

Product Discontinuation Notices

August 1, 2011

Photoelectric Sensors

No. 2011234E

Discontinuation Notice of Small/ flat Photoelectric Sensor E3HF/ E3HS/ E3HT/ E3HC/ E3HQ series

Product Discontinuation



**E3HF series
E3HS series
E3HT series
E3HC series
E3HQ series**



Recommended Replacement

E3T series

Discontinuation date : The end of March, 2012

Caution on recommended replacement

- External form is changing.
- The E3T series cannot be used for the voltage input equipment as it is.
External resistance (4.7kΩ 1/4W) is necessary between brown and the black of the wiring connection diagram.
- Response Time is shortening.
- In case of replacing E3HF series, maximum sensing distance is shortening.
- Replacement has no adjuster for sensing distance.
- Some products of light source are changed from Infrared to Red.

Difference from discontinued product

Model	Body Color	Dimensions	Wire connection	Mounting Dimensions	Characteristics	Operation ratings	Operation methods
E3T-FT1[]	*	--	--	--	--	--	*
E3T-FD1[]	*	--	--	--	--	--	*
E3T-CT1[]	*	--	--	--	*	*	*
E3T-CD1[]	*	--	--	--	*	*	*

** : Fully compatible

* : The change is a little/Almost compatible

-- : Not compatible

- : No corresponding specification

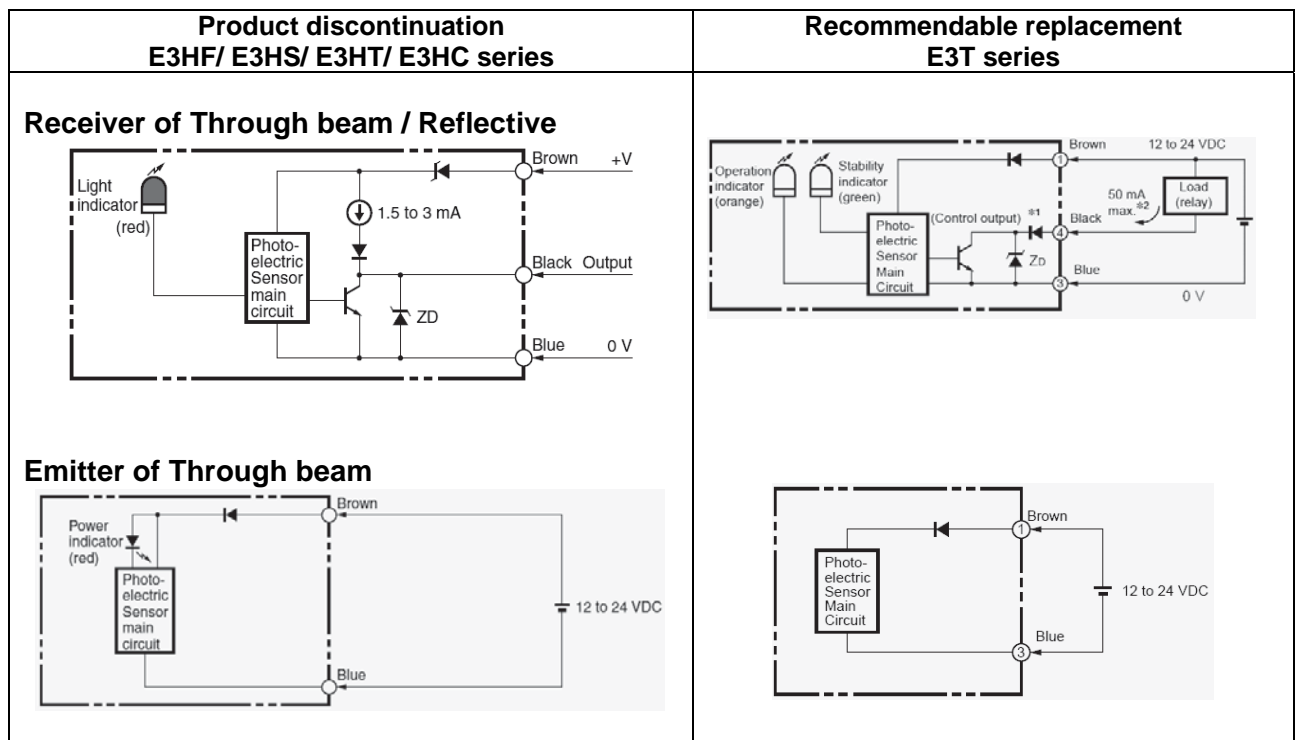
Product Discontinuation and recommended replacement

