Matrix-2000™ is an area CCD reader for industrial applications using bar codes, 2D, stacked and postal codes. The fully integrated reader combines a LED lighting system, image capturing, decoding and communication interfaces in a single compact product. Matrix-2000™ now offers full programmability via Ethernet, an Autolearning function for quick installation and set-up without a PC, higher dynamic reading performance and DPM (Direct Part Marking) decoding capabilities. Besides the VisiSet™ software configuration, Matrix-2000™ Ethernet connectivity also includes several communication channels, such as TCP/IP socket for data and image transfer, HTTP server, FTP and mail client. These features allow high effectiveness in the fast growing Ethernet applications.

Matrix-2000™ DPM decoding capabilities permit the reading of DataMatrix and Dot Matrix codes directly marked with laser etching, dot peening and low resolution ink jet technologies. DPM technologies are widely used in automotive, aerospace and tooling manufacturing industries. In specific reading conditions, best results are obtained jointly with external lighting systems, available as Datalogic accessories.

Matrix-2000™ diagnostic software tools enable real time monitoring of code printing quality according to AIM standards for all symbologies decoded, position and orientation, exposure quality and decoding time.

Matrix-2000™ state-of-the-art decoding libraries are extremely effective on damaged and low quality bar code applications. The reader flexibility allows a smooth transition from standard bar code reading to 2D bar code symbologies.

Matrix-2000™ is ready for use in various applications, offering many optical solutions to guarantee high accuracy in identifying codes with different resolutions at various distances with the best reading performance in its class. Customized solutions for specific applications are also available upon request.

General Description

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Features

- Up to 60 frames/s (3600 frames/min)
- Up to 100 code readings in a single frame
- Over 6.0 m/s object speed
- 1D & 2D, stacked, postal code reading
- Autolearning function
- Code quality control (AIM standards)
- Ethernet configuration/data collection
- Internal image buffering
- Image transfer capability
- Integrated LED lighting system
- Direct or 90° reading window

Applications

- WIP control / product traceability
- Document and mail processing
- PCB production line tracking
- Direct Part Marking (DPM) applications
- Semiconductor production line tracking
- Chemical and biomedical analysis machines
- Small objects/pharmaceutical packaging

www.datalogic.com
MATRIX-2000™

1D & 2D, Stacked, Postal Code Area CCD Reader

Specifications

**Electrical Characteristics**
- **Power Supply**: 10 to 30 Vdc
- **Power Consumption**: 8 W max., 5 W typ.

**Mechanical Characteristics**
- **Dimensions**: 121 x 73 x 57 mm (4.76 x 2.87 x 2.24 in)
- **Weight**: 380 g (13.40 oz)
- **Case Material**: Magnesium alloy

**Performance**
- **Optical Features**: VGA format CCD sensor / LED array lighting systems
- **Frame Rate**: Up to 60 frames/s
- **Reading Window**: Direct or 90°
- **Readable Symbologies**: DataMatrix, QR Code, PDF417, Code 128, Code 39, EAN/UPC, RSS, postal codes and many more

**Communication Interface**
- RS232 + optocoupled RS232/RS422/RS485 up to 115.2 Kbit/s

**Connectivity Modes**
- Ethernet IEEE 802.3 10 Base T and IEEE 802.3U 100 BaseTx compliant

**Digital Inputs**
- Two SW programmable, optocoupled and polarity insensitive

**Digital Outputs**
- Three SW programmable optocoupled

**Diagnostic SW Tools**
- Code Quality (AIM standards), Exposure Indication, Code Position and Orientation, Decoding Time

**User Interface**
- Beeper, Keypad Button, LEDs (PWR, TRIG, READ, COM, POS, CAL)

**Environment**
- **Operating Temperature**: 0 to 40 °C (32 to 104 °F)
- **Storage Temperature**: -20 to 70 °C (-4 to 158 °F)
- **Humidity**: 90% non-condensing

**Vibration Resistance**
- IEC 68-2-6 test FC 1.5 mm; 10 to 55 Hz; 2 hours on each axis

**Shock Resistance**
- IEC 68-2-27 test EA 30 G; 11ms; 3 shocks on each axis

**Protection Class**
- IP64 (20XX models)

**Reading Characteristics**

<table>
<thead>
<tr>
<th>Model / Description</th>
<th>Typ. 2D Code Resolution</th>
<th>Typ. 1D/Stacked Code Resolution</th>
<th>Focus Distance</th>
<th>Field of View at Reading Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATRIX-2X11 Ultra High Density</td>
<td>0.13 (5)</td>
<td>0.10 (4)</td>
<td>60 (2.36)</td>
<td>17 x 13 (0.67 x 0.51)</td>
</tr>
<tr>
<td>MATRIX-2X21/2121-R High Density</td>
<td>0.19 (7.5)</td>
<td>0.10 (4)</td>
<td>85 (3.35)</td>
<td>25 x 19 (0.98 x 0.75)</td>
</tr>
<tr>
<td>MATRIX-2X31 Standard Density</td>
<td>0.25 (10)</td>
<td>0.15 (6)</td>
<td>115 (4.53)</td>
<td>34 x 26 (1.34 x 1.02)</td>
</tr>
<tr>
<td>MATRIX-2X41/2141-R Low Density</td>
<td>0.38 (15)</td>
<td>0.20 (8)</td>
<td>80 (3.15)</td>
<td>54 x 40 (2.13 x 1.57)</td>
</tr>
<tr>
<td>MATRIX-2X51 Medium Range</td>
<td>0.60 (24)</td>
<td>0.30 (12)</td>
<td>160 (6.30)</td>
<td>95 x 70 (3.74 x 2.76)</td>
</tr>
<tr>
<td>MATRIX-2X61 Long Range</td>
<td>0.60 (24)</td>
<td>0.30 (12)</td>
<td>500 (19.68)</td>
<td>110 x 82 (4.33 x 3.23)</td>
</tr>
</tbody>
</table>

*20X1 = serial models; 21X1 = Ethernet models; 21X1-R = 90° reading window models. Customized models available upon request.

Accessories

- Cone Lighting System
- Spot Lighting System
- C-Box Line

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