

E3C

Photo-electric Sensors

Thin, Compact Head Saves Space and Mounts Closely. Built-in Interference Protection Provided.

■ Input indicator on the Sensor Unit simplifies settings.



! Be sure to read *Safety Precautions* on page 122.

Ordering Information

Sensors Sensor Units

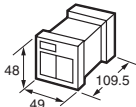
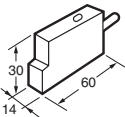
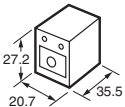
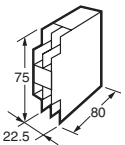
Red light Infrared light

Sensing method	Application	Appearance	Sensing distance	Model
Through-beam	Small type		100 mm	E3C-S10
			500 mm	E3C-S50
			1 m	E3C-1
			2 m	E3C-2
	Slim type		200 mm	E3C-S20W
			300 mm	E3C-S30W
		Side-view		
Diffuse-reflective	Small type		100 mm	E3C-DS10
	Slim type		50 mm	E3C-DS5W
	Side-view		100 mm	E3C-DS10T
Convergent-reflective	Small type		30±3 mm	E3C-LS3R

E3C-LDA

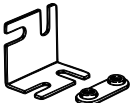

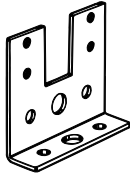
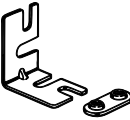
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Amplifier Units

Power supply	Application	Appearance	Functions	Model
AC	Standard models		---	E3C-A
			Timer	E3C-C
DC	Slim type		Self diagnostic	E3C-JC4P
	Small type		---	E3C-GE4
	Front terminal type		---	E3C-WE4 E3C-WH4F

Accessories (Order Separately)

Mounting Brackets

Appearance	Model	Quantity	Remarks
	E39-L41	2	Provided with the E3C-1.
	E39-L42	2	Provided with the E3C-2. Can be used with the E3C-DS10.
	E39-L127-T1	1	Can be used with the E3C-S10.
	E39-L127-T2	1	
	E39-L127-T3	1	
	E39-L31	1*	Can be used with the E3C-S50.

Note: Refer to Mounting Brackets on page 292 for details.

* When using through-beam models, order one bracket for the Receiver and one for the Emitter.

Connector




Name	Appearance	Model	Quantity	Remarks
Front connection socket		PF113A	1	Provided with the E3C-A/C.
		PYF08A	1	Can be used with the E3C-GE4.
Rear connection socket		PY08	1	Can be used with the E3C-GE4.

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Ratings and Specifications

Sensors

Sensing method	Through-beam							
	Item	Model	E3C-S10	E3C-S20W	E3C-S50	E3C-S30T E3C-S30W	E3C-1	E3C-2
Sensing distance			100 mm	200 mm	500 mm	300 mm	1 m	2 m
Standard sensing object			Opaque, 2-mm dia. min.		Opaque, 3-mm dia. min.	Opaque, 1.5-mm dia. min.	Opaque, 4-mm dia. min.	Opaque, 8-mm dia. min.
Directional angle			Emitter/Receiver: 10 to 60° each		Emitter/Receiver: 10 to 40° each		Emitter/Receiver: 3 to 20° each	Emitter/Receiver: 3 to 15° each
Light source (wavelength)			Infrared LED (925 nm)			Infrared LED (940 nm)	Infrared LED (950 nm)	
Ambient illuminance (Receiver side)			Incandescent lamp: 3,000 lx max., Sunlight 10,000 lx max.					
Ambient temperature			Operating/Storage: -25°C to 70°C (with no icing or condensation)					
Ambient humidity			Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)					
Insulation resistance			20 MΩ min. at 500 VDC					
Dielectric strength			500 VAC at 50/60 Hz for 1 minute					
Vibration resistance			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					
Degree of protection			IEC 60529 IP64 Limited to indoor use	IEC 60529 IP50 Limited to indoor use	IEC 60529 IP64 Limited to indoor use	IEC 60529 IP60 Limited to indoor use	IEC 60529 IP66 Limited to indoor use	
Connection method			Pre-wired models (standard length: 2 m)					
Weight (packed state)			Approx. 50 g			Approx. 24 g	Approx. 60 g	Approx. 120 g
Material	Case		Polycarbonate		ABS	Polycarbonate		Zinc die-cast
	Lens		Polycarbonate		Acrylics	Polycarbonate		
	Mounting Brackets		---				Steel	
Accessories			Instruction manual	Phillips screw M2×8, spring washer, flat washer, M2 nut, instruction manual	Instruction manual	Phillips screw M2×8, spring washer, flat washer, nut M2, instruction manual	Mounting Bracket (with screws), instruction manual	Mounting Bracket (with screws), instruction manual

Sensing method	Item	Model	Diffuse-reflective			Convergent-reflective
			E3C-DS5W	E3C-DS10T	E3C-DS10	E3C-LS3R
Sensing distance			50 mm (White paper 100 × 100 mm)	100 mm (White paper 100 × 100 mm)	100 mm (White paper 50 × 50 mm)	30 ± 3 mm (White paper 10 × 10 mm)
Differential travel			20% max. of sensing distance			10% max.
Light source (wavelength)			Infrared LED (925 nm)	Infrared LED (950 nm)		Red LED (680 nm)
Ambient illuminance (Receiver side)			Incandescent lamp: 3,000 lx max., Sunlight 10,000 lx max.			
Ambient temperature			Operating/Storage: -25°C to 70°C (with no icing or condensation)			
Ambient humidity			Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)			
Insulation resistance			20 MΩ min. at 500 VDC			
Dielectric strength			500 VAC at 50/60 Hz for 1 minute			
Vibration resistance			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			
Degree of protection			IEC 60529 IP50 (Limited to indoor use)			IEC 60529 IP64 (Limited to indoor use)
Connection method			Pre-wired models (standard length: 2 m)			
Weight (packed state)			Approx. 50 g			Approx. 55 g
Material	Case		Polycarbonate			
	Lens		Polycarbonate			
Accessories			Phillips screw M2×8, spring washer, flat washer, M2 nut, instruction manual	Instruction manual		

