Built-in Power Supply Photoelectric Sensor

E3JM/E3JK

CSM_E3JM_E3JK_DS_E_11A_1

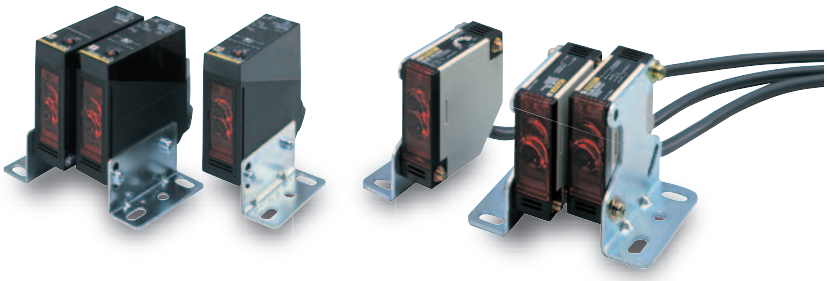
Two Models Contribute to Overall Cost Reduction

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.

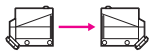
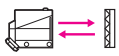
For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Ordering Information

Sensors (Refer to *Dimensions* on page 12.)

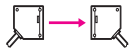
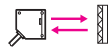
E3JM

Red light Infrared light

Sensing method	Appearance	Connection method	Sensing distance	Operation mode	Output configuration	Functions	Model
Through-beam (Emitter + Receiver) *		Terminal block	 10 m	Light-ON Dark-ON (switch selectable)	Relay	---	**E3JM-10M4-N** Emitter: E3JM-10L-N Receiver: E3JM-10DM4-N
						Timer	**E3JM-10M4T-N** Emitter: E3JM-10L-N Receiver: E3JM-10DM4T-N
					DC SSR	---	**E3JM-10S4-N** Emitter: E3JM-10L-N Receiver: E3JM-10DS4-N
						Timer	**E3JM-10S4T-N** Emitter: E3JM-10L-N Receiver: E3JM-10DS4T-N
Retro-reflective with MSR function	 E39-R1 (provided)		 4 m		Relay	---	**E3JM-R4M4**
						Timer	**E3JM-R4M4T**
					DC SSR	---	**E3JM-R4S4**
						Timer	**E3JM-R4S4T**
Diffuse-reflective			 700 mm		Relay	---	**E3JM-DS70M4**
						Timer	**E3JM-DS70M4T**
					DC SSR	---	**E3JM-DS70S4**
						Timer	**E3JM-DS70S4T**

* Through-beam Sensors are sold in sets that include both the Emitter and Receiver.

E3JK

Sensing method	Appearance	Connection method	Sensing distance	Operation mode	Output configuration	Model
Through-beam (Emitter + Receiver) *1		Pre-wired (2 m)	5 m	Light-ON	Relay	**E3JK-5M1-N 2M** Emitter: E3JK-5L-N 2M Receiver: E3JK-5DM1-N 2M
				Dark-ON		**E3JK-5M2-N 2M** Emitter: E3JK-5L-N 2M Receiver: E3JK-5DM2-N 2M
				Light-ON / Dark-ON Both selectable	DC SSR	**E3JK-5S3-N 2M** Emitter: E3JK-5L-N 2M Receiver: E3JK-5DS3-N 2M
Retro-reflective with MSR function			*2 2.5 m (3 m)	Light-ON	Relay	**E3JK-R2M1 2M**
				Dark-ON		**E3JK-R2M2 2M**
				Light-ON / Dark-ON Both selectable	DC SSR	**E3JK-R2S3 2M**
Retro-reflective without MSR function	E39-R1 (provided)		*2 4 m (5 m)	Light-ON	Relay	**E3JK-R4M1 2M**
				Dark-ON		**E3JK-R4M2 2M**
				Light-ON / Dark-ON Both selectable	DC SSR	**E3JK-R4S3 2M**
Diffuse-reflective			300 mm	Light-ON	Relay	**E3JK-DS30M1 2M**
				Dark-ON		**E3JK-DS30M2 2M**
				Light-ON / Dark-ON Both selectable	DC SSR	**E3JK-DS30S3 2M**

Note: UL-listed models have the -US suffix. The model number for an E3JM Through-beam Sensor ends in "-US" (and not in "-N"). (Example: E3JM-10M4-US). The model number for an E3JK Through-beam Sensor has "-US" after "-N". (Example: E3JK-5M1-N-US 2M). 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.

*1. Through-beam Sensors are sold in sets that include both the Emitter and Receiver.
*2. Values in parentheses indicate the sensing distance when using E39-R2 Reflectors.

Accessories (Order Separately)

Slit (A Slit is not provided with the Sensor for through-beam. Order a Slit separately if required.) (Refer to *Dimensions* on page 12.)

Slit width	Sensing distance		Minimum detectable object (reference value)	Model	Quantity	Remarks
1 mm × 20 mm	E3JM-10□4(T)-N	1.2 m	1-mm dia.	**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)-N and E3JK-5□□-N Through-beam Models.
	E3JK-5□□-N	0.7 m				

Reflectors (A Reflector is required for Retroreflective Sensors.)

