



Cylindrical Proximity Sensor

E2AG

- Highest value-performance ratio for standard applications
- Shielded and unshielded models with standard sensing range



Ordering information

Appearance		Sensing distance			Output	Type	
						Operation mode NO	Operation mode NC
Shielded 	M8	1.5 mm			PNP	E2AG-S08KS01-WP-B1	E2AG-S08KS01-WP-B2
	M12	2 mm				E2AG-M12KS02-WP-B1	E2AG-M12KS02-WP-B2
	M18	5 mm				E2AG-M18KS05-WS-B1	E2AG-M18KS05-WS-B2
	M30		10 mm			E2AG-M30KS10-WS-B1	E2AG-M30KS10-WS-B2
Unshielded 	M8	2 mm			PNP	E2AG-S08KN02-WP-B1	E2AG-S08KN02-WP-B2
	M12	5 mm				E2AG-M12KN05-WP-B1	E2AG-M12KN05-WP-B2
	M18		10 mm			E2AG-M18KN10-WS-B1	E2AG-M18KN10-WS-B2
	M30			18 mm		E2AG-M30KN18-WS-B1	E2AG-M30KN18-WS-B2

Note: Add the cable length to the model number (example: E2AG-M12KS02-WP-B1 2M).

Model Number Legend

E2AG-□□□□□-□-□□□-□
 1 2 3 4 5 6 7 8 9

1. Housing shape and material

- M: Cylindrical, metric threaded, brass
- S: Cylindrical, metric threaded, stainless steel (only M8)

2. Housing size

- 08: 8 mm
- 12: 12 mm
- 18: 18 mm
- 30: 30 mm

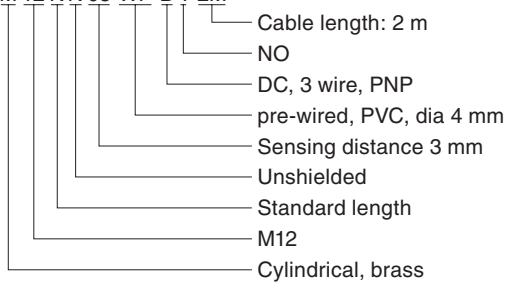
3. Barrel length

- K: Standard length

4. Shield

- S: Shielded
- N: Unshielded

eg., E2AG-M 12 K N 05-WP-B 1-2M



5. Sensing distance

- Numeral: Sensing distance, e.g. 02=2 mm,10=10 mm
- Exceptional case: 01=1.5 mm

6. Kind of connection

- WP: pre-wired, PVC, dia 4 mm
- WS: pre-wired, PVC, dia 6 mm

7. Power Source and Output

- B: DC, 3-wire, PNP open collector

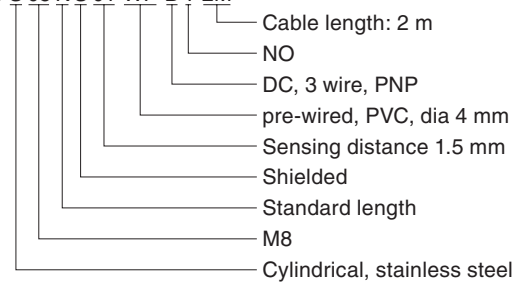
8. Operation mode

- 1: Normally open (NO)
- 2: Normally closed (NC)

