Laser Barcode Reader

MS-3 series

Ultra-Compact Laser Barcode Reader

EZ Button Setup

Wide Scan Angle

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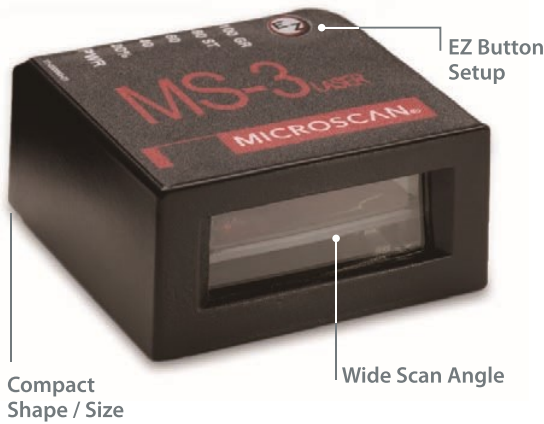
The MS-3 laser barcode reader offers the fastest read performance* in embedded compact bar code readers. The wide scan angle of 70 degrees is coupled with ultra-compact size and flexible mounting.

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

*.Based on Omron investigation in march 2018.

MS–3: At a Glance

- Decodes / second: up to 1000
- Read Range: 51 to 254 mm
- Wide Scan Angle
- IP54 Enclosure

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

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

MS–3: Available Codes

Linear

Please see the Ratings and Specifications for a complete list of supported symbologies.

Compact & Lightweight
44.5 mm square by 21.6 mm tall code reader weighs only 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 OMRON Micros-can'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 posi-tioning.

Visible Indicators
Illuminated LEDs on top of the code reader provide visual confirmation of the code reader 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

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Ordering Information

Laser Barcode Readers

Scan mode	Read range	Installation type	Model
Single Line	Low Density	Standard	**FIS-0003-0001G**
Single Line	High Density	Standard	**FIS-0003-0002G**
Raster Line	Low Density	Standard	**FIS-0003-0003G**
Raster Line	High Density	Standard	**FIS-0003-0004G**
Single Line	Low Density	Right Angle	**FIS-0003-0005G**
Raster Line	Low Density	Right Angle	**FIS-0003-0007G**

Accessories

Type	Model
MS-Connect 210, Connectivity Box with Display	**FIS-0210-0001G**
Relay Module, 120 VAC, 3 Amp Output, Series 70, Type SM, for MS-Connect 210	**98-000013-04**
Relay Module, 240 VAC, 3 Amp Output, Series 70, Type SM, for MS-Connect 210	**98-000013-05**
Relay Module, 24 VDC, 3 Amp Output, Series 70, Type SM, for MS-Connect 210	**98-000013-06**
Cable, MS-3 to MS-Connect 210, 1.8 m (6 feet)	**61-000127-02**
IB-3PC Keyboard Wedge / Interface Box	**FIS-0001-0030G**
IC-3USB Interface Kit, USB to Serial 15-pin	**98-000051-01**
Converter, IC-332, 24 V / 5 V, Opto I / O for use with IB-131	**FIS-0001-0035G**
IB-131 Interface Box	**99-000018-01**
Communication Cable, DB-25 Plug to DB-9 Socket, 1.8 m (6 feet)	**61-300026-03**
Communication Cable, DB-9 Socket to DB-9 Socket, 1.8 m (6 feet)	**61-000010-02**
IB-131 Daisy Chain Cable	**61-100029-03**
Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	**99-9000016-01**

Power Supplies

Type	Model
Power Supply, 100-240 VAC, +5 VDC, 5-pin Plug, U.S. / Euro Plug	**97-000011-01**
Power Supply, 100-240 VAC, +5 VDC, 2-pin Plug, U.S. / Euro Plug	**97-000011-02**
Power Supply, 100-240 VAC, +24 VDC, TRK 3-pin, U.S. / Euro Plug	**97-000012-02**

Note: Do not use the power supplies or power supply cords indicated in this catalog with any other electric or electronic equipment.
When using the MS-3 Series, please use the power supply and power supply cord indicated in this catalog.