A Reflector is provided with the E39-R1 Sensor. For other Sensors, order a Reflector separately if required. (Refer to *Dimensions* on *E39-L/E39-S/E39-R*.)

Name	Sensing distance		Model	Quantity	Remarks
Reflectors	E3JM-R4□4(T)	4 m	**E39-R1**	1	Provided with the E3JM-R4□4(T)
	E3JK-R2□□	2.5 m			Provided with the E3JK-R2□□
	E3JK-R4□□	4 m			Provided with the E3JK-R4□□

Note: Refer to *Reflectors* on *E39-L/E39-S/E39-R* for details.

Mounting Bracket

Some Mounting Brackets are provided with the Sensor. Order other Mounting Brackets separately if required. **(Refer to E39-L/E39-S/E39-R)**

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 he E3A-M, E3A2, E3A3, OA-5, or OA-5N to the E3JM.

Note: 1. When using a Through-beam Sensor, order one Connector for the Receiver and one for the Emitter.
2. Refer to *Mounting Brackets* on *E39-L/E39-S/E39-R* for details.

Ratings and Specifications

E3JM

Item \ Sensing method		Through-beam model	Retro-reflective model (with MSR function)	Diffuse-reflective model
Item \ Model		E3JM-10□4(T)-N	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

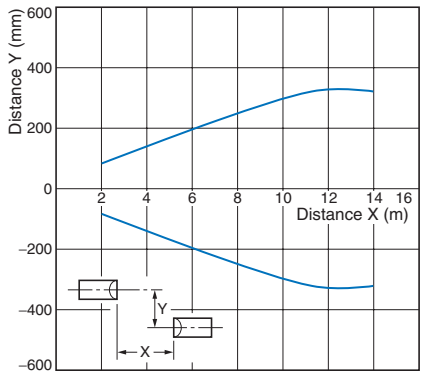
Sensing method		Through-beam model		Retro-reflective model (with MSR function)		Retro-reflective model (without MSR function)		Diffuse-reflective model	
Item	Model	E3JK -5M□-N	E3JK -5S3-N	E3JK -R2M□	E3JK -R2S3	E3JK -R4M□	E3JK -R4S3	E3JK -DS30M□	E3JK -DS30S3
Sensing distance		5 m		2.5 m (When using E39-R1)		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/s² 3 times each in X, Y, and Z directions							
	Malfunction	100 m/s² 3 times each in X, Y, and Z directions	500 m/s² 3 times each in X, Y, and Z directions	100 m/s² 3 times each in X, Y, and Z directions	500 m/s² 3 times each in X, Y, and Z directions	100 m/s² 3 times each in X, Y, and Z directions	500 m/s² 3 times each in X, Y, and Z directions	100 m/s² 3 times each in X, Y, and Z directions	500 m/s² 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)							

Engineering Data (Reference Value)

Parallel Operating Range

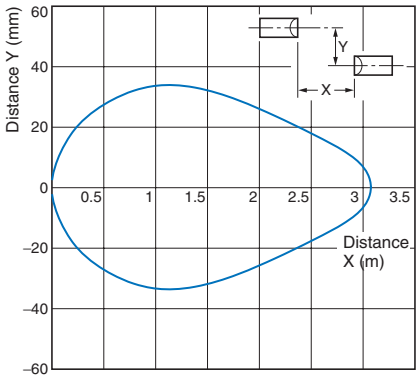
Through-beam

E3JM-10□4(T)-N



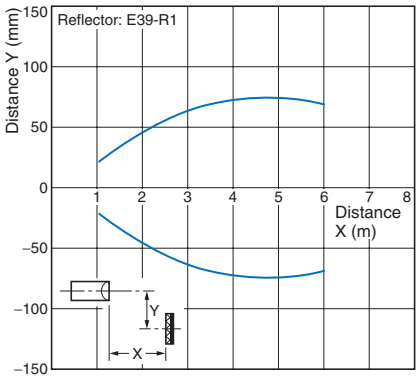
Through-beam

E3JM-10□4(T)-N + E39-S39 (Optional Slit)
(A Slit is mounted to the Emitter and Receiver.)



Retro-reflective

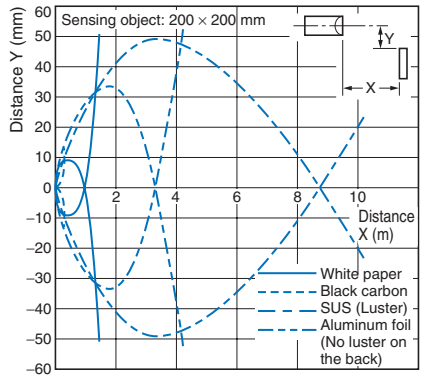
E3JM-R4□4(T) + E39-R1
(Supplied Reflector)



