barcode is used by the US Postal service to encode the delivery and sender information on letter mail.

Also known as: USPS OneCode.

Standards: USPS-STD-11.

Data and Options

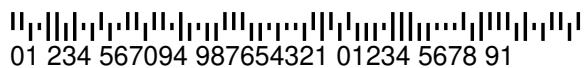
- The data contains 31 digits representing the following:
 - Barcode Identifier - two digits
 - Service Type Identifier - three digits
 - Mailer ID, Sequence Number - either six then nine digits respectively or nine then six digits respectively
 - Delivery Point ZIP Code - eleven digits
- The mandatory checksum digit is calculated automatically and must not be included in the data field.

Example

Data: 0123456709498765432101234567891

Options: includetext

Encoder: onecode



01 234 567094 987654321 01234 5678 91

5.6.10 USPS POSTNET

The **USPS POSTNET** barcode symbology is used by the US Postal service to encode the ZIP code information on letter mail.

Data and Options

- The data field contains the digits from the ZIP code, without dashes.
- The mandatory checksum is calculated automatically and must not be included in the data field.

Example

Data: 12345123412

Options:

Encoder: postnet



5.6.11 USPS PLANET

The **USPS PLANET** barcode symbology is used by the US Postal service to encode the ZIP code information on letter mail.

Data and Options

- The data field contains eleven or thirteen digits, without dashes.
- The mandatory checksum is calculated automatically and must not be included in the data field.

Example

Data: 01234567890

Options:

Encoder: planet



5.6.12 USPS FIM Symbols

The **USPS FIM** encoder is used to generate static predefined barcode symbols.

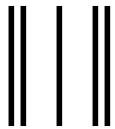
Data and Options

- The data field accepts one of the following values:
 - fima - US Postal Service FIM-A symbol
 - fimb - US Postal Service FIM-B symbol
 - fimc - US Postal Service FIM-C symbol
 - fimd - US Postal Service FIM-D symbol

Examples

A USPS FIM A symbol:

Data: fima
Options:
Encoder: symbol



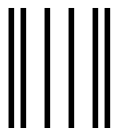
A USPS FIM B symbol:

Data: fimb
Options:
Encoder: symbol



A USPS FIM C symbol:

Data: fimc
Options:
Encoder: symbol



A USPS FIM D symbol:

Data: fimd
Options:
Encoder: symbol



5.7 Pharmaceutical Symbols

5.7.1 Italian Pharmacode

Italian Pharmacode is a discrete, fixed length, self-checking barcode symbology used for pharmaceutical products in Italy.

Also known as: Code 32, IMH, Radix 32.

Data and Options

- The data field must contain either eight or nine digits from the code. The leading *A* which is provided in some applications must be omitted.
- The mandatory check digit is calculated automatically if it is not provided, otherwise the provided check digit is verified.

Examples

Identical symbols, input provided with and without a check digit:

Data: 012345676
Options: includetext
Encoder: code32

Data: 01234567
Options: includetext
Encoder: code32



5.7.2 Pharmacode

Pharmacode is a binary barcode symbology that is used by the Pharmaceutical industry.

Also known as: Pharmaceutical Binary Code. Laetus Code.

Variants:

- **Two-track Pharmacode** is a variant of the Pharmacode barcode.

Data and Options

- The data field must contain a number between 3 and 131070 inclusive.
- The **nwidth**, **wwidth** and **swidth** options can be used to specify a custom width (in points) for the narrow bars, wide bars and inter-bar spaces respectively.

Example

Data: 117480
Options:
Encoder: pharmacode





Identical PZN8 symbols, input provided with and without a check digit:

Data: 0275808
Options: pzn8 includetext
Encoder: pzn

Data: 02758089
Options: pzn8 includetext
Encoder: pzn



5.8 HIBC Symbols

HIBC barcodes use a number of general symbologies as carrier symbols for data structured according to the LIC and PAS structured data definitions.

Variants:

- **HIBC Code 39** is a variant of **Code 39**.
- **HIBC Code 128** is a variant of **Code 128**.
- **HIBC PDF417** is a variant of **PDF417**.
- **HIBC MicroPDF417** is a variant of **MicroPDF417**.
- **HIBC QR Code** is a variant of **QR Code**.
- **HIBC Data Matrix** is a variant of **Data Matrix**.
- **HIBC Codablock F** is a variant of **Codablock F**.

Standards: ANSI/HIBC Provider Applications Standard, ANSI/HIBC Supplier Labelling Standard, ANSI/HIBC Positive Identification for Patient Safety, ANSI/HIBC Syntax Standard.

Data and Options

- The data should be pre-encoded to describe the intended barcode content.
- The HIBC + character is prefixed automatically.
- The mandatory HIBC check character is automatically appended to the input.

5.8.1 HIBC Code 39

Data: A123BJC5D6E71
Options: includetext
Encoder: hibccode39



5.8.2 HIBC Code 128

Data: A123BJC5D6E71
Options: includetext
Encoder: hibccode128



5.8.3 HIBC PDF417

Data: A123BJC5D6E71
Options:
Encoder: hibcpdf417



5.8.4 HIBC MicroPDF417

Data: A123BJC5D6E71
Options:
Encoder: hibcmicropdf417



5.8.5 HIBC QR Code

Data: A123BJC5D6E71
Options:
Encoder: hibcqr code



5.8.6 HIBC Data Matrix

Data: A123BJC5D6E71
Options:
Encoder: hibcdatamatrix



5.8.7 HIBC Codablock F

Data: A123BJC5D6E71
Options:
Encoder: hibccodablockf



5.9 Less-used Symbols

5.9.1 BC412

The **BC412** barcode symbology is single width, variable length barcode that is used for silicon wafer identification by the semiconductor manufacturing industry.

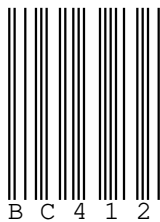
Also known as: BC412 SEMI, BC412 IBM.

Data and Options

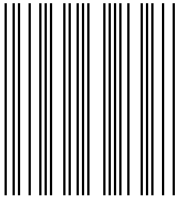
- The data field can hold any of the following:
 - Numbers 0-9
 - Capital letters A-Z, excluding O
- The **includestartstop** option enables the display of start and stop bars.
- The **includecheck** option calculates the check character.
- The **includecheckintext** option makes the calculated checksum appear in the human readable text.
- The **semi** option enables conformance to the SEMI standard by enabling start and stop bars as well as a check character.
- The **inkspread** option can be used to adjust the width of the bars.

Examples

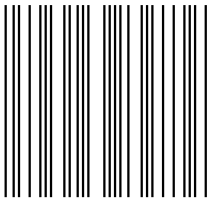
Data: BC412
Options: includecheck
Encoder: bc412



Data: BC412
 Options: includestartstop
 Encoder: bc412



Data: BC412
 Options: semi
 Encoder: bc412



5.9.2 Channel Code

Channel Code is a linear, continuous, self-checking, bidirectional barcode symbology that encodes between two and seven digits in a short space.

Standards: ANSI/AIM BC12 - USS Channel Code.

