

**NO:** PM-534  
**DATE:** March 2014

**PRODUCT:** EE-SX91 Photomicrosensors  
**TYPE:** Discontinuation Notice

## EE-SX91 Slotted Photomicrosensors will be Discontinued March 2015; Replace with EE-SX95 Series

**Effective date:** March 27, 2015

Nearly identical in form, fit and basic function, Omron will streamline the Photomicrosensor product offering by discontinuing the EE-SX91 series and continue moving forward with the EE-SX95 series.

There are some key differences to note when replacing the EE-SX91 with EE-SX95.



### Precautions on Applying Recommended Replacement

- The standard cable for EE-SX91 is flexible robot cable; for EE-SX95 specify EE-SX95x-R for flexible robot cable. Standard EE-SX95x-W parts use conventional cable.
- No connector cable models are available in EE-SX95 series to replace EE-SX91x-C1J-R; use the pre-wired version instead.
- EE-SX95 series does not have power supply reverse polarity protection, helpful mostly at installation; it does come with load short circuit protection that is valuable in day to day operations.
- Current consumption has been reduced by almost 30% in the EE-SX95.
- Light incident indicator color changes from orange in EE-SX91 to red in EE-SX95.

### Affected Parts

Product discontinuation	Recommended replacement
EE-SX910-R 1M	EE-SX950-W 1M
	EE-SX950-R 1M
EE-SX910-R 3M	EE-SX950-R 3M
EE-SX910P-R 1M	EE-SX950P-R 1M
EE-SX910P-R 3M	EE-SX950P-R 3M
EE-SX910-C1J-R 0.3M	No recommended replacement
EE-SX911-R 1M	EE-SX951-W 1M
	EE-SX951-R 1M
EE-SX911-R 3M	EE-SX951-R 3M
EE-SX911P-R 1M	EE-SX951P-R 1M
EE-SX911P-R 3M	EE-SX951P-R 3M
EE-SX911-C1J-R 0.3M	No recommended replacement

## Affected Parts (continued)



Product discontinuation	Recommended replacement
EE-SX912-R 1M	EE-SX952-W 1M
	EE-SX952-R 1M
EE-SX912-R 3M	EE-SX952-R 3M
EE-SX912P-R 1M	EE-SX952P-R 1M
EE-SX912P-R 3M	EE-SX952P-R 3M
EE-SX912-C1J-R 0.3M	No recommended replacement
EE-SX913-R 1M	EE-SX953-W 1M
	EE-SX953-R 1M
EE-SX913-R 3M	EE-SX953-R 3M
EE-SX913P-R 1M	EE-SX953P-R 1M
EE-SX913P-R 3M	EE-SX953P-R 3M
EE-SX913-C1J-R 0.3M	No recommended replacement
EE-SX914-R 1M	EE-SX954-W 1M
	EE-SX954-R 1M
EE-SX914-R 3M	EE-SX954-R 3M
EE-SX914P-R 1M	EE-SX954P-R 1M
EE-SX914P-R 3M	EE-SX954P-R 3M
EE-SX914-C1J-R 0.3M	No recommended replacement

## Detail of Differences

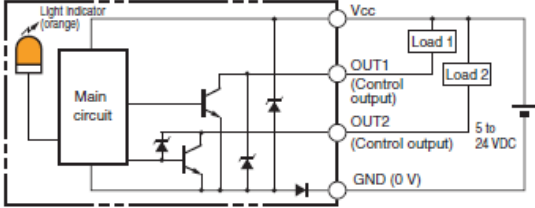
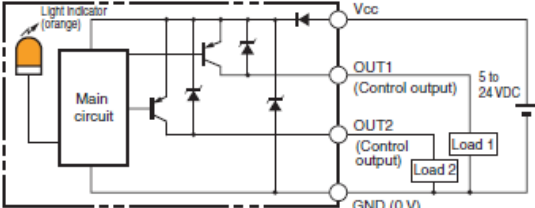
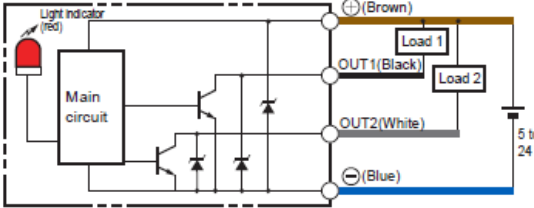
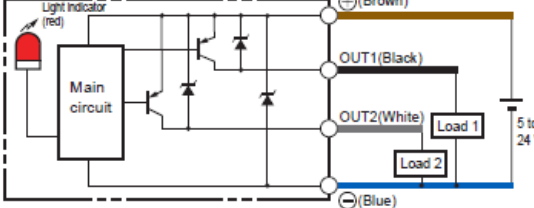
### Reference Documentation

