# MS-890


# Industrial Automation Scanner

*The MS-890 is a heavy duty scanner with the flexibility to solve a multitude of applications under a variety of factory conditions. The extended read range and intelligent sweeping raster provide robust reading of both linear barcodes and stacked symbologies.*

*Versatility and rugged design make the MS-890 an ideal scanner for industrial applications.*

## MS-890: At a Glance

- *Scans/second: 400 to 1000*
- *Read Range: 10 to 120" (254 to 3048 mm)*
- *IP65 Enclosure*
- *Optional IB-890 Wiring Box*

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

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

Visible Indicators: Performance indicators include "good read" green flash and LEDs.

Sweeping Raster: This programmable feature enables the reader for multiple symbols at varying distances and locations.

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

### Long Read Range

The MS-890 optics were engineered for successful reading at extended or varying distances, such as a safety or clearance zone required around conveyor or assembly areas.

### Visible Indicators

Illuminated LEDs on the MS-890 provide instant visual confirmation of successful reads. A "good read green flash" is projected from the front window and is visible within a 360 degree radius from the scanner.

### Optional Wiring Box

The IB-890 wiring box provides easy and flexible integration, without any special cables or connectors. Features include:

- Pluggable relay modules
- Terminal strip connectivity
- Connectivity with handheld scanners

### Intelligent Raster

The MS-890 features an intelligent raster which can be optimized for scan angle and speed to read multiple symbols or inconsistently placed labels.

### Autocalibration

The autocalibration feature automatically determines and selects optimal read settings for focus, gain and tracking.

### Barcode Programming

Changing scanner configuration on the factory floor is as simple as presenting a barcode and pushing the EZ button. This feature makes it simple to replicate settings on multiple MS-890 scanners.

### Application Examples

- Light to heavy industry
- Forklifts or conveyor lines

## MS-890: Available Codes

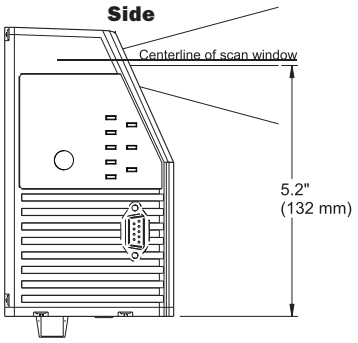
Linear — All Standard

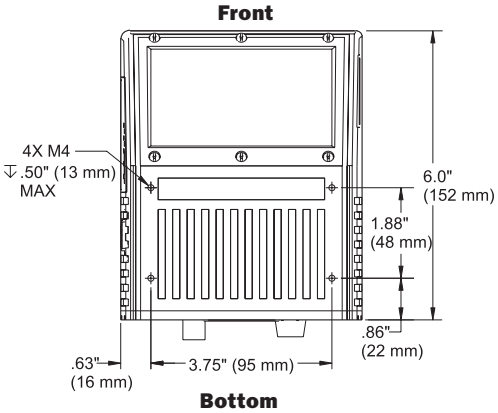
Stacked — PDF417, AIAG Formats

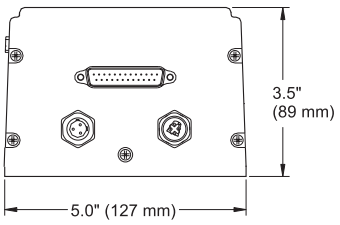
OMRON MICROSCAN

# MS-890 Scanner Specifications and Options

## MECHANICAL
**Length:** 3.5" (88 mm)
**Width:** 5" (127 mm)
**Height:** 6" (152 mm)
**Weight:** 5 lbs. (2268 g)

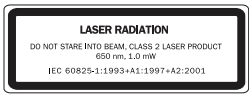



## ENVIRONMENTAL
**Enclosure:** IP65
**Operating Temperature:** 0° to 50° C (32° to 122° F)
**Storage Temperature:** -50° to 75° C (-63° to 167° F)
**Humidity:** Up to 90% (non-condensing)

## LASER LIGHT
**Type:** Semiconductor visible laser diode (650 nm nominal)
**Operating Life:** 50,000 hours @ 25° C (77° F)
**Safety Class:** CDRH Class II




