

**NO:** PH-185  
**DATE:** March 2014

**PRODUCT:** E3JK Photoelectric Sensors  
**TYPE:** Discontinuation Notice

## E3JK Universal AC/DC Supply Voltage Photoelectric Sensors to be Discontinued March 2015; Replace with E3JM Series



The pre-wired E3JK photoelectric sensors with universal AC/DC supply voltage will be discontinued at the end of March 2015, including through-beam, retro-reflective and diffuse reflective models. The recommended replacement E3JM series meets the AC/DC supply voltage requirement; however, it has significant differences in performance, size, shape, and wiring.



### Affected Parts

Description	Product discontinuation	Recommended replacement
Retro-reflective, not polarized	E3JK-R4S3 2M	E3JM-R4S4-US
	E3JK-R4M2-US	E3JM-R4M4-US
	E3JK-R4M2 2M	E3JM-R4M4-US
	E3JK-R4M1-US	E3JM-R4M4-US
	E3JK-R4M1 2M	E3JM-R4M4-US
Retro-reflective, polarized	E3JK-R2S3 5M	E3JM-R4S4-US
	E3JK-R2S3 2M	E3JM-R4S4-US
	E3JK-R2R3 5M	E3JM-R4R4-US
	E3JK-R2R3 2M	E3JM-R4R4-US
	E3JK-R2M2-US	E3JM-R4M4-US
	E3JK-R2M2 5M	E3JM-R4M4-US
	E3JK-R2M2 2M	E3JM-R4M4-US
	E3JK-R2M1-US	E3JM-R4M4-US
	E3JK-R2M1 2M	E3JM-R4M4-US
	E3JK-R2H2-G	No recommended replacement
E3JK-R2H1-G	No recommended replacement	
Diffuse reflective	E3JK-DS30S3	E3JM-DS70S4-US
	E3JK-DS30M2-US	E3JM-DS70M4-US
	E3JK-DS30M2 2M	E3JM-DS70M4-US
	E3JK-DS30M1-US 2M	E3JM-DS70M4-US
	E3JK-DS30M1 5M	E3JM-DS70M4-US
	E3JK-DS30M1 2M	E3JM-DS70M4-US
Through-beam set	E3JK-5S3-N 2M	E3JM-10S4-US
	E3JK-5M2-N-US 2M	E3JM-10M4-US
	E3JK-5M2-N 5M	E3JM-10M4-US
	E3JK-5M2-N 2M	E3JM-10M4-US
	E3JK-5M1-N-US 2M	E3JM-10M4-US
	E3JK-5M1-N 5M	E3JM-10M4-US
	E3JK-5M1-N 2M	E3JM-10M4-US
Through-beam emitter	E3JK-5L-N 2M	E3JM-10M4-US
Through-beam receiver	E3JK-5DM2-N 2M	E3JM-10M4-US

## Cautions on Applying Replacements

Item	Product discontinuation	Recommended replacement
Mounting bracket included with product	E39-L40 provided with E3JK sensors 	E39-L53 provided with E3JM sensors 
Size	18 W x 50 H x 50 D mm	25 W x 65 H x 65 D mm
Color	Light grey	Black
Connection	Pre-wired	Terminal block
Sensing distance	Through-beam	E3JK-5[ ][ ](-US): 5 m
	Diffuse reflective	E3JK-DS30[ ][ ](-US): 300 mm
	Retro-reflective	E3JK-R2[ ][ ](-US): 2.5m (With MSR)
		E3JK-R4[ ][ ]: 4 m (No MSR)
Degree of protection	IP64	IP66
Light-ON/Dark-ON operation	E3JK-[ ][ ]1: Light-ON	--
	E3JK-[ ][ ]2: Dark-ON	--
	E3JK-[ ][ ]3: Light-ON/Dark-ON select by wire	E3JM-[ ][ ]-US: Light-ON/Dark-ON select by wire or switch



Through-beam sensors are used in sets containing both emitter and receiver. When replacing E3JK-5[ ][ ]-N sensors, replace the set with E3JM-10[ ]4-US through-beam set. The sensor will not operate if the emitter or receiver are replaced separately.

