



# Photoelectric Sensor

# E3JK

Small General-purpose Photoelectric Sensor with Built-in Power Supply

- Built-in amplifier accepts wide supply voltage range.
- Slim, space-saving construction measures only 50 x 50 x 17.4 mm.
- Relay outputs with long life expectancy and high switching capacity (3 A, 250 VAC).
- Polarized retroreflective type available for glossy or shiny object detection.



## Ordering Information

### Relay Output Types

Item		Through-beam (separate)	Retroreflective			Diffuse reflective
Model	Light-ON mode	E3JK-5M1	E3JK-R2M1	E3JK-R4M1	E3JK-R3M1-01	E3JK-DS30M1
	Dark-ON mode	E3JK-5M2	E3JK-R2M2	E3JK-R4M2	E3JK-R3M2-01	E3JK-DS30M2
Polarized light beam		---	Yes	No		---
Sensing distance		5 m	2.5 m	4 m	3 m	30 cm

### DC Solid-state Output Types

Item		Through-beam (separate)	Retroreflective		Diffuse reflective
Model	Sink current to negative common	E3JK-5S3	E3JK-R2S3	E3JK-R4S3	E3JK-DS30S3
	Source current to positive common	---	E3JK-R2R3	---	---
Polarized light beam		---	Yes	No	---
Sensing distance		5 m	2.5 m	4 m	30 cm

### Transistor Output Types

Item		Retroreflective
Model	Light-ON mode	E3JK-R2H1-G
	Dark-ON mode	E3JK-R2H2-G
Polarized light beam		Yes
Sensing distance		2.5 m

# Specifications

## ■ Ratings/Characteristics

### Amplifier Units

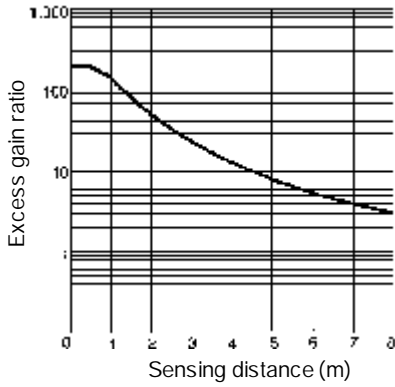
Item		E3JK-5j j	E3JK-R2j j	E3JK-R4j j	E3JK-R3j j	E3JK-DS30j j	E3JK-R2Hj -G
Power supply voltage		12 to 240 VDC $\pm$ 10%, 24 to 240 VAC $\pm$ 10%, 50/60 Hz			24 VDC/AC $\pm$ 10%, ripple (p-p): 10% max., 50/60 Hz	12 to 240 VDC $\pm$ 10%, 24 to 240 VAC $\pm$ 10%, 50/60 Hz	10 to 30 VDC, ripple (p-p): 10% max.
Current consumption		3 W max.	2 W max.		1.5 W max.	2 W max.	40 mA max.
Sensing distance		5 m	2.5 m (see note 1), 3 m (see note 2)	4 m (see note 1), 5 m (see note 2)	3 m (see note 1), 4 m (see note 2)	30 cm	2.5 m (see note 1)
Differential travel		---				20% max.	---
Control output	Relay output	3 A max. at 250 VAC ( $\cos\phi = 1$ ), 10 mA min. at 5 VDC					Transistor output: open collector (NPN/PNP): 100 mA at 30 VDC; Voltage drop: 1 V max.
	DC solid-state	100 mA at 48 VDC; leakage current: 0.1 mA max.					
Response time (ON, OFF)		30 ms max.					3 ms max.
Sensitivity		Fixed			Adjustable	Fixed	
Operation mode		Light-ON or Dark-ON					
Indicators		Light (red)					
Enclosure rating		IEC IP64, NEMA 1, 2, 12					
Material		Plastic					
Light source		Infrared LED	Red LED			Infrared LED	Red LED
Ambient temperature		Operating: -25°C to 55°C (with no icing)					