9. Cable length

- Numeral: Cable length

eg., E2AG-S 08 K S 01-WP-B 1-2M



Specifications

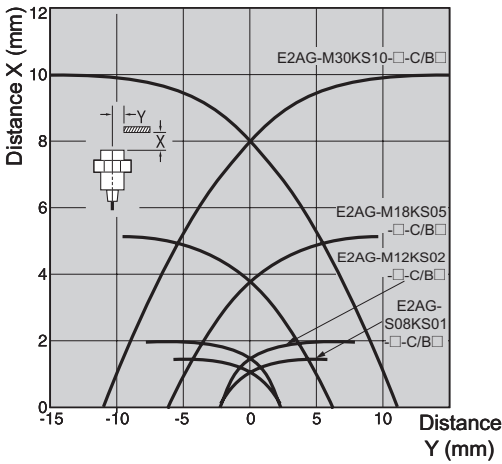
Item	M8		M12		M18		M30	
	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
	E2AG-S08KS01-□-B1 E2AG-S08KS01-□-B2	E2AG-S08KN02-□-B1 E2AG-S08KN02-□-B2	E2AG-M12KS02-□-B1 E2AG-M12KS02-□-B2	E2AG-M12KN05-□-B1 E2AG-M12KN05-□-B2	E2AG-M18KS05-□-B1 E2AG-M18KS05-□-B2	E2AG-M18KN10-□-B1 E2AG-M18KN10-□-B2	E2AG-M30KS10-□-B1 E2AG-M30KS10-□-B2	E2AG-M30KN18-□-B1 E2AG-M30KN18-□-B2
Sensing distance	1.5 mm ±10%	2 mm ±10%	5 mm ±10%		10 mm ±10%		18 mm ±10%	
Differential travel	10% max. of sensing distance							
Detectable object	Ferrous metal (The sensing distance decrease with non-ferrous metal. Refer to Engineering Data on pages 4 and 5)							
Standard sensing object	Iron 8×8×1 mm	Iron 12×12×1 mm	Iron 15×15×1 mm	Iron 18×18×1 mm	Iron 30×30×1 mm	Iron 54×54×1 mm		
Response frequency ^{*1}	1 kHz	0.4 kHz	0.8 kHz	0.1 kHz	0.5 kHz	0.1 kHz	0.1 kHz	0.1 kHz
Power supply voltage (operating voltage range)	12 to 24 VDC. Ripple(p-p):10% max. (10~30 VDC)							
Current consumption	13 mA max.							
Control output	Load current	open collector, 200 mA max.						
	Residual voltage	2 V max. (under load current of 200 mA with cable length of 2 m)						
Indicator	Operation indicator (yellow)							
Operation mode (with sensing object approaching)	B1 Models: NO B2 Models: NC Refer to the timing charts under Output Circuit Diagrams of page 7 for details.							
Protection circuits	Reverse polarity protection, Surge suppressor, Load short-circuit protection							
Ambient temperature range	Operating / Storage: -25~+70°C (with no icing or condensation)							
Ambient humidity range	Operating / Storage: 35~95% RH							
Voltage influence	±10% max. of sensing distance in rated voltage range ±15%							
Insulation resistance	50 MΩ min. (at 500 VDC) between current carry parts and case							
Dielectric strength	1,000 VAC, 50/60 Hz for 1 minute between current carry parts and case							
Vibration resistance	10~55 Hz 0.75 mm double amplitude for 2 hours each in X,Y,and Z directions							
Shock resistance	500 m/s ² 10 times each in X,Y,and Z directions		1,000 m/s ² 10 times each in X,Y,and Z directions					
Degree of protection	IEC 60529 IP67							
Connection method	Pre-wired models (Standard cable length: 2 m)							
Weight	Approx. 55 g		Approx. 65 g		Approx. 140 g		Approx. 190 g	
Materials	Case	Stainless steel (SUS303)		Nickel plated brass				
	Sensing surface	PBT						

*1. The response frequency is an average value. 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.

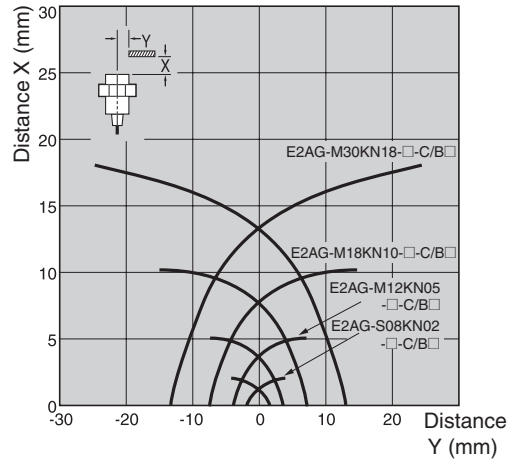
Engineering data (typical)

