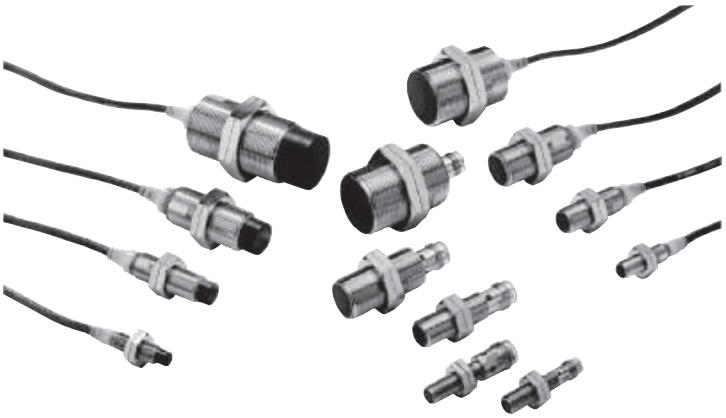
Extended sensing range inductive sensor in cylindrical brass housing

E2A

The high quality and the long-life design of the E2A extended sensing distance family provides high operational reliability, accurate performance and long sensor lifetime for a wide range of applications.

- Extended (double) sensing distance
- IP67 and IP69k for highest water protection
- DC 3-wire (NO, NC)
- Wide temperature range –40°c to 70°C
- 200 mA max load current
- Wide installation and connectivity range through modular concept



Ordering Information

Size		Sensing distance	Connection	Body material	Thread length (overall)	Output module	Operation mode NO	Operation mode NC
M8	Shielded	2.0 mm	Pre-wired	Stainless steel (SUS 303)	27 (40) mm	PNP	E2A-S08KS02-WP-B1 2M	E2A-S08KS02-WP-B2 2M
						NPN	E2A-S08KS02-WP-C1 2M	E2A-S08KS02-WP-C2 2M
					49 (62) mm	PNP	E2A-S08LS02-WP-B1 2M	E2A-S08LS02-WP-B2 2M
						NPN	E2A-S08LS02-WP-C1 2M	E2A-S08LS02-WP-C2 2M
			M12 connector		27 (43) mm	PNP	E2A-S08KS02-M1-B1	E2A-S08KS02-M1-B2
						NPN	E2A-S08KS02-M1-C1	E2A-S08KS02-M1-C2
					49 (65) mm	PNP	E2A-S08LS02-M1-B1	E2A-S08LS02-M1-B2
						NPN	E2A-S08LS02-M1-C1	E2A-S08LS02-M1-C2
			M8 connector (3-pin)		27 (39) mm	PNP	E2A-S08KS02-M5-B1	E2A-S08KS02-M5-B2
						NPN	E2A-S08KS02-M5-C1	E2A-S08KS02-M5-C2
					49 (61) mm	PNP	E2A-S08LS02-M5-B1	E2A-S08LS02-M5-B2
						NPN	E2A-S08LS02-M5-C1	E2A-S08LS02-M5-C2
			M8 connector (4-pin)		27 (39) mm	PNP	E2A-S08KS02-M3-B1	E2A-S08KS02-M3-B2
						NPN	E2A-S08KS02-M3-C1	E2A-S08KS02-M3-C2
					49 (61) mm	PNP	E2A-S08LS02-M3-B1	E2A-S08LS02-M3-B2
						NPN	E2A-S08LS02-M3-C1	E2A-S08LS02-M3-C2
	Non-shielded	4.0 mm	Pre-wired		27 (40) mm	PNP	E2A-S08KN04-WP-B1 2M	E2A-S08KN04-WP-B2 2M
						NPN	E2A-S08KN04-WP-C1 2M	E2A-S08KN04-WP-C2 2M
					49 (62) mm	PNP	E2A-S08LN04-WP-B1 2M	E2A-S08LN04-WP-B2 2M
						NPN	E2A-S08LN04-WP-C1 2M	E2A-S08LN04-WP-C2 2M
			M12 connector		27 (43) mm	PNP	E2A-S08KN04-M1-B1	E2A-S08KN04-M1-B2
						NPN	E2A-S08KN04-M1-C1	E2A-S08KN04-M1-C2
					49 (65) mm	PNP	E2A-S08LN04-M1-B1	E2A-S08LN04-M1-B2
						NPN	E2A-S08LN04-M1-C1	E2A-S08LN04-M1-C2
			M8 connector (3-pin)		27 (39) mm	PNP	E2A-S08KN04-M5-B1	E2A-S08KN04-M5-B2
						NPN	E2A-S08KN04-M5-C1	E2A-S08KN04-M5-C2
					49 (61) mm	PNP	E2A-S08LN04-M5-B1	E2A-S08LN04-M5-B2
						NPN	E2A-S08LN04-M5-C1	E2A-S08LN04-M5-C2
			M8 connector (4 pin)		27 (39) mm	PNP	E2A-S08KN04-M3-B1	E2A-S08KN04-M3-B2
						NPN	E2A-S08KN04-M3-C1	E2A-S08KN04-M3-C2
					49 (61) mm	PNP	E2A-S08LN04-M3-B1	E2A-S08LN04-M3-B2
						NPN	E2A-S08LN04-M3-C1	E2A-S08LN04-M3-C2

