

# Channel ACTION ALERT!

**NO:** PH-130  
**DATE:** June 2010

**PRODUCT:** E3T-SR3 Photoelectric Sensor  
**TYPE:** Discontinuation Notice

## E3T-SR3 Photoelectric Sensors Discontinued March 2010; Use E3T-SR4 Sensor and E39-R37-CA Reflector Instead

Omron completed its discontinuation of E3T-SR3 series Retroreflective sensor March 2010. For most applications the E3T-SR4 series can be a direct replacement. However, the optics changed from separate lenses for emitter and receiver in E3T-SR3 to a coaxial lens arrangement in E3T-SR4. The change in optics also affects the choice of reflectors: Only models that end in “-CA” can be used with E3T-SR4. When changing E3T-SR3 sensors, the E39-R37 reflector also must be changed.

Product discontinuation	Recommended replacement
<b>Rertroreflective Photoelectric Sensors</b>	
E3T-SR31 2M	E3T-SR41-S 2M
E3T-SR32 2M	E3T-SR42-S 2M
E3T-SR33 2M	E3T-SR43-S 2M
E3T-SR34 2M	E3T-SR44-S 2M
E3T-SR31 5M	E3T-SR41-S 5M
E3T-SR32 5M	E3T-SR42-S 5M
E3T-SR33 5M	E3T-SR43-S 5M
E3T-SR34 5M	E3T-SR44-S 5M
E3T-SR31R 2M	E3T-SR41R-S 2M
E3T-SR32R 2M	E3T-SR42R-S 2M
E3T-SR33R 2M	E3T-SR43R-S 2M
E3T-SR34R 2M	E3T-SR44R-S 2M
E3T-SR33 15M	E3T-SR43-S 15M
E3T-SR31-ECON 0.3M	E3T-SR41-ECON-S 0.3M
E3T-SR32-ECON 0.3M	E3T-SR42-ECON-S 0.3M
E3T-SR31-ECON 2M	E3T-SR41-ECON-S 2M
E3T-SR32-ECON 2M	E3T-SR42-ECON-S 2M
E3T-SR31-M1TJ 0.3M	E3T-SR41-M1TJ-S 0.3M
E3T-SR32-M1TJ 0.3M	E3T-SR42-M1TJ-S 0.3M
E3T-SR33-M1TJ 0.3M	E3T-SR43-M1TJ-S 0.3M
E3T-SR34-M1TJ 0.3M	E3T-SR44-M1TJ-S 0.3M
E3T-SR31-M3J 0.3M	E3T-SR41-M3J-S 0.3M
E3T-SR32-M5J 0.3M	E3T-SR42-M5J-S 0.3M
E3T-SR33-M5J 0.3M	E3T-SR43-M5J-S 0.3M
E3T-SR34-M5J 0.3M	E3T-SR44-M5J-S 0.3M
E3T-SR34-M5J 1M	E3T-SR44-M5J-S 1M
E3T-SR31-C 2M	E3T-SR41-C 2M
E3T-SR31-C 5M	E3T-SR41-C 5M
E3T-SR31-C1 0.3M	E3T-SR41-C1 0.3M
<b>Reflectors</b>	
E39-R37	E39-R37-CA
E39-RS1 *	E39-RS1-CA
E39-RS2 *	E39-RS2-CA
E39-RS3 *	E39-RS3-CA

\* These reflectors are not discontinued, but they are not compatible with E3T-SR4 sensors.

## Cautions for Migrating to E3T-SR4

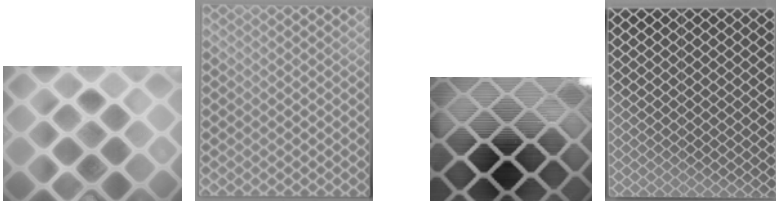
Because the optics are different, Omron recommends testing E3T-SR4 under operating conditions to confirm the results are the same as for discontinued E3T-SR3 sensors. In the following applications, the E3T-SR4 may perform differently than the old sensor and present difficulty in replacement:

