

### Discontinuation Notice of

### Photoelectric sensors E3S-V/GS1 series

#### Product Discontinuation

E3S-VS series  
Grooved-type Photoelectric Sensor  
E3S-GS1 series



#### Recommended Replacement

E3ZM-V/E3Z-L series  
E3ZM-V series

**Discontinuation date : The end of March, 2012**

#### Caution on recommended replacement

##### E3S-VS

- Dimensions are different.
- The output type changes.  
NPN Voltage output → NPN Open-collector output

##### E3S-GS1

- Dimensions are different.
- The output type changes. NPN Voltage output → NPN Open-collector output
- The sensing method is different.  
Grooved-type : E3S-GS1 series → Mark Sensor (Diffuse reflective) : E3ZM-V series

#### Difference from discontinued product

##### E3S-VS

Model	Body Color	Dimensions	Wire connection	Mounting Dimensions	Characteristics	Operation ratings	Operation methods
E3ZM-V	--	--	*	--	*	**	--
E3Z-L	--	--	**	--	*	**	*

##### E3S-GS1

Model	Body Color	Dimensions	Wire connection	Mounting Dimensions	Characteristics	Operation ratings	Operation methods
E3ZM-V	--	--	*	--	*	*	--

\*\* : Fully compatible

\* : The change is a little / Almost compatible

-- : Not compatible

- : No corresponding specification

## Product Discontinuation and recommended replacement

Product discontinuation	Recommended replacement
E3S-VS1B4 2M	E3ZM-V81 2M
E3S-VS1B4 5M	E3ZM-V81 2M
E3S-VS1B42 2M	E3ZM-V81 2M
E3S-VS1B43 2M	E3ZM-V81 2M
E3S-VS1E4 2M	E3ZM-V61 2M
E3S-VS1E4 5M	E3ZM-V61 2M
E3S-VS1E42 2M	E3ZM-V61 2M
E3S-VS1E45 2M	E3ZM-V61 2M
E3S-VS1E4-M1J 0.3M	E3ZM-V61 2M
E3S-VS3E42G 2M	E3Z-L63 2M
E3S-VS5B42R 2M	E3Z-L83 2M
E3S-VS5E42R 2M	E3Z-L63 2M
E3S-VS5E42R 5M	E3Z-L63 2M
E3S-GS1E4 2M	E3ZM-V61 2M
E3S-GS1E4 5M	E3ZM-V61 2M
E3S-GS1B4 2M	E3ZM-V81 2M
E3S-GS3E4-1 2M	E3S-GS3E4 2M
E3S-GS3E4-54 2M	E3S-GS3E4 2M
E3S-GS3E4-54-M1J 0.3M	E3S-GS3E4 2M
E3S-GS3E4-54-M6J 0.6M	E3S-GS3E4 2M
E3S-GS3E4-M1J 0.2M	E3S-GS3E4 2M
E3S-GS3E4-M1J 0.3M	E3S-GS3E4 2M
E3S-GS3E4-M1J 0.6M	E3S-GS3E4 2M
E3S-GS3B4-M1J 0.5M	E3S-GS3B4 2M
E3S-GS3B4-M1J 0.5M	E3S-GS3B4 2M

### E3S-VS

#### Body color

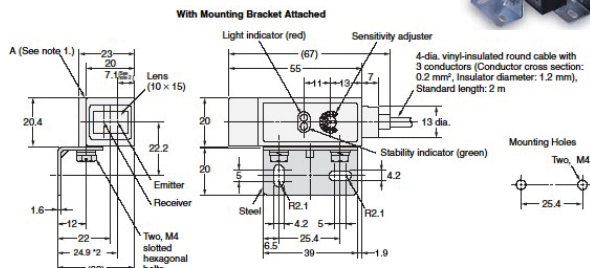
Product discontinuation E3S-VS1 series	Recommended replacement E3ZM-V series
Yellow	Silver

Product discontinuation E3S-VS3 series / E3S-VS5 series	Recommended replacement E3Z-L series
Yellow	Black