Data and Options

- The data field can hold zero prefixed values from any of the following ranges:
 - Channel 3: 00-26
 - Channel 4: 000-292
 - Channel 5: 0000-3493
 - Channel 6: 00000-44072
 - Channel 7: 000000-576688
 - Channel 8: 0000000-7742862
- The channel is determined to be one more than the number of digits given in the data field.
- The **shortfinder** option generates a symbol with a shortened finder pattern.
- The **includecheck** option appends an optional check bar suffix.

Examples

A channel 3 symbol holding the value five:

Data: 05
 Options: includetext
 Encoder: channelcode



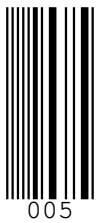
A channel 4 symbol holding the value 123:

Data: 123
 Options: includetext
 Encoder: channelcode



A channel 4 symbol holding the value five including optional check bars:

Data: 005
 Options: includetext includecheck
 Encoder: channelcode



A channel 3 symbol holding the value 26 with a shorteded finder pattern:

Data: 26
 Options: shortfinder includetext
 Encoder: channelcode



5.9.3 Codabar

Codabar is a linear, discrete, self-checking, bidirectional barcode symbology that can encode digits, six symbols and four delimiter characters. It is primarily used by libraries and blood banks, photo labs and FedEx airbills.

Also known as: Rationalized Codabar, Ames Code, NW-7, USD-4, USS-Codabar, ABC Codabar, Monarch, Code 2 of 7.

Standards: ANSI/AIM BC3 - USS Codabar, BS EN 798.

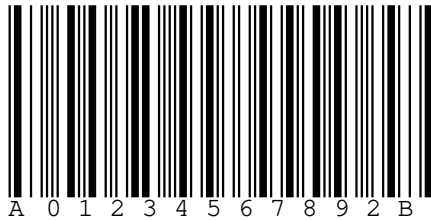
Data and Options

- The data field must start and stop with one of the following delimiters
 - ABCD
 - TNE* (with the *altstartstop* option)
- The data field can otherwise hold any of the following
 - Digits 0-9

- Symbols -\$/.+
- The **altstartstop** option specifies that the alternative set of delimiter characters is in use.
- The **includecheck** option calculates the check digit.
- The **includecheckintext** option makes the calculated check characters appear in the human readable text.

Example

Data: A0123456789B
Options: includecheck includetext includecheckintext
Encoder: rationalizedCodabar



5.9.4 Codablock F

The **Codablock F** barcode symbology is 2D stacked-linear barcode that consists of a number of stacked **Code 128** symbols. It can encode full 256 character extended-ASCII.

Variants:

- **HIBC Codablock F** is a variant of Codablock F that should be used when encoding HIBC formatted data.

Standards: USS Codablock F.

Data and Options

- The data field can consist of any extended-ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
- *FNC4* function characters will be inserted automatically to allow the encoding of extended ASCII characters.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^FNC2: FNC2
 - ^FNC3: FNC3
 - ^ECI000000 to ^ECI999999: ECI indicators
- The **columns** option specifies the number of columns in the symbol, default 8.
- The **rows** option specifies the number of rows in the symbol, between 2 and 44.
- If **rows** is unspecified the encoder will default to the smallest number of rows that can hold the given data.
- The **raw** option denotes that the data field is providing the input as a pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.

- The **rowheight** option specifies the height of the bars in each row in points. The default is 10.
- The **sepheight** option specifies the height of the separator bars enclosing the rows in points. The default is 1.

Examples

Data: Codablock F

Options:

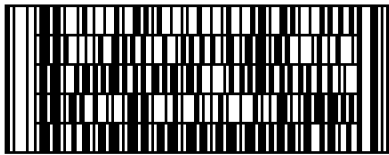
Encoder: codablockf



Data: CODABLOCK F 34567890123456789010040digit

Options: columns=8 rows=5

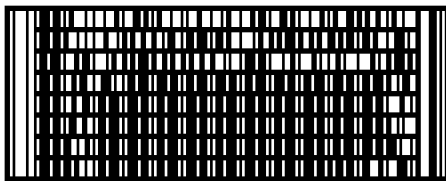
Encoder: codablockf



Data: Short bars, fat separators

Options: columns=10 rows=8 rowheight=6 sepheight=2

Encoder: codablockf



5.9.5 Code 11

Code 11 is a linear, discrete, non-self-checking, bidirectional, numeric barcode symbology that is primarily used for labelling telecommunication equipment.

Also known as: USD-8.

Data and Options

- The data consists of digits and the dash character -.
- The **includecheck** option calculates the check digits.
- For less than 10 data digits a single check digit is used.
- For 10 or more data digits two check digits are used.

Example

Data: 0123456789

Options: includecheck includetext includecheckintext

Encoder: code11



5.9.6 Code 16K

The **Code 16K** barcode symbology is 2D stacked-linear barcode that can encode full 256 character extended-ASCII with the use of the *FNC4* shift character.

Also known as: USS-16K

Standards: ANSI/AIM BC7 - USS Code 16K, BS EN 12323.

Data and Options

- The data field can consist of any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
- *FNC4* function characters will be inserted automatically to allow the encoding of extended ASCII characters.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^FNC2: FNC2
 - ^FNC3: FNC3
- The **mode** option specifies the mode for the symbol. It is usual to leave this unspecified in which case the most appropriate mode that results in the shortest symbol is automatically selected based in the input data.
 - mode=0 - Starting code set A
 - mode=1 - Starting code set B
 - mode=2 - Starting code set C
 - mode=3 - Starting code set B with implied *FNC1*
 - mode=4 - Starting code set C with implied *FNC1*
 - mode=5 - Starting code set C with implied *Shift B*
 - mode=6 - Starting code set C with implied *Double Shift B*
- The **pos** option specifies this symbol to be part of multi-part structured data. For example pos=25 specifies this to be the second symbol in a group of five symbols.
- The **rows** option specifies the number of rows in the symbol, between two and sixteen.
- If **rows** is unspecified the encoder will default to the smallest number of rows that can hold the given data.
- The **raw** option denotes that the data field is providing the input as a pre-encoded codewords in ^NNN format, suitable for direct low-level encoding.
- The **rowheight** option specifies the height of the bars in each row in points. The default is 10.
- The **sepheight** option specifies the height of the separator bars enclosing the rows in points. The default is 1.

Examples

Data: Abcd-1234567890-wxyZ

Options:

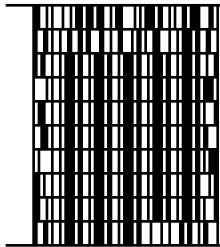
Encoder: code16k



Data: Code 16K

Options: rows=10

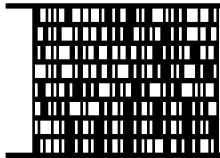
Encoder: code16k



Data: Short bars, fat separators

Options: rows=8 rowheight=5 sepheight=2

Encoder: code16k



5.9.7 Code 25

Code 2 of 5 is a simple low density numeric barcode symbology.

Also known as: Code 25, Industrial 2 of 5, Standard 2 of 5

Variants:

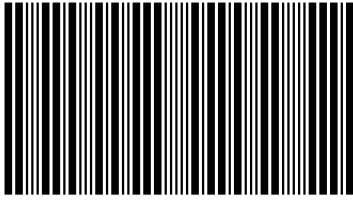
- *IATA 2 of 5*, Computer Identics 2 of 5.
- *Datalogic 2 of 5*.
- *Matrix 2 of 5*.
- *COOP 2 of 5*.

