

UC3

Service Manual

Barcode GS1-Databar in UC3-Software

GS1-Databar-14



GS1-Databar-14 stacked



GS1-Databar Expanded



GS1 DataBar Expanded
Stacked



Barcode UCC/EAN-128 in UC3-Software

UCC/EAN-128



ME num. 2201 9120

Printed in Germany 0811/8.11

Edition: August 2011

Address Mettler - Toledo (Albstadt) GmbH
D-72458 Albstadt
Telephone +49(0) 74 31 / 14-0
Fax +49 (0) 74 31 / 14-640
Internet: <http://www.mt.com>

METTLER TOLEDO

GS1 DataBar barcodes in UC3-Software

Introduction:

The following options for printing GS1 DataBar symbols (GS1 DataBar barcodes) on labels apply to UC3 software from version 1.19.0.0 and onwards.

Limited availability from UC3 version: 1.15.2.0 (1.10.6.0_GS1_DATABAR).

The barcode definition (in the Data Maintenance menu) comprises Application Identifiers (AI) and associated placeholders for data to be coded.

The AIs used conform to the GS1-128 (UCC/EAN128) specification.

There are three different versions used to generate GS1 DataBar barcodes:

GS1-DataBar-4 **13** numerical utilizable characters + checksum. Always single line.

GS1-DataBar-14 Stacked **13** numerical utilizable characters + checksum. Always two lines.

In both of these versions, the AI "01" is generated automatically and may not be entered.

GS1-DataBar Expanded Maximum **74** numeric and/or **41** alphanumeric utilizable characters.
(incl. Expanded Stacked)

In this version, all AIs used must be entered

Each variable data field used (AI "10", AI "30" or AI "9x") reduces the maximum number of utilizable characters by 1, because each variable data field requires an end identifier.

The end identifiers are generated automatically by the UC3 software, with the exception of AIs "90" ... "99." For AIs "90" ... "99" they must therefore be entered in the barcode definition (Data Maintenance), however they must **not** be entered for the other variable data fields (AI "10" and AI "30").

If no other AIs follow after the variable data field, so that the variable data field is at the end of the barcode definition, an end identifier is always redundant and is therefore not required to be entered for AIs "90" ... "99."

Max. number of utilisable characters for purely numeric data = **74** - the number of variable data fields.

Max. number of utilisable characters for alphanumeric data = **41** - the number of variable data fields.

Overview of generatable GS1 DataBar symbols (GS1 DataBar barcodes):

GS1-DataBar symbol (AI)	Barcode definition: AI and placeholder	Additional AI and placeholder within GS1 DataBar symbology (inc. number of digits)
GS1 DataBar 14 GS1 DataBar 14 Stacked (AI "01")	<p> AAAAAAAAAAAA{C} → 1 – 13 places 'A' kkkkkkkkkkkk{C} → 1 – 13 places 'k' k.....A.....{C} → 2 – 13 places 'k'+ 'A' kAAAAAAAAAAAA{C} k = 0 → A = (12-digit) article number (UAN) (also see GS1-DataBar Expanded). comprising:- up to 13 characters without {C} - 14 characters with {C} - {C} only valid at 14th position - for less than 13 places 'A' + 'k' leading zeros are prefixed to the barcode A...A: 1 - 13-digit article number (UAN) (without checksum) k...k: 1 – 13 digit constant (in place of A), can be combined with A. C: - optional for checksum (via A (+ k)) - only at 14th position The AI "01" at the beginning of the code is generated automatically and may not be used as a prefix here. </p>	<p>see special placeholder</p>
GS1-DataBar - Expanded + GS1-DataBar - Expanded Stacked AI: "01"	<p> (01)[s]AAAAAAAAAAAAAC(310x)QQQQQQQ + optional: - (13)/(15)/17)DDDDDD (01)[s]AAAAAAAAAAAAAC(30)QQQQQQQ + optional: - (13)/(15)/17)DDDDDD (01)[s]AAAAAAAAAAAAAC(3922)B....B + optional: - (13)/(15)/17)DDDDDD [s]: Key: 0: A = 12-digit article number (UAN without C). 1-8: A = Traded unit indicator. 9: Variable measure trade item (quantity). Refers to an associated quantity specified within the GS1-DataBar symbol. AAAAAAAAAAAAA: 12-digit article number (UAN)(without checksum). k...k...: Constant, can be combined with A (see GS1-DataBar-14). C: Checksum (using A (+ k)). x: The number of decimal places is defined for AI "310x" (x = 1...3). QQQQQQQ: Declared quantity (see right). B...B: Declared amount (see right). </p>	<p> Interlinked within the GS1 DataBar symbol or as a separate GS1 DataBar symbol: Net weight kg: (310x)QQQQQQQ (Q: fixed 6 digits) or Quantity in piece: (30)QQQQQQQ (Q: 1...8 digits) Enhancement conforming to GS1 (according to AI (310x)/(30)): Packing date: (13)DDDDDD Best before date (BBD): (15)DDDDDD Expiry date/Use by date: (17)DDDDDD Note: BBD and expiry dates/use by dates should only be used separately and never in combination (i.e. never simultaneously) Sales amount: (3922)B....B - B max. 15 digits) GS1 conformal expansion: Lot number/batch number: (10)LLL....L (L: max. 20 characters) (alphanumeric allowed) </p>

