E2C/E2C-H

CSM_E2C_E2C-H_DS_E_8_1

Separate Amplifier Sensor with Sensitivity Adjustment

- · Compact design with smaller Sensor Head.
- Heat-resistance model available for application between -10 and 200°C.





Be sure to read *Safety Precautions* on page 15.

Ordering Information

Sensors [Refer to Dimensions on page 18.]

Standard Models

	Sensor					,	Amplifier Ur	nits	
Appeara	Appearance		Stable sensing area *		Combination Model		Power supply/ Output	Timer func- tion	Self-diag- nostic output
	3.5 dia.	0.8 (1.8) mm		E2C-CR8A 3M	_	E2C-GE4A	DC/ (NPN)		
	3.8 dia.	0.8 (1.8) mm		E2C-CR8B 3M			(141 14)		
	M5	1 (2) mm		E2C-X1A 3M		E2C-GF4A	DC/ (PNP)		
Shielded	5.4 dia.	1 (2) mm		E2C-C1A 3M			DC/	.,	.,
-	M8	1.5 (3) mm		E2C-X1R5A 3M		E2C-JC4AP 2M *	(NPN)	Yes	Yes
	M12	2 (5) mm		E2C-X2A 3M		E2C-JC4A 2M	DC/ (NPN)	Yes	
	M18	5 (10) mm		E2C-X5A 3M			(INFIN)		
	M30	10 (18)	mm	E2C-X10A 3M		E2C-AM4A	DC/(NPN) PNP)		
Unshielded	40 dia.		20 (50) mm	E2C-C20MA 3M		E2C-AK4A	AC		

 $^{^{\}star}1.$ Values in parentheses are for the maximum sensing distances at 23°C.

Heat-resistant Model

		Sensor	Combination	Amplifier Unit	
Appea	rance	Stable sensing area	Model	Combination	Model
Objection	M8	1.5 mm	E2C-X1R5AH 3M	E2C	-JC4CH 2M
Shielded	M12	2 mm	E2C-X2AH 3M	E2C	-JC4DH 2M
	M18	5 mm	E2C-X5AH 3M	E2C	-JC4EH 2M

Note: Characteristics will change if the cable length changes. Do not cut or extend the cable.

OMRON 1

 $^{^{\}star}$ Self-diagnostic output, timer, and DIN Track mounting.

Accessories (Order Separately)

Mounting Brackets A Mounting Bracket is not provided with the Sensor. Order a Mounting Bracket separately if required. [Refer to Dimension on page 21.]

Name	Model	Applicable Sensors	Remarks
Mounting Brackets	Y92E-F3R5	E2C-CR8A, for 3.5 dia.	
Mounting Brackets	Y92E-F5R4	E2C-C1A, for 5.4 dia.	

Connection Sockets A Socket is not provided with the Amplifier Unit. Order a Socket separately if required. [Refer to Dimension on page 21.]

Name	Model	Applicable Amplifier Unit	Remarks
Front Connection Sockets	PYF08A	E2C-GE4A E2C-GF4A	Hold-down Clips (Order Separately) PYC-A1 Sold as a set.
	P2CF-08	E2C-AM4A	
	P2CF-11	E2C-AK4A	
	P3G-08	E2C-AM4A	
Back Connection Sockets	P3GA-11	E2C-AK4A	
Back Connection Sockets	PY08	E2C-GE4A E2C-GF4A	

Adapters An Adapter is not provided with the Amplifier Unit. Order an Adapter separately if required. [Refer to Dimension on page 21.]

Name	Model	Applicable Amplifier Unit	Remarks
	Y92F-30		
Embedded Adapters	Y92F-70	E2C-AM4A/-AK4A	
	Y92F-71		

For details on Mounting Brackets, Protective Covers, and Sputter Protective Covers, refer to Accessories on Y92 ...

Ratings and Specifications

Standard Models

Sensors

Item	Model	E2C-CR8A/ -CR8B	E2C-X1A/ -C1A	E2C-X1R5A	E2C-X2A	E2C-X5A	E2C-X10A	E2C-C20MA			
Sensing	distance (at 23°C)	1.8 mm	2 mm	3 mm	5 mm	10 mm	18 mm	50 mm			
Stable sensing	Ambient temperature	0 to 0.8 mm	0 to 1 mm	0 to 1.5 mm	0 to 2 mm	0 to 5 mm	0 to 10 mm	0 to 20 mm			
area	At 0 to 40°C	0 to 1.2 mm	0 to 1.5 mm	0 to 2 mm	0 to 2.5 mm	0 to 7 mm	0 to 15 mm	0 to 28 mm			
Different	tial travel	Refer to Rating	s and Specification	ons on page 4 for	Amplifier Unit sp	ecifications.	1	1			
Detectab	ole object	Ferrous metal (The sensing dista	ance decreases v	vith non-ferrous r	netal. Refer to E	ngineering Data	on page 7.)			
Standard ject	d sensing ob-	Iron, $5 \times 5 \times 1$ n	nm	Iron, 8 × 8 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 30 × 30 × 1 mm	Iron, $50 \times 50 \times$ 1 mm			
Respons frequence		1 kHz		800 Hz		350 Hz	100 Hz	50 Hz			
Ambient temperat	ture range	Operating/Storage: –25 to 70°C (with no icing or condensation)									
Ambient humidity		Operating/Storage: 35% to 95% (with no condensation)									
Tempera influence		15% max. of se	nsing distance a	t 23°C in the tem	perature range of	-25 to 70°C					
Vibration	n resistance	Destruction: 10	to 55 Hz, 1.5-mn	n double amplitud	de for 2 hours eac	ch in X and Y dire	ections				
Shock re	esistance	Destruction: 500	0 m/s² 3 times ea	nch in X and Y dir	ections						
Degree o	of protection	IEC 60529 IP67	, in-house stand	ards: oil-resistant							
Connoct	ion method *2	Pre-wired Models									
Connect	ion memou z	High-frequency	High-frequency coaxial cable (Standard cable length: 3 m)								
Weight (packed	state)	Approx. 40 g	Approx. 45 g	Approx. 50 g	Approx. 60 g	Approx. 140 g	Approx. 270 g	Approx. 300 g			
	Case	Stainless steel	Brass								
	Sensing surface	ABS resin									
Materi- als	Cable	Polyethylene									
uis	Clamping nut		Brass, nickel-pl	ated (except E20	C-C1A)						
	Toothed washer	Brass, zinc-plated (except E2C-C1A)									
Accesso	ries		I								
	simum value when i										

