Overview Linear Bar Code Symbologies (1/2)

Códigos de barrras 1D - 1 | Códigos de barras 1D - 2 | Códigos de barras 2D

Overview of linear bar code symbologies with specific characteristics.

These barcode symbologies are supported by our Barcode Software Components, Barcode Maker Software, Barcode Generator Linux/UNIX/Mac OS X, Barcode DLL for SAP, Label Software and Report Generator.

Code 128

Alphanum

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
ASCII (128 characters)	variable	Mod 103	H>=15% of L (H>=6.5 mm!); X>= 0.19 mms (max: 1.27 mms); Pr= 1:2:3:4
Applications	Widely used in all areas; modern compact symbology; introduced 1981 by "Computer Identics"; in conjunction with FNC1 used as UCC128 / EAN128 for retail product marking		
Notes	3 different code sets (A=upper case + ASCII control characters, B=upper + lower case characters, C=double density numeric characters); code set switching; function code characters (FNC1-4); high printing density (laser or thermo transfer printer recommended);		

2 of 5 Standard

12345

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	variable	none defined	Pr=1:3/1:4.5
Applications	Older code (1970+); for industrial applications, warehouse sorting systems, photofinishing envelope identification, ticketing (sequentially numbered airline tickets)		
Notes	Information is contained in the width of bars, self-checking code.		

2 of 5 Interleaved

012345

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	variable	optional (Mod. 10)	X>= 0.19 mms; Pr= 1:2 - 1:3 (>2.2 if X<0.5); printing tolerance: +/- 10%
Applications	Used widely in all areas (article numbering, industrial applications...);		
Notes	Information is contained in the width of bars, self-checking code; very compact because of encoding of digits in pairs (total length must be even number of digits); the 1. digit is represented by the bars, the 2. digit by the gaps		

2 of 5 IATA

12345

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	variable	optional (Mod. 10)	X>= 0.19 mms; Pr= 1:2 - 1:3; high printing tolerance: +/- 15 to 20%
Applications	Numbering of luggage in air transport ("International Air Transport Agency")		
Notes	Self-checking code; start/stop-characters identical to 2 of 5 Industry; supports distance reading (> 1m) and very simple print techniques		

3 of 9 (Code 39)

TEC-IT

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
[A-Z]; [0-9]; [- . $ / + %]	variable (avg. up to 20 chars)	optional (Mod. 43)	H>=15% of L (H>=6.3 mm!); X>= 0.19 mms; Pr= 1:2 - 1:3 (>2.25 if X<0.5!)
Applications	Extensive application in industry, authorities and business (non-retail); covered by ANSI MH 10.8 M-1983 and MIL-STD-1189; developed 1974 by INTERMEC.		
Notes	Very secure code-structure; self checking; supports multiple symbols (if first character is a space the next symbol is appended); supports distance reading (> 1m); only uppercase letters (+ special characters) can be encoded! Code 39 Basics - YouTube Video		

3 of 9 Ext (ASCII)

Tec

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
ASCII (127 characters)	variable	optional (Mod. 43)	refer to Code 39
Applications	Code 39 ASCII has lower spreading because Code128 offers the same character set, but does encoding more compact		
Notes	Extension of Code39; lowercase letters and special characters are built up by pairs, e.g. "+A" = "a" (wasteful of space); scanner devices do not recognize the difference to Code 39 automatically (configuration!)		

EAN8

4018 2735

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	7 usable digits	1 check digit	font size SC2 (SC0-SC9); H=21.64mms (17.7-43.28); B=26.73mms (21.87-53.46); X= 0.33mm (0.27-0.66); variable size between 80%-200%;
Applications	European retail product marking (▸ EAN); compressed code for products with limited label space; unique number (central managed) identifies		
Notes	EAN8 data consists of 2-3 digits of country code and 4-5 digits of article code (limited numbers)		

EAN8 P2

20 7252 7276

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	7 + 2 digits	1 check digit	refer to EAN8 (parameters for article field)
Applications	For magazines and paperbacks		
Notes	Identical to EAN8 but 2 additional digits (e. g. for weight, pricing) can be encoded.		

EAN8 P5

72077 0725 2729

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	7 + 5 digits	1 check digit	refer to EAN8 (parameters for article field)
Applications	For magazines and paperbacks		
Notes	Identical to EAN8 but 5 additional digits (e. g. for weight, pricing) can be encoded.		

EAN13

0 725272 720776

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	12 digits	1 check digit	font size SC2 (SC0-SC9); H=26.26mms (21.48-52.52); B=37.29mms (30.50-74.58); X= 0.33mms (0.27-0.66); variable size 80%-200%;
Applications	Retail product marking (European Article Numbering); number is managed by a central organization (▸ EAN) and identifies the producer and the product;		
Notes	13 digits (12 usable digits + 1 check digit); 2 digits country of origin code + 5 digits manufacturer code + 5 digits product number; IAN + JAN are identical to EAN		

EAN13 P2

12 0 725272 720776

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	12 + 2 digits	1 check digit	refer to EAN13
Applications	For magazines and paperbacks		
Notes	Identical to EAN13 but 2 additional digits (e. g. for weight, pricing) can be encoded.		

EAN13 P5

12345 0 725272 720776

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	12 + 5 digits	1 check digit	refer to EAN13
Applications	Encoding of the "ISBN"-number used for books (retail product marking)		
Notes	Identical to EAN13 but 5 additional digits (containing the price of the product) can be encoded.		

EAN 14

(01)12345678912343

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	2 (AI) + 13 digits	1 check digit (EAN)	refer to EAN128
Applications	Used for encoding the 14 digits GTIN (Global Trade Item Number) from the GS1 system. The first digit is the packaging indicator, the remaining 12 digits are based on the EAN-13 / UPC-12 article number followed by a check digit.		
Notes	As "carrier" bar code symbology EAN-128 (resp. GS1-128) with AI 01 is used.		

EAN128 / GS1-128

EAN128

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
ASCII (128 characters)	max. 48 data characters	Mod 103	identical to Code128 but Lmax=165mm; maximum of symbol characters = 35;
Applications	Universal applicable such as for retail product marking or shipping (etc); EAN128 has capabilities to encode not only the EAN number but also quantities, weight, price (and much more data) of the product.		
Notes	EAN128 (GS1-128) is a subversion of Code128 containing the FNC1 character at first position; EAN128 has a predefined data format to encode various types of data into one symbol (FNC1 can function as separator of different data contents).		

UPC Version A

0 12345 67890 5

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	12 digits	1 check digit	H=26.26mms (21.48-52.52); B=37.29mms (30.50-74.58); X= 0.33mms (0.27-0.66); variable size; tolerances: 15-30% (0.05-0.1mms)
Applications	Retail product marking (use with point-of- sale cash register systems); assignment of numbers is controlled by GS1 to identify the manufacturer and the product;		
Notes	The number has 12 digits (11 usable digits + 1 check digit) that consists of 1 system digit + 5 digits manufacturer code + 5 digits product number		

UPC Version E

0 12345 5

Character Set	Length	Check Digit	Size, Module Width X, Print Ratio
numeric [0..9]	7 digits	1 check digit	1;2;3;4;1;2;3;4
Applications	Retail product marking and small article bar-coding.		
Notes	The code must begin with "0" or "1". TBarCode: The check-digit is computed automatically if it is not specified in the input data (that is when only 7 digits are used for creating the code).		

Bar Code Data
Start-/Stopcharacter
Checkdigit

X ... Module width
Pr.. Print ratio
L... Width of barcode
H... Height of barcode

b ... Width of bars/spaces
e... Distance between bars
p... Distance between characters