

# MS-2



**Compact Shape/Size**

**ACTUAL SIZE SHOWN**

Height: 0.85" (21.6 mm)  
 Width: 1.75" (44.5 mm)  
 Length: 1.75" (44.5 mm)

Wide Scan Angle



## Ultra-Compact CCD Reader

The user-friendly MS-2 is a fully packaged CCD reader, offering easy integration and several configurations to meet a variety of needs. Advanced CCD technology is coupled with world-class algorithms to ensure easy and accurate decoding of small, damaged or poorly printed codes.

High performance and flexibility make the MS-2 the optimal embedded reader for reading difficult codes.

### MS-2: At a Glance

- Scans/second: up to 530
- Read Range: 0.8 to 12.8" (20 to 325 mm)
- USB, RS-232 Interface Options
- Low 5V Power Draw
- IP54 Enclosure



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

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

**Compact & Lightweight**

The 1.75" (44.5 mm) square by 0.85" (21.6 mm) tall reader weighs less than 2 ounces (57 g) for easy mounting onto robotic equipment or into tight spaces.

**Performance Indicators**

Performance indicators include illuminated reader status LEDs on top of the reader, and an audible "good read" beeper.

**Flexible Communication**

MS-2 is available in two interface options: USB or RS-232.

**Versatility**

Low and high density scan angle versions provide versatile configurations for a wide range of applications.

**Reading Capabilities**

The MS-2 can easily read the most difficult codes, and excels at reading on highly reflective surfaces.

**Application Examples**

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

### MS-2: Available Codes

Linear

All Standard



Stacked

PDF417

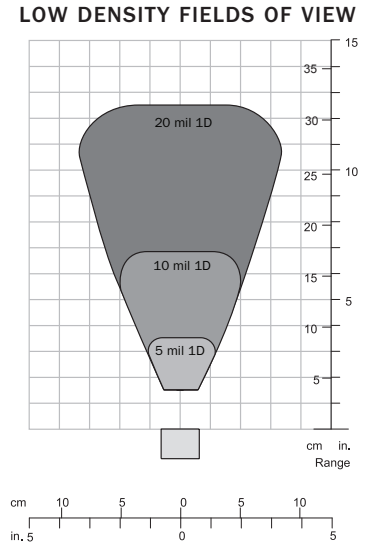
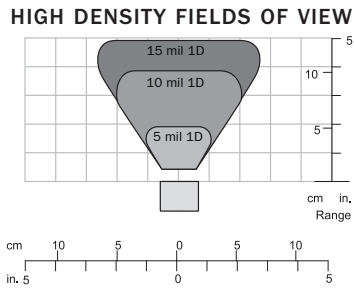
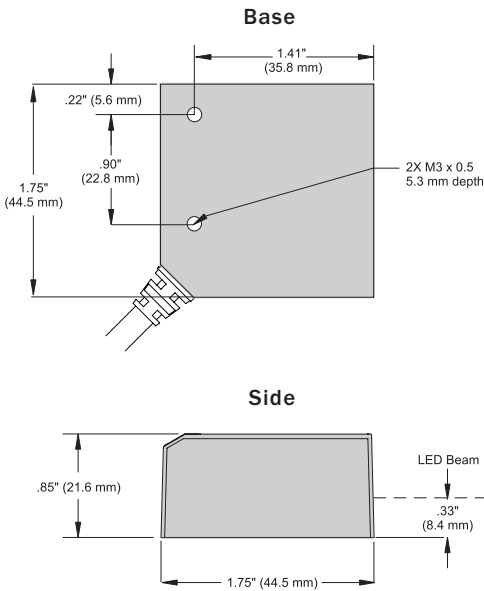


GS1 Databar



**MICROSCAN®**

# MS-2 CCD READER SPECIFICATIONS AND OPTIONS



Note: Nominal dimensions shown. Typical tolerances apply.