Operating Range

Diffuse-reflective

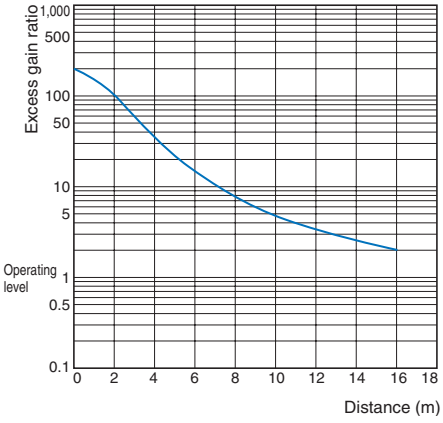
E3JM-DS70□4(T)



Excess Gain Ratio vs. Set Distance

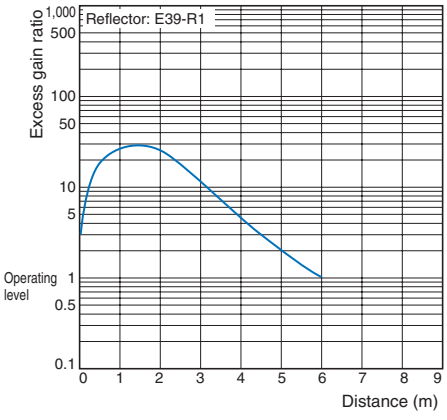
Through-beam

E3JM-10□4(T)-N

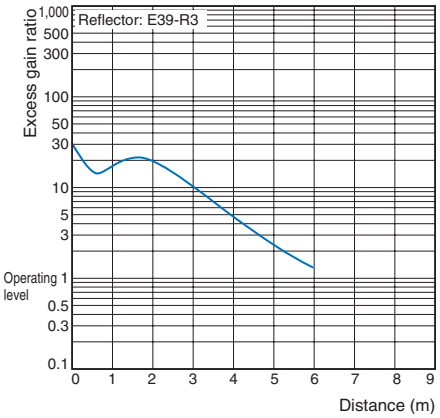


Retro-reflective

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

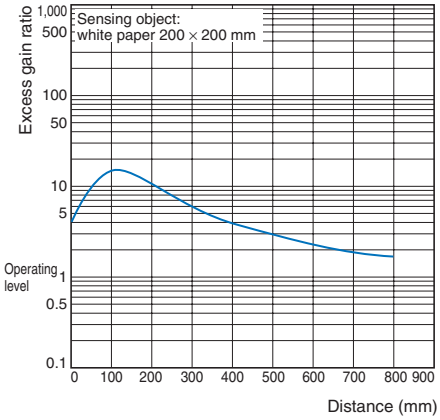


E3JM-R4□4(T) + E39-R3
(Optional Reflector)



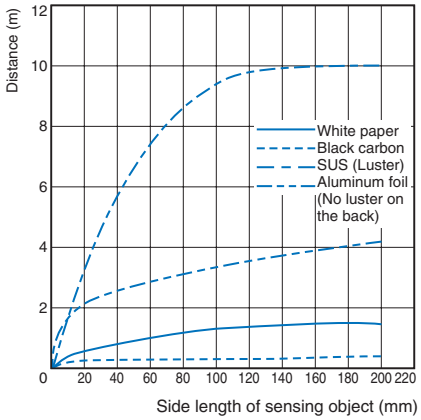
Diffuse-reflective

E3JM-DS70□4(T)



Sensing Object Size vs. Sensing Distance

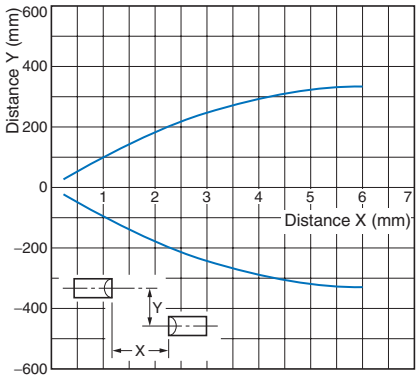
E3JM-DS70□4(T)



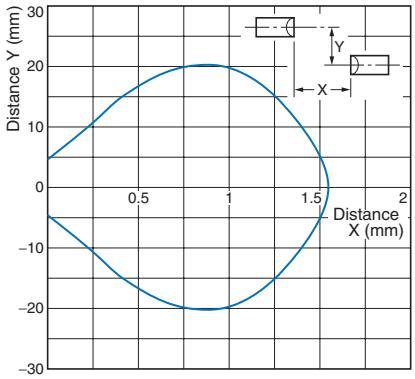
Parallel Operating Range

Through-beam

E3JK-5□□-N

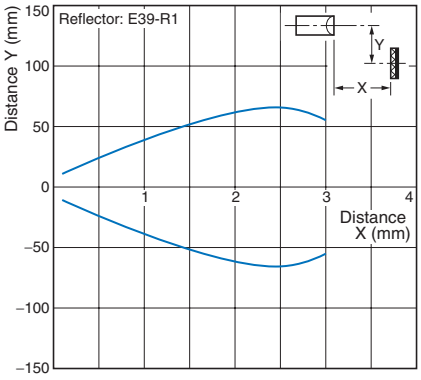


E3JK-5□□-N + E39-S39 (Optional Slit)
(A Slit is mounted to the Emitter and Receiver.)