Amplifier Units

Item	Model	E3C-A	E3C-C	E3C-JC4P	E3C-GE4	E3C-WE4	E3C-WH4F
Power supply voltage		100 to 240 VAC±10%, 50/60 Hz		12 to 24 VDC±10%, ripple (p-p): 1 V max.			
Power (current) consumption		3 W max.		50 mA max.			
Control output	Transistor output	Load power supply voltage: 24 VDC max., load current: 80 mA max., voltage output type, output current: 1 to 4 mA (residual voltage: 1.2 V max.) Light-ON/Dark-ON switch selectable		Load power supply voltage: 24 VDC max., load current: 100 mA max., NPN open collector output type (residual voltage: 1 V max.) Light-ON/Dark-ON switch selectable	Load power supply voltage: 24 VDC max., load current: 80 mA max., voltage output type, output current: 1 to 4 mA (residual voltage: 0.7 V max.) Light-ON/Dark-ON switch selectable	Load power supply voltage: 24 VDC max., load current: 80 mA max., voltage output type, output current: 1 to 4 mA (residual voltage: 0.7 V max.) Light-ON/Dark-ON switch selectable	Load power supply voltage: 40 VDC max., load current: 100 mA max., NPN/PNP open collector output type (simultaneously usable) (residual voltage: 0.7 V max.) Light-ON/Dark-ON switch selectable
	Relay output	220 VAC 1 A cosφ=1 (resistive load) Change-over contact only		---			
External synchronous input		---	H = 6 to 30 V L = 0 to 2 V When L, turns OFF the control output forcibly.			---	
Timer function		---	ON/OFF, oneshot delay (selectable): 1 or 10 s max.	OFF-delay 0/40 ms (switch selectable)		---	
Ambient temperature		Operating: -10° to 55°C, Storage: -25° to 70°C (with no icing or condensation)					
Ambient humidity		Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)					
Insulation resistance		20 MΩ min. at 500 VDC					
Dielectric strength		500 VAC at 50/60 Hz for 1 minute					
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions					
Shock resistance		Destruction: 300 ms ² three times in each of X, Y and Z directions					
Degree of protection		IEC IP20 (limited to indoor use)		IEC IP60 (limited to indoor use)	IEC IP20 (limited to indoor use)		
Protection		Reverse polarity protection, output short-circuit protection, mutual interference prevention					
Response time	No contact	Operate or reset: 1 ms max./2 ms max. each (switch selectable)		Operate or reset: 1 ms max.	Operate or reset: 1 ms max./2 ms max. each (switch selectable)		
	Relay	Operate or reset: 20 ms max.		---			
Connection method		Terminal block		Terminal block input cable pullout (standard cable length: 2 m)	Terminal block		
Weight (packed state)		Approx. 200 g		Approx. 80 g	Approx. 15 g	Approx. 100 g	
Material	Case	ABS				Polycarbonate	
	Mounting Brackets	Stainless steel	---	Iron	---		
Accessories		Connection Socket (PF113A) Instruction manual		Mounting Bracket, Adjustment screw-driver, Caution label, Instruction manual	Instruction manual		Terminal Pin * (E99-C) Instruction manual

* The terminal pins are used for connection between amplifiers for synchronous operation.

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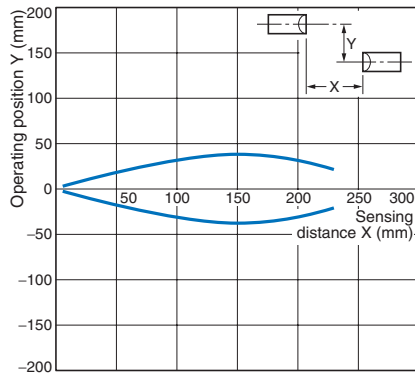
E3C

Engineering Data (Typical)