Description	Media	Publication number
EE-SX91 photomicrosensors data sheet	PDF	<a href="#">E382-E1-01</a>
EE-SX95 photomicrosensors data sheet	PDF	<a href="#">E435-E1-01</a>

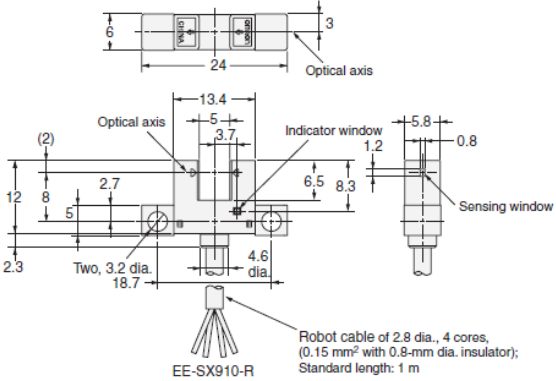
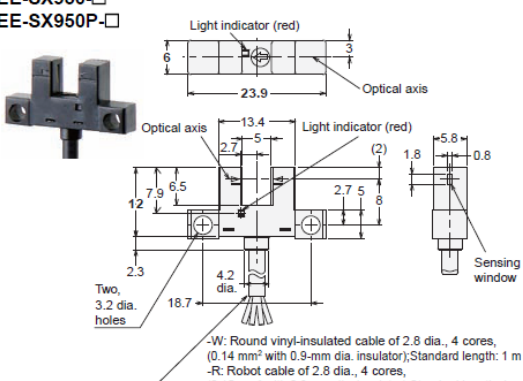
### Body color

Product discontinuation Model EE-SX91 Series	Recommendable replacement Model EE-SX95 Series
<p><b>Color: Black</b></p> 	<p><b>Color: Black</b></p> 

## Wire connection

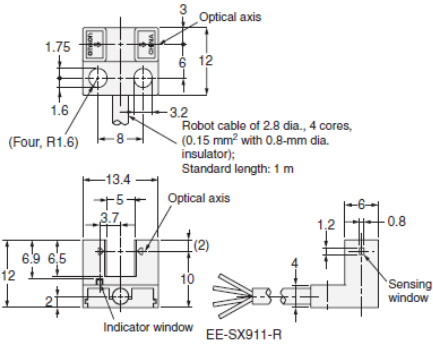
Product discontinuation Model EE-SX91 Series	Recommended replacement Model EE-SX95 Series
<p><b>Wiring and I/O Circuit Diagrams</b></p> <p>Brown:Vcc Black:OUT1 White:OUT2 Blue:GND (0 V) &lt;NPN Output type&gt;</p>  <p>&lt;PNP Output type&gt;</p> 	<p><b>Wiring and I/O Circuit Diagrams</b></p> <p><b>No Alteration</b> Brown:Vcc Black:OUT1 White:OUT2 Blue:GND (0 V) &lt;NPN Output type&gt;</p>  <p>&lt;PNP Output type&gt;</p> 

## Mounting dimensions/Outline dimensions

Product discontinuation Model EE-SX91 Series	Recommended replacement Model EE-SX95 Series
<p><b>Mounting dimensions/Outline dimensions</b> EE-SX910-R EE-SX910P-R</p>  <p>Robot cable of 2.8 dia., 4 cores, (0.15 mm<sup>2</sup> with 0.8-mm dia. insulator); Standard length: 1 m</p>	<p><b>Mounting dimensions/Outline dimensions</b> No alteration except indicator EE-SX950-□ EE-SX950P-□</p>  <p>-W: Round vinyl-insulated cable of 2.8 dia., 4 cores, (0.14 mm<sup>2</sup> with 0.9-mm dia. insulator); Standard length: 1 m -R: Robot cable of 2.8 dia., 4 cores, (0.15 mm<sup>2</sup> with 0.8-mm dia. insulator); Standard length: 1 m</p>

