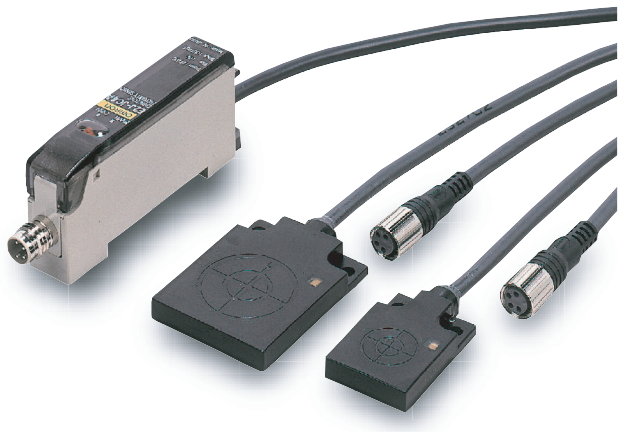
Long Sensing-distance Capacitive Separate Amplifier Proximity Sensor

E2J

CSM_E2J_DS_E_3_1

Compact and Ideal for Robot Hands. Especially Effective in Detecting LCDs, Wafers, and PDPs.*

- Flat head is only 5.5-mm thick.
- Robotics cable ensures improved flexibility.
- Operation indicator on the Sensor Head.
- Easy-to-use connector.



* Plasma Display Panel (for wall-mounted TVs)

⚠ Be sure to read *Safety Precautions* on page 5.

Ordering Information

Sensors

[Refer to *Dimensions* on page 6.]

Appearance	Sensing distance (variable)	Model
Flat, Unshielded 	10 mm (4 to 10 mm)	**E2J-W10MA 1M**
	20 mm (8 to 20 mm)	**E2J-W20MA 1M**

Amplifier Units

Output configuration	Model
DC 3-wire NPN Open-collector output	**E2J-JC4A 2M**

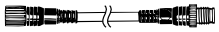
Accessories (Order Separately)

Dust Covers [Refer to *Dimensions* on page 6.]

Appearance	Application	Application	Model
	Dust protection *	E2J-JC4A Amplifier Unit	**XS3Z-13**
		E2J-W□MA Sensor	**XS3Z-15**

* These dust covers are for protection against dust. They do not satisfy IP67. When attaching the Dust Cover, be sure to fully insert the connector into the Dust Cover.

Sensor I/O Connectors with Cables [Refer to *XS3*.]

Appearance	Application	Cable conductors	Cable length	Model	Remarks
	For cable extension	4 conductors	1 m	**XS3W-M421-401-R**	M8-screw-mounting cables Robotics cables (vibration resistant) Straight/Straight Model
			2 m	**XS3W-M421-402-R**	

Note: Refer to *Introduction to Sensor I/O Connectors* for details.

Ratings and Specifications

Sensors

Item \ Model		E2J-W10MA	E2J-W20MA
Sensing distance		10 mm	20 mm
Sensing area		4 to 10 mm	8 to 20 mm
Differential travel		15% max. of sensing distance	
Detectable object		Conductors and dielectrics	
Standard sensing object		Grounded metal plate: 50 × 50 × 1 mm	
Response frequency		70 Hz min.	
Indicators		Detection indicator (red)	
Ambient temperature range		Operating/Storage: −10 to 55°C (with no icing or condensation)	
Ambient humidity range		Operating/Storage: 35% to 95% (with no condensation)	
Vibration resistance		Destruction: 10 to 500 Hz, 2-mm double amplitude or 150 m/s^2 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 of protection		IP66 (IEC)	
Connection method		Pre-wired Connector Models (Robotics cable, Standard cable length: 1m)	
Weight (packed state)		Approx. 30 g	Approx. 40 g
Materials	Case	Heat-resistant ABS	