Size		Sensing distance	Connection	Body material	Thread length (overall)	Output module	Operation mode NO	Operation mode NC
M12	Shielded 	4.0 mm	Pre-wired 	Brass-nickel plated	34 (50) mm	PNP	E2A-M12KS04-WP-B1 2M	E2A-M12KS04-WP-B2 2M
						NPN	E2A-M12KS04-WP-C1 2M	E2A-M12KS04-WP-C2 2M
					56 (72) mm	PNP	E2A-M12LS04-WP-B1 2M	E2A-M12LS04-WP-B2 2M
						NPN	E2A-M12LS04-WP-C1 2M	E2A-M12LS04-WP-C2 2M
			M12 connector 		34 (48) mm	PNP	E2A-M12KS04-M1-B1	E2A-M12KS04-M1-B2
						NPN	E2A-M12KS04-M1-C1	E2A-M12KS04-M1-C2
					56 (70) mm	PNP	E2A-M12LS04-M1-B1	E2A-M12LS04-M1-B2
						NPN	E2A-M12LS04-M1-C1	E2A-M12LS04-M1-C2
			M8 connector (3-pin) 		34 (48) mm	PNP	E2A-M12KS04-M5-B1	E2A-M12KS04-M5-B2
						NPN	E2A-M12KS04-M5-C1	E2A-M12KS04-M5-C2
					56 (70) mm	PNP	E2A-M12LS04-M5-B1	E2A-M12LS04-M5-B2
						NPN	E2A-M12LS04-M5-C1	E2A-M12LS04-M5-C2
			M8 connector (4-pin) 		34 (48) mm	PNP	E2A-M12KS04-M3-B1	E2A-M12KS04-M3-B2
						NPN	E2A-M12KS04-M3-C1	E2A-M12KS04-M3-C2
					56 (70) mm	PNP	E2A-M12LS04-M3-B1	E2A-M12LS04-M3-B2
						NPN	E2A-M12LS04-M3-C1	E2A-M12LS04-M3-C2
	Non-shielded 	8.0 mm	Pre-wired 		34 (50) mm	PNP	E2A-M12KN08-WP-B1 2M	E2A-M12KN08-WP-B2 2M
						NPN	E2A-M12KN08-WP-C1 2M	E2A-M12KN08-WP-C2 2M
					56 (72) mm	PNP	E2A-M12LN08-WP-B1 2M	E2A-M12LN08-WP-B2 2M
						NPN	E2A-M12LN08-WP-C1 2M	E2A-M12LN08-WP-C2 2M
			M12 connector 		34 (48) mm	PNP	E2A-M12KN08-M1-B1	E2A-M12KN08-M1-B2
						NPN	E2A-M12KN08-M1-C1	E2A-M12KN08-M1-C2
					56 (70) mm	PNP	E2A-M12LN08-M1-B1	E2A-M12LN08-M1-B2
						NPN	E2A-M12LN08-M1-C1	E2A-M12LN08-M1-C2
			M8 connector (3-pin) 		34 (48) mm	PNP	E2A-M12KN08-M5-B1	E2A-M12KN08-M5-B2
						NPN	E2A-M12KN08-M5-C1	E2A-M12KN08-M5-C2
					56 (70) mm	PNP	E2A-M12LN08-M5-B1	E2A-M12LN08-M5-B2
						NPN	E2A-M12LN08-M5-C1	E2A-M12LN08-M5-C2
			M8 connector (4-pin) 		34 (48) mm	PNP	E2A-M12KN08-M3-B1	E2A-M12KN08-M3-B2
						NPN	E2A-M12KN08-M3-C1	E2A-M12KN08-M3-C2
					56 (70) mm	PNP	E2A-M12LN08-M3-B1	E2A-M12LN08-M3-B2
						NPN	E2A-M12LN08-M3-C1	E2A-M12LN08-M3-C2
M18	Shielded 	8.0 mm	Pre-wired 		39 (59) mm	PNP	E2A-M18KS08-WP-B1 2M	E2A-M18KS08-WP-B2 2M
						NPN	E2A-M18KS08-WP-C1 2M	E2A-M18KS08-WP-C2 2M
					61 (81) mm	PNP	E2A-M18LS08-WP-B1 2M	E2A-M18LS08-WP-B2 2M
						NPN	E2A-M18LS08-WP-C1 2M	E2A-M18LS08-WP-C2 2M
			M12 connector 		39 (53) mm	PNP	E2A-M18KS08-M1-B1	E2A-M18KS08-M1-B2
						NPN	E2A-M18KS08-M1-C1	E2A-M18KS08-M1-C2
					61 (75) mm	PNP	E2A-M18LS08-M1-B1	E2A-M18LS08-M1-B2
						NPN	E2A-M18LS08-M1-C1	E2A-M18LS08-M1-C2
			M8 connector (3-pin) 		39 (53) mm	PNP	E2A-M18KS08-M5-B1	E2A-M18KS08-M5-B2
						NPN	E2A-M18KS08-M5-C1	E2A-M18KS08-M5-C2
					61 (75) mm	PNP	E2A-M18LS08-M5-B1	E2A-M18LS08-M5-B2
						NPN	E2A-M18LS08-M5-C1	E2A-M18LS08-M5-C2
			M8 connector (4-pin) 		39 (53) mm	PNP	E2A-M18KS08-M3-B1	E2A-M18KS08-M3-B2
						NPN	E2A-M18KS08-M3-C1	E2A-M18KS08-M3-C2
					61 (75) mm	PNP	E2A-M18LS08-M3-B1	E2A-M18LS08-M3-B2
						NPN	E2A-M18LS08-M3-C1	E2A-M18LS08-M3-C2
	Non-shielded 	16.0 mm	Pre-wired 		39 (59) mm	PNP	E2A-M18KN16-WP-B1 2M	E2A-M18KN16-WP-B2 2M
						NPN	E2A-M18KN16-WP-C1 2M	E2A-M18KN16-WP-C2 2M
					61 (81) mm	PNP	E2A-M18LN16-WP-B1 2M	E2A-M18LN16-WP-B2 2M
						NPN	E2A-M18LN16-WP-C1 2M	E2A-M18LN16-WP-C2 2M
			M12 connector 		39 (53) mm	PNP	E2A-M18KN16-M1-B1	E2A-M18KN16-M1-B2
						NPN	E2A-M18KN16-M1-C1	E2A-M18KN16-M1-C2
					61 (75) mm	PNP	E2A-M18LN16-M1-B1	E2A-M18LN16-M1-B2
						NPN	E2A-M18LN16-M1-C1	E2A-M18LN16-M1-C2
			M8 connector (3-pin) 		39 (53) mm	PNP	E2A-M18KN16-M5-B1	E2A-M18KN16-M5-B2
						NPN	E2A-M18KN16-M5-C1	E2A-M18KN16-M5-C2
					61 (75) mm	PNP	E2A-M18LN16-M5-B1	E2A-M18LN16-M5-B2
						NPN	E2A-M18LN16-M5-C1	E2A-M18LN16-M5-C2
			M8 connector (4-pin) 		39 (53) mm	PNP	E2A-M18KN16-M3-B1	E2A-M18KN16-M3-B2
						NPN	E2A-M18KN16-M3-C1	E2A-M18KN16-M3-C2
					61 (75) mm	PNP	E2A-M18LN16-M3-B1	E2A-M18LN16-M3-B2
						NPN	E2A-M18LN16-M3-C1	E2A-M18LN16-M3-C2

