Slot-type Photomicrosensor with connector or pre-wired models (Non-modulated) *1

EE-SX47/67 NEW

Photomicrosensor with 50- to 100-mA direct switching capacity for built-in application.

- Series includes models that enable switching between dark-ON and light-ON operation.
- Response frequency as high as 1 kHz.
- Easy operation monitoring with bright light indicator.
- Wide operating voltage range: 5 to 24 VDC
- Models in which the light indicator turns ON for dark-ON operation are also available.
- A wide range of variations in eight different shapes.
- Flexible robot cable is provided as a standard feature. *2

⚠ Be sure to read *Safety Precautions* on page 8.

*1. Only the EE-SX67 Series has pre-wired models.
*2. Pre-wired models only.

Ordering Information

Connector models

Infrared light

Appearance	Sensing method	Connecting method	Sensing distance	Output configuration	Indicator mode	Model	
						NPN output	PNP output
Standard 	Through-beam type (with slot)	Connector (4 poles)	5 mm (slot width)	Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX670	EE-SX670P
					No incident light	EE-SX670A	EE-SX670R
				Light-ON	Incident light	EE-SX470	EE-SX470P
L-shaped 				Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX671	EE-SX671P
					No incident light	EE-SX671A	EE-SX671R
				Light-ON	Incident light	EE-SX471	EE-SX471P
T-shaped 				Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX672	EE-SX672P
					No incident light	EE-SX672A	EE-SX672R
				Light-ON	Incident light	EE-SX472	EE-SX472P
Close-mounting 				Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX673	EE-SX673P
					No incident light	EE-SX673A	EE-SX673R
				Light-ON	Incident light	EE-SX473	EE-SX473P
Close-mounting 				Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX674	EE-SX674P
					No incident light	EE-SX674A	EE-SX674R
				Light-ON	Incident light	EE-SX474	EE-SX474P
T-shaped, slot center: 10 mm 				Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX675 NEW	EE-SX675P NEW
F-shaped 				Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX676 NEW	EE-SX676P NEW
R-shaped 				Dark-ON/Light-ON (selectable) *3	Incident light	EE-SX677 NEW	EE-SX677P NEW

*3. These models can be used as Light-ON when the L terminal and positive (+) terminal are connected to each other. To use them as Dark-ON, do not connect these terminals to each other. When used at light-ON, it is useful to select the connector EE-1001-1. The L terminal and positive (+) terminal of this connector are short-circuited in advance.

Pre-wired Models and Models with Junction Connectors

Infrared light

Appearance	Sensing method	Sensing distance	Output configuration	Indicator mode	Connecting method	Model	
						NPN output	PNP output
Standard 	Through-beam type (with slot)	5 mm (slot width)	Dark-ON/ Light-ON (selectable) *	Incident light	Pre-wired models (1 m)	**EE-SX670-WR** NEW	**EE-SX670P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX670-C1J-R** NEW	**EE-SX670P-C1J-R** NEW
L-shaped 					Pre-wired models (1 m)	**EE-SX671-WR** NEW	**EE-SX671P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX671-C1J-R** NEW	**EE-SX671P-C1J-R** NEW
T-shaped, slot center: 7 mm 					Pre-wired models (1 m)	**EE-SX672-WR** NEW	**EE-SX672P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX672-C1J-R** NEW	**EE-SX672P-C1J-R** NEW
Close-mounting 					Pre-wired models (1 m)	**EE-SX673-WR** NEW	**EE-SX673P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX673-C1J-R** NEW	**EE-SX673P-C1J-R** NEW
Close-mounting 					Pre-wired models (1 m)	**EE-SX674-WR** NEW	**EE-SX674P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX674-C1J-R** NEW	**EE-SX674P-C1J-R** NEW
T-shaped, slot center: 10 mm 					Pre-wired models (1 m)	**EE-SX675-WR** NEW	**EE-SX675P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX675-C1J-R** NEW	**EE-SX675P-C1J-R** NEW
F-shaped 					Pre-wired models (1 m)	**EE-SX676-WR** NEW	**EE-SX676P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX676-C1J-R** NEW	**EE-SX676P-C1J-R** NEW
R-shaped 					Pre-wired models (1 m)	**EE-SX677-WR** NEW	**EE-SX677P-WR** NEW
					Models with junction connectors (0.1 m)	**EE-SX677-C1J-R** NEW	**EE-SX677P-C1J-R** NEW

* These models can be used as Light-ON when the L line and positive (+) line are connected to each other.
To use them as Dark-ON, do not connect these lines to each other.

Accessories for Models with Connectors (Order Separately)

Type		Cable length	Model	Remarks
Connector			**EE-1001**	
			EE-1001-1	L terminal and positive (+) terminal are already short-circuited.
			EE-1009	
	Connector with Cable	1 m	**EE-1006**	
			EE-1010	
		2 m	**EE-1006**	
			EE-1010	
	Connector with Robot Cable	1 m	**EE-1010-R**	
		2 m	**EE-1010-R**	
Connector Hold-down Clip			**EE-1006A**	For EE-1006 only.

Accessories for Models with Junction Connectors (Order Separately)

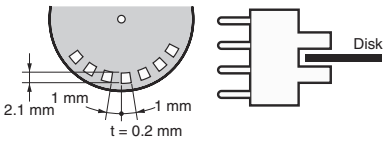
Type	Cable length	Model	Remarks
Connector with Robot Cable	2m	**EE-1016-R-1** NEW	For EE-SX67□-C1J-R.