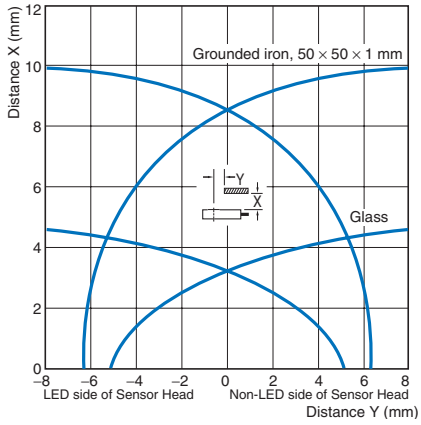
Amplifier Units

Item \ Model		E2J-JC4A
Power supply voltage		24 VDC ±20%, ripple (p-p): 10% max.
Current consumption		30 mA max.
Control output	Load current	NPN open-collector output, 100 mA max. (30 VDC max.)
	Residual voltage	1 V max.
Indicators		Operation indicator (orange) Power indicator (green)
Number of turns of sensitivity adjustment		8 turns with an indicator
Protection circuits		Load short-circuit protection, Surge suppressor, Reverse polarity protection
Ambient temperature range		Operating/Storage: −10 to 55°C (with no icing or condensation)
Ambient humidity range		Operating/Storage: 35% to 85% (with no condensation)
Temperature influence (Sensor with Amplifier)		±25% max. of sensing distance at 23°C in the temperature range of 0 to 40°C
Voltage influence		±1% max. of sensing distance at the rated voltage in the ±20% rated voltage range
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min between current-carrying parts and case
Vibration resistance		Destruction: 10 to 150 Hz, 1.5-mm double amplitude or 100 m/s^2 for 2 hours each in X, Y, and Z directions
Shock resistance		Destruction: 300 m/s^2 3 times each in X, Y, and Z directions
Degree of protection		IP50 (IEC)
Connection method		Pre-wired Models (Standard cable length: 2 m)
Weight (packed state)		Approx. 60 g
Materials	Case	ABS
Accessories		Mounting Bracket, Instruction manual

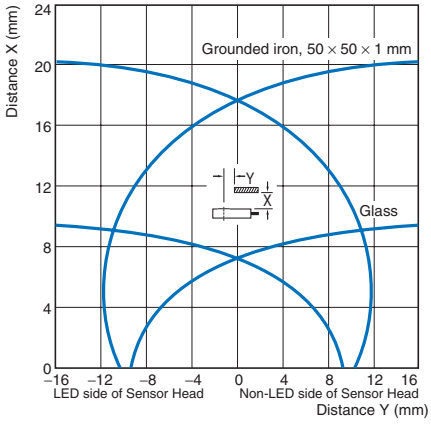
Engineering Data (Typical)

Sensing Area

E2J-W10MA

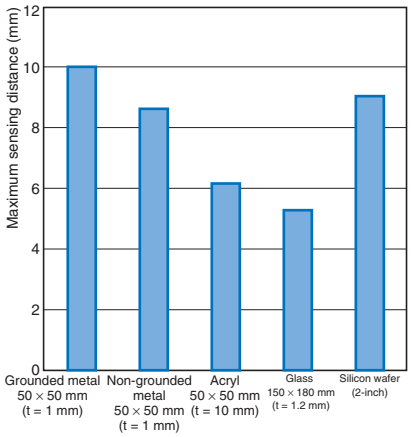


E2J-W20MA



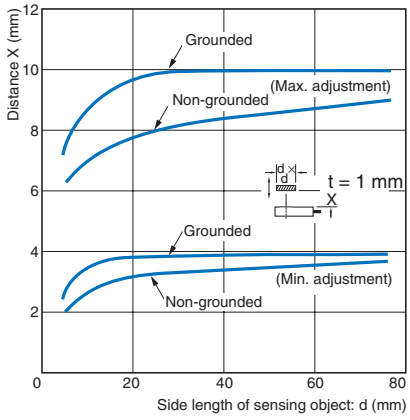
Sensing Distance Change by Sensing Object (Typical)

E2J-W10MA

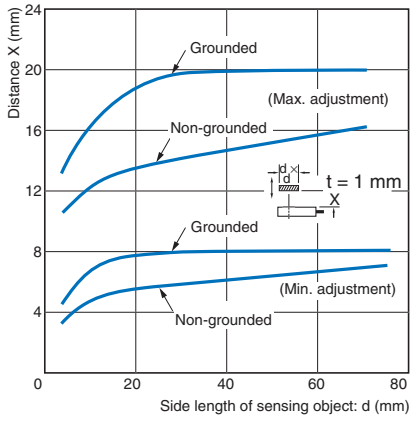


Influence of Sensing Object (Iron)