# Dimensions

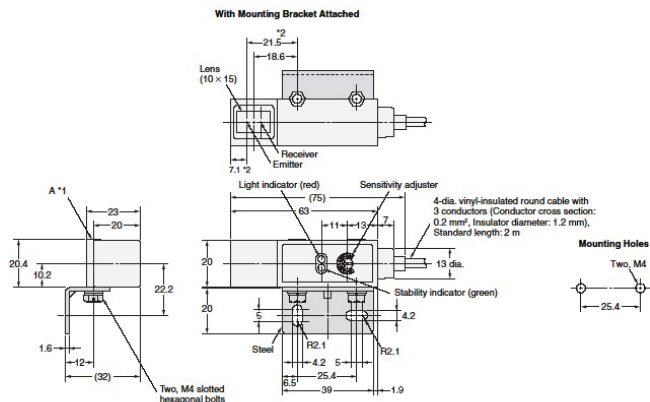
## Product discontinuation

### E3S-VS1□4 series



\*1. The mounting bracket can be attached to side A.  
\*2. Shows the spot position of E3S-VS1E4.

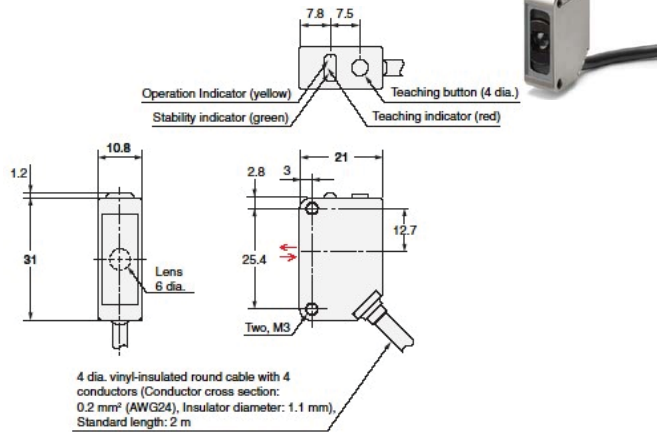
### E3S-VS1□42 series



\*1. The mounting bracket can be attached to side A.  
\*2. Shows the spot position of E3S-VS1E4.

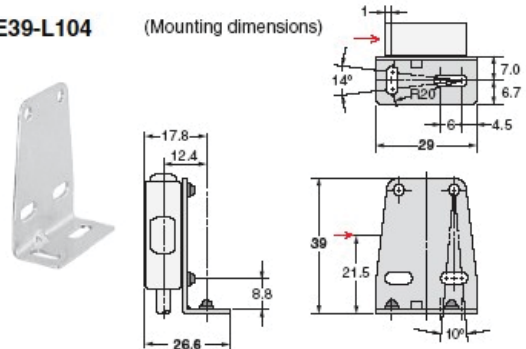
## Recommended replacement

### E3ZM-V series

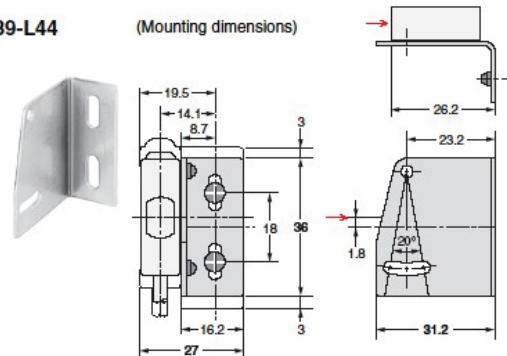


## Accessories (Order separately)

### E39-L104 (Mounting dimensions)



### E39-L44 (Mounting dimensions)



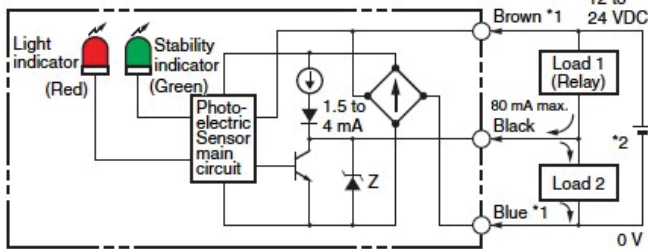


# Wire Connection

## Product discontinuation

E3S-VS1E□ / E3S-VS3E□ / E3S-VS5E□

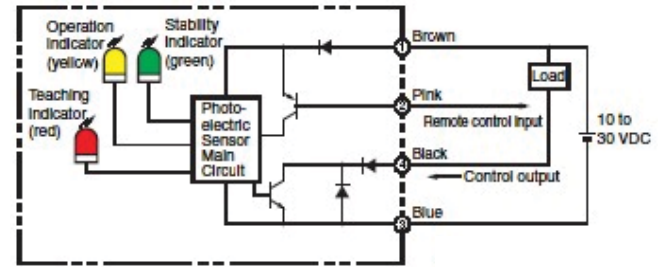
(NPN Output)