Data and Options

- The data consists of any number of digits.
- The **includecheck** option calculates the check digit.
- *Deprecated*: The **version** option determines which variant to use:
 - version=industrial (default) - Industrial 2 of 5.
 - version=iata - *Deprecated: Use IATA 2 of 5*
 - version=datalogic - *Deprecated: Use Datalogic 2 of 5*
 - version=matrix - *Deprecated: Use Matrix 2 of 5*
 - version=coop - *Deprecated: Use COOP 2 of 5*

Examples

Data: 01234567
Options:
Encoder: code2of5



5.9.8 DotCode

The **DotCode** symbology is 2D matrix-style barcode that can encode full 256 character extended-ASCII.

Also known as: Ribbon Code

Variants:

- **GS1 DotCode** is a variant of DotCode that should be used when encoding data that is in **GS1 Application Identifier standard format**.

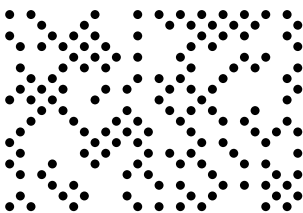
Standards: AIM - ISS DotCode.

Data and Options

- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value. This is useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1. *Recommendation: Use **GS1 DotCode** for encoding GS1 AI syntax data.*
 - ^FNC2: FNC2
 - ^FNC3: FNC3
- The **ratio** is used to specify the aspect ratio of the symbol. The default is 1.5.
- The **columns** and **rows** options are used to specify the size of the symbol. When these are not specified a symbol is generated that maintains the selected aspect ratio.
- *Deprecated: Use only if performance is a concern.* The **fast** option is used to enable the optional high-speed symbol masking algorithm.

Examples

Data: This is DotCode
Options: inkspread=0.16
Encoder: dotcode



5.9.9 Ultracode

The **Ultracode** symbology is a colour, 2D matrix-style barcode symbology that can encode full 256 character extended-ASCII.

Standards: AIM ISS - Ultracode.

Data and Options

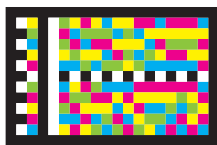
- The data field can contain any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^FNC3: FNC3
- The **eclevel** option is used to specify the error correction level:
 - eclevel=EC0 - Error detection only
 - eclevel=EC1 - Low
 - eclevel=EC2 - Medium (default)
 - eclevel=EC3
 - eclevel=EC4
 - eclevel=EC5 - Highest

Examples

Data: Nice colours!

Options: eclevel=EC3

Encoder: ultracode



5.9.10 IATA 2 of 5

IATA 2 of 5 is a variant of the **Code 2 of 5** barcode symbology.

Also known as: Computer Identics 2 of 5.

Variants:

- **Industrial 2 of 5**, Standard 2 of 5.
- **Datalogic 2 of 5**.
- **Matrix 2 of 5**.
- **COOP 2 of 5**.

Data and Options

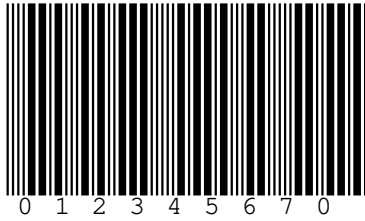
- The data consists of any number of digits.
- The **includecheck** option calculates the check digit.

Examples

Data: 01234567

Options: includetext includecheck includecheckintext

Encoder: iata2of5



5.9.11 Matrix 2 of 5

Matrix 2 of 5 is a variant of the **Code 2 of 5** barcode symbology.

Variants:

- **Industrial 2 of 5**, Standard 2 of 5.
- **IATA 2 of 5**, Computer Identics 2 of 5.
- **Datalogic 2 of 5**.
- **COOP 2 of 5**.

Data and Options

- The data consists of any number of digits.
- The **includecheck** option calculates the check digit.

5.9.12 Datalogic 2 of 5

Datalogic 2 of 5 is a variant of the **Code 2 of 5** barcode symbology.

Variants:

- **Industrial 2 of 5**, Standard 2 of 5.
- **IATA 2 of 5**, Computer Identics 2 of 5.
- **Matrix 2 of 5**.
- **COOP 2 of 5**.

Data and Options

- The data consists of any number of digits.
- The **includecheck** option calculates the check digit.

5.9.13 COOP 2 of 5

COOP 2 of 5 is a variant of the **Code 2 of 5** barcode symbology.

Variants:

- **Industrial 2 of 5**, Standard 2 of 5.
- **IATA 2 of 5**, Computer Identics 2 of 5.
- **Datalogic 2 of 5**.
- **Matrix 2 of 5**.

Data and Options

- The data consists of any number of digits.
- The **includecheck** option calculates the check digit.

5.9.14 Code 49

The **Code 49** barcode symbology is 2D stacked-linear barcode that can encode 128 character ASCII.

Also known as: USS-49.

Standards: ANSI/AIM BC6 - USS Code 49.

Data and Options

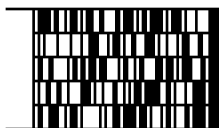
- The input can consist of any ASCII data.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^FNC2: FNC2
 - ^FNC3: FNC3
- The **mode** option specifies the mode for the symbol. It is usual to leave this unspecified in which case the most appropriate mode that results in the shortest symbol is automatically selected based in the input data.
 - mode=0 - regular alphanumeric mode
 - mode=1 - append mode
 - mode=2 - numeric mode
 - mode=3 - group alphanumeric mode
 - mode=4 - alphanumeric mode starting shift 1
 - mode=5 - alphanumeric mode starting shift 2
 - mode=6 - reserved
- The **pos** option specifies this symbol to be part of multi-part structured data, i.e. selecting mode=3. For example pos=25 specifies this to be the second symbol in a group of five symbols.
- The **rows** option specifies the number of rows in the symbol, between 2 and 8.
- If **rows** is unspecified the encoder will default to the smallest number of rows that can hold the given data.
- The **rowheight** option specifies the height of the bars in each row in points. The default is 10.
- The **sepheight** option specifies the height of the separator bars enclosing the rows in points. The default is 1.

Examples

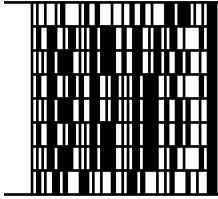
Data: MULTIPLE ROWS IN CODE 49

Options:

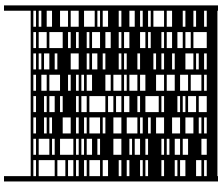
Encoder: code49



Data: CODE 49
Options: rows=8
Encoder: code49



Data: Short bars, fat separators
Options: rows=8 rowheight=6 sepheight=2
Encoder: code49



5.9.15 Code One

Code One was the earliest public domain 2D matrix-style barcode. It is used by the health care and recycling industry and can encode full 256 character extended-ASCII.

Also known as: Code 1, Code 1S.

Standards: AIM USS - Code One.