EE-SX47/67

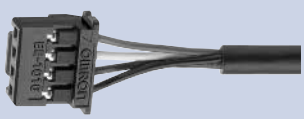
Ratings and Specifications

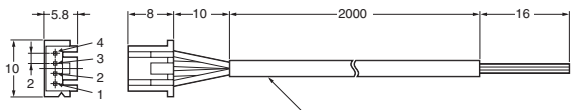
Item			Type	Standard	L-shaped	T-shaped, slot center: 7 mm	Close-mounting		T-shaped, slot center: 10 mm	F-shaped	R-shaped
	NPN models		Connector	EE-SX670 EE-SX670A EE-SX470	EE-SX671 EE-SX671A EE-SX471	EE-SX672 EE-SX672A EE-SX472	EE-SX673 EE-SX673A EE-SX473	EE-SX674 EE-SX674A EE-SX474	EE-SX675	EE-SX676	EE-SX677
			Pre-wired models	EE-SX670-WR	EE-SX671-WR	EE-SX672-WR	EE-SX673-WR	EE-SX674-WR	EE-SX675-WR	EE-SX676-WR	EE-SX677-WR
			Models with junction connectors	EE-SX670-C1J-R	EE-SX671-C1J-R	EE-SX672-C1J-R	EE-SX673-C1J-R	EE-SX674-C1J-R	EE-SX675-C1J-R	EE-SX676-C1J-R	EE-SX677-C1J-R
	PNP models		Connector	EE-SX670P EE-SX670R EE-SX470P	EE-SX671P EE-SX671R EE-SX471P	EE-SX672P EE-SX672R EE-SX472P	EE-SX673P EE-SX673R EE-SX473P	EE-SX674P EE-SX674R EE-SX474P	EE-SX675P	EE-SX676P	EE-SX677P
			Pre-wired models	EE-SX670P-WR	EE-SX671P-WR	EE-SX672P-WR	EE-SX673P-WR	EE-SX674P-WR	EE-SX675P-WR	EE-SX676P-WR	EE-SX677P-WR
			Models with junction connectors	EE-SX670P-C1J-R	EE-SX671P-C1J-R	EE-SX672P-C1J-R	EE-SX673P-C1J-R	EE-SX674P-C1J-R	EE-SX675P-C1J-R	EE-SX676P-C1J-R	EE-SX677P-C1J-R
Sensing distance				5 mm (slot width)							
Sensing object				Opaque: 2 × 0.8 mm min.							
Differential distance				0.025 mm							
Light source				GaAs infrared LED with a peak wavelength of 940 nm							
Indicator *1				Light indicator (red) (turns ON when light is interrupted for models with A or R suffix)							
Supply voltage				5 to 24 VDC ±10%, ripple (p-p): 10% max.							
Current consumption				35 mA max. (NPN models), 30 mA max. (PNP models)							
Control output				NPN open collector: 5 to 24 VDC, 100 mA max. 100 mA load current with a residual voltage of 0.8 V max. 40 mA load current with a residual voltage of 0.4 V max. PNP open collector: 5 to 24 VDC, 50 mA max. 50 mA load current with a residual voltage of 1.3 V max.							
Response frequency *2				1 kHz min. (3 kHz average)							
Ambient illumination				1,000 lx max. with fluorescent light on the surface of the receiver.							
Ambient temperature range				Operating: –25 to +55°C, Storage: –30 to +80°C							
Ambient humidity range				Operating: 5% to 85%, Storage: 5% to 95%							
Vibration resistance				Destruction: 20 to 2,000 Hz (peak acceleration: 100 m/s^2) 1.5-mm double amplitude for 2 h (4-min periods) each in X, Y, and Z directions							
Shock resistance				Destruction: 500 m/s^2 for 3 times each in X, Y, and Z directions							
Enclosure rating				IEC60529 IP50							
Connecting method				Special connectors (direct soldering possible), Pre-wired models (Standard cable length: 1 m), Models with junction connectors (Standard cable length: 0.1 m)							
Weight (packaged)			Connector	Approx. 3.1 g	Approx. 3 g	Approx. 2.4 g	Approx. 2.3 g	Approx. 3 g	Approx. 2.7 g	Approx. 2.2 g	Approx. 2.2 g
			Pre-wired models	Approx. 18.9 g	Approx. 17.3 g	Approx. 17.8 g	Approx. 16.8 g	Approx. 17.1 g	Approx. 18.3 g	Approx. 16.9 g	Approx. 16.9 g
			Models with junction connectors	Approx. 6.3 g	Approx. 4.7 g	Approx. 5.2 g	Approx. 4.2 g	Approx. 4.5 g	Approx. 5.7 g	Approx. 4.3 g	Approx. 4.3 g
Material	Case			Polybutylene phthalate (PBT)							
	Cover emitter/receiver			Polycarbonate							

*1. The indicator is a GaP red LED (peak wavelength: 690 nm).
*2. The response frequency was measured by detecting the rotating disk shown at the right.



Connector for the EE-SX67 with Junction Connector

Item		Product	Connector with Robot Cable
		Model	EE-1016-R-1
		Appearance	
Contact resistance			25 mΩ max.(at 10 mA DC and 20 mV max.)
Insertion strength			20 N max.
Surplus strength (housing holding strength)			15 N min.
Cable length			2 m
Ambient temperature range			–25 to 85°C
Materials	Housing		Nylon
	Contact		Phosphor bronze

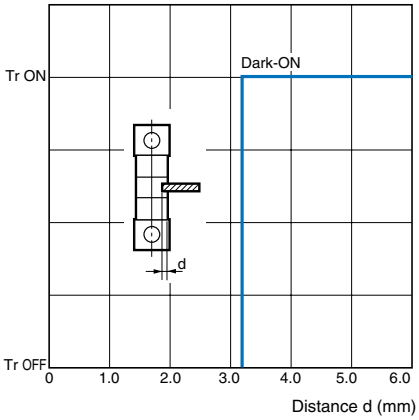


Terminal Arrangement

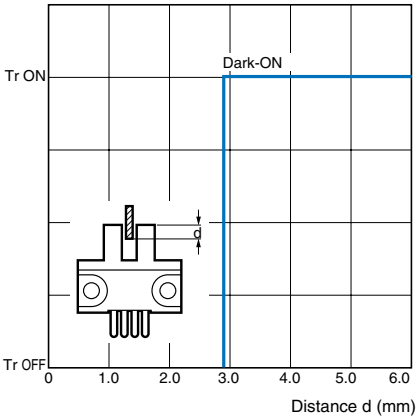
1	⊕	Brown
2	L	Pink
3	⊖	Blue
4	OUT	Black

Engineering Data (Typical)

