Rectangular Proximity Sensor

E2Q2

CSM_E2Q2_DS_E_3_2

Change the Sensing Direction Freely

- Change the sensing direction from front to back. Adjustable up, down, left and right, in 90° units.
- Mounts like a Limit Switch.

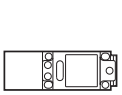
Note: Manufacture of the DC models (E2Q2-N20□3-H, E2Q2-N30M□3-H) was discontinued in March 2016.

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

Ordering Information

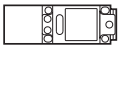
Sensors

DC Models

Appearance		Sensing distance	Model	
			Output configuration NPN NO + NC (both outputs)	Output configuration PNP NO + NC (both outputs)
Shielded		20 mm	E2Q2-N20E3-H *	E2Q2-N20F3-H *
Unshielded		30 mm	E2Q2-N30ME3-H *	E2Q2-N30MF3-H *

* Discontinued models.

AC Models

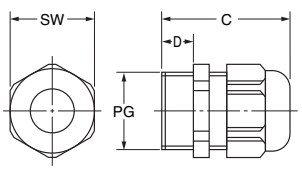
Appearance		Sensing distance	Model
			Operation mode NO/NC (selectable)
Shielded		15 mm	E2Q2-N15Y4-H
Unshielded		30 mm	E2Q2-N30MY4-H

Accessories (Order Separately)

The recommended cable clamp is the ST Model manufactured by K.MECS Co., Ltd.

Product number	Screw size	SW	C	D	Applicable cable outer diameter
ST-M20 × 1.5	M20 × 1.5	25	37	9	7 to 13

Applicable seal packing
GPM20



For purchasing details, contact the sales company.
Contact information is provided below.

K.MECS Co.,Ltd.

Yusen Iwamotocho Bldg. 3F
2-3-3 Iwamotocho, Chiyodaku, Tokyo, Japan 101-0032.

Telephone:+81-3-5825-5333
Facsimile: +81-3-5825-8550

Ratings and Specifications

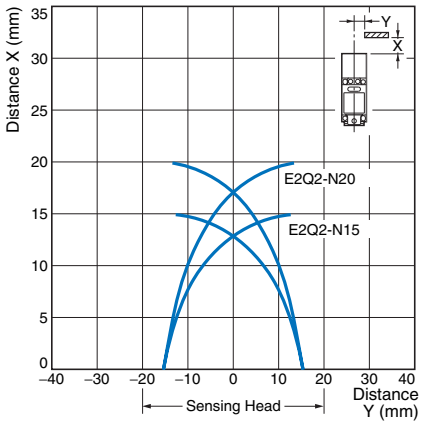
Item \ Shielding		Shielded	Unshielded	Shielded	Unshielded
Item \ Model		E2Q2-N20□3-H	E2Q2-N30M□3-H	E2Q2-N15Y4-H	E2Q2-N30MY4-H
Sensing distance		20 mm±10%	30 mm±10%	15 mm±10%	30 mm±10%
Set distance		0 to 16 mm	0 to 24 mm	0 to 12 mm	0 to 24 mm
Differential travel		15% max. of sensing distance			
Sensing object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on page 3.)			
Standard sensing object		Iron, 60 × 60 × 1 mm	Iron, 90 × 90 × 1 mm	Iron, 60 × 60 × 1 mm	Iron, 90 × 90 × 1 mm
Response frequency		150 Hz	100 Hz	20 Hz	
Power supply voltage (operating voltage range)		12 to 48 VDC (10 to 60 VDC), ripple (p-p): 10% max.		24 to 240 VAC (20 to 253 VAC), 50/60 Hz	
Current consumption/ Leakage current		20 mA max.		1.7 mA max Refer to *Engineering Data* on page 3.	
Control output	Switching capacity	200 mA max.		8 to 500 mA	
	Residual voltage	3 V max. with a 200 mA load current		Refer to *Engineering Data* on page 3.	
Indicators		Power indicator (green) Detection indicator (yellow)		Power indicator (green) Operation indicator (yellow)	
Operation mode (with sensing object approaching)		E3 Models: NPN NO+NC F3 Models: PNP NO+NC Refer to the timing charts under *I/O Circuit Diagrams* on page 4 for details.		AC: NO or NC (selectable) Refer to the timing charts under *I/O Circuit Diagrams* on page 4 for details.	
Protection circuits		Reverse polarity protection, load short-circuit protection		---	
Ambient temperature		Operating: –25 to 70°C (with no icing or condensation) Storage: –40 to 70°C (with no icing or condensation)			
Ambient humidity		Operating: 35% to 85% (with no condensation) Storage: 35% to 95% (with no condensation)			
Temperature influence	Shielded model	±10% max. of sensing distance at 23°C in the temperature range of –25 to 70°C			
	Unshielded model	±15% max. of sensing distance at 23°C in the temperature range of –25 to 70°C			
Voltage influence		±2% max. of sensing distance at within a range of ±10% of rated power supply voltage			
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case			
Dielectric strength		E□ Model and F□ Model: 1,000 VAC, 50/60 Hz for 1 min. between current-carrying parts and case			
		Y Model: 4,000 VAC, 50/60 Hz for 1 min. between current-carrying parts and case			
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 10 times each in X, Y, and Z directions			
Degree of protection		IEC IP67 *			
Connection method		Terminal block			
Weight		Approx. 240 g			
Materials	Case	Polybutylene terephthalate (PBT)			
	Terminal block	Polybutylene terephthalate (PBT)			
	Sensing surface	Polybutylene terephthalate (PBT)			