Data and Options

- The data field can consist of any ASCII data for *standard* and *T-type* symbols. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1. When supported by the receiver characters from other code pages can be encoded using Extended Channel Interpretation (ECI).
- Note: *S-type* symbols are special in that they represent a numeric value so may only contain digits.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters, e.g. ^029 for GS, etc.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^FNC3: FNC3
 - ^ECI000000 to ^ECI999999: ECI indicators
- The **version** option is used to specify the size and type of the symbol:
 - A, B, C, D, E, F, G, H - for standard format symbols (default automatic selection)
 - version=T-16, version=T-32, version=T-48 - *T-type* symbols
 - version=S-10, version=S-20, version=S-30 - *S-type* symbols

Examples

Data: Code One

Options:

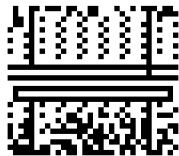
Encoder: codeone



Data: Code One

Options: version=C

Encoder: codeone



Data: Code One

Options: version=T-32

Encoder: codeone



Data: 406990

Options: version=S-10

Encoder: codeone



5.9.16 MSI Plessey

MSI Plessey is a continuous, non-self-checking, arbitrary length, numeric barcode symbology.

Also known as: MSI, MSI Modified Plessey.

Variants:

- **Plessey (UK)** is the original barcode upon which MSI Modified Plessey was based.

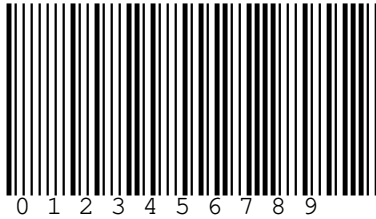
Data and Options

- The data can consist of any number of digits.
- The **includecheck** option calculates the check digit or check digits.
- The **includecheckintext** option makes the calculated check characters appear in the human readable text.
- The **checktype** option is used to specify the type of checksum, either:
 - checktype=mod10 (default)
 - checktype=mod1010
 - checktype=mod11
 - checktype=ncrmod11

- checktype=mod1110
- checktype=ncrmod1110
- The **badmod11** option allows a checktype=mod11 checksum value of 10 to be encoded with a pair of check digits *10*. Normally in checktype=mod11, any input whose checksum evaluates to *10* is considered invalid having no correct representation.

Examples

Data: 0123456789
Options: includecheck includetext
Encoder: msi



Data: 0123456789
Options: includecheck checktype=mod1110 includetext includecheckintext
Encoder: msi



Data: 0123456785
Options: includecheck checktype=mod11 badmod11 includetext includecheckintext
Encoder: msi



5.9.17 Plessey

Plessey is a continuous, arbitrary length barcode symbology for encoding hexadecimal data.

Also known as: Anker Code.

Variants:

- **MSI Modified Plessey** is a variant of the Plessey (UK) barcode developed by the MSI Data Corporation.

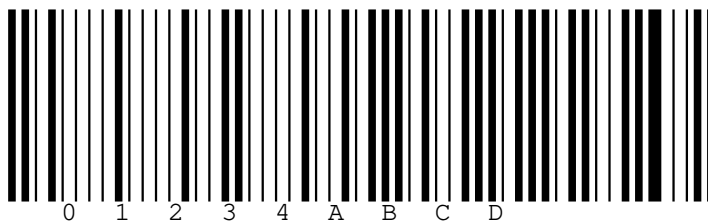
Data and Options

- The data can contain any of the following:
 - Numbers 0-9
 - Capital letters A-F
- Two mandatory check characters implementing a CRC check are automatically included.
- The **includecheckintext** option makes the calculated check characters appear in the human readable text.
- The **unidirectional** option generates a unidirectional Plessey symbol.

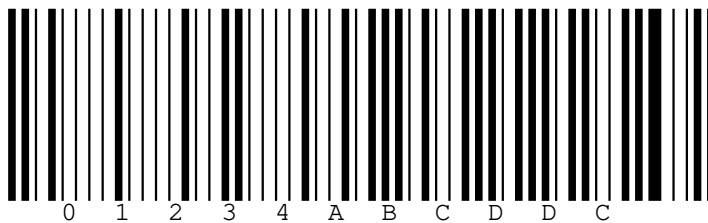
Examples

Equivalent symbols, the latter displaying the two mandatory check characters:

Data: 01234ABCD
Options: includetext
Encoder: plessey

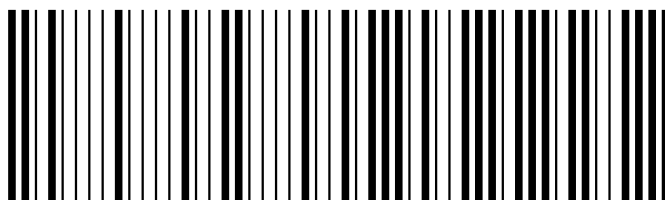


Data: 01234ABCD
Options: includetext includecheckintext
Encoder: plessey



A unidirectional symbol:

Data: 01234ABCD
Options: unidirectional
Encoder: plessey



5.9.18 PosiCode

PosiCode is a continuous, variable length, non-self-checking, bidirectional barcode symbology that is designed for use within printing processes where it is difficult to precisely control the width of a bar.

Standards: ITS PosiCode.

Data and Options

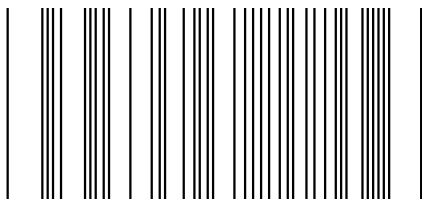
- The data field can hold the following:
 - For *standard* symbols: Any extended ASCII data. The default interpretation of data by readers is in accordance with ISO/IEC 8859-1.
 - * *FNC4* function characters will be inserted automatically to allow the encoding of extended ASCII characters.
 - For *limited* symbols: letters A-Z, digits 0-9, symbols - and .
- The **version** option is used to specify the variant of the symbol, either:
 - version=a (default)
 - version=b
 - version=limiteda
 - version=limitedb
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters, e.g. ^029 for GS, etc.
- When the **parsefnc** option is specified, non-data function characters can be specified by escape sequences:
 - ^FNC1: FNC1
 - ^FNC2: FNC2
 - ^FNC3: FNC3
- The **inkspread** option can be used to adjust the width of the bars.

