



What are pallet labels and SSCCs?

Pallet labels are increasingly used to track pallets and other logistics units through the supply chain, as recording and monitoring the movement of goods is an essential part of supply chain management. The serial shipping container code (SSCC) is a unique serial number that is used to identify each individual pallet, and this is one of the GS1 standards for supply chain identification.

The EAN.UCC System also provides a standard for the way in which pallet labels incorporate a company's own information as well as the SSCC and any other bar coded information.

The EAN.UCC logistics label enables companies to present information in a standard format that allows for easier handling and interpretation. It uses UCC/EAN-128 bar codes to represent the SSCC for a pallet as well as certain types of information about the pallet contents.

While it will very often appear on pallets of goods, the label is designed for use on any units that are transported between companies. These could be drums of chemicals, rolls of fabric or paper, pallets of raw materials, as well as pallets, part pallets, or individual trade units

Benefits

The SSCC provides a single means of uniquely identifying pallets to simplify the way in which products can be tracked and traced through the supply chain. Information about the contents of each pallet can be provided using international standards, which can be used in any trade and industry sector.

The benefits of using SSCCs and the EAN.UCC label include:

One label for use by suppliers, distributors and customers throughout the supply chain

- Improved control procedures in warehousing and distribution
- Unique identification for standard and non-standard pallets
- A consistent link with Electronic Data Interchange (EDI) business messages
- Minimised labelling costs through the use of an international standard
- Automation and efficient handling of transport units and their contents
- Increased speed of processing deliveries
- Improved matching of deliveries against invoices

Purpose of the SSCC

Each pallet must be identified with an SSCC. The SSCC is sometimes called the license plate and contains no information about the pallet but provides a link to systems where the information is held.

The serial shipping container code is an 18-digit number formed using the EAN.UCC company prefix number assigned to a company by GS1 UK or another GS1 member organisation. The company assigning the SSCC is responsible for ensuring its uniqueness. SSCCs can be reassigned one year after they were created and used in communications.

The 18-digit number structure follows:

Extension digit	EAN.UCC company prefix number	serial number	check digit
0	5012345	123456789	3
0	50423456	12345678	1
0	505234567	1234567	9
0	5062345678	123456	9

- **Extension digit** - this can take any value between 0 and 9 and allows users to create more SSCCs. It was previously known as the packaging indicator and 3 was historically recommended as a default value in the UK
- **EAN.UCC company prefix number** – this prefix is allocated to the company when they join GS1 UK. The length of the company prefix allocated will vary
- **Serial number** – this number is between nine and six digits in length depending on the length of the company prefix number, and is allocated by the company identifying the pallet
- **Check digit** – a calculation over the previous 17 digits. The calculation is the same as that used for other EAN.UCC identifiers, such as GTINs and GLNs. The check digit calculation can be found at the end of this guide and can also be found in the Membership services section of GS1 UK website

Please note that the SSCC should be used as an 18-digit number within companies' computer systems.

Using SSCCs

Bar codes

The SSCC can only be shown in UCC/EAN-128 bar codes and the Application Identifier (AI) 00 always denotes the SSCC. AIs are two, three or four digit numbers that specify the data that follows them in a UCC/EAN-128 bar code and they are agreed internationally.

Details of the contents of the pallet such as the GLNs of the products on the pallet; their quantity, batch number, and expiry date can also be shown in extra UCC/EAN-128 bar codes. Like the SSCC these different types of information are defined using AIs. Wherever possible different sets of information will be joined together (concatenated) in one symbol to ensure the most effective use of the space available.

The size of UCC/EAN-128 bar codes will vary according to the amount of information shown in each bar code and the width of the bars and spaces. The width of the narrowest bars and spaces, known as the x-dimension, can vary from 0.495 mm to 1.016 mm and the height of the bars must be at least 32 mm. The maximum width of the symbol is 165 mm.

Business Messaging

Companies using SSCCs to identify their pallets can send details of each pallet to their trading partners before the pallets arrive. These EDI business messages can be processed automatically, so that when the pallets arrive, the bar codes on the labels can be scanned and the SSCC for each pallet can be matched to the information sent in advance.

The EDI standards promoted by GS1 UK – EANCOM and EAN.UCC Extensible Markup Language (XML) schemas – make full use of SSCCs, GTINs and GLNs to simplify the automation of business messaging.

The despatch advice message is used to provide details of each delivery and uses SSCCs to identify each pallet. This electronic message will also include information about the contents of each pallet, using GTINs to identify each product line, and GLNs to identify the trading partners and the relevant addresses.

