The Microscan® MS-4 is designed specifically for embedded bar code applications. It is the ideal imager for OEM design engineers who need to read 2D codes in tight spaces, while still requiring 100% data integrity.

Currently the world’s smallest high resolution imager, the MS-4’s ultra-compact size and wide angle optics provide the widest scan window available for reading any code at close range. EZ button setup, symbol locator, and visible performance indicators provide ease of use while omni directional reading and form factor allow for positioning flexibility.

**Tiny Imager Scans 2D & Bar Codes**

**Compact Shape and Size**
MS-4 is the world’s smallest high performance imager, measuring 1” (25.2 mm) height x 1.8” (45.7 mm) width x 2.10” (53.3 mm) length and weighs less than 2 ounces (57 g).

**Omni-Directional Reading**
Decodes linear bar codes or 2D codes in any orientation. Compact shape and omni directional reading allow for flexible positioning, with no need to plan for laser line alignment.

**Wide Field of View**
Wide scan window allows linear and 2D codes to be read as close as 1” (25.2 mm).

**Visible Performance Indicators**
- Symbol Locator
- Good Read Indicator
- Read Performance

**Mounting Flexibility**
The MS-4’s compact size, right angle mirror option, and design features such as the cable’s corner positioning conserve cubic space to create the tightest fit possible within instrumentation and equipment.

**Push-Button Setup**
The EZ button is a powerful setup feature. Three programmable positions can be used to quickly perform complex tasks. EZ button user-selectable functions include:
- Read Rate
- Calibration
- Save for Power-on
- Load New Master
- Sleep Mode

**Symbologies**

**2D Symbologies**
- Data Matrix
- QR Code
- Code 128
- Code 93
- Micro PDF
- BC 412
- Codabar

**Linear Bar Codes**
- Code 39
- Code 128
- Code 93
- I-2 of 5
- UPC/EAN
- Pharmacode
- Codabar

Codes depicted above are for display purposes only. For a sample packet, contact Microscan, info@microscan.com.

**ESP® Easy Setup Program**
ESP is Microscan’s software to operate Microscan readers. ESP is compatible with Windows 98, NT, 2000, and XP.
**MS-4 Imager Specifications and Options**

### MECHANICAL
- **Height:** 1" (25.4 mm)
- **Width:** 1.8" (45.7 mm)
- **Depth:** 2.1" (53.3 mm)
- **Weight:** 2 oz (57 g)

### ENVIRONMENTAL
- **Enclosure:** IP54 (category 2)
- **Operating Temperature:** 0° to 40°C (32° to 104°F)
- **Storage Temperature:** -50° to 75°C (-58 to 167°F)
- **Humidity:** up to 90% (non-condensing)

### CE MARK
- **General Immunity for Light Industry:** EN 55024:1998 ITE Immunity Standard
- **Radiated and Conducted Emissions of ITE Equipment:** EN 55022:98 ITE Disturbances

### LIGHT SOURCE
- **Type:** High output LEDs

### LIGHT COLLECTION OPTIONS
- Progressive scan, square pixel
- Software adjustable shutter speed, electronic shutter
- VGA: 640 by 480

### SYMBOLOGY TYPES
- **2D Symbologies:**
  - Data Matrix (ECI 0, 200), QR Code
  - Stacked Symbologies: PDF417, Micro PDF417

### READ PARAMETERS
- **Pitch:** ±3°
- **Skew:** ±3°
- **Tilt:** 360°
- **Decode Rate:** Up to 10 decodes per second

### ELECTRICAL
- **Power:** 5 VDC +/- 5%, 200 mV peak-p-p ripple, 394mA @ 5 VDC (typ.)

### DISCRETE I/O
- **Trigger Input:** 5 to 29.9V rated (160 mA)
- **New Master:** 5 to 29.9V rated (160 mA)
- **Outputs (1, 2, 3):** SV TTL compatible, can sink 10 mA and source 10 mA

### SAFETY CERTIFICATIONS
- **FCC, UL/cUL, CE, CB**
- **ISO CERTIFICATION**
  - ISO 9001:2000 – Cert No. 03–1212

### HOST CONNECTOR/PIN ASSIGNMENTS

### READ RANGES (GRAPHS AND TABLES)

<table>
<thead>
<tr>
<th>Narrow-bar-width</th>
<th>Field of View (maximum)</th>
<th>Read Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Density</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.0075&quot; (0.19 mm)</td>
<td>.010&quot; (25 mm)</td>
<td>2.4&quot; (61 mm)</td>
</tr>
<tr>
<td>.010&quot; (0.25 mm)</td>
<td>.015&quot; (38 mm)</td>
<td>2.6&quot; (66 mm)</td>
</tr>
<tr>
<td>.015&quot; (0.38 mm)</td>
<td>.020&quot; (51 mm)</td>
<td>2.8&quot; (71 mm)</td>
</tr>
<tr>
<td><strong>Low Density</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.010&quot; (0.25 mm)</td>
<td>.015&quot; (38 mm)</td>
<td>4.2&quot; (107 mm)</td>
</tr>
<tr>
<td>.015&quot; (0.38 mm)</td>
<td>.020&quot; (51 mm)</td>
<td>4.5&quot; (114 mm)</td>
</tr>
<tr>
<td>.020&quot; (0.51 mm)</td>
<td>.030&quot; (76 mm)</td>
<td>5.5&quot; (140 mm)</td>
</tr>
</tbody>
</table>

### CONNECTOR
- **Type:** 3 ft. cable terminated with High Density 15 pin D-sub socket or USB type A connector

### INDICATORS
- **LEDs:** Read Performance, Power, Read Status
- **Green Flash:** Good read
- **Blue V:** Symbol locator
- **Beeper:** Good read, match/mismatch, noread, serial command confirmation, on/off

### COMMUNICATION PROTOCOLS
- **Standard Interface:** RS-232, RS-422 or USB

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