Note: 1. With reflector E39-R1  
2. With reflector E39-R2

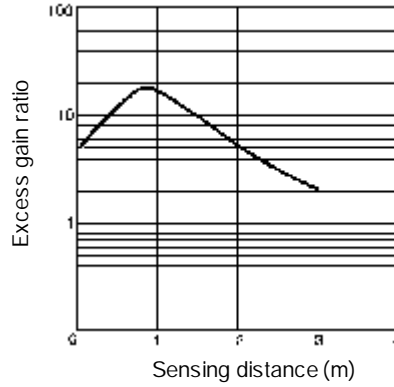
# Engineering Data

## Excess Gain Ratio

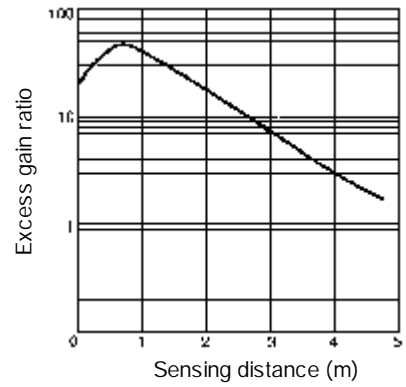
E3JK-5j j



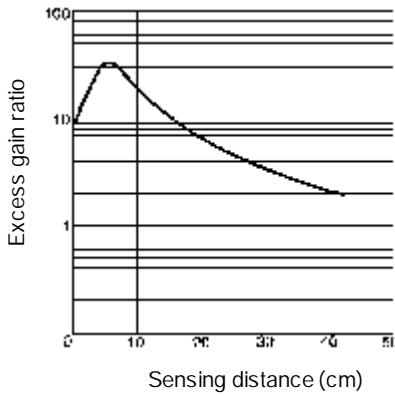
E3JK-R2j j



E3JK-R4j j

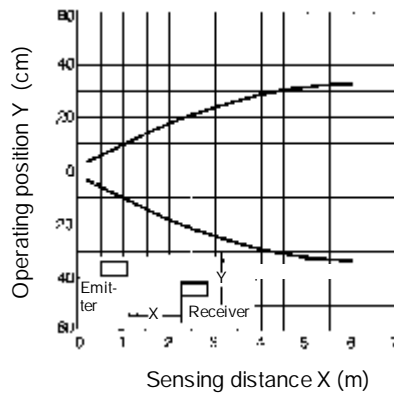


E3JK-DS30j j

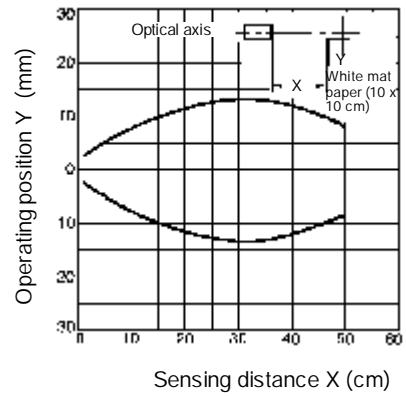


## Operating Range

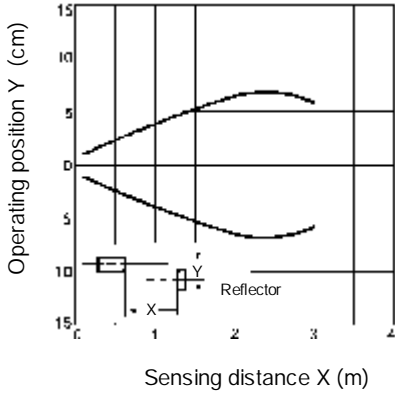
E3JK-5j j