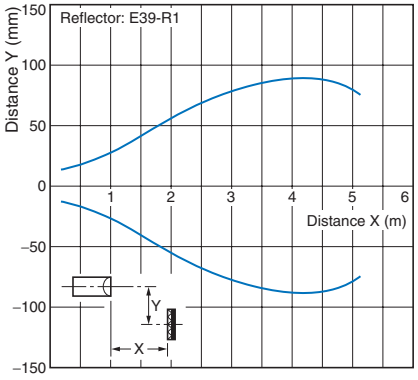


Retro-reflective

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



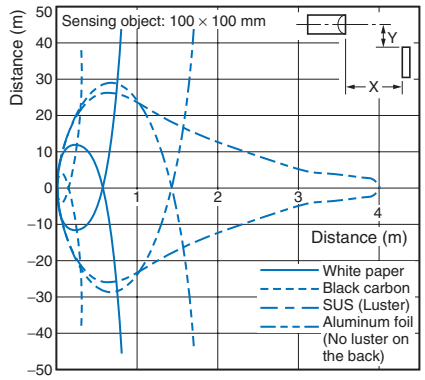
E3JK-R4□□ + E39-R1
(Supplied Reflector)



Operating Range

Diffuse-reflective

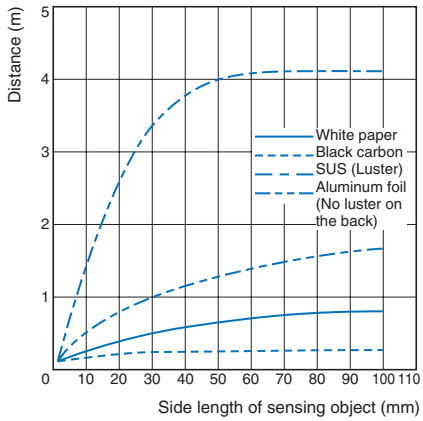
E3JK-DS30□□



Sensing Object Size vs. Sensing Distance

Diffuse-reflective

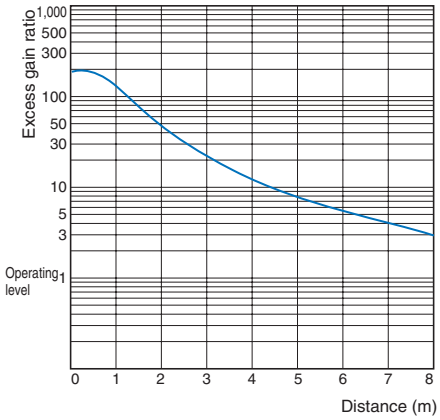
E3JK-DS30□□



Excess Gain Ratio vs. Set Distance

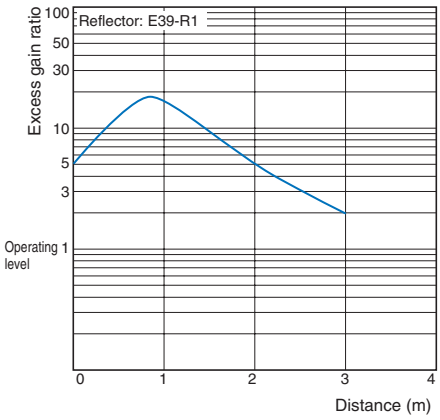
Through-beam

E3JK-5□□-N

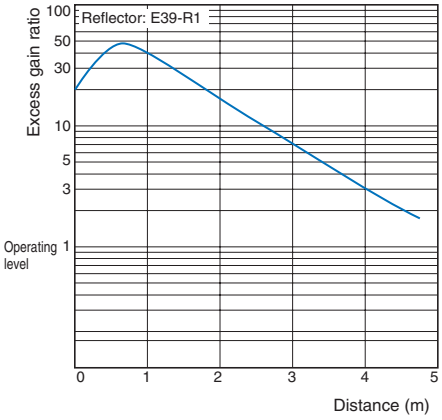


Retro-reflective

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

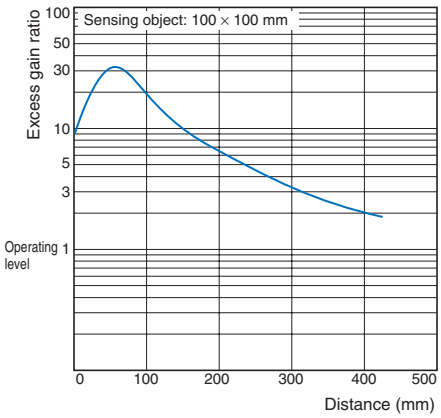


E3JK-R4□□ + E39-R1 (Supplied Reflector)



Diffuse-reflective

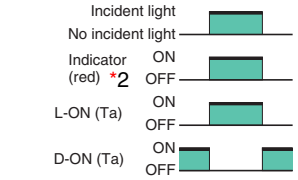
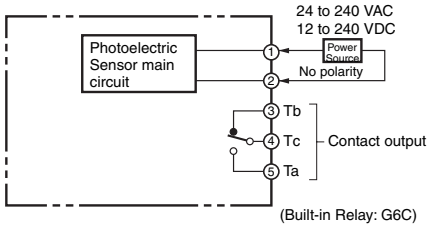
E3JK-DS30□□