Parallel Operating Range

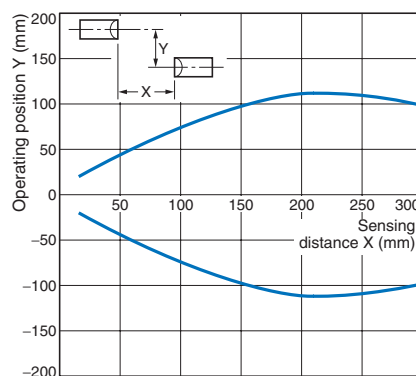
Through-beam

E3C-S10



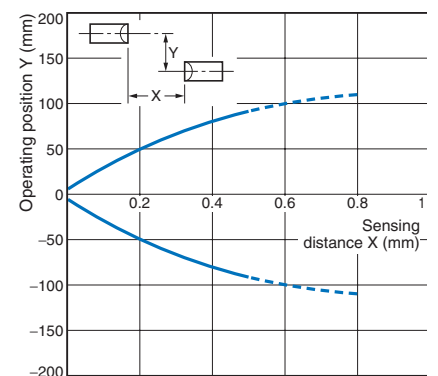
Through-beam

E3C-S20W



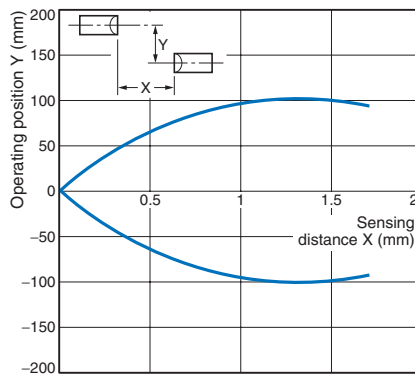
Through-beam

E3C-S50



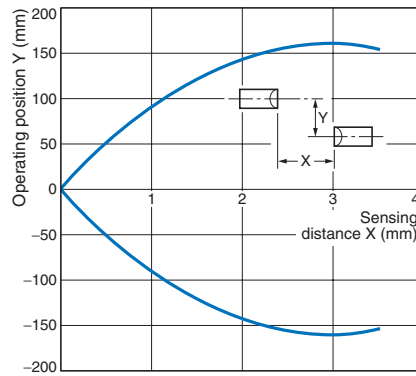
Through-beam

E3C-1



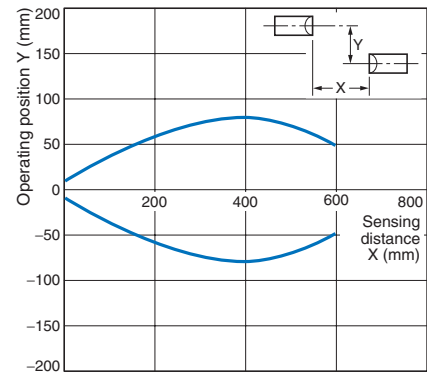
Through-beam

E3C-2



Through-beam

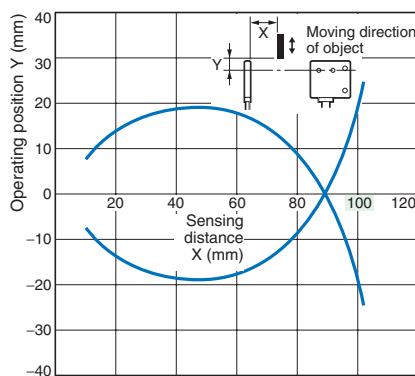
E3C-S30T/-S30W



Operating Range

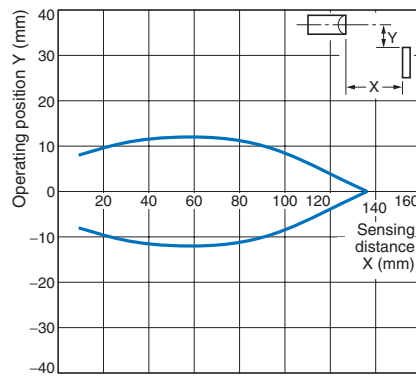
Diffuse-reflective

E3C-DS5W



Diffuse-reflective

E3C-DS10T



Diffuse-reflective

E3C-DS10 (Example 1)

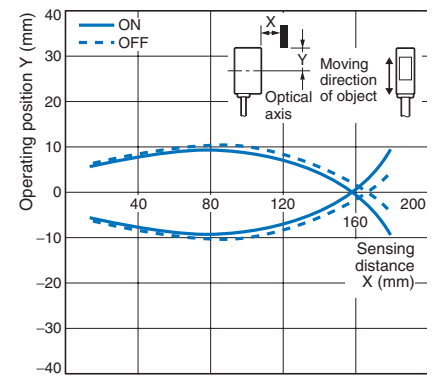


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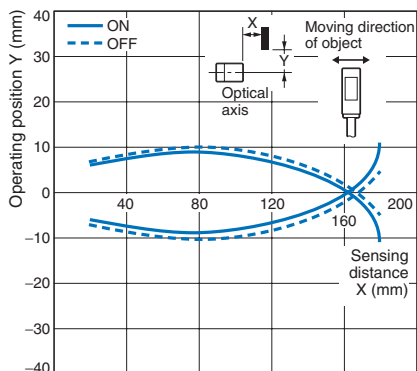
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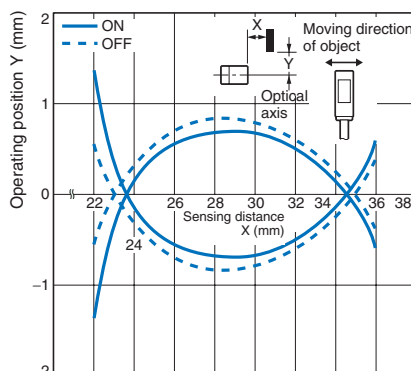
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E3C

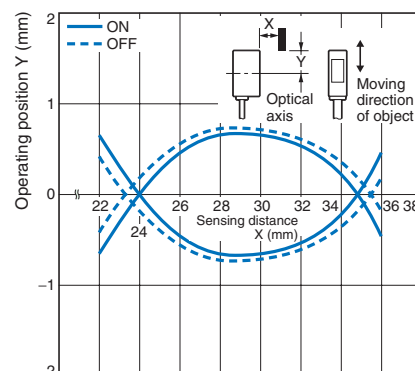
Diffuse-reflective E3C-DS10 (Example 2)



Convergent-reflective E3C-LS3R (Example 1)

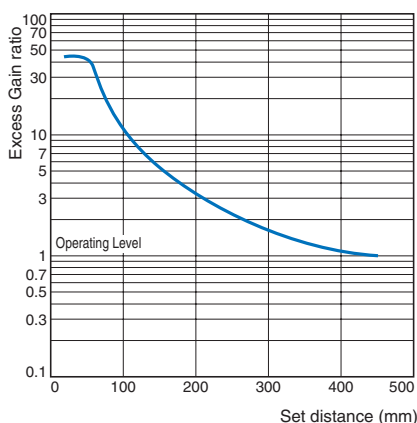


Convergent-reflective E3C-LS3R (Example 2)