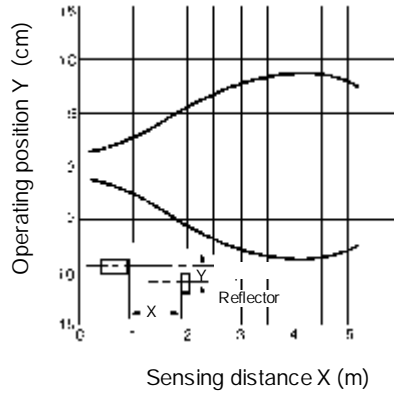
E3JK-DS30j j



E3JK-R2j j

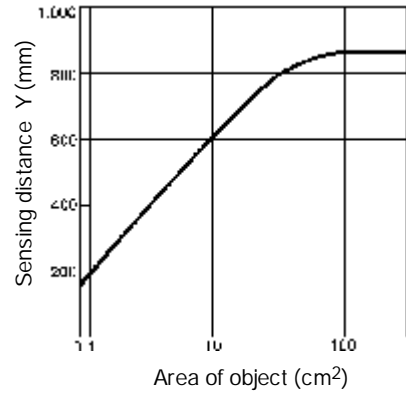


E3JK-R4j j



## Sensitivity

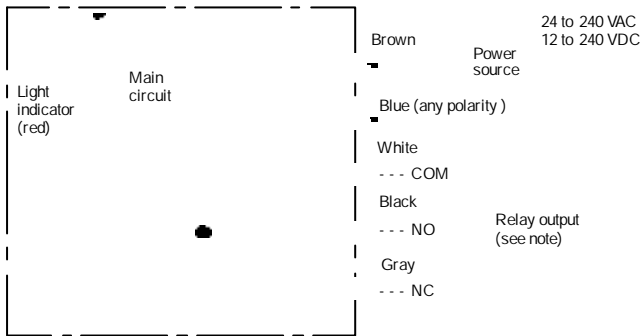
E3JK-DS30j j



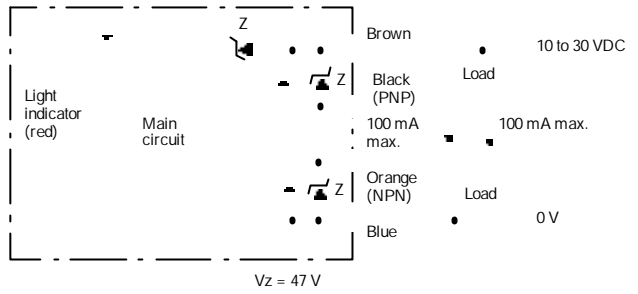
# Operation

## Output Circuits

### Relay Output Types



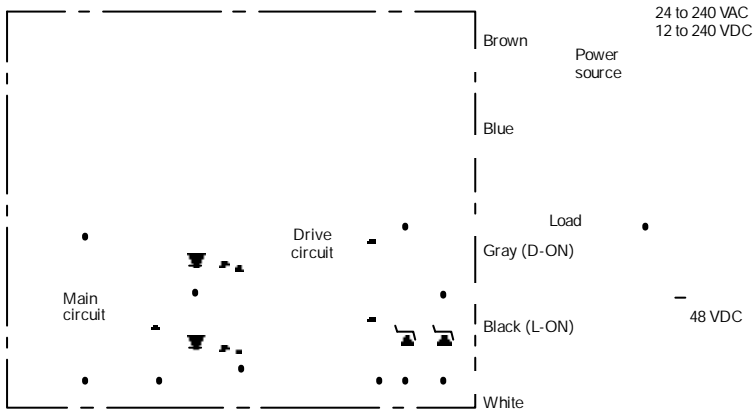
### Transistor Output Types



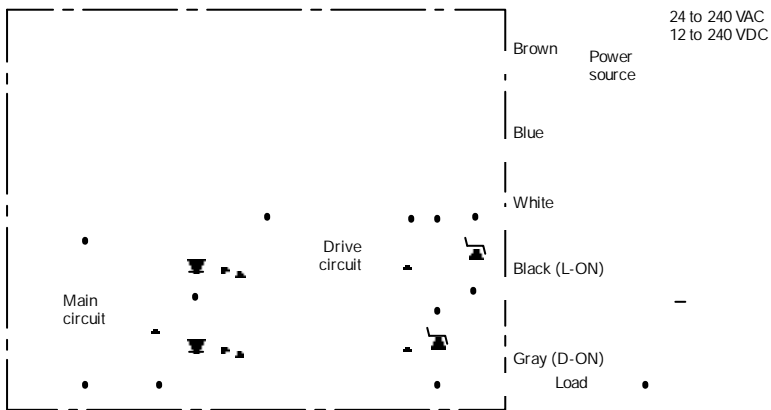
Note: Not provided to the emitter of the E3JK-5Mj .