## Detail of Differences

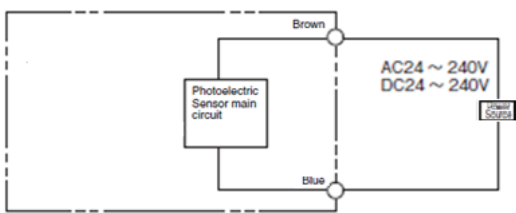
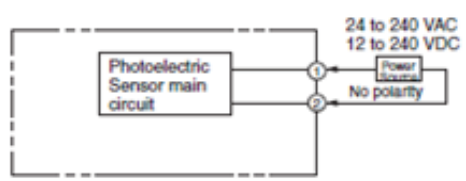
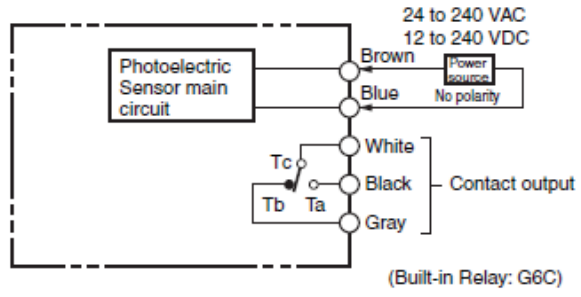
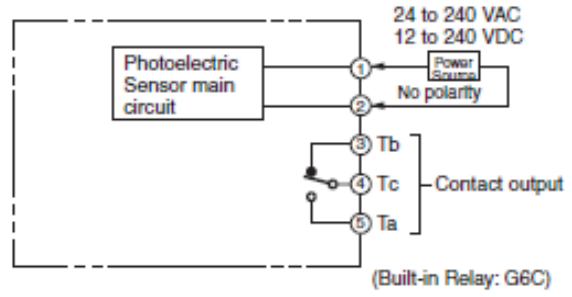
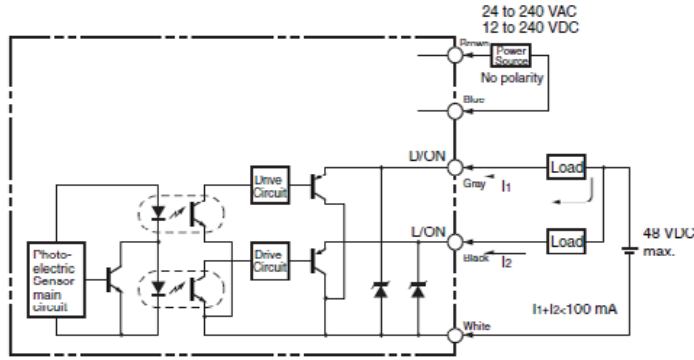
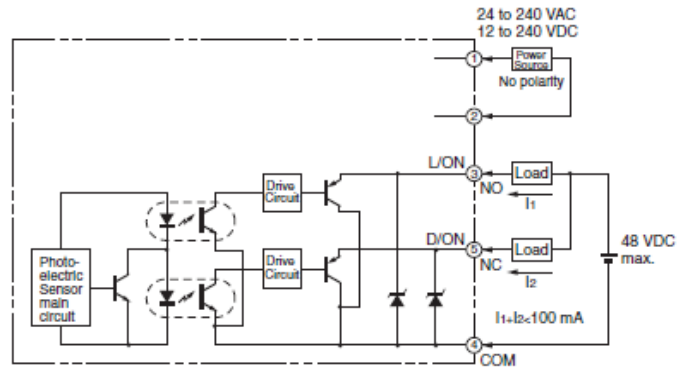
### Reference Documentation

Description	Media	Publication number
E3JK and E3JM AC/DC photoelectric sensors data sheet	PDF	<a href="#">CSM E3JM E3JK DS E 11A 1</a>

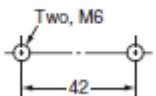
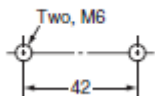
### Body Color