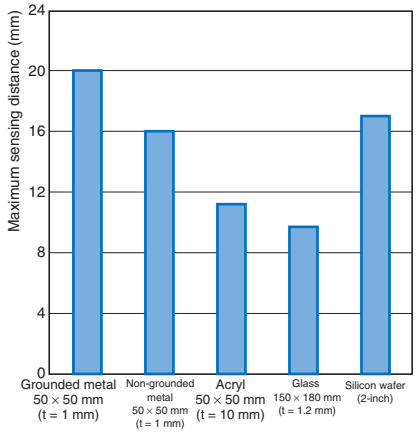
E2J-W10MA



E2J-W20MA

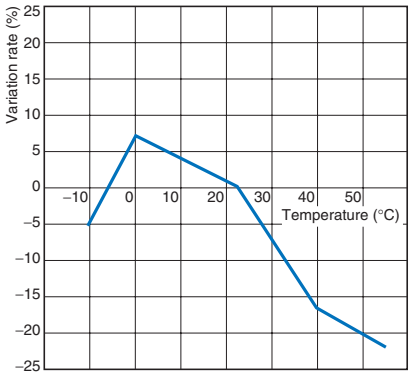


E2J-W20MA

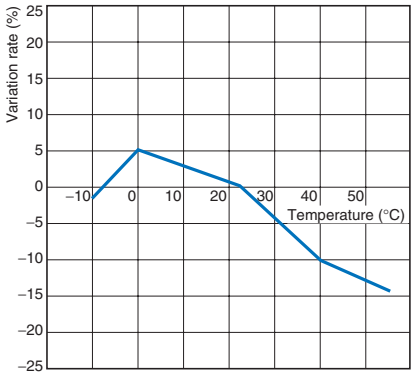


Influence of Ambient Temperature

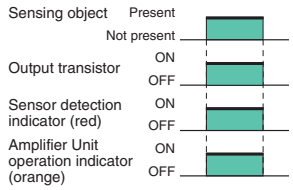
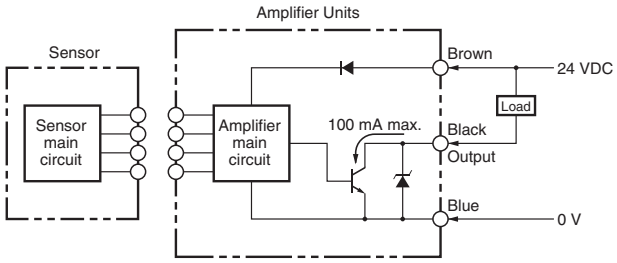
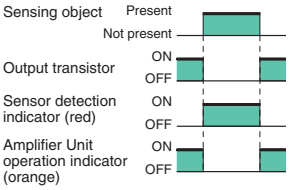
E2J-W10MA



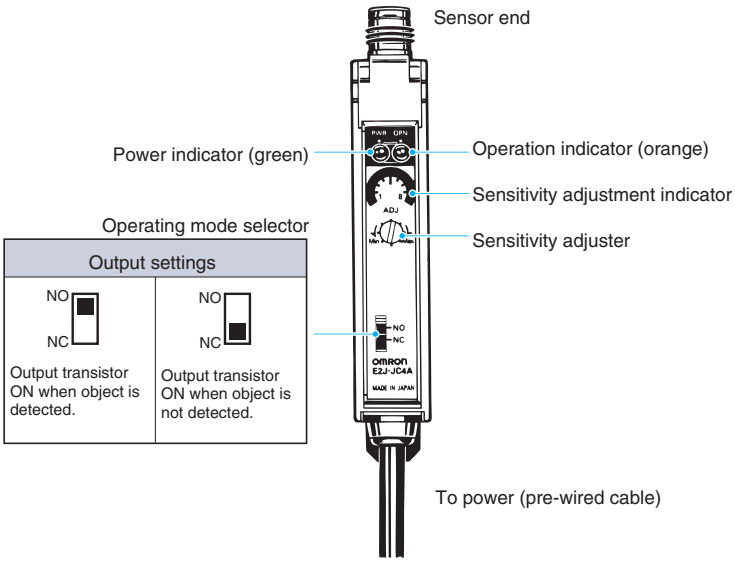
E2J-W20MA



I/O Circuit Diagrams

Operation mode	Model	Timing chart	Output circuit
NO	E2J-W10MA E2J-W20MA + E2J-JC4A		
NC			

Amplifier Unit Nomenclature



Safety Precautions

Refer to *Warranty and Limitations of Liability*.

