

The MS-850 boasts of customer-driven features. Foremost, its IP65 rated, heavy-duty, die-cast aluminum case and locking connectors ensure protection from extreme environmental conditions. This 16-ounce industrial raster scanner reliably scans multiple labels—and multiple symbologies—simultaneously at a user-adjustable rate between 350 and 1100 scans per second. The MS-850's programmable raster module allows further adjustments to both raster sweep angle and speed, providing the flexibility to scan a variety of label densities. Built-in mounting holes in the bottom and top of the scanner allow the MS-850 to be quickly mounted to any flat surface. The MS-850 is ideal for any industry using linear and/or PDF-417 labels in high speed and/or industrial environments. It is particularly well suited for packaging, electronics manufacturing, automotive manufacturing, and factory automation applications.

## MS-850

## INDUSTRIAL RASTER SCANNER

**Rugged IP65 Enclosure:** Internal circuitry and optical components are protected from dust and moisture by a heavy-duty, industrial sealed die-cast aluminum case. MicroChange twist-lock connectors provide reliable and uninterrupted connection for the power and trigger ports.

**Multiple Label and Symbology Reading:** The MS-850 offers incredible flexibility not only in its ability to read multiple labels, but also multiple symbology types, both linear and PDF-417.

**Preventive Maintenance Features:** Diagnostic controls monitor the operating conditions of the MS-850. Ultimately, these controls—relating to

**Programmable Raster Mirror with Precise Sweeping Arc:** The MS-850 raster module allows accurate mirror oscillation up to 30 sweeps per second. The raster sweep angle is also operator controlled from 0° to 30° providing extremely precise coverage.

**Real-time Controls:** Discrete input/output connections consisting of three opto-isolated programmable outputs, one trigger input, and one programmable input provide versatile programming options. Standard Microscan match code routines such as Match Code, Noread, Mismatch, Sequential Matching, Wild Card Matching, and Number of Good Reads allow for highly controlled automated data acquisition.

**Bar Code Symbologies:** The MS-850 scans multiple symbologies, including PDF-417 and all widely used linear bar code symbologies. The nine standard symbologies are:

- AIAG
- Codabar
- Code 128
- Code 39
- Code 93
- Interleaved 2 of 5
- PDF-417
- UCC/EAN-128
- UPC/EAN

Other codes are available, call Microscan for details.

**Service Options:**

- Installation assistance program
- Service agreements
- Training
- On-site service
- Extended warranty



the operating life and temperature, laser current levels, and frequency of power-ups—help prevent costly downtime. For example, user defined messages alert the operator when thresholds have been exceeded and allow for intervention before problems arise.

**MICROSCAN®**

# MS-850 INDUSTRIAL RASTER SCANNER

## Specifications and Options

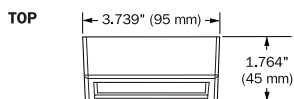
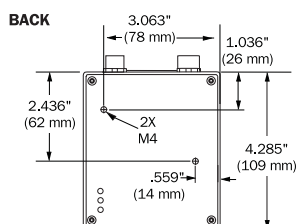
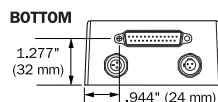
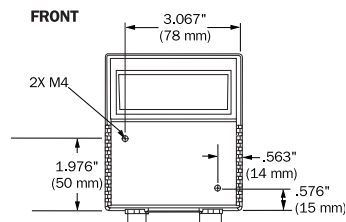
### MECHANICAL

**Length:** 4.28" (10.9 cm)

**Width:** 3.74" (9.5 cm)

**Height:** 1.76" (4.5 cm)

**Weight:** 16 oz. (453 g)



### ENVIRONMENTAL

**Enclosure:** Cast aluminum IP65

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

**Storage temperature:** -50° to 75°C (-63° to 167°F)

**Humidity:** Up to 90% (non-condensing)

### LASER LIGHT

**Type:** Semiconductor visible laser diode (650 nm nominal)

**Operating life:** 50,000 hours @ 25°C

**Safety class:** CDRH Class II

### SCANNING PARAMETERS

**Scanner mirror type:** Rotating, 10-faceted

**Raster mirror adjustments:**

Raster sweep angle	Maximum sweeps per second
0°-10°	30
11°-20°	20
21°-30° (max.)	10

**Scan rate:** Adjustable from 350 to 1100 scans/second (default = 500 sps)

**Scan width angle:** Typically 60°

**Pitch:** ±50° maximum

**Skew:** ±40° maximum

**Label contrast:** 25% min. absolute dark to light differential at 650 nm wavelength

### COMMUNICATION

**Interface:** RS-232, RS-422/485, \*SDS, \*DeviceNet, \*Profibus, \*Ethernet, daisy chain/auxiliary port capable

\* Used in conjunction with an accessory protocol box.