GS1-DataBar symbol (AI)	Barcode definition: AI and placeholder	Additional AI and placeholder within GS1 DataBar symbology (inc. number of digits)
<p>Internal or bilaterally adjusted application</p> <p>AI: "90" "99"</p>	<p>(9x)kkAAAAACQQQQQCBBBBBX (9x)kkAAAAACQQQQQCIIIIIX</p> <p>x: 0 ... 9 kk : Constant (two digit, e.g. 28). AAAA: Article number (UAN) right-justified. C: Checksum using QQQQQ, BBBBB or IIIII (only for 4- or 5-digit lengths). QQQQQ: Quantity declaration (net weight). BBBBB: Total. IIIII: Unit price PLU. X: End identifier. This is always required if another AI follows.</p> <p>(99)AAAAAACQQQQQC[s]IIIII{C}X</p> <p>AAAA: Article number (UAN) right-justified. C: Checksum using QQQQQ (only for 4- or 5-digit lengths). QQQQQ: Quantity declaration (net weight). C: Checksum using AAAAAACQQQQQ [s]: Key: 1: Code for price overwriting (special – kg - price). IIIII: calculated "price/kg" (price overwriting / special – kg - price). {C}: Checksum using IIIII according to EAN13 method (optional). X: End identifier. This is always required if another AI follows.</p>	<p>see special placeholder</p>
<p>Free formatable GS1 DataBar</p> <p>Only possible as GS1-DataBar expanded symbol.</p> <p>Generation of a separate independent GS1-DataBar code, that does not include GS1-DataBar-14- and GS1-DataBar-14-Expanded code.</p> <p>Examples:</p> <ul style="list-style-type: none"> - Associated best before date of a GS1-DataBar Symbol (AI "01"), that is printed as a separate independent GS1-DataBar symbol. → (15)DDDDDD - Associated net weight of a GS1 DataBar symbol ((01)[9]A...). → (3103)Q... 	<p>Application as individual GS1-DataBar codes or combined within a GS1-DataBar symbol:</p> <p>Packing date: (13)DDDDDD Best before date (BBD): (15)DDDDDD Expiry date/Use by date: (17)DDDDDD (offset from sell-by date)</p> <p>Note: BBD and expiry/use by dates should only be used alternatively, and never simultaneously.</p> <p>Net weight, Kilogram: (310x)QQQQQQ (Q: fixed 6 digits) where x = number of decimal places</p> <p>Quantity: (30)QQQQ (Q: 1...8 digits)</p> <p>Lot number/batch number: (10)LLL...L (L: max. 20 digits) (alphanumeric data also possible)</p> <p>The following AIs and placeholders cannot be used:</p> <p>AI: "00" → Shipping container code (SCC) "01" → GS1-DataBar-14</p> <p>Placeholder: A → Article number C → Checksum</p>	<p>See: GS1 DataBar Expanded</p>

GS1-DataBar symbol (AI)	Barcode definition: AI and placeholder	Additional AI and placeholder within GS1 DataBar symbology (inc. number of digits)
<p>Special place holder for</p> <p>AI: "90" "99" max. 30 digits</p> <p>AI: "01" 13 digits + C</p>	<p>Special placeholder for AI "01" and AI "9x":</p> <p>Constants = 0..9 A = Article number B = Amount C = Checksum(s) for: - Weight/Quantity 'Q' - Amount 'B' - Unit price 'I'</p> <p>If the placeholder is 4 or 5 digits</p> <p>D = Date E = Calendar day F = Department number G = Scale number I = Unit price K = Customer number L = Lot number N = Receipt number P = PLU number Q = Weight/Quantity R = Weight to 3 decimal places S = Weight to 2 decimal places T = Weight to 1 decimal place U = Department ID V = VAT ID W = Article group number Y = Year</p> <p>Examples: (90)PPPPPPAAAAAAYYYCQQQQX (10)0DDDDDDDEEECB BBBB</p>	<p>No</p>
<p>additional special placeholder for</p> <p>AI: "90" "99"</p>	<p>'-' = Length adjustment of amount (only truncation) Only valid directly after placeholder 'B' and at the end of the code. Any successive placeholders and constants are ignored. This option is only available within AIs "90"... "99."</p> <p>Example: (90)PPPPPPAAAAAAYYYBBBBB-</p>	

Key:

- (xx) ➔ Application Identifier (AI)
 [x] ➔ Key/reserved number: a number of particular significance
 {x} ➔ Optional character
 A, Q, ... ➔ Placeholder for various data

The round brackets of the AI (), the square brackets of the key/reserve number [] and the curly brackets of the optional character { } are used to clarify the specific function.