⚠ WARNING

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

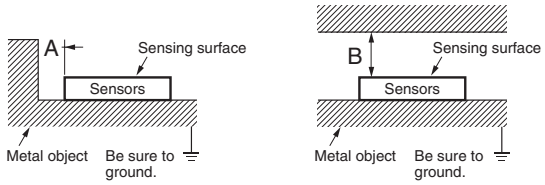
Precautions for Correct Use

Do not use this product 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.

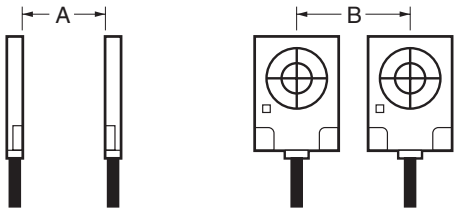


Influence of Surrounding Metal (Unit: mm)

Model \ Dimension	A	B
E2J-W10MA	10	20
E2J-W20MA	20	40

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 (Unit: mm)

Model \ Dimension	A	B
E2J-W10MA	20	30
E2J-W20MA	70	50

● Mounting

Handling

- Do not use the Sensor outdoors.
- Do not wire the Sensor alongside a high-tension or power line.
- Do not use portable telephones or transceivers near the Sensor. Be sure to ground the Mounting Brackets.
- Do not use the Sensor in an environment where it will be exposed to chemicals, particularly chemical solutions or oxidizing acids.

Influence of Static Electricity

Be sure to discharge static electricity before detecting objects that are greatly affected by static electricity.

Mounting the Sensor

The maximum tightening torque that should be applied is 0.54 N·m.

Cable between Sensor and Amplifier Unit

- Be sure that the bending radius of the cable is more than 5 mm.
- Use the XS3W-M421-40□-R cable with connectors (M8-screw mounting) as the extension cable.
  The maximum cable length is 3 m (extension section: 2 m).

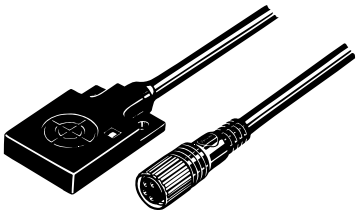
Dimensions

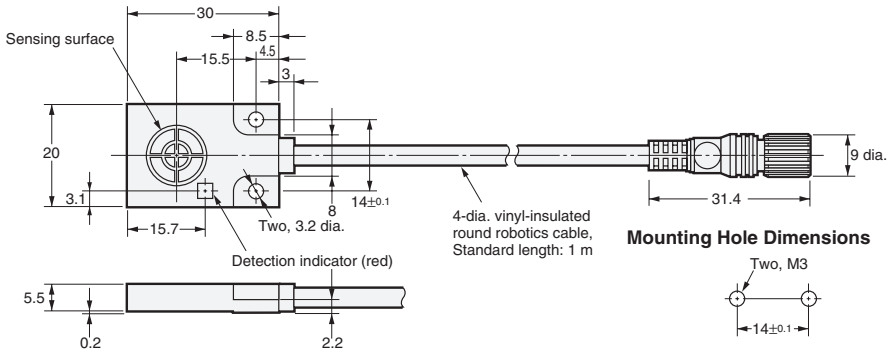
(Unit: mm)
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