Product discontinuation	Recommended replacement
E3HC-1DE1 2M	None
E3HC-1DE2 2M	
E3HC-1E1 2M	
E3HC-1E2 2M	E3T-CT12 2M
E3HC-1L 2M	None
E3HC-DS3E1 2M	E3T-CD11 2M
E3HC-DS3E2 2M	None
E3HF-1DE1 2M	
E3HF-1DE1 5M	
E3HF-1DE1-M6J 0.5M	
E3HF-1DE2 2M	
E3HF-1E1 10M	
E3HF-1E1 2M	
E3HF-1E1-M1J 0.3M	E3T-FT11 2M
E3HF-1E2 2M	E3T-FT11-M1TJ 0.3M
E3HF-1E2 5M	E3T-FT12 2M
E3HF-1E2 5M	E3T-FT12 5M
E3HF-1L 2M	None
E3HF-1L 5M	
E3HF-DS5E1 2M	E3T-FD11 2M
E3HF-DS5E1 5M	E3T-FD11 5M
E3HF-DS5E2 2M	E3T-FD12 2M
E3HQ-CT11 2M	None
E3HQ-CT11 5M	
E3HQ-CT12 2M	
E3HQ-CT12 5M	
E3HQ-CT-L 2M	
E3HS-1DE2 2M	
E3HS-1E1 2M	E3T-CT12 2M
E3HS-1E2 2M	
E3HS-1E2 5M	
E3HS-DS5E1 2M	E3T-CD11 2M
E3HS-DS5E1 5M	None
E3HS-DS5E2 2M	
E3HT-1DE1 2M	
E3HT-1DE2 2M	
E3HT-1E1 2M	
E3HT-1E1 5M	
E3HT-1E2 2M	
E3HT-1E2 5M	None
E3HT-1E2-30 2M	
E3HT-1L 2M	
E3HT-1L 5M	E3T-CD11 2M
E3HT-DS3E1 2M	
E3HT-DS3E1 5M	
E3HT-DS3E1-M1J 0.3M	
E3HT-DS3E1-M1J 0.5M	
E3HT-DS3E2 2M	None
E3HT-DS3E2 5M	
E3HT-DS3E2-M1J 0.5M	

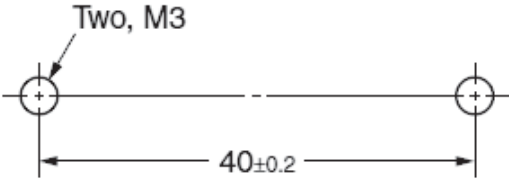
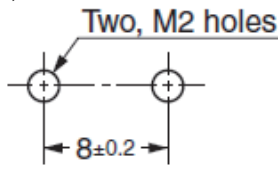
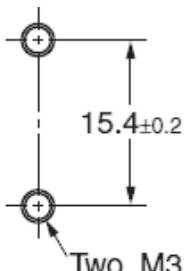
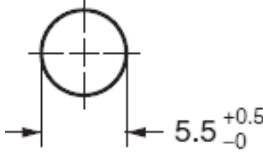
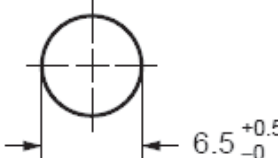
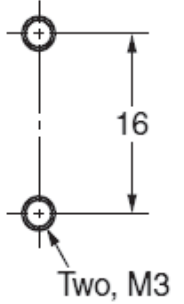
Body color

Product discontinuation	Recommendable replacement
E3HF series: Black	E3T-F series: Black
E3HC series: Silver E3HS series: Silver E3HT series: Silver	E3T-C[] series: Silver

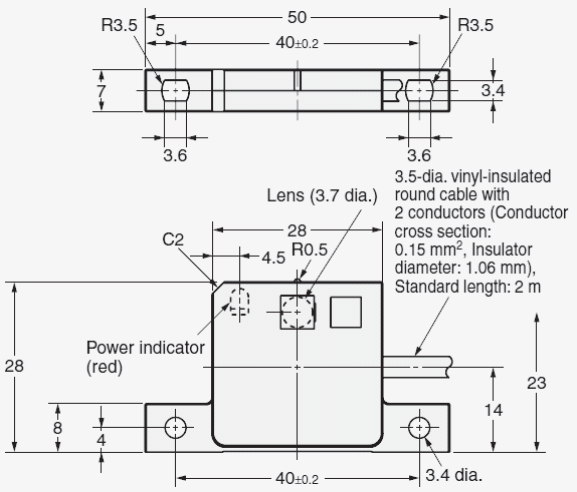
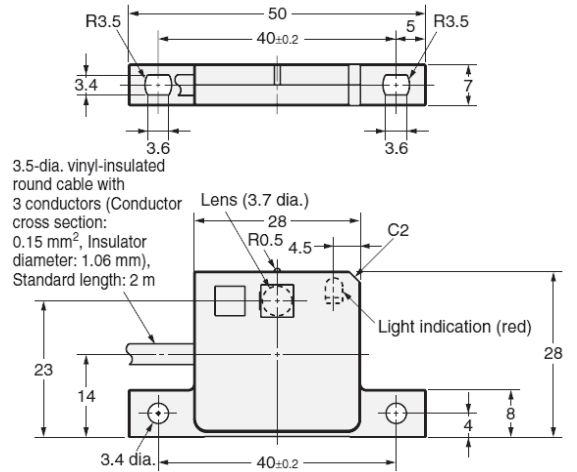
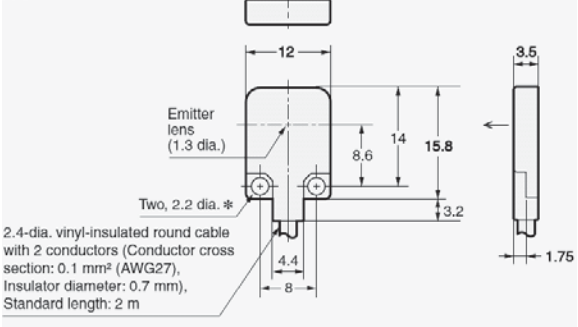
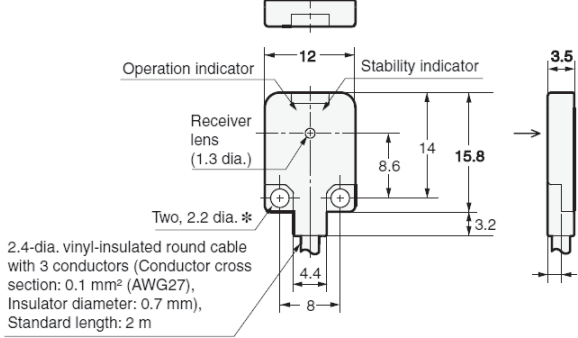
Wire connection



