

Specifications

Ratings/Characteristics

Item		Through-beam		Retro-reflective with M.S.R.		Diffuse-reflective	
		E3JM-10□4	E3JM-10□4T	E3JM-R4□4	E3JM-R4□4T	E3JM-DS70□4	E3JM-DS70□4T
Sensing distance		10 m		4 m (When using E39-R1)		White paper (200 × 200 mm): 700 mm	
Standard sensing object		Opaque: 14.8-mm dia. min.		Opaque: 75-mm dia.min.		---	
Differential travel		---		---		20% max. of sensing distance	
Directional angle		Both Emitter and Receiver 3° to 20°		1° to 5°		---	
Light source (wavelength)		Infrared LED (950 nm)		Red LED (660 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					
Power consumption		3 W max.		2 W max.			
Control output		Relay output (M Models): SPDT 250 VAC, 3 A max. (cosφ = 1) 5 VDC, 10 mA min. DC SSR output (S, R Models):48 VDC, 100 mA max. (residual voltage: 2 V max.) Light-ON/Dark-ON selectable					
Life expectancy	Mechanical	50,000,000 times min. (switching frequency: 18,000 times/h)					
	Electrical	100,000 times min. (switching frequency: 1,800 times/h)					
Response time	Relay out-put	Operation or reset: 30 ms max.					
	DC SSR output	Operation or reset: 5 ms max.					
Sensitivity adjustment		---				One-turn adjuster	
Timer function (See note.)		ON-delay/OFF-delay/One-shot delay switch selectable Delay time: 0.1 to 5 s (adjustable), only for E3JM-□□□4T					
Ambient illumination (Receiver side)		Incandescent lamp: 3,000 lx max.					
Ambient temperature		Operating:−25°C to 55°C (with no icing or condensation) Storage:−30°C to 70°C (with no icing or condensation)					
Ambient humidity		Operating:45% to 85% (with no condensation) Storage:35% to 95% (with no condensation)					
Insulation resistance		20 MΩ min. at 500 VDC between current-carrying parts and case					
Dielectric strength		2,000 VAC, 50/60 Hz for 1 min. between current-carrying parts and case					
Vibration resistance	Destruction	10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions					
	Malfunction	10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions					
Shock resistance	Destruction	500 m/s ² 3 times each in X, Y, and Z directions					
	Malfunction	100 m/s ² 3 times each in X, Y, and Z directions					
Degree of protection		IEC 60529: IP66					
Connection method		Terminal block					
Indicator		Light indicator (red), power indicator (red)	Operation indicator (red), power indicator (red)	Light indicator (red)	Operation indicator (red)	Light indicator (red)	Operation indicator (red)
Weight (packed state)		Approx. 270 g		Approx. 160 g		Approx. 160 g	
Material	Case	ABS					
	Lens	Methacrylic resin					
	Cover	Polycarbonate					
	Mounting Bracket	Iron					
Accessories		Mounting Bracket (with screw), nut, terminal protection cover, one set of cable connection nuts, reflector (E39-R1: only for retro-reflective models), instruction manual					

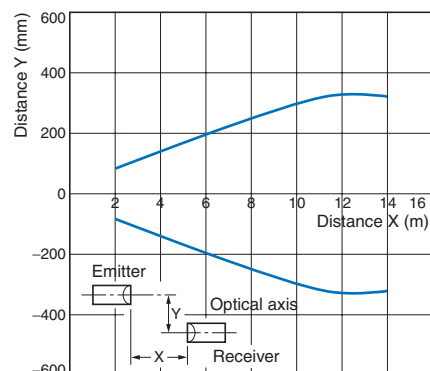
Note: The timer cannot be disabled for Models with timer functions (E3JM-□□□4T).

Engineering Data

Parallel Operating Range (Typical)

Through-beam

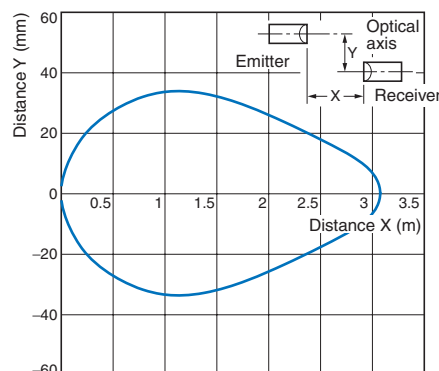
E3JM-10□4(T)



Parallel Operating Range (Typical)