The barcode definitions (in the Data maintenance menu) can be saved with or without these brackets.

Overview of applicable application identifiers and placeholders:

Application Identifier:

- "01" → EAN of the (variable measure) traded unit
- "10" → Lot number/batch number (numeric and alphanumeric)
- "13" → Pack date
- "15" → Best before date (BBD)
- "17" → Expiry date (used as a date offset of the sell by date offset)
- "310x" → Net weight (kg) where x = number of decimal places
- "30" → Quantity
- "3922" → Amount (sales amount) currently only available with two decimal places
- "9x" → Internal or bilaterally adjusted application

Placeholder:

- A → Article number
- B → Amount
- C → Checksum
- D → Date (packing-, best before-, expiry date)
- E → Calendar day
- F → Department number
- G → Scale number
- I → Unit price PLU; calculated "price/kg (special – kg - price)
- K → Customer number
- L → Lot number /batch number (numeric and alphanumeric)
- N → Receipt number
- P → PLU number
- Q → Weight (number of decimal places according to loadcell); quantity
- R → Weight to 3 decimal places
- S → Weight to 2 decimal places
- T → Weight to 1 decimal place
- U → Department ID
- V → VAT ID
- W → Article group number
- Y → Year
- X → Separator FNC1 (e.g. signifying the end of variable data lengths)
- ' ' → Length adjustment of amount (only truncation)
Only directly after ' B ' and valid at the end of the code. Any successive placeholders and constants are ignored.
This option is only available within AIs 90...99.

UCC/EAN-128 Barcode in UC3 Software

The following options for printing UCC/EAN-128 symbols (EAN128 barcodes) on labels apply to UC3 software version 15.0 (1.10.0) (1.6.2) and later versions.

The barcode definition (in the Data Maintenance menu) comprises of Application Identifiers (AI) and associated placeholders for data to be coded. The combination of AI and placeholder determines the EAN128 symbol to be generated and the data to be coded.

Maximum number of utilisable numbers: 48

UCC/EAN-128 Symbol (AI)	Barcode definition: AI and placeholder	Additional AI and placeholder within UCC/EAN-128 symbology (inc. number of digits)
EAN of traded unit (AI "01")	<p>(01)[s]AAAAAAAAAAAAAC</p> <p>[s]: Key: 0: A = 12-digit article number (UAN) (EAN number without C) 1-8: A = Traded unit indicator 9: see "variable measure EAN of the traded unit"</p> <p>AAAAAAAAAAAAA: 12-digit article number (UAN) (EAN number without check digit)</p> <p>C: Check digit (via s + A..A)</p>	<p>Enhancement conforming to EAN: Interlinked within the EAN symbol or as a separate EAN128 symbol - also for "variable measure EAN of the traded unit" (01)[9]</p> <p>Packing date: (13)DDDDDD (D: fixed 6 digits)</p> <p>Best before date (BBD): (15)DDDDDD (D: fixed 6 digits)</p> <p>Expiry date/Use by date: (17)DDDDDD (D: fixed 6 digits)</p> <p>Please note: BBD and expiry dates/use by dates should only be used separately and never in combination (i.e. never simultaneously)</p> <p>Lot number/batch number: (10)LLL...L (L: (max. 20 characters) (can include alphanumeric characters)</p>
Variable measure EAN of the traded unit (AI "01")	<p>(01)[9]AAAAAAAAAAAAAC(3103)QQQQQQ</p> <p>[9]: Key: 9: Variable measure traded unit (variable measure article). Refers to an associated quantity specified within the EAN symbol and to an additional EAN128 symbol with a corresponding declaration of quantity.</p> <p>0-8: see "EAN of the traded unit"</p> <p>AAAAAAAAAAAAA: 12-digit article number (UAN) (EAN number without check digit)</p> <p>QQQQQQQ: Declared quantity (see right)</p>	<p>Enhancement conforming to EAN: - Interlinked within the EAN symbol or as a separate EAN128 symbol - only for "variable measure EAN of the traded unit" (01)[9]</p> <p>Net weight kg: (310x)QQQQQQ (Q: fixed 6 digits)</p> <p>or Quantity in piece: (30)QQQQQQ (Q: 1...8 digits)</p> <p>Not yet implemented: Number of units contained within another unit: (37)QQQQQQ → Only conforms with EAN if used with AI (02) (i.e. items contained within another unit). Placeholder 'U' can also be used for AI (37), if it is also used with AI (310x) (weight with placeholder 'Q').</p>