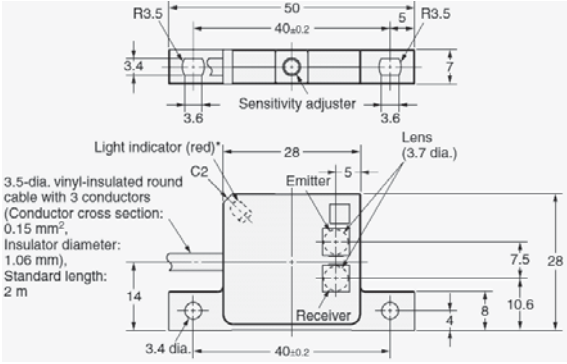
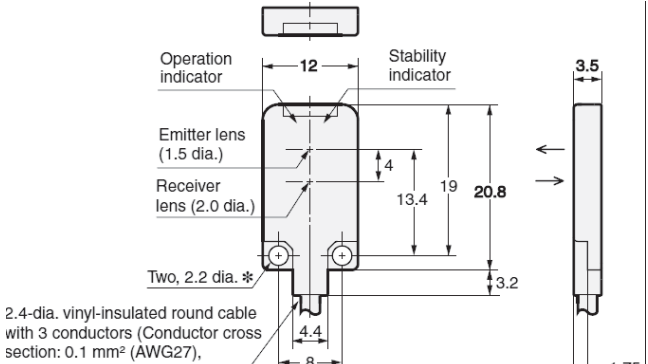
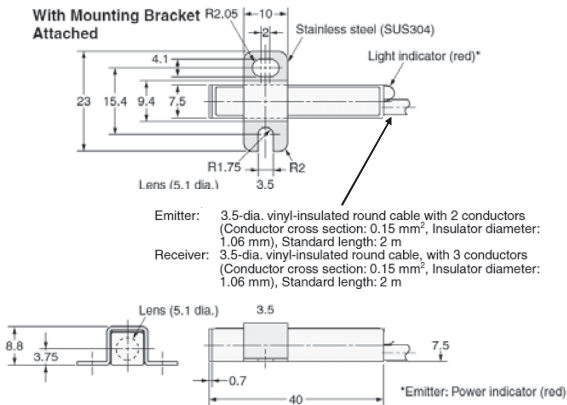
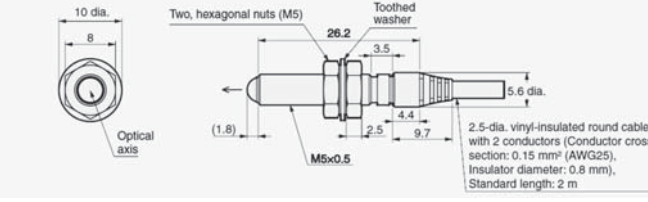
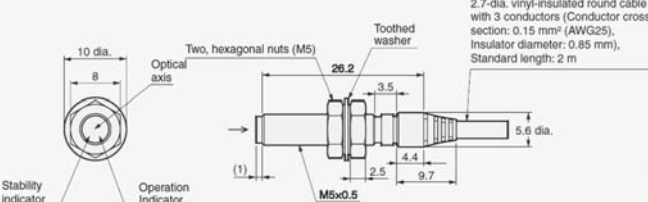
Mounting dimensions

Product discontinuation E3HF/ E3HS/ E3HT/ E3HC series	Recommendable replacement E3T series
<p>E3HF</p>  <p>Two, M3</p> <p>40±0.2</p>	<p>E3T-FT, E3T-FD</p>  <p>Two, M2 holes</p> <p>8±0.2</p>
<p>E3HS</p>  <p>15.4±0.2</p> <p>Two, M3</p>	<p>E3T-CT</p>  <p>5.5^{+0.5}₋₀</p>
<p>E3HT</p> <p>Not determined</p>	<p>E3T-CD</p>  <p>6.5^{+0.5}₋₀</p>
<p>E3HC</p>  <p>16</p> <p>Two, M3</p>	

Dimensions

Product discontinuation	Recommendable replacement
<p>E3HF-1E[] Emitter: E3HF-1L Receiver: E3HF-1DE[]</p> <p>Emitter</p>  <p>3.5-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p> <p>Receiver</p>  <p>3.5-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p>	<p>E3T-FT1[]</p> <p>Emitter</p>  <p>2.4-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.1 mm² (AWG27), Insulator diameter: 0.7 mm), Standard length: 2 m</p> <p>Receiver</p>  <p>2.4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.1 mm² (AWG27), Insulator diameter: 0.7 mm), Standard length: 2 m</p>

Dimensions

Product discontinuation	Recommendable replacement
<p>E3HF-DS5E[]</p>  <p>3.5-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p>	<p>E3T-FD1[]</p>  <p>2.4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.1 mm² (AWG27), Insulator diameter: 0.7 mm), Standard length: 2 m</p>
<p>E3HS-1E[] Emitter and Receiver</p>  <p>Emitter: 3.5-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m Receiver: 3.5-dia. vinyl-insulated round cable, with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p>	<p>E3T-CT1[] Emitter</p>  <p>2.5-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.15 mm² (AWG25), Insulator diameter: 0.8 mm), Standard length: 2 m</p> <p>Receiver</p>  <p>2.7-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm² (AWG25), Insulator diameter: 0.85 mm), Standard length: 2 m</p>

Dimensions

Product discontinuation	Recommendable replacement
<p>E3HS-DS5E[]</p>	<p>E3T-CD1[]</p>
<p>E3HT-1E[] Emitter and Receiver</p> <p>Emitter: 3.5-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p> <p>Receiver: 3.5-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p> <p>* Emitter has a power indicator (red).</p>	<p>E3T-CT1[] Emitter</p> <p>Receiver</p>

