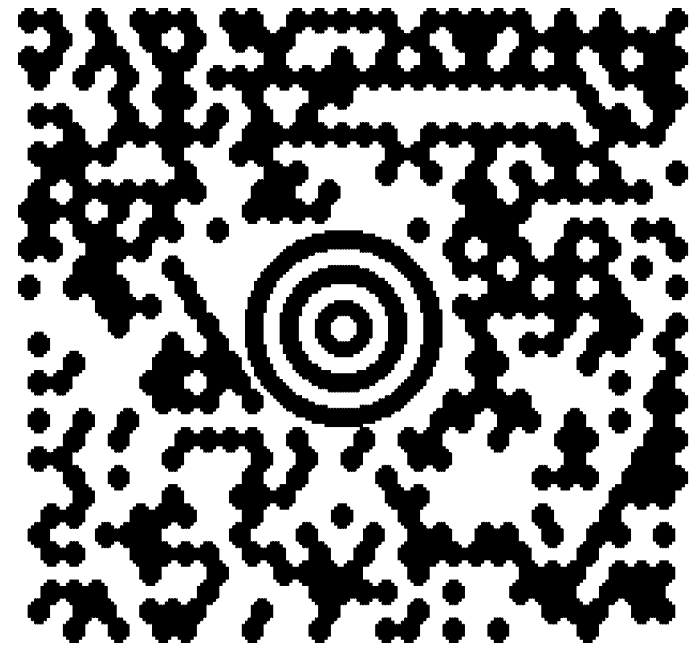




SICK AG Auto Ident

2D Basics



Why 2D Labels

- ✓ **More information necessary**
- ✓ **Smaller spaces available**
- ✓ **Improved reading security**
- ✓ **Omnidirectional reading situations**

Time Schedule

- ✓ **1987 Code 49**
- ✓ **1989 Datamatrix ECC 000-140**
- ✓ **1990 PDF417**
- ✓ **1992 Maxicode**
- ✓ **1994 QR Code**
- ✓ **1995 Datamatrix ECC200**
- ✓ **1997 Micro PDF**

Basic Types of 2D-Codes

- ✓ **Stacked Row Codes**
- ✓ **RSS Codes**
- ✓ **Matrix Codes**

Stacked Row Codes

- ✓ **Multiple rows of linear codes**
- ✓ **Readable with line scanning systems**
- ✓ **Reduced readability in applications with tilt angle**

Stacked Row Symbolologies

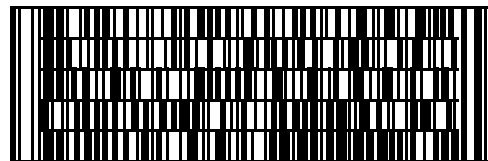
PDF 417



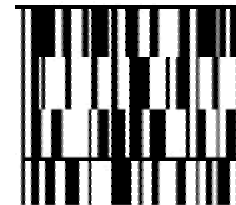
Micro PDF



Codablock



Code 49



Code16K



Supercode



Ultracode



Reduced Space Symbologies

- ✓ **Linear code part**
Code 128 / ITF25 / EAN
- ✓ **Matrix code part**
Aztec / PDF417

Reduced Space Symbolologies

RSS-14



Aztec Mesas



EAN UCC



RSS-14 omni



Matrix Symbologies

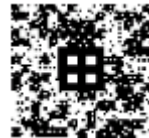
- ✓ **Usually build up with squared cells**
- ✓ **Most compact code types**
- ✓ **Readable with matrix systems**

Matrix Symbologies

Dot Code



Minicode



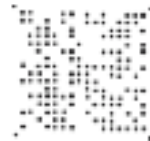
Vericode



CP Code



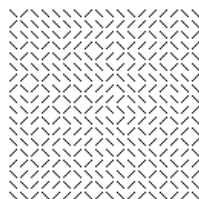
Snowflake Code



Array Tag



DataGlyphs



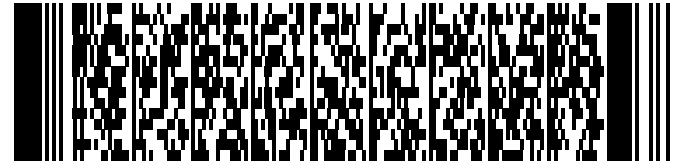
DataStrip



AIM Specified 2D Symbols

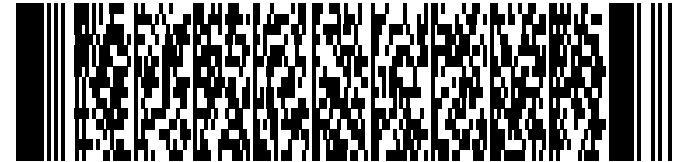
| | | |
|---|--------------------|--------------|
|  | PDF417 | 7/94 |
|  | Code One | 8/94 |
|  | MaxiCode | 11/96 |
|  | Data Matrix | 11/96 |
|  | Aztec | 11/97 |
|  | QR Code | 11/97 |