Sensing Area

DC 3-wire models/shielded

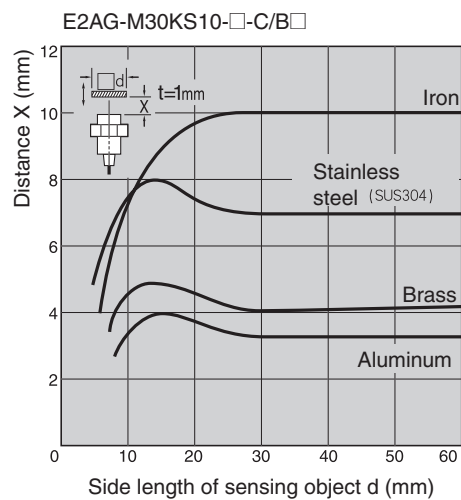
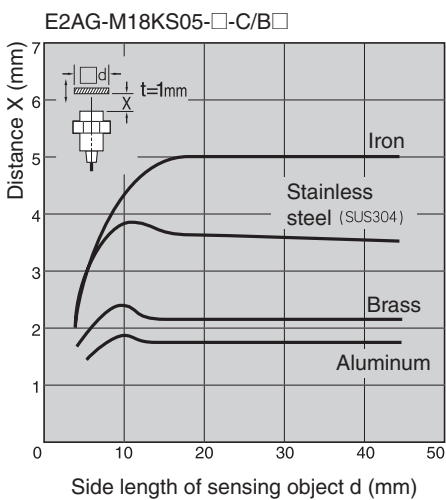
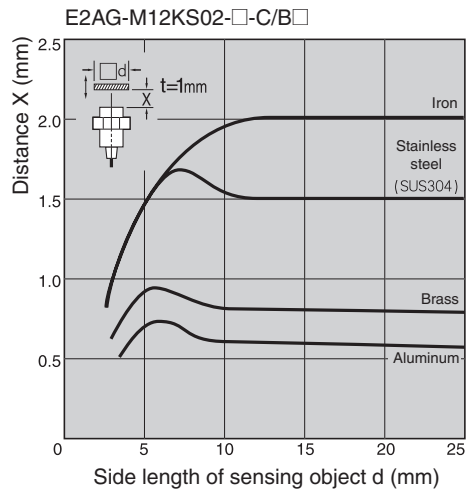
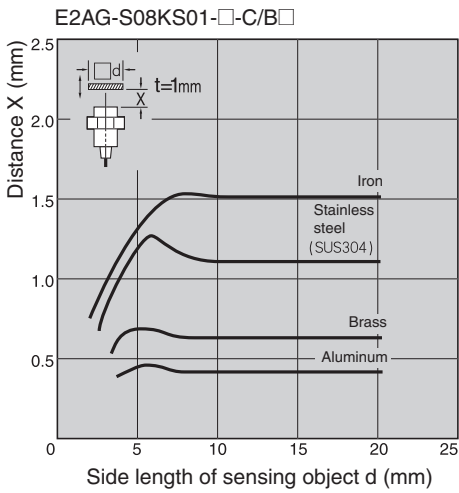


DC 3-wire models/unshielded

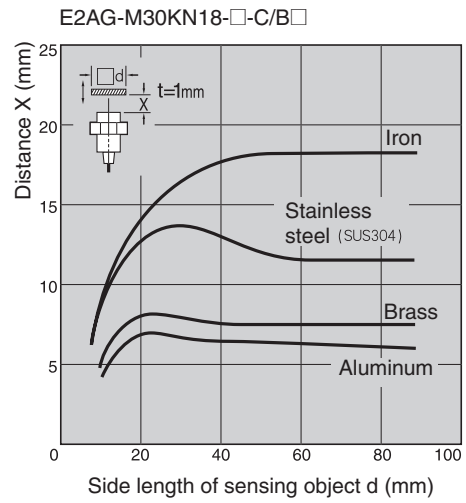
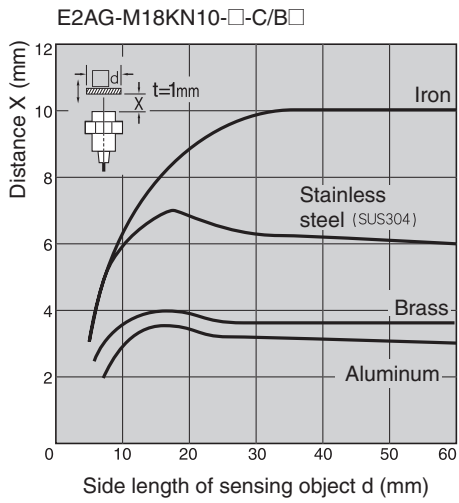
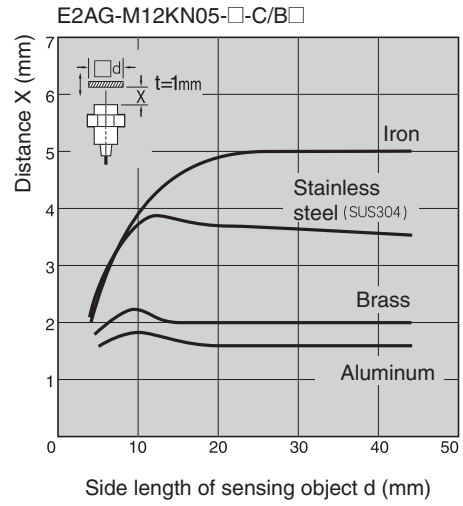
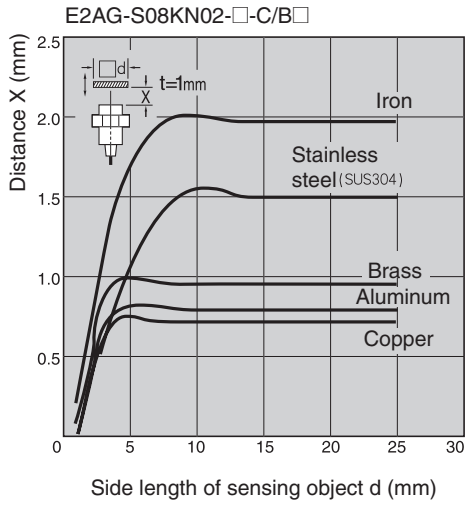