Size		Sensing distance	Connection	Body material	Thread length (overall)	Output module	Operation mode NO	Operation mode NC
M30	Shielded 	15.0 mm	Pre-wired 	Brass-nickel plated	44 (64) mm	PNP	E2A-M30KS15-WP-B1 2M	E2A-M30KS15-WP-B2 2M
						NPN	E2A-M30KS15-WP-C1 2M	E2A-M30KS15-WP-C2 2M
					66 (86) mm	PNP	E2A-M30LS15-WP-B1 2M	E2A-M30LS15-WP-B2 2M
						NPN	E2A-M30LS15-WP-C1 2M	E2A-M30LS15-WP-C2 2M
			M12 connector 		44 (58) mm	PNP	E2A-M30KS15-M1-B1	E2A-M30KS15-M1-B2
						NPN	E2A-M30KS15-M1-C1	E2A-M30KS15-M1-C2
					66 (80) mm	PNP	E2A-M30LS15-M1-B1	E2A-M30LS15-M1-B2
						NPN	E2A-M30LS15-M1-C1	E2A-M30LS15-M1-C2
			M8 connector (3-pin) 		44 (58) mm	PNP	E2A-M30KS15-M5-B1	E2A-M30KS15-M5-B2
						NPN	E2A-M30KS15-M5-C1	E2A-M30KS15-M5-C2
					66 (80) mm	PNP	E2A-M30LS15-M5-B1	E2A-M30LS15-M5-B2
						NPN	E2A-M30LS15-M5-C1	E2A-M30LS15-M5-C2
			M8 connector (4-pin) 		44 (58) mm	PNP	E2A-M30KS15-M3-B1	E2A-M30KS15-M3-B2
						NPN	E2A-M30KS15-M3-C1	E2A-M30KS15-M3-C2
					66 (80) mm	PNP	E2A-M30LS15-M3-B1	E2A-M30LS15-M3-B2
						NPN	E2A-M30LS15-M3-C1	E2A-M30LS15-M3-C2
	Non-shielded 	20.0 mm	Pre-wired 		44 (64) mm	PNP	E2A-M30KN20-WP-B1 2M	E2A-M30KN20-WP-B2 2M
						NPN	E2A-M30KN20-WP-C1 2M	E2A-M30KN20-WP-C2 2M
		30.0 mm			66 (86) mm	PNP	E2A-M30LN30-WP-B1 2M	E2A-M30LN30-WP-B2 2M
						NPN	E2A-M30LN30-WP-C1 2M	E2A-M30LN30-WP-C2 2M
		20.0 mm	M12 connector 		44 (58) mm	PNP	E2A-M30KN20-M1-B1	E2A-M30KN20-M1-B2
						NPN	E2A-M30KN20-M1-C1	E2A-M30KN20-M1-C2
		30.0 mm			66 (80) mm	PNP	E2A-M30LN30-M1-B1	E2A-M30LN30-M1-B2
						NPN	E2A-M30LN30-M1-C1	E2A-M30LN30-M1-C2
		20.0 mm	M8 connector (3-pin) 		44 (58) mm	PNP	E2A-M30KN20-M5-B1	E2A-M30KN20-M5-B2
						NPN	E2A-M30KN20-M5-C1	E2A-M30KN20-M5-C2
		30.0 mm			66 (80) mm	PNP	E2A-M30LN30-M5-B1	E2A-M30LN30-M5-B2
						NPN	E2A-M30LN30-M5-C1	E2A-M30LN30-M5-C2
		20.0 mm	M8 connector (4-pin) 		44 (58) mm	PNP	E2A-M30KN20-M3-B1	E2A-M30KN20-M3-B2
						NPN	E2A-M30KN20-M3-C1	E2A-M30KN20-M3-C2
		30.0 mm			66 (80) mm	PNP	E2A-M30LN30-M3-B1	E2A-M30LN30-M3-B2
						NPN	E2A-M30LN30-M3-C1	E2A-M30LN30-M3-C2