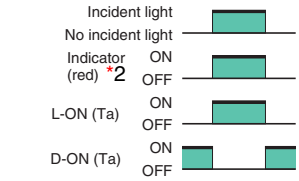
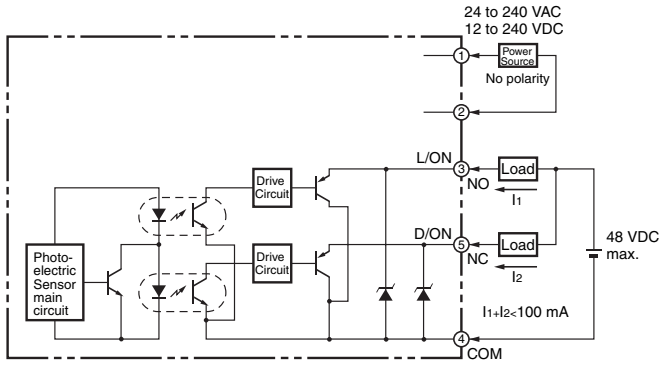
I/O Circuit Diagrams

E3JM

Relay Output Models

Model	Timing chart	Output circuit
E3JM-10M4(T)-N *1 E3JM-R4M4(T) E3JM-DS70M4(T)	 Refer to page 10 for information on Sensors with timers (T).	 (Built-in Relay: G6C)

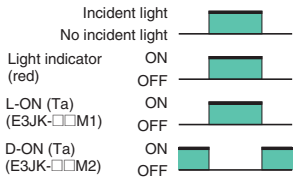
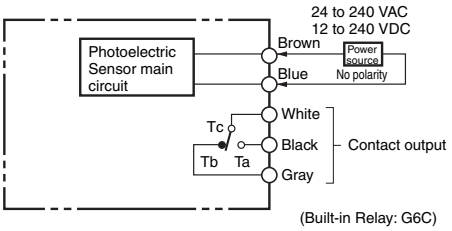
DC SSR Output Models

Model	Timing chart	Output circuit
E3JM-10S4(T)-N *1 E3JM-R4S4(T) E3JM-DS70S4(T)	 Refer to page 10 for information on Sensors with timers (T).	

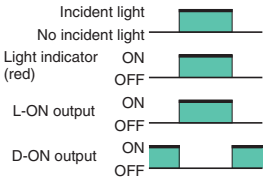
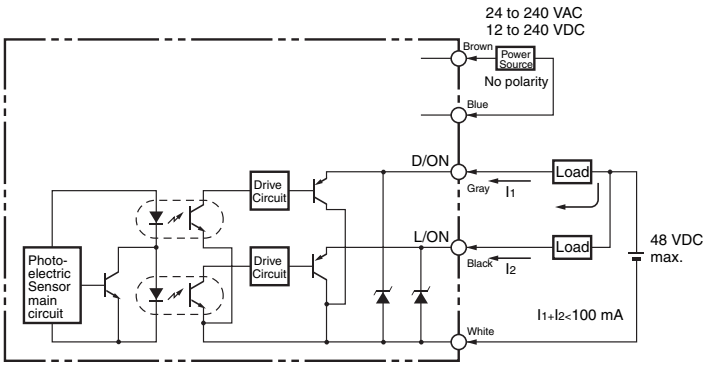
Note: Connect terminal 1 to any polarity and terminal 2 to the power supply because there is no polarity on the Emitter side.
*1. Models numbers for Through-beam Sensors (E3JM-10□4(T)-N) are for sets that include both the Emitter and Receiver. The model number of the Emitter is always E3JM-10L-N. Add a "D" to get the model number of the Receiver (example: E3JM-10DM4-N). Confirm the model numbers of the Emitter and Receiver in *Ordering Information*.
*2. This is the light indicator on Sensors without a timer and the operation indicator on Sensors with a timer.

E3JK

Relay Output Models

Model	Timing chart	Output circuit
E3JK-5M1-N * E3JK-5M2-N * E3JK-R2M1 E3JK-R2M2 E3JK-R4M1 E3JK-R4M2 E3JK-DS30M1 E3JK-DS30M2		 (Built-in Relay: G6C)

DC SSR Output Models

Model	Timing chart	Output circuit
E3JK-5S3-N * E3JK-R2S3 E3JK-R4S3 E3JK-DS30S3		 Note: The output stage leakage currents are 0.1 mA max., respectively.

Note: Connect the brown cable to any polarity and the blue cable to the power supply because there is no polarity on the Emitter side.
* Models numbers for Through-beam Sensors (E3JK-5□□-N 2M) are for sets that include both the Emitter and Receiver. The model number of the Emitter is always E3JK-5L-N 2M. Add a "D" to get the model number of the Receiver (example: E3JK-5DM1-N 2M). Confirm the model numbers of the Emitter and Receiver in *Ordering Information*.

Safety Precautions

Refer to *Warranty and Limitations of Liability*.

⚠ WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.