Example PosiCode

Equivalent ways to generate a PosiCode A symbol:

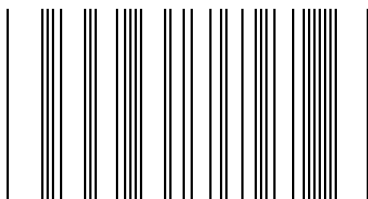
```
Data:    Abc123
Options:
Encoder: posicode
```

```
Data:    Abc123
Options: version=a
Encoder: posicode
```



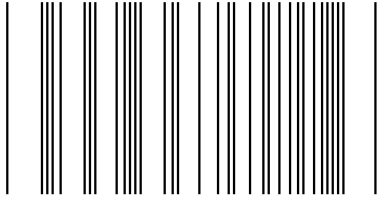
PosiCode A including a GS (ASCII 29) character:

```
Data:    AB^029CD
Options: parse
Encoder: posicode
```



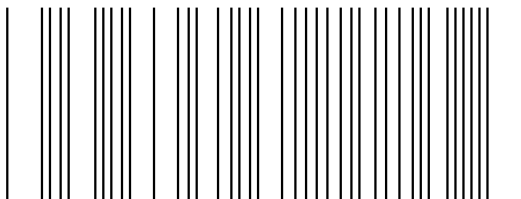
PosiCode A including an *FNC2* special character:

Data: AB^FNC2CD
 Options: parsefnc
 Encoder: posicode



PosiCode B symbol with widened bars:

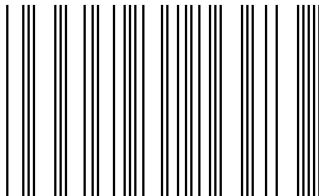
Data: Abc123
 Options: version=b inksread=-1
 Encoder: posicode



Example Limited PosiCode

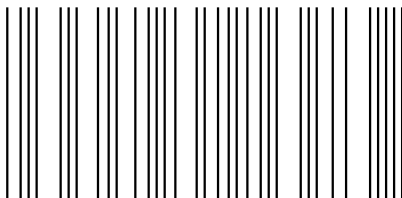
Limited PosiCode A with narrowed bars:

Data: ABC-12.3
 Options: version=limiteda
 Encoder: posicode



Limited PosiCode B:

Data: ABC-12.3
 Options: version=limitedb
 Encoder: posicode



5.9.19 Telepen

Telepen is an arbitrary length barcode symbology for encoding all 128 ASCII characters without the need for shift characters.

Also known as: Telepen Alpha, Telepen Full ASCII.

Variants:

- **Telepen Numeric.**

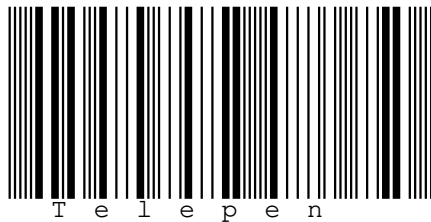
Standards: USS Telepen.

Data and Options

- The data can contain any standard ASCII data, values 0-127.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- The mandatory check digit is automatically included.
- *Deprecated: Use **Telepen Numeric** instead. When the **numeric** option is given, the data is read as either pairs of digits or 0X, 1X, etc. The singular values ^000 to ^016 can also be encoded using the parse option.*

Examples

Data: Telepen
Options: includetext
Encoder: telepen



Data: Telepen^013
Options: parse
Encoder: telepen



5.9.20 Telepen Numeric

Telepen Numeric is a variant of the Telepen symbology for efficient encoding of numeric data.

Variants:

- **Telepen Alpha.**

Standards: USS Telepen.

Data and Options

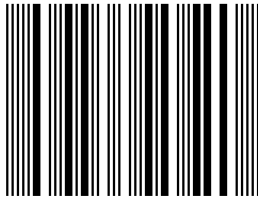
- The data is provided as either pairs of digits or 0X, 1X, etc. The singular values ^000 to ^016 can also be encoded using the *parse* option.
- When the **parse** option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.
- The mandatory check digit is automatically included.

Examples

Data: 123456

Options:

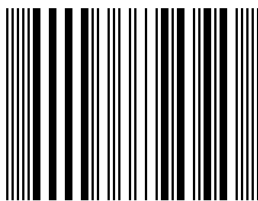
Encoder: telepennumeric



Data: 1X345X

Options:

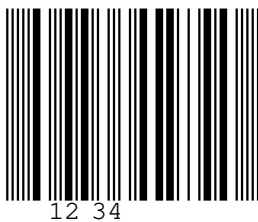
Encoder: telepennumeric



Data: 1234^005

Options: parse includetext

Encoder: telepennumeric



5.10 GS1 Composite Symbols

GS1 Composite barcode symbologies consist of a primary component beneath a 2D component (variations of [MicroPDF417](#) and [PDF417](#)) used to encode supplementary [GS1 formatted data](#).

Variants:

- [EAN-13 Composite](#) is a variant of [EAN-13](#).
- [EAN-8 Composite](#) is a variant of [EAN-8](#).
- [UPC-A Composite](#) is a variant of [UPC-A](#).
- [UPC-E Composite](#) is a variant of [UPC-E](#).
- [GS1 DataBar Omnidirectional Composite](#) is a variant of [GS1 DataBar Omnidirectional](#).
- [GS1 DataBar Stacked Omnidirectional Composite](#) is a variant of [GS1 DataBar Stacked Omnidirectional](#).
- [GS1 DataBar Expanded Composite](#) is a variant of [GS1 DataBar Expanded](#).
- [GS1 DataBar Expanded Stacked Composite](#) is a variant of [GS1 DataBar Expanded Stacked](#).
- [GS1 DataBar Truncated Composite](#) is a variant of [GS1 DataBar Truncated](#).
- [GS1 DataBar Stacked Composite](#) is a variant of [GS1 DataBar Stacked](#).

- **GS1 DataBar Limited Composite** is a variant of **GS1 DataBar Limited**.
- **GS1-128 Composite** is a variant of **GS1-128**.

Standards: ISO/IEC 24723, ITS EAN.UCC Composite Symbology, AIM ISS - EAN.UCC Composite Symbology, GS1 General Specifications.

Data and Options

- The data field consists of a primary and secondary component separated by a pipe | character.
- The data for the primary component (preceding the pipe) is entered in a format identical to the corresponding non-composite barcode symbology.
- The data for the 2D component (following the pipe) is entered in **GS1 Application Identifier standard format**.
- Note that it is not necessary to specify *FNC1* characters since the encoder will insert these automatically where necessary.
- *Deprecated*. The **dontlint** option disables GS1 Application Identifier syntax validation allowing images to be generated for input that does not comply with GS1 standards.
- For maximum efficiency, if the data for the 2D component contains a number of application identifiers matching any of the specifications below then they should be provided in this given order:

- (11)...(10)...
- (17)...(10)...
- (90){0-3 digits not starting 0}{upper alpha}...

- *Deprecated: Default is best unless your application dictates otherwise.* The **ccversion** option is used to select a specific 2D component:

- ccversion=a - **CC-A**
- ccversion=b - **CC-B**
- ccversion=c - **CC-C** (**GS1-128 Composite** only)
- If **ccversion** is not specified a CC-A component will be selected if the data will fit, otherwise a CC-B component will be used. In the case of **GS1-128 Composite** a CC-C component will be used if the data does not fit within either a CC-A or CC-B component.