^{*1.} The minimum value when using the solid-state control output on the Amplifier Unit.

Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.

*2. Refer to 6 for cable lengths when combining Amplifier Units and Sensors.

The characteristic impedance of the high-frequency coaxial cable is 50 Ω.

Amplifier Units

Model	E2C-GE4A	E2C-GF4A	E2C-JC4A E2C-JC4AP	E2C-AM4A	E2C-AK4A		
Power supply voltage (operating voltage range) 12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max. *1							
Current consumption 25 mA max.			45 mA max.	50 mA max.	55 mA max.		
istance	20% min. of rated sensing ometer	distance with 4-turn potenti-	20% to 100% of rated sens	ing distance with 4-turn pote	entiometer		
l travel	Differential travel fixed (10°	% max. of sensing distance)		1% to 5% of rated sensing	distance		
Solid- state (Refer to the response frequency of the Proximity Sensor.)							
Relay		-			20 ms max.		
Solid- state	NPN Load resistance: 4.7 kΩ, 100 mA max. (40 VDC max.) (Residual voltage: 1.5 V max.)	PNP Load resistance: 4.7 kΩ, 100 mA max. (40 VDC max.) (Residual voltage: 1.5 V max.)	100 mA max. 200 mA max. (40 VDC max.)		Transistor/photocoupler 50 mA max. (40 VDC max.) (Residual voltage: 2 V max.)		
Relay		-			Relay output, SPDT 2 A at 250 VAC, cosφ = 1 (resistive load) *3		
				Detection indicator (red) (C Stability indicator (green) (S			
mode	Changed with NO/NC switch	ch.					
ostic	-		(E2C-JC4AP only) Output transistor turns ON when Sensor open circuit or unstable sensing is de- tected; solid-state NPN open-collector 50 mA max. (40 VDC max.) (Residual voltage: 1 V max.)				
tion	-		OFF-delay: 40 ±10 ms	-			
th tion ensor and Jnit			(E2C-JC4AP only) 3 m/5 m, terminals Short-plate switching Shorted: 1 to 3 m Open: 3 to 5 m	3 m/5 m, terminals Short-plate switching Shorted: 1 to 3 m			
re range	Operating/storage: -10 to 5	55°C (with no icing or conder	nsation)				
ange	Operating/Storage: 35% to	85% (E2C-JC4AP: 35% to 9	95%) (with no condensation)				
ire	10% max. of sensing distance at 23°C in the temperature range of –10 to 55°C						
fluence	DC Models: ±1% max. of sensing distance at rated voltage in the rated voltage ±20% range AC Models: ±1% max. of sensing distance at rated voltage in the rated voltage ±10% range						
1	$50 \text{ M}\Omega$ min. (at 500 VDC) between current-carrying parts and case						
strength	DC Models: 1,000 VAC, 50 AC Models: 1,500 VAC, 50	/60 Hz for 1 min between cu /60 Hz for 1 min between cu	rrent-carrying parts and case	9 9			
esistance	Destruction: 10 to 25 Hz, 2-	mm double amplitude for 2	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	Destruction: 10 to 25 Hz, 2-mm double amplitude for hours each in X, Y, and Z directions			
	iting volt- iting	ply volt- iting v	ply voltiting v	Post of trange Pos	ply voltating voltation vo		

^{*1.} A full-wave rectification power supply of 24 VDC ±10% (average value) can be used (except for the E2C-GE4□).
*2. The sensing distance range required to maintain performed is given for using the Amplifier Unit in combination with the Sensor.
*3. Internal relay: G2R-14 DC 12V

Model	E2C-GE4A	E2C-GF4A	E2C-JC4A E2C-JC4AP	E2C-AM4A	E2C-AK4A		
Item			L20-004AI				
Shock resistance	Destruction: 100 m/s ² 3 tim	es each in X, Y, and Z direct	tions				
Life expectancy							
Connection method	Terminal block		Pre-wired Models (Standard cable length: 2 m)	Terminal block			
Weight (packed state) *4	Approx. 20 g		E2C-JC4A: Approx. 50 g E2C-JC4AP: Approx 80 g	Approx. 140 g	Approx. 250 g		
Accessories	Instruction manual		Caution labels, Mounting Bracket (E2C-JC4A: M3 × 15 Phillips mounting screw), instruction manual	Instruction manual			

^{*4.} The weight of the Connection Socket is not included.

