

## MS-1

## Scan Engine



### Compact Shape/Size

#### ACTUAL SIZE SHOWN

Height: 0.45" (11.5 mm)

Width: 1.26" (32 mm)

Length: 0.94" (24 mm)



### MS-1: At a Glance

- Scans/second: up to 530
- Read Range: 1.0 to 13.0" (25 to 330 mm)
- USB, RS-232 Interface Options
- Low 5V Power Draw



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).

The MS-1 is one of the smallest and lightest fully decoded scan engines in its class. Featuring small size and reliable performance with minimal budget impact, it offers embedded power management, a bi-directional serial link for dynamic configuration, and both a low and high density version.

The MS-1 is the ideal scan engine for OEM design engineers seeking a dependable and inexpensive embedded bar code scanning solution.

### Compact & Lightweight

MS-1 has a footprint of 1.26" (32 mm) by 0.95" (24 mm), and is 0.44" (11 mm) tall. The engine weighs less than 0.3 ounces (8.4 g) for easy mounting onto robotic equipment or into tight spaces.

### Reading Capabilities

The MS-1 engine can easily read the most difficult codes, and excels at reading on highly reflective surfaces.

### Easy Setup

ESP software provides easy configuration of the MS-1, including selectable trigger and symbology setting.

### Flexible Communication

MS-1 is available in two interface options: USB or RS-232.

### Application Examples

- Kiosks
- Point-of-sale terminals
- Bank ATMs
- Robotics
- Clinical instruments

### MS-1: Available Codes

Linear

All Standard



Stacked

PDF417

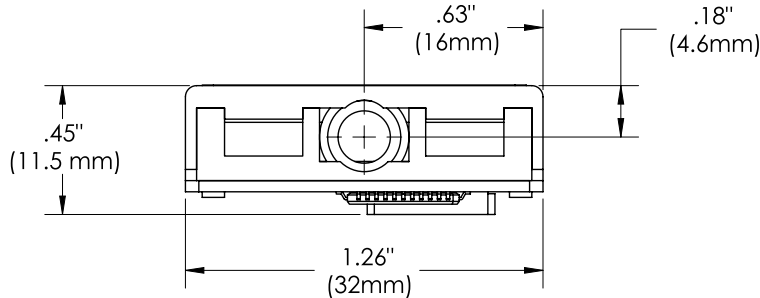
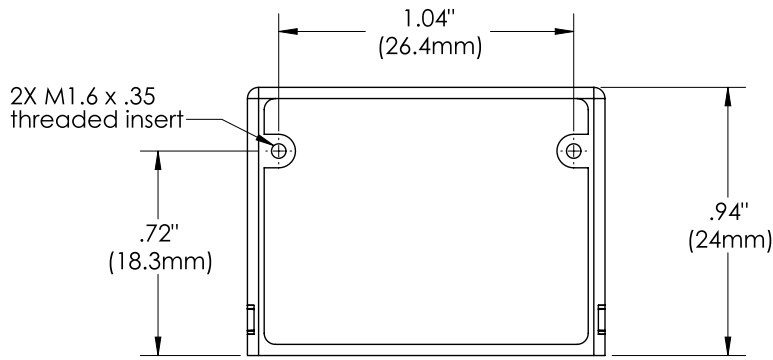


GS1 Databar



# MICROSCAN®

# MS-1 SCAN ENGINE SPECIFICATIONS AND OPTIONS



Note: Nominal dimensions shown. Typical tolerances apply.

## MECHANICAL

**Height:** 0.45" (11.5 mm)  
**Width:** 1.26" (32 mm)  
**Length:** 0.94" (24 mm)  
**Weight:** 0.3 oz. (8.4 g)

## DESIGN

**Flash Memory Sensor:**  
 CCD linear image sensor  
**Optics:** 660 nm visible LED  
 Bright and sharp scanning 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:** 1.0 to 13" (25 to 330 mm)  
**Barcode Width:** Up to 7" (178 mm) on 20 mil (0.5 mm) resolution code

## COMMUNICATION

**Interface:** RS-232 TTL, USB 1.1 (keyboard mode)

## SYBOLOGIES

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

## PIN ASSIGNMENTS

### 12-Pin ZIF Connector

Pin No.	Decoded Operation	In/Out
1	+5 Power VCC	In
2	TTL_RXD	In
3	Trigger input	In
4	Power enable	In
5	TTL_TXD	Out
6	TTL_RTS	Out
7	Ground	
8	USB_D+	In/Out
9	LED (Engine Status)	Out
10	TTL_CTS	In
11	Buzzer (Decode Indicator)	Out
12	USB_D-	In/Out

## CONNECTOR

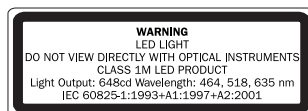
**Type:** 12-pin ZIF connector

## CE MARK

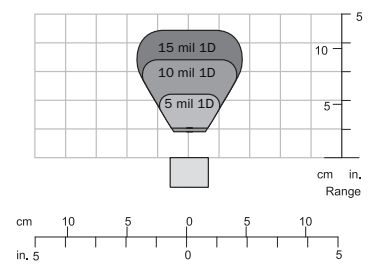
**Immunity Designed For:**  
 EN 55024:98 ITE Immunity Standard  
**Radiated and Conducted Emissions Designed For:**  
 EN 55022:98 ITE Disturbances Class B

## ELECTRICAL

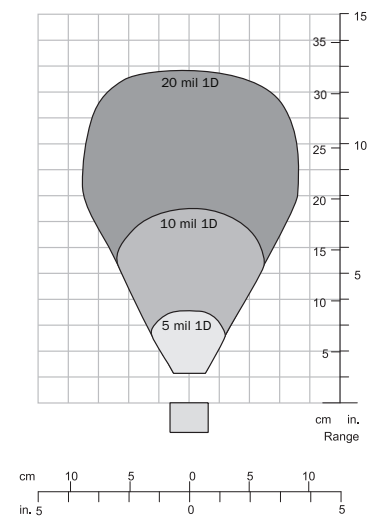
**Power:** 5V +/-5%, 300 mV p-p max ripple, 120 mA @ 5 VDC (typ.)  
**Start Up Time:** 175 ms



## HIGH DENSITY FIELDS OF VIEW



## LOW DENSITY FIELDS OF VIEW



## READ RANGES

Narrow-Bar	Read Range	Scan Width
<b>HIGH DENSITY</b>		
.005" (.127 mm)	0.6 to 2.1" (15 to 53 mm)	2.2" (56 mm) @ 1.6" (41 mm)
.010" (.254 mm)	0.6 to 4.1" (15 to 104 mm)	4.3" (109 mm) @ 3.2" (81 mm)
.015" (.38 mm)	0.6 to 5.1" (15 to 130 mm)	5.0" (127 mm) @ 4.5" (114 mm)
<b>LOW DENSITY</b>		
.005" (.127 mm)	1.8 to 3.6" (46 to 91 mm)	2.2" (56 mm) @ 3" (76 mm)
.010" (.254 mm)	1.8 to 7.0" (46 to 178 mm)	3.9" (99 mm) @ 6" (152 mm)
.020" (.508 mm)	1.8 to 12.6" (46 to 320 mm)	6.7" (170 mm) @ 11" (279 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.

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