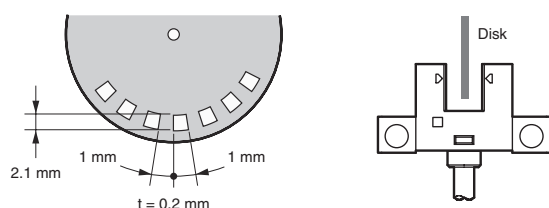


Ratings and Specifications

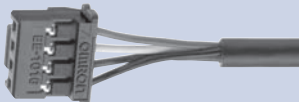
Item	Type		Standard	L-shaped	F-shaped	R-shaped	U-shaped
	NPN output	Pre-wired models	EE-SX950-□	EE-SX951-□	EE-SX952-□	EE-SX953-□	EE-SX954-□
		Pre-wired connector models	EE-SX950-C1J-R	EE-SX951-C1J-R	EE-SX952-C1J-R	EE-SX953-C1J-R	EE-SX954-C1J-R
	PNP output	Pre-wired models	EE-SX950P-□	EE-SX951P-□	EE-SX952P-□	EE-SX953P-□	EE-SX954P-□
Sensing distance			5 mm (slot width)				
Standard sensing object			Opaque: 1.8 × 0.8 mm min.				
Differential travel			0.025 mm max. *1				
Light source (wave length)			Infrared LED (940 nm)				
Indicator			Light indicator (red LED)				
Power supply voltage			5 to 24 VDC ±10%, ripple (p-p): 10% max.				
Current consumption			15 mA max.				
Control output			Load power supply voltage: 5 to 24 VDC Load current: 50 mA max. OFF current: 0.5 mA max. 50 mA load current with a residual voltage of 0.7 V max. 5 mA load current with a residual voltage of 0.4 V max.				
Protection circuit			Load short-circuit protection				
Response frequency			1 kHz min. (3 kHz average) *2				
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 (with no icing or condensation)				
Ambient humidity range			Operating: 5% to 85% Storage: 5% to 95% (with no icing or condensation)				
Vibration resistance (destruction)			10 to 2,000 Hz (peak acceleration: 150m/s²) with a 0.75-mm single amplitude for 2.5 h (15-min periods, 10 cycles) each in X, Y, and Z directions				
Shock resistance (destruction)			500 m/s² for 3 times each in X, Y, and Z directions				
Degree of protection			IEC60529 IP50				
Connection method			Pre-wired models (standard length: 1 m), Pre-wired connector models (standard length: 0.3 m)				
Weight (packed state)		Pre-wired models	Approx. 15 g				
		Pre-wired connector models	Approx. 7 g				
Materials		Case/cover	Polybutylene terephthalate (PBT)				
		Emitter/receiver	Polycarbonate (PC)				

*1. The differential travel is the value when a sensing object is moved in a lateral direction to the slot.

*2. The response frequency was measured by detecting the following rotating disk.

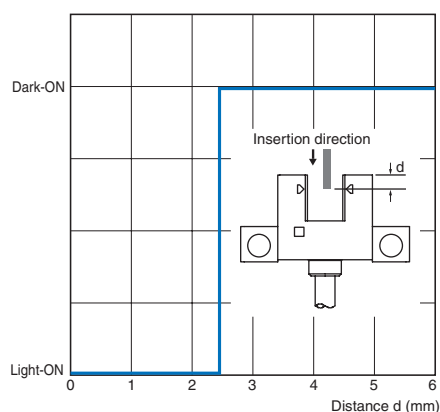
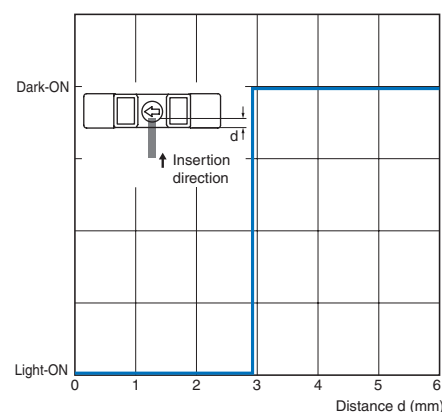


Applicable Connector

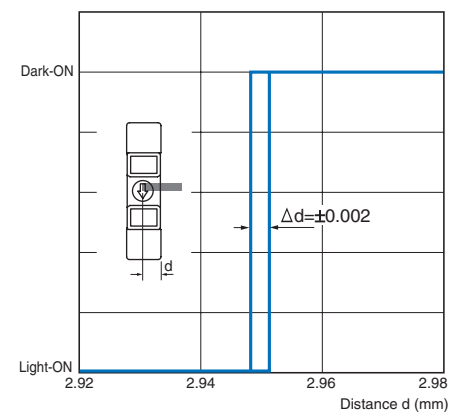
Item		Product Model	Connector with Robot Cable
		EE-1016-R	
		Appearance	
Contact resistance		25 mΩ max. (at 10 mA DC and 20 mV max.)	
Insertion strength		20 N max.	
Surplus strength (housing holding strength)		15 N min.	
Cable length		2 m	
Ambient temperature range		-25 to 85°C	
Materials	Housing	Nylon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

Engineering Data (Reference Value)

Sensing Position Characteristics



Repeated Sensing Position Characteristics



$V_{CC} = 24 \text{ V}$, No. of repetitions: 20, $T_a = 25^\circ\text{C}$
(Differential travel = 0.025 mm max.)

Note: The data applies to dark status. Operation may be affected by external light interference or light coming through the sensing object.

I/O Circuit Diagrams

Output type	Model	Output transistor operation status	Timing charts	Output circuit
NPN output	EE-SX950-□ EE-SX951-□ EE-SX952-□ EE-SX953-□ EE-SX954-□ EE-SX950-C1J-R EE-SX951-C1J-R EE-SX952-C1J-R EE-SX953-C1J-R EE-SX954-C1J-R	OUT1: Light-ON OUT2: Dark-ON	Incident light No incident light Light indicator ON (red) Output 1 ON transistor OFF Load 1 Operate (e.g., relay) Reset Output 2 ON transistor OFF Load 2 Operate (e.g., relay) Reset	Connector pin arrangement for models with connectors
	EE-SX950P-□ EE-SX951P-□ EE-SX952P-□ EE-SX953P-□ EE-SX954P-□			