Heat-resistant Models

Sensors

Senso							
Item	Model	E2C-X1R5AH	E2C-X2AH	E2C-X5AH			
Detect	able object		e sensing distance , refer to <i>Engineeri</i>				
Standa object	rd sensing	Iron, 8 × 8 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 18 × 18 × 1 mm			
Stable area	sensing	0 to 1.5 mm	0 to 2 mm	0 to 5 mm			
Differe	ntial travel	0.04 mm max.		0.1 mm max.			
Respo		300 Hz					
Ambie ture ra	nt tempera- nge	Operating/Storage densation)	e: -10 to 200°C (wi	th no icing or con-			
Ambie humidi	nt ity range	Operating/Storage	Operating/Storage: 35% to 95% (with no condensation)				
Tempe influen		±0.2%/°C					
Vibrati resista		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 3 times each in X, Y, and Z directions					
Degree		IEC 60529 IP60 *2					
Conne	ction meth-	Pre-wired Models (Cable length: 3 m) Heat-resistant, high-frequency coaxial cable					
Weight (packe	t d state)	Approx. 50 g	Approx. 60 g	Approx. 140 g			
	Case	Brass					
	Sensing surface	PEEK (polyether ether ketone)					
Mate-	Cable	Fluorine resin					
rials	Clamping nut	Brass, nickel-plated					
	Toothed washer	Iron, zinc-plated					

Note: Ratings and characteristic are given for 50% of the stable sensing area.

*1. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing

Amplifier Units

Ampii	tier Units							
Item	Model	E2C-JC4CH E2C-JC4DH E2C-JC4EH						
voltage	ting voltage	12 to 24 VDC (10	12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.					
Currention	it consump-	45 mA max.						
	ng distance ment range	20% to 100% of ra 4-turn potentiome	ated sensing distand ter	ce				
Con- trol	Load current	NPN open collecto	or, 100 mA max. (40) VDC max.)				
out- puts	Residual voltage	0.8 V max.						
Indicat	tors	Detection indicato	r (red)					
Operat	ion mode	Changed with NO	/NC switch.					
Cable compe	length ensation	Switched between	3 and 5 m.					
Ambie ture ra	nt tempera- nge	Operating/storage: -10 to 55° C (with no icing or condensation)						
Ambie humidi	nt ity range	Operating/storage: 35% to 85% (with no condensation)						
Tempe		±0.08%/°C						
Voltage	e influence	$\pm 2\%$ max. of sensing distance at rated voltage in the rated voltage $\pm 20\%$ range						
Insulat resista		$50~\text{M}\Omega$ min. (at 500 VDC) between current-carrying parts and case						
Dielect		1,000 VAC, 50/60 ing parts and case	Hz for 1 min betwe	en current-carry-				
Vibrati resista		Destruction: 10 to 2 hours each in X	55 Hz, 1.5-mm dou Y, and Z directions	ble amplitude for				
Shock	resistance	Destruction: 100 n tions	n/s ² 3 times each in	X, Y, and Z direc-				
Degree		IEC 60529 IP20						
Conne		Pre-wired Models (Cable length: 2 m)						
Weight state)	t (packed	Approx. 80 g	Approx. 80 g					
Access	sories	Caution labels, Mo	ounting Bracket, ins	truction manual				

^{*1.} A full-wave rectification power supply of 24 VDC $\pm 10\%$ (average value) can

^{*2.} Do not operate the Sensor in areas exposed to water vapor because the enclosure is not waterproof.

<sup>be used.
*2. The sensing distance range required to maintain performed is given for using the Amplifier Unit in combination with the Sensor.</sup>

Cable Lengths for Sensor-Amplifier Unit Combinations

Standard Models

Sensor Amplifier Units	E2C-CR8A	E2C-CR8B	E2C-X1A	E2C-C1A	E2C- X1R5A	E2C-X2A	E2C-X5A	E2C-X10A	E2C- C20MA
E2C-GE4A		D	estricted to 3	m					
E2C-GF4A		П	estricted to 5	111.					
E2C-JC4AP		1 to 3 m: Short cable length terminals * 3 to 5 m: Open cable length terminals *							
E2C-JC4A			Restricte	ed to 3 m.					
E2C-AM4A		0 to 5 m						10 m	
E2C-AK4A	S	Set cable length switch to desired position. *			· *	Set cable	e length switc	h to desired p	osition. *

Note: The standard cable length is 3 m. Models with 5-m or 10-m are manufactured upon order.

Heat-resistant Models

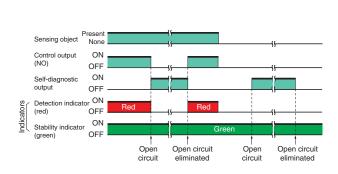
Sensor Amplifier Units	E2C-X1R5AH	E2C-X2AH	E2C-X5AH				
E2C-JC4CH		•	•				
E2C-JC4DH	Set 3 m/5 m cable length switch to desired position.						
E2C-JC4EH							

Note: The standard cable length is 3 m. Models with 5-m are manufactured upon order.

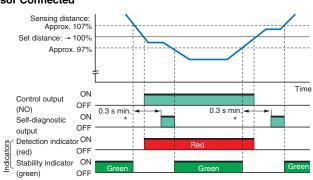
Self-diagnostic Function

The self-diagnostic output transistor will turn ON in the following cases. (The output will turn ON for any of these conditions individually.) (1) Sensor open circuit: Transistor will turn ON the instance there is an open circuit for the Sensor (including the cable).

Sensor Open Circuit



Sensor Connected



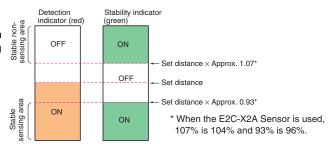
Note: When the E2C-X2A Sensor is used, 93% is 96% and 107% is 104%.

* The self-diagnostic output may turn ON if the sensing objects moves a low speed. In actual application, include an ON-delay timer circuit or other suitable measure.

- (2) Detection: The output will turn ON if a sensing object is within 93% to 100% of the sensing distance continuously for 0.3 s or longer (e.g., for sensing object position offset).
- (3) No detection: The output will turn ON if a sensing object is within 100% to 107% of the sensing distance continuously for 0.3 s or longer (e.g., when background is influencing detection).

