

E3JM/E3JK

Two Models Contribute to Overall Cost Reduction

E3JM Terminal Block Models

- Easy to wire and adjust.

E3JK Pre-wired Models

- Slim body is economically priced and full of functions.



⚠ Be sure to read *Safety Precautions* on page 10.

Ordering Information

Sensors

E3JM

Red light Infrared light

Sensing method	Appearance	Connection method	Sensing distance	Operation mode	Output configuration	Functions	Model
Through-beam		Terminal block		Light-ON Dark-ON (switch selectable)	Relay	---	E3JM-10M4
					DC SSR	Timer	E3JM-10S4
Retro-reflective with MSR function					Relay	---	E3JM-R4M4
					DC SSR	Timer	E3JM-R4S4
Diffuse-reflective					Relay	---	E3JM-DS70M4
					DC SSR	Timer	E3JM-DS70S4

E3JK

Sensing method	Appearance	Connection method	Sensing distance	Operation mode	Output configuration	Model				
Through-beam		Pre-wired		Light-ON	Relay	E3JK-5M1				
				Dark-ON		E3JK-5M2				
Retro-reflective with MSR function				Light-ON	Both selectable	DC SSR	E3JK-5S3			
							Dark-ON	E3JK-R2M1		
				Retro-reflective without MSR function			Light-ON	Both selectable	DC SSR	E3JK-R2S3
							Dark-ON			E3JK-R4M1
Diffuse-reflective				Light-ON	Both selectable	Relay	E3JK-R4M2			
				Dark-ON			E3JK-R4S3			
				Diffuse-reflective			Light-ON	Both selectable	DC SSR	E3JK-DS30M1
							Dark-ON			E3JK-DS30M2

Note: UL-listed models have the -US suffix. (Example: E3JM-10M4-US). Tightening nuts, washers, and rubber bushings are not provided with these models.

Change: Shape of the E3JM conduit socket

Note, however, that DC-type E3JK SSR Output Models are not UL-listed.

* Values in parentheses indicate the sensing distance when using E39-R2 Reflectors.

Accessories (Order Separately)

Slit

Slit width	Sensing distance	Minimum detectable object (typical)	Model	Quantity	Remarks
1 mm × 20 mm	E3JM-10□4(T)	1.2 m	E39-S39	1 Slit each for the Emitter and Receiver (2 Slits total)	(Seal-type long slit) Can be used with the E3JM-10□4(T) and E3JK-5□□ Through-beam Models.
	E3JK-5□□	0.7 m			




Reflectors

Name	Sensing distance (typical)	Model	Quantity	Remarks	
Reflectors	E3JM-R4□4(T)	4 m (rated value)	E39-R1	1	Provided with the E3JM-R4□4(T) Provided with the E3JK-R2□□ Provided with the E3JK-R4□□
	E3JK-R2□□	2.5 m (rated value)			
	E3JK-R4□□	4 m (rated value)			
	E3JK-R2□□	3 m	E39-R2	1	---
	E3JK-R4□□	5 m			
Small Reflectors	E3JM-R4□4(T)	3.5 m	E39-R3	1	---
	E3JK-R2□□	1 m (5 mm) *			
Tape Reflectors	E3JM-R4□4(T)	1 m (200 mm) *	E39-RS1	1	Enables MSR function.
	E3JK-R2□□	750 mm (200 mm) *			
	E3JM-R4□4(T)	1.6 m (200 mm) *	E39-RS2	1	
	E3JK-R2□□	1.2 m (200 mm) *			
	E3JM-R4□4(T)	2 m (200 mm) *	E39-RS3	1	
E3JK-R2□□	1.5 m (200 mm) *				

Note: When using any reflector other than the provided one, use a sensing distance of approximately 0.7 times the typical value as a guide.

* Values in parentheses are the minimum required distance between the Sensor and Reflector.

Mounting Bracket

Appearance	Model	Quantity	Remarks
	E39-L53	1	Provided with the E3JM.
	E39-L40	1	Provided with the E3JK.
	E39-L51	1	Mounting Bracket designed for changing from the E3A-M, E3A2, E3A3, OA-5, or OA-5N to the E3JM.

Note: If a Through-beam Model is used, order two Mounting Brackets, one for the Emitter and one for the Receiver.