Note: M30 non-shielded Models with double sensing distance and short barrels cannot be mounted due to the necessary separation distance from the surrounding metal. Standard sensing models are thus available.

Model Number Legend

E2A□-□□□□□-□-□□-□□

1 2 3 4 5 6 7 8 9 10 11 12

Example: E2A-M12LS04-M1-B1 Standard, M12, long barrel, shielded, Sn=4 mm, M12 connector, PNP-NO

E2A-S08KN04-WP-B1 5M Standard, M8 stainless steel, short barrel, non-shielded, Sn=4 mm, pre-wired PVC cable, PNP-NO, cable length=5 m

1. Basic name

E2A

2. Sensing technology

Blank: General purpose

non-blank: special purpose

3. Housing shape and material

M: Cylindrical, metric threaded, brass

S: Cylindrical, metric threaded, stainless steel

4. Housing size

08: 8 mm

12: 12 mm

18: 18 mm

30: 30 mm

5. Barrel length

K: Standard length

L: Long body

6. Models/mounting

S: Shielded/flush mounting 

N: Non-shielded/non-flush mounting 

7. Sensing distance

Numeral: Sensing distance: e.g. 02=2 mm, 16=16 mm

8. Kind of connection

WP: pre-wired, PVC, dia 4mm (standard)

WS: pre-wired, PVC, dia 6mm

WR: pre-wired, PVC, robotic cable, dia 4mm

WA: pre-wired, PUR/PVC (PUR jacket), dia 4mm

WB: pre-wired, PUR/PVC (PUR jacket), dia 6mm

M1: M12 connector (4 pin)

M3: M8 connector (4 pin)

M5: M8 connector (3 pin)

M1J pre-wired with M12 cable end connector (4 pin)

M3J pre-wired with M8 cable end connector (4 pin)

M5J pre-wired with M8 cable end connector (3 pin)

9. Output

B: DC, 3-wire, PNP open collector

C: DC, 3-wire, NPN open collector

E: DC, 3-wire, NPN voltage output

F: DC, 3-wire, PNP voltage output

10. Operation mode

1: Normally open (NO)

2: Normally closed (NC)

11. Specials

12. Cable length

Blank: Connector type

Numeral: Cable length

Specification

Size		M8		M12	
Type		Shielded	Non-shielded	Shielded	Non-shielded
	Item	E2A-S08□S	E2A-S08□N	E2A-M12□S	E2A-M12□N
Sensing distance		2 mm ± 10%	4 mm ± 10%	4 mm ± 10%	8 mm ± 10%
Setting distance		0 to 1.6 mm	0 to 3.2 mm	0 to 3.2 mm	0 to 6.4 mm
Differential travel		10% max. of sensing distance			
Target		Ferrous metal (The sensing distance decreases with non-ferrous metal.)			
Standard target (mild steel ST37)		8×8×1 mm	12×12×1 mm	12×12×1 mm	24×24×1 mm
Response frequency (See note 1.)		1,500 Hz	1,000 Hz	1,000 Hz	800 Hz
Power supply voltage (operating voltage range)		12 to 24 VDC. Ripple (p-p): 10% max. (10 to 32 VDC)			
Current consumption (DC 3-wire)		10 mA max.			
Output type		-B models: PNP open collector -C models: NPN open collector			
Control output	Load current (See note 2.)	200 mA max. (32 VDC max.)			
	Residual voltage	2 V max. (under load current of 200 mA with cable length of 2 m)			
Indicator		Operation indicator (Yellow LED)			
Operation mode (with sensing object approaching)		-B1/-C1 models: NO -B2/-C2 models: NC For details, refer to the timing charts.			
Protection circuit		Power source circuit reverse polarity protection, Surge suppressor, Short-circuit protection		Output reverse polarity protection, Power source circuit reverse polarity protection, Surge suppressor, Short-circuit protection	
Ambient air temperature		Operating: −40°C to 70°C, Storage: −40°C to 85°C (with no icing or condensation)			
Temperature influence (See note 2.)		±10% max. of sensing distance at 23°C within temperature range of −25°C to 70°C ±15% max. of sensing distance at 23°C within temperature range of −40°C to 70°C			
Ambient humidity		Operating: 35% to 95%, Storage: 35% to 95%			
Voltage influence		±1% 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 at 50/60 Hz for 1 min between current carry parts and case			
Vibration resistance		10 to 55 Hz, 1.5-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	
Standard and listings (See note 3.)		IP67 after IEC 60529 IP69k after DIN 40050 EMC after EN60947-5-2			
Weight (packaged)	Pre-wired model	Approx. 65 g		Approx. 85 g	
	Connector model	M12 connector models: Approx. 20 g M8 connector models: Approx. 15 g		Approx. 35 g	
Material	Case	Stainless steel		Brass-nickel plated	
	Sensing surface	PBT			
	Cable	-WP: dia 4mm PVC cable (standard cable length is 2m. For other cable lengths and materials refer to model number legend or contact your OMRON representative)			
	Clamping nut	Brass-nickel plated			

Note 1. The response frequency is an average value. Measurement conditions are as follows: standard target, a distance of twice the standard target distance between targets, and a setting distance of half the sensing distance.