Indicators

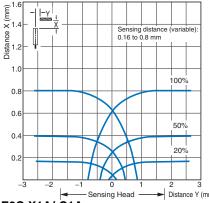
- The detection indicator lights when a sensing object approaches the sensing distance to indicate that a sensing object has been detected.
- The stability indicator lights when the sensing object approaches within 93% of the sensing distance or moves away from 107% of the sensing distance to indicate a stable sensing or non-sensing condition.



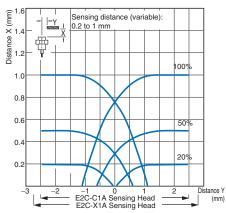
^{*} Refer to page 14 for the operation of cable length switching.

Sensing Area

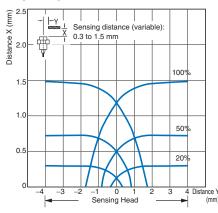




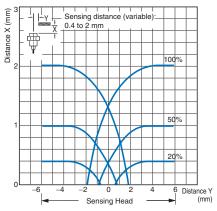
E2C-X1A/-C1A



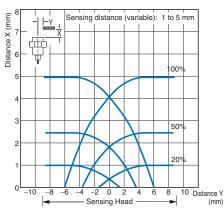
E2C-X1R5A



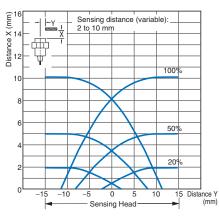
E2C-X2A



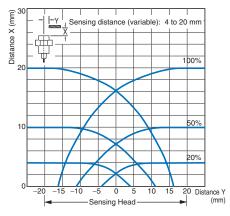
E2C-X5A



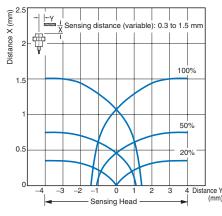
E2C-X10A



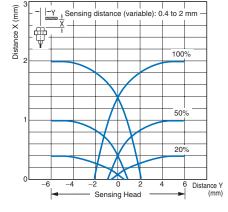
E2C-C20MA



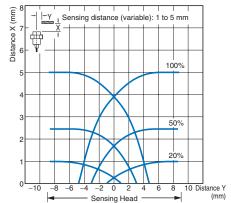
E2C-X1R5AH + E2C-JC4CH



E2C-X2AH + E2C-JC4DH

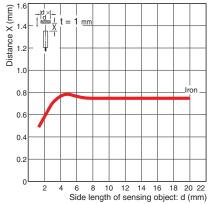


E2C-X5AH + E2C-JC4EH

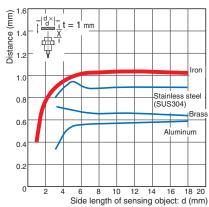


Influence of Sensing Object Size and Material

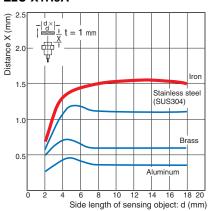
E2C-CR8□



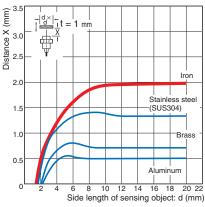
E2C-X1A/-C1A



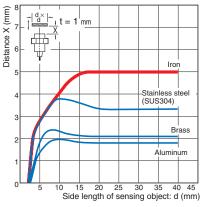
E2C-X1R5A



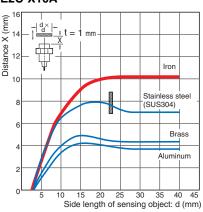
E2C-X2A



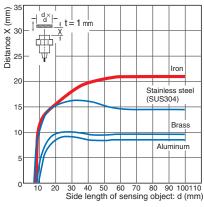
E2C-X5A