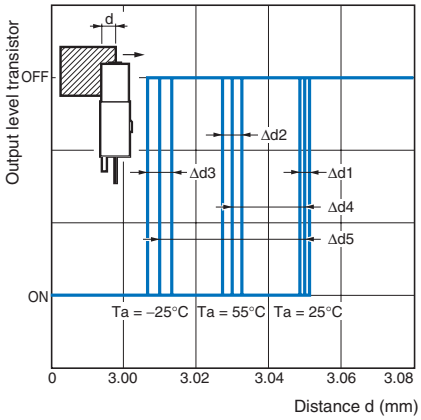
Sensing Position Characteristics



Sensing Position Characteristics



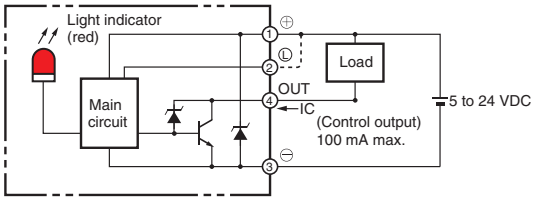
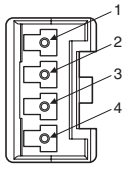
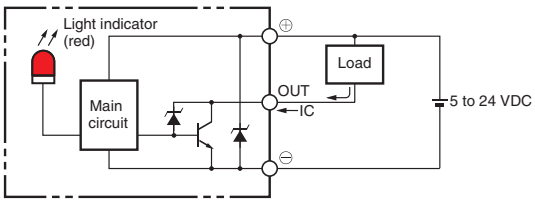
Repeated Sensing Position Characteristics



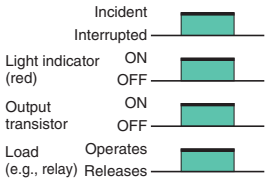
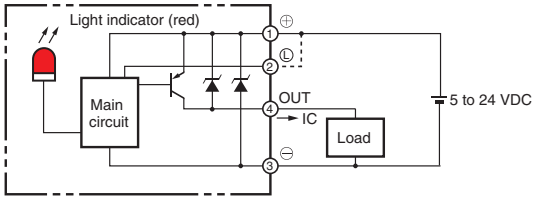
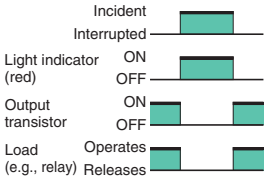
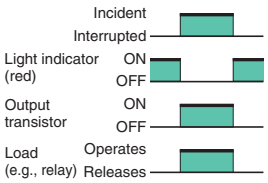
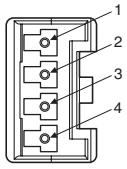
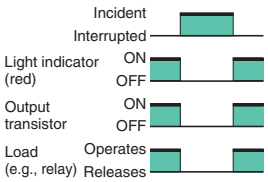
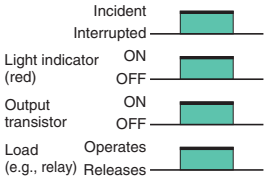
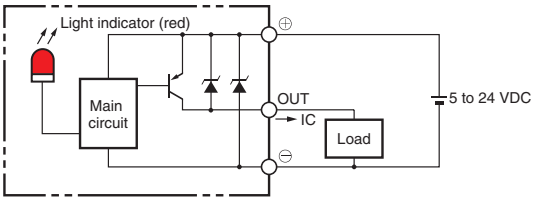
Vcc =12 V, No. of repetitions: 20, Δd1 = 0.002 mm, Δd2 = 0.004 mm, Δd3 = 0.005 mm, Δd4 = 0.02 mm, Δd5 = 0.04 mm

I/O Circuit Diagrams

NPN Output

Model	Output configuration	Timing chart	Terminal connection	Output circuit
EE-SX67□ EE-SX67□-WR EE-SX67□-C1J-R	Light-ON	Incident / Interrupted Light indicator (red): ON / OFF Output transistor: ON / OFF Load (e.g., relay): Operates / Releases	Short-circuited between Ⓛ terminal and positive ⊕ terminal	
	Dark-ON	Incident / Interrupted Light indicator (red): ON / OFF Output transistor: ON / OFF Load (e.g., relay): Operates / Releases	Open between Ⓛ terminal and positive ⊕ terminal	
EE-SX670A EE-SX671A EE-SX672A EE-SX673A EE-SX674A	Light-ON	Incident / Interrupted Light indicator (red): ON / OFF Output transistor: ON / OFF Load (e.g., relay): Operates / Releases	Short-circuited between Ⓛ terminal and positive ⊕ terminal	
	Dark-ON	Incident / Interrupted Light indicator (red): ON / OFF Output transistor: ON / OFF Load (e.g., relay): Operates / Releases	Open between Ⓛ terminal and positive ⊕ terminal	
EE-SX470 EE-SX471 EE-SX472 EE-SX473 EE-SX474	Light-ON	Incident / Interrupted Light indicator (red): ON / OFF Output transistor: ON / OFF Load (e.g., relay): Operates / Releases	---	

PNP Output

Model	Output configuration	Timing chart	Terminal connection	Output circuit
EE-SX67□P EE-SX67□P-WR EE-SX67□P-C1J-R	Light-ON		Short-circuited between Ⓛ terminal and positive ⊕ terminal	
	Dark-ON		Open between Ⓛ terminal and positive ⊕ terminal	
EE-SX670R EE-SX671R EE-SX672R EE-SX673R EE-SX674R	Light-ON		Short-circuited between Ⓛ terminal and positive ⊕ terminal	
	Dark-ON		Open between Ⓛ terminal and positive ⊕ terminal	
EE-SX470P EE-SX471P EE-SX472P EE-SX473P EE-SX474P	Light-ON		---	

Safety Precautions

Refer to *Warranty and Limitations of Liability*.