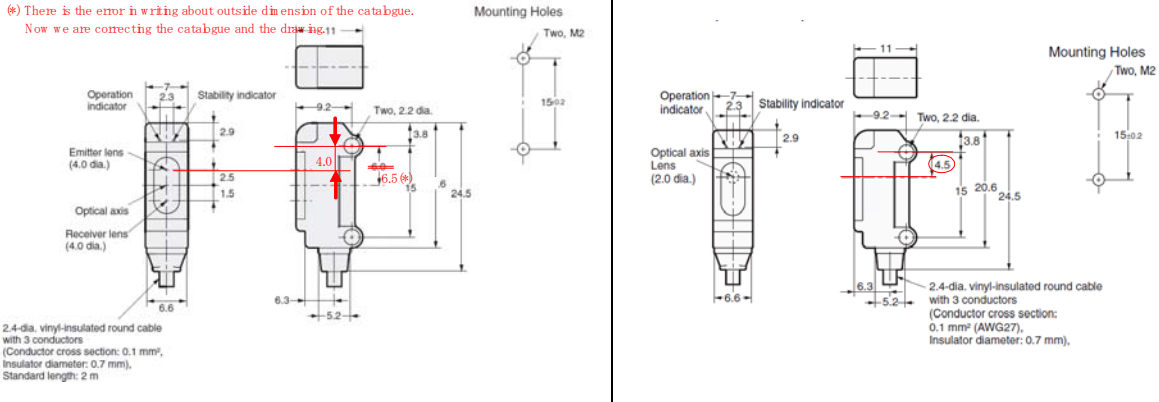
- Detecting transparent or semitransparent objects
- Detecting at a longer set distance than the rated sensing distance
- Using the sensor in positioning

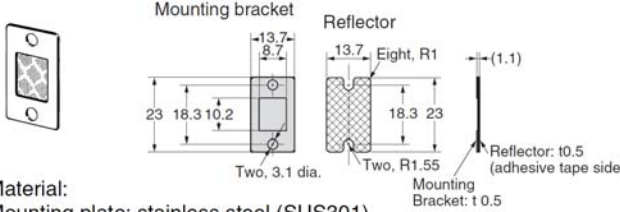
See the detailed explanation of changes below. Changes in Characteristics and Operation Ratings most affect the performance.

<b>Body Color</b>	
<b>Product discontinuation E3T-SR3_</b>	<b>Recommended replacement E3T-SR4_</b>
There is a small change in the front face.	
<p>Left                      Front                      Right</p> <p><b>Left of picture: E3T-SR3_ (Product discontinuation)</b>  <b>Right of picture: E3T-SR4_ (Recommended replacement)</b></p>	

<b>Product discontinuation E39-R37</b>	<b>Recommended replacement E39-R37-CA</b>
There is a small change in the pattern of reflective surface.	
<p><b>Left side of picture: E39-R37 (Product discontinuation)</b>  <b>Right side of picture: E39-R37-CA (Recommended replacement)</b></p>	

<b>Optional Reflectors for E3T-SR3*</b> <b>E39-RS1</b> <b>E39-RS2</b> <b>E39-RS3</b> <b>* Products are not discontinued.</b>	<b>Recommended replacement</b> <b>E39-RS1-CA</b> <b>E39-RS2-CA</b> <b>E39-RS3-CA</b>
<p>There is little change in the pattern of reflective surface.</p>  <p style="text-align: center;"> <span style="margin-right: 150px;">E39-RS_</span> <span>E39-RS_-CA</span>  <b>(Recommended replacement)</b> </p>	

Outside dimensions and mounting dimensions	
Product discontinuation E3T-SR3_	Recommended replacement E3T-SR4_
<p>(*) There is the error in writing about outside dimension of the catalogue. Now we are correcting the catalogue and the drawing.</p>  <p>It is fully compatible for the outside dimension and the mounting dimension. The position of emitter lens is slightly changed. The emitter lens position of E3T-SR4_ is lower by 0.5 mm than of E3T-SR3_. And there is the lens (the emitter and receiver lens is common.) of E3T-SR4_ between the emitter and the receiver lens of E3T-SR3_. So, for the almost applications, there is no problem making the replacement. But we recommend testing under the use conditions.</p>	

Product discontinuation E39-R37	Recommended replacement E39-R37-CA
<b>E39-R37-CA</b>  <p>Material:  Mounting plate: stainless steel (SUS301)  Reflective surface: acrylic</p> <p>Note: The reflective plate and mounting plate (1) come as a set.</p>	
<p>It is fully compatible.</p>	

<b>Optional Reflectors for E3T-SR3*</b> <b>E39-RS1</b> <b>E39-RS2</b> <b>E39-RS3</b> <b>* Products are not discontinued.</b>	<b>Recommended replacement</b> <b>E39-RS1-CA</b> <b>E39-RS2-CA</b> <b>E39-RS3-CA</b>
It is fully compatible.	