Through-beam

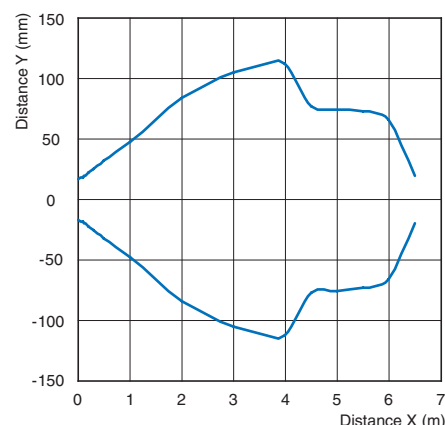
E3JM-10□4(T) with E39-S39 (Slit)



Parallel Operating Range (Typical)

Retro-reflective

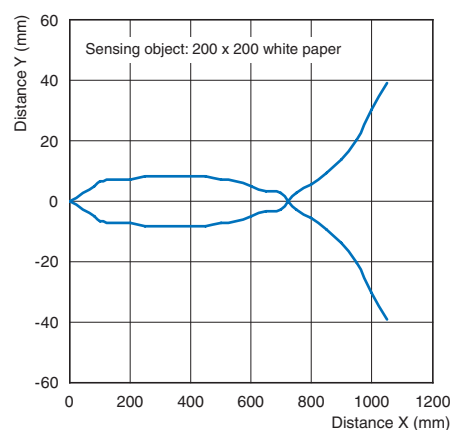
E3JM-R4□4(T) (When Using E39-R1)



Operating Range (Typical)

Diffuse-reflective

E3JM-DS70□4(T)

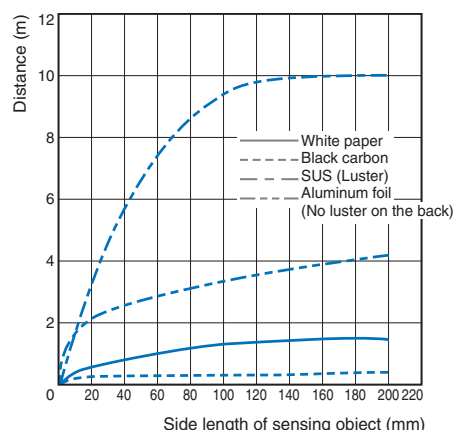


Size of Sensing Object vs. Sensing Distance

Distance

Diffuse-reflective

E3JM-DS70□4(T)

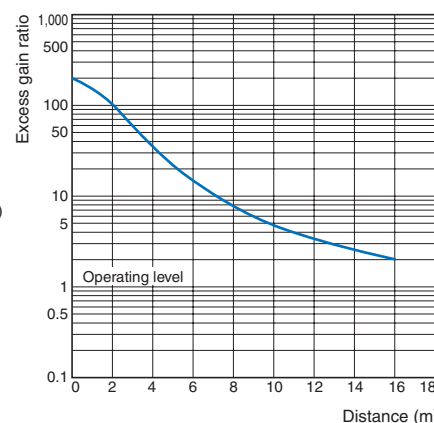


Excess Gain Ratio vs. Set Distance

(Typical)

Through-beam

E3JM-10□4(T)

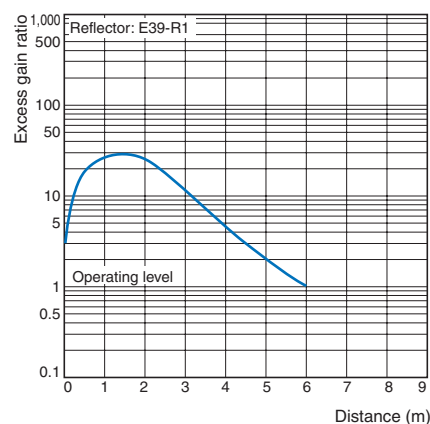


Excess Gain Ratio vs. Set Distance

(Typical)

Retro-reflective

E3JM-R4□4(T) (When Using E39-R1)

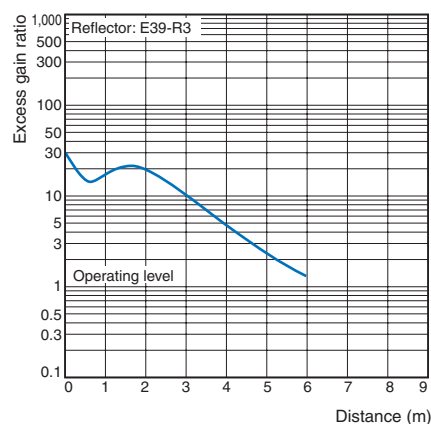


Excess Gain Ratio vs. Set Distance

(Typical)

Retro-reflective

E3JM-R4□4(T) (When Using E39-R3)



Excess Gain Ratio vs. Set Distance

(Typical)

Diffuse-reflective

E3JM-DS70□4(T)