Precautions for Correct Use

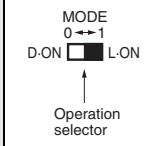
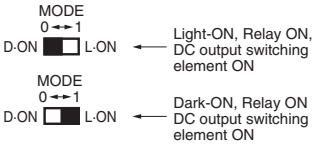
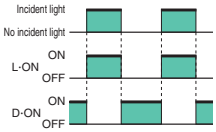
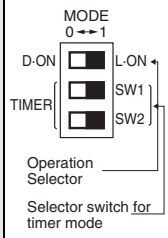
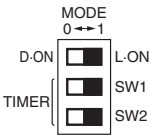
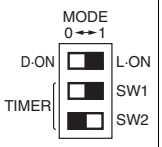
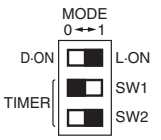
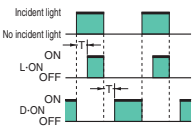
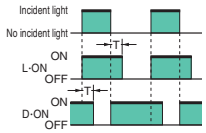
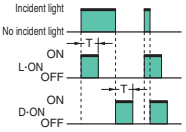
Do not use the product in atmospheres or environments that exceed product ratings.

E3JM

● **Designing**

Operation

Note: ■ The white part of the DIP switch indicates which setting is selected.

	Switch configuration	Switch selection			Timing charts		
Models without timer							
Models with timer		ON-delay	OFF-delay	One-shot delay	ON-delay	OFF-delay	One-shot delay
		 Both SW1 and SW2 at "0."	 Only SW2 at "1."	 Only SW1 at "1," which overrides either setting of SW2.			
		Note: The operation selector is the same as that for models without a timer.					

Output Relay Contact

If E3JM/E3JK is connected to a load with contacts that spark when the load is turned OFF (e.g., a contactor or valve), the normally-closed side may be turned ON before the normally-open side is turned OFF or vice-versa. If both normally-open output and normally-closed output are used simultaneously, apply an surge suppressor to the load.
Refer to *OMRON's PCB Relays Catalog* (X33) for typical examples of surge suppressors.

● Wiring

Connecting and Wiring

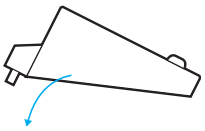
- We recommend connecting a cable with a conductor cross-section of 0.3 mm^2 and an outer diameter of 6 to 8 mm.
- Be sure to firmly tighten the cover in order to maintain waterproof and dustproof properties. The screw size of the conduit sockets is shown in the following table.

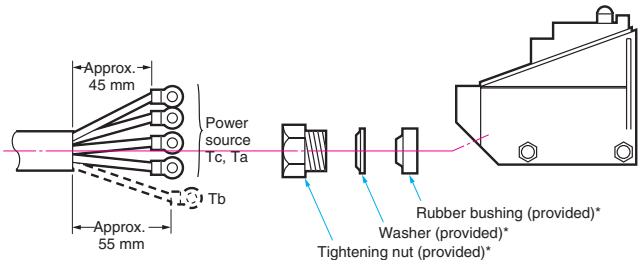
Model	Conduit socket thread size
E3JM-□	PF1/2

Cable End Treatment

Adjust the four wires to the same length when the Ta output is to be used only. If both the Ta and Tb outputs are to be used, treat them as shown in the following diagram.

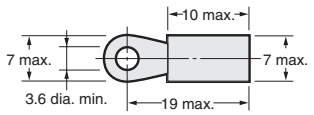
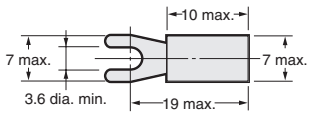
Recommended example





* These parts are not provided with models with a -US suffix.

Recommended Crimp Terminal Dimensions (Unit: mm)

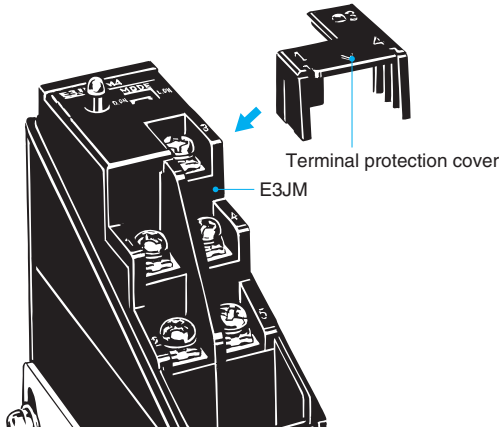
Round type	Fork type
	
(After crimping)	(After crimping)

Note: Use terminals with insulation tube (recommended crimp terminal: 1.25 to 3.5).

● Others

Terminal Protection Cover (Provided)

The terminal protection cover is designed to improve safety by maintaining the sensitivity properties of the product and by preventing any contact with charged sections while it is being operated with the mode set to the timer mode. Mount the product as shown in the following diagram (mount the Through-beam Model on the Receiver side).



E3JK

● Designing

Power Reset Time

The Sensor is ready to detect within 200 ms after it is turned ON. If the Sensor and load are connected to separate power supplies, be sure to turn ON the Sensor first.

