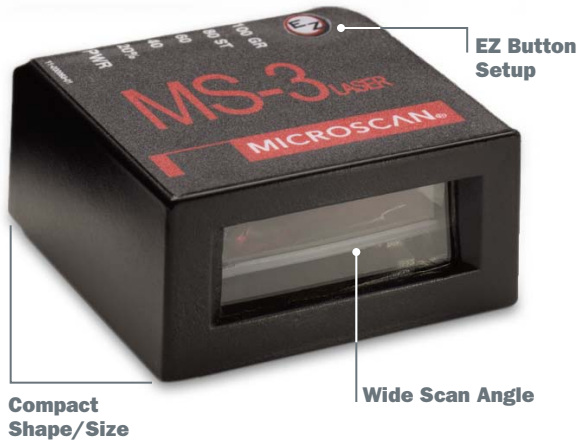# MS-3

## Ultra-Compact Barcode Scanner

*The MS-3 laser barcode scanner offers the fastest read performance in embedded compact bar code scanners. The wide scan angle of 70 degrees is coupled with ultra-compact size and flexible mounting.*

*High performance and flexibility make the MS-3 the optimal choice for reliable reading in embedded instruments.*

**EZ Button Setup**

**Compact Shape/Size**

**Wide Scan Angle**

RoHS • WEEE COMPLIANT

### Compact & Lightweight
The 1.75" (44.5 mm) square by .85" (21.6 mm) tall scanner weighs only 2 ounces (57 g) for easy mounting onto robotic equipment or into tight spaces.

### High Scan Speed
Adjustable scan speed from 300 up to 1000 decodes per second and Microscan's world-class decode algorithms ensure accurate reading every time.

### Wide Scan Angle
The wide scan angle of over 70 degrees and a factory customizable focal point add up to space savings within your system, allowing greater flexibility with positioning.

### Visible Indicators
Illuminated LEDs on top of the scanner provide visual confirmation of the scanner performance.
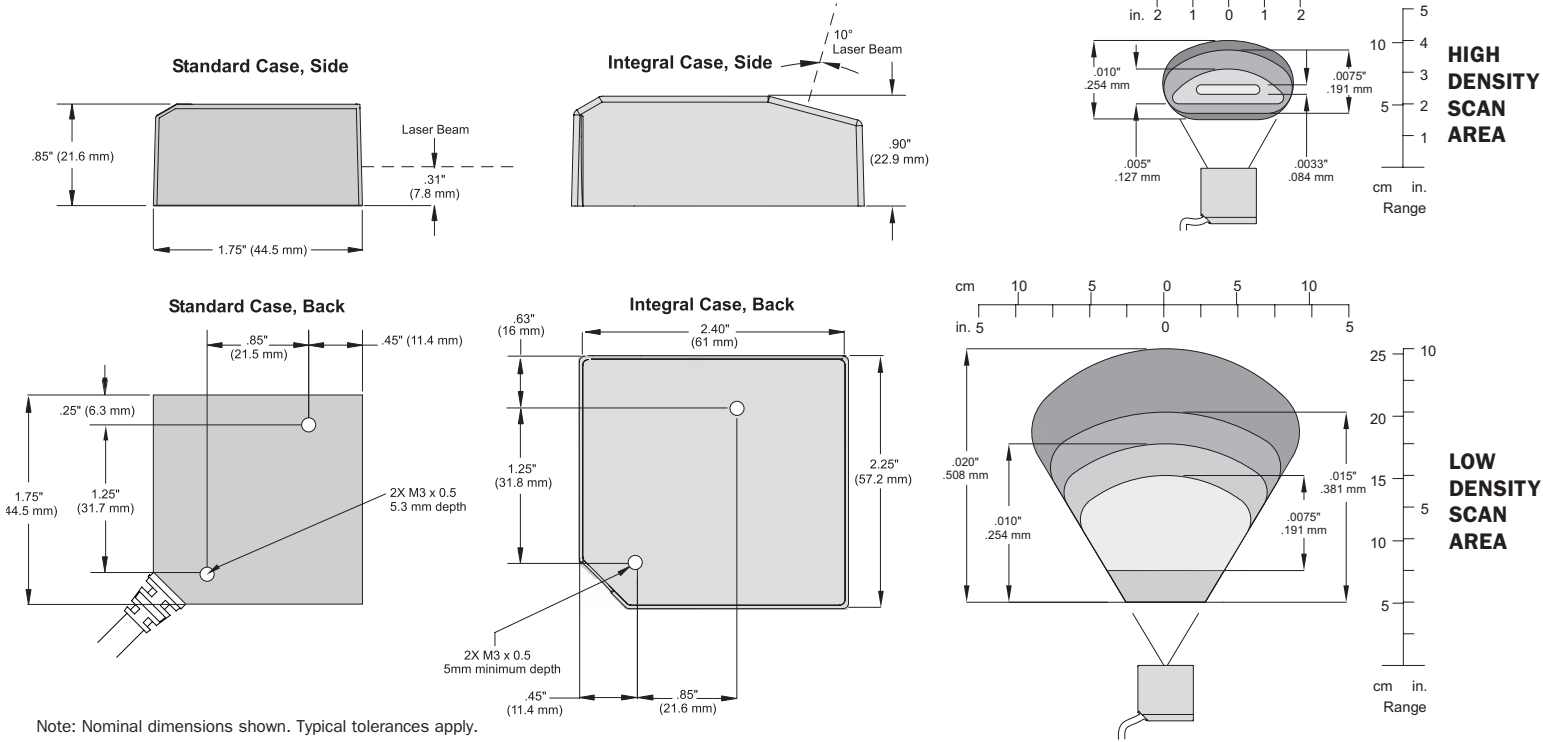
### Real-time Controls
The inputs include a trigger signal, a "new master" input, and a programmable input for resetting counters or releasing outputs. The outputs can be configured to activate upon a variety of conditions including matchcode and diagnostic operations.

