

## MS-4

**The 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 &amp; 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).

**Real-Time Controls**

The inputs include a trigger signal, a "new master" input, and a programmable input for resetting counters or releasing outputs. The outputs can be configured to activate upon a number of conditions including matchcode and diagnostic operations.

**High Data Level Output**

2D codes have a high level of data capacity storage and the MS-4 maintains high decode speed to output large amounts of data in milliseconds.

**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 (ECC 0-200) 
- QR Code 

**Linear Bar Codes**

- Code 39 
- Code 128 
- Code 93 

**Stacked Symbology**

- PDF417 
- RSS (Stacked, Composite) 
- Micro PDF 
- I-2 of 5 
- UPC/EAN 
- Pharmacode 
- BC 412 
- Codabar 

Codes depicted above are for display purposes only. For a sample packet, contact [Microscan.info@microscan.com](mailto:Microscan.info@microscan.com).

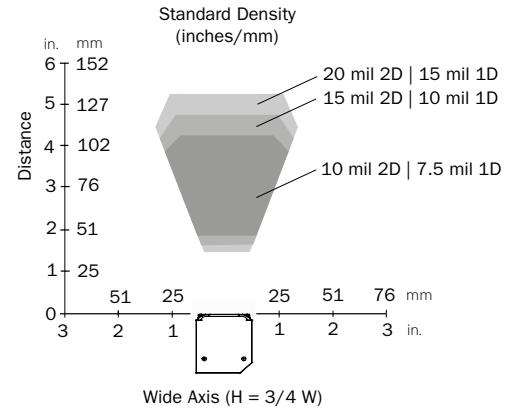
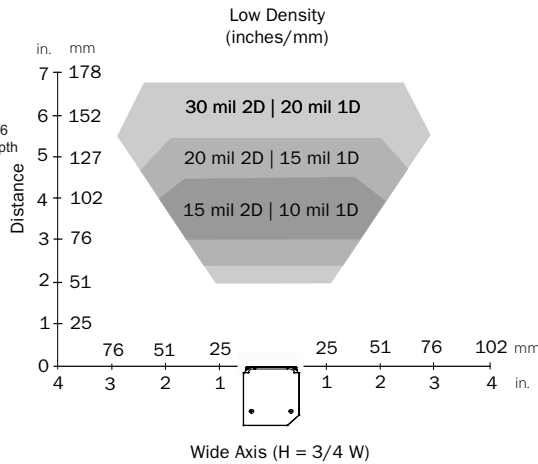
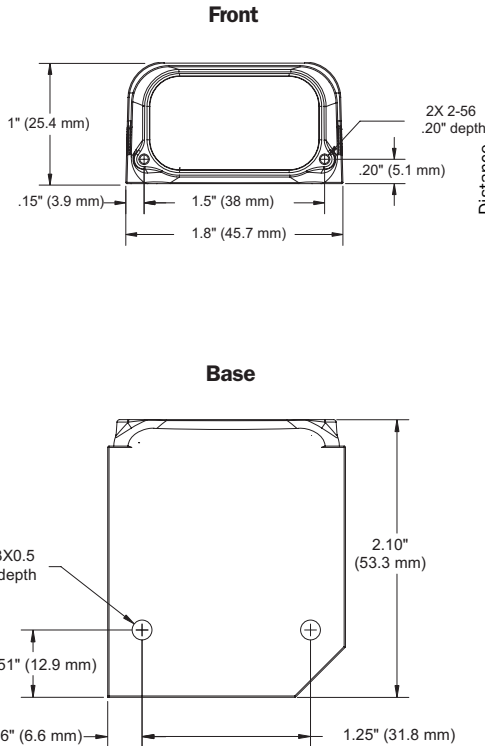
**ESP™ Easy Setup Program**

ESP™ is Microscan's software to operate Microscan readers. ESP™ is compatible with Windows 98, NT, 2000, and XP.

**MICROSCAN®**

# MS-4 IMAGER SPECIFICATIONS AND OPTIONS

## READ RANGES (GRAPHS AND TABLES)



Narrow-bar-width		Field of View (maximum)	Read Range
1D	2D		
<b>Standard Density</b>			
.0075" (0.19 mm)	.010" (.25 mm)	2.4" (61 mm)	1.8 to 4.2" (46 mm to 107 mm)
.010" (0.25 mm)	.015" (.38 mm)	2.6" (66 mm)	1.6 to 4.7" (41 mm to 119 mm)
.015" (0.38 mm)	.020" (.51 mm)	2.8" (71 mm)	1.4 to 5.2" (36 mm to 132 mm)
<b>Low Density</b>			
.010" (0.25 mm)	.015" (.38 mm)	4.2" (107 mm)	3.0 to 4.5" (76 mm to 114 mm)
.015" (0.38 mm)	.020" (.51 mm)	5.0" (127 mm)	2.5 to 5.5" (64 mm to 140 mm)
.020" (0.51 mm)	.030" (.76 mm)	5.8" (147 mm)	2.0 to 6.8" (51 mm to 173 mm)

Subject to change. Contact Microscan for updated graphs.

### MECHANICAL

**Height:** 1" (25.4 mm)  
**Width:** 1.8" (45.7 mm)  
**Depth:** 2.10" (53.3 mm)  
**Weight:** 2-oz (57 g)

### ENVIRONMENTAL

**Enclosure:** IP54  
**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

### SYMBOLGY TYPES

**2D Symbolgies:**  
 Data Matrix (ECC 0-200), QR Code  
**Stacked Symbolgies:** PDF417, Micro PDF417, RSS (Composite & Stacked)  
**Linear Bar Codes:** Code 39, Code 128, BC 412, I2 of 5, Pharmacode, UPC/EAN, Codabar, Code 93

### READ PARAMETERS

**Pitch:** ±30° **Skew:** ±30° **Tilt:** 360°  
**Decode Rate:** Up to 10 decodes per second

### HOST CONNECTOR/PIN ASSIGNMENTS

#### High Density 15 Pin D-sub Socket Connector

Pin No.	Host RS232	Host/Aux RS232	Host RS422/485	In/Out
1	Power +5 VDC			In
2	TxD	TxD	TxD(-)	Out
3	RxD	RxD	RxD(-)	In
4	Power/Signal Ground			
5	NC			
6	RTS	Aux TxD	TxD(+)	Out
7	Output 1 TTL <sup>a</sup>			Out
8	Default configuration <sup>b</sup>			In
9	Trigger			In
10	CTS	Aux RxD	RxD (+)	In
11	Output 3 TTL <sup>a</sup>			Out
12	New Master (NPN)			In
13	Chassis ground <sup>c</sup>			
14	Output 2 TTL <sup>a</sup>			Out
15	NC			

a. Can sink 10 mA and source 10 mA.  
 b. The default is activated by connecting pin 8 to ground pin 4.  
 c. Chassis ground: Used to connect chassis body to earth ground only. Not to be used as power or signal return.

### 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

### ELECTRICAL

Power: 5 VDC +/- 5 %, 200 mV p-p max. 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):** 5V TTL compatible, can sink 10 mA and source 10mA

### SAFETY CERTIFICATIONS DESIGNED FOR

FCC, UL/cUL, CE, CB



### ISO CERTIFICATION

Issued by RWTüV, USA Inc.  
 ISO 9001:2000 – Cert No. 03-1212

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Product specifications are given for typical performance at 25°C (77°F) using grade A labels. Some performance characteristics may vary at high temperatures or other environmental extremes. Warranty—One year limited warranty on parts and labor. Extended warranty available.

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