MS-4

Compact Shape/Size

ACTUAL SIZE SHOWN
Height: 1" (25.4 mm)
Width: 1.80" (45.7 mm)
Length: 2.10" (53.3 mm)

EZ Button Setup

Wide Field of View

RoHS • WEEE COMPLIANT

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.

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.

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).

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.

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.

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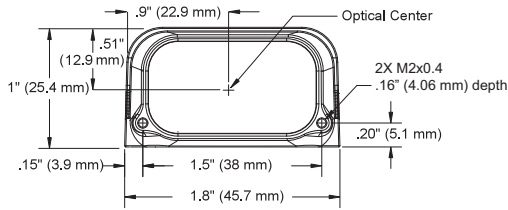
Application Examples
- Clinical instruments
- Bank ATMs
- Parking kiosks
- Point-of-sale terminals
- Robotics

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.

MS-4: Available Codes

Linear   All Standard   **2D Symbols**   Data Matrix   QR

Stacked   MicroPDF   PDF417   GS1 Databar

MICROSCAN®

MS–4 Imager Specifications and Options

Front

.9" (22.9 mm)
Optical Center
.51" (12.9 mm)
1" (25.4 mm)
2X M2x0.4 .16" (4.06 mm) depth
.20" (5.1 mm)
.15" (3.9 mm)
1.5" (38 mm)
1.8" (45.7 mm)

Base

2X M3X0.5 5 mm depth
2.10" (53.3 mm)
.51" (12.9 mm)
.26" (6.6 mm)
1.25" (31.8 mm)
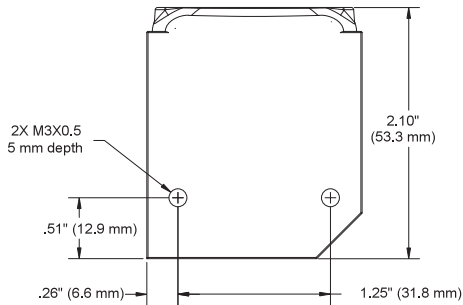
Note: Nominal dimensions shown. Typical tolerances apply.

READ RANGES (GRAPHS AND TABLES)

Low Density (inches/mm)

in. mm
7 178
6 152
5 127
4 102
3 76
2 51
1 25
0
Distance

30 mil 2D | 20 mil 1D
20 mil 2D | 15 mil 1D
15 mil 2D | 10 mil 1D

4 3 2 1   1 2 3 4 in.
76 51 25   25 51 76 102 mm

Wide Axis (H = 3/4 W)

Standard Density (inches/mm)

in. mm
6 152
5 127
4 102
3 76
2 51
1 25
0
Distance

20 mil 2D | 15 mil 1D
15 mil 2D | 10 mil 1D
10 mil 2D | 7.5 mil 1D

3 2 1   1 2 3 in.
51 25   25 51 76 mm

Wide Axis (H = 3/4 W)
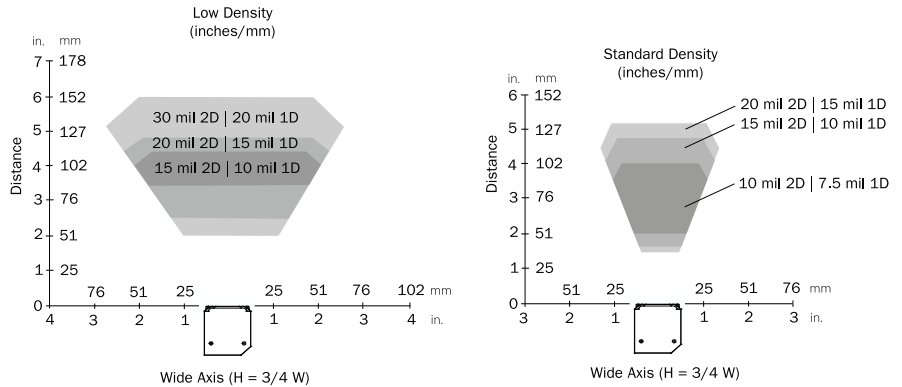
Narrow-bar-width		Field of View (width)* (maximum)	Read Range
1D	**2D**		
Standard Density			
.0075" (0.19 mm)	.010" (0.25 mm)	2.4" (61 mm)	2 to 4.0" (51 mm to 102 mm)
.010" (0.25 mm)	.015" (0.38 mm)	2.6" (66 mm)	1.7 to 4.7" (43 mm to 119 mm)
.015" (0.38 mm)	.020" (0.51 mm)	2.8" (71 mm)	1.4 to 5.2" (36 mm to 132 mm)
Low Density			
.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

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WARNING
LED LIGHT
DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS
CLASS 1 LED PRODUCT
Light Output: .564 mW, Wavelength: 470, 525, 617 nm,
IEC 60825-1:1993+A1:1997+A2:2001
```

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

SYMBOLOGY TYPES
2D Symbologies:
Data Matrix (ECC 0-200), QR Code
Stacked Symbologies: 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[a]			Out
8	Default configuration[b]			In
9	Trigger			In
10	CTS	Aux RxD	RxD (+)	In
11	Output 3 TTL[a]			Out
12	New Master (NPN)			In
13	Chassis ground[c]			
14	Output 2 TTL[a]			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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