Mounting and Connectors

Type	Model
Mounting Arm / Adapter Kit for MS-3, 101 mm (4 inches)	**98-000048-01**
Mounting Stand Base Plate Kit	**98-000054-01**
Mounting Arm Extension Kit for MS-3, 101 mm (4 inches)	**98-000053-01**
Mounting Arm Extension Kit for MS-3, 76 mm (3 inches)	**98-000053-02**
Side Mount Bracket for MS-3	**98-000060-01**
Angle Mount Bracket for MS-3	**98-000059-01**
Through-Hole Mount Bracket for MS-3	**98-000057-02**
Extended Right Angle Mirror for MS-3	**98-000058-02**
Trigger Connector, 4-pin Plug (screw terminal and field wireable for custom wiring into IB-131)	**20-610024-01**

Laser Barcode Reader MS–3 series

Ratings and Specifications

Applicable codes		Code 39, Code 128, Interleaved 2 of 5, Codabar, Code 93, UPC / EAN, Pharmacode
Reading performance	Scan mode	Single line, fixed raster
	Scan rate	Adjustable from 300 to 1,000 scans / s, default=500
	Scan width angle	>70°
	Pitch	±50°
	Skew	±40°
	Label contrast	25% min. at 650 nm
Communications	Interface	RS-232, RS-422 / 485, 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
I / O specifications	Trigger input	3 to 24 V rated (1 mA at 5 VDC)
	New Master	3 to 24 V rated (1 mA at 5 VDC)
	Outputs (1, 2, 3)	5 V TTL compatible, can sink 10 mA and source 2 mA
	Beeper	Good read, Match/Mismatch, Noread
	On / Off LEDs	1 status, 1 power, 5 read performance (representing percentage of good decodes)
Power requirement		5 VDC±5%, 200 mV p-p max. ripple, 260 mA at 5 VDC (typ.)
Laser light	Type	Semiconductor visible laser diode (650 nm nominal)
	Safety class	IEC 60825-1 Class II, 1.0 mW max.
Environmental specifications	Ambient temperature range	Operating: 0 to 50°C, Storage: -40 to 75°C
	Ambient humidity range	Up to 90% (with no icing or condensation)
	Operating life	40,000 hours at 25°C
	Degree of protection	IP54 (category 2)
Weight	Standard	Approx. 106 g
	Right Angle	Approx. 136 g
Safety standards		FCC, UL/c UL, CE, KC, RCM, EAC, BIS

HOST CONNECTOR / PIN ASSIGNMENTS
High Density 15 Pin D-sub Socket Connector

Pin No.	Host RS-232	Host / Aux RS-232	Host RS-422 / 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			

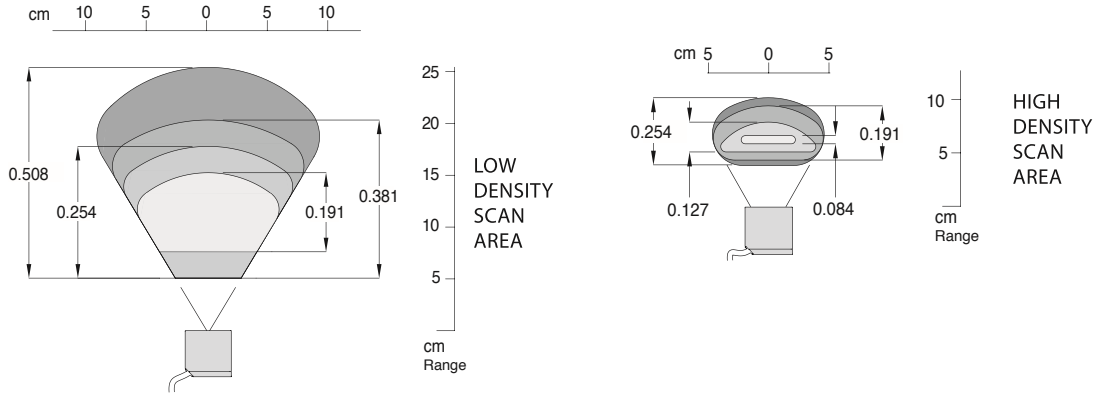a. Can sink 10 mA and source 2 mA.
b. The default is activated by connecting pin 8 to ground pin 4.
c. Chassis ground: Used to connect chassis body to earth ground only. Not to be used as power or signal return.