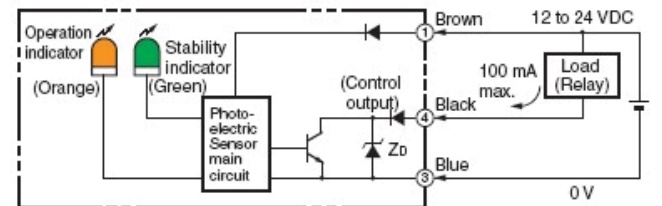
- \*1. Invert the connection to switch between Light-ON and Dark-ON.
- \*2. Voltage output (when connecting a transistor circuit, etc.)

## Recommended replacement

E3ZM-V61 (NPN Output)

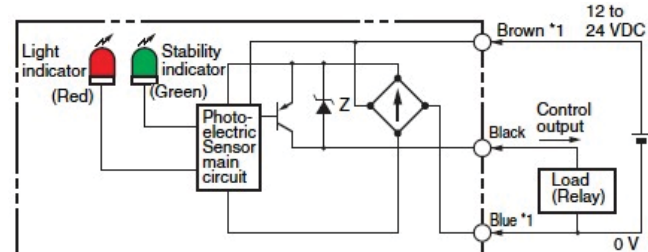


E3S-L63 (NPN Output)



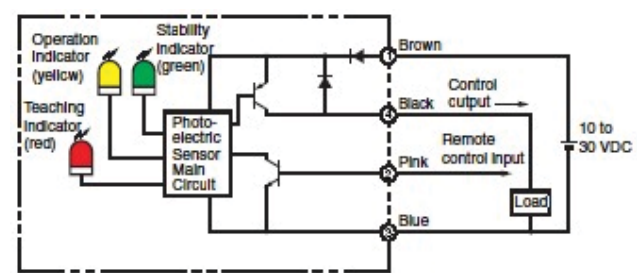
E3S-VS1B□ / E3S-VS3B□ / E3S-VS5B□

(PNP Output)

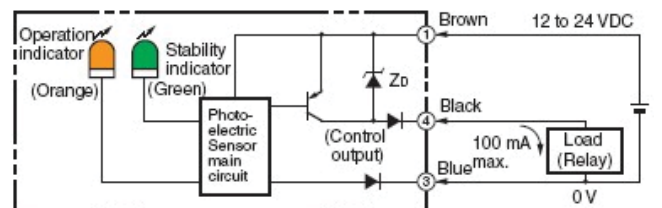


- \* Invert the connection to switch between Light-ON and Dark-ON.

E3ZM-V81 (PNP Output)



E3S-L83 (PNP Output)



## Characteristics

Item	Product discontinuation	Recommended replacement
	E3S-VS1 series	E3ZM-V series
Sensing distance	12 ± 2mm	
Light source (wavelength)	Green LED (565nm)	White LED (450 to 700nm)
Power supply voltage	12 to 24 VDC including ripple(p-p) 10% max.	10 to 30 VDC including ripple(p-p) 10% max.
Power consumption	40mA max.	600mW max. (current consumption for a 30-V power supply voltage : 20mA max.)
Control output	Load power supply voltage : 24VDC max., Load current : 80mA max., Residual voltage : 2V max., Light-ON / Dark-ON cable connection selectable  [Voltage output type] E3S-VS1E4 series NPN voltage output, Output current 1.5 to 4mA [Open collector output type] E3S-VS1B4 series PNP Open-collector output	Load power supply voltage : 30VDC max., Load current : 100mA max., Residual voltage : 2V max., NPN Open-collector output : E3ZM-V61 PNP Open-collector output : E3ZM-V81
Protection circuits	Reversed power supply polarity protection, Load short-circuit protection , Mutual interference prevention	Reversed power supply polarity protection, Load short-circuit protection , Reversed output polarity protection
Response time	Operation or reset : 1ms max.	Operation or reset : 50us max.
Sensitivity adjustment	One-turn adjuster	Teaching method
Ambient illumination (Receiver side)	Incandescent lamp : 3,000 lx max. Sunlight : 10,000 lx max.	
Ambient temperature	Operating : -25°C to 55°C, Storage : -40°C to 70°C (with no icing or condensation)	Operating : -40°C to 60°C , (Do not bend the cable in temperatures of -25°C or lower.) Storage : -40°C to 70°C (with no icing or condensation)
Ambient Humidity range	Operating : 35% to 80%, Storage : 35% to 95%(with no condensation)	
Insulation resistance	20MΩ min. at 500VDC	
Dielectric strength	1,000 VAC at 50/60 Hz for 1 min.	
Vibration resistance (destruction)	10 to 55 Hz , 1.5-mm double amplitude for 2h each in X , Y , and Z directions	
Shock resistance (destruction)	500 m/s <sup>2</sup> for 3 times each in X , Y , and Z directions	
Degree of protection	IEC 60529 : IP67	IEC 60529 : IP67 , DIN 40050-9 : IP69K
Indicator	Light indicator (red) Stability indicator (green)	Operating indicator (yellow) Stability indicator (green) Teaching indicator (red)
Weight (packed state)	Approx. 170 g	Approx. 85 g
Material	Case	Zinc die-cast
	Lens	Polycarbonate
		SUS316L
		PMMA (polymethylmethacrylate)

