

## DataMatrix Code



**DataMatrix**, the public domain code from RSVI Acuity CiMatrix, is a 2D matrix symbology designed to pack a lot of information into a very small space.

The Data Matrix symbology employs Reed-Solomon, or convolutional, error correction with data redundancy to guarantee a fast and accurate read.

The symbol can store between one and 3116 numeric or 2335 alphanumeric characters. While Data Matrix is easily scalable between a 1-mil square to a 14-inch square, the actual limits are dependent on the fidelity of the marking device and the optics of the reader.

When printed on a 600 dpi (dots per inch) printer at an effective size of .300" square (about the size of your 'pinky' finger nail), the symbol can be reliably decoded with any 2D reader

The most popular applications for Data Matrix are the marking of small items such as integrated circuits and printed circuit boards.

The Data Matrix code is generally "read" by a CCD (charged coupled device) video camera (imager). Typical symbols between 1/8" square and 7" square can be read at distances ranging from contact to 36 inches away. Since the overall size of the Data Matrix symbol is infinitely scaleable, the Data Matrix symbols can be read at virtually any distance, given the right combination of Data Matrix size and reading equipment.

The list of organizations supporting and recommending Data Matrix symbology is extensive. For example:

- Data Matrix is supported by an ISO standard, [ISO/IEC16022—International Symbology Specification, Data Matrix](#), and is in the public domain, which means it can be used free of any licensing or royalties.
- The [Electronics Industry Association \(EIA\)](#) recommends Data Matrix for marking silicon wafers and components.
- The [Automotive Industry Action Group \(AIAG\)](#) recommends Data Matrix for small-part identification (B-4 -- Parts Identification and Tracking Application standard).
- The [Semiconductor Equipment Manufacturers' Institute \(SEMI\)](#) has chosen Data Matrix as the wafer marking [standard](#).
- The U.S. Department of Defense (DoD) has implemented a [policy](#) mandating the use of Data Matrix to uniquely identify a broad range of items acquired by the DoD. [MIL-STD-130L](#), Identification Marking of U.S. Military Property, provides guidance for the use of Data Matrix in support of the policy.
- The [Uniform Code Council \(UCC\)](#) is in the process of adopting Data Matrix as its 2D data carrier. The UCC is a member of EAN International, which promotes identification and business communication standards to all parts of the supply chain worldwide.