Dimensions

Product discontinuation	Recommendable replacement
<p>E3HT-DS3E[]</p> <p>3.5-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p>	<p>E3T-CD1[]</p>
<p>E3HC-1E[] Emitter and Receiver</p> <p>Emitter: 3.5-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m Receiver: 3.5-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p> <p>With Mounting Bracket Attached</p>	<p>E3T-CT1[] Emitter</p> <p>Receiver</p>
<p>E3HC-DS3E</p> <p>3.5-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.15 mm², Insulator diameter: 1.06 mm), Standard length: 2 m</p> <p>With Mounting Bracket Attached</p>	<p>E3T-CD1[]</p>

Characteristics

Items	Models	Product discontinuation E3HF-1E[]	Recommendable replacement E3T-FT1[]
Sensor type		Through Beam	Through Beam
Sensing distance		700 mm	500 mm
Standard sensing object		Opaque, 3.7 mm dia. min.	Opaque, 1.3 mm dia. min.
Differential travel		-	-
Directional angle		Emitter/Receiver: 3 to 20° for each	Emitter: 3 to 25°, Receiver: 3° min.
Light source (wavelength)		Infrared LED (950 nm)	Red LED (650 nm)
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p): 10% max.	12 to 24 VDC ±10%, ripple (p-p): 10% max.
Current consumption		Emitter/ Receiver: 20 mA max. for each	Total: 30 mA max. (Emitter: 10 mA max., Receiver: 20 mA max.)
Control output		Load power supply voltage: 24 VDC max., Load current: 80 mA (Residual voltage: 1 V max.), NPN voltage output type, Light-ON/Dark-ON (depends on model)	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
Protection Circuit		Power supply reverse polarity protection, Output short-circuit protection	Power supply/Output reverse polarity protection, Output short-circuit protection
Response time		Operate or reset: 5 ms max. for each	Operate or reset: 1 ms max. for each
Sensitivity adjustment		-	-
Ambient illuminance		Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 5,000 lx, Sunlight 10,000 lx
Ambient temperature		Operating: -25 to 55 degree C, Storage: -30 to 70°C (with no icing or condensation)	Operating: -25 to 55 degree C, Storage: -30 to 70°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Dielectric strength		500 VAC at 50/60 Hz for 1 minute	1000 VAC at 50/60 Hz for 1 minute
Vibration resistance (destruction)		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	10 to 2,000 Hz, 1.5 mm double amplitude or 300 m/s ² for 0.5 hours each
Shock resistance (destruction)		Destruction: 500 m/s ² for 3 times each in X, Y, and Z directions	Destruction: 1,000 m/s ² for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP64	IP67 (IEC 60529)
Connection method		Pre-wired models (standard length: 2 m)	Pre-wired models (standard length: 2 m)
Weight (packed state)		Approx. 110 g	Approx. 40 g
Material	Case	ABS	PBT (polybutylene terephthalate)
	Displaying window	-	Denatured polyarylate
	Lens	Methacrylic resin	Denatured polyarylate
	Mounting Bracket	-	-
	Hexagon Nut	-	-
	toothed washer	-	-
Accessories		Slits (width :0.5mm, 1mm, 2mm), Instruction sheet	Instruction sheet, Mounting screws (M2 × 8), Nuts, Spring washers, Flat washers

Characteristics

Items		Models	Product discontinuation E3HF-DS5E[]	Recommendable replacement E3T-FD1[]
Sensor type			Diffuse Reflective	Diffuse Reflective
Sensing distance			50 mm (White paper 30 × 30 mm)	5 to 30 mm (50 × 50 mm white paper)
Standard sensing object			-	-
Differential travel			20% max. of sensing distance	6 mm max.
Directional angle			-	-
Light source (wavelength)			Infrared LED (950 nm)	Red (650 nm)
Power supply voltage			12 to 24 VDC ±10%, ripple (p-p): 10% max	12 to 24 VDC ±10%, ripple (p-p) 10% max.
Current consumption			30 mA max.	20 mA max.
Control output			Load power supply voltage: 24 VDC max., Load current: 80 mA (residual voltage: 1 V max.), NPN voltage output type, Light-ON/Dark-ON (depends on model)	Load power supply voltage: 26.4VDC 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
Protection Circuit			Power supply reverse polarity protection, Output short-circuit protection, Mutual interference prevention	Power supply and output reverse polarity protection, Output short-circuit protection, Mutual interference prevention
Response time			Operate or reset: 3 ms max. for each	Operate or reset: 1 ms max. for each
Sensitivity adjustment			Single-turn adjuster	None
Ambient illuminance			Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 5,000 lx, max., Sunlight: 10,000 lx max.
Ambient temperature			Operating: -25 to 55 degree C, Storage: -30 to 70 degree C (with no icing or condensation)	Operating: -25 to +55 degree C, Storage: -40 to +70 degree C (with no icing or condensation)
Ambient humidity			Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating: 35% to +85%, Storage: 35% to +95% (with no icing or condensation)
Insulation resistance			20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Dielectric strength			500 VAC at 50/60 Hz for 1 minute	1,000 VAC, 50/60 Hz for 1 min.
Vibration resistance (destruction)			10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	10 to 2,000 Hz, 1.5-mm double amplitude or 300 m/s ² for 0.5 hours each in X, Y, and Z directions
Shock resistance (destruction)			500 m/s ² for 3 times each in X, Y, and Z directions	1,000 m/s ² 3 times each in X, Y, and Z directions
Degree of protection			IEC IP64	IP67 (IEC 60529)
Connection method			Pre-wired models (standard length: 2 m)	Pre-wired (standard length: 2 m)
Weight (packed state)			Approx. 70 g	Approx. 20 g
Material	Case		ABS	PBT (polybutylene terephthalate)
	Displaying window		-	Denatured polyarylate
	Lens		Methacrylic resin	Denatured polyarylate
	Mounting Bracket		-	-
	Hexagon Nut		-	-
	toothed washer		-	-
Accessories			Screwdriver for adjustment, Instruction sheet	Instruction manual, Phillips, screws(M2 × 8), Nuts, Spring washers, Flat washers *