Items Common to E3JM and E3JK

● Wiring

Connecting and Wiring DC SSR Output Models

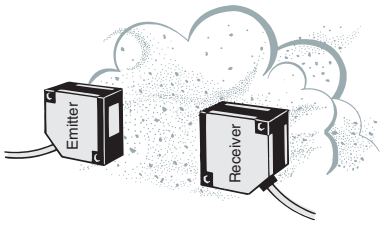
When using the DC SSR output model, the total of the load current for the Light-ON output (NO) and that for the Dark-ON (NC) should be 100 mA max. If the total exceeds 100 mA, the load short-circuit protection function will be activated (this function will be reset when the power of the Photoelectric Sensor is turned OFF).

● Others

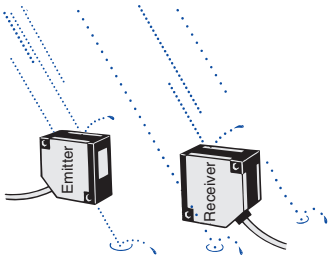
Ambient Conditions (Installation Area)

The E3JM will malfunction if installed in the following places.

- Places where the E3JM is exposed to a dusty environment.
- Places where corrosive gases are produced.



- Places where the E3JM is directly exposed to water, oil, or chemicals.

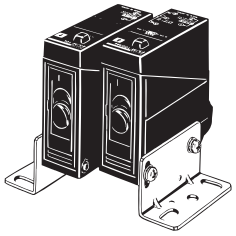


Dimensions

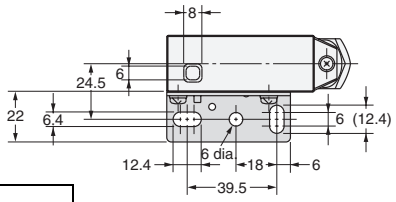
(Unit: mm)
Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

Sensors

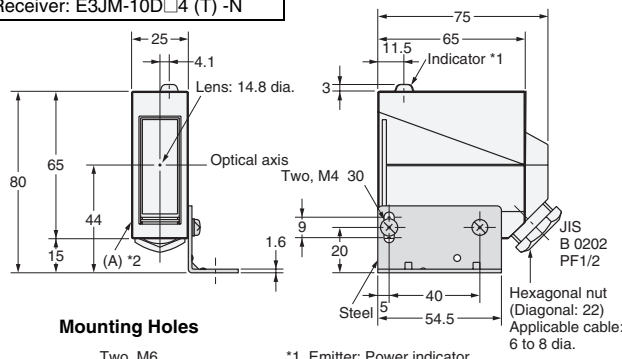
E3JM-10□4(T)-N *1



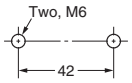
With Mounting Bracket Attached



Emitter: E3JM-10L-N
Receiver: E3JM-10D□4 (T) -N



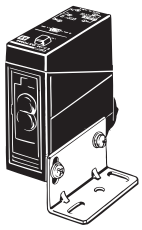
Mounting Holes



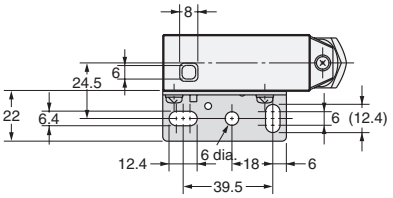
*1. Emitter: Power indicator
Receiver: Light indicator (without timer function)
Operation indicator (with timer function)
*2. Mounting Brackets can be used on the A side.

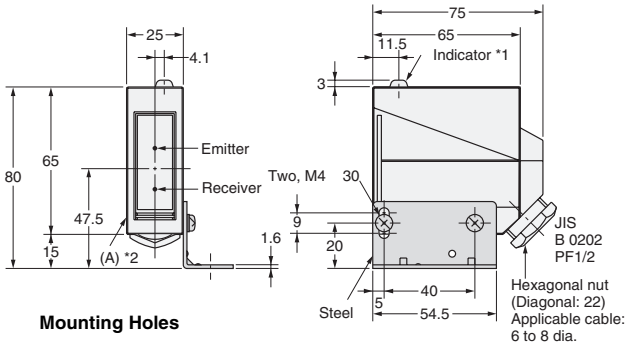
Note: The operating mode switch and timer mode switch are located inside the cover.

E3JM-R4□4(T)
E3JM-DS70□4(T)

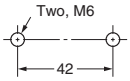


With Mounting Bracket Attached





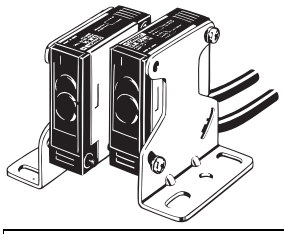
Mounting Holes



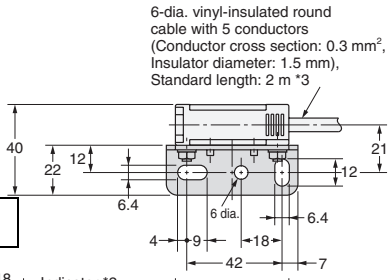
*1. Light indicator (without timer function)
Operation indicator (with timer function)
*2. Mounting Brackets can be used on the A side.