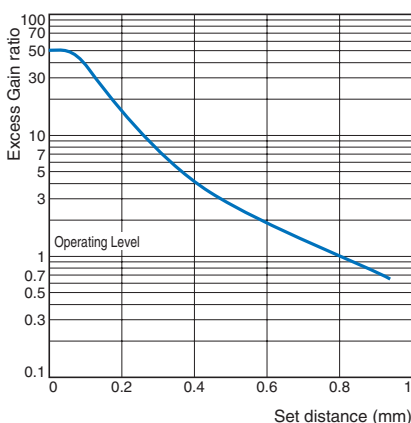


Excess Gain vs. Set Distance

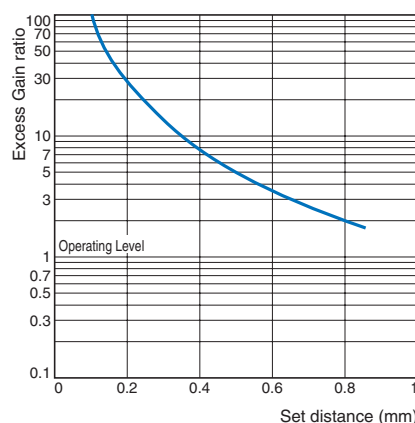
E3C-S20W



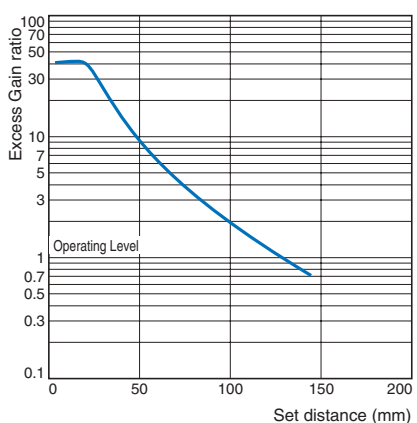
E3C-S30T/-S30W



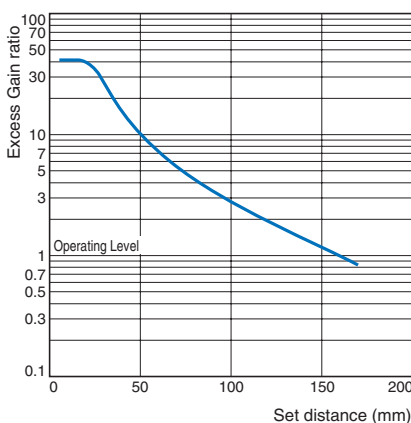
E3C-S50



E3C-DS5W



E3C-DS10T



E3C-LS3R

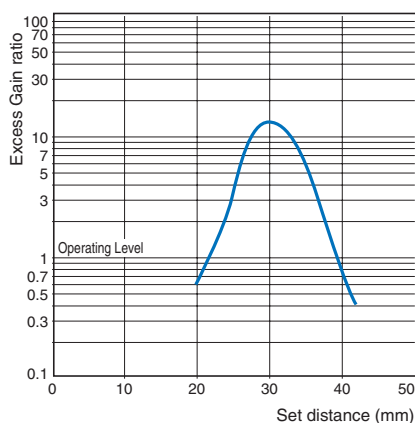


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I/O Circuit Diagrams

NPN output

Model	Operation mode	Timing charts *	Mode selector switch	Output circuit
E3C-A E3C-C	Light-ON		LIGHT ON	<p>* 1. E3C-C only * 2. E3C-A/-C have SPDT contact output. (About terminal number, please refer to the connection section.)</p>
	Dark-ON		DARK ON	
E3C-JC4P	Light-ON		L-ON (LIGHT ON)	
	Dark-ON		D-ON (DARK ON)	
E3C-GE4	Light-ON		(14) - + (4) (LIGHT ON)	
	Dark-ON		(14) + - (4) (DARK ON)	
E3C-WE4	Light-ON		H1 (LIGHT ON)	
	Dark-ON		H2 (DARK ON)	<p>* Voltage output (When connecting a transistor circuit, etc.)</p>

* For t in the timing chart, refer to Part Names/Selection Method on page 120.

NPN/PNP Output

Model	Operation mode	Timing charts *	Mode selector switch	Output circuit
E3C-WH4F	Light-ON		H1 (LIGHT ON)	
	Dark-ON		H2 (DARK ON)	

* For t in the timing chart, refer to Part Names/Selection Method on page 120.

E3C-LDA

E3C

Connection

Amplifier Units	Connected to the through-beam model	Connected to the reflective model	Note
E3C-A/C + PF113A			<p>Note: 1. The strip-off length of the shielded cable should always be 20 mm max. on the Receiver side (white) and 50 mm max. on the Emitter side (red). 2. The E3C-A does not have a gate input function. 3. L when the gate input 2-9 terminals are connected, H when they are disconnected.</p>
E3C-JC4P			<p>Note: 1. The strip-off length of the shielded cable should always be 20 mm max. on the Receiver side (white) and 50 mm max. on the Emitter side (red).</p>
E3C-GE4			<p>Note: 1. The strip-off length of the shielded cable should always be 20 mm max. on the Receiver side (white) and 50 mm max. on the Emitter side (red). 2. The response time is 1 ms when (8) is disconnected, and 2 ms when (8) is connected to 0 V (negative side) of the power supply. 3. By setting the power supply terminal (4) to - and (14) to +, the output turns "H" when the light is received. With the E2 mode, the output transistor turns OFF. By setting (4) to + and (14) to +, the output turns "L" when the light is received. With the E1 mode, the output transistor turns ON.</p>
E3C-WE4			<p>Note: 1. The strip-off length of the shielded cable should always be 20 mm max. on the Receiver side (white) and 50 mm max. on the Emitter side (red).</p>