<b>Ratings and Specifications</b>		
<b>Please note the available reflectors with each sensor.</b>		
	<b>Product discontinuation E3T-SR3_</b>	<b>Recommended replacement E3T-SR4_</b>
Sensing distance	10 to 100mm (using reflector E39-R37)	10 to 100mm (using reflector E39-R37-CA) 30 to 200mm (using the reflector E39-R4)
Standard sensing object	Opaque, 27-mm dia. min	
Minimum detectable object (typical)	Opaque, 2-mm dia. (sensing distance of 100mm)	
Directional angle	2° to 20°	
Light source	Red LED (wavelength = 650nm)	
Power supply voltage	12 to 24 VDC +/-10%, ripple (p-p) 10% max.	
Current consumption	20 mA max.	
Control output	Load power supply voltage: 26.4 VDC max. Load current: 50 mA max. residual voltage: 2 V max. for load current of 10 to 50 mA 1 V max. for load current of less than 10 mA Open-collector output Light ON: E3T-SR_1 / -SR_2 Dark ON: E3T-SR_3 / -SR_4	
Protection circuits	Power supply and control output reverse polarity protection Output short-circuit protection Mutual interference prevention	
Response time	Operate or reset: 1ms max.	
Ambient illumination	Incandescent lamp: 5,000 lx max. Sunlight: 10,000 lx max.	
Ambient temperature range	Operating: -25 to 55°C Storage: -40 to 70°C (with no icing or condensation)	
Ambient humidity range	Operating: 35 to 85% Storage: 35% to 95% (with no condensation)	
Insulation resistance	20MΩ min. at 500 VDC	

Ratings and Specifications		
<b>Please note the available reflectors with each sensor.</b>		
	<b>Product discontinuation E3T-SR3_</b>	<b>Recommended replacement E3T-SR4_</b>
Dielectric strength	1,000 VAC, 50/60 Hz for 1 minute	
Vibration resistance	Destruction: 10 to 2,000 Hz, 1.5-mm double amplitude or 300 m/s <sup>2</sup> for 0.5 hrs each in X, Y, and Z directions	
Shock resistance	Destruction: 1,000 m/s <sup>2</sup> 3 times each in X, Y, and Z directions	
Degree of protection	IP67 (IEC60529)	
Connection method	Pre-wired (standard length: 2 m)	
Weight	Approx. 40 g	
Materials	Case	PBT (polybutylene terephthalate)
	Display window	Denatured polyarylate
	Lens	Methacrylic resin
Accessories	Instruction manual Installation Phillips screws, nuts, spring washers, flat washers Reflector (refer to the table below)	
	Model	Attached reflector
	E3T-SR3_ E3T-SR3_-C	E39-R37 nothing
	Instruction manual Installation Phillips screws, nuts, spring washers, flat washers Reflector (refer to the table below)	
	Model	Attached reflector
	E3T-SR4_-S E3T-SR4_ E3T-SR4_-C	E39-R37-CA E39-R4 nothing

Wire Connection	
Product discontinuation E3T-SR31 / -SR32	Recommended replacement E3T-SR41 / -SR42
<p style="text-align: center; color: blue;">It is fully compatible.</p>	

Product discontinuation E3T-SR33 / -SR34	Recommended replacement E3T-SR43 / -SR44
<p style="text-align: center; color: blue;">It is fully compatible.</p>	

<b>Reflector</b>			
<b>E3T-SR4 is not compatible with the reflectors for E3T-SR3. Please replace both sensor and reflector.</b>			
<b>Type</b>	<b>Sensing distance</b>	<b>Product discontinuation E3T-SR3_</b>	<b>Recommended replacement E3T-SR4_</b>
<b>Small reflector</b>	<b>30 to 200mm</b>	<b>Nothing</b>	<b>E39-R4 (supplied with E3T-SR4_)</b>
	<b>10 to 100mm</b>	<b>E39-R37 (attached to E3T-SR3_)</b>	<b>E39-R37-CA (supplied with E3T-SR4_-S)</b>
<b>Tape reflector</b>	<b>10 to 100mm</b>	<b>E39-RS1 * (not supplied with sensor)</b>	<b>E39-RS1-CA (not supplied with sensor)</b>
	<b>10 to 100mm</b>	<b>E39-RS2 * (not supplied with sensor)</b>	<b>E39-RS2-CA (not supplied with sensor)</b>
	<b>10 to 100mm</b>	<b>E39-RS3 * (not supplied with sensor)</b>	<b>E39-RS3-CA (not supplied with sensor)</b>

**\*Not product discontinuation**

## Characteristics

The optics of E3T-SR4\_ is changed and improved from E3T-SR3\_.