Product discontinuation Model E3JK-5[ ][ ](-US) Model E3JK-R[ ]M/S[ ](-US) Model E3JK-DS30[ ][ ](-US)	Recommended replacement Model E3JM-10[ ]4-US Model E3JM-R4M/S4-US Model E3JM-DS70[ ]4-US
Case: Light grey 	Case: Black 

## Wiring Diagrams

<p><b>Product discontinuation</b>          Model E3JK-5[ ][ ](-US)          Model E3JK-R[ ]M/S[ ](-US)          Model E3JK-DS30[ ][ ](-US)</p>	<p><b>Recommended replacement</b>          Model E3JM-10[ ]4-US          Model E3JM-R4M/S4-US          Model E3JM-DS70[ ]4-US</p>
<p><b>Model E3JK-5L-N (Emitter)</b></p> 	<p><b>Model E3JM-10L (Emitter)</b></p> 
<p><b>Model E3JK-5M[ ]-N (Receiver)</b>          Model E3JK-DS30M[ ](-US)          Model E3JK-R[ ]M[ ](-US)</p> 	<p><b>Model E3JM-10DM4-US (Receiver)</b>          Model E3JM-R4M4-US          Model E3JM-DS70M4-US</p> 
<p><b>Model E3JK-5S3-N</b>          Model E3JK-DS30S3          Model E3JK-R4S3</p> 	<p><b>Model E3JM-10S4-US</b>          Model E3JM-R4S4-US          Model E3JM-DS70S4-US</p> 

## Mounting Holes

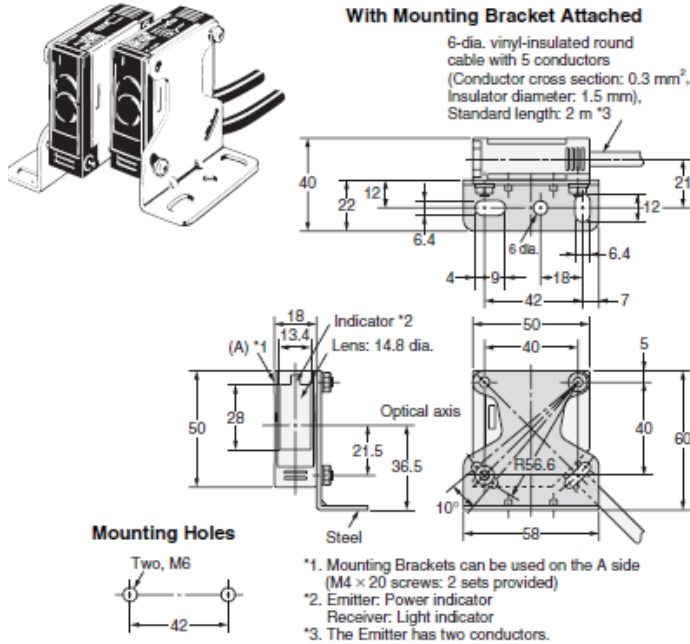
<p><b>Product discontinuation</b>          Model E3JK-5[ ][ ](-US)          Model E3JK-R[ ]M/S[ ](-US)          Model E3JK-DS30[ ][ ](-US)</p>	<p><b>Recommended replacement</b>          Model E3JM-10[ ]4-US          Model E3JM-R4M/S4-US          Model E3JM-DS70[ ]4-US</p>
<p><b>Mounting Holes</b></p> 	<p><b>Mounting Holes</b></p> 