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

## MS-3: At a Glance

- Decodes/second: up to 1000
- Read Range: 2 to 10" (51 to 254 mm)
- Wide Scan Angle
- IP54 Enclosure

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

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

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

## MS-3: Available Codes

**Linear**    All Standard

**Stacked**    PDF417

# MICROSCAN®

### Standard Case, Side

.85" (21.6 mm)
Laser Beam
.31" (7.8 mm)
1.75" (44.5 mm)

### Integral Case, Side

10° Laser Beam
.90" (22.9 mm)

### HIGH DENSITY SCAN AREA

cm 5   0   5
in. 2  1  0  1  2
.010" .254 mm
.0075" .191 mm
.005" .127 mm
.0033" .084 mm
10  5  4  3  2  1
cm   in.
Range

### Standard Case, Back

.85" (21.5 mm)
.45" (11.4 mm)
.25" (6.3 mm)
1.75" 44.5 mm
1.25" (31.7 mm)
2X M3 x 0.5 5.3 mm depth

### Integral Case, Back

.63" (16 mm)
2.40" (61 mm)
1.25" (31.8 mm)
2.25" (57.2 mm)
2X M3 x 0.5 5mm minimum depth
.45" (11.4 mm)
.85" (21.6 mm)

### LOW DENSITY SCAN AREA

cm 10  5  0  5  10
in. 5  0  5
.020" .508 mm
.010" .254 mm
.015" .381 mm
.0075" .191 mm
25  20  15  10  5
10  5
cm   in.
Range

Note: Nominal dimensions shown. Typical tolerances apply.

## MECHANICAL
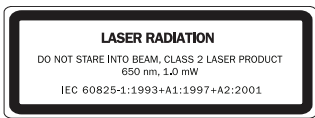**Weight (Standard):** 2 oz. (57 g)
**Weight (Right Angle):** 2.8 oz. (87 g)

## ENVIRONMENTAL
**Housing:** IP54 (category 2)
**Operating Temperature:** 0° to 50° C (32° to 122°F)
**Storage Temperature:** –50° to 75° C (–58° to 167°F)
**Humidity:** Up to 90% (non-condensing)
**Operating Life:** 40,000 hours at 25° C

## 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

## LASER LIGHT

**LASER RADIATION**
DO NOT STARE INTO BEAM, CLASS 2 LASER PRODUCT
650 nm, 1.0 mW
IEC 60825-1:1993+A1:1997+A2:2001

**Type:** Semiconductor visible laser diode (650 nm nominal)
**Safety Class:** CDRH Class II, 1.0 mW max.

## COMMUNICATION
**Interface:** RS-232, RS-422/485 (up to 115.2k), Keyboard Wedge, USB

## PROTOCOLS
Point-to-Point · Point-to-Point w/RTS/CTS · Point-to-Point w/XON/XOFF · Point-to-Point w/RTS/CTS & XON/XOFF · Polling Mode D · Multidrop · User Defined · User Defined Multidrop · Daisy Chain

## SCANNING PARAMETERS
**Options:** single line, fixed raster
**Optional Raster:** 7 raster lines over 1.5° arc (or 0.30" raster height at 4.5" [114 mm] distance)
**Scan Rate:** Adjustable from 300 to 1000 scans/second, default=500
**Scan Width Angle:** >70°
**Pitch:** ±50°
**Skew:** ±40°
**Label Contrast:** 25% min. @ 650 nm

## 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 2 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 connector

## ELECTRICAL
**Power:** 5 VDC +/– 5 %, 200 mV p-p max. ripple, 260 mA @ 5 VDC (typ.)

## DISCRETE I/O
**Trigger Input:** 3 to 24V rated (1 mA @ 5 VDC)
**New Master:** 3 to 24V rated (1 mA @ 5 VDC)
**Outputs (1, 2, 3):** 5V TTL compatible, can sink 10 mA and source 2mA

## SYMBOLOGIES
Code 39, Codabar, Code 128, Interleaved 2 of 5, Code 93, UPC/EAN, Pharmacode, PDF417 (option)

## INDICATORS
**Beeper:** Good read, Match/Mismatch, Noread,
**On/Off LEDs:** 1 status, 1 power, 5 read performance (representing percentage of good decodes)

## READ RANGES

| Narrow-bar-width | Read Range |
|---|---|
| **HIGH DENSITY** | |
| .0033" (.084 mm) | 2.3" to 2.6" (58 to 66 mm) |
| .005" (.127 mm) | 2" to 3.1" (51 to 79 mm) |
| .0075" (.191 mm) | 1.7" to 3.7" (43 to 94 mm) |
| .010" (.254 mm) | 1.5" to 4" (38 to 102 mm) |
| **LOW DENSITY** | |
| .0075" (.191 mm) | 3" to 6" (76 to 152 mm) |
| .010" (.254 mm) | 2" to 7" (51 to 178 mm) |
| .015" (.381 mm) | 2" to 8" (51 to 203 mm) |
| .020" (.508 mm) | 2" to 10" (51 to 254 mm) |

Note: For Right Angle option, subtract 0.6" (15 mm) from read range. Read ranges are based upon optimal scan speed for specific symbol density.

## SAFETY CERTIFICATIONS DESIGNED FOR
CDRH, FCC, UL/cUL, CE, BSMI

## ROHS/WEEE COMPLIANT

## ISO CERTIFICATION
Certified ISO 9001:2008 Quality Management System

## MICROSCAN®