GS1 DIY Self-Learning Materials
GS1 Standards & Keys for Logistics and Inventory Management

GS1 Malaysia Berhad

Preface

- This DIY Self Learning Material will provide insights into:

  - The barcodes used for **logistics and inventory management**
  - **Application Identifiers (AI)**
  - **Function One Key (FNC1)**
  - **Serial Shipping Container Code (SSCC)**
  - **GS1 Logistic Label**

Different Types of GS1 Barcode Symbols

GS1-128

Barcode symbol for **traceability** of inventory and logistical use. Contains additional production information such as batch/lot, expiry date, etc.

GS1 2D DataMatrix

2D Barcode, can store a lot of information in a small space. Only readable via camera-based scanners. The default barcode symbol for **Healthcare traceability** use. Similar to QR Code in use.

GS1 QR Code

2D Barcode, can store a lot of information in a small space. Only readable via camera-based scanners. Similar to Datamatrix in use, but is more efficient at encoding **logograms** such as Chinese, Japanese, Korean, etc.

GS1 QR Code & GS1 Data Matrix Comparison

- The **Data Matrix** was first developed in 1989 by I.D. Matrix.

- The **QR Code** was first developed in 1994 by Denso Wave.

- Both codes encode large amounts of data into a small area and employ error detection and error correction.

- The QR Code is slightly more efficient in encoding Japanese Kanji characters, but otherwise neither code has a practical advantage over the other.

- As the Data Matrix has been around longer, it has been adopted for use in the **Healthcare Industry** as the ***preferred data carrier*** for all pharmaceutical and medical device products.

- Both codes are considered GS1 2D Barcodes when they are encoded in accordance to GS1 specifications and guidelines, eg. the inclusion of the Function Key One (**FNC1**) ASCII code as a group separator, or the inclusion of the GS1 unique identifiers such as **GTIN**.

GS1 Application Identifiers

An element string that carriers <u>dynamic or "production"</u> data that, in conjunction with the GS1 Key, provides <u>additional information</u> about the item identified <u>at the point of acquisition</u>.

(01) 10222222333334(17) 091231(10) A1345B(21) 1234

GS1 Application Identifier (AI)

AIs are used for :

Item identification - Identification number (GTIN) of a trade item

Traceability numbers
- Batch number
- Lot Number
- Serial Number

Dates
- Use By Date
- Production Date
- Expiry Date

There are over 100 GS1 AIs

Scan for the full list

GS1 Function One / <FNC1> Key

- A GS1 Malaysia barcode must contain functions that identify it as using GS1 standards.

- A **FNC1 key** is used to **show that a barcode is following GS1 standards** and as a **group separator**.

- A group separator is used to **tell a barcode scanner** when a group of variable data **finishes**, and when the next one **starts**.

GS1 Function One / <FNC1> Key

- All production data that can be encoded into a GS1 barcode is separated into 2 types; fixed length and non-fixed length.

- Fixed length = non-variable data, e.g.

  - **All Dates**; i.e. **expiry date, sell-by date**; are 6 digits in length

  - **GTIN** is always 14 digits in length

- Non-fixed length = variable data, e.g.

  - **Batch / Lot Number**, can be of any length up, to a maximum of 20

  - **Serial Number**, can be of any length, up to a maximum of 20

Logistics Unit

- Items of any composition

- Established for transport and/or storage

- Tracked and traced through the supply chain

- Logistic units are individually identified with the Serial Shipping Container Code (SSCC).

- Millions of products in many configurations and packaging types.

Possible types of logistic units :
- ✓ A carton
- ✓ A pallet
- ✓ A group of shrink wrapped units
- ✓ A cargo container

GS1 Malaysia

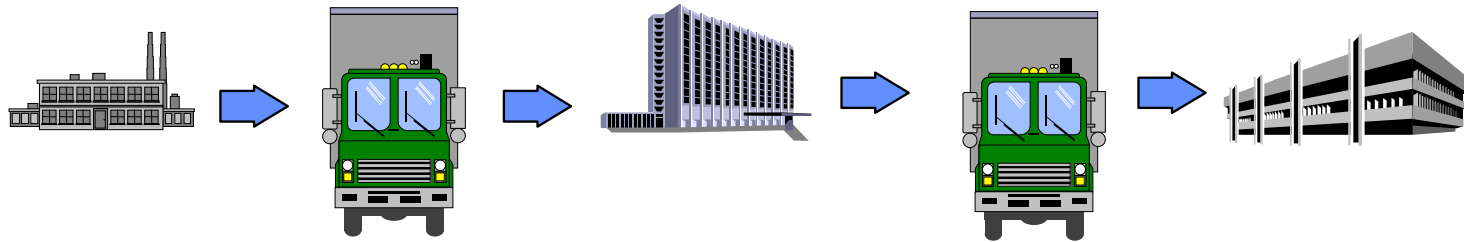# Serial Shipping Container Code (SSCC)

- The Serial Shipping Container Code is a standard for the individual identification of logistic units.

- The SSCC can be used by all parties in the supply chain as a reference number to the relevant information held in computer files.