## MECHANICAL

**Height:** 0.85" (21.6 mm)  
**Width:** 1.75" (44.5 mm)  
**Length:** 1.75" (44.5 mm)  
**Weight:** 2 oz. (57 g)

## DESIGN

**Flash Memory Sensor:**  
 CCD linear image sensor  
**Optics:** 660 nm visible LED  
 Bright and sharp scan line

## SCANNING PERFORMANCE

**Scan Rate:** Up to 530 per second  
**Decode Rate:** Up to 55 per second  
**Min. X Dimension:** Down to 3.3 mil (0.084 mm) on Code 39  
**Depth of Field:** 0.8 to 12.8" (20 to 325 mm)  
**Barcode Width:** Up to 7" (178 mm) on 20 mil (0.5 mm) resolution code

## COMMUNICATION

**Interface:** RS-232, USB 1.1 (keyboard mode only); Note: Virtual comm. is not supported

## Electrical

**Power:** 5V +/-5%, 300 mV p-p max ripple, 150 mA @ 5 VDC (typ.)  
**Start Up Time:** 175 ms

## SYMBOLOGIES

UPC (E&A), EAN, Code 39, Code 128, UCC EAN 128, I 2 of 5 (Interleaved, Industrial and Standard), Codabar, Code 93, Plessey, GS1 Databar, PDF417, China Postal Code

## ENVIRONMENTAL CHARACTERISTICS

**Operating Temperature:** -20 to 50° C (-4 to 122° F)  
**Storage Temperature:** -30 to 60° C (-22 to 140° F)  
**Relative Humidity:** 20% to 85% (non-condensing)  
**Ambient Light:** Works in any lighting conditions, from 0 to 70,000 lux  
**Shock:** 2000G  
**Vibration:** 50G r.m.s

## CABLE AND CONNECTOR

**Type:** 3 ft. cable terminated with 15-pin HD D-sub socket or USB type A connector

## PIN ASSIGNMENTS

### 15-PIN HD D-SUB SOCKET CONNECTOR

Pin No.	Decoded Operation	In/Out
1	VCC	In
2	TXD	Out
3	RXD	In
4	GND	
5	N/C	
6	RTS	Out
7	Beeper	Out
8	N/C	
9	Trigger	In
10	CTS	In
11	USB D (-)	I/O
12	N/C	
13	Chassis GND	
14	USB D (+)	I/O
15	N/C	

## CE MARK

**Immunity Designed For:**  
 EN 55024:98 ITE Immunity Standard  
**Radiated and Conducted Emissions Designed For:**  
 EN 55022:98 ITE Disturbances Class B

## DISCRETE I/O

**Trigger Input:** 0.0 - 5.0V (Active low)  
**RS-232 Inputs:** +/- 15V  
**Signal Outputs:**  
 Beeper/USB Drive: 4.7 to 5.0V max (High state—4mA source/4mA sink max)  
 RS-232 Outputs: +/- 5.0V typ.



## READ RANGES

Narrow-Bar	Read Range	Scan Width
<b>HIGH DENSITY</b>		
.005" (0.127 mm)	0.4 to 1.9" (10 to 48 mm)	2.2" (56 mm) @ 1.4" (36 mm)
.010" (0.254 mm)	0.4 to 3.9" (10 to 99 mm)	4.3" (109 mm) @ 3.0" (76 mm)
.015" (0.38 mm)	0.4 to 4.9" (10 to 124 mm)	5.0" (127 mm) @ 4.3" (109 mm)
<b>LOW DENSITY</b>		
.005" (0.127 mm)	1.6 to 3.4" (36 to 84 mm)	2.2" (56 mm) @ 2.8" (71 mm)
.010" (0.254 mm)	1.6 to 6.8" (36 to 188 mm)	3.9" (99 mm) @ 5.8" (147 mm)
.020" (0.508 mm)	1.6 to 12.4" (36 to 325 mm)	6.7" (170 mm) @ 10.8" (274 mm)

## SAFETY CERTIFICATIONS DESIGNED FOR FCC, CE

## 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.

# MICROSCAN®

**Microscan Systems Inc.**  
 Tel 425 226 5700 / 800 251 7711  
 Fax 425 226 8250

**Microscan Europe**  
 Tel 31 172 423360 / Fax 31 172 423366

**Microscan Asia Pacific**  
 Tel 65 6846 1214 / Fax 65 6846 4641

## www.microscan.com

Product Information: info@microscan.com  
 Technical Support: helpdesk@microscan.com