

Amplifier Built-in

# Convergent Reflective Photoelectric Sensor

EX-40 SERIES



# Convergent Reflective Photoelectric Sensor Amplifier Built-in

# **SERIES**



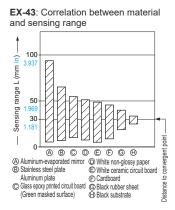


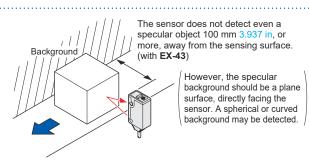


# Reliable object detection in limited area

# Stable convergent distance sensing

Due to convergent distance sensing, the color or material of the object has almost no effect. Further, the background also has very little effect, enabling stable sensing.





#### **MOUNTING / SIZE**

Compact size (W10 × H29 × D18 mm W0.394 × H1.142 × D0.709 in)

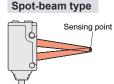
It can be installed in a limited space.

#### **VARIETIES**

#### Various applications

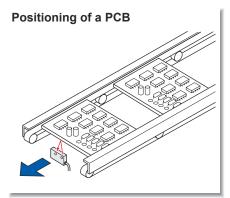
# Diffused beam type Sensing area

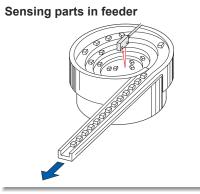
Even in a limited sensing area, the sensor is not affected by small perforations or unevenness. It is suitable for presence detection.

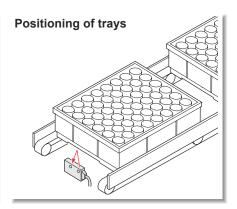


- · Visible red spot beam allows easy targetting.
- It is suitable for positioning because of its 0.05 mm 0.002 in repeatability.

#### APPLICATIONS







#### ORDER GUIDE

Туре	Appearance	Sensing range (Note 1)	Model No.	Output	Sensitivity adjuster	Timer function	Emitting element
Spot-beam Diffused beam type type Longsensing range		5 to 38 mm 0.197 to 1.496 in (Convergent point: 20 mm 0.787 in)	EX-42				Infrared LED
		10 to 70 mm 0.394 to 2.756 in (Convergent point: 40 mm 1.575 in)	EX-44	NPN open-collector transistor	Incorporated		
		20 to 35 mm 0.787 to 1.378 in (Convergent point: 30 mm 1.181 in)	EX-43				Red LED

NOTE: Mounting bracket is not supplied with the sensor. Please select from the range of optional sensor mounting brackets (two types).

Note: The sensor does not detect even a specular background if it is separated by the distance specified below. EX-42...150 mm 5.906 in or more, EX-44...300 mm 11.811 in or more, EX-43...100 mm 3.937 in or more

These are typical values. However, the specular background should be a plane surface, directly facing the sensor. A spherical or curved background may be detected.

#### 5 m 16.404 ft cable length type

5 m 16.404 ft cable length type (standard: 2 m 6.562 ft) is also available. When ordering this type, suffix "-C5" to the model No.

(e.g.) 5 m 16.404 ft cable length type of EX-42 is "EX-42-C5".

# **OPTIONS**

Designation Model No.		Description		
Sensor mounting	MS-EX40-1	Rear mounting bracket		
bracket	MS-EX40-2	Bottom mounting bracket		
	MS-AJ1	Horizontal mounting type	Basic assembly	
Universal sensor	MS-AJ2	Vertical mounting type		
mounting stand	MS-AJ1-A	Horizontal mounting type	1-4	
	MS-AJ2-A	Vertical mounting type	Lateral arm assembly	

#### Sensor mounting bracket

• MS-EX40-1



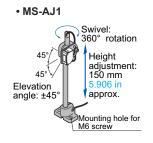


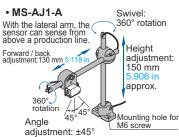
• MS-EX40-2

Two M3 (length 16 mm 0.630 in) screws with washers are

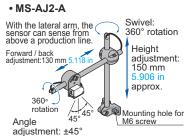
Two M3 (length 16 mm 0 in) screws with washers are attached