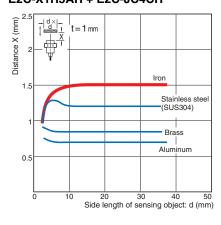
E2C-X10A



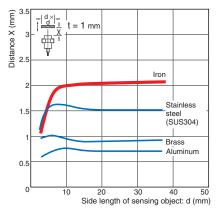
E2C-C20MA



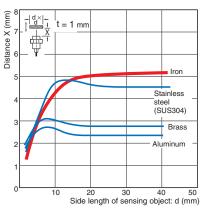
E2C-X1R5AH + E2C-JC4CH



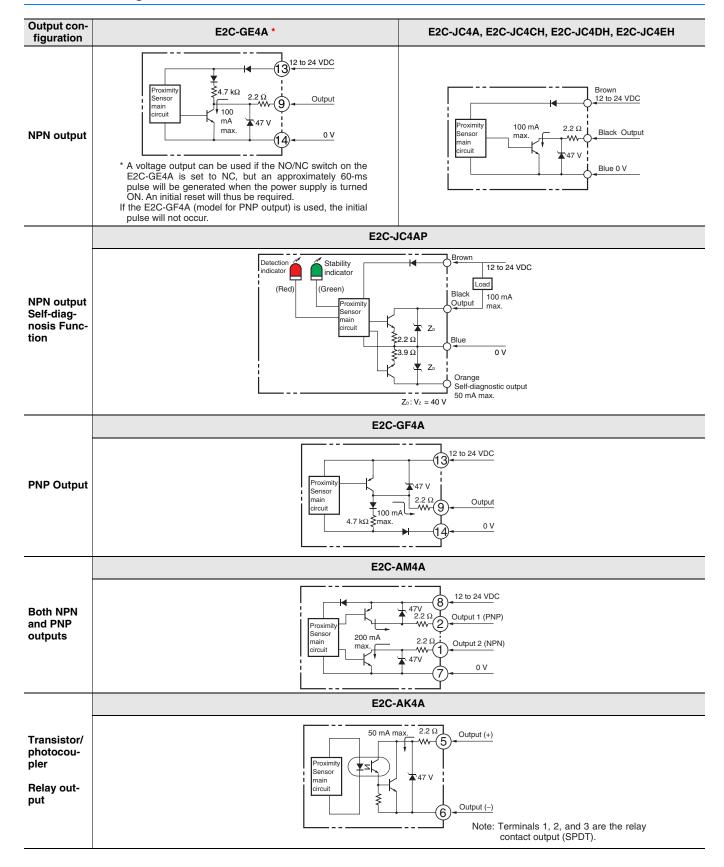
E2C-X2AH + E2C-JC4DH



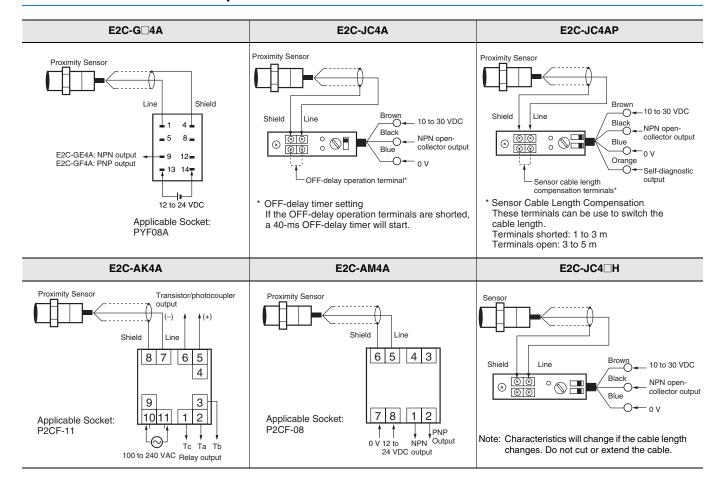
E2C-X5AH + E2C-JC4EH



I/O Circuit Diagrams



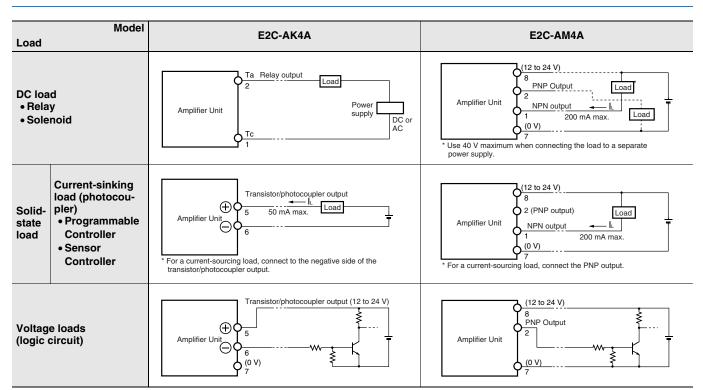
Connections between Amplifier Unit and Sensor



Load Connections

Model Load	E2C-JC4A, E2C-JC4⊟H
DC load • Relay • Solenoid Current-sinking load • Programmable Controller • Sensor Controller	Brown Black Load Blue
Voltage load (logic circuit)	Brown 12 to 24 VDC Black 4.7 k +V To next stage 0 V Interface circuits Logic circuit

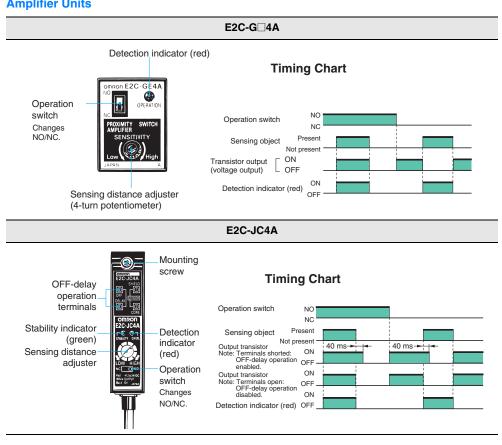
Model Load	E2C-GE4A
DC load • Relay • Solenoid	9 Load
Solid-state load • Programma- ble Control- ler • Sensor Controller	Amplifier Unit
Voltage load (logic circuit)	Amplifier Unit 12 to 24 V +V 4.7 K ¼W V: 3V To next stage 14
Remarks	When connecting to a CMOS IC or TLL, provide an interface circuit as shown above and connect to the solid-state circuit in the next stage.

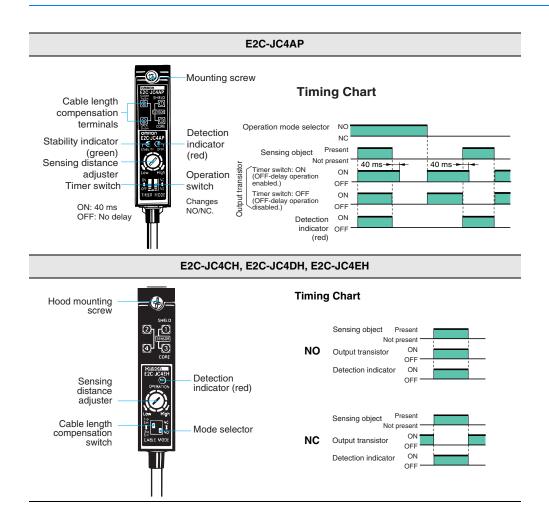


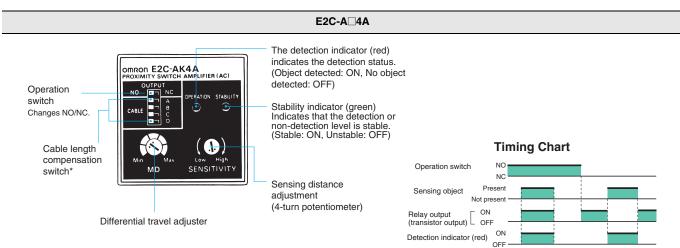
The E2C-AK4A supports relay and transistor/photocoupler outputs, and the E2C-AM4A supports both NPN and PNP open-collector output. They can be connected to a wide variety of load types and power polarities.