2. When using any model at an ambient temperature between −40°C and −25°C and a power voltage between 30 and 32 VDC, use a load current of 100 mA max.,

3. For USA and Canada: use class 2 circuit only

Size		M18		M30		
Type		Shielded	Non-shielded	Shielded	Non-shielded	Non-shielded
Item		E2A-M18□S	E2A-M18□N	E2A-M30□S	E2A-M30KN20	E2A-M30LN30
Sensing distance		8 mm±10%	16 mm±10%	15 mm±10%	20 mm±10%	30 mm±10%
Setting distance		0 to 6.4 mm	0 to 12.8 mm	0 to 12 mm	0 to 16 mm	0 to 24 mm
Differential travel		10% max. of sensing distance				
Target		Ferrous metal (The sensing distance decreases with non-ferrous metal.)				
Standard target (mild steel ST37)		24×24×1 mm	48×48×1 mm	45×45×1 mm	60×60×1 mm	90×90×1 mm
Response frequency (See note 1.)		500 Hz	400 Hz	250 Hz	100 Hz	100 Hz
Power supply voltage (operating voltage range)		12 to 24 VDC. Ripple (p-p): 10% max. (10 to 32 VDC)				
Current consumption (DC 3-wire)		10 mA max.				
Output type		-B models: PNP open collector -C models: NPN open collector				
Control output	Load current (See note 2.)	200 mA max. (32 VDC max.)				
	Residual voltage	2 V max. (under load current of 200 mA with cable length of 2 m)				
Indicator		Operation indicator (Yellow LED)				
Operation mode (with sensing object approaching)		-B1/-C1 models: NO -B2/-C2 models: NC For details, refer to the timing charts.				
Protection circuit		Output reverse polarity protection, Power source circuit reverse polarity protection, Surge suppressor, Short-circuit protection				
Ambient air temperature		Operating: −40°C to 70°C, Storage: −40°C to 85°C (with no icing or condensation)				
Temperature influence (See note 2.)		±10% max. of sensing distance at 23°C within temperature range of −25°C to 70°C ±15% max. of sensing distance at 23°C within temperature range of −40°C to 70°C				
Ambient humidity		Operating: 35% to 95%, Storage: 35% to 95%				
Voltage influence		±1% 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 at 50/60 Hz for 1 min between current carry parts and case				
Vibration resistance		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y and Z directions				
Shock resistance		1,000 m/s^2, 10 times each in X, Y and Z directions				
Standard and listings (See note 3.)		IP67 after IEC 60529 IP69k after DIN 40050 EMC after EN60947-5-2				
Weight (packaged)	Pre-wired model	Approx. 160 g		Approx. 280 g	Approx. 280 g	Approx. 370 g
	Connector model	Approx. 70 g		Approx. 200 g	Approx. 200 g	Approx. 260 g
Material	Case	Brass-nickel plated				
	Sensing surface	PBT				
	Cable	-WP: dia 4mm PVC cable (standard cable length is 2 m. For other cable lengths and materials refer to model number legend or contact your OMRON representative)				
	Clamping nut	Brass-nickel plated				

Note 1. The response frequency is an average value. Measurement conditions are as follows: standard target, a distance of twice the standard target distance between targets, and a setting distance of half the sensing distance.

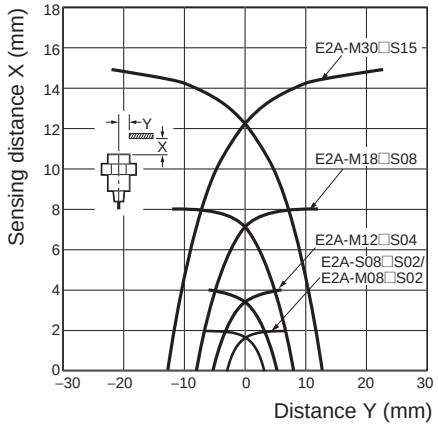
2. When using any model at an ambient temperature between −40°C and −25°C and a power voltage between 30 and 32 VDC, use a load current of 100 mA max.