# Dimensions

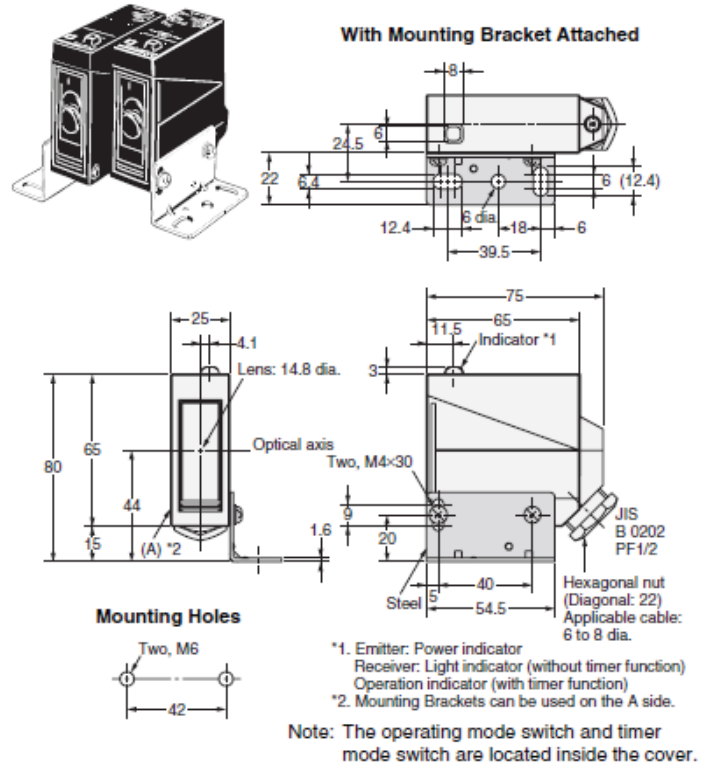
**Product discontinuation**  
**Model E3JK-5□□□(-US)**  
**Model E3JK-R□M/S□(-US)**  
**Model E3JK-DS30□□(-US)**