At the rated sensing distance, the excess gain of E3T-SR4\_ is higher than of E3T-SR3\_. And the maximum sensing distance of E3T-SR4\_ is shorter than of E3T-SR3\_. But E3T-SR4\_ is the same as E3T-SR3\_ for the rating sensing distance. Please refer to the graph below for the detail.

For almost applications, there is no problem of the replacement. **But, for the applications below, there might be some problems of the replacement. So we recommend testing under the using condition.**

### > The case of detecting transparent or semitransparent objects

It might not be possible to detecting them, because the excess gain of E3T-SR4\_ is higher than of E3T-SR3\_. Please examine to replace to the sensor that have function of sensitivity adjustment (Ex. fiber sensor).

### > The case of detecting at longer set distance than the rating sensing distance

The sensing distance might not be enough, because the maximum sensing distance of E3T-SR4\_ is shorter than of E3T-SR3\_. If it is possible to replace to through-beam type, please examine E3T-ST/-FT. If it is necessary to replace to retro-reflective type, please examine E3Z-R.

### > The case of using in positioning

The position of detecting might be changed, because there is some difference for the characteristic and the lens position. Please examine to change and adjust the mounting position.

## Excess gain vs. Set distance

Please refer to the graph below.

**Blue line: E3T-SR4\_ (Recommended replacement)**

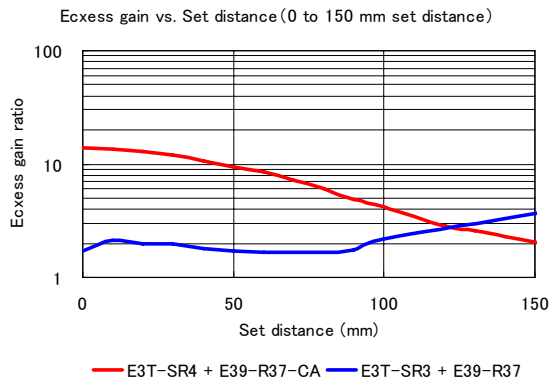
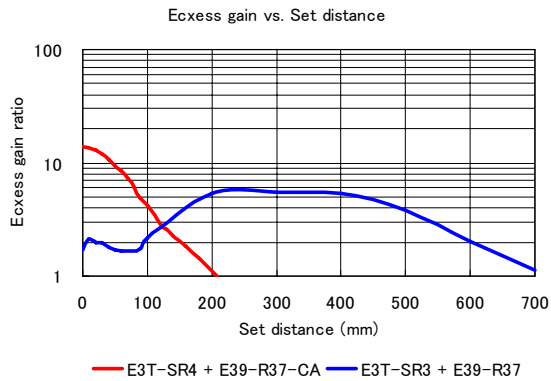
**Red line: E3T-SR3\_ (Product discontinuation)**

### About the difference between E3T-SR4\_ and E3T-SR3\_

> For the rating sensing distance (set distance: 10 to 100 mm),  
the excess gain of E3T-SR4\_ is higher than of E3T-SR3\_.

> For over the rating sensing distance (set distance: over 100 mm),  
the excess gain of E3T-SR4\_ is less than of E3T-SR3\_.

And the maximum sensing distance of E3T-SR4\_ is shorter than of E3T-SR3\_.



## Parallel operating range

Please refer to the graph below.

**Blue line: E3T-SR4\_ (Recommended replacement)**

**Red line: E3T-SR3\_ (Product discontinuation)**

### About the difference between E3T-SR4\_ and E3T-SR3\_

- > For the rating sensing distance (set distance: 10 to 100 mm), it is fully compatible at the rating sensing distance.
  - > For over the rating sensing distance (set distance: over 100 mm), the operating range of E3T-SR4\_ is smaller than of E3T-SR3\_.
- And the maximum sensing distance of E3T-SR4\_ is shorter than of E3T-SR3\_.

