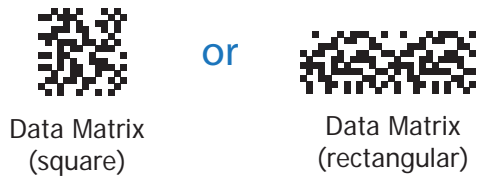


# Data Matrix - Information Sheet

This document highlights a few key concepts and definitions relating to data matrix serialization, which is part of Omega Design's Track and Trace initiative.

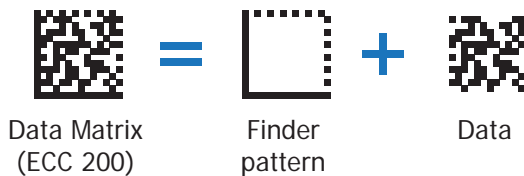
## About The Structure



**Data Matrix** is any two-dimensional code made up of black and white squares arranged within an orderly grid. The grid can be square or rectangular.

**Data Matrix ECC 200** is a data matrix arranged in a specific configuration to support ECC 200 error-correction algorithms. Data Matrix ECC 200 consists of two parts: a finder pattern and the encoded data.

**ECC 200** refers to the current version of Error Correction Codes. Applications rely on these codes to help a partially damaged Data Matrix become readable.



**Finder Pattern** is used to determine the size, orientation and distortion of the data matrix. Two adjacent sides are solid black. The other two sides alternate black & white. Also, note the white corner.

**Data** is encoded by the number and placement of squares within the grid. Data can be numeric or alphanumeric. Data capacity is dependent on the physical size of the data matrix.

Maximum amount of encoded data:  
 144 rows x 144 columns  
 3116 numeric characters  
 2335 alphanumeric characters

Symbol Size (without Quiet Zone)		Maximum data capacity	
		Numeric Capacity	Alphanumeric Capacity
10	10	6	3
12	12	10	6
14	14	16	10
16	16	24	16
18	18	36	25
20	20	44	31
22	22	60	43
24	24	72	52
26	26	88	64
32	32	124	91

# About The Data



GS1 Data Matrix (ECC 200)



GS1 element strings

(01)03453120000011  
(21)091125  
(10)ABCD1234

AI Code

GS1 data

The GS1 element strings (shown above) could have been displayed differently:



GTIN: 03453120000011  
Serial Number: 091125  
Batch/Lot: ABCD1234



(01)03453120000011(21)091125(10)ABCD1234

GS1 is a global organization that designs and implements supply chain standards.

EPC Global is an open, subscription-based non-profit organization, formed as a joint venture between GS1 and GS1 US. EPC Global develops and oversees supply chain standards for global adoption and implementation within its network.

GS1 Data Matrix (ECC 200) is a data matrix whose encoded data is defined by the specifications, standards, and guidelines administered by GS1.

GS1 Element String is the data format defined by GS1. All element strings begin with an application identifier (AI) followed by the data that the AI code denotes.

AI or Application Identifier is a 2, 3, or 4 digit number defined by GS1 and which corresponds to a specific type of data.

AI	Data Definition
01	GTIN
10	Batch or Lot Number
11	Production Date (YYMMDD)
15	Best Before Date (YYMMDD)
17	Expiration Date (YYMMDD)
21	Serial Number

GTIN or Global Trade Item Number is used to identify any item containing pre-defined information at any point in any supply chain. Integrity of the GTIN numbers throughout an item's lifetime is a key to maintaining uniqueness for manufacturers, wholesalers, distributors, hospitals, regulatory bodies and other Supply Chain stakeholders.

A modification to any of the basic elements that characterize a trade item will usually lead to a change in the GTIN. Some basic elements of a trade item include:

- ~ Product Name, Brand, and Description
- ~ Formulation (active ingredients)
- ~ Strength
- ~ Dosage (or usage)
- ~ Net Quantity (weight, volume)
- ~ Packaging Configuration
- ~ Form, Fit or Function

A new GTIN number must be assigned whenever an item gets repackaged or grouped into a different level of packaging.