- It is identified by the Application Identifier (AI) '00'.

- It is most commonly represented with the GS1-128 symbol.

- It is a mandatory field on the GS1 Logistic Label.

- The SSCC individually identifies the logistic unit to which it is applied for the lifetime of that unit (it can be re-used after 1 year).

SSCC: An Entity Identifier

Supplier   Transporter   Distributor   Transporter   Customer

All stakeholders in a supply chain can use SSCC to keep track of their products as it moves

GS1 Logistics Label

- A voluntary standard for the numbering and barcoding of logistic units.

- Provides clear and concise information about the logistic unit to which the label is fixed, in both machine and human readable form.

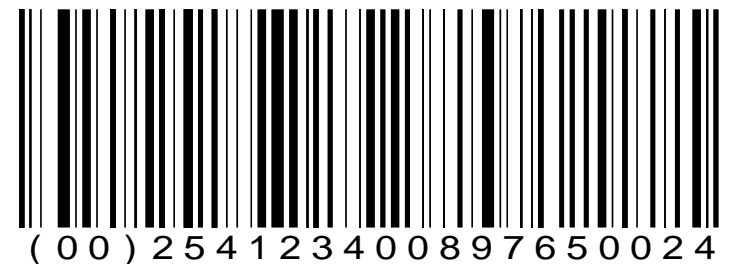## GS1 LOGISTICS LABEL

SSCC :

2 541234 0089765002 4

COUNT :	CONTENT :	BATCH :
64	0541234 5678908	879654

(02) 05412345678908 (37) 64 (10) 879654

(00) 2 541234 0089765002 4

Want to learn more?

Attend GS1 Malaysia's
Capacity Building & Implementation Program
to find out more!

Fulfilling Market & Regulatory Guidelines using GS1 Standards (FOC)

Fulfilling Market & Regulatory Guidelines Using GS1 Standards

Date	Time	Highlights
Every Monday and Wednesday *Subject to change*	**3.00 PM - 4.00 PM**	• Learn how to assign GS1 barcode numbers. • Fulfil the VbG-PDSS initiative by uploading your product information to our online repositories for visibility, authenticity & regulatory fulfilment. • Why an active GS1 Membership is important for the validation of your Business, Brand, Product & Services to improve Customer Buying Experience.

Zoom Link:
https://us06web.zoom.us/j/89614519211

JOIN US NOW ON ZOOM!

Migration to "Data-Rich 2D" Initiative for Customer Experience Improvement (FOC)

Date	Time	Highlights
Every Wednesday *Subject to change*	**11.00 AM - 11.30 AM**	• Learn how GS1 supports the **global migration towards 2D Barcodes** for greater product **visibility, traceability,** and **authentication.** • **Case studies** about successful 2D barcode **usage & implementation** in Healthcare and Retail **around the world**

JOIN US NOW ON ZOOM!

Zoom Link: https://us06web.zoom.us/j/82513900764

Why VbG-PDSS Matters to Circularity & Sustainability Initiatives (FOC)

Why VbG-PDSS Matters to Circularity & Sustainability Initiatives

Date	Time	Highlights
Every Thursday of the Month *Subject to change*	11.00 AM - 11.30 AM	• *WHAT is VbG-PDSS?* • *HOW can VbG-PDSS Fulfil Circularity and Sustainability Initiatives such as UN SDG, EU CEAP, EU ESPR, EUDR, EU DPP, etc.?*

JOIN US NOW ON ZOOM!

Zoom Link:
https://us06web.zoom.us/j/89770665451

GS1 Industry Focus Forums

GS1 Malaysia Industry Focus Forums

TOPIC 1	TOPIC 2	TOPIC 3
Supply Chain Optimisation and Regulatory Fulfilment using Global Location Number (GLN) and GS1 Services	**Comply with Global Unique Device Identification (UDI) Regulation & Directive of Healthcare using GS1 Standards**	**The Importance of GS1 Global Location Number (GLN)**

Topic 1 — Key Learnings:
- Comply with **Retail Merchandising Requirements**
- Fulfill **Global Regulatory Compliance**
- **Track & Trace** using the **GS1 2D Datamatrix**

Topic 2 — Key Learnings:
- Achieve compliance with international directives and country-specific regulations on **medical devices** and **pharmaceutical products**
- Fulfilling regulatory compliance required by **US FDA GUDID, EU EUDAMED, China NMPA, UAE BrandSync**, and many more.

Topic 3 — Key Learnings:
- Comply with international directives and country-specific regulations on location and entity identification such as the **Russian certificate of conformity** for all products originating outside of EAEU and the use of GLN by **NPRA-MOH** for **COVID-19 vaccine** track and trace.

Write to gs1malaysia@gs1my.org to book your session!

*Chargeable: 1-5 people – RM 500 6-10 people – RM 1000

In-House Business Consultation

Need a special tailor-made **In-House Business Consultation** session? GS1 Malaysia can provide advisory support for you to meet your specific needs.

Each session can be **half-day** or **full day**.

Scan here for the Fee Structure:

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(Membership, Services & Support)

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