**Recommended replacement**  
**Model E3JM-10□4-US**  
**Model E3JM-R4M/S4-US**  
**Model E3JM-DS70□4-US**

## Model E3JK-5□□□(-US)

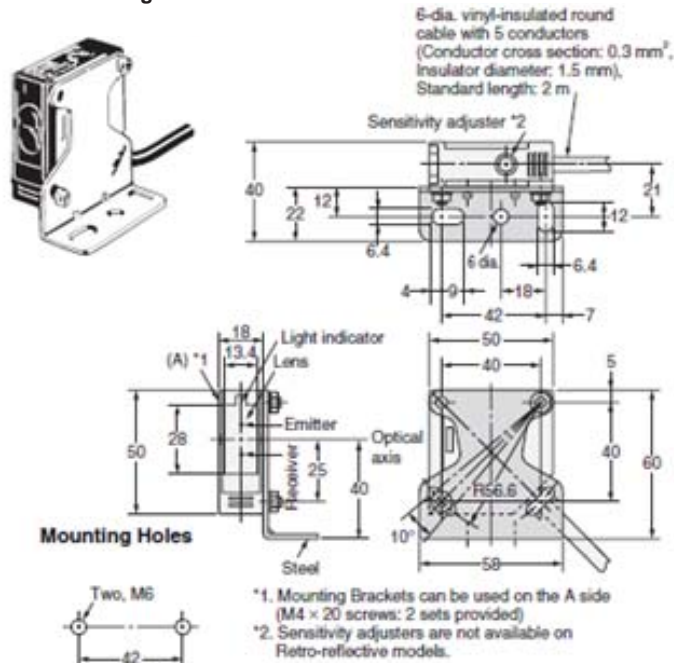


## Model E3JM-10□4-US

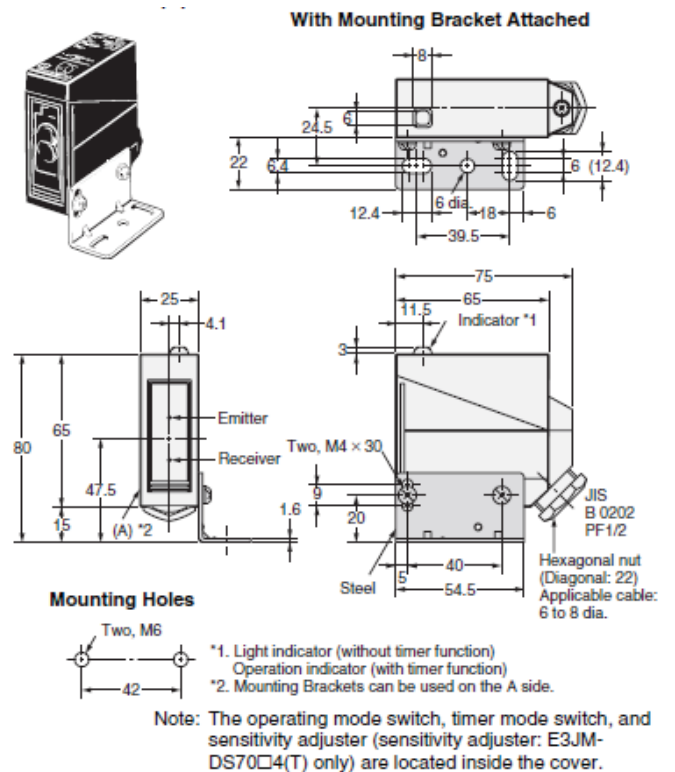


**E3JK-R2□□(-US)**  
**E3JK-R4□□(-US)**  
**E3JK-DS30□□(-US)**

**With Mounting Bracket Attached**



**Model E3JM-R4M/S4-US**  
**Model E3JM-DS70□4-US**



## Characteristics

Item		Product discontinuation Model E3JK-5M[ ] [ ]-N(-US)	Recommended replacement Model E3JM-10M4-US
<b>Sensing distance</b>		5 m	10 m
<b>Standard sensing object</b>		Opaque: 14.8-mm dia. min.	Opaque: 14.8-mm dia. min.
<b>Directional angle</b>		Both Emitter and Receiver 3° to 20°	Both Emitter and Receiver 3° to 20°
<b>Light source (wavelength)</b>		Infrared LED (950 nm)	Infrared LED (950 nm)
<b>Power supply voltage</b>		12 to 240 VDC±10%, ripple (p-p): 10% max. 24 to 240 VAC±10%, 50/60 Hz	12 to 240 VDC±10%, ripple (p-p): 10% max. 24 to 240 VAC±10%, 50/60 Hz
<b>Power consumption</b>	<b>DC</b>	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)
	<b>AC</b>	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)
<b>Control output</b>		Relay output (E3JK-5M[ ]-N): SPDT, 250 VAC, 3 A max. ( $\cos\phi=1$ ) 5 VDC, 10 mA min. DC SSR output (E3JK-5S3-N): Negative: common 48 VDC, 100 mA max. Leakage current: 0.1 mA max. With load short-circuit protection	Relay output (E3JM-10M4-US): SPDT, 250 VAC, 3 A ( $\cos\phi=1$ ) max., 5 VDC, 10 mA min. DC SSR output (E3JM-10S4-US): 48 VDC, 100 mA max. (residual voltage: 2 V max.) Light-ON/Dark-ON selectable
<b>Response time</b>		E3JK-5M[ ]-N: 30 ms max. E3JK-5S3-N: 10 ms max.	E3JM-10M4-US: 30 ms max. E3JM-10S4-US: 5 ms max.
<b>Sensitivity adjustment</b>		None	None
<b>Ambient illumination (Receiver side)</b>		Incandescent lamp: 3,000 lx max.	Incandescent lamp: 3,000 lx max.
<b>Ambient temperature range</b>		Operating: -25°C to 55°C, Storage: -30°C to 70°C (with no icing or condensation)	Operating: -25°C to 55°C, Storage: -40°C to 70°C (with no icing or condensation)
<b>Ambient humidity range</b>		Operating: 45% to 85% Storage: 35% to 95% (with no condensation)	Operating: 45% to 85% Storage: 35% to 95% (with no condensation)
<b>Insulation resistance</b>		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
<b>Shock resistance</b>	<b>Destruction</b>	500 m/s <sup>2</sup> 3 times each in X, Y, and Z directions	500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
	<b>Malfunction</b>	E3JK-5M[ ]-N: 100 m/s <sup>2</sup> 3 times each in X, Y, and Z directions E3JK-5S3-N: 500 m/s <sup>2</sup> 3 times each in X, Y, and Z directions	100 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
<b>Degree of protection</b>		IEC60529 IP64	IEC60529 IP66
<b>Connection method</b>		Pre-wired	Terminal block
<b>Accessories</b>		Mounting Bracket (with screws), Nuts, Instruction manual	Mounting Bracket (with screw), Nuts, Terminal Protection Cover, Instruction manual

Characteristics (continued)