#### Universal sensor mounting stand









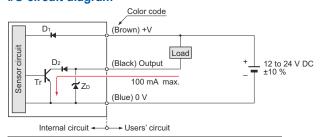
## SPECIFICATIONS

Long sensing range  EX-44  EX-45  EX-45  EX-45  EX-45  EX-45  EX-46  EX-46  EX-46  EX-47  EX-46  EX-47  EX-47  EX-47  EX-47  EX-48  EX-49  EX-		T	Diffused beam type		Spot-beam type		
Emc Directive, RoHS Directive  Sensing range    Size 38 min 1976 to 1486 in (Com. point 20 min 1787 in)   with white non-glossy page (50 4 50 min 1984 to 1976 in)   with white non-glossy page (50 4 50 min 1984 to 1976 in)   with white non-glossy page (50 4 50 min 1984 to 1984	`	Туре		Long sensing range			
Sensing range  5 to 35 mm 197 to 145 in (Core, point 20 mm 0.787 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 159 ± 1526 in) with with conplassy page (50 % 50 mm 1595 in) with conplassy page (50 % 50 mm 1595 in) with with co	Item	Model No.	EX-42	EX-44	EX-43		
With with encydesy spec (50 × 5m m 1 399 + 1,395 m)   with with encydesy spec (50 × 5m m 1 399 + 1,395 m)   with with encydesy spec (50 × 5m m 1 399 + 1,395 m)   with with encydesy spec (50 × 5m m 1 399 + 1,395 m)   with with encydesy spec (50 × 5m m 1 399 + 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy spec (50 × 5m m 1 399 × 1,395 m)   with with encydesy specific value of the cydesy	CE marking directive compliance		EMC Directive, RoHS Directive				
Hysteresis  (Setting distance: 20 mm 0.787 in)  (Setting distance: 40 mm 1.575 in)  (Setting distance: 30 mm 1.181 in)  1% or less of operation distance with white non-glossy paper (50 × 50 mm 1.969 × 1.969 in)  1% or less of operation distance with white non-glossy paper (50 × 50 mm 1.969 × 1.969 in)  (Setting distance: 30 mm 0.787 in)  (Setting distance: 30 mm 0.787 in)  (Setting distance: 30 mm 0.002 in or less (Setting distance: 30 mm 0.002 in or less (Setting distance: 30 mm 0.002 in or less (Setting distance: 30 mm 0.181 in)  Supply voltage  12 to 24 V DC ±10 % Ripple P-P 10 % or less  (Setting distance: 30 mm 1.181 in)  NPN open-collector transistor  MAXIMITIAN in Court in 100 mA  Applied voltage: 30 V DC or less (between output and 0 V)  Residual voltage: 30 V DC or less (to 100 mA sink current)  Voltput operation  Light-ON  Short-circuit protection  Response time  0.5 ms or less  Operation indicator  Stability indicator  Green LED (lights up under stable light received condition or stable dark condition)  Sensitivity adjuster  Pollution degree  3 (industrial environment)  Frotection  Fier (EC)  Ambient temperature  -25 to +55 °C -13 to +131 °F (No dew condensation or long allowed). Storage: -30 to +70 °C -22 to +158 °F  Ambient humidity  1 to 10 to 500 Hz frequency, 3 mm 0.118 in double amplitude (20 G max.) in X, Y and Z directions for two hours each  Shock resistance  Find the maximum and the condensation or long allowed). Rest ED  (Peak emission wavelength: 800 mm 0.027 mil, modil  Material  Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate  Extension up to total 100 m 328 084 ft is possible with 0.3 mm², or more, cable.  Weight  Weight  Net weight: 45 g approx., Gross weight: 70 g approx.	Sensing range				20 to 35 mm 0.787 to 1.378 in (Conv. point: 30 mm 1.181 in with white non-glossy paper (50 × 50 mm 1.969 × 1.969 in)		
Repeatability Re	Min. sensing object				ø0.03 mm ø0.001 in gold wire (Setting distance: 30 mm 1.181 in)		
Geripendicular to sensing axis   Getting distance: 20 mm 1.787 in   Getting distance: 40 mm 1.575 in   Getting distance: 30 mm 1.181 in   Supply voltage   12 to 24 V DC ±10 % Ripple P-P 10 % or less	Hysteresis		15 % or less of operation distance with white non-glossy paper (50 × 50 mm 1.969 × 1.969 in)		10 % or less of operation distance with white non-glossy paper (50 × 50 mm 1.969 × 1.969 in)		