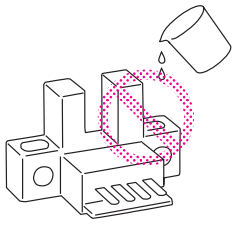
⚠ WARNING

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 Safe Use

● Operating Environment

These Photomicrosensors have an IP50 (conforms to IEC60529) enclosure and do not have a water-proof or dust-proof structure. Therefore, do not use them in applications in which the sensor will be subjected to splashes from water, oil, or any other liquid. Liquid entering the Sensor may result in malfunction.



Precautions for Correct Use

Make sure that this product is used within the rated ambient environment conditions.

● Installation

- When direct soldering to the terminals, use the following guidelines.

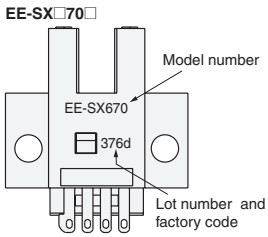
Soldering Conditions

Item	Temperature	Permissible time	Remarks
Soldering iron	350°C max.	3 s max.	The portion between the base of the terminals and the position 1.5 mm from the terminal base must not be soldered.

- The terminal base uses a polycarbonate resin, which could be deformed by excessive soldering heat, resulting in damage to the product's functionality.

● Lot Numbers and Models

In the right illustration, 376d indicates the lot number and factory where the product was manufactured. Do not include this code with the model number when ordering.



Dimensions

(Unit: mm)

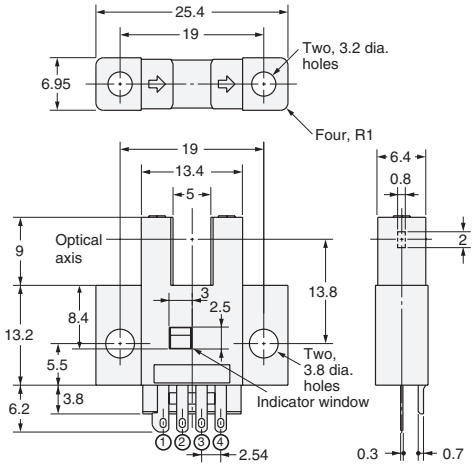
Sensors

EE-SX670/670P
EE-SX670A/670R
EE-SX470/470P

Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

* L Terminal needs no connection for all EE-SX47□ series sensors.

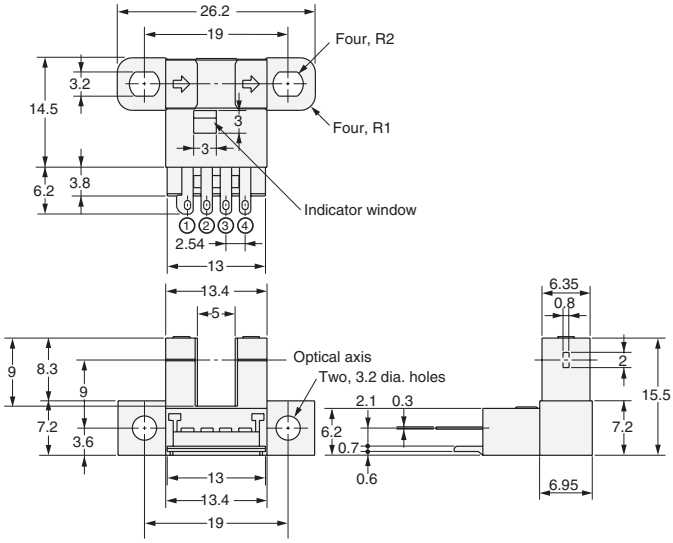


EE-SX671/671P
EE-SX671A/671R
EE-SX471/471P

Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

* L Terminal needs no connection for all EE-SX47□ series sensors.

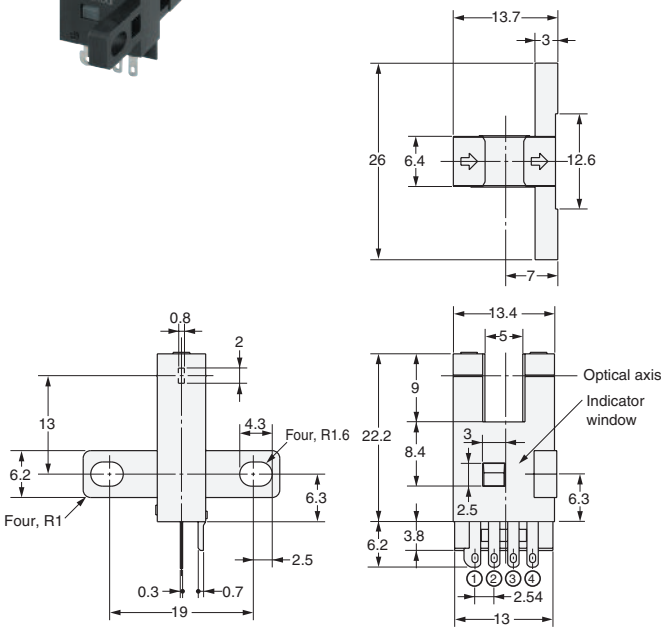


EE-SX672/672P
EE-SX672A/672R
EE-SX472/472P

Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

* L Terminal needs no connection for all EE-SX47□ series sensors.

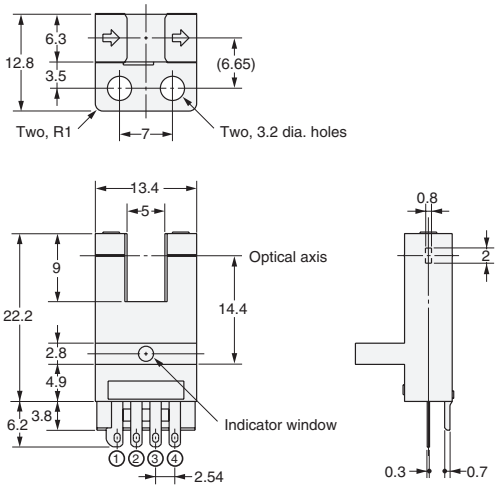


EE-SX673/673P
EE-SX673A/673R
EE-SX473/473P

Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

* L Terminal needs no connection for all EE-SX47□ series sensors.