Item		Product discontinuation Model E3JK-R[M/S](-US)	Recommended replacement Model E3JM-R4M/S4-US
Sensing distance		R2[ ](-[ ]): 2.5 m (When using E39-R1) R4[ ]: 4 m (When using E39-R1)	4 m (When using E39-R1)
Directional angle		1° to 5°	1° to 5°
Light source (wavelength)		Red LED (660 nm)	Red LED (660 nm)
Power supply voltage		12 to 240 VDC±10%, ripple (p-p): 10% max. 24 to 240 VAC±10%, 50/60 Hz	12 to 240 VDC±10%, ripple (p-p): 10% max. 24 to 240 VAC±10%, 50/60 Hz
Power consumption	DC	2 W max.	2 W max.
	AC	2 W max.	2 W max.
Control output		Relay output (E3JK-R2/4M[ ]): SPDT, 250 VAC, 3 A max. (cosφ=1) 5 VDC, 10 mA min. DC SSR output (E3JK-R2/4S3): Negative: common 48 VDC, 100 mA max. Leakage current: 0.1 mA max. With load short-circuit protection	Relay output (E3JM-R4M4-US): SPDT, 250 VAC, 3 A (cosφ=1) max., 5 VDC, 10 mA min. DC SSR output (E3JM-R4S4-US): 48 VDC, 100 mA max. (residual voltage: 2 V max.) Light-ON/Dark-ON selectable
Response time		E3JK-R2/-4M[ ]: 30 ms max. E3J-R2/4S3: 5 ms max.	E3JM-R4M4-US: 30 ms max. E3JM-R4S4-US: 5 ms max.
Sensitivity adjustment		None	None
Ambient illumination (Receiver side)		Incandescent lamp: 3,000 lx max.	Incandescent lamp: 3,000 lx max.
Ambient temperature range		Operating: -25°C to 55°C, Storage: -30°C to 70°C (with no icing or condensation)	Operating: -25°C to 55°C, Storage: -40°C to 70°C (with no icing or condensation)
Ambient humidity range		Operating: 45% to 85% Storage: 35% to 95% (with no condensation)	Operating: 45% to 85% Storage: 35% to 95% (with no condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Shock resistance	Destruction	500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions	500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
	Malfunction	100 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions	100 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
Degree of protection		IEC60529 IP64	IEC60529 IP66
Connection method		Pre-wired	Terminal block
Accessories		Mounting Bracket (with screws), Nuts, Instruction manual, Reflector	Mounting Bracket (with screw), Nuts, Terminal Protection Cover, Instruction manual, Reflector

## Characteristics (continued)

Item		Product discontinuation Model E3JK-DS30□□(-US)	Recommended replacement Model E3JM-DS70□4-US
Sensing distance		White paper (100 × 100 mm): 300 mm	White paper (200 × 200 mm): 700 mm
Light source (wavelength)		Infrared LED (950 nm)	Infrared LED (950 nm)
Power supply voltage		12 to 240 VDC±10%, ripple (p-p): 10% max. 24 to 240 VAC±10%, 50/60 Hz	12 to 240 VDC±10%, ripple (p-p): 10% max. 24 to 240 VAC±10%, 50/60 Hz
Power consumption	DC	2 W max.	2 W max.
	AC	2 W max.	2 W max.
Control output		Relay output (E3JK- DS30M): SPDT, 250 VAC, 3 A max. (cosφ=1) 5 VDC, 10 mA min. DC SSR output (E3JK-DS30S3): Negative: common 48 VDC, 100 mA max. Leakage current: 0.1 mA max. With load short-circuit protection	Relay output (E3JM-DS70M4-US): SPDT, 250 VAC, 3 A (cosφ=1) max., 5 VDC, 10 mA min. DC SSR output (E3JM-DS70S4-US): 48 VDC, 100 mA max. (residual voltage: 2 V max.) Light-ON/Dark-ON selectable
Response time		E3JK-DS30M□: 30 ms max. E3JK-DS30S3: 5 ms max.	E3JM-DS70M4-US: 30 ms max. E3JM- DS70S4-US: 5 ms max.
Sensitivity adjustment		One-turn adjuster	One-turn adjuster
Ambient illumination (Receiver side)		Incandescent lamp: 3,000 lx max.	Incandescent lamp: 3,000 lx max.
Ambient temperature range		Operating: -25°C to 55°C, Storage: -30°C to 70°C (with no icing or condensation)	Operating: -25°C to 55°C, Storage: -40°C to 70°C (with no icing or condensation)
Ambient humidity range		Operating: 45% to 85% (with no condensation), Storage: 35% to 95% (with no condensation)	Operating: 45% to 85% (with no condensation), Storage: 35% to 95% (with no condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Shock resistance	Destruction	500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions	500 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
	Malfunction	100 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions	100 m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
Degree of protection		IEC60529 IP64	IEC60529 IP66
Connection method		Pre-wired	Terminal block
Accessories		Mounting Bracket (with screws), Nuts, Instruction manual	Mounting Bracket (with screw), Nuts, Terminal Protection Cover, Instruction manual