Output  Output operation Short-circuit protection  Response time  Operation indicator  Response time  Operation indicator  Red LED (lights up when the output is ON)  Stability indicator  Green LED (lights up under stable light received condition or stable dark condition)  Sensitivity adjuster  Operation indicator  Green LED (lights up under stable light received condition or stable dark condition)  Sensitivity adjuster  Ontinuously variable adjuster  3 (Industrial environment) Protection  Protection  Ambient temperature  -25 to +55 °C -13 to +131 °F (No dew condensation or icing allowed), Storage: -30 to +70 °C -22 to +158 °F  Ambient humidity  Ambient illuminance  Incandescent light: 3,000 & or less at the light-receiving face  Voltage withstandability  1,000 V AC for one min. between all supply terminals connected together and enclosure  Univation resistance  10 to 500 Hz frequency, 3 mm 0.118 in double amplitude (20 °m ax.) in X, Y and Z directions three times each  Emitting element  Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Red LED  (Peak emission wavelength: 80 nm 0.27 mil, modul  Red LED  (Peak emission wavelength: 80 nm 0.27 mil, modul  Output  Output of resistance  Deble extension  Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight					0.05 mm 0.002 in or less (Setting distance: 30 mm 1.181 in)		
Output    NPN open-collector transistor   Maximum sink current; 100 mA   Applied voltage; 30 V DC or less (teleween output and 0 V)   Residual voltage; 2 V or less (at 100 mA sink current)   1 V or less (at 160 mA sik current)   1 V or less (at 160 mA sik current)   1 V or less (at 160 mA s	Supp	oly voltage	12 to 24 V DC ±10 % Ripple P-P 10 % or less				
Output  Applied voltage: 30 V DC or less (lettween output and 0 V) Residual voltage: 2 V or less (at 100 mA sink current) 1 N or less (at 100 mA sink current) 1 N or less (at 100 mA sink current)	Current consumption		35 mA or less				
Output operation   Light-ON	Output		<ul> <li>Maximum sink current: 100 mA</li> <li>Applied voltage: 30 V DC or less (between output and 0 V)</li> <li>Residual voltage: 2 V or less (at 100 mA sink current)</li> </ul>				
Short-circuit protection   Incorporated		Utilization category	DC-12 or DC-13				
Response time   0.5 ms or less		Output operation	Light-ON				
Stability indicator   Red LED (lights up when the output is ON)		Short-circuit protection	Incorporated				
Stability indicator   Green LED (lights up under stable light received condition or stable dark condition)	Resp	oonse time	0.5 ms or less				
Sensitivity adjuster  Continuously variable adjuster  Bollution degree  Pollution degree  3 (Industrial environment)  IP67 (IEC)  Ambient temperature  Ambient humidity  35 to 85 % RH, Storage: 35 to 85 % RH  Ambient illuminance  Incandescent light: 3,000 ℓx or less at the light-receiving face  Voltage withstandability  1,000 V AC for one min. between all supply terminals connected together and enclosure  Vibration resistance  20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure  Vibration resistance  500 m/s² acceleration (50 G approx.) in X, Y and Z directions for two hours each  500 m/s² acceleration (50 G approx.) in X, Y and Z directions three times each  Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Material  Emitting element  Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate  Cable  0.2 mm² 3-core cablyre cable, 2 m 6.562 ft long  Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight  Net weight: 45 g approx., Gross weight: 70 g approx.	Ope	ration indicator	Red LED (lights up when the output is ON)				
Pollution degree  3 (Industrial environment)  Protection  IP67 (IEC)  Ambient temperature  -25 to +55 °C -13 to +131 °F (No dew condensation or icing allowed), Storage: -30 to +70 °C -22 to +158 °F  Ambient humidity  35 to 85 % RH, Storage: 35 to 85 % RH  Ambient illuminance  Incandescent light: 3,000 £x or less at the light-receiving face  Voltage withstandability  1,000 V AC for one min. between all supply terminals connected together and enclosure  Vibration resistance  20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure  Vibration resistance  10 to 500 Hz frequency, 3 mm 0.118 in double amplitude (20 G max.) in X, Y and Z directions for two hours each  500 m/s² acceleration (50 G approx.) in X, Y and Z directions three times each  Emitting element  Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Red LED (Peak emission wavelength: 680 nm 0.027 mil, modul  Material  Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate  Cable  0.2 mm² 3-core cablyre cable, 2 m 6.562 ft long  Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight  Net weight: 45 g approx., Gross weight: 70 g approx.	Stab	ility indicator	Green LED (lights up under stable light received condition or stable dark condition)				