*When the recommended cable clamp is used.

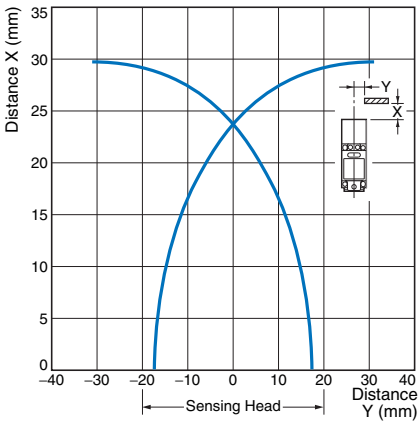
Engineering Data (Reference Value)

Sensing Area

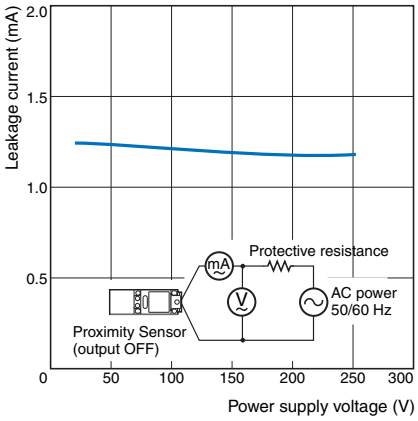
Shielded Models
E2Q2-N20□3-H
E2Q2-N15Y4-H