Nomenclature and Timing Charts

Amplifier Units







^{*} Cable Length Compensation Switching
Set this switch to the proper setting depending on whether the standard cable length is being used or the cable has been cut shorter.

Amplifier Unit Switch Settings

	Cable length	0 to 1 m	1 to 2 m	2 to 3 m	3 to 4 m	4 to 5 m	5 to 6 m	6 to 7 m	7 to 8 m	8 to 9 m	9 to 10 m
E2C-CR8A E2C-CR8B E2C-X1A E2C-C1A E2C-X1R5A		A B C D	A B C D	A B C D	A B C D	A B C D					
E2C-X2A E2C-X5A E2C-X10A E2C-C20MA		A B C D	A B C D	A B C D	A B C D	A B C D	A B C D	A B C D	A B C D	A B C D	A B C D

Note: 1. Mutual Interference Prevention: When mounting Sensors with the same diameter and cable length in parallel, set the DIP switch to modes that differ by 1 m in cable length. Specifications, however, may not be sufficiently met, so always check operation before actual application. This method cannot be used for the E2C-C20MA.

^{2.} When using the E2C-CR5B + E2C-AM4A (or AK4A), set all the pins on the Amplifier Unit DIP switch to the left.

Safety Precautions

Refer to Warranty and Limitations of Liability.



This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



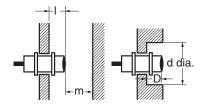
Precautions for Correct Use

Do not use the Encoder under ambient conditions that exceed the ratings.

Design

Influence of Surrounding Metal

When mounting the Sensor within a metal panel, ensure that the clearances given in the following table are maintained. Failure to maintain these distances may cause deterioration in the performance of the Sensor.



Influence of Surrounding Metal

(Unit: mm)

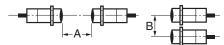
Model Distance	ı	d	D	m
E2C-CR8		(3.5)		2.4
E2C-X1A		(5)		3
E2C-C1A		(5.4)		3
E2C-X1R5A(H)	0	(8)	0	4.5
E2C-X2A(H)		(12)		6
E2C-X5A(H)		(18)		15
E2C-X10A		(30)		30
E2C-C20MA	25	120	40	60

Note: Values in parentheses for diameter d are the outer diameters of Shielded Models

Mutual Interference

When installing Sensors face-to-face or side-by-side, ensure that the minimum distances given in the following table are maintained. Mutual interference can be prevented by using the cable length compensation switch, but doing so will also change coil characteristics. Specifications such as temperature specifications and sensing distance, may not be sufficiently met, so always check operation before actual application.

This method cannot be used for the E2C-G□4A, E2C-JC4A, E2C-C20MA.



Mutual Interference (Unit: mm)

Model	Distance	Α	В
E2C-CR8			
E2C-X1A		20	15
E2C-C1A		20	15
E2C-X1R5A	(H)		
E2C-X2A(H)		30	20
E2C-X5A(H)		50	35
E2C-X10A		100	70
E2C-C20MA		300	200

Note: The above values are for a differential travel setting of 5%.

Mounting

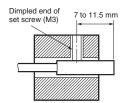
 Do not use excessive force when tightening the nuts on the E2C-X and E2C-C20MA. A washer must be used with the nut.



Model	Torque
E2C-X1A	0.98 N⋅m
E2C-X1R5A(H)	2.0 N⋅m
E2C-X2A(H)	5.9 N⋅m
E2C-X5A(H)	15 N⋅m
E2C-X10A	39 N⋅m
E2C-C20MA	15 N⋅m

Note: The above leeways in tighten torque assume that a toothed washer is being used.

Mounting Unthreaded Cylindrical Models
 When using a set screw, tighten it to a torque of 0.2 N·m max.



Y92E-F3R5 Mounting Bracket (for 3.5 dia.) (Order Separately)



The Y92E-F5R4 (for 5.4 dia.) is also sold separately.

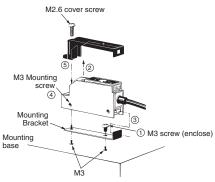
Mounting

Mounting the Amplifier Unit

E2C-JC4A

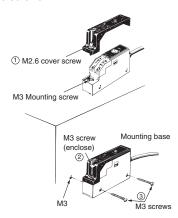
Lengthwise Mounting

- (1) Secure the Mounting Bracket with the enclosed M3 screws.
- (2)Loosen the M2.6 cover screw and remove the cover.
- (3)Slide the protrusion on the Amplifier Unit into the hole on the Mounting Bracket.
- (4) Using the M3 mounting screw inside the Amplifier Unit, secure the Amplifier Unit to the mounting base.
- (5) Secure the cover to the case.



Mounting to the Side

- (1)Loosen the M2.6 cover screw and remove the cover. Loosen the M2.6 cover screw and remove the cover, and remove the M3 screw.
- (2) Attached the enclosed M3 screw to the cover and secure the cover to the case.
- (3)Secure the Amplifier Unit with M3 screws from the side. You must provide these screws.