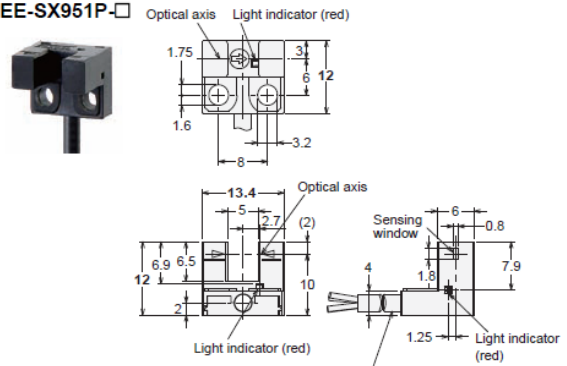
**Product discontinuation  
Model EE-SX91 Series**

**EE-SX911-R  
EE-SX911P-R**



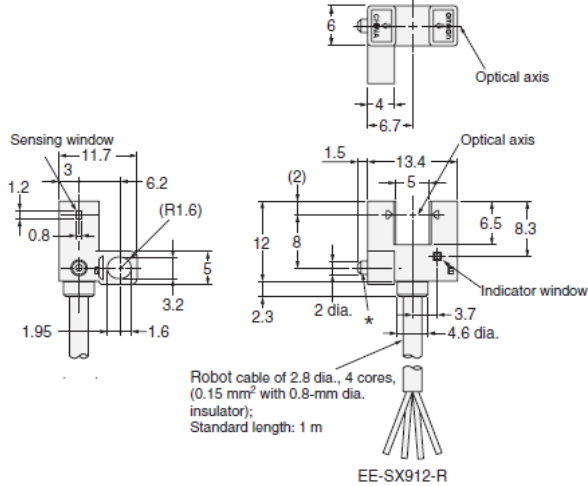
**Recommended replacement  
Model EE-SX95 Series**

**EE-SX951-□  
EE-SX951P-□**



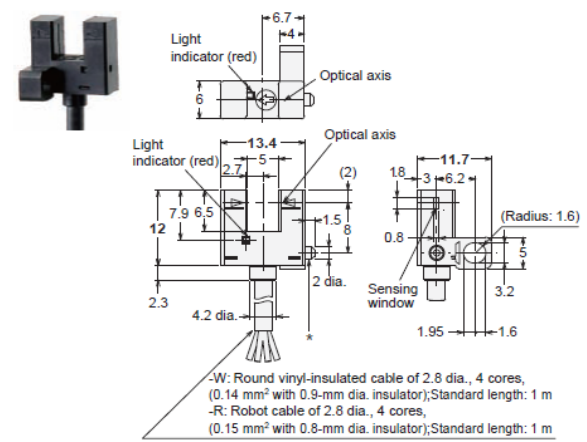
-W: Round vinyl-insulated cable of 2.8 dia., 4 cores, (0.14 mm² with 0.9-mm dia. insulator); Standard length: 1 m  
-R: Robot cable of 2.8 dia., 4 cores, (0.15 mm² with 0.8-mm dia. insulator); Standard length: 1 m

**EE-SX912-R  
EE-SX912P-R**



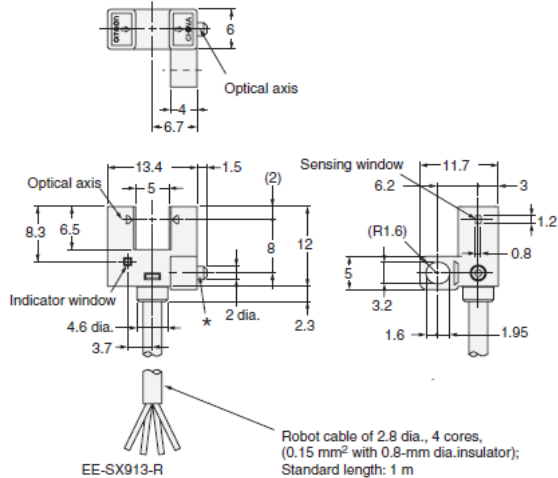
\* The lug is used to prevent turning. When installing, make a fixed hole of 2.1 to 2.3 mm dia.