Unshielded Models
E2Q2-N30M□□-H

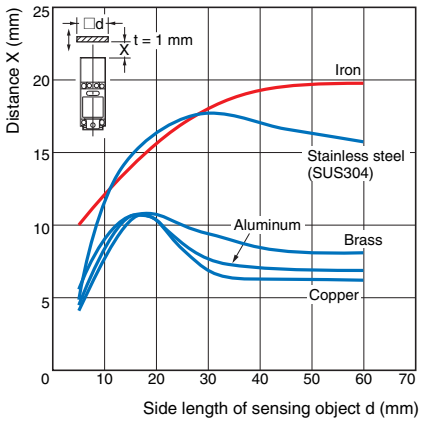


Leakage Current
E2Q2-N□Y4-H

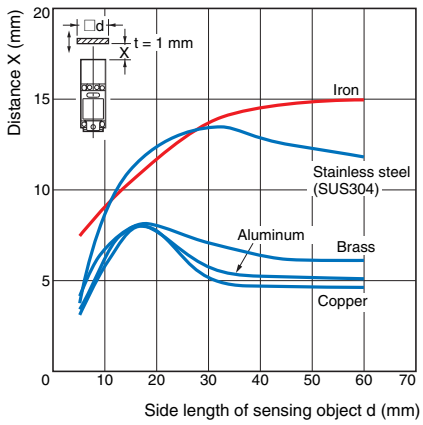


Influence of Sensing Object Size and Material

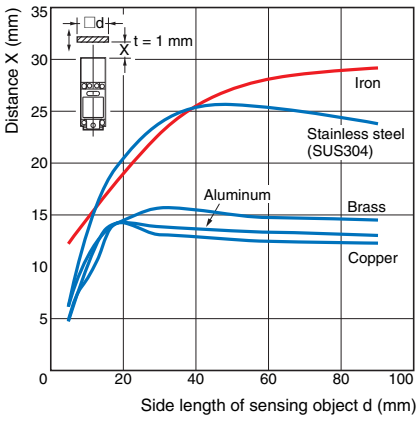
E2Q2-N20□3-H



E2Q2-N15Y4-H

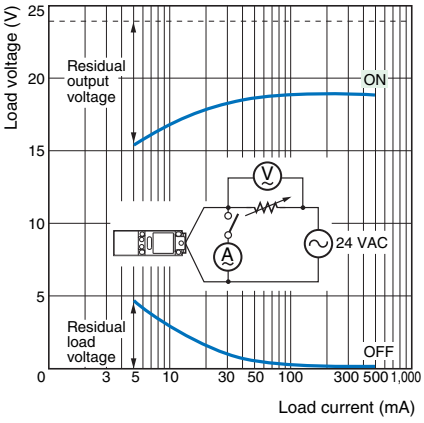


E2Q2-N30M□□-H

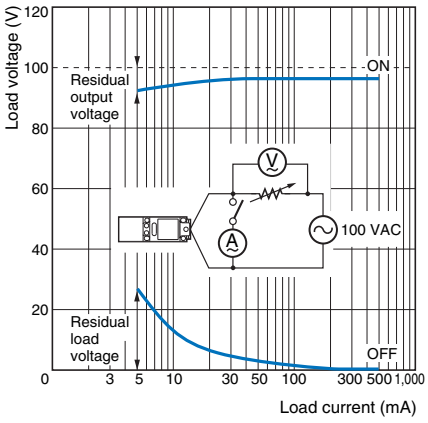


Residual Output Voltage

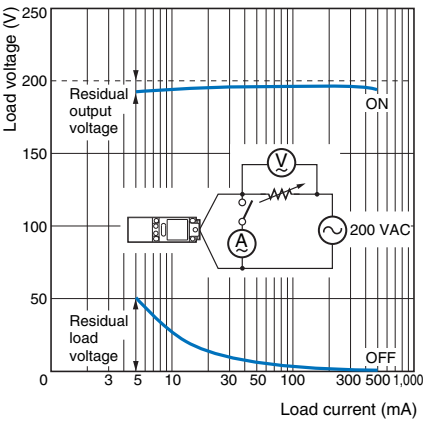
E2Q2-N□Y4-H **at 24 VAC**



E2Q2-N□Y4-H **at 100 VAC**

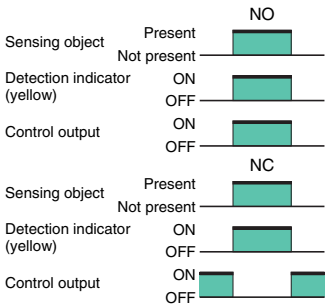
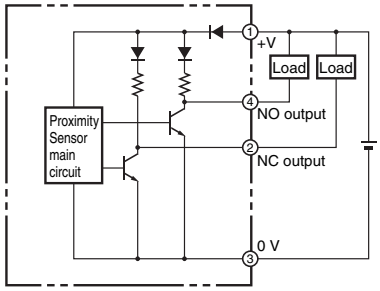


E2Q2-N□Y4-H **at 200 VAC**

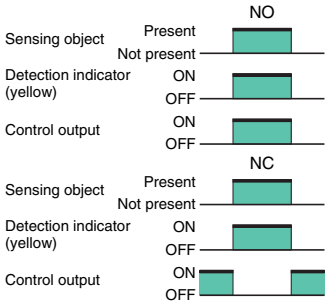
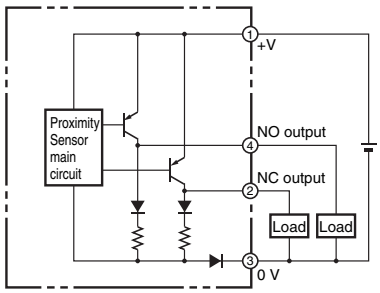


I/O Circuit Diagrams

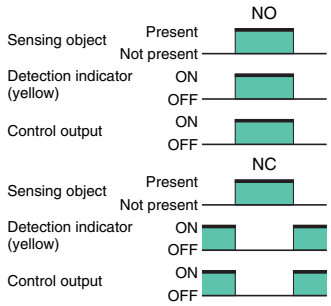
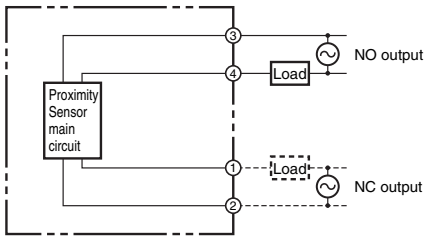
NPN

Operation mode	Models	Timing charts	Output circuits
NO+NC	E2Q2-N20E3-H E2Q2-N30ME3-H		

PNP

Operation mode	Models	Timing charts	Output circuits
NO+NC	E2Q2-N20F3-H E2Q2-N30MF3-H		

AC

Operation mode	Models	Timing charts	Output circuits
NO/NC	E2Q2-N15Y4-H E2Q2-N30MY4-H		 Note: Connect either NO or NC.