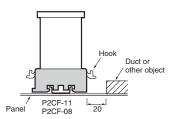
After completing adjustments, attach the enclosed caution label over the adjustment holes to prevent adjustment mistakes.



E2C-A□4A

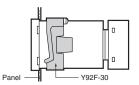
Using P2CF-11, P2CF-08

When aligning the Amplifier Unit vertically with the Socket, consider the space required for the hooks and allow a leeway of about 20 mm above and below the Amplifier Unit.

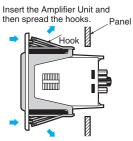


Mounting Embedded in a Panel

(1) When using the Y92F-30 Embedded Mounting Adapter, insert the Amplifier Unit into a square hold in the panel, attach the Adapter from the back and press in to reduce the gap with the panel. Then secure the Adapter with the screws.



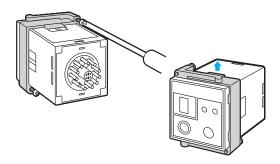
(2) When using the Y92F-70 or Y92F-71 Embedded Mounting Adapter, just press the Amplifier into a square hole in the panel. If the panel coating is too thick and the hooks do not lock in place, spread the hooks from the back by pushing in the directions of the arrows.



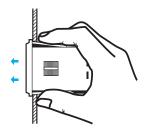
Insert the Sensor and then spread the hooks.

Removing the Amplifier Unit

 When the Amplifier Unit is mounted using the Y92F-30, loosen the screws on the adapter, spread the hooks at the top and bottom, and remove the Adapter.



Using Y92F-70, Y92F-71
 Press in on the hooks with your thumb and forefinger and press forward on the Amplifier Unit.



Wiring

Self-diagnostic Output

When not using the self-diagnostic output, connect the orange wire to 0 V or cut it and wrap it with insulation tape so that it does not come into contact with other terminals.

Miscellaneous

The sensor does not have a water-resistant structure. Do not use it where it would be subjected to water or water vapor.

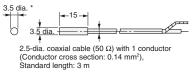
Dimensions

Main Units

Sensor

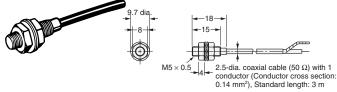




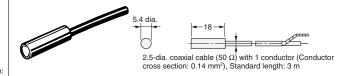


*E2C-CR8B: Diameter is 3.8.

E2C-X1A

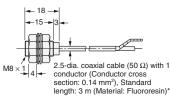


E2C-C1A

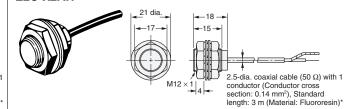


E2C-X1R5A E2C-X1R5AH*

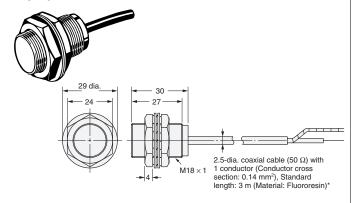




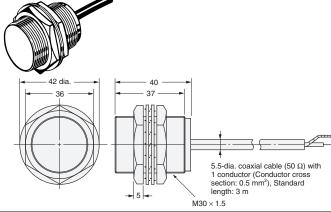
E2C-X2A E2C-X2AH*



E2C-X5A E2C-X5AH*

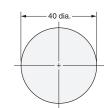


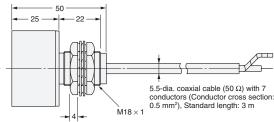
E2C-X10A



E2C-C20MA







Mounting Hole Dimensions

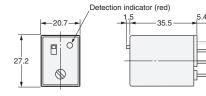


Model	F (mm)	Model	F (mm)	Model	F (mm)	
E2C-CR8A	3.7-dia. +0.3	E2C-X1A	5.4-dia. +0.5	E2C-X5A	18.5-dia. +0.5	
E2C-CR8B	4.0-dia. +0.3	E2C-X1R5A	8.5-dia. +0.5	E2C-X10A	30.5-dia. +0.5	
E2C-C1A	5.7-dia. +0.3	E2C-X2A	12.5-dia. +0.5	E2C-C20MA	18.5-dia. +0.5	

Amplifier Units

E2C-GE4A E2C-GF4A







Applicable Sockets (Sold Separately)

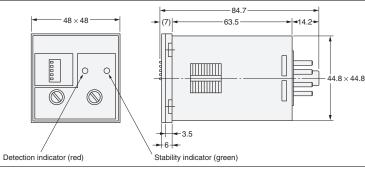
- PYF08A
- PYF08

Hold-down Clip

• PYC-A1

E2C-AK4A (11-pin) E2C-AM4A (8-pin)





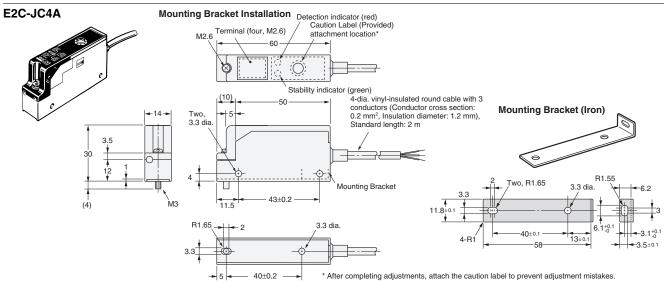
Applicable Sockets (Sold Separately)

For E2C-AK4A (11-pin)

- P2CF-11
- P3GA-11

For E2C-AM4A (8-pin)