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Amplifier Units	Nomenclature	Settings																
Photo-electric Sensors Sensing Guide Optical Fibers Separate Amplifiers Built-in Amplifiers Built-in Power Supplies	E3C-A <p>Operation indicator (red) When a relay-switch operates, the indicator turns on.</p> <p>Stability indicator (green) When the light receiving input becomes +20% or more and -20% or less of operating voltage, it will be turned on. (Indicate stable status)</p> <p>Selector switch for operating mode</p> <p>Response time selector switch</p> <p>Light indicator (red) When the light inputs, it will be turned on.</p> <p>Sensitivity adjuster</p>	Operation switching <table border="1"> <tr> <td>DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/></td> <td>DARK turns the relay ON and the transistor output "H".</td> </tr> <tr> <td>DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/></td> <td>LIGHT turns the relay ON and the transistor output "H".</td> </tr> </table> <p>Response time changing (The different frequency type can be made up by changing the response speed.)</p> <table border="1"> <tr> <td>2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/></td> <td>The response time is set to 2 ms.</td> </tr> <tr> <td>2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/></td> <td>The response time is set to 1 ms.</td> </tr> </table> <p>Timing chart</p> <p>Note 1. Control output is produced only during input time. 2. When t exceeds 1 ms or 2 ms, solid-state output is produced. To produce relay output, t must be longer than 20 ms.</p>	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	DARK turns the relay ON and the transistor output "H".	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	LIGHT turns the relay ON and the transistor output "H".	2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/>	The response time is set to 2 ms.	2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/>	The response time is set to 1 ms.								
	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	DARK turns the relay ON and the transistor output "H".																
DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	LIGHT turns the relay ON and the transistor output "H".																	
2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/>	The response time is set to 2 ms.																	
2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/>	The response time is set to 1 ms.																	
Application Specific Peripheral Devices Other Information	E3C-C <p>Operation indicator (red) When a relay-switch operates, the indicator turns on.</p> <p>Stability indicator (green) When the light receiving input becomes +20% or more and -20% or less of operating voltage, it will be turned on. (Indicate stable status)</p> <p>Selector switch for operating mode</p> <p>Selector switch for response time</p> <p>Timer function setting switch</p> <p>Delay time setting switch</p> <p>Light indicator (red) When the light inputs, it will be turned on.</p> <p>Delay time adjuster</p> <p>Sensitivity adjuster</p>	Operation switching <table border="1"> <tr> <td>DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/></td> <td>DARK turns the relay ON and the transistor output "H".</td> </tr> <tr> <td>DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/></td> <td>LIGHT turns the relay ON and the transistor output "H".</td> </tr> </table> <p>Response time changing (The different frequency type can be made up by changing the response speed.)</p> <table border="1"> <tr> <td>2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/></td> <td>The response time is set to 2 ms.</td> </tr> <tr> <td>2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/></td> <td>The response time is set to 1 ms.</td> </tr> </table> <p>Delay time setting</p> <table border="1"> <tr> <td>1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/></td> <td>0.1 to 1 s can be set.</td> </tr> <tr> <td>1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/></td> <td>1 to 10 s can be set.</td> </tr> </table> <p>↓</p> <p>After setting the selector, fine-adjust the delay time with the variable adjuster. (Clockwise turn increases the delay time.)</p> <p>Timer function setting</p> <table border="1"> <tr> <td rowspan="3"> When selecting ON delay (ON D.) </td> <td> DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/> ← Set a position freely 2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/> ← Set a position freely DELAY <input type="checkbox"/> O.S.D. <input type="checkbox"/> ON D. <input type="checkbox"/> OFF D. <input type="checkbox"/> 1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/> ← Set a position freely </td> </tr> <tr> <td> DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/> ← Set a position freely 2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/> ← Set a position freely DELAY <input type="checkbox"/> O.S.D. <input type="checkbox"/> ON D. <input type="checkbox"/> OFF D. <input type="checkbox"/> 1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/> ← Set a position freely </td> </tr> <tr> <td> DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/> ← Set a position freely 2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/> ← Set a position freely DELAY <input type="checkbox"/> O.S.D. <input type="checkbox"/> ← Since the function has stopped, it allows in both of the positions. ON D. <input type="checkbox"/> OFF D. <input type="checkbox"/> 1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/> ← Set a position freely </td> </tr> </table> <p>Timing chart</p> <p>Note 1. t must be longer than 1 ms or 2 ms. 2. T denotes a delay time.</p> <p>External synchronous input operation When the external synchronous input terminal (9) is open (HIGH), the output relay performs timer operation according to the input signals (LIGHT, DARK). When the external synchronous input terminal (9) is connected to the 0 V terminal (2) (LOW), the output relay turns OFF, independently of the input signals and output status, and acts as an inhibit signal.</p>	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	DARK turns the relay ON and the transistor output "H".	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	LIGHT turns the relay ON and the transistor output "H".	2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/>	The response time is set to 2 ms.	2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/>	The response time is set to 1 ms.	1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/>	0.1 to 1 s can be set.	1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/>	1 to 10 s can be set.	When selecting ON delay (ON D.)	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/> ← Set a position freely 2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/> ← Set a position freely DELAY <input type="checkbox"/> O.S.D. <input type="checkbox"/> ON D. <input type="checkbox"/> OFF D. <input type="checkbox"/> 1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/> ← Set a position freely	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/> ← Set a position freely 2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/> ← Set a position freely DELAY <input type="checkbox"/> O.S.D. <input type="checkbox"/> ON D. <input type="checkbox"/> OFF D. <input type="checkbox"/> 1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/> ← Set a position freely	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/> ← Set a position freely 2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/> ← Set a position freely DELAY <input type="checkbox"/> O.S.D. <input type="checkbox"/> ← Since the function has stopped, it allows in both of the positions. ON D. <input type="checkbox"/> OFF D. <input type="checkbox"/> 1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/> ← Set a position freely
DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	DARK turns the relay ON and the transistor output "H".																	
DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/>	LIGHT turns the relay ON and the transistor output "H".																	
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2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/>	The response time is set to 1 ms.																	
1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/>	0.1 to 1 s can be set.																	
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	DARK ON <input type="checkbox"/> LIGHT ON <input type="checkbox"/> ← Set a position freely 2 ms (B) <input type="checkbox"/> 1 ms (A) <input type="checkbox"/> ← Set a position freely DELAY <input type="checkbox"/> O.S.D. <input type="checkbox"/> ← Since the function has stopped, it allows in both of the positions. ON D. <input type="checkbox"/> OFF D. <input type="checkbox"/> 1 sec <input type="checkbox"/> 10 sec <input type="checkbox"/> ← Set a position freely																	



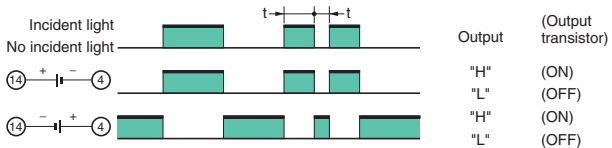
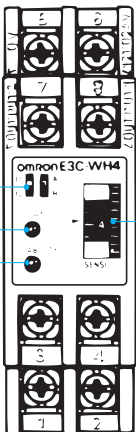
Amplifier Units	Nomenclature	Settings								
E3C-JC4P	 <p>Stability indicator (green)</p> <p>Sensitivity adjuster</p> <p>Light indicator (red)</p> <p>Selector switch for operating mode</p>	---								
E3C-GE4	 <p>Stability indicator (green) When the light receiving input becomes +20% or more and -20% or less of operating voltage, it will be turned on. (Indicate stable status)</p> <p>Light indicator (red) When the light inputs, it will be turned on</p> <p>Sensitivity adjuster</p>	<p>Operation switching</p> <table border="1" data-bbox="791 701 1018 813"> <tr> <td></td> <td>DARK turns the output "H".</td> </tr> <tr> <td></td> <td>LIGHT turns the output "H".</td> </tr> </table> <p>Response time changing (The different frequency type can be made up by changing the response speed.)</p> <table border="1" data-bbox="791 887 1018 947"> <tr> <td></td> <td>The response time is set to 2 ms.</td> </tr> <tr> <td></td> <td>The response time is set to 1 ms.</td> </tr> </table> <p>* 0 V of power supply</p> <p>Timing chart</p> 		DARK turns the output "H".		LIGHT turns the output "H".		The response time is set to 2 ms.		The response time is set to 1 ms.
	DARK turns the output "H".									
	LIGHT turns the output "H".									
	The response time is set to 2 ms.									
	The response time is set to 1 ms.									
E3C-WE4 E3C-WH4F	 <p>NPN/PNP selector switch</p> <p>Light indicator (red)</p> <p>Stability indicator (green)</p> <p>Sensitivity adjuster</p>	---								

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E3C

E3C

Safety Precautions

Refer to *Warranty and Limitations of Liability* on page F-2.

⚠ WARNING

This product is not designed or rated for ensuring safety of persons. Do not use it for such purpose.



Precautions for Correct Use

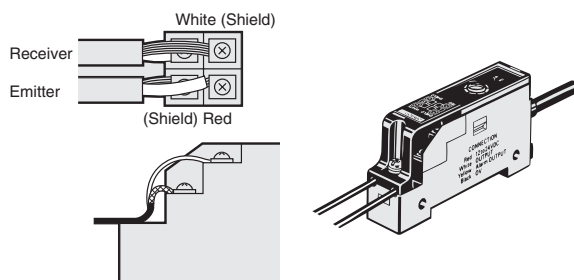
Do not use the product in atmospheres or environments that exceed product ratings.