5.10.1 EAN-13 Composite

Data: 331234567890|(99)1234-abcd
Options: includetext guardwhitespace
Encoder: ean13composite



5.10.2 EAN-8 Composite

Data: 12345670|(21)A12345678
 Options: includetext guardwhitespace
 Encoder: ean8composite



5.10.3 UPC-A Composite

Data: 01600033610|(99)1234-abcd
 Options: includetext
 Encoder: upcacomposite



5.10.4 UPC-E Composite

Data: 0121230|(15)021231
 Options: includetext
 Encoder: upcecomposite



5.10.5 GS1 DataBar Omnidirectional Composite

Data: (01)03612345678904|(11)990102
 Options:
 Encoder: databaromnicomposite



5.10.6 GS1 DataBar Stacked Omnidirectional Composite

Data: (01)03612345678904|(11)990102

Options:

Encoder: databarstackedomnicomposite



5.10.7 GS1 DataBar Expanded Composite

Data: (01)93712345678904(3103)001234|(91)1A2B3C4D5E

Options:

Encoder: databarexpandedcomposite

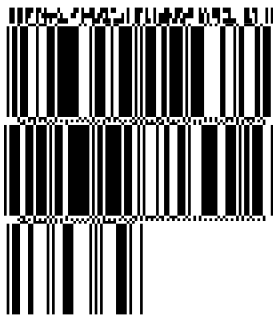


5.10.8 GS1 DataBar Expanded Stacked Composite

Data: (01)00012345678905(10)ABCDEF|(21)12345678

Options: segments=4

Encoder: databarexpandedstackedcomposite



5.10.9 GS1 DataBar Truncated Composite

Data: (01)03612345678904|(11)990102

Options:

Encoder: databartruncatedcomposite



5.10.10 GS1 DataBar Stacked Composite

Data: (01)03412345678900|(17)010200

Options:

Encoder: databarstackedcomposite



5.10.11 GS1 DataBar Limited Composite

Data: (01)03512345678907|(21)abcdefghijklmnpqrstuv

Options:

Encoder: databarlimitedcomposite



5.10.12 GS1-128 Composite

GS1-128 Composite with a CC-A 2D component:

Data: (01)03212345678906|(21)A1B2C3D4E5F6G7H8

Options:

Encoder: gs1-128composite



GS1-128 Composite with a CC-C 2D component:

Data: (00)030123456789012340|(02)13012345678909(37)24(10)1234567ABCDEFG

Options: ccversion=c

Encoder: gs1-128composite



5.10.13 CC-A

Isolated CC-A 2D component:

Data: (01)95012345678903

Options: ccversion=a cccolumns=3

Encoder: gs1-cc



5.10.14 CC-B

Isolated CC-B 2D component:

Data: (01)95012345678903(3103)000123

Options: ccversion=b cccolumns=4

Encoder: gs1-cc



5.10.15 CC-C

Isolated CC-C 2D component:

Data: (02)13012345678909(37)24(10)1234567ABCDEFGG
 Options: ccversion=c cccolumns=5
 Encoder: gsl-cc



5.11 Raw Symbols

5.11.1 DAFT

DAFT is an encoder for directly specifying the descender, ascender, full-height, tracker-bar succession for a custom 4 state barcode symbol.

Data and Options

- The data field contains a sequence of the characters D, A, F or T to denote the descender, ascender, full-height and tracker bars of a custom 4 state symbol.

Example

Data: FATDAFTDAD
 Options:
 Encoder: daft



5.11.2 Flattermarken

Flattermarken are identification marks used in book production that facilitate the proper arrangement of bound sections by a book binder.

Data and Options

- The data field can holding any sequence of digits corresponds to a 9 module width with the following meaning:
 - 1-9: a single mark exists in the corresponding module position
 - 0: unmarked sequence of modules
- The **inkspread** option can be used to adjust the width of the bars.
- If greater fidelity is required then the **raw** encoder should be used instead.

Example

Data: 1304
 Options: inkspread=-1
 Encoder: flattermarken



5.11.3 Raw

The **raw** encoder is used for directly specifying the space/bar succession of a custom barcode symbol.

Data and Options

- The data field contains an alternating sequence of widths (1 to 9) for the bars and spaces of a custom symbol.

Example

Data: 331132131313411122131311333213114131131221323

Options: height=0.5

Encoder: raw



5.12 Partial Symbols

5.12.1 EAN-2

EAN-2 is the two-digit add-on code that accompanies a EAN or UPC type barcode symbol such as an **ISBN** or **ISSN**.

Also known as: Two-Digit Add-On, Two-Digit Supplement, UPC-2

Data and Options

- The data field must contain two digits.
- The **includetext** option should normally be supplied.

Example

Data: 05

Options: includetext guardwhitespace

Encoder: ean2



5.12.2 EAN-5

EAN-5 is the five-digit add-on code that accompanies an EAN or UPC type barcode symbol such as an **ISBN** or **ISSN**.

Also known as: Five-Digit Add-On, Five-Digit Supplement, UPC-5

Data and Options

- The data field must contain five digits.
- The **includetext** option should normally be supplied.

Example

Data: 90200

Options: includetext guardwhitespace

Encoder: ean5



5.13 GS1 Application Identifier Standard Format

Certain barcode symbologies (including [GS1-128](#), [GS1 DataBar Expanded](#), [GS1 DataMatrix](#), [GS1 QR Code](#) and [GS1 Composite Symbols](#)) represent standardized GS1 data and require that their data field is provided in GS1 Application Identifier standard format, consisting of a concatenated string of *AIs* along with their corresponding values.

The AIs are a set of approximately one hundred two-, three- or four-digit prefixes written within parentheses that represent physical attributes and business information, e.g.

- (00) is an eighteen-digit SSCC.
- (01) is a fourteen-digit GTIN.
- (403) is a variable-length routing code.

The following input represents GTIN 0061414199996; Expiration Date 1 January 2010; Batch 123ABC; Serial 1234567890:

```
(01)0061414199996(17)100101(10)123ABC(21)1234567890
```

Encoders for barcode symbologies that expect data in GS1 Application Identifier standard format will take care of parsing the input and inserting any necessary *FNC1* characters to delimit variable length fields.

Note: Instances of parentheses, (and), within Application Identifier values in the input must be escaped using the [parse option](#) as ^040 and ^041, respectively.

GS1 Application Identifier Linting

The input is checked against the structural rules for the GS1 Application Identifiers, as described in [this article](#), unless the **dontlint** option is given. The Application Identifier definitions are provided in the [GS1 General Specifications](#).

6 Options Reference

6.1 Check Digits

6.1.1 includecheck

Generate check digit(s) for symbologies where the use of check digits is optional.

Example

Calculate the optional check characters of this Code 93 symbol:

```
Data:    CHECK ME OUT
Options: includecheck
Encoder: code93
```



6.1.2 includecheckintext

Show the calculated check digit in the human readable text.

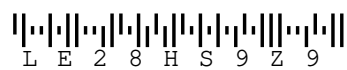
Notes

- For barcode symbologies where the check digit is not mandatory, this option must be used in combination with **includecheck**.
- If any part of the checksum does not have a printable representation then that part is not displayed.

Example

Display the check digit of this Royal Mail barcode:

```
Data:      LE28HS9Z
Options: includetext includecheckintext
Encoder: royalmail
```



6.2 Input Processing

6.2.1 parse

In supporting barcode symbologies, when the *parse* option is specified, any instances of ^NNN in the data field are replaced with their equivalent ASCII value, useful for specifying unprintable characters.