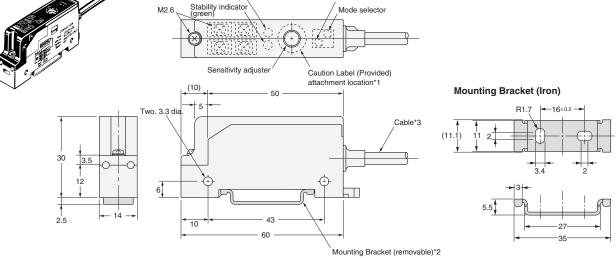
- P2CF-08
- P3G-08



E2C-JC4AP

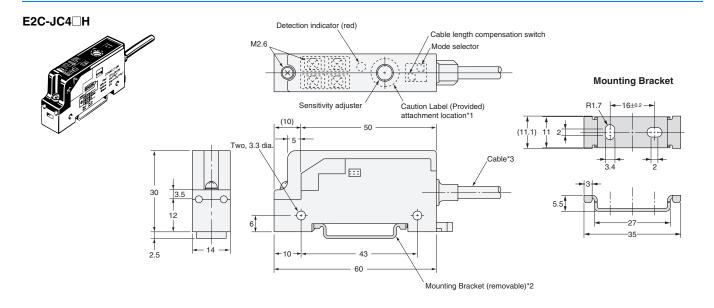
Mounting Bracket Installation

Detection indicator (red)



- *1. After completing adjustments, attach the caution label to prevent adjustment mistakes.
 *2. Not required when mounting to DIN Track.
 *3: 4.5-dia. vinyl-insulated round cable with 4 conductors (Conductor cross section: 0.2 mm², Insulator diameter: 1.2 mm), Standard length: 2 m

Timer switch



- *1. After completing adjustments, attach the caution label to prevent adjustment mistakes
 *2. Not required when mounting to DIN Track.
 *3. 4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.2 mm², insulator diameter: 1.2 mm), Standard length: 2 m
 The cable can be extended up to 200 m (separate metal conduit).

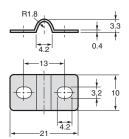
Accessories (Order Separately)

Mounting Bracket

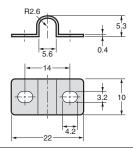
Mounting Bracket (for Unthreaded Cylindrical Models) Y92E-F3R5 (for 3.5 dia.) Y92E--F5R4 (for 5.4 dia.)



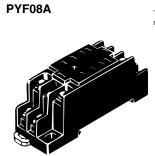
Y92E-F3R5

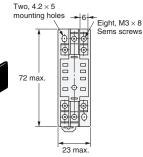


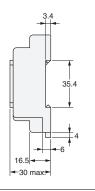
Y92E-F5R4



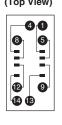
Front Connection Sockets



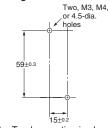




Terminal Arrangement and Internal Connections (Top View)

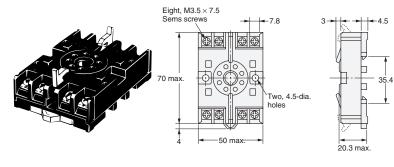


Mounting Hole Dimensions

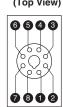


Note: Track mounting is also possible.

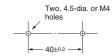
P2CF-08



Terminal Arrangement and Internal Connections (Top View)

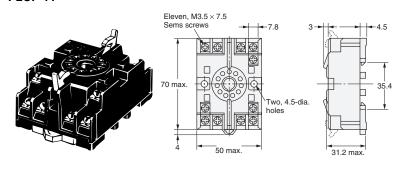


Mounting Hole Dimensions

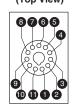


Note: Track mounting is also possible.

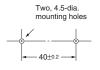
P2CF-11



Terminal Arrangement and Internal Connections (Top View)



Mounting Hole Dimensions

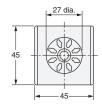


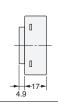
Note: Track mounting is also possible.

Back Connection Sockets

P3G-08





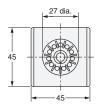


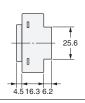
Terminal Arrangement and Internal Connections (Bottom View)



P3GA-11





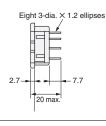


Terminal Arrangement and Internal Connections (Bottom View)



PY08



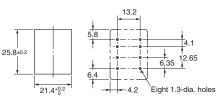




Terminal Arrangement and Internal Connections (Bottom View)



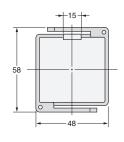
Mounting Holes and PCB Cutout Dimensions

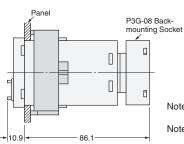


Embedded Mounting Adapter (for E2C-AK4A/E2C-AM4A Amplifier Unit)

Y92F-30





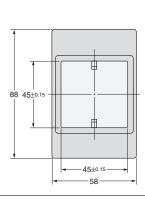


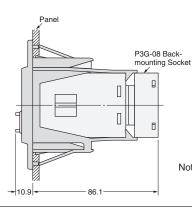
Note 1. Suitable mounting panel thickness: 1 to 5 mm

Note 2. Check the direction of the Adapter, which depends on whether Amplifier Units are arranged vertically or horizontally.

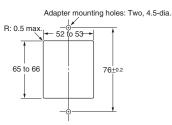
Y92F-70







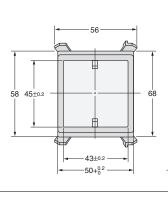
Mounting Hole Dimensions

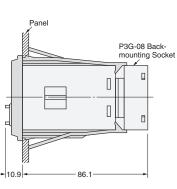


Note: Suitable mounting panel thickness: 1 to 3.2 mm

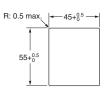
Y92F-71







Mounting Hole Dimensions



Note: Suitable mounting panel thickness: 1 to 3.2 mm

Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments

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- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

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Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

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Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

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The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

2012.12

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Omron: E2C-CR8A



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