Characteristics

Items	Models	Product discontinuation E3HS-1E[]	Recommendable replacement E3T-CT1[]
Sensor type		Thorough Beam	Thorough Beam
Sensing distance		1 m	1 m
Standard sensing object		Opaque, 5.1-mm dia. min.	Opaque, 4 mm dia. min.
Differential travel		-	-
Directional angle		Emitter/ Receiver: 3 to 25degree C for each	Receiver: 2 degree
Light source (wavelength)		Infrared LED (950 nm)	Red (630 nm)
Power supply voltage		12 to 24 VDC \pm 10%, ripple (p-p): 10% max.	12 to 24 VDC \pm 10%, ripple (p-p): 10% max.
Current consumption		Emitter/Receiver: 20 mA max. for each	Total: 30 mA max. (Emitter: 15 mA max., Receiver: 15 mA max)
Control output		Load power supply voltage: 24 VDC max., Load current: 80 mA (residual voltage: 1.2 V max.) NPN voltage output type Light-ON/Dark-ON (depends on model)	Load power supply voltage: 30 VDC max., Load current: 80 mA (Residual voltage: 1 V max.), Open collector output type
Protection Circuit		Power supply reverse polarity protection, Output short-circuit Protection	Power supply reverse polarity protection, Output short-circuit protection
Response time		Operate or reset: 5 ms max. for each	Operate or reset: 0.5 ms max.
Sensitivity adjustment		-	-
Ambient illuminance		Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 3,000 lx max.
Ambient temperature		Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)	Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating or Storage: 35% to +85% (with no icing or condensation)
Insulation resistance		20 M Ω min. at 500 VDC	20 M Ω min. at 500 VDC
Dielectric strength		500 VAC at 50/60 Hz for 1 minute	AC500V, 50/60 Hz for 1 min.
Vibration resistance (destruction)		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance (destruction)		500 m/s ² for 3 times each in X, Y, and Z directions	500 m/s ² for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP65	IP65 (IEC 60529)
Connection method		Pre-wired models (standard length: 2 m)	Pre-wired models (standard length: 2 m)
Weight (packed state)		Approx. 120 g	Approx. 60 g
Material	Case	SUS304	SUS303
	Displaying window	-	Poly Sulfone
	Lens	Methacrylic resin	Poly Sulfone
	Mounting Bracket	SUS304	-
	Hexagon Nut	-	SUS303
	toothed washer	-	SUS303
Accessories		Mounting Bracket (with screws), Stoppers, Instruction sheet	Instruction sheet, Hexagon Nut, Toothed washer

Characteristics

Items	Models	Product discontinuation E3HS-DS5E[]	Recommendable replacement E3T-CD1[]
Sensor type		Diffuse-reflective	Diffuse-reflective
Sensing distance		50 mm (White paper 30 × 30 mm)	3 to 50 mm (100 × 100 mm white paper)
Standard sensing object		-	-
Differential travel		20% max. of sensing distance	15% max of the sensing Distance
Directional angle		-	-
Light source (wavelength)		Infrared LED (950 nm)	Infrared (870 nm)
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p) 10% max.	12 to 24 VDC ±10%, ripple (p-p) 10% max.
Current consumption		30 mA max.	20 mA max.
Control output		Load power supply voltage: 24 VDC max., Load current: 80 mA (residual voltage: 1.2 V max.) NPN voltage output type Light-ON/Dark-ON (depends on model)	Load power supply voltage: 30 VDC max. Load current: 80 mA max. (residual voltage: 1 V max.) Open-collector output
Protection Circuit		Power supply reverse polarity protection, Output short-circuit protection, Mutual interference prevention	Power supply reverse polarity protection, Output short-circuit protection
Response time		Operate or reset: 3 ms max. for each	Operate or reset: 0.5 ms max.
Sensitivity adjustment		Single-turn adjuster	Single-turn adjuster
Ambient illuminance		Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 3,000 lx max.
Ambient temperature		Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)	Operating: -25 to +55°C Storage: -30 to +70°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating or Storage: 35% to +85% (with no icing or condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Dielectric strength		500 VAC at 50/60 Hz for 1 minute	500 VAC, 50/60 Hz for 1 min.
Vibration resistance (destruction)		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	10 to 55Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance (destruction)		500 m/s ² for 3 times each in X, Y, and Z directions	500 m/s ² for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP65	IP65 (IEC 60529)
Connection method		Pre-wired models (standard length: 2 m)	Pre-wired (standard length: 2 m)
Weight (packed state)		Approx. 80 g	Approx. 40 g
Material	Case	Stainless steel (SUS304)	SUS303
	Displaying window	-	Epoxy
	Lens	Methacrylic resin	Polysulfone
	Mounting Bracket	Stainless steel (SUS304)	-
	Hexagon Nut	-	SUS303
	toothed washer	-	SUS303
Accessories		Mounting Bracket (with screws), Screwdriver for adjustment, Stoppers, Instruction sheet	Instruction manual, Hexagonal nuts, Toothed washers, Adjustment driver