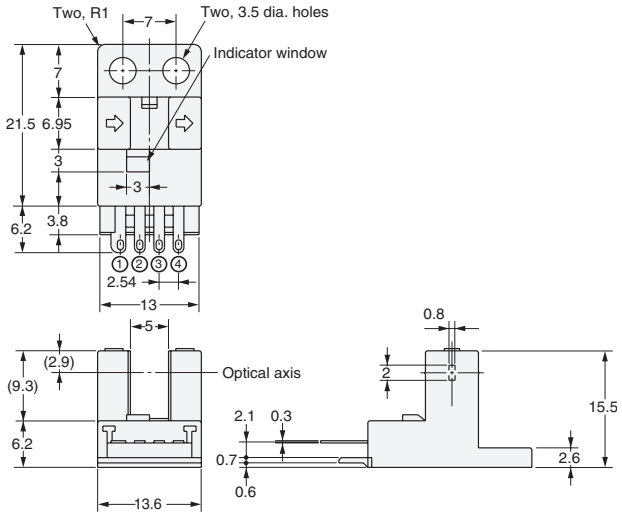


EE-SX674/674P
EE-SX674A/674R
EE-SX474/474P

Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

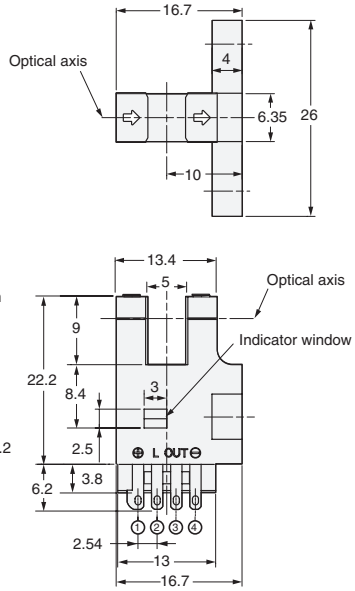
* L Terminal needs no connection for all EE-SX47□ series sensors.



EE-SX675/675P

Terminal Arrangement

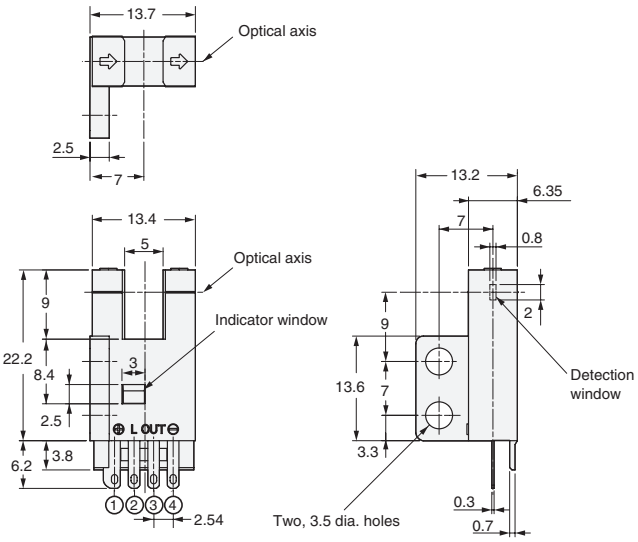
(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)



EE-SX676/676P

Terminal Arrangement

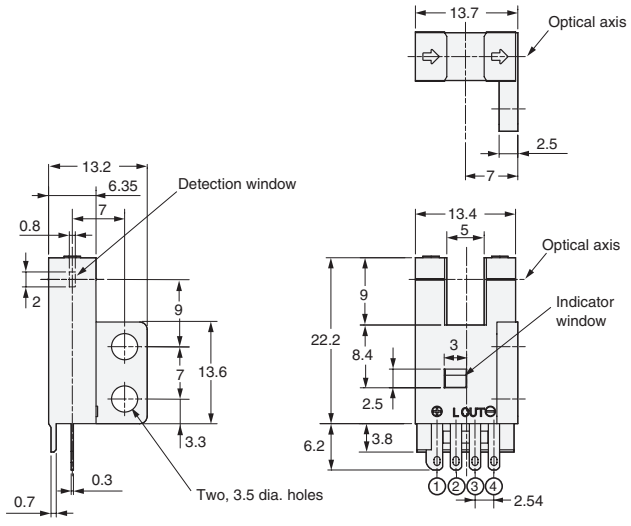
(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)



EE-SX677/677P

Terminal Arrangement

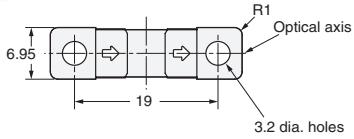
(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

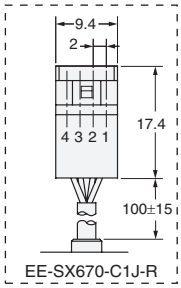


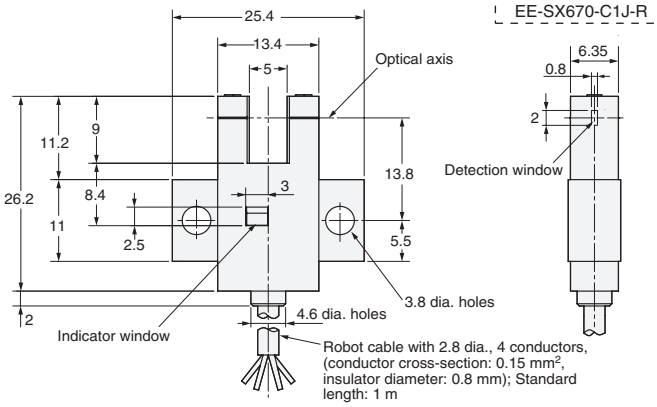
EE-SX670-WR/670P-WR
EE-SX670-C1J-R/670P-C1J-R

Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT



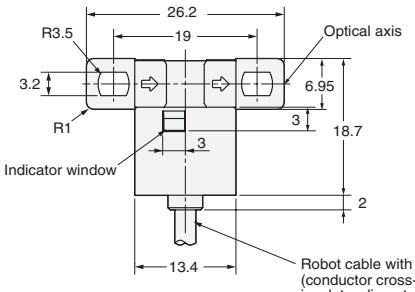


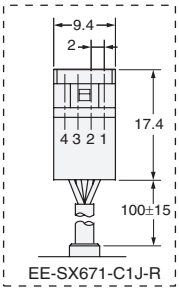


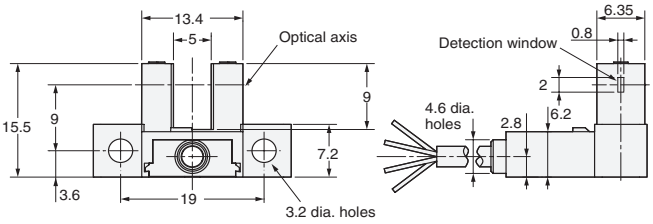
EE-SX671-WR/671P-WR
EE-SX671-C1J-R/671P-C1J-R

Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT



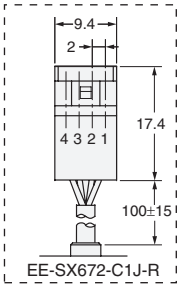


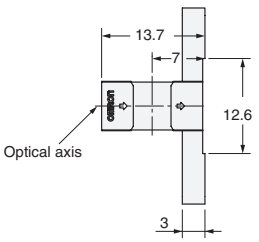


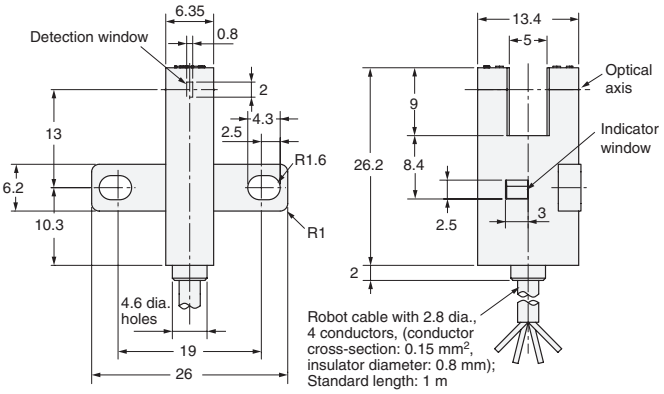
EE-SX672-WR/672P-WR
EE-SX672-C1J-R/672P-C1J-R

Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT



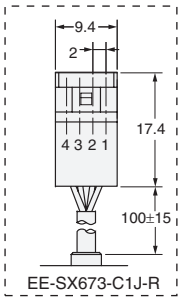


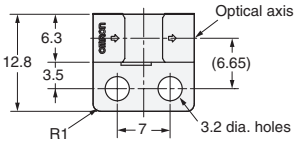


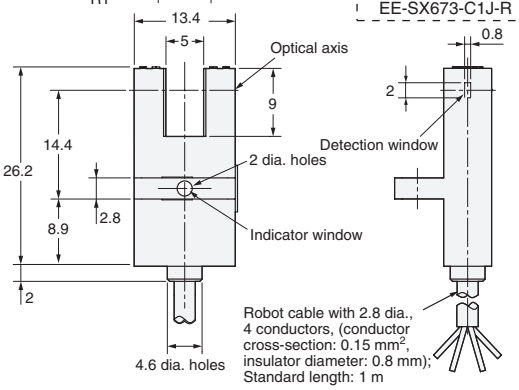
EE-SX673-WR/673P-WR
EE-SX673-C1J-R/673P-C1J-R

Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT



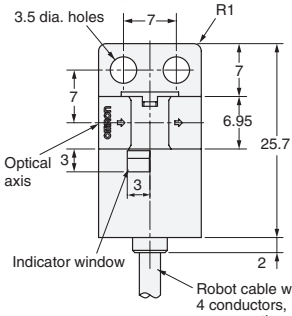


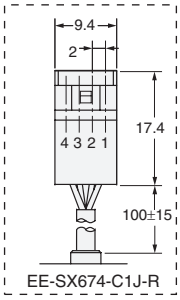


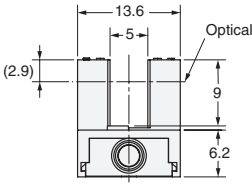
EE-SX674-WR/674P-WR
EE-SX674-C1J-R/674P-C1J-R

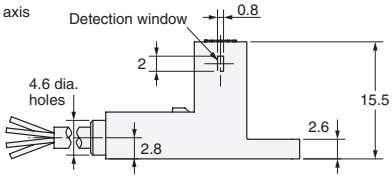
Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT





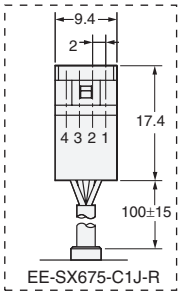


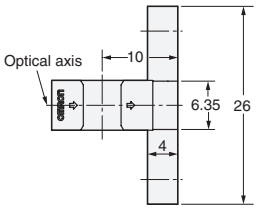


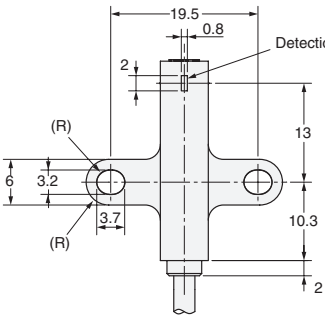
EE-SX675-WR/675P-WR
EE-SX675-C1J-R/675P-C1J-R