Ratings and Specifications

E3JM

Sensing method		Through-beam model	Retro-reflective model (with MSR function)	Diffuse-reflective model
Item	Model	E3JM-10□4(T)	E3JM-R4□4(T)	E3JM-DS70□4(T)
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	DC	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)	2 W max.	
	AC	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)	2 W max.	
Control output		Relay output (E3JM-□□M4 (T) model): SPDT, 250 VAC, 3A (cosφ=1) max., 5 VDC, 10 mA min. DC SSR output (E3JM-□□S4 (T) model): 48 VDC, 100 mA max. (residual voltage: 2 V max.) Light-ON/Dark-ON selectable		
Life expectancy (relay output)	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 output	(E3JM-□□M4 (T) models) Operate or reset: 30 ms max.		
	DC SSR output	(E3JM-□□S4 (T) models) Operate or reset: 5 ms max.		
Sensitivity adjustment		---		One-turn adjuster
Timer function *		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 range		Operating: -25°C to 55°C, Storage: -30°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)		
Insulation resistance		20 MΩ min. at 500 VDC		
Dielectric strength		2,000 VAC, 50/60 Hz for 1 min.		
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		
Weight (packed state)		Approx. 270 g	Approx. 160 g	
Material	Case	ABS (Acrylonitril Butadiene Styrene)		
	Lens	Methacrylic resin		
	Cover	Polycarbonate		
	Mounting Bracket	Iron		
Accessories		Mounting Bracket (with screw), Nuts, Terminal Protection Cover, One set of cable connection nuts (excluding -US Models), Instruction manual, Reflector (E39-R1: only for Retro-reflective Sensors)		

* The timer cannot be disabled for models with timer functions (E3JM-□□□4T).

E3JK

Sensing method		Through-beam model		Retro-reflective model (with MSR function)		Retro-reflective model (without MSR function)		Diffuse-reflective model	
Item	Model	E3JK -5M□	E3JK -5S3	E3JK -R2M□	E3JK -R2S3	E3JK -R4M□	E3JK -R4S3	E3JK -DS30M□	E3JK -DS30S3
Sensing distance		5 m		2.5 m (When using E39-R1)		4 m (When using E39-R1)		White paper (100 × 100 mm): 300 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	DC	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)		2 W max.					
	AC	3 W max. (Emitter 1.5 W max. Receiver 1.5 W max.)		2 W max.					
Control output		Relay output SPDT, 250 VAC, 3 A max. (cosφ= 1) 5 VDC, 10 mA min.	DC SSR output, Negative: common 48 VDC, 100 mA max. Leakage current: 0.1 mA max. With load short-circuit protection	Relay output SPDT, 250 VAC, 3 A max. (cosφ= 1) 5 VDC, 10 mA min.	DC SSR output, Negative: common 48 VDC, 100 mA max. Leakage current: 0.1 mA max. With load short-circuit protection	Relay output SPDT, 250 VAC, 3 A max. (cosφ= 1) 5 VDC, 10 mA min.	DC SSR output, Negative: common 48 VDC, 100 mA max. Leakage current: 0.1 mA max. With load short-circuit protection	Relay output SPDT, 250 VAC, 3 A max. (cosφ= 1) 5 VDC, 10 mA min.	DC SSR output, Negative: common 48 VDC, 100 mA max. Leakage current: 0.1 mA max. With load short-circuit protection
Life expectancy (relay output)	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		30 ms max.	10 ms max.	30 ms max.	5 ms max.	30 ms max.	5 ms max.	30 ms max.	5 ms max.
Sensitivity adjustment		---						One-turn adjuster	
Ambient illumination (Receiver side)		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)							
Ambient humidity range		Operating: 45% to 85% (with no condensation), Storage: 35% to 95% (with no condensation)							
Insulation resistance		20 MΩ min. at 500 VDC							
Dielectric strength		1,500 VAC, 50/60 Hz for 1 min.							
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	500 m/s ² 3 times each in X, Y, and Z directions	100 m/s ² 3 times each in X, Y, and Z directions	500 m/s ² 3 times each in X, Y, and Z directions	100 m/s ² 3 times each in X, Y, and Z directions	500 m/s ² 3 times each in X, Y, and Z directions	100 m/s ² 3 times each in X, Y, and Z directions	500 m/s ² 3 times each in X, Y, and Z directions
Degree of protection		IEC 60529 IP64							
Connection method		Pre-wired (standard length: 2 m)							
Weight (packed state)		Approx. 420 g		Approx. 250 g					
Material	Case	ABS (Acrylonitril Butadiene Styrene)							
	Lens	Methacrylic resin							
	Mounting Bracket	Iron							
Accessories		Mounting Bracket (with screws), Nuts, Instruction manual, Reflector (Retro-reflective Models only)							