Providing extra information

If a pallet contains identical products, extra information about them, such as their GTIN; quantity, batch number, and best before date, can be provided using AIs). The AIs define data fields that are recognised and used in the same way by all companies within the global supply chain.

The EAN.UCC system provides over 200 AIs, some for very specialised applications, but some of the most commonly used ones are shown below. The full list of AIs can be found in section 3, appendix 4 of the General EAN.UCC Specifications which can be located in the EAN.UCC System section of the GS1 UK website

Application identifier	data field definition	format of data
01	GTIN	Fixed length, 14 digits
02	GTIN of product contained on the pallet	Fixed length, 14 digits
37	Count of items on the pallet	Variable length, up to 8 digits
15	Best before date	YYMMDD, fixed length, 6 digits
17	Use by date	YYMMDD, fixed length, 6 digits
10	Batch number	Variable length, up to 20 alphanumeric characters
21	Serial number	Variable length, up to 20 alphanumeric characters
3102	Net weight in kilos (to two decimal places)	Fixed length, 6 digits
20	Product variant	Fixed length, 2 digits

It is not possible to provide information about mixed or pick pallets by using AIs with UCC/EAN-128 bar codes because an AI can only be used once on any label.

If extra information about the contents is being provided, then either the GTIN for the contents of the pallet or the GTIN for the pallet itself will generally be required. There are rules about how application identifiers can be used together and these are provided in Section 4 of the General EAN.UCC Specifications.

Some application identifiers must only ever be used with other AIs and some of the most common combinations are shown below:

AI and definition	must be used with AI...	comment
00, serial shipping container code		Has to be used on all EAN.UCC logistics labels
02, identification of trade items contained in a logistics unit	37, count of units contained	Must not be used with AI 01 (identification of a single trade item)
37, count of units contained	02, identification of trade items contained in a logistics unit	Must not be used with AI 01
15, best before date; 17, use by date	01 or 02	The pallet must contain products with the same expiry date
10, batch number; 20, product variant; 3102, net weight in kilograms	01 or 02	The pallet must contain the same batches and variants

The format of the EAN.UCC logistics label

Layout

The label has three sections that allow companies to provide their own information about the pallet as well as data that is defined by the EAN.UCC System. The label has three sections as explained below:

- *Top section* - company name, logo or any other information
- *Middle section* - the SSCC for the pallet and any extra information that may be defined using the AI standards. This is all shown in a human readable form
- *Lower section* - UCC/EAN-128 bar codes with the encoded data shown beneath each bar code. The SSCC should always be shown in the lowest bar code on the label

There is no limit to the number of UCC/EAN-128 bar codes that can be used on an EAN.UCC label.

Label size

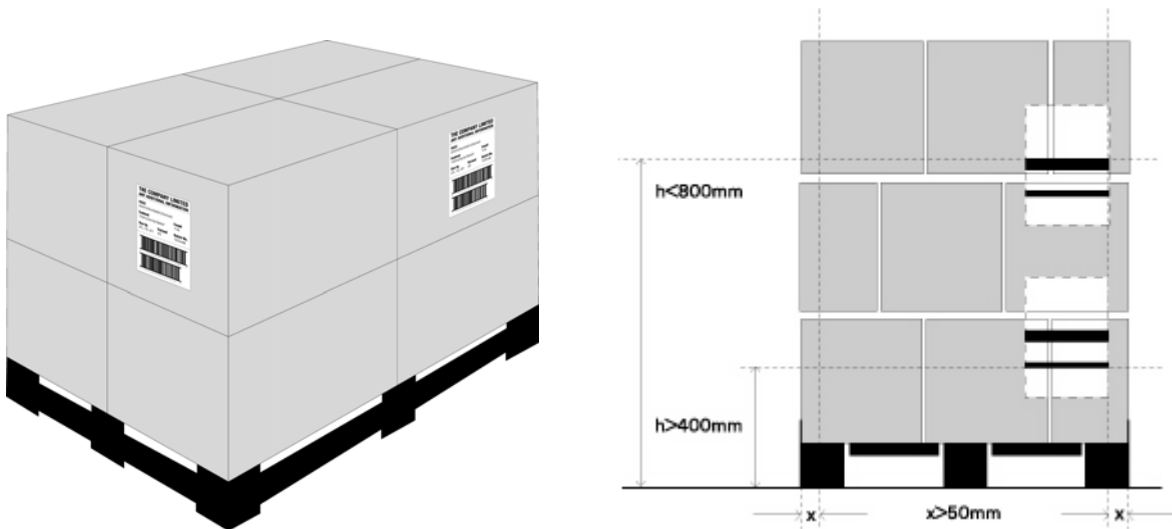
Most companies will use an A5 label (148mm x 210mm) as shown on the next page, so that extra information may be included. Any size label may be used as required.