## Operation Methods

Product discontinuation Model E3JK-5□□□-N(-US) Model E3JK-R□M/S□(-US) Model E3JK-DS30□□(-US)	Recommended replacement Model E3JM-10□4-US Model E3JM-R4M/S4-US Model E3JM-DS70□4-US
Sensitivity adjustment E3JK-5□□□-N(-US): None E3JK-R□M/S□(-US): None E3JK-DS30□□(-US): One-turn adjuster	Sensitivity adjustment E3JM-10□4-US: None E3JM-R4M/S4-US: None E3JM-DS70□4-US: One-turn adjuster
Light-ON/Dark-ON adjustment E3JK-□□□1: Light-ON E3JK-□□□2: Dark-ON E3JK-□□□3: Light-ON/Dark-ON select by wire	Light-ON/Dark-ON adjustment E3JM-□□□□-US: Light-ON/Dark-ON select by wire or switch

# Operation Ratings

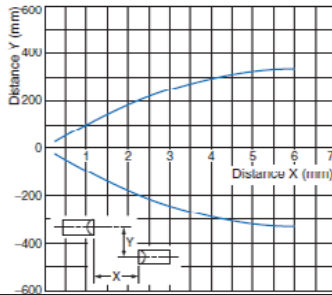
**Product discontinuation**  
 Model E3JK-5□□□-N(-US)  
 Model E3JK-R□□□(-US)  
 Model E3JK-DS30□□(-US)