Protection  IP67 (IEC)  Ambient temperature  -25 to +55 °C -13 to +131 °F (No dew condensation or icing allowed), Storage: -30 to +70 °C -22 to +158 °F  Ambient humidity  35 to 85 % RH, Storage: 35 to 85 % RH  Ambient illuminance  Incandescent light: 3,000 ℓx or less at the light-receiving face  Voltage withstandability  1,000 V AC for one min. between all supply terminals connected together and enclosure  Voltage withstandability  10 to 500 Hz frequency, 3 mm 0.118 in double amplitude (20 G max.) in X, Y and Z directions for two hours each  Shock resistance  Emitting element  Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Red LED (Peak emission wavelength: 680 nm 0.027 mil, modulated)  Material  Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate  Cable  0.2 mm² 3-core cabtyre cable, 2 m 6.562 ft long  Cable extension  Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight  Net weight: 45 g approx., Gross weight: 70 g approx.	Sens	sitivity adjuster	Continuously variable adjuster				
Ambient temperature  -25 to +55 °C -13 to +131 °F (No dew condensation or icing allowed), Storage: -30 to +70 °C -22 to +158 °F  Ambient humidity  35 to 85 % RH, Storage: 35 to 85 % RH  Ambient illuminance  Incandescent light: 3,000 tx or less at the light-receiving face  Voltage withstandability  1,000 V AC for one min. between all supply terminals connected together and enclosure  Voltage withstandability  10 to 500 Hz frequency, 3 mm 0.118 in double amplitude (20 G max.) in X, Y and Z directions for two hours each  Shock resistance  Emitting element  Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Material  Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate  Cable  0.2 mm² 3-core cabtyre cable, 2 m 6.562 ft long  Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight  Net weight: 45 g approx., Gross weight: 70 g approx.		Pollution degree	3 (Industrial environment)				
Shock resistance  Shock resist	9	Protection	IP67 (IEC)				
Shock resistance  Shock resist	stan	Ambient temperature	–25 to +55 °C −13 to +131 °F (No dew condensation or icing allowed), Storage: –30 to +70 °C −22 to +158 °F				
Shock resistance  Shock resist	resi	Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH				
Shock resistance  Shock resist	ental	Ambient illuminance	Incandescent light: 3,000 ℓx or less at the light-receiving face				
Shock resistance  Shock resist	nme	Voltage withstandability	1,000 V AC for one mi	n. between all supply terminals connected t	ether and enclosure		
Shock resistance  Shock resist	viro	Insulation resistance	20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure				
Emitting element Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Red LED (Peak emission wavelength: 680 nm 0.027 mil, modulated)  Material Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate  Cable 0.2 mm² 3-core cabtyre cable, 2 m 6.562 ft long  Cable extension Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight Net weight: 45 g approx., Gross weight: 70 g approx.	ш	Vibration resistance	10 to 500 Hz frequency, 3 mm 0.118 in double amplitude (20 G max.) in X, Y and Z directions for two hours each				
Material  Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate  Cable  0.2 mm² 3-core cabtyre cable, 2 m 6.562 ft long  Cable extension  Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight  Net weight: 45 g approx., Gross weight: 70 g approx.		Shock resistance	500 m/s² accelera	ation (50 G approx.) in X, Y and Z directions	s three times each		
Cable 0.2 mm² 3-core cabtyre cable, 2 m 6.562 ft long Cable extension Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight Net weight: 45 g approx., Gross weight: 70 g approx.	Emitting element		Infrared LED (Peak emission wavele	ength: 880 nm 0.035 mil, modulated)	Red LED (Peak emission wavelength: 680 nm 0.027 mil, modulated)		
Cable extension Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.  Weight Net weight: 45 g approx., Gross weight: 70 g approx.	Material		Enclosure: PBT (Polybutylene terephthalate), Lens: Polycarbonate, Display cover: Polycarbonate				
Weight Net weight: 45 g approx., Gross weight: 70 g approx.	Cable		0.2 mm <sup>2</sup> 3-core cabtyre cable, 2 m 6.562 ft long				
	Cable extension		Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.				
Adjusting coroudiver: 1 pc	Weight		Net weight: 45 g approx., Gross weight: 70 g approx.				
Accessory Adjusting sciewariver. 1 pc.	Accessory		Adjusting screwdriver: 1 pc.				