Characteristics

Items	Models	Product discontinuation E3HT-1E[]	Recommendable replacement E3T-CT1[]
Sensor type		Thorough Beam	Thorough Beam
Sensing distance		1 m	1 m
Standard sensing object		Opaque, 6.25-mm dia. min.	Opaque, 4 mm dia. min.
Differential travel		-	-
Directional angle		Emitter/Receiver: 10 to 25° for Each	Receiver: 2 degree
Light source (wavelength)		Infrared LED (950 nm)	Red (630 nm)
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p): 10% max.	12 to 24 VDC ±10%, ripple (p-p): 10% max.
Current consumption		Emitter: 25 mA max. Receiver: 15 mA max.	Total: 30 mA max. (Emitter: 15 mA max., Receiver: 15 mA max)
Control output		Load power supply voltage: 24 VDC max., Load current: 80 mA (Residual voltage: 1 V max.), NPN voltage output type, Light-ON/Dark-ON (depends on model)	Load power supply voltage: 30 VDC max., Load current: 80 mA (Residual voltage: 1 V max.), Open collector output type
Protection Circuit		Power supply reverse polarity protection, Output short-circuit protection	Power supply reverse polarity protection, Output short-circuit protection
Response time		Operate or reset: 5 ms max. for each	Operate or reset: 0.5 ms max.
Sensitivity adjustment		-	-
Ambient illuminance		Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 3,000 lx max.
Ambient temperature		Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)	Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating or Storage: 35% to +85% (with no icing condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Dielectric strength		500 VAC at 50/60 Hz for 1 minute	AC500V, 50/60 Hz for 1 min.
Vibration resistance (destruction)		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance (destruction)		Destruction: 500 m/s ² for 3 times each in X, Y, and Z directions	500 m/s ² for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP66	IP65 (IEC 60529)
Connection method		Pre-wired models (standard length: 2 m)	Pre-wired models (standard length: 2 m)
Weight (packed state)		Approx. 130 g	Approx. 60 g
Material	Case	Brass	SUS303
	Displaying window	-	Poly Sulfone
	Lens	Methacrylic resin	Poly Sulfone
	Mounting Bracket	-	-
	Hexagon Nut	-	SUS303
	toothed washer	-	SUS303
Accessories		Instruction sheet	Instruction sheet, Hexagon Nut, Toothed washer

Characteristics

Items	Models	Product discontinuation E3HT-DS3E[]	Recommendable replacement E3T-CD1[]
Sensor type		Diffuse-reflective	Diffuse-reflective
Sensing distance		35 mm (White paper 30 × 30 mm)	3 to 50 mm (100 × 100 mm white paper)
Standard sensing object		-	-
Differential travel		20% max. of sensing distance	15% max of the sensing Distance
Directional angle		-	-
Light source (wavelength)		Infrared LED (940 nm)	Infrared (870 nm)
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p): 10% max.	12 to 24 VDC ±10%, ripple (p-p) 10% max.
Current consumption		30 mA max.	20 mA max.
Control output		Load power supply voltage: 24 VDC max., Load current: 80 mA (Residual voltage: 1 V max.) NPN voltage output type Light-ON/Dark-ON (depends on model)	Load power supply voltage: 30 VDC max. Load current: 80 mA max. (Residual voltage: 1 V max.) Open-collector output
Protection Circuit		Power supply reverse polarity protection, Output short-circuit protection, Mutual interference prevention	Power supply reverse polarity protection, Output short-circuit protection
Response time		Operate or reset: 3 ms max. for each	Operate or reset: 0.5 ms max.
Sensitivity adjustment		-	Single-turn adjuster
Ambient illuminance		Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 3,000 lx max.
Ambient temperature		Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)	Operating: -25 to +55°C, Storage: -30 to +70°C, (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating or Storage: 35% to +85% (with no icing or condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Dielectric strength		500 VAC at 50/60 Hz for 1 minute	500 VAC, 50/60 Hz for 1 min.
Vibration resistance (destruction)		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	10 to 55Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance (destruction)		Destruction: 500 m/s ² for 3 times each in X, Y, and Z directions	500 m/s ² for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP66	IP65 (IEC 60529)
Connection method		Pre-wired (standard length: 2 m)	Pre-wired (standard length: 2 m)
Weight (packed state)		Approx. 80 g	Approx. 40 g
Material	Case	Brass	SUS303
	Displaying window	-	Epoxy
	Lens	Methacrylic resin	Polysulfone
	Mounting Bracket	-	-
	Hexagon Nut	-	SUS303
	toothed washer	-	SUS303
Accessories		Instruction sheet	Instruction manual, Hexagonal nuts, Toothed washers, Adjustment driver