Amplifier Units

● Wiring

Connection of E3C-JC4P Amplifier Unit and Sensor

Always run the shielded wires of the Emitter and Receiver separately. Also, route the sensor cable along the cable grooves of the cover and sensor and fix it with the cover.



Connection Socket

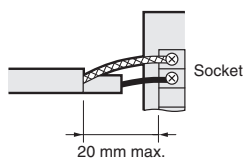
The standard socket is the PF113A for the E3C-A and -C, and the PYF08A, PYF08M or PY08 for the E3C-GE4. Avoid using any other sockets since they may not satisfy the characteristics. (There will be no problem when the STABILITY indicator turns ON)

Sensor Units

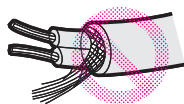
● Wiring

Extension Cable

- The extension distance of the sensor connection cable should be within 10 m.
- The strip-off length of the core in the connection cable should be 20 mm max. on the Receiver side and 50 mm max. on the Emitter side, and the core should be as short as possible. Avoid using the joint terminal and connector.



- Use independent shielded wires for the Emitter and Receiver. Using a common shielded wire can cause a malfunction.



Extension Cable

Through-beam

Cable Model	Specified cable	Replacement cable
E3C-S10 E3C-1 E3C-2 E3C-S50	Polyethylene insulation shield Round cable 2.4 dia. Shield White (polyethylene) 12-conductor, 0.18 dia.	1-conductor shield/vinyl wire, conductor cross section: 0.3 mm ² min. Shield White (vinyl) Gray (vinyl sheath)
E3C-S20W	Vinyl insulation shield round cable 1.7 dia. Sheath Shield Polyethylene Conductor 12-conductor, 0.18 dia.	1-conductor shield/vinyl wire, conductor cross section: 0.3 mm ² min.
E3C-S30T E3C-S30W	Vinyl insulation shield round cable (robot cable) 1.8 dia. Sheath Shield Polyethylene Conductor 30-conductor, 0.08 dia.	1-conductor shield/vinyl wire, conductor cross section: 0.3 mm ² min.

Reflective model

Cable Model	Specified cable	Replacement cable
E3C-DS10 E3C-DS10T E3C-VS1G E3C-VS3R E3C-LS3R	Vinyl insulation shielded parallel cable 2.4 4.3 Sheath Internal sheath Shield Polyethylene Conductor 12-conductor, 0.18 dia.	When there is no 1-conductor shielded, vinyl cable (parallel wire), use two 1-conductor shielded, vinyl wires.
E3C-DS5W E3C-VS7R E3C-VM35R	Vinyl insulation shielded parallel cable Sheath Shield Polyethylene Conductor 7-conductor, 0.18 dia.	When there is no 1-conductor shielded, vinyl cable (parallel wire), use two 1-conductor shielded, vinyl wires.

● Others

When the E3C is used in a place where high-frequency noise will be generated, e.g. ultrasonic welder, grounding the 0-V terminal (on the shield side of the connection cable) of the Receiver may avoid a malfunction caused by induction.