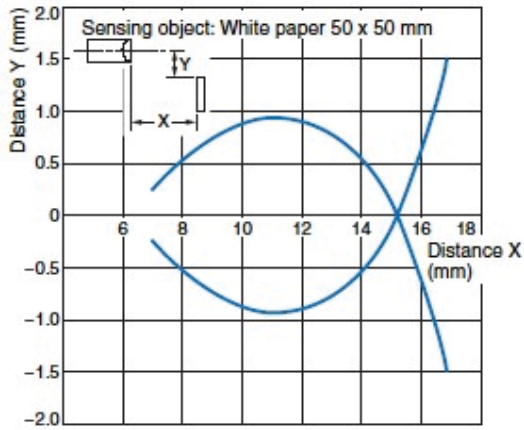


Item	Product discontinuation		Recommended replacement
	E3S-VS3 series	E3S-VS5 series	E3Z-L series
Sensing distance	35±3 mm white paper 30×30mm	30 to 50 mm white paper 30×30mm	30±20 mm transparent glasses 100×100 mm
Minimum detectable object	3×3mm min. (black mark on white)	3.5×3.5mm min. (black mark on white)	0.1 mm dia. (copper wire)
Light source (wavelength)	Green LED (565nm)	Red LED (680nm)	Red LED (660nm)
Power supply voltage	12 to 24 VDC including ripple(p-p) 10% max.		
Power consumption	40mA max.		30mA max.
Control output	Load power supply voltage : 24VDC max., Load current : 80mA max., Residual voltage : 2V max., Light-ON / Dark-ON cable connection selectable  [Voltage output type] E3S-VS3E4 series / E3S-VS5E4 series NPN voltage output, Output current 1.5 to 4mA [Open collector output type] E3S-VS3B4 series / E3S-VS5B4 series PNP Open-collector output		Load power supply voltage : 30VDC max., Load current : 100mA max., Residual voltage : 2V max., NPN Open-collector output : E3Z-L63 PNP Open-collector output : E3Z-L83
Protection circuits	Reversed power supply polarity protection, Load short-circuit protection , Mutual interference prevention		Reversed power supply polarity protection, Load short-circuit protection , Mutual interference prevention, Reversed output polarity protection
Response time	Operation or reset 5ms max.	Operation or reset 1ms max.	Operation or reset 1ms max.
Sensitivity adjustment	One-turn adjuster		
Ambient illumination (Receiver side)	Incandescent lamp 1,000 lx max. Sunlight 3,000 lx max.	Incandescent lamp : 3,000 lx max. Sunlight : 10,000 lx max.	
Ambient temperature	Operating : -25°C to 55°C, Storage : -40°C to 70°C (with no icing or condensation)		
Ambient Humidity range	Operating : 35% to 80%, Storage : 35% to 95% (with no condensation)		
Insulation resistance	20MΩ min. at 500VDC		
Dielectric strength	1,000 VAC at 50/60 Hz for 1 min.		
Vibration resistance (destruction)	10 to 55 Hz , 1.5-mm double amplitude for 2h each in X , Y , and Z directions		
Shock resistance (destruction)	500 m/s <sup>2</sup> for 3 times each in X , Y , and Z directions		
Degree of protection	IEC 60529 : IP67		
Indicator	Light indicator (red) Stability indicator (green)		Operating indicator (orange) Stability indicator (green)
Weight (packed state)	Approx. 190 g		Approx. 65 g
Material	Case	Zinc die-cast	PBT (polybutylene terephthalate)
	Lens	Glass	Modified polyarylate