3. For USA and Canada: use class 2 circuit only

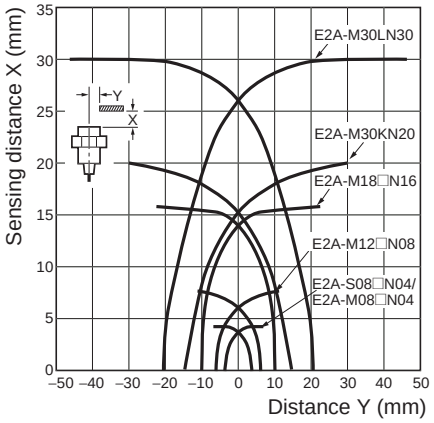
Engineering Data

Operating Range (Typical)

Shielded Models



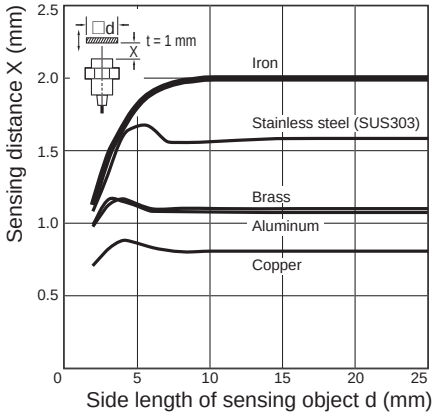
Non-shielded Models



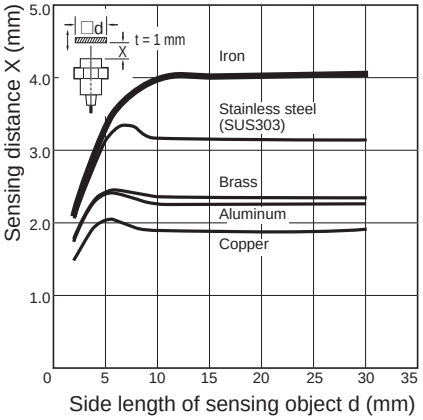
Influence of Sensing Object Size and Materials