Additionally, control character names can be used to specify equivalent ASCII values, as follows:

Sequence	ASCII value
^NUL	0
^SOH	1
^STX	2
^ETX	3
^EOT	4
^ENQ	5
^ACK	6
^BEL	7
^BS	8
^TAB	9
^LF	10
^VT	11
^FF	12
^CR	13
^DLE	16
^DC1	17
^DC2	18
^DC3	19
^DC4	20
^NAK	21
^SYN	22
^ETB	23
^CAN	24
^EM	25
^SUB	26
^ESC	27
^FS	28

Sequence	ASCII value
^GS	29
^RS	30
^US	31

ASCII control characters S0 and SI cannot be encoded by name (since S0 would prefix clash with S0H).
Note: When this option is enabled, literal instances of "^" in the data should be escaped as ^094 to avoid replacement if the subsequent data characters represent a valid substitution. For example, literal "^123" in the input data can be escaped as ^094123, literal "^RS" in the data can be escaped as ^094RS, and literal "^ABC" in the data can be escaped as ^094ABC (in case ^ABC becomes a valid substitution in the future).

Example

Equivalent symbols:

```
Data:   This is Data Matrix
Options:
Encoder: datamatrix

Data:   This is ^068ata Matrix
Options: parse
Encoder: datamatrix
```



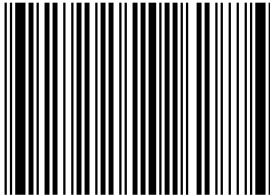
6.2.2 parsefnc

In supporting barcode symbologies, when the **parsefnc** option is specified, non-data function characters can be specified by escaped combinations such as ^FNC1, ^FNC4, ^SFT/ and ^ECI000003.
Note: When this option is enabled, literal instances of ^ in the input data can be escaped as ^^.

Example

Manually-composed Code 93 Extended demonstrating use of the special shift combination (/)A to represent !:

```
Data:   TERRY^SFT/A
Options: parsefnc includecheck
Encoder: code93
```



6.3 Symbol Dimensions

6.3.1 height

Height of longest bar, in inches.

Example

A 1/2 inch tall EAN-13:

Data: 977147396801
Options: includetext height=0.5
Encoder: ean13



6.3.2 width

Stretch the symbol to precisely this width, in inches.

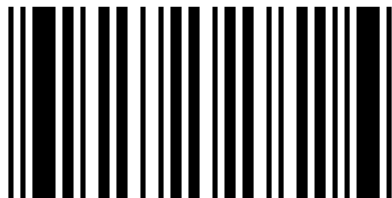
Notes

- This parameter literally stretches the symbol and text to the desired width which will may distort the human readable text.
- For information about resizing symbols read the article on [resizing symbols](#).

Example

A 2 inch wide Code 93 symbol:

Data: TERRY
Options: width=2
Encoder: code93



6.4 Element Properties

These are options that allow you to compensate for print gain or print loss resulting from the properties of the printing process or substrate.

6.4.1 inkspread

For linear barcodes, the amount by which to reduce the bar widths to compensate for inkspread, in points.

For matrix barcodes, the amount by which the reduce the width and height of dark modules to compensate for inkspread, in points.

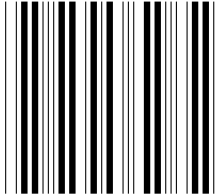
Notes

- Negative values will increase the bar width.

Example

Code 39 for a printer with very runny ink:

```
Data:    TEZ
Options: inkspread=0.6
Encoder: code39
```



6.4.2 inkspreadh

For matrix barcodes, the amount by which the reduce the width of dark modules to compensate for inkspread, in points.

Note: inkspreadh is most useful for stacked-linear type barcodes such as PDF417 and Codablock F.

6.4.3 inkspreadv

For matrix barcodes, the amount by which the reduce the height of dark modules to compensate for inkspread, in points.

6.4.4 dotty

For matrix barcodes, render the modules as dots rather than squares. The dot radius can be adjusted using the **inkspread** option.

6.5 Text Properties

6.5.1 includetext

Show human readable text for data in symbol.

Notes

- If a character in the data does not have a printable representation then it is not displayed

Example

Display the text encoded in this Code 39 symbol:

```
Data:    SEE ME
Options: includetext
Encoder: code39
```



6.5.2 textfont

The PostScript font name for text.

Notes

- The font name must be the literal name of a PostScript font that is available to the system.
- This option should be used in combination with the **includetext** option.
- The PostScript font name for a font file can be determined with the following command from the fontconfig library:

```
– fc-scan --format "%{postscriptname}\n" /usr/share/fonts/truetype/somefont.ttf
```

Example

Customise the human readable text of this USPS POSTNET symbol

```
Data: 64501
Options: includetext textfont=Times-Roman textsize=9
Encoder: postnet
```



6.5.3 textsize

The font size of the text in points.

Note

- This option should be used in combination with the **includetext** option.

Example

Customise the human readable text of this USPS POSTNET symbol

```
Data: 64501
Options: includetext textfont=Times-Roman textsize=9
Encoder: postnet
```



6.5.4 textgaps

The inter-character spacing of the text.

Note

- This option should be used in combination with the **textxalign** option.

6.5.5 alttext

Specify text to display other than what is provided in the data field.

Note

- This option should be used in combination with the **includetext** option.

6.6 Text Positioning

6.6.1 textxalign

The **textxalign** option is used to specify where to horizontally position the text.

- textxalign=offleft
- textxalign=left
- textxalign=center
- textxalign=right
- textxalign=offright
- textxalign=justify

6.6.2 textyalign

The **textyalign** option is used to specify where to vertically position the text.

- textyalign=below
- textyalign=center
- textyalign=above

6.6.3 textxoffset

The horizontal position of the text in points relative to the default position.

6.6.4 textyoffset

The vertical position of the text in points relative to the default position.

Notes

- By default (in the absence of **textxalign** or **textyalign**), each character of text is placed immediately below the corresponding modules where this is possible.
- Where there isn't such a direct relationship then the default is to position the text centrally beneath the symbol.

6.7 Border Properties

6.7.1 showborder

Display a border around the symbol.

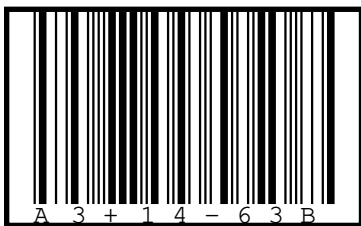
Example

Display a customised border around this Codabar symbol:

Data: A3+14-63B

Options: includetext showborder borderwidth=2 borderbottom=8

Encoder: rationalizedCodabar



6.7.2 borderwidth

Width of the border, in points.

6.7.3 borderleft

Gap between the left edge of the border and the symbol, in points.

6.7.4 borderright

Gap between the right edge of the border and the symbol, in points.

6.7.5 bordertop

Gap between the top edge of the border and the symbol, in points.

6.7.6 borderbottom

Gap between the bottom edge of the border and the symbol, in points.

6.8 Symbol Colors

6.8.1 barcolor

Color of the bars or dark modules, either as a hex RRGGBB value or a hex CCMMYYKK value.

6.8.2 backgroundcolor

Color of the light background or light modules, either as a hex RRGGBB value or a hex CCMMYYKK value.

6.8.3 bordercolor

Color of the border, either as a hex RRGGBB value or a hex CCMMYYKK value.

6.8.4 textcolor

Color of the respective component, either as a hex RRGGBB value or a hex CCMMYYKK value.