### DC Solid-state Output Types

#### Negative Common

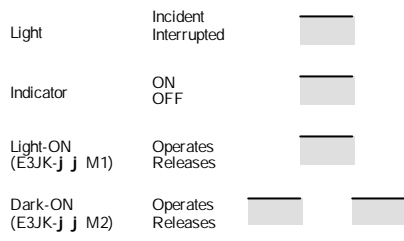


#### Positive Common

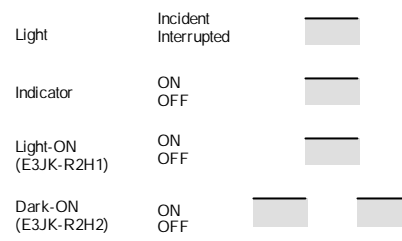


## ■ Timing Chart

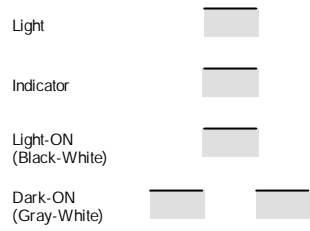
### Relay Output Types



### Transistor Output Types



### DC Solid-state Output Types



# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

## E3JK-5j j

Weight: approx. 360 g

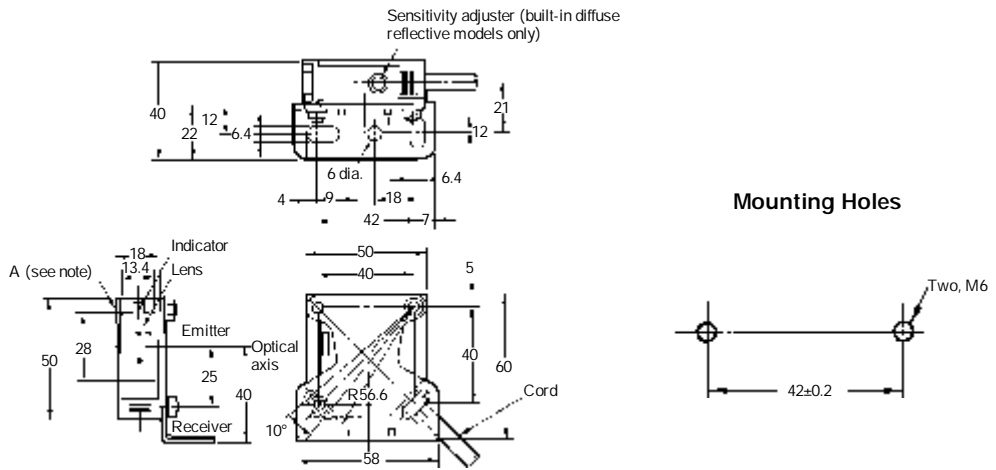
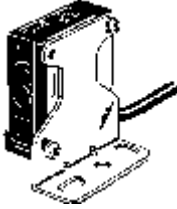
## E3JK-R2j j

## E3JK-R3j j

## E3JK-R4j j

## E3JK-DS30j j

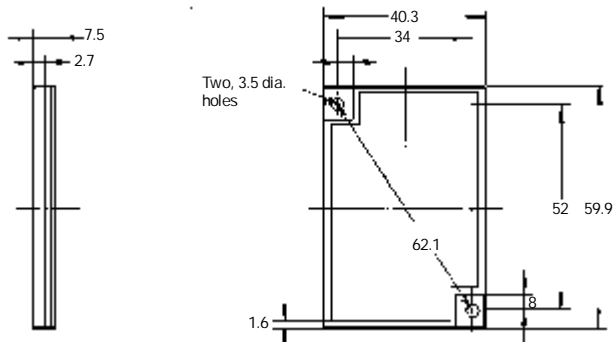
Weight: approx. 190 g



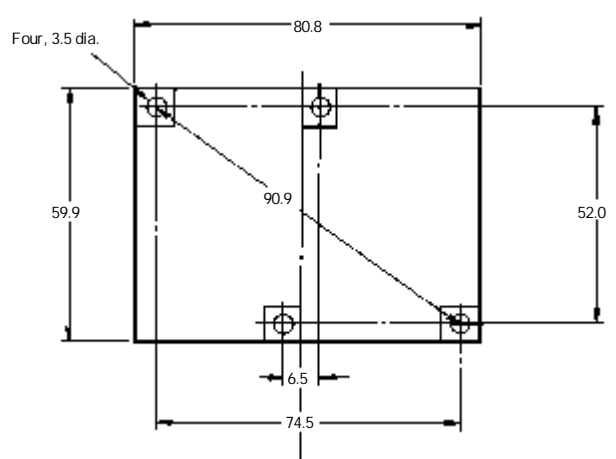
**Note:** The mounting bracket (provided with two M4 x 20 screws) can be connected to side A.

## Reflectors

### E39-R1 (Supplied with Retroreflective Types)



### E39-R2 (Order Separately)



# OMRON

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#### **ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.