Safety Precautions

⚠ WARNING

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

Precautions for Safe Use

Precautions for Compliance with UL Standards

The product is compliant with UL standards. To meet the requirements for the standards, however, metal connectors or conduits must not be used. When using for UL applications, be sure to use a UL-listed cable clamp.

Precautions for Correct Use

Do not use this product under ambient conditions that exceed the ratings.

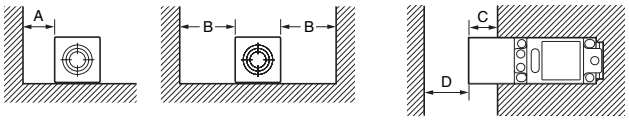
● **Design**

Power Reset Time

The Sensor is ready to operate 300 ms after the Sensor is turned ON. If the load and Sensor are connected to independent power supplies respectively, be sure to turn ON the Sensor before supplying power to the load.

Influence of Surrounding Metal

When mounting the Sensor within a metal panel, ensure that the clearances given in the following table are maintained.



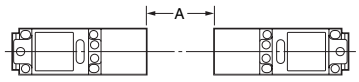
(Unit: mm)

Model / Item	A	B	C	D
E2Q2-N□□□-H	0	10	0	40
E2Q2-N□M□□-H	15	25	25	40

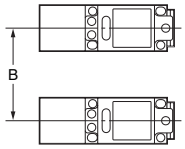
Mutual Interference

When installing Sensors face-to-face or side-by-side, ensure that the minimum distances given in the following table are maintained.

Face-to-face



Parallel



(Unit: mm)

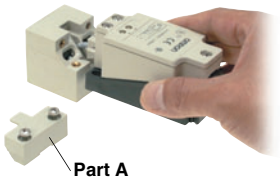
Model / Item	A	B
E2Q2-N□□□-H	170	100
E2Q2-N□M□□-H	280	200

● **Mounting**

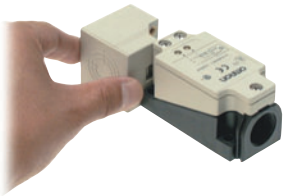
Changing the sensing surface direction.

1. Remove the 2 screws on the back of the Sensor.

2. Removing part A allows the sensing surface position to be changed to the front or sides of the Sensor.



3. When positioning the sensing surface to the side, rotate it to the required position, then fit it into the case. The possible positions are 0, 90, 180, and 270°. Do not forcefully rotate the sensing surface.



4. Secure part A with the screws.

● **Operating Environment**

Ambient Atmosphere

Do not install the product in the following locations. Doing so may result in product failure or malfunction.

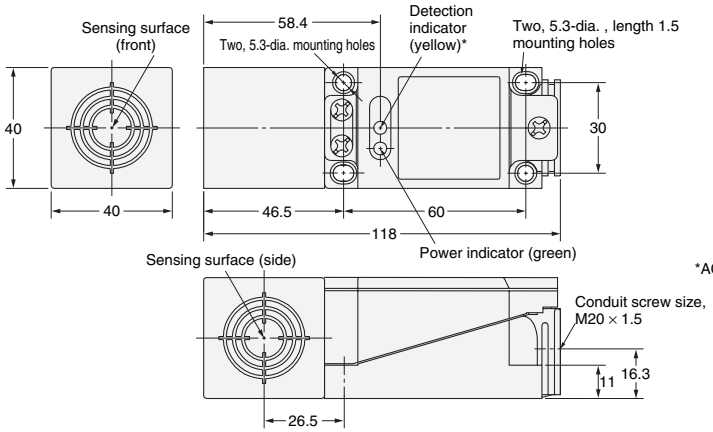
1. Locations subject to corrosive gas.
2. Locations subject to shock or vibration.
3. Locations subject to exposure to water, oil, or chemicals.

(Unit: mm)

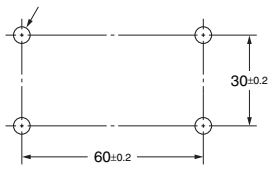
Dimensions

Unless otherwise specified, the tolerance class IT16 is used for dimensions in this data sheet.

Sensors



Mounting Hole Dimensions



*AC models have a yellow operation indicator.

In the interest of product improvement, specifications are subject to change without notice.

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2016.4

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Industrial Automation Company

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