**EE-SX952-□  
EE-SX952P-□**



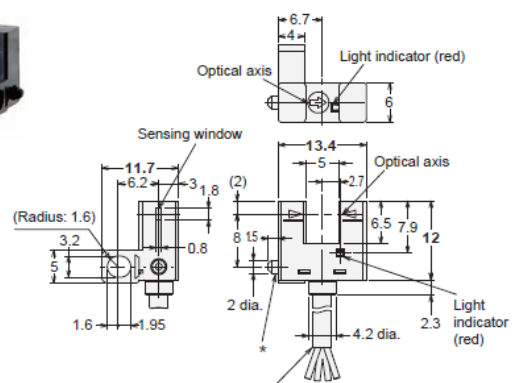
\* The lug is used to prevent turning. When installing, make a fixed hole of 2.1 to 2.3 mm dia.

**EE-SX913-R  
EE-SX913P-R**

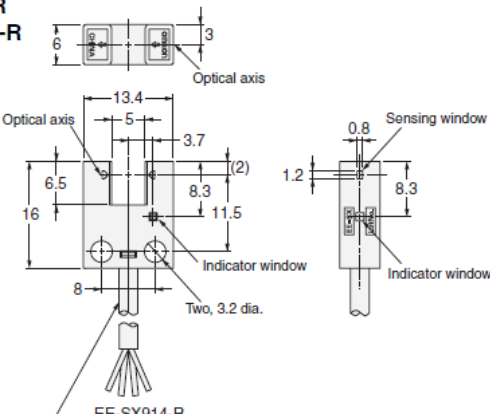
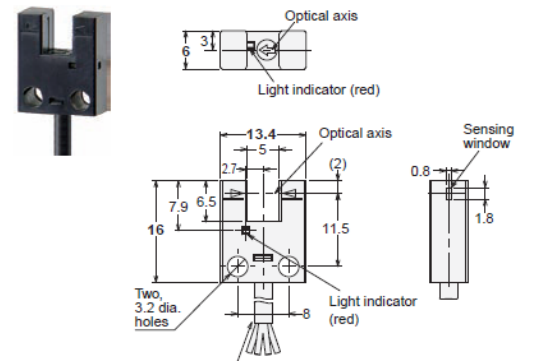


\* The lug is used to prevent turning. When installing, make a fixed hole of 2.1 to 2.3 mm dia.

**EE-SX953-□  
EE-SX953P-□**



\* The lug is used to prevent turning. When installing, make a fixed hole of 2.1 to 2.3 mm dia.

Product discontinuation Model EE-SX91 Series	Recommended replacement Model EE-SX95 Series
<p>EE-SX914-R EE-SX914P-R</p>  <p>EE-SX914-R</p> <p>Robot cable of 2.8 dia., 4 cores, (0.15 mm<sup>2</sup> with 0.8-mm dia. insulator); Standard length: 1 m</p>	<p>EE-SX954-□ EE-SX954P-□</p>  <p>EE-SX954-□</p> <p>EE-SX954P-□</p> <p>-W: Round vinyl-insulated cable of 2.8 dia., 4 cores, (0.14 mm<sup>2</sup> with 0.9-mm dia. insulator); Standard length: 1 m -R: Robot cable of 2.8 dia., 4 cores, (0.15 mm<sup>2</sup> with 0.8-mm dia. insulator); Standard length: 1 m</p>