Main Units

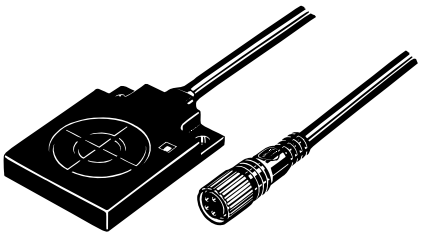
Sensors

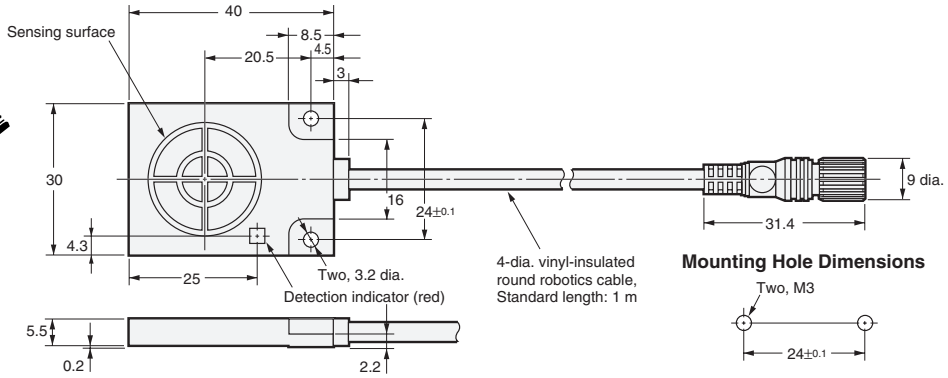
E2J-W10MA





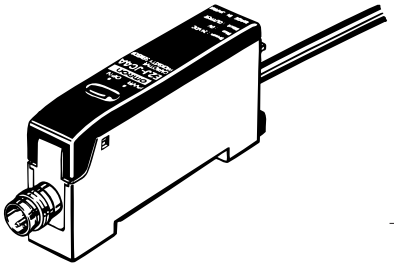
E2J-W20MA



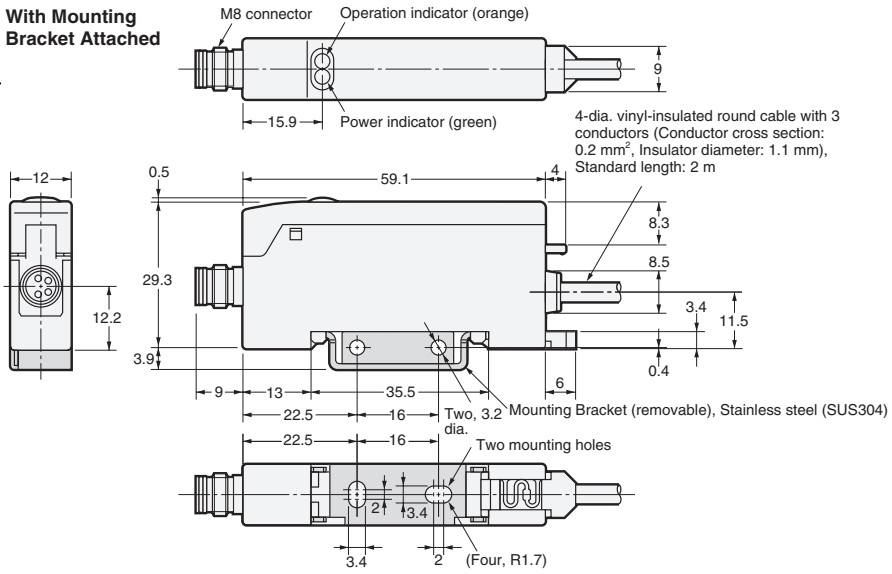


Amplifier Units

E2J-JC4A



With Mounting Bracket Attached

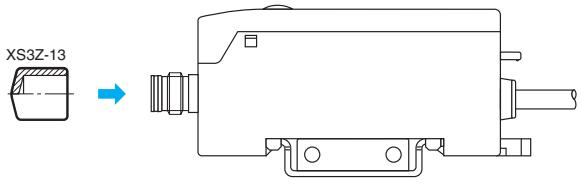


Accessories (Order Separately)

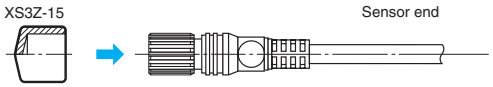
Dust Cover

Material: polyvinyl chloride (red)

XS3Z-13 (for E2J-JC4A Amplifier Unit)



XS3Z-15 (for E2J-W□MA Sensor)



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- 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.

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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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2008.11

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OMRON Corporation
Industrial Automation Company

http://www.ia.omron.com/

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Данный компонент на территории Российской Федерации

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