

MS-4X



Ultra-Compact Imager for Difficult Codes

The MS-4X features ultra-compact size and wide angle optics to provide the widest field of view available for reading any symbol at close range. Aggressive decoding is ensured through X-Mode technology, which reads direct part marks and damaged or difficult symbols with no configuration or setup required.

High performance, flexibility, and advanced decoding make the MS-4X the ideal imager for reading difficult codes in tight spaces.

MS-4X: At a Glance

- Decodes/second: up to 10
- X-Mode Decoding Technology
- Wide Field of View
- Optional USB Connectivity

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

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

GOOD READ Visible Indicators: Include "good read" green flash, LEDs and symbol positioning tool.

For more information on this product, visit www.microscan.com.

MS-4X: Available Codes

Linear	All Standard	Postal Codes	
Stacked	MicroPDF	PDF417	GS1 Databar
	Data Matrix	QR	Micr QR
2D			

X-Mode Technology

Our patented X-Mode technology provides easy setup and deployment of the MS-4X in any application. In addition to reliable decoding of damaged or difficult linear codes and 2D symbols, the MS-4X features advanced decode algorithms to read a wide range of direct part marks.

Compact & Lightweight

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

Wide Field of View

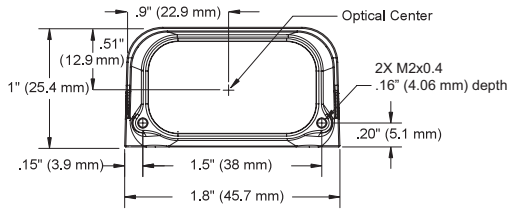
The MS-4X has an extremely wide field of view and reads linear codes or 2D symbols as close as 1" (25 mm).

Application Examples

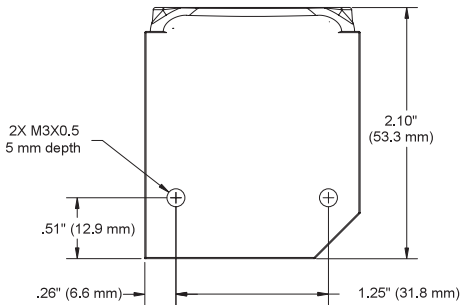
- Clinical Instruments
 - Embedded barcode reading
 - Sample tracking and vial reading
- Medical Devices
 - Dotpeen or laser marks on products
- Electronics
 - Laser markings on printed circuits boards, flex circuits
 - Sub-assembly tracking
- Semiconductors
 - Laser marks on packages and components

MS-4X IMAGER SPECIFICATIONS AND OPTIONS

Front

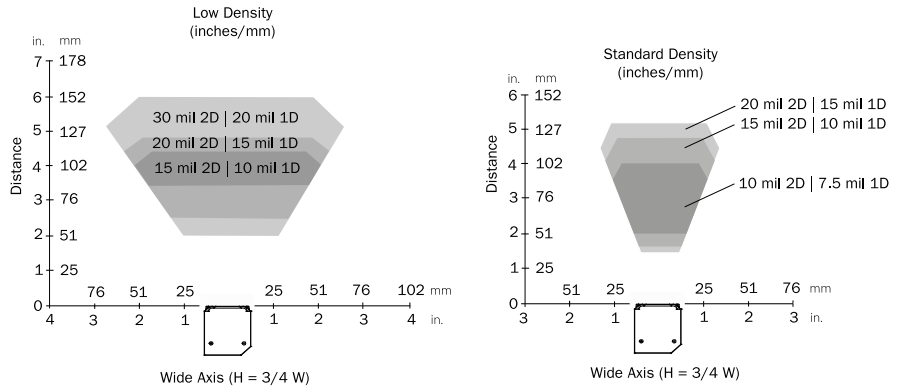


Base



Note: Nominal dimensions shown. Typical tolerances apply.

READ RANGES (GRAPHS AND TABLES)



Narrow-bar-width		Field of View (width)*	Read Range
1D	2D	(maximum)	
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



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, Micro QR Code, Aztec Code
Stacked Symbolgies: PDF417, Micro PDF417, GS1 Databar (Composite & Stacked)
Linear Barcodes: Code 39, Code 128, BC 412, I2 of 5, UPC/EAN, Codabar, Code 93, Pharmacode, PLANET, PostNet, Japanese Post, Australian Post, Royal Mail, Intelligent Mail, KIX

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 28V rated (0.16 mA)
New Master: 5 to 28V rated (0.16 mA)
Outputs (1, 2, 3): 5V 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**—For current warranty information on this product, please visit www.microscan.com/warranty.

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