Note: Where measurement conditions heve not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.

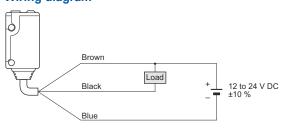
## I/O CIRCUIT AND WIRING DIAGRAMS

#### I/O circuit diagram



Symbols ... D1: Reverse supply polarity protection diode D2: Reverse output polarity protection diode ZD: Surge absorption zener diode Tr : NPN output transistor

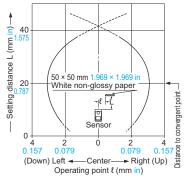
#### Wiring diagram



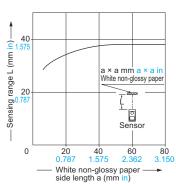
# SENSING CHARACTERISTICS (TYPICAL)

#### **EX-42**

#### Sensing field



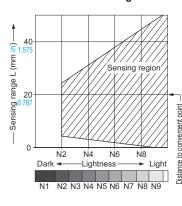
#### Correlation between sensing object size and sensing range



As the sensing object size becomes smaller than the standard size (white non-glossy paper  $50 \times 50 \text{ mm } 1.969 \times 1.969 \text{ in}$ ), the sensing range shortens, as shown in the left graph.

For plotting the left graph, a sensor having a sensitivity such that it can just detect a 50 × 50 mm 1.969 × 1.969 in white non-glossy paper at a distance of 38 mm 1.496 in has been used.

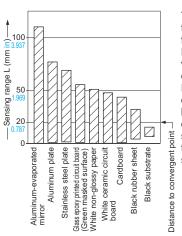
#### Correlation between lightness and sensing range



The sensing region (typical) is represented by oblique lines in the left figure. However, the sensitivity should be set with enough margin because of slight variation in products.

Lightness shown on the left may differ slightly from the actual object condition.

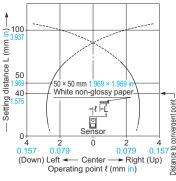
#### Correlation between material (50 × 50 mm 1.969 × 1.969 in) and sensing range



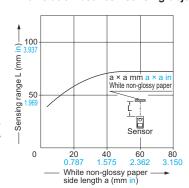
The bars in the graph indicate the sensing range (typical) for the respective material. However, there is a slight variation in the sensing range depending on the product. Further, if there is a reflective object (conveyor, etc.) in the background of the sensing object, since it affects the sensing, separate it by more than twice the sensing range shown in the left graph.

## EX-44

#### Sensing field



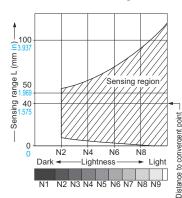
#### Correlation between sensing object size and sensing range



As the sensing object size becomes smaller than the standard size (white non-glossy paper 50 × 50 mm 1.969 × 1.969 in), the sensing range shortens, as shown in the left graph.

For plotting the left graph, the sensitivity has been set such that a 50 × 50 mm 1.969 × 1.969 in white non-glossy paper is just detectable at a distance of 70 mm 2.756 in.

#### Correlation between lightness and sensing range

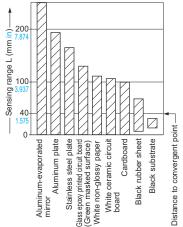


The sensing region (typical) is represented by oblique lines in the left figure. However, the sensitivity should be set with enough margin because of slight variation in products.

The graph is drawn for the maximum sensitivity setting.

Lightness shown on the left may differ slightly from the actual object condition.

## Correlation between material (50 × 50 mm 1.969 × 1.969 in) and sensing range



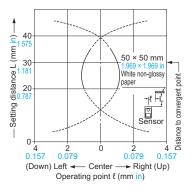
The bars in the graph indicate the sensing range (typical) for the respective material. However, there is a slight variation in the sensing range depending on the product. Further, if there is a reflective object (conveyor, etc.) in the background of the sensing object, since it affects the sensing, separate it by more than twice the sensing range shown in the left graph, or adjust the sensitivity adjuster.