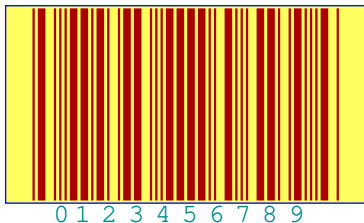
Examples

Colorized Code 11 symbol using the RGB colour space:

Data: 0123456789

Options: includetext barcolor=AA0000 textcolor=008888 backgroundcolor=FFFF60 showborder bordercolor=0000FF t
8

Encoder: code11

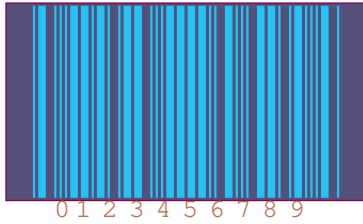


Colorized Code 11 symbol using the CMYK colour space:

Data: 0123456789

Options: includetext barcolor=AA000000 textcolor=00888844 backgroundcolor=CCCC6000 showborder bordercolor=00FF0088

Encoder: code11



6.9 EAN-UPC Add Ons

6.9.1 addontextfont

The font name of the add on text.

Notes

- The font name must be the literal name of a PostScript available font.
- These options must be used in combination with the **includetext** option.

6.9.2 addontextsize

The size of the add on text, in points

Notes

- These options must be used in combination with the **includetext** option.

Example

Customise the human readable text of this USPS POSTNET symbol

Data: 64501

Options: includetext textfont=Times-Roman textsize=9

Encoder: postnet



6.9.3 addontextoffset

Overrides the default horizontal positioning of the add on text.

6.9.4 addontextyoffset

Overrides the default vertical positioning of the add on text.

6.10 EAN-UPC Guards

6.10.1 guardwhitespace

Display whitespace guards.

Example

ISBN-13 with tiny whitespace guard:

Data: 978-1-873671-00

Options: includetext guardwhitespace guardwidth=3 guardheight=3

Encoder: isbn

**6.10.2 guardwidth**

Width of the whitespace guards, in points.

6.10.3 guardheight

Height of the whitespace guards, in points.

6.10.4 guardleftpos

Override the default horizontal position of the left whitespace guard.

6.10.5 guardrightpos

Override the default horizontal position of the right whitespace guard.

6.10.6 guardlefttypos

Override the default vertical position of the left whitespace guard.

6.10.7 guardrighttypos

Override the default vertical position of the right whitespace guard.

Example

EAN-8 with very mangled whitespace guards:

Data: 01335583

Options: includetext guardwhitespace guardleftpos=14 guardrightpos=7 guardlefttypos=15 guardrighttypos=4

Encoder: ean8



7 QR code in the margin

The marginnotes are placed with the help of the macro of the same name `\marginnote`, which itself needs package `narginnote`. It is loaded by default if the macro doesn't exist.

```
\QR[1]<barcode>{http://mirror.ctan.org/help/Catalogue/bytopic.html\#barcode}
\blindtext

{\psset{fontstyle=\scriptsize\ttfamily}%
 \QR[1]{http://mirror.ctan.org/help/Catalogue/bytopic.html\#barcode}%
}
\blindtext

\QR{http://mirror.ctan.org/usergrps/dante/dtk/doc/beispiel.pdf}
\blindtext
\QR<Beispiel>{http://mirror.ctan.org/usergrps/dante/dtk/doc/beispiel.pdf}
\blindtext

\QR{http://de.wikipedia.org/wiki/QR-Code}
\blindtext
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.



barcode

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.



bytopic.html#barcode

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.



beispiel.pdf



Beispiel

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales



QR-Code

commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

8 List of all optional arguments for pst-barcode

Key	Type	Default
fontstyle	ordinary	\small
transx	ordinary	0
transy	ordinary	0
scalex	ordinary	1
scaley	ordinary	1
rotate	ordinary	0
file	boolean	true

References

- [1] Terry Burton. *Barcode Writer in Pure PostScript*. URL: <https://github.com/bwipp/postscriptbarcode/wiki> (**urlseen** 18/04/2017).
- [2] Victor Eijkhout. *T_EX by Topic – A T_EXnician Reference*. 1 **edition**. Heidelberg and Berlin: DANTE – Lehmanns Media, 2014.
- [3] Denis Girou. “Présentation de PSTricks”. in *Cahier GUTenberg*: 16 (**april** 1994), **pages** 21–70.
- [4] Michel Goosens **and others**. *The L^AT_EX Graphics Companion*. 2 **edition**. Boston, Mass.: Addison-Wesley Publishing Company, 2007.
- [5] Nikolai G. Kollock. *PostScript richtig eingesetzt: vom Konzept zum praktischen Einsatz*. Vaterstetten: IWT, 1989.
- [6] Herbert Voß. *Presentations with L^AT_EX*. 2 **edition**. Heidelberg and Berlin: DANTE – Lehmanns Media, 2017.
- [7] Herbert Voß. *pst-tools – Helper functions*. 2012. URL: </graphics/pstricks/contrib/pst-tools>.
- [8] Herbert Voß. *PSTricks – Grafik für T_EX und L^AT_EX*. 7 **edition**. Heidelberg and Berlin: DANTE – Lehmanns, 2016.
- [9] Herbert Voß. *PSTricks – Graphics and PostScript for L^AT_EX*. 1 **edition**. Cambridge – UK: UIT, 2011.
- [10] Herbert Voß. *L^AT_EX quick reference*. 1 **edition**. Cambridge – UK: UIT, 2012.
- [11] Michael Wiedmann. *References for T_EX and Friends*. **version** 0.4.1. 2012. URL: <http://www.miwie.org/tex-refs/> (**urlseen** 06/08/2017).
- [12] Timothy Van Zandt. *multido.tex – a loop macro, that supports fixed-point addition*. 1997. URL: </macros/generic/multido.tex>.
- [13] Timothy Van Zandt **and** Denis Girou. “Inside PSTricks”. in *TUGboat*: 15 (**september** 1994), **pages** 239–246.

Index

borderbottom, 7
borderleft, 7
borderright, 7
bordertop, 7
borderwidth, 7

code39, 9

Environment
 pspicture, 6, 9

\fbox, 9
file, 6
font, 7

height, 7

includecheck, 7
includecheckintext, 7
includetext, 7
inkspread, 7

Keyword
 file, 6
 rotate, 6
 scalex, 6
 scaley, 6
 transx, 6
 transy, 6

Macro
 \fbox, 9
 \makebox, 6
 \marginnote, 99
 \parbox, 9
 \psbarcode, 6
 \makebox, 6
 \marginnote, 99

marginnote, 99

Package
 marginnote, 99
 pstricks, 6
 \parbox, 9
 parse, 7

PostScript
 borderbottom, 7
 borderleft, 7
 borderright, 7
 bordertop, 7
 borderwidth, 7
 code39, 9
 font, 7
 height, 7
 includecheck, 7
 includecheckintext, 7
 includetext, 7
 inkspread, 7
 parse, 7
 showborder, 7
 textpos, 7
 textsize, 7
 width, 7
 \psbarcode, 6
 pspicture, 6, 9
 pstricks, 6

rotate, 6

scalex, 6
scaley, 6
showborder, 7

textpos, 7
textsize, 7
transx, 6
transy, 6

width, 7