Dimensions

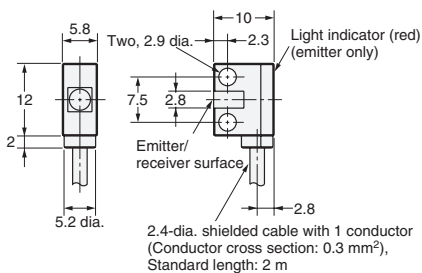
Sensors

Sensor Units

E3C-S10

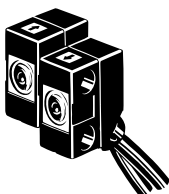


Emitter: E3C-S10L
Receiver: E3C-S10D

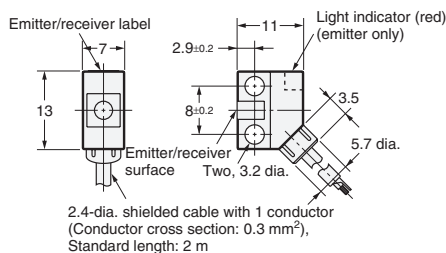


CAD data

E3C-S50

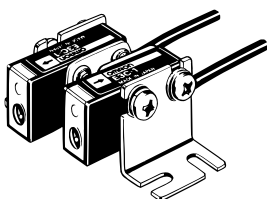


Emitter: E3C-S50L
Receiver: E3C-S50D

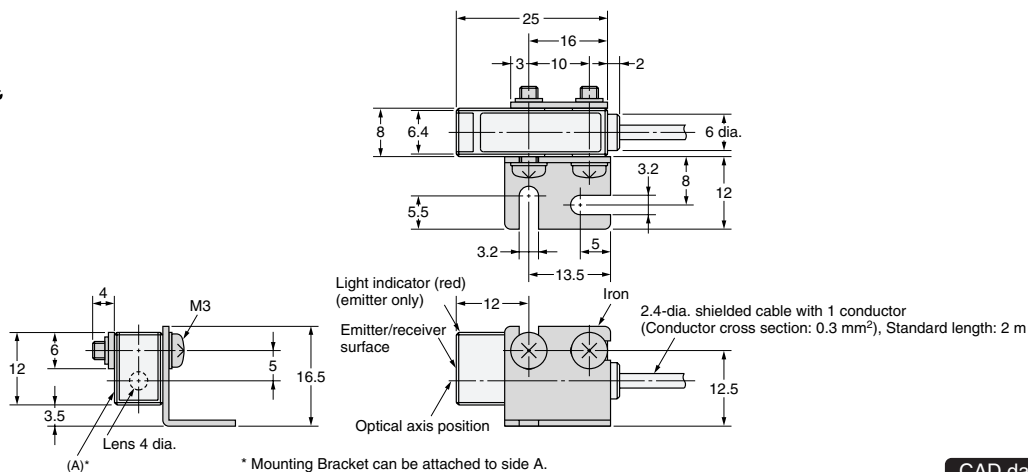


CAD data

E3C-1

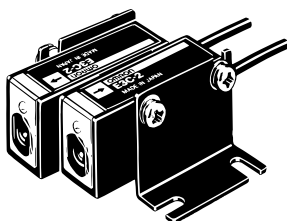


Emitter: E3C-1L
Receiver: E3C-1D

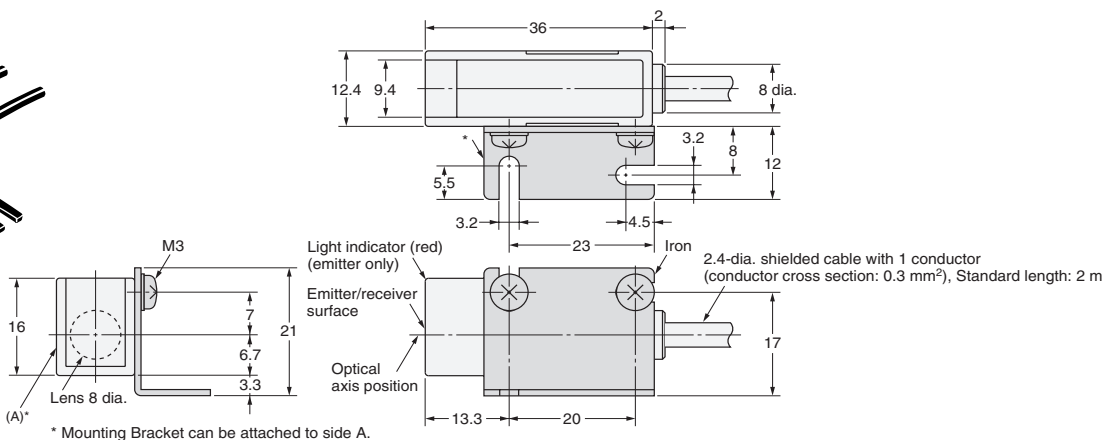


CAD data

E3C-2



Emitter: E3C-2L
Receiver: E3C-2D



CAD data

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E3C

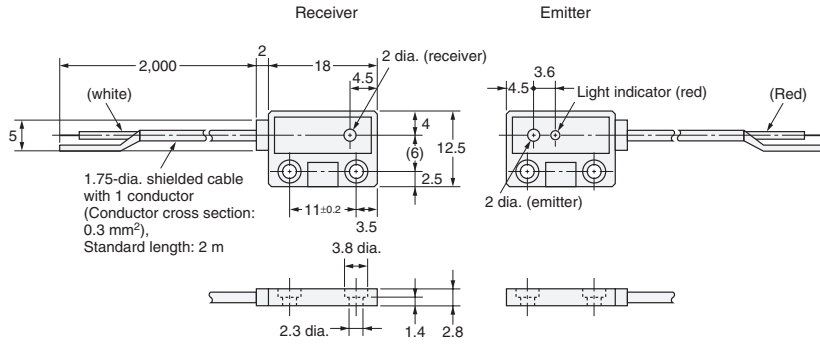
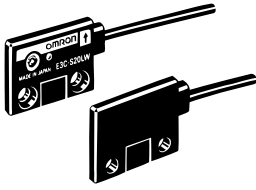
E3C

E3C-S20W

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E3C-S30W

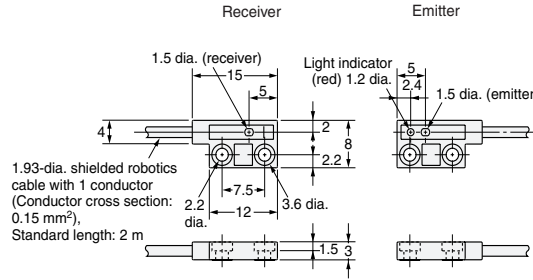
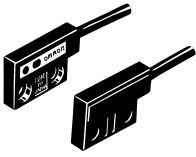
Separate
Amplifiers

Built-in
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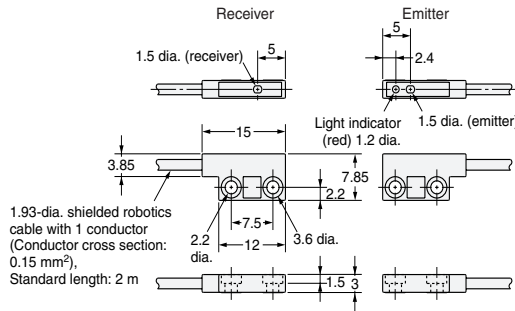
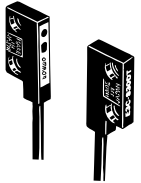


CAD data

Emitter: E3C-S30LW
Receiver: E3C-S30DW

E3C-S30T

Other
Information



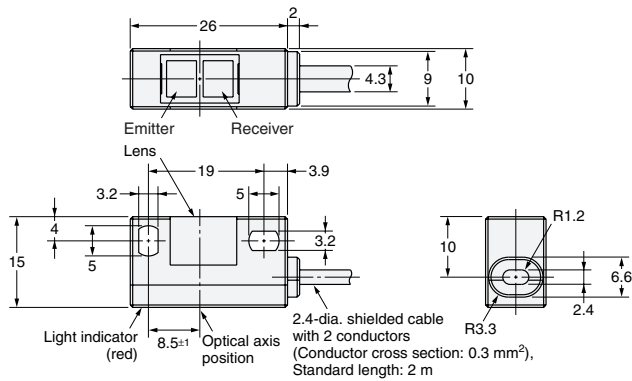
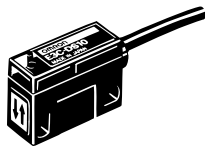
CAD data

Emitter: E3C-S30LT
Receiver: E3C-S30DT

E3C-DS10

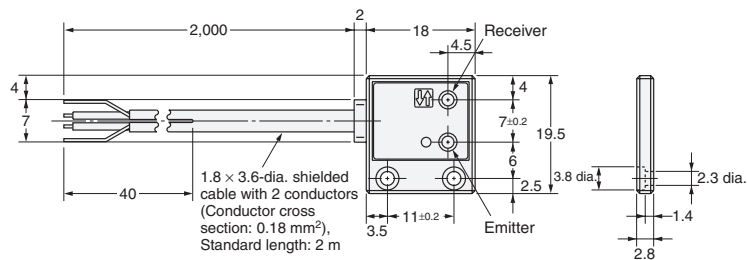
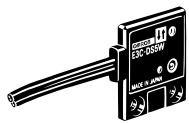
E3C-LDA