## SCANNING PARAMETERS
**Scanner Mirror Type:** Rotating, single line, 14-faceted mirror
**Scan Rate:** Adjustable from 400 to 1000 scans/second (default = 500 sps)
**Raster Sweep Speed:** 1 to 30 sweeps per second
**Raster Sweep Angle:** 30° maximum
**Scan Width Angle:** Typically 60°
**Pitch Angle:** ±50° maximum
**Skew Angle:** ±40° maximum
**Label Contrast:** 25% min. absolute dark to light differential at 650 nm wavelength

## READ RANGES[1]

| Narrow-Bar-Width | Read Range |
|---|---|
| .0075" (0.190 mm) | 10" to 35" (254 to 889 mm) |
| .010" (0.254 mm) | 10" to 44" (254 to 1118 mm) |
| .015" (0.381 mm) | 10" to 74" (254 to 1880 mm) |
| .020" (0.508 mm) | 10" to 90" (254 to 2286 mm) |
| .030" (0.762 mm) | 10" to 100" (254 to 2540 mm) |
| .040" (1.020 mm) | 10" to 110" (254 to 2794 mm) |
| .050" (1.27 mm) | 10" to 120" (254 to 3048 mm) |

[1] Ranges based on a Code 39 Grade A label.

## CONNECTORS/PIN ASSIGNMENTS
**Program Connector:** 9-pin D-subminiature plug

| Pin No. | Function |
|---|---|
| 2 | RX-232 |
| 3 | TX-232 |
| 5 | Signal Ground |
| 9 | Boot Mode |


**Power Connector:** 3-pin MicroChange plug

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


**Trigger Connector:** 4-pin MicroChange socket

| Pin No. | Function |
|---|---|
| 1 | Power 10 to 28 VDC (out) |
| 2 | NPN |
| 3 | Ground |
| 4 | N/C |

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

| Pin No. | Host RS-232 | Host & Aux RS-232 | Host RS-422/485 | In/ Out |
|---|---|---|---|---|
| 1 | Chassis Ground | | | |
| 2 | Host TxD | | | Out |
| 3 | Host RxD | | | In |
| 4 | RTS | Aux TxD | | Out |
| 5 | CTS | Aux RxD | | In |
| 6 | Output 1 (+) | | | Out |
| 7 | Signal Ground | | | |
| 8 | Output 2 (+) | | | Out |
| 9 | Trigger (–) | | | In |
| 10 | Trigger (+) | | | In |
| 11 | N/C | | | |
| 12 | Input 1 (+) | | | In |
| 13 | | | RxD (+) | In |
| 14 | | | TxD (–) | Out |
| 15 | Noread/Output 3 (+) | | | Out |
| 16 | | | RxD (–) | In |
| 17 | Power Ground | | | |
| 18 | Power +10 to 28 VDC | | | In |
| 19 | | | TXD + | 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 |

## COMMUNICATION
**Interface:** RS-232, RS-422/485, daisychain/ auxiliary port capable, dedicated configuration port

## SYMBOLOGIES
**Standard:** Code 39, Code 128, UPC/EAN, Interleaved 2 of 5, Codabar, Code 93, PDF417
**Applications Standard:** AIAG, UCC/EAN-128

## ELECTRICAL
**Power Requirement:** Input, 10-28 VDC, 200 mV p-p max. ripple, 230mA at 24 VDC (typ.)

## EMISSIONS AND IMMUNITY
**EN61000-6-3:2001:** for Class A products
**EN61000-3-2:2000+A2:2005**
**EN61000-3-3:1995+A1:2001**
**EN61000-6-2:** Immunity

## INDICATORS
**Beeper:** Good read, match/mismatch, noread, serial command confirmation
**LEDs:** 1 status, 1 power, 1 good read, and 5 read performance (representing percentage of good decodes), network/include status, green flash

## DISCRETE I/O
**Trigger, New Master, Input 1:** Optoisolated, 5-28V rated, (12mA at 24 VDC)
**Outputs (1, 2, 3):** Opto-isolated, 1–28 VDC rated, ($I_{CE}$ <100 mA @ 24 VDC, current limited by user)

## QMS CERTIFICATION
www.microscan.com/quality


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 results, testing should be performed with symbols used in the actual application. Omron 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.

OMRON
MICROSCAN

**www.microscan.com**