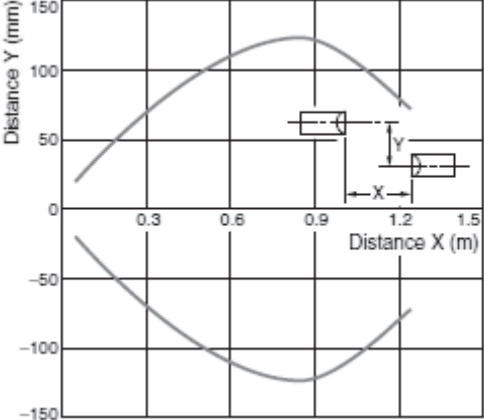
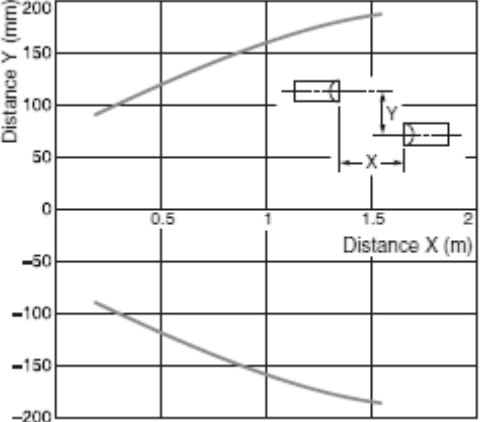
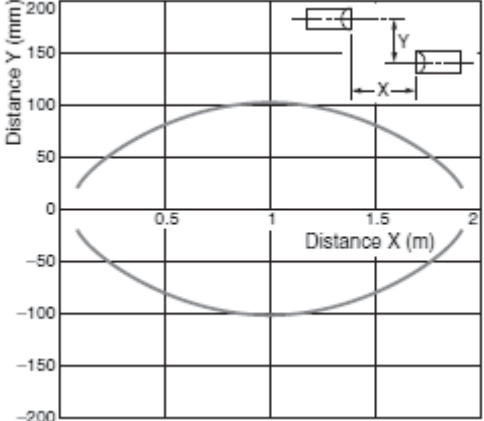
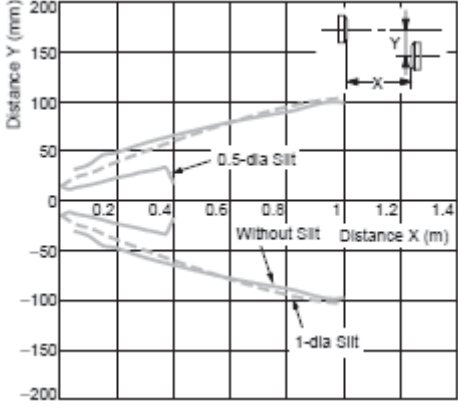
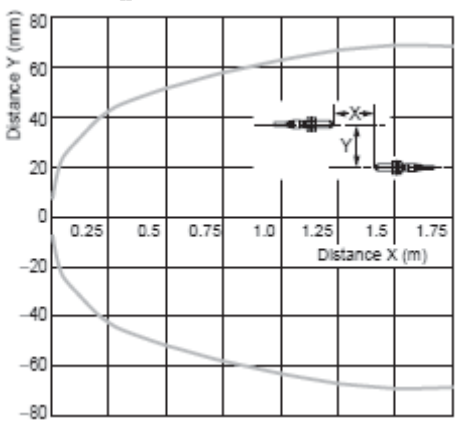
Characteristics

Items	Models	Product discontinuation E3HC-1E[]	Recommendable replacement E3T-CT1[]
Sensor type		Thorough Beam	Thorough Beam
Sensing distance		1m	1 m
Standard sensing object		Opaque, 6.25-mm dia. min.	Opaque, 4 mm dia. min.
Differential travel		-	-
Directional angle		Emitter/Receiver: 10 to 25° for Each	Receiver: 2 degree
Light source (wavelength)		Infrared LED (950 nm)	Red (630 nm)
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p): 10% max.	12 to 24 VDC ±10%, ripple (p-p): 10% max.
Current consumption		Emitter: 25 mA max. Receiver: 15 mA max.	Total: 30 mA max. (Emitter: 15 mA max., Receiver: 15 mA max)
Control output		Load power supply voltage: 24 VDC max., Load current: 80 mA (Residual voltage: 1 V max.) NPN voltage output type Light-ON/Dark-ON (depends on model)	Load power supply voltage: 30 VDC max., Load current: 80 mA (Residual voltage: 1 V max.), Open collector output type
Protection Circuit		Power supply reverse polarity protection, Output short-circuit protection	Power supply reverse polarity protection, Output short-circuit protection
Response time		Operate or reset: 5 ms max. for each	Operate or reset: 0.5 ms max.
Sensitivity adjustment		-	-
Ambient illuminance		Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 3,000 lx max.
Ambient temperature		Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)	Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating or Storage: 35% to +85% (with no icing or condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Dielectric strength		500 VAC at 50/60 Hz for 1 minute	AC500V, 50/60 Hz for 1 min.
Vibration resistance (destruction)		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance (destruction)		Destruction: 500 m/s ² for 3 times each in X, Y, and Z directions	500 m/s ² for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP66	IP65 (IEC 60529)
Connection method		Pre-wired (standard length: 2 m)	Pre-wired (standard length: 2 m)
Weight (packed state)		Approx. 110 g	Approx. 60 g
Material	Case	SUS304	SUS303
	Displaying window	-	Poly Sulfone
	Lens	Methacrylic resin	Poly Sulfone
	Mounting Bracket	SUS304	-
	Hexagon Nut	-	SUS303
	toothed washer	-	SUS303
Accessories		Mounting bracket (with screws), Instruction sheet	Instruction sheet, Hexagon Nut, Toothed washer