PDF417 in short



- **Multi row symbol**
- **Start and Stop patterns**
- **Left and right row indicators**
- **Selectable levels of error correction**

PDF417 Characteristics



- **Full ASCII character set**
- **Minimum: 3 rows / 90 modules**
- **Maximum: 90 rows / 583 modules**
- **Data capacity: 1850 characters**

Code One in short



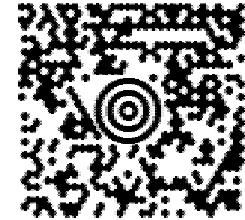
- **14 predefined sizes**
- **Square pixels**
- **Included error detection**
- **Reference pattern in the middle**

Code One Characteristics



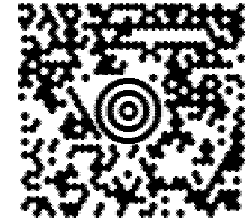
- **Full ASCII character set**
- **Minimum size: 9*13 modules**
- **Maximum size: 134*148 modules**
- **Data capacity: 2218 characters**

MaxiCode in short



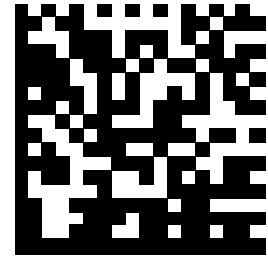
- **Fixed size**
- **Hexagonal pixels**
- **Included error detection**
- **Central bulls eye finder pattern**

MaxiCode Characteristics



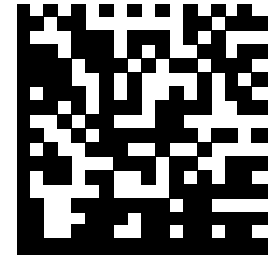
- **Full ASCII character set**
- **Symbol size: 28 x 27mm**
- **Element size: 0,9 x 1,04mm hexagon**
- **Data capacity: 93 characters**

Data Matrix in short



- **Variable size**
- **Square pixels**
- **Reed Solomon error correction**
- **Fixed boardlines**

Data Matrix Characteristics



- **Full ASCII character set**
- **Symbol size: Data dependent**
- **Element size: variable**
- **Data capacity: 1 to 3116 digits**

Aztec in short



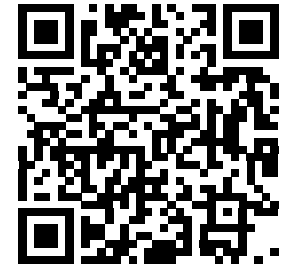
- **Variable size**
- **Square pixels**
- **Selectable error detection levels**
- **Central squared finder pattern**

Aztec Characteristics



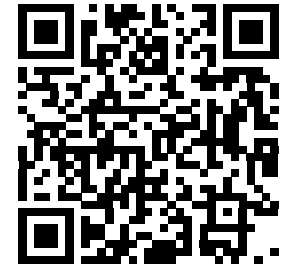
- **Full ASCII character set**
- **Symbol size: Data dependent**
- **Element size: variable**
- **Data capacity: 12 to 3000 characters**
- **No quiet zone required**

QR Code in short



- **Variable size**
- **Square pixels**
- **Four error detection levels**
- **Three cornered squared finder pattern**

QR Code Characteristics

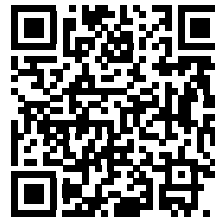


- **Full ASCII character set**
- **Symbol size: 21 x 21 upto 177 x 177 elements**
- **Element size: variable**
- **Data capacity: up to 3069 characters**

Comparison of Size of 2D Codes

Data: SICK AG Auto Ident Nimbunger Straße 11 79276 Reute

- QR Code



- Data Matrix

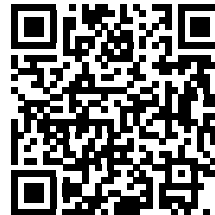


- Aztec



Most Popular 2D Codes

- QR Code



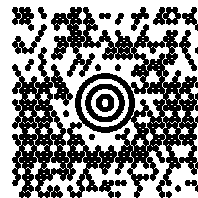
Automotive

- Data Matrix



Electronic industry

- MaxiCode



Transportation

**Thanks for
Your
Interest**