## Characteristics

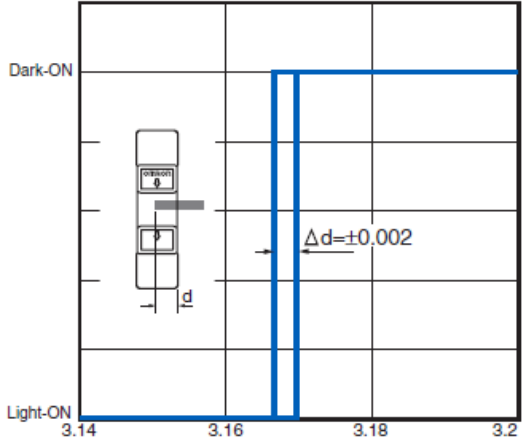
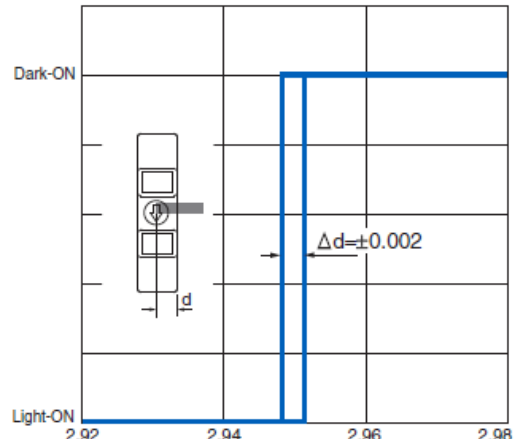
Item	Product discontinuation Model EE-SX91 Series	Recommended replacement Model EE-SX95 Series
<b>Sensing distance</b>	5 mm (slot width)	5 mm (slot width)
<b>Standard sensing object</b>	Opaque: 1.2 x 0.8 mm min.	Opaque: <b>1.8 x 0.8 mm min.</b>
<b>Differential distance</b>	0.025 mm max.	0.025 mm max.
<b>Light source</b>	GaAs Infrared LED with a peak wavelength of 940 nm	GaAs Infrared LED with a peak wavelength of 940 nm
<b>Indicator</b>	Light indicator(orange LED)	<b>Light indicator(red LED)</b>
<b>Supply voltage</b>	5 to 24 VDC±10%, ripple (p-p): 10%max.	5 to 24 VDC±10%, ripple (p-p): 10%max.
<b>Power supply voltage</b>	5 to 24 VDC±10%, ripple (p-p):10% max.	5 to 24 VDC±10%, ripple (p-p):10% max.
<b>Current consumption</b>	21 mA max.	<b>15 mA max.</b>
<b>Control output</b>	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 1.0 V max. 5 mA load current with a residual voltage of 0.4 V max.	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.
<b>Protection circuits</b>	Power supply reverse polarity protection Output reverse polarity protection (only OUT2 on models with NPN output)	<b>Load short circuit protection</b>
<b>Response frequency</b>	1 kHz min. (3 kHz average)	1 kHz min. (3 kHz average)
<b>Ambient illumination</b>	1,000lx max. with fluorescent light on the surface of the receiver	1,000lx max. with fluorescent light on the surface of the receiver
<b>Ambient temperature range</b>	Operating: -25 to 55°C Storage: -30 to 80°C (with no icing or condensation)	Operating: -25 to 55°C Storage: -30 to 80°C (with no icing or condensation)
<b>Ambient humidity range</b>	Operating: 5% to 85% Storage: 5% to 95% (with no icing or condensation)	Operating: 5% to 85% Storage: 5% to 95% (with no icing or condensation)

## Characteristics (continued)

Item		Product discontinuation Model EE-SX91 Series	Recommended replacement Model EE-SX95 Series
<b>Vibration resistance (Destruction)</b>		10 to 2,000 Hz 0.75-mm single amplitude for 2.5h (15-min. periods, 10 cycles) each in X, Y, and Z directions	10 to 2,000 Hz 0.75-mm single amplitude for 2.5h (15-min. periods, 10 cycles) each in X, Y, and Z directions
<b>Shock resistance (Destruction)</b>		500m/s <sup>2</sup> for 3 times each in X, Y, and Z directions	500m/s <sup>2</sup> for 3 times each in X, Y, and Z directions
<b>Degree of protection</b>		IEC60529 IP50	IEC60529 IP50
<b>Weight (Packed state)</b>	<b>Pre-wired</b>	Approx. 17 g	Approx. 15 g
	<b>Models with Connectors</b>	Approx. 7 g	–
<b>Materials</b>	<b>Case/Cover</b>	Polybutylene phthalate (PBT)	Polybutylene phthalate (PBT)
	<b>Emitter/Receiver</b>	Polycarbonate (PC)	Polycarbonate (PC)

## Operation ratings

Product discontinuation Model EE-SX91 Series	Recommended replacement Model EE-SX95 Series
<p><b>Sensing Position Characteristics(Typical)</b></p>	<p><b>Sensing Position Characteristics(Typical)</b></p>

<b>Product discontinuation</b> <b>Model EE-SX91 Series</b>	<b>Recommended replacement</b> <b>Model EE-SX95 Series</b>
<p><b>Repeated Sensing Position Characteristics</b></p>  <p>V<sub>CC</sub> = 24 V, No. of repetitions: 20, T<sub>a</sub> = 25°C  (Differential distance = 0.025 mm max.)</p>	<p><b>Repeated Sensing Position Characteristics</b></p>  <p>V<sub>CC</sub> = 24 V, No. of repetitions: 20, T<sub>a</sub> = 25°C  (Differential travel = 0.025 mm max.)</p>

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