**Operation ratings**

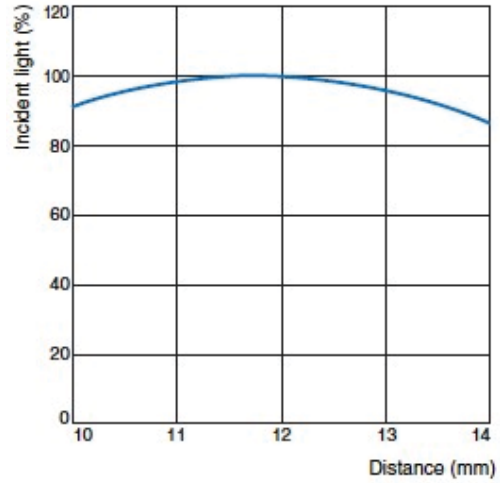
**Product discontinuation**

**E3S-VS1□4(2)**

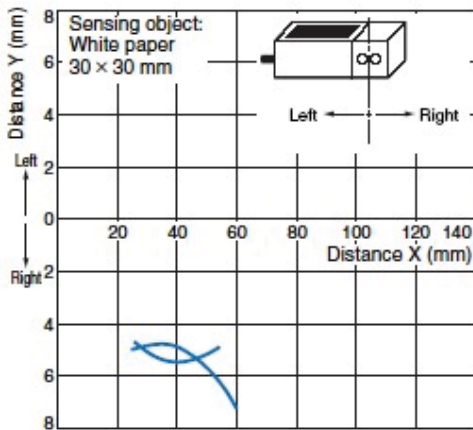


**Recommended replacement**

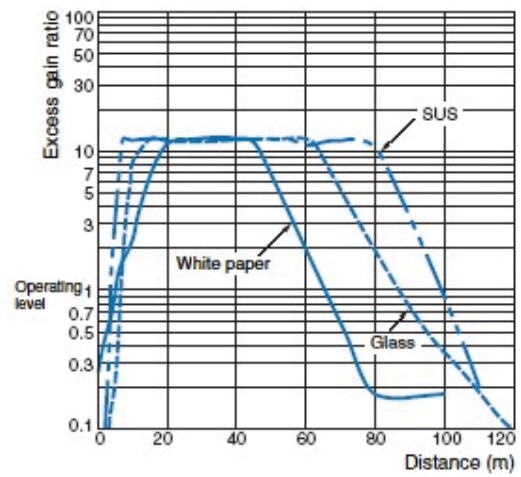
**E3ZM-V□□**



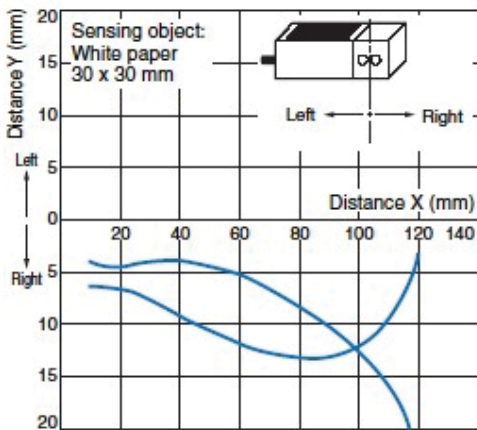
**E3S-VS3E42G**



**E3Z-L□3(L□8)**



**E3S-VS5□42R**





## Operation methods

<b>Product discontinuation E3S-VS1 series</b>	<b>Recommended replacement E3ZM-V series</b>
Operation with Sensitivity-adjuster and inverting the connection (Brown-Blue) .	Operation with teaching-button .

<b>Product discontinuation E3S-VS3 series / E3S-VS5 series</b>	<b>Recommended replacement E3Z-L series</b>
Operation with Sensitivity-adjuster and inverting the connection (Brown-Blue) .	Operation with Sensitivity-adjuster and Operation-selector .

