

MS-4 EZ MATCH COLOR

Compact Imager & Cap Inspector



The MS-4 EZ Match Color imager is designed to read linear and 2D codes, detect absence or presence of test tubes and caps, determine cap color and type, and more. In addition to its small size and wide angle optics, the MS-4 EZ Match Color features advanced software to allow for robust inspection.

It is the ideal imager for design engineers implementing specimen container inspection while reading bar codes and 2D symbols with complete data integrity.

MS-4 EZ Match Color: At a Glance

- Decodes/second: up to 10
- Wide Field of View
- MS-4 EZ Match: Black and white model available



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, visit www.ezinspect.com.

Tube and Cap Detection

The MS-4 EZ Match Color verifies the absence or presence of both test tubes and caps, and provides a user-defined output message. Determining cap absence or presence is essential in protecting the pipetter from decapper misses.



Capture tube and cap presence

Cap Evaluation

The MS-4 EZ Match evaluates cap color and several cap dimensions in order to determine the cap type. The system uses this info to determine whether the cap can be pierced, and can give valuable feedback to an automated decapper.



Easily configure using ESP software

Omnidirectional Reading

Both linear bar codes or 2D symbols can be decoded by the MS-4 EZ Match Color in any orientation. Fast decoding and performance LEDs contribute to overall excellence.

Wide Field of View

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

Compact and Lightweight

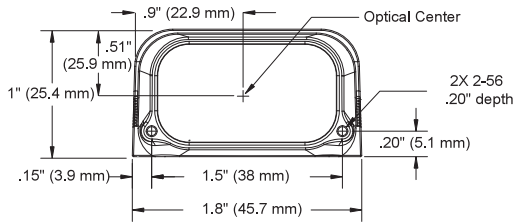
The small form, right angle mirror option, and corner-exit cable of the MS-4 EZ Match Color allow flexible positioning within instrumentation and equipment. The lightweight and durable magnesium alloy case weighs less than 2 oz.

MS-4 EZ Match Color: Available Codes

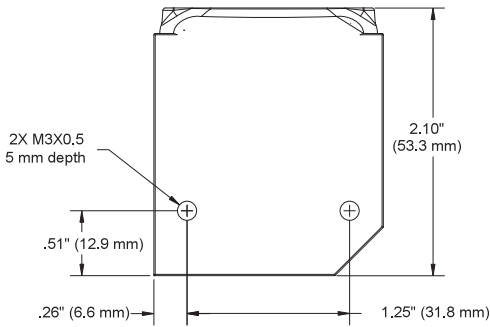
Linear	All Standard 	2D Symbols	Data Matrix 	QR
Stacked	MicroPDF 	PDF417 	RSS 	

MS-4 EZ MATCH COLOR SPECIFICATIONS AND OPTIONS

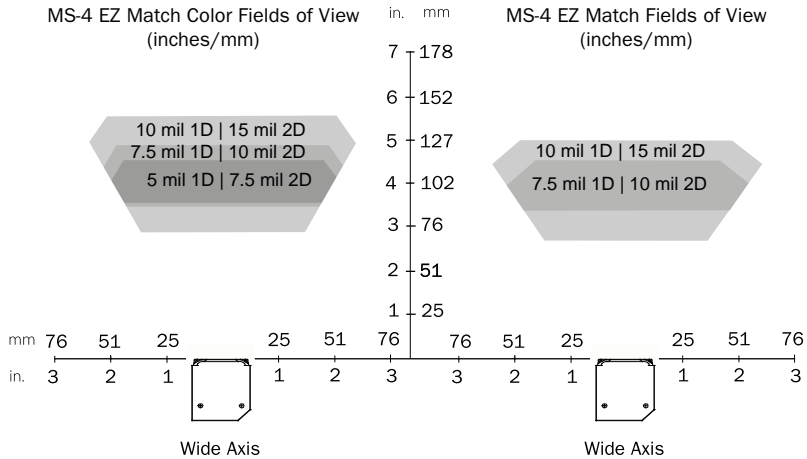
Front



Base



READ RANGES (GRAPHS AND TABLES)



MS-4 EZ MATCH COLOR

Narrow bar-width		Field of view (width)	Read range
1D	2D	(maximum)	
.005" (.13mm)	.0075" (.19 mm)	4.2" (106.7 mm)	3.6 to 4.5" (91.4 mm to 114.3 mm)
.0075" (.19 mm)	.010" (.25 mm)	4.5" (114.3 mm)	3.4 to 4.9" (86.4 mm to 124.5 mm)
.010" (.25 mm)	.015" (.38 mm)	5.5" (139.7 mm)	2.9 to 5.6" (73.7 mm to 142.2 mm)

MS-4 EZ MATCH

Narrow bar-width		Field of view (width)	Read range
1D	2D	(maximum)	
.0075" (.19 mm)	.010" (.25 mm)	4.2" (106.7 mm)	3.3 to 4.5" (83.8 mm to 114.3 mm)
.010" (.25 mm)	.015" (.38 mm)	4.5" (114.3 mm)	2.75 to 5.0" (69.9 mm to 127 mm)

Subject to change. Contact Microscan for updated graphs.

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 ^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.

ELECTRICAL

Power: 5 VDC +/- 5 %, 200 mV p-p max. ripple, 440 mA @ 5 VDC (typ.)
Optional Int.: 10-28 V Accy

DISCRETE I/O

Trigger Input: 5 to 28 vdc rated (.16 mA)
New Master: 5 to 28 vdc rated (.16 mA)
Outputs (1, 2, 3): 5V TTL compatible, can sink 10 mA and source 10mA
Optional I/O: Optoisolated (with IC-332 accessory)

SAFETY CERTIFICATIONS DESIGNED FOR

FCC, UL/cUL, CE, CB



ISO 9001:2000
Certified QMS

ROHS/WEEE COMPLIANT

ISO CERTIFICATION

Issued by RWTüV, USA Inc. Cert No. 03-1212

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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. Extended warranty available.

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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)

Humidity: up to 90% (non-condensing)

Operating Temperature: 0° to 50°C (32° to 122°F)

Storage Temperature: -50° to 75° C (-58 to 167°F)

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 white LEDs

LIGHT COLLECTION OPTIONS

Progressive scan, square pixel. Software adjustable shutter speed, electronic shutter
MS-4 EZ Match Color: QXGA (2048 by 1536 pixels)
MS-4 EZ Match: SXGA (1280 by 1024 pixels)



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

CONNECTOR

Type: 3 ft. cable terminated with High Density 15-pin D-Sub socket connector or USB

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