Laser Barcode Reader MS–3 series
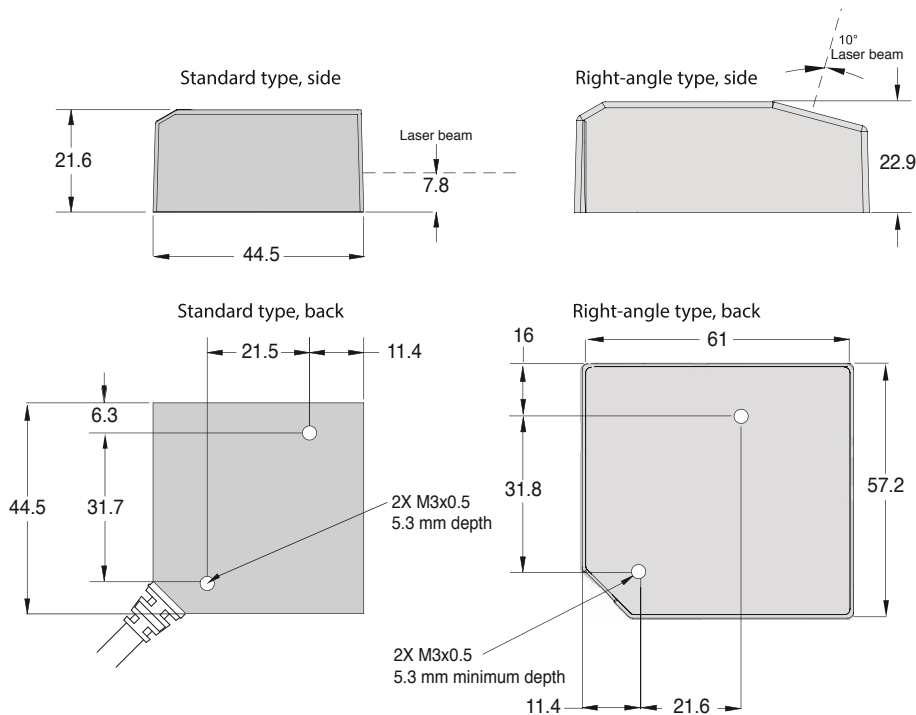
Read Ranges

(Unit: mm)

LOW DENSITY SCAN AREA

Narrow-bar-width	Read range
0.191 mm	76 to 152 mm
0.254 mm	51 to 178 mm
0.381 mm	51 to 203 mm
0.508 mm	51 to 254 mm

HIGH DENSITY SCAN AREA

Narrow-bar-width	Read range
0.084 mm	Contact OMRON.
0.127 mm	51 to 79 mm
0.191 mm	43 to 94 mm
0.254 mm	38 to 102 mm

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

Dimensions

(Unit: mm)

Standard type, side

21.6

Laser beam

7.8

44.5

Right-angle type, side

10° Laser beam

22.9

Standard type, back

21.5   11.4

6.3

44.5   31.7

2X M3x0.5
5.3 mm depth

Right-angle type, back

16   61

31.8   57.2

2X M3x0.5
5.3 mm minimum depth

11.4   21.6

LASER RADIATION-DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT

Laser Label Indications
This warning label is attached to the laser barcode reader.
Never remove this label or place objects in front of it.

Multi Code Reader

Laser Barcode Reader

Handleld Code Reader

Code Verification System

Laser Barcode Reader MS–3 series

System Configurations

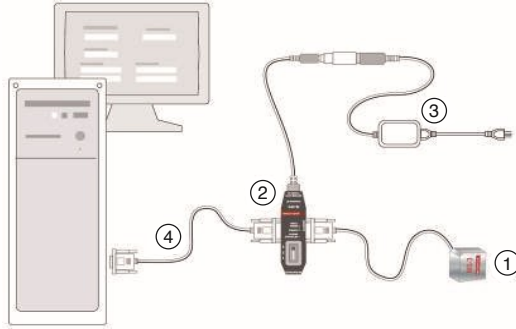### Stand Alone (5V)

This is the basic setup for a single MS-3.

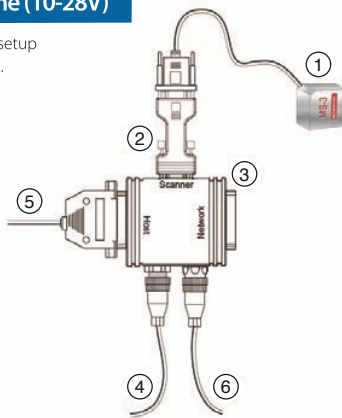| No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-☐☐☐☐G
2	IB-3PC Keyboard Wedge / Interface Box	FIS-0001-0030G
3	Power Supply,100-240VAC,+5VDC, 5PIN, USA / EUR Plug	97-000011-01
4	Cable, Communication, DB-9 Socket-to-DB-9 Socket, 6 ft.	61-000010-02
-	Kit, Mounting Arm / Adapter, 4 in., for MS-3	98-000048-01
-	Kit, Mounting Stand Base Plate	98-000054-01