UCC/EAN-128 Symbol (AI)	Barcode definition: AI and placeholder	Additional AI and placeholder within UCC/EAN-128 symbology (inc. number of digits)
<p>Mutually defined text</p> <p>(AI "99")</p>	<p>(99)kkAAAACQQQQQCBBBBB (99)kkAAAACQQQQQCIIIII</p> <p>kk: Constant (two digit, e.g. 28)</p> <p>AAAA: Article number (UAN) right-justified</p> <p>C: Check digit (via QQQQQ)</p> <p>QQQQQ: Quantity declaration (net weight)</p> <p>C: Check digits (via BBBB or IIII)</p> <p>BBBB: Total</p> <p>IIII: PLU unit price</p> <p>(99)AAAAACQQQQQC[1] IIII{C}</p> <p>AAAA: Article number (UAN) right-justified</p> <p>C: Check digit via QQQQQ</p> <p>QQQQQ: Quantity declaration (net weight)</p> <p>C: Check digit via AAAAACQQQQQ</p> <p>[1]: Key: 1: Code for price overwriting (special – kg - price)</p> <p>IIII: calculated "price /kg" (Price overwriting /special – kg - price).</p> <p>{C}: Check digit using IIII according to EAN13 method. (Optional)</p>	<p>None</p>

UCC/EAN-128 Symbol (AI)	Barcode definition: AI and placeholder	Additional AI and placeholder within UCC/EAN-128 symbology (inc. number of digits)
<p>Free formatable EAN128</p> <p>Generation of separate independent EAN128 codes that are not</p> <ul style="list-style-type: none"> - EAN with traded unit (DB "01") - Shipping container code (DB "00") - EAN of item contained in another unit (DB "02") <p>For example:</p> <ul style="list-style-type: none"> - Associated best before date of traded unit (AI "01") is printed as a separate independent EAN128 symbol. → (15)D... - Associated net weight of a variable measure trading-unit ((01)[9]A...). → (3103)Q... 	<p>Application as individual EAN codes or compounded within an EAN128 symbol</p> <p>Packing date: (13)DDDDDD</p> <p>Best before date (BBD): (15)DDDDDD</p> <p>Expiry date/Use by date: (17)DDDDDD (offset from sell-by date)</p> <p><i>BBD (AI "15") and expiry dates/use by dates (AI "17") should only be used separately and never in combination (i.e. never simultaneously)</i></p> <p>Net weight, Kilogram: (310x)QQQQQQ (Q: fixed 6 digit) where x = number of decimal places</p> <p>Quantity: (30)QQQQ (Q: 1...8 digits)</p> <p>Lot number/batch number: (10)LLL...L (L: max. 20 characters) (can include alphanumeric characters)</p> <p>The following AIs and placeholders cannot be used:</p> <p>AI: (00) → Shipping container code (SCC)</p> <p>(NVE)</p> <p>(01) → (variable measure) EAN of the traded unit</p> <p>Placeholder: A → Article number C → Check digit</p>	<p>See: "(variable measure) EAN of the traded unit" (01)</p>

Key:

- (xx) → Application Identifier (AI)
- [x] → Key/reserved number: a number of particular significance
- {x} → optional character
- A, Q, ... → Placeholder for various data

The round brackets enclosing the AI (), the square brackets enclosing the key/reserve number [] and the brackets enclosing the optional character { } are used to clarify each particular feature.

The barcode definitions (Data maintenance menu) can be saved with or without these brackets.

Overview of applicable application identifiers and placeholders:**Application identifier:**

- "01" → EAN of the (variable measure) traded unit
- "10" → Lot number/batch number (numeric and alphanumeric)
- "13" → Pack date
- "15" → Best before date (BBD)
- "17" → Expiry date (used as date offset of the sell by date offset)
- "310x" → Net weight (kg) where x = number of decimal places
- "30" → Quantity

Placeholder:

- A → Article number
- B → Total
- I → Unit price PLU; calculated "price /kg" (special – kg - price)
- L → Lot number/batch number (numeric and alphanumeric)
- Q → Weight (number of decimal places in accordance with loadcell); quantity
- D → Date (packed on-, best before-, expiry date)
- C → Check digit (checksum)
- X → Separator FNC1 (e.g. signifying the end of variable data lengths)