E3C



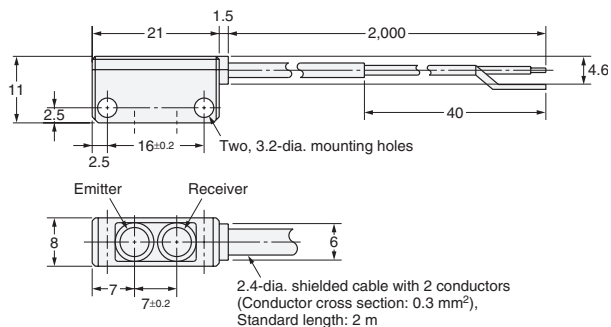
CAD data

E3C-DS5W



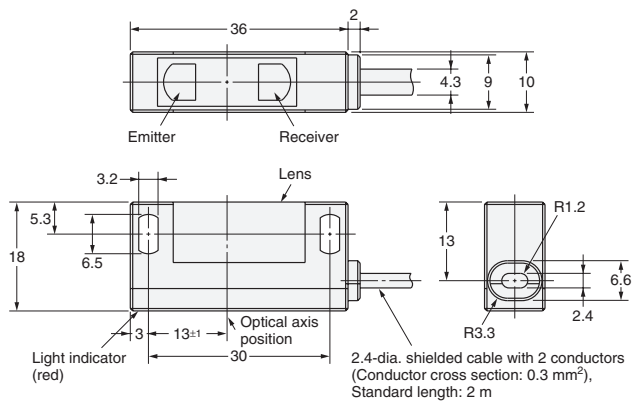
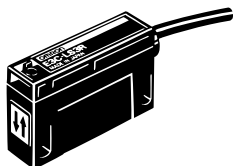
CAD data

E3C-DS10T



CAD data

E3C-LS3R



CAD data

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E3C

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E3C-A E3C-C

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electric
Sensors

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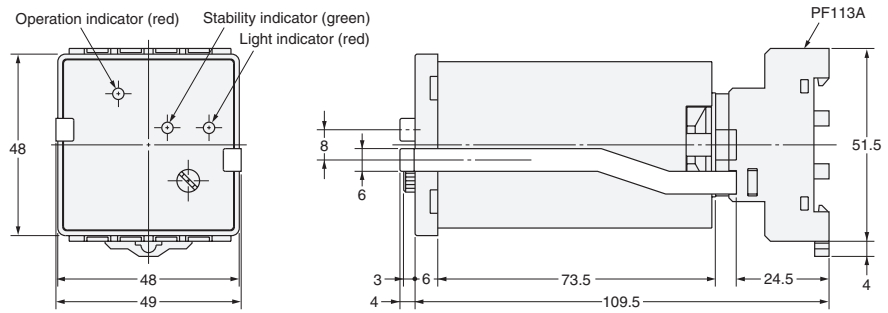
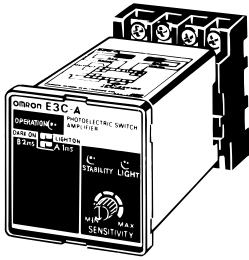
Built-in
Amplifiers

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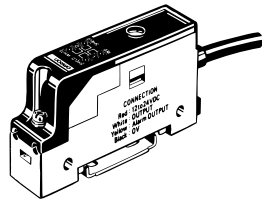
Peripheral
Devices

Other
Information

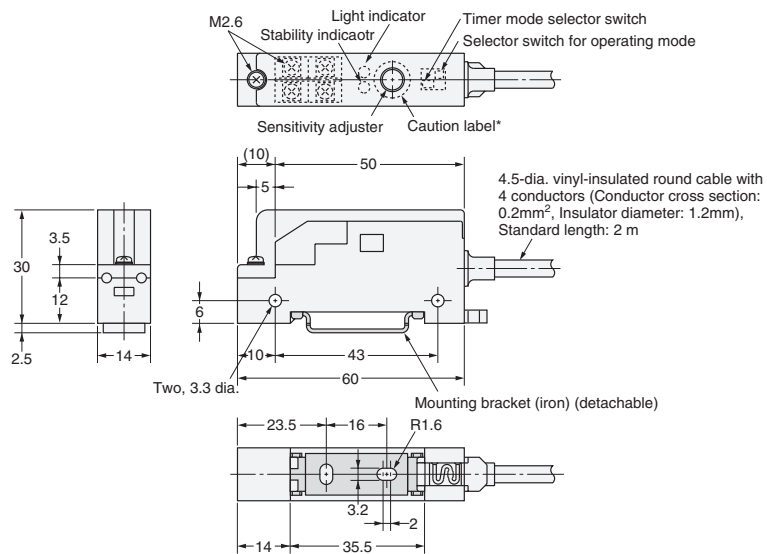



CAD data

E3C-JC4P



With Mounting Bracker Attached



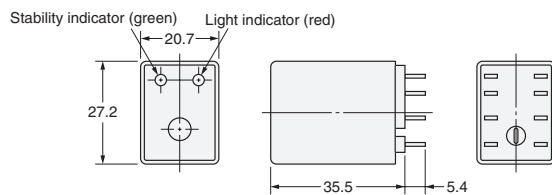
*After adjusting the sensitivity, attach the caution label at the location indicated by  above to prevent malfunction.

CAD data

E3C-LDA

E3C

E3C-GE4

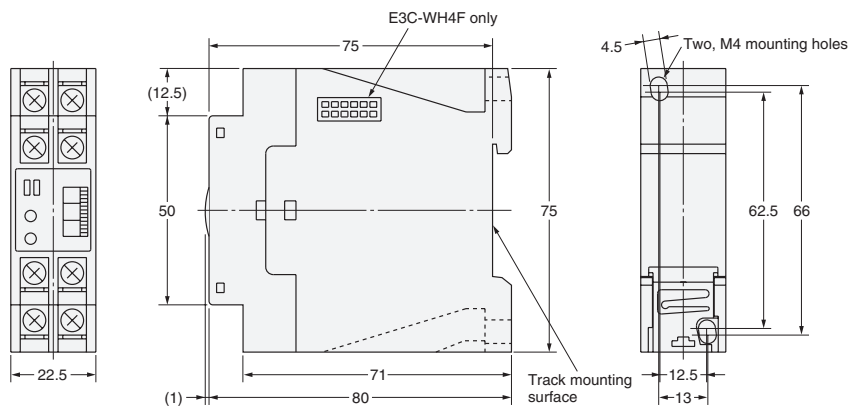
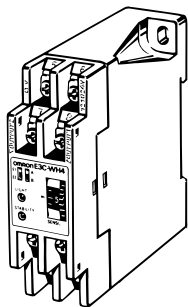


Connector

Use the PYF08A front connection socket or PY08 rear connection socket.

CAD data

E3C-WE4 E3C-WH4F



CAD data

Accessories (Order Separately)

Mounting Brackets

Refer to page 292 for details.

Connecting Sockets

Refer to page 309 for details.

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