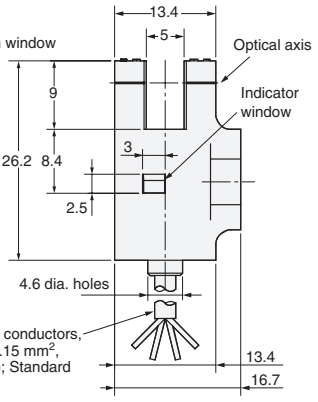
Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT





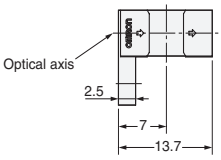


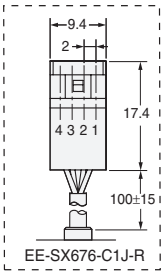


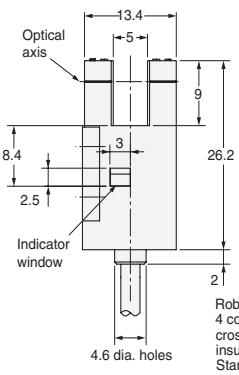
EE-SX676-WR/676P-WR
EE-SX676-C1J-R/676P-C1J-R

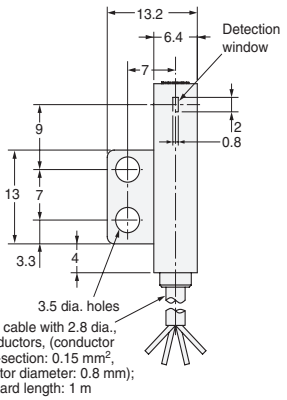
Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT





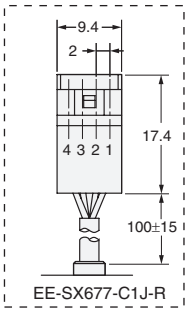


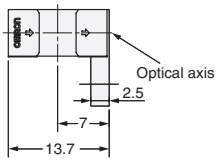


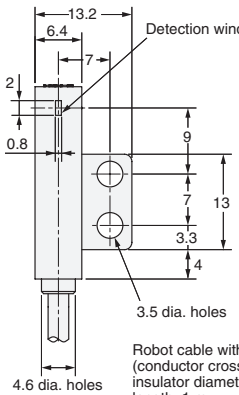
EE-SX677-WR/677P-WR
EE-SX677-C1J-R/677P-C1J-R

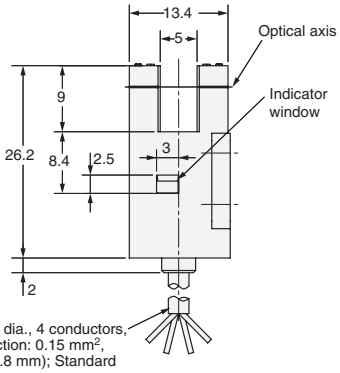
Terminal Arrangement

Brown	(1)	Vcc
Pink	(2)	L
Blue	(3)	GND (0 V)
Black	(4)	OUTPUT





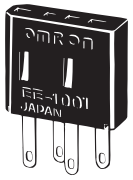


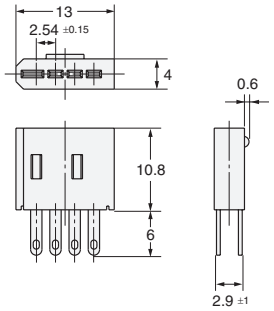


EE-SX47/67 Connector Hold-down Clips

Connector

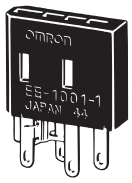
EE-1001

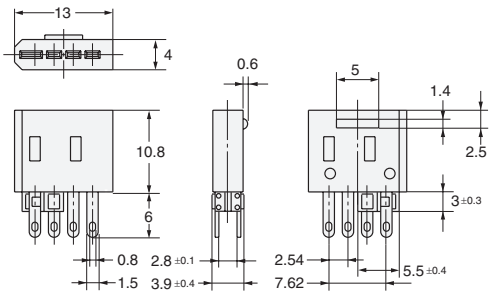




Connector (short-circuited between positive (+) and L terminals)