Label location

Although the logistics label can be used on any unit, it will very often be used on a pallet. Ideally the same label would appear on all four vertical sides of a pallet, but in practice, this is not always feasible. Two labels should be attached to adjacent sides; one a short side and the other on the long right hand side.

- For units taller than 1,000mm, place the label so that the bar codes are no higher than 800mm and no lower than 400mm above the floor on which the unit stands
- For units lower than 1,000mm, place the label as high as possible but make sure that the bar codes are no higher than 800mm and no lower than 32mm from the base of the unit

The edge of a bar code (including its light margins) should also be no closer than 50mm to a vertical edge of the pallet.



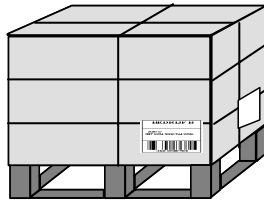
THE COMPANY LIMITED		
ANY ADDITIONAL INFORMATION		
SSCC		
050123450001234563		
Content		Count
15012345678907		110
Use by	Variant	Batch No.
25.12.04	05	1234AB
 <small>(02) 15012345678907 (17) 041225 (37) 0110</small>		
 <small>(00) 050123450001234563 (20) 05 (10) 1234AB</small>		

Examples of logistic unit identification

Example 1: Standard homogeneous pallet - contains a standard number of identical trade units on one pallet.

Option 1: EAN.UCC label with the SSCC (AI 00) in combination with identification of the GTIN (AI 02) and the quantity (AI 37) and additional AIs as appropriate. For example there are 30 boxes of product A identified by the GTIN 5012345678900. The first bar code would contain the following data: (02)05012345678900(37)30. The second bar code would contain the SSCC (AI 00).

Option 2: EAN.UCC label using only the AI (00) and send all the information about the contents electronically to your trading partner.

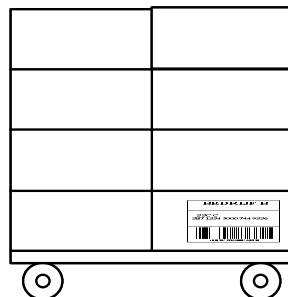


Example 2: Non-standard homogeneous pallet - contains a variable number of identical trade units on a pallet.

Option 1: EAN.UCC label with the SSCC (AI 00) in combination with identification of the GTIN (AI 02) and the quantity (AI 37) and additional AIs as appropriate. For example there are 28 boxes of product A identified by the GTIN 5012345678900. The first bar code would contain the following data: (02)05012345678900(37)28.

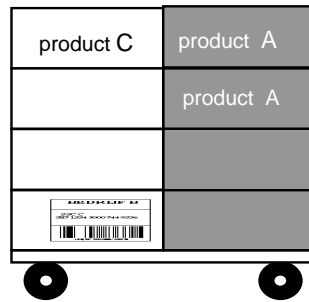
The second bar code would contain the SSCC (AI 00).

Option 2: EAN.UCC label using only the AI (00) and send all the information about the contents electronically to your trading partner.



Example 3: Mixed pallet - contains mixed items on a pallet, including different variants, expiry dates and products.

EAN.UCC label using only the SSCC (AI 00). Full details of the contents must be communicated electronically to your trading partner.



Step by step guide

The last digit of the UCC-12, EAN/UCC-13 or EAN/UCC-14 number is a computer check digit to make sure the bar code is correctly composed. The check digit is calculated by a modulo-10 algorithm from all the other digits in the number through the following steps:

1. Starting with the digit on the right of the number, (excluding the check digit) sum all the alternate digit values, reading right to left.
2. Multiply the result of step 1 by 3.
3. Sum all the remaining digit values.
4. Add the result of step 2 to the result of step 3.
5. The modulo-10 check digit is the smallest number, which when added to the result of step 4, produces a multiple of 10.

Further information

This brochure provides an overview of these GS1 standards, and is not a technical specification. Companies wishing to discuss any practical aspects of using the EAN.UCC label are encouraged to contact the GS1 UK Helpdesk.

For technical information on EAN.UCC labels and the UCC/EAN-128 bar code, please see Section 2.2 and 5.3 respectively of the General EAN.UCC Specifications on the GS1 UK website under EAN.UCC System in the GS1 standards section.