### READ RANGES<sup>1</sup>

Narrow-bar-width	High Density
.005" (.127 mm)	1.5" to 2.5" (3.81 to 6.35 cm)
.0075" (.190 mm)	1" to 3.5" (2.54 to 8.89 cm)

Narrow-bar-width	Medium Density
.0075" (.190 mm)	2.5" to 5" (6.35 to 12.7 cm)
.010" (.254 mm)	1" to 6" (2.54 to 15.24 cm)
.015" (.381 mm)	1" to 8" (2.54 to 20.32 cm)
.020" (.508 mm)	1" to 11" (2.54 to 27.94 cm)
.030" (.762 mm)	1" to 14" (2.54 to 35.56 cm)

Narrow-bar-width	Low Density
.015" (.381 mm)	6" to 15" (15.24 to 38.1 cm)
.020" (.508 mm)	6" to 20" (15.24 to 50.8 cm)
.030" (.762 mm)	6" to 24" (15.24 to 60.96 cm)
.040" (1.02 mm)	6" to 30" (15.24 to 76.2 cm)

<sup>1</sup> At 500 decodes per second using Code 39 grade A label.

### CODE TYPES

**Standard codes:** AIAG, Code 128, Code 39, Code 93, Codabar, Interleaved 2 of 5, UCC/EAN-128, UPC/EAN, PDF-417

### CONNECTORS/PIN ASSIGNMENTS

**Host Connector:** 25-pin D-subminiature plug

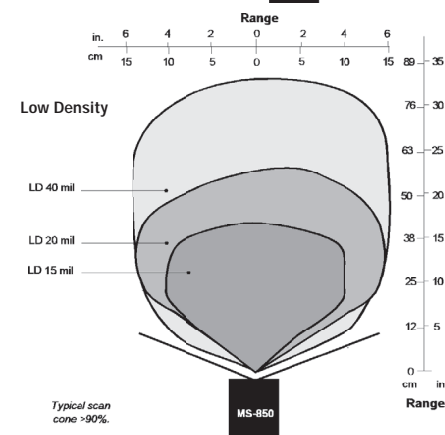
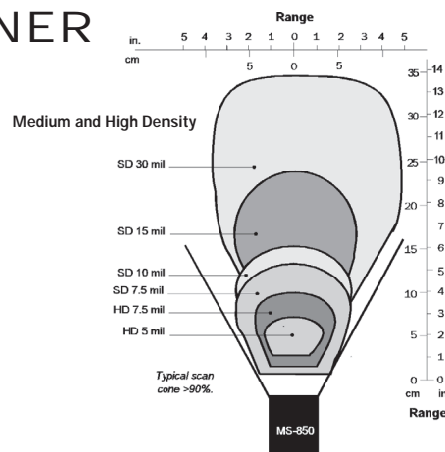
Pin No.	Function
1	Chassis ground
2	Transmit data (RS-232) (out)
3	Receive data (RS-232) (in)
4	Request-to-send (out)/Aux TXD RS-232
5	Clear-to-send (in)/Aux RXD RS-232
6	Output 1 + (out)
7	Signal ground
8	Output 2 + (out)
9	Trigger - (in)
10	Trigger + (in)
11	Default configuration (in) (TTL level)
12	Input-1 + (in) (TTL level)
13	RXD RS-422/485 + (in)
14	TXD RS-422/485 - (out)
15	Noread/Output 3 + (out)
16	RXD RS-422/485 - (in)
17	Power ground
18	Power 10 to 28 VDC (in)
19	TXD RS-422/485 + (out)
20	Output 1 - (out)
21	Output 2 - (out)
22	Noread/Output 3 - (out)
23	Input 1 - (in)
24	New master - (in)
25	New master + (in)

**Trigger Connector:** 4-pin MicroChange

Pin No.	Function
1	Power 10 to 28 VDC (out)
2	NPN
3	Ground
4	PNP

**Power Connector:** 3-pin MicroChange

Pin No.	Function
1	Power ground
2	NC
3	Power 10 to 28 VDC (in)



### ELECTRICAL

**Power Requirement:** Input, 10-28 VDC 200 mV p-p max. ripple 2.7 watts rated 24 VDC

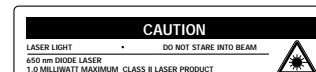
### DISCRETE I/O

**Trigger Input:** Opto-isolated, 10-28V rated, (12 mA @ 24 VDC)

**Outputs (1, 2, 3):** Opto-isolated, 10-28V rated, (I<sub>CE</sub> <100 mA @ 24 VDC, current limited by user)

### SAFETY CERTIFICATIONS

Designed for FCC statement, CDRH, CE, UL/cUL, TÜV



ISO 9001/Cert. No. 00-1047

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Specifications subject to change.  
Updates to this specification can be found on-line at [www.microscan.com](http://www.microscan.com).

Product specifications are given for typical performance at 25°C (77°F) using grade A labels. Some performance characteristics may vary at high temperatures or other environmental extremes.

**Warranty:** One year limited warranty on parts and labor. Extended warranty available.

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