**Recommended replacement**  
 Model E3JM-10□4-US  
 Model E3JM-R4M/S4-US  
 Model E3JM-DS70□4-US

## Parallel Operating Range

**Through-beam**

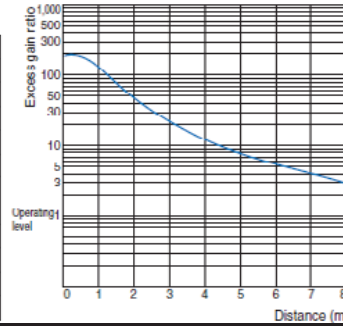
**E3JK-5□□□-N**



## Excess Gain Ratio vs. Set Distance

**Through-beam**

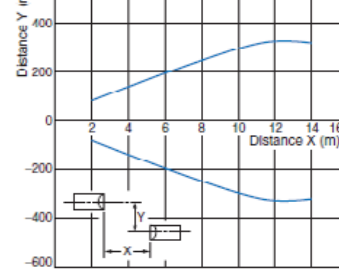
**E3JK-5□□□-N**



## Parallel Operating Range

**Through-beam**

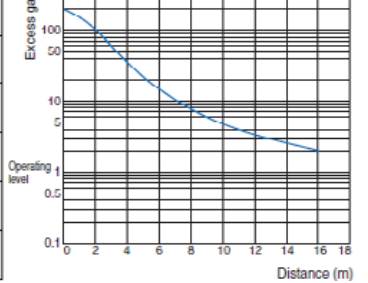
**E3JM-10□4-N-US**



## Excess Gain Ratio vs. Set Distance

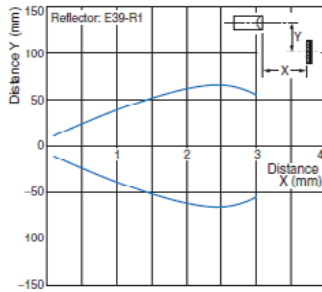
**Through-beam**

**E3JM-10□4-N-US**



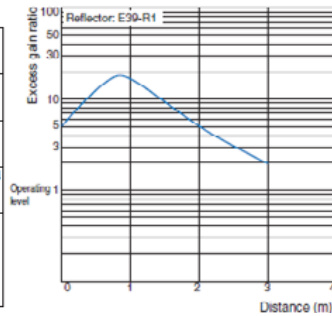
## Retro-reflective

**E3JK-R2□□ + E39-R1**  
 (Supplied Reflector)



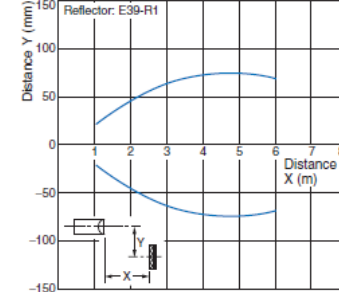
## Retro-reflective

**E3JK-R2□□ + E39-R1** (Supplied Reflector)

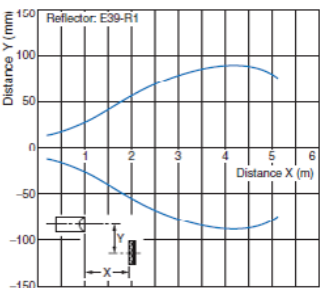


## Retro-reflective

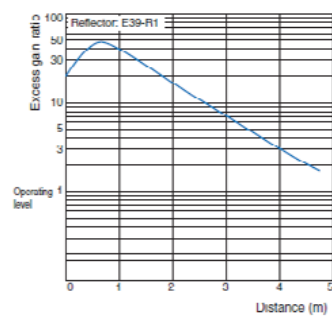
**E3JM-R4□4-US + E39-R1**  
 (Supplied Reflector)



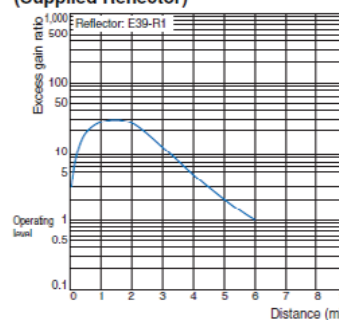
**E3JK-R4□□ + E39-R1**  
 (Supplied Reflector)



**E3JK-R4□□ + E39-R1**  
 (Supplied Reflector)



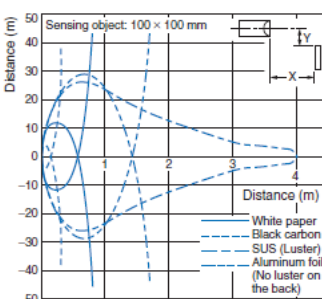
**Retro-reflective**  
**E3JM-R4□4-US + E39-R1**  
 (Supplied Reflector)



## Operating Range

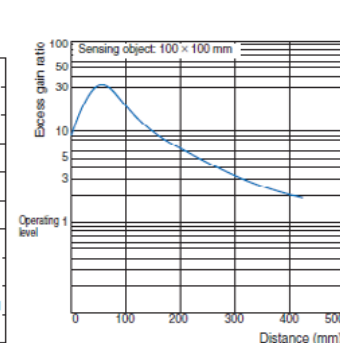
**Diffuse-reflective**

**E3JK-DS30□□**



## Diffuse-reflective

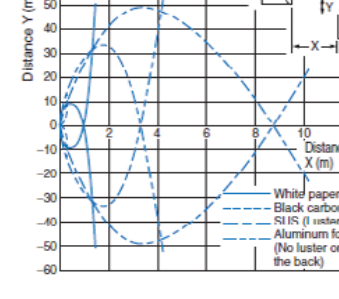
**E3JK-DS30□□**



## Operating Range

**Diffuse-reflective**

**E3JM-DS70□4-US**



## Diffuse-reflective

**E3JM-DS70□4-US**