The graph is drawn for the maximum sensitivity setting.

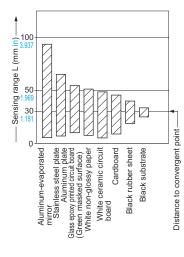
# SENSING CHARACTERISTICS (TYPICAL)

#### **EX-43**

#### Sensing field



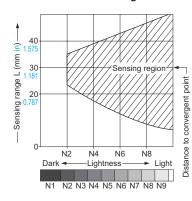
# Correlation between material (50 × 50 mm 1.969 × 1.969 in) and sensing range



The bars in the graph indicate the sensing range (typical) for the respective material. However, there is a slight variation in the sensing range depending on the product. Further, if there is a reflective object (conveyor, etc.) in the background of the sensing object, since it affects the sensing, separate it by more than twice the sensing range shown in the left graph, or adjust the sensitivity adjuster.

The graph is drawn for the maximum sensitivity setting.

#### Correlation between lightness and sensing range



The sensing region (typical) is represented by oblique lines in the left figure. However, the sensitivity should be set with enough margin because of slight variation in products.

The graph is drawn for the maximum sensitivity setting.

Lightness shown on the left may differ slightly from the actual object condition.

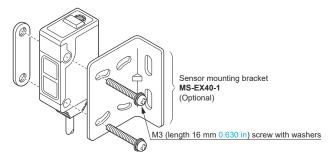
# PRECAUTIONS FOR PROPER USE



- Never use this product as a sensing device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

#### **Mounting**

 With the optional sensor mounting bracket, the tightening torque should be 0.5 N·m or less.

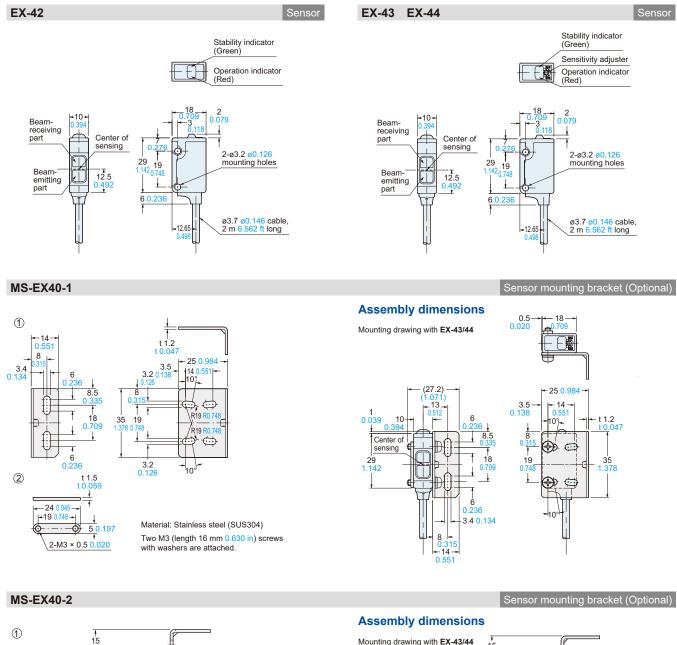


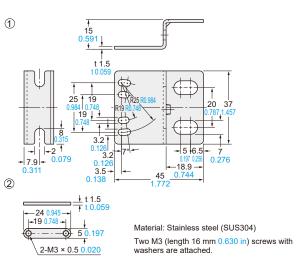
#### **Others**

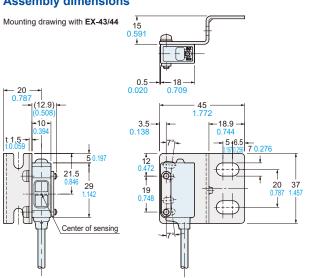
 Do not use during the initial transient time (50 ms) after the power supply is switched on.

# DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.







## Disclaimer

The applications described in the catalog are all intended for examples only. The purchase of our products described in the catalog shall not be regarded as granting of a license to use our products in the described applications. We do NOT warrant that we have obtained some intellectual properties, such as patent rights, with respect to such applications, or that the described applications may not infringe any intellectual property rights, such as patent rights, of a third party.



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