Influence of sensing object size and material

DC 3-wire models/shielded



DC 3-wire models/unshielded



Dimensions

(All units are millimeters unless particular indicated.)

Pre-wired models (shielded)

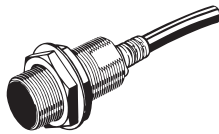
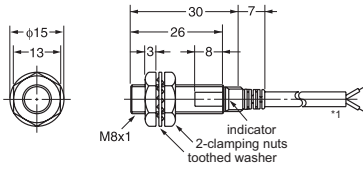


Fig. ① E2AG-S08KS01-WP-B



*1 PVC round insulated cable 3-wire dia-4 (cross section of conductor: 0.3mm²,insulator diameter: φ1.3mm)standard 2m cable.

Pre-wired models (unshielded)

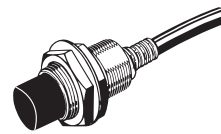
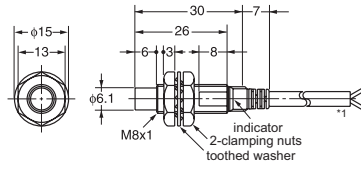
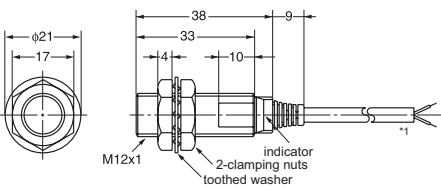


Fig. ② E2AG-S08KN02-WP-B



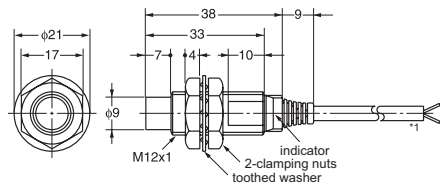
*1 PVC round insulated cable 3-wire dia-4 (cross section of conductor: 0.3mm²,insulator diameter: φ1.3mm)standard 2m cable.

Fig. ③ E2AG-M12KS02-WP-B



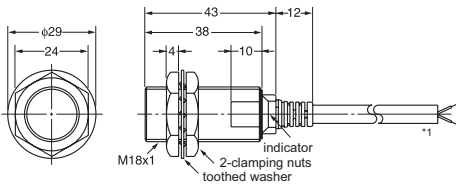
*1 PVC round insulated cable 3-wire dia-4 (cross section of conductor: 0.3mm²,insulator diameter: φ1.3mm)standard 2m cable.

Fig. ④ E2AG-M12KN05-WP-B



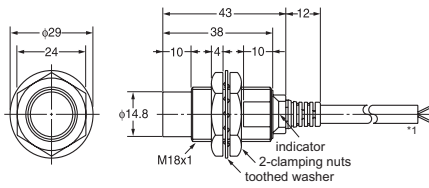
*1 PVC round insulated cable 3-wire dia-4 (cross section of conductor: 0.3mm²,insulator diameter: φ1.3mm)standard 2m cable.

Fig. ⑤ E2AG-M18KS05-WS-B



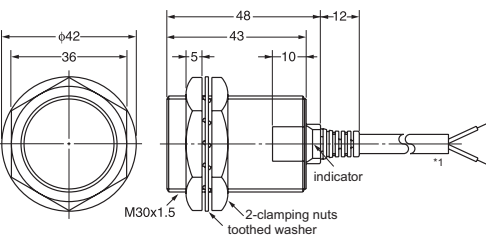
*1 PVC round insulated cable 3-wire dia-6 (cross section of conductor: 0.5mm²,insulator diameter: φ1.9mm)standard 2m cable.