Shielded Models

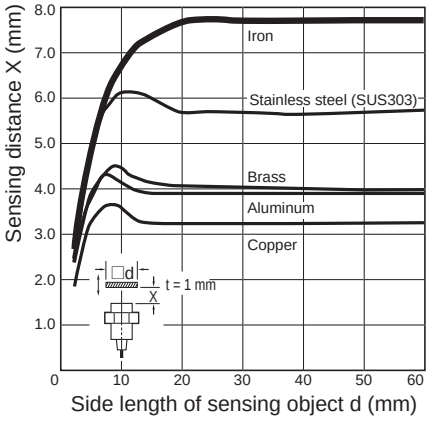
E2A-S08□S02



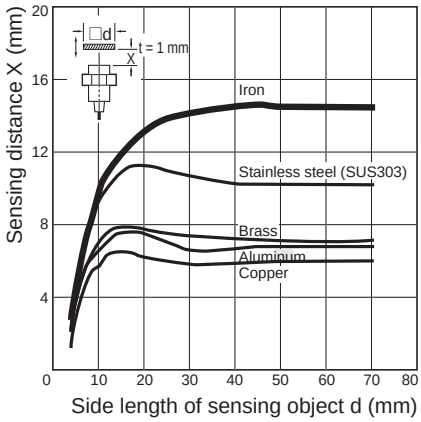
E2A-M12□S04



E2A-M18□S08

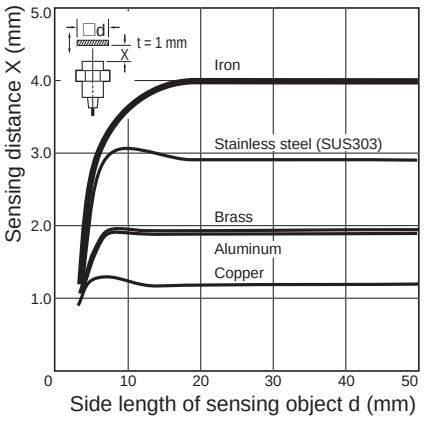


E2A-M30□S15

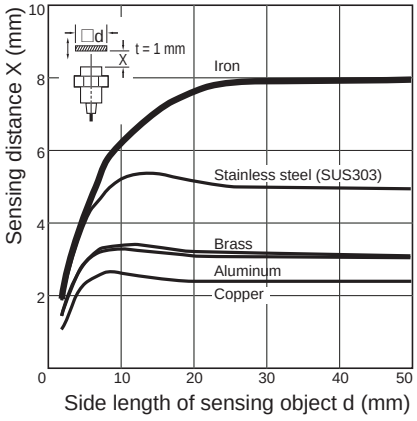


Non-shielded Models

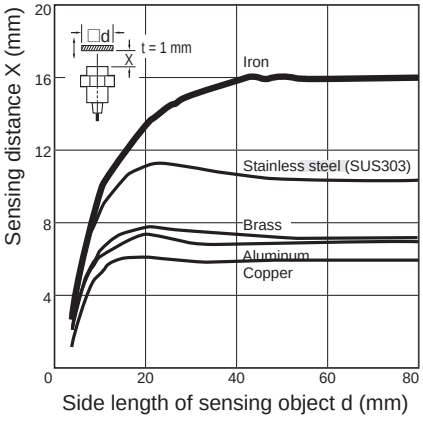
E2A-S08□N04



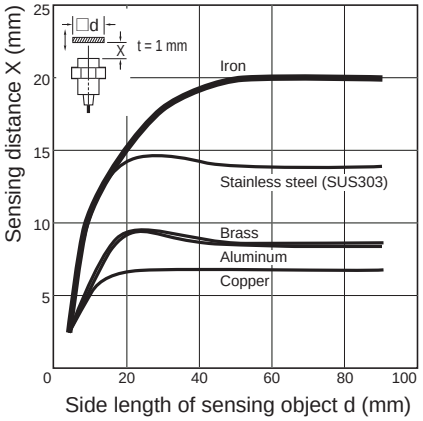
E2A-M12□N08



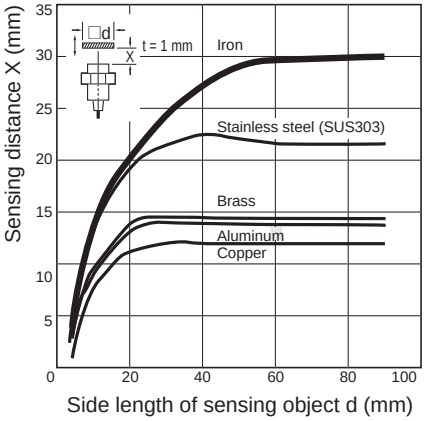
E2A-M18□N16



E2A-M30KN20

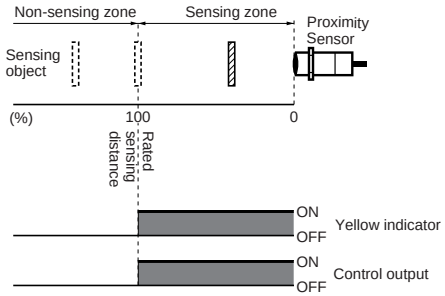
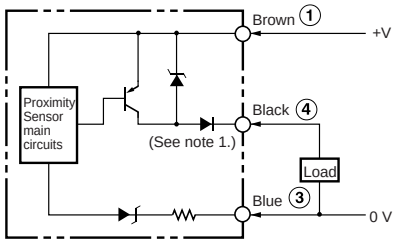


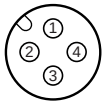
E2A-M30LN30

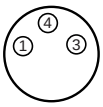


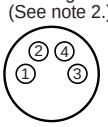
Operation

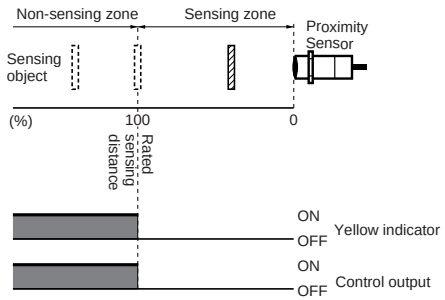
PNP Output

<table>
<tr><th>Operation mode</th><th>Model</th><th>Timing chart</th><th>Output circuit</th></tr>
<tr>
<td>NO</td>
<td>E2A-□-□-B1</td>
<td> 
</td>
<td> 

Note 1: With M8 connector models, there is no output reverse polarity protection diode.
M12 Connector Pin Arrangement (See note 2.)


M8 connector (3 pin) Pin Arrangement


M8 Connector (4 pin) Pin Arrangement (See note 2.)


Note 2: Pin 2 of the M12 connector and M8 connector is not used.</td>
</tr>
<tr>
<td>NC</td>
<td>E2A-□-□-B2</td>
<td> 
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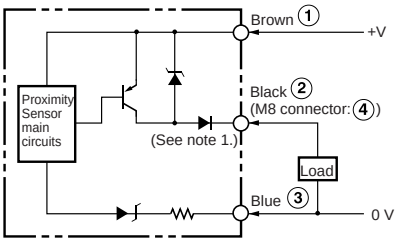
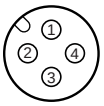
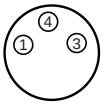
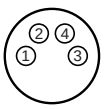
<td> 

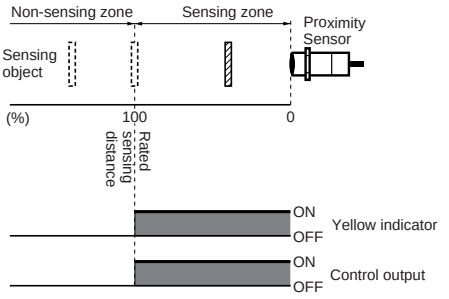
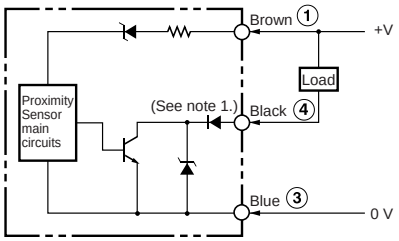
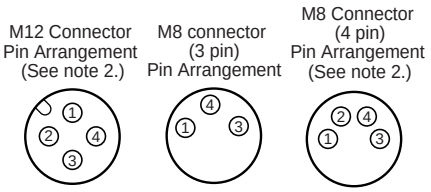
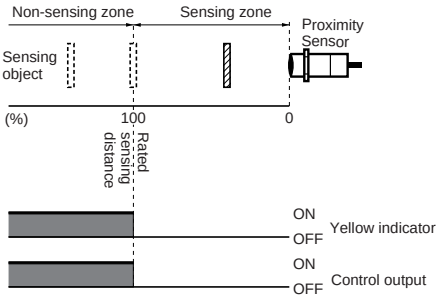
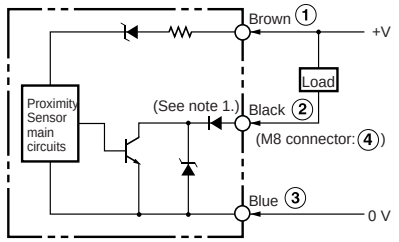
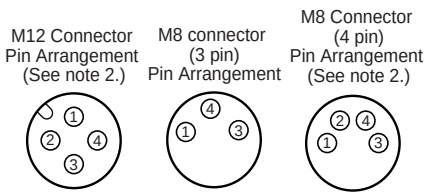
Note 1: With M8 connector models, there is no output reverse polarity protection diode.
M12 Connector Pin Arrangement (See note 2.)