Stand Alone (10-28V)

With MS-Connect 210
This is the basic setup for a single MS-3 and MS-Connect 210.
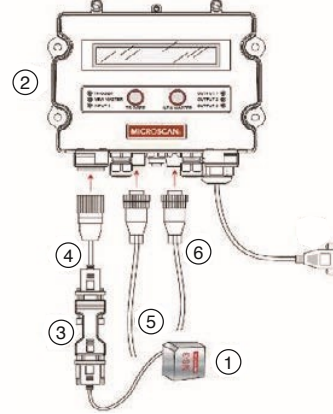
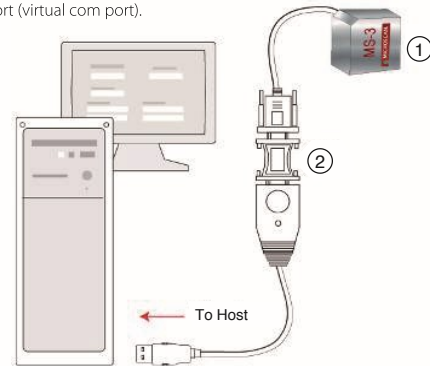| No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-☐☐☐☐G
2	Connectivity Box A	FIS-0210-0001G
3	Converter, IC-332, 24V / 5V, Opto I / O, for Use with IB-131	FIS-0001-0035G
4	Cable, MS-3-to-MS-Connect 210, 6 ft.	61-000127-02
5	Power Supply (100-240 VAC, +24VDC, TRK 3Pin, USA/Euro Plug)	97-000012-02
6	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01

Stand Alone (10-28V)

This is the basic setup for a single MS-3.

No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-☐☐☐☐G
2	Converter, IC-332, 24V / 5V, Opto I / O, for Use with IB-131	FIS-0001-0035G
3	IB-131 Interface Box	99-000018-01
4	Power Supply (100-240 VAC, +24VDC, TRK 3Pin, USA / Euro Plug)	97-000012-02
5	Cable, Communication, DB-25 Plug-to-DB-9 Socket, 6 ft.	61-300026-03
6	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, Mounting Arm / Adapter, 4 in., for MS-3	98-000048-01
-	Kit, Mounting Stand Base Plate	98-000054-01

USB

Allows the code reader to be powered and communicate via a USB port (virtual com port).

To Host

No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-☐☐☐☐G
2	IC-3USB Interface Kit, USB-to-Serial, 15-Pin	98-000051-01
-	Kit, Mounting Arm / Adapter, 4 in., for MS-3	98-000048-01
-	Kit, Mounting Stand Base Plate	98-000054-01

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System Configurations

Daisy Chain

A primary code reader is linked directly to the host. Secondary code readers (up to 9) are linked in tandem. Data is sent from the primary code reader directly to the host.
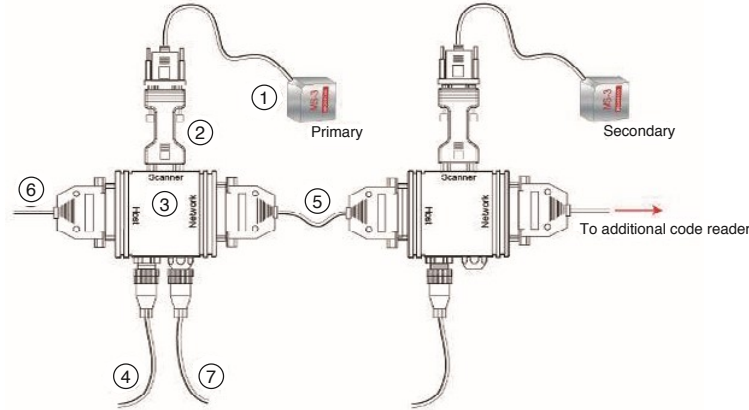
No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-□□□□G
2	Converter, IC-332, 24V / 5V, Opto I / O, for Use with IB-131	FIS-0001-0035G
3	IB-131 Interface Box	99-000018-01
4	Power Supply (100-240 VAC, +24VDC, TRK 3Pin, USA / Euro Plug)	97-000012-02
5	Cable, Daisy Chain, IB-131	61-100029-03
6	Cable, Communication, DB-25 Plug-to-DB-9 Socket, 6 ft.	61-300026-03
7	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m.	99-9000016-01
-	Kit, Mounting Arm / Adapter, 4 in., for MS-3	98-000048-01
-	Kit, Mounting Stand Base Plate	98-000054-01