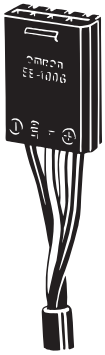
EE-1001-1

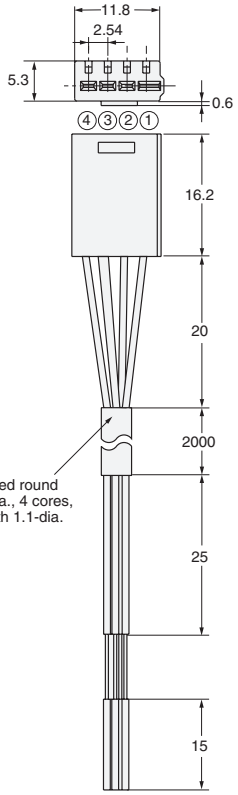




Connector with Cable

EE-1006



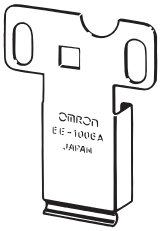


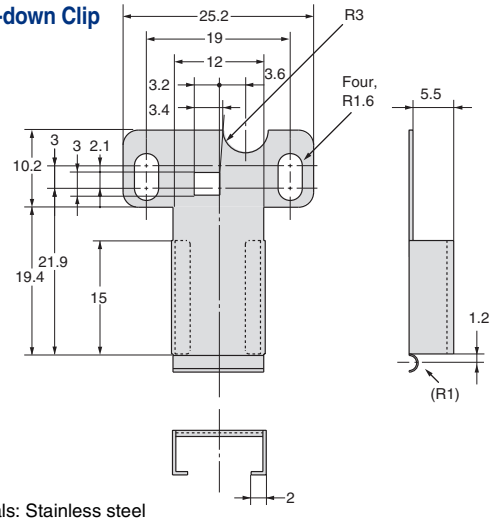
Terminal Arrangement

(1)	⊕	Brown
(2)	L	Pink
(3)	OUT	Black
(4)	⊖	Blue

Connector Hold-down Clip

EE-1006A

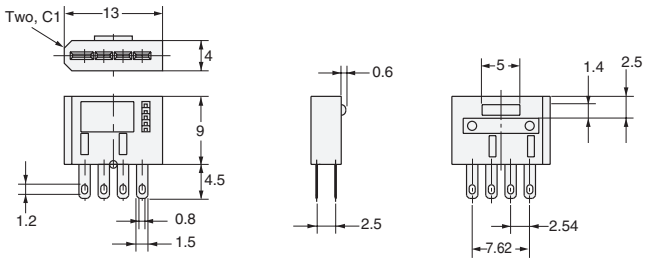




Materials: Stainless steel

Connector

EE-1009

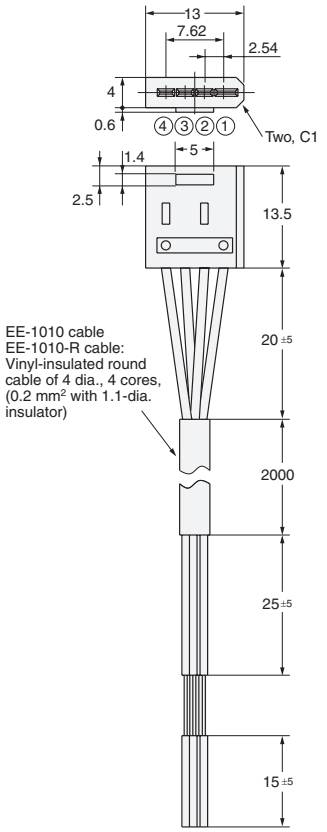


Connector with Cable

EE-1010

Connector with Robot Cable

EE-1010-R



Terminal Arrangement

(1)	⊕	Brown
(2)	L	Pink
(3)	OUT	Black
(4)	⊖	Blue

In the interest of product improvement, specifications are subject to change without notice.

UL Standards (UNDERWRITERS LABORATORIES INC.)

LISTING MARK

RECOGNITION MARK

- A nonprofit organization established in 1894 by the American association of fire insurance companies. Underwriters Laboratories (abbreviated to UL hereafter) conducts certification testing on all kinds of electrical products. In many U.S. cities and states, UL certification is legally required on all electrical items sold. To obtain UL certification on an electrical product, all major internal components also require UL certification.
- UL offers two types of certification: the Listing Mark and the Recognition Mark. A Listing Mark generally constitutes the certification of a final product. Products display the Listing Marks shown below. The Recognition Mark applies to the components used in a product, and therefore constitutes a more conditional approval of a product. Products display the Recognition Marks shown below. Depending on a component's UL classification, use of the Recognition Mark may not be required.

- UL has integrated its standards with CSA to employ a co-certification system. These standards also adapt the requirements of the IEC standards.
- Since October 1992, UL has been recognized as a CO (council organization) and TO (test organization) by the SCC (Standard Council of Canada). This authorizes UL to conduct safety tests and certify products conforming to Canadian standards.
- The designs of the Listing and Recognition Marks were changed in January 1998 as shown below.

LISTING MARK

Marks for US	Marks for Canada	Marks for US and Canada
		

RECOGNITION MARK

Marks for US	Marks for Canada	Marks for US and Canada
		

■ Sensors with DC Power Supply of 30 V or Less

1. When connected to one of the circuits (Class 2) described in (1), (2), and (3) below, a sensor can be used even if it is not UL certified. Use the following UL-certified products for combining DC power supplies.
   (1) Limited voltage and current circuits according to UL508
   Circuits taking as a power supply the secondary winding of an isolation transformer satisfying the following conditions:
   - A maximum voltage (with no load) of 30 Vrms (42.4 V peak).
   - A maximum current (1) of no more than 8 A (including short-circuiting) or (2) limited by a circuit breaker (such as a fuse).

No-load voltage (V peak)	Maximum rated current (A)
0 to 20	5.0
From 20 to 30	$\frac{100}{\text{Peak voltage}}$

   (2) Class 2 Power Supply Unit according to UL1310
   (3) Circuits with a maximum voltage of 30 Vrms (42.4 V peak) taking a Class 2 transformer as a power supply according to UL1585
2. If a sensor with UL-certified DC power supply specifications is required, a UL Mark can be affixed to the model in the following table under the condition that it be used in a Class 2 circuit.
   Product Certified for Use in Class 2 Circuits Only (Listing/Recognition Certification)

Model	File No.	Listing certification	Recognition certification
EE-S Series *	E41515		O

* Recognition Marks are not displayed for recognition certification of DC sensors. Only Listing Marks are displayed when UL marking is requested.

In the interest of product improvement, specifications are subject to change without notice.

READ AND UNDERSTAND THIS DOCUMENT

Please read and understand this document before using the products. Please consult your OMRON representative if you have any questions or comments.

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS 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 OR REPAIR.

SUITABILITY FOR USE

THE PRODUCTS CONTAINED IN THIS DOCUMENT ARE NOT SAFETY RATED. THEY ARE NOT DESIGNED OR RATED FOR ENSURING SAFETY OF PERSONS, AND SHOULD NOT BE RELIED UPON AS A SAFETY COMPONENT OR PROTECTIVE DEVICE FOR SUCH PURPOSES. Please refer to separate catalogs for OMRON's safety rated products.

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the product.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
- Nuclear 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.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PERFORMANCE DATA

Performance data given in this document is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the product may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

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This document provides information mainly for selecting suitable models. Please read the Instruction sheet carefully for information that the user must understand and accept before purchase, including information on warranty, limitations of liability, and precautions.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. E382-E1-01 **In the interest of product improvement, specifications are subject to change without notice.**

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