M S – 2
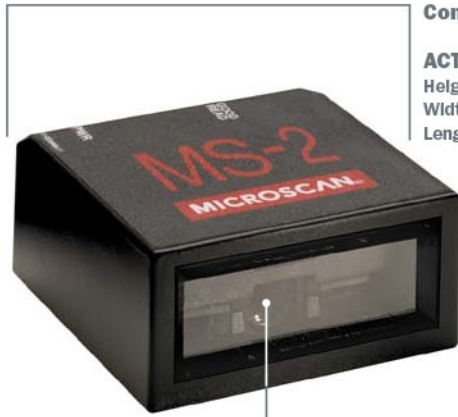
Compact Shape/Size

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.

RoHS • WEEE COMPLIANT

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
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.**

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 Iluminated 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

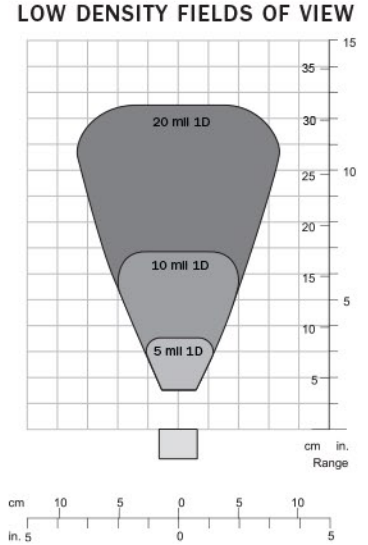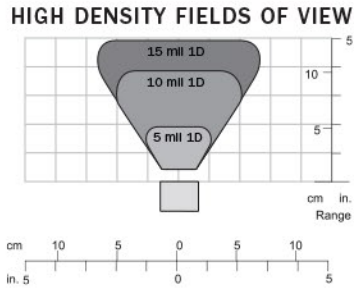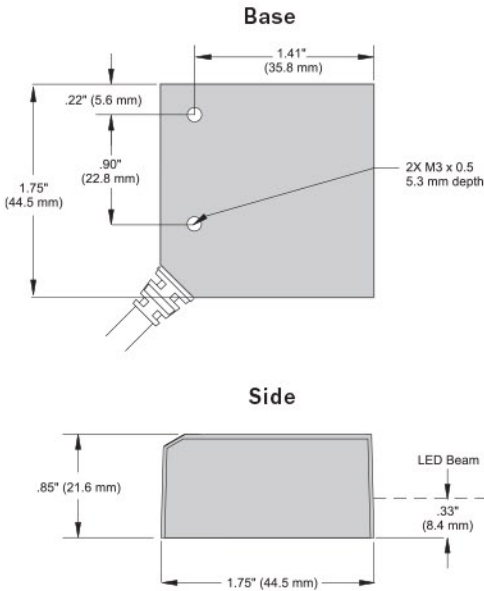**Linear**   All Standard

Stacked   PDF417   GS1 Databar

MICROSCAN®

Base

Side

Note: Nominal dimensions shown. Typical tolerances apply.

HIGH DENSITY FIELDS OF VIEW

LOW DENSITY FIELDS OF VIEW

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.

WARNING
LED LIGHT
DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS
CLASS 1M LED PRODUCT
Light Output: 648cd Wavelength: 464, 518, 635 nm
IEC 60825-1:1993+A1:1997+A2:2001

READ RANGES

Narrow-Bar	Read Range	Scan Width
HIGH DENSITY		
.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)
LOW DENSITY		
.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**–For current warranty information on this product, please visit
www.microscan.com/warranty.