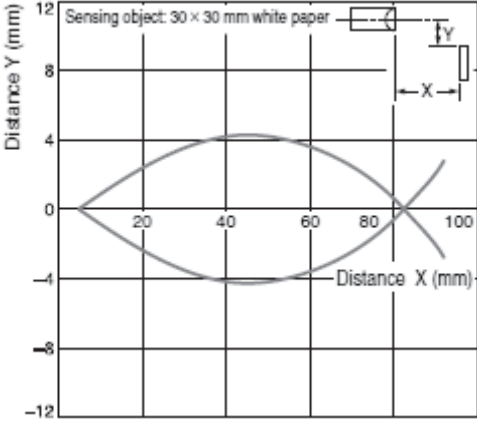
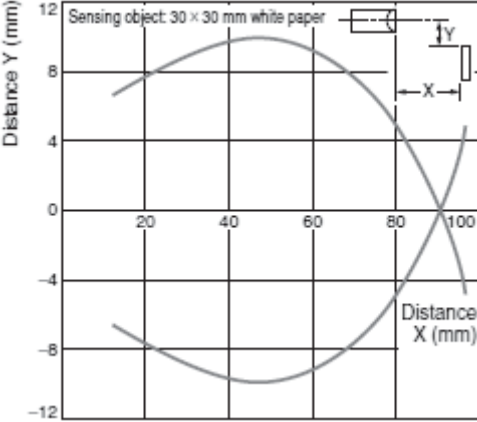
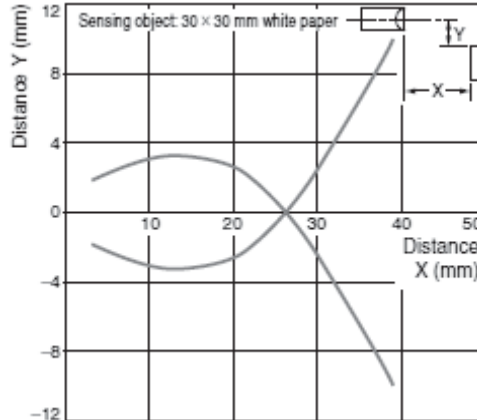
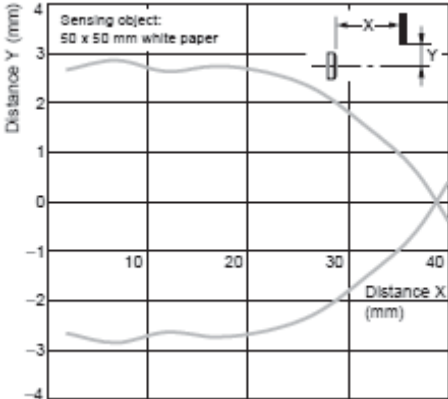
Characteristics

Items	Models	Product discontinuation E3HC-DS3E[]	Recommendable replacement E3T-CD1[]
Sensor type		Diffuse-reflective	Diffuse-reflective
Sensing distance		35 mm (White paper 30 × 30 mm)	3 to 50 mm (100 × 100 mm white paper)
Standard sensing object		-	-
Differential travel		20% max. of sensing distance	15% max of the sensing Distance
Directional angle		-	-
Light source (wavelength)		Infrared LED (940 nm)	Infrared (870 nm)
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p): 10% max.	12 to 24 VDC ±10%, ripple (p-p) 10% max.
Current consumption		30 mA max.	20 mA max.
Control output		Load power supply voltage: 24 VDC max., Load current: 80 mA (Residual voltage: 1 V max.) NPN open collector output type Light-ON/Dark-ON (depends on model)	Load power supply voltage: 30 VDC max. Load current: 80 mA max. (Residual voltage: 1 V max.) Open-collector output
Protection Circuit		Power supply reverse polarity protection, Output short-circuit protection, Mutual interference prevention	Power supply reverse polarity protection, Output short-circuit protection
Response time		Operate or reset: 3 ms max. for each	Operate or reset: 0.5 ms max.
Sensitivity adjustment		-	Single-turn adjuster
Ambient illuminance		Incandescent lamp: 3,000 lx, Sunlight 10,000 lx	Incandescent lamp: 3,000 lx max.
Ambient temperature		Operating: -25 to 55°C, Storage: -30 to 70°C (with no icing or condensation)	Operating: -25 to +55°C Storage: -30 to +70°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no icing or condensation)	Operating or Storage: 35% to +85% (with no condensation)
Insulation resistance		20 MΩ min. at 500 VDC	20 MΩ min. at 500 VDC
Dielectric strength		500 VAC at 50/60 Hz for 1 minute	500 VAC, 50/60 Hz for 1 min.
Vibration resistance (destruction)		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	10 to 55Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance (destruction)		Destruction: 500 m/s ² for 3 times each in X, Y, and Z directions	500 m/s ² for 3 times each in X, Y, and Z directions
Degree of protection		IEC IP66	IP65 (IEC 60529)
Connection method		Pre-wired (standard length: 2 m)	Pre-wired (standard length: 2 m)
Weight (packed state)		Approx. 75 g	Approx. 40 g
Material	Case	SUS304	SUS303
	Displaying window	-	Epoxy
	Lens	Methacrylic resin	Polysulfone
	Mounting Bracket	SUS304	-
	Hexagon Nut	-	SUS303
	toothed washer	-	SUS303
Accessories		Mounting bracket (with screws) Instruction sheet	Instruction sheet, Hexagon Nut Toothed washers, Adjustment driver

Operation ratings

Product discontinuation	Recommendable replacement
<p>Parallel Operating Range <Through-beam></p> <p>E3HF-1E</p>  <p>E3HS-1E</p>  <p>E3HT-1E, E3HC-1E</p> 	<p><Through-beam></p> <p>E3T-FT1</p>  <p>E3T-CT1</p> 

Operation ratings

Product discontinuation	Recommendable replacement
<p data-bbox="244 356 507 385">< Diffuse-reflective ></p> <p data-bbox="244 421 416 450">E3HF-DS5E</p>  <p data-bbox="244 911 416 940">E3HS-DS5E</p>  <p data-bbox="244 1402 608 1431">E3HT-DS3E, E3HC-DS3E</p> 	<p data-bbox="906 356 1169 385">< Diffuse-reflective ></p> <p data-bbox="906 421 1043 450">E3T-FD1</p>  <p data-bbox="906 889 1043 918">E3T-CD1</p> 