

# MS-4



## Ultra-Compact Imager

The MS-4 imager is designed specifically for embedded bar code applications. Currently the world's smallest high resolution imager, the MS-4's ultra-compact size and wide angle optics provide the widest field of view available for reading any symbol at close range.

It is the ideal imager for OEM design engineers who need to read 2D symbols in tight spaces with 100% data integrity.

### MS-4: At a Glance

- Decodes/second: up to 10
- Wide Field of View
- Optional USB Connectivity



ESP®: Easy Setup Program software provides quick and easy setup and configuration of all Microscan readers.



EZ Trax™: Image capture and storage software provides tracking of symbol images.



EZ Button: This performs reader setup and configuration with no computer required.



Visible Indicators: Performance indicators include "good read" green flash and LEDs, as well as the label positioning tool.

For more information on this product, visit [www.microscan.com](http://www.microscan.com).

### MS-4: Available Codes



#### Compact & Lightweight

The MS-4 is the world's smallest high performance imager. Its small form allows flexible positioning in tight spaces. The lightweight and durable magnesium alloy case weighs less than 2 oz.

#### Mounting Flexibility

The MS-4's compact size, right angle mirror option, and corner-exit cable conserve cubic space to create the tightest fit possible within instrumentation and equipment.

#### Wide Field of View

The MS-4 has an extremely wide field of view and reads linear codes or 2D symbols as close as 1" (25 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 variety of conditions including matchcode and diagnostic operations.

#### Omnidirectional Reading

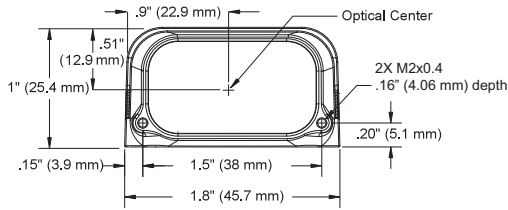
Linear codes or 2D symbols can be decoded in any orientation. The MS-4 removes the restriction of planning for laser line alignment.

#### Application Examples

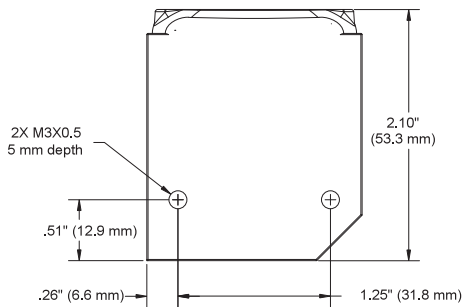
- Clinical instruments
- Bank ATMs
- Parking kiosks
- Point-of-sale terminals
- Robotics

# MS-4 IMAGER SPECIFICATIONS AND OPTIONS

## Front

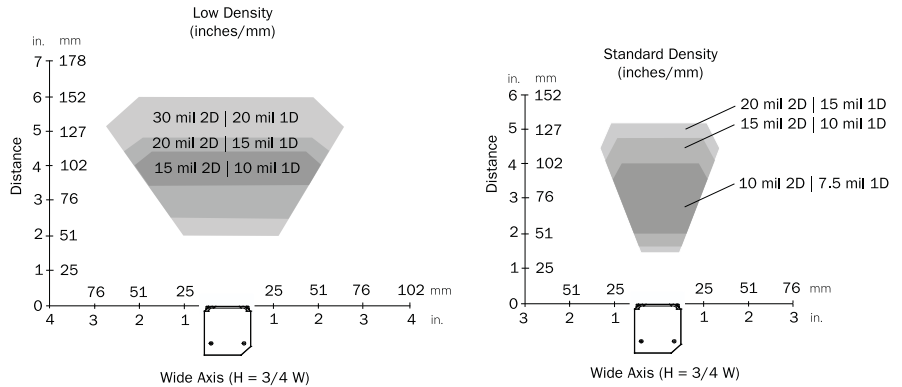


## Base



Note: Nominal dimensions shown. Typical tolerances apply.

## READ RANGES (GRAPHS AND TABLES)



Narrow-bar-width		Field of View (width)*	Read Range
1D	2D	(maximum)	
<b>Standard Density</b>			
.0075" (0.19 mm)	.010" (0.25 mm)	2.4" (61 mm)	2 to 4.0" (51 mm to 102 mm)
.010" (0.25 mm)	.015" (0.38 mm)	2.6" (66 mm)	1.7 to 4.7" (43 mm to 119 mm)
.015" (0.38 mm)	.020" (0.51 mm)	2.8" (71 mm)	1.4 to 5.2" (36 mm to 132 mm)
<b>Low Density</b>			
.010" (0.25 mm)	.015" (0.38 mm)	4.2" (107 mm)	3.5 to 4.5" (89 mm to 114 mm)
.015" (0.38 mm)	.020" (0.51 mm)	4.5" (114 mm)	2.7 to 5.0" (69 mm to 127 mm)
.020" (0.51 mm)	.030" (0.76 mm)	5.5" (140 mm)	2.0 to 6.0" (51 mm to 152 mm)

\*Height is 75% of width.  
Note: Specifications subject to change. Contact Microscan for updated graphs.

## MECHANICAL

**Height:** 1" (25.4 mm)  
**Width:** 1.80" (45.7 mm)  
**Depth:** 2.10" (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

## SYMBOLGY TYPES

**2D Symbolgies:**  
Data Matrix (ECC 0-200), QR Code  
**Stacked Symbolgies:** PDF417, Micro PDF417,  
GS1 Databar (Composite & Stacked)  
**Linear Bar Codes:** Code 39, Code 128,  
BC 412, I2 of 5, 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 RS-232	Host/Aux RS-232	Host RS-422/485	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

## SAFETY CERTIFICATIONS DESIGNED FOR

FCC, UL/cUL, CE, CB

## ELECTRICAL

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

## DISCRETE I/O

**Trigger Input:** 5 to 29.9 V rated (160 mA)  
**New Master:** 5 to 29.9 V rated (160 mA)  
**Outputs (1, 2, 3):** 5 V TTL compatible, can sink 10 mA and source 10 mA

## ROHS/WEEE COMPLIANT

## ISO CERTIFICATION

Certified ISO 9001:2008 Quality Management System

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Read Range and other performance data is determined using high quality Grade A symbols per ISO/IEC 15415 and ISO/IEC 15416 in a 25° C environment. For application-specific Read Range results, testing should be performed with symbols used in the actual application. Microscan Applications Engineering is available to assist with evaluations. Results may vary depending on symbol quality. **Warranty**—One year limited warranty on parts and labor. Free extended 3 year warranty upon online product registration.

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