## Accessories

<b>Product discontinuation E3S-VS series</b>	<b>Recommended replacement E3ZM-V series / E3Z-L series</b>
1) Instruction sheet 2) Mounting Bracket (with screws) 3) Adjustment screwdriver 4) Sensitivity adjuster	1) Instruction sheet

# E3S-GS1

## Body color

Product discontinuation E3S-GS1 series (Special specification)	Recommended replacement E3ZM-V series
Yellow	Silver

## Dimensions

Product discontinuation E3S-GS1 series (Special specification)	Recommended replacement E3ZM-V series

## Wire Connection

Product discontinuation E3S-GS1□4 series (Special specification)	Recommended replacement E3ZM-V series
<p><b>E3S-GS1E4 (NPN Output)</b></p> <p>*1. Invert the connection to switch between Light-ON and Dark-ON. *2. Voltage output (when connecting a transistor circuit, etc.)</p>	<p><b>E3ZM-V61 (NPN Output)</b></p> <p>*1. Invert the connection to switch between Light-ON and Dark-ON. *2. Voltage output (when connecting a transistor circuit, etc.)</p>
<p><b>E3S-GS1B4 (PNP Output)</b></p> <p>*1. Invert the connection to switch between Light-ON and Dark-ON.</p>	<p><b>E3ZM-V81 (PNP Output)</b></p> <p>*1. Invert the connection to switch between Light-ON and Dark-ON.</p>

## Characteristics

Item	Product discontinuation	Recommended replacement
	E3S-GS1 series (Special specification)	E3ZM-V series
Sensing distance	10mm	12±2mm
Light source (wavelength)	Green LED (565nm)	White LED (450 to 700nm)
Power supply voltage	12 to 24 VDC including ripple(p-p) 10% max.	10 to 30 VDC including ripple(p-p) 10% max.
Power consumption	40mA max.	600mW max. (current consumption for a 30-V power supply voltage : 20mA max.)
Control output	Load power supply voltage : 24VDC max., Load current : 80mA max., Residual voltage : 2V max., Light-ON / Dark-ON cable connection selectable  [Voltage output type] E3S-GS1E4 series NPN voltage output, Output current 1.5 to 4mA [Open collector output type] E3S-GS1B4 series PNP Open-collector output	Load power supply voltage : 30VDC max., Load current : 100mA max., Residual voltage : 2V max., NPN Open-collector output : E3ZM-V61 PNP Open-collector output : E3ZM-V81
Protection circuits	Reversed power supply polarity protection, Load short-circuit protection , Mutual interference prevention	Reversed power supply polarity protection, Load short-circuit protection , Reversed output polarity protection
Response time	Operation or reset : 1ms max.	Operation or reset : 50us max.
Sensitivity adjustment	One-turn adjuster	Teaching method
Ambient illumination (Receiver side)	Incandescent lamp : 3,000 lx max. Sunlight : 10,000 lx max.	
Ambient temperature	Operating : -25°C to 55°C, Storage : -40°C to 70°C (with no icing or condensation)	Operating : -40°C to 60°C (Do not bend the cable in temperatures of -25°C or lower.) Storage : -40°C to 70°C (with no icing or condensation)
Ambient Humidity range	Operating : 35% to 80%, Storage : 35% to 95%(with no condensation)	
Insulation resistance	20MΩ min. at 500VDC	
Dielectric strength	1,000 VAC at 50/60 Hz for 1 min.	
Vibration resistance (destruction)	10 to 55 Hz , 1.5-mm double amplitude for 2h each in X , Y , and Z directions	
Shock resistance (destruction)	500 m/s <sup>2</sup> for 3 times each in X , Y , and Z directions	
Degree of protection	IEC 60529 : IP65	IEC 60529 : IP67 , DIN 40050-9 : IP69K
Indicator	Light indicator (red) Stability indicator (green)	Operating indicator (yellow) Stability indicator (green) Teaching indicator (red)
Weight (packed state)	Approx. 130 g	Approx. 85 g
Material	Case	SUS316L
	Lens	PMMA (polymethylmethacrylate)

**Operation methods**

<b>Product discontinuation E3S-GS1□4 series (Special specification)</b>	<b>Recommended replacement E3ZM-V series</b>
Operation with Sensitivity-adjuster and inverting the connection (Brown-Blue) .	Operation with teaching-button .

**Accessories**

<b>Product discontinuation E3S-GS1□4 series (Special specification)</b>	<b>Recommended replacement E3ZM-V series</b>
1) Instruction sheet 2) Adjustment screwdriver 3) Sensitivity adjuster	1) Instruction sheet