Fig. ⑥ E2AG-M18KN10-WS-B



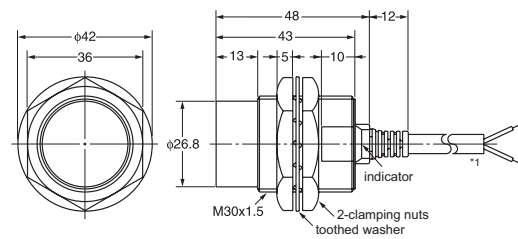
*1 PVC round insulated cable 3-wire dia-6 (cross section of conductor: 0.5mm²,insulator diameter: φ1.9mm)standard 2m cable.

Fig. ⑦ E2AG-M30KS10-WS-B



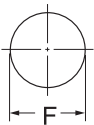
*1 PVC round insulated cable 3-wire dia-6 (cross section of conductor: 0.5mm²,insulator diameter: φ1.9mm)standard 2m cable.

Fig. ⑧ E2AG-M30KN18-WS-B



*1 PVC round insulated cable 3-wire dia-6 (cross section of conductor: 0.5mm²,insulator diameter: φ1.9mm)standard 2m cable.

Process Dimension Of Mounting Hole



Proximity Diameter	M8	M12	M18	M30
F Dimension (mm)	φ8.5 ^{+0.5} ₀	φ12.5 ^{+0.5} ₀	φ18.5 ^{+0.5} ₀	φ30.5 ^{+0.5} ₀

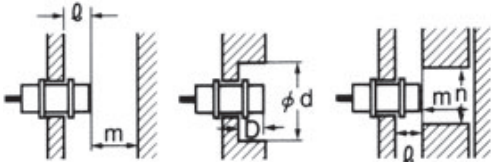
Output circuit

Output	Model	Operation mode	Timing chart	Output circuit
PNP Open collector output	E2AG-□-□-B1	NO	<p>Non-sensing zone Sensing zone</p> <p>Detection object</p> <p>(%) 100 0</p> <p>Rated detection distance</p> <p>Proximity switch</p> <p>ON OFF ON OFF</p> <p>Operation indicator (yellow)</p> <p>Output control</p>	<p>Brown ① +V</p> <p>Black ④ (or ②)</p> <p>Blue ③ 0V</p> <p>100Ω</p> <p>Proximity Sensor Main Circuit</p> <p>Load</p> <p>NOTE: ①②③④ are the pins' numbers of the Connector.</p>
	E2AG-□-□-B2	NC	<p>Non-sensing zone Sensing zone</p> <p>Detection object</p> <p>(%) 100 0</p> <p>Rated detection distance</p> <p>Proximity switch</p> <p>ON OFF ON OFF</p> <p>Operation indicator (yellow)</p> <p>Output control</p>	

Correct use

Effects of surrounding metal

Please keep the distance as the dimensions of the following chart away from the surrounding metal.



Model	Event	M8	M12	M18	M30
Shielded	ℓ	0			
	d	8	12	18	30
	D	0			
	m	4.5	8	20	40
	n	12	18	27	45
Unshielded	ℓ	6	15	22	30
	d	24	40	55	90
	D	6	15	22	30
	m	8	20	40	70
	n	34	36	54	90

(Unit:mm)

Precaution for safe use

Power supply voltage

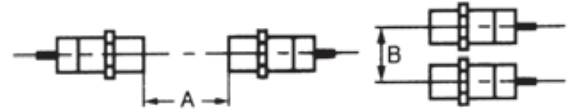
Do not use a voltage which exceeds the range of the rated voltage. Applying a voltage that is higher than the rated voltage or using an AC supply (220 V) for the sensor may cause sensor explosion or burning.

Load short-circuiting

Do not short-circuit the load, otherwise explosion or burning may occur. The load short-circuit protection function operates when the power supply is connected with the correct polarity and the power is within the rated voltage range.

Mutual interference

Please use the value shown as the following chart when the the products are oppsite or parallel configured.



Model	Event	M8	M12	M18	M30
Shielded	A	20	30(20)	50(30)	100(50)
	B	15	20(12)	35(18)	70(35)
Unshielded	A	80	120(60)	200(100)	300(100)
	B	60	100(50)	110(60)	200(100)

(Unit:mm)

Incorrect connection

Ensure that the power supply polarity and other wiring is correct, otherwise incorrect wiring may cause explosion or burning.