Note: The operating mode switch, timer mode switch, and sensitivity adjuster (sensitivity adjuster: E3JM-DS70□4(T) only) are located inside the cover.

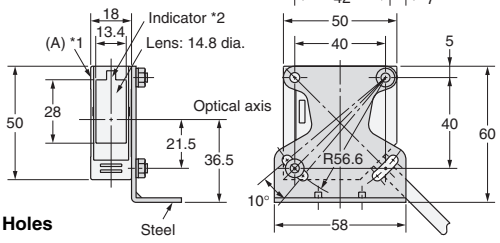
E3JK-5□□-N *2



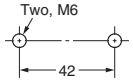
With Mounting Bracket Attached



Emitter: E3JK-5L-N
Receiver: E3JK-5D□□-N

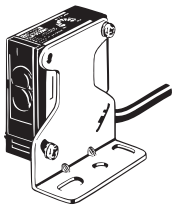


Mounting Holes

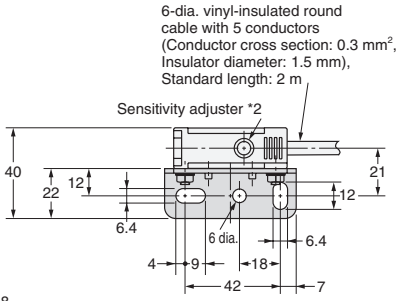


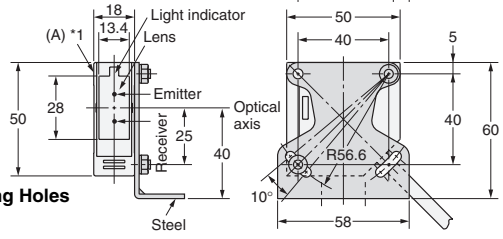
*1. Mounting Brackets can be used on the A side
(M4 20 screws: 2 sets provided)
*2. Emitter: Power indicator
Receiver: Light indicator
*3. The Emitter has two conductors.

E3JK-R2□□
E3JK-R4□□
E3JK-DS30□□

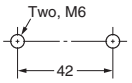


With Mounting Bracket Attached





Mounting Holes



*1. Mounting Brackets can be used on the A side
(M4 20 screws: 2 sets provided)
*2. Sensitivity adjusters are not available on
Retro-reflective models.

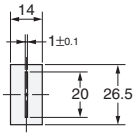
*1. Models numbers for Through-beam Sensors (E3JM-10□4(T)-N) are for sets that include both the Emitter and Receiver.
The model number of the Emitter is always E3JM-10L-N. Add a "D" to get the model number of the Receiver (example: EE3JM-10DM4-N). Confirm the model numbers of the Emitter and Receiver in *Ordering Information*.
*2. Models numbers for Through-beam Sensors (E3JK-5□□-N) are for sets that include both the Emitter and Receiver.
The model number of the Emitter is always E3JK-5L-N 2M. Add a "D" to get the model number of the Receiver (example: E3JK-5DM1-N 2M). Confirm the model numbers of the Emitter and Receiver in *Ordering Information*.

Accessories (Order separately)

Seal-type Long Slit (For E3JM/E3JK)

E39-S39

Materials: Polyester
0.1-mm thick



Mounting Brackets

Refer to *E39-L/E39-S/E39-R* for details.

Terms and Conditions of Sale

1. Offer; Acceptance. These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
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8. Financial. If the financial position of Buyer at any time becomes unsatisfactory to Omron, Omron reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Omron may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
9. Cancellation; Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
10. Force Majeure. Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
11. Shipping; Delivery. Unless otherwise expressly agreed in writing by Omron:
    a. Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
    b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
    c. All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid;
    d. Delivery and shipping dates are estimates only; and
    e. Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
12. Claims. Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Products from Omron in the condition claimed.
13. Warranties. (a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied. (b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty. See http://www.omron247.com or contact your Omron representative for published information.
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16. Property; Confidentiality. Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
17. Export Controls. Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (iii) sale of products to "forbidden" or other proscribed persons; and (ii) disclosure to non-citizens of regulated technology or information.
18. Miscellaneous. (a) Waiver. No failure or delay by Omron in exercising any right and no course of dealing between Buyer and Omron shall operate as a waiver of rights by Omron. (b) Assignment. Buyer may not assign its rights hereunder without Omron's written consent. (c) Law. These Terms are governed by the law of the jurisdiction of the home office of the Omron company from which Buyer is purchasing the Products (without regard to conflict of law principles). (d) Amendment. These Terms constitute the entire agreement between Buyer and Omron relating to the Products, and no provision may be changed or waived unless in writing signed by the parties. (e) Severability. If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision. (f) Setoff. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice. (g) Definitions. As used herein, "including" means "including without limitation"; and "Omron Companies" (or similar words) mean Omron Corporation and any direct or indirect subsidiary or affiliate thereof.

Certain Precautions on Specifications and Use

1. Suitability of Use. Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given:
   (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
   (ii) Use in consumer products or any use in significant quantities.
   (iii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
   (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this Product.
   NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
2. Programmable Products. Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.
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