M8 connector (3 pin) Pin Arrangement


M8 Connector (4 pin) Pin Arrangement (See note 2.)


Note 2: Pin 4 of the M12 connector and M8 connector is not used.</td>
</tr>
</table>

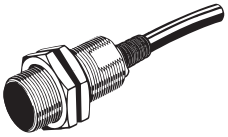
NPN Output

Operation mode	Model	Timing chart	Output circuit
NO	E2A-□-□-C1		 **Note 1:** With M8 connector models, there is no output reverse polarity protection diode.  **Note 2:** Pin 2 of the M12 connector and M8 connector is not used.
NC	E2A-□-□-C2		 **Note 1:** With M8 connector models, there is no output reverse polarity protection diode.  **Note 2:** Pin 4 of the M12 connector and M8 connector is not used.

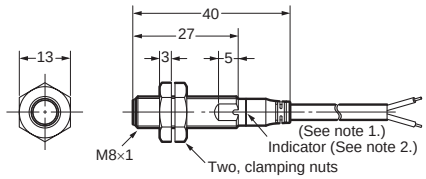
Dimensions

Note: All units are in millimeters unless otherwise indicated.

Pre-wired Models (Shielded)

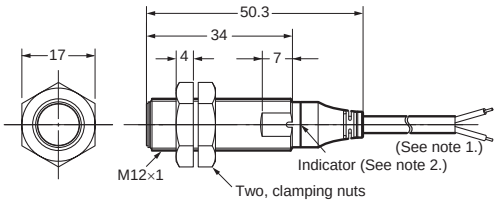


E2A-S08KS02-WP-□□



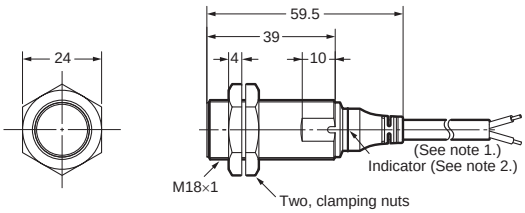
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M12KS04-WP-□□



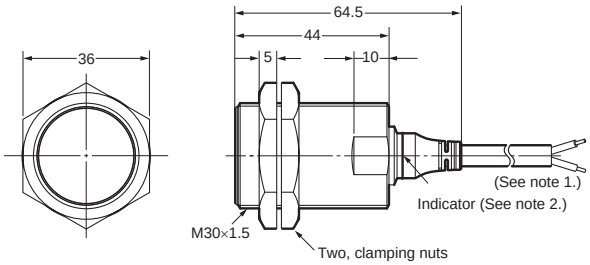
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)
3. for NO+NC (-B3 / -C3) models the total length is 4 mm longer

E2A-M18KS08-WP-□□



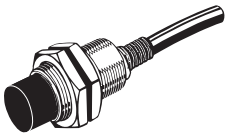
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M30KS15-WP-□□

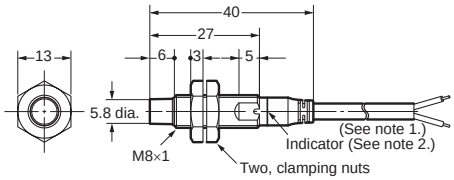


Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

Pre-wired Models (Non-shielded)

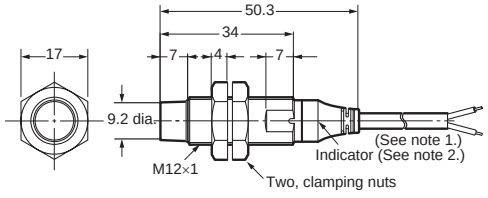


E2A-S08KN04-WP-□□



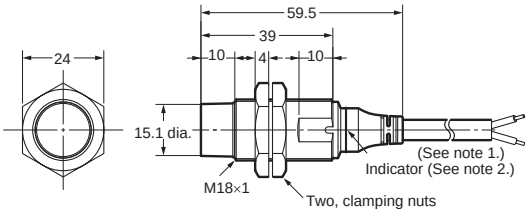
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M12KN08-WP-□□



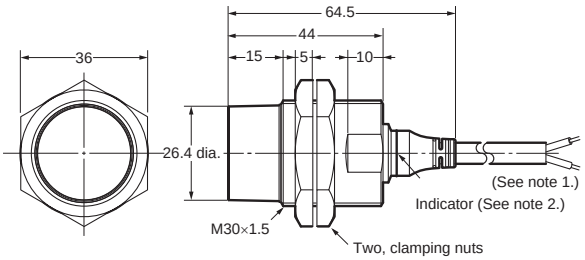
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)
3. for NO+NC (-B3 / -C3) models the total length is 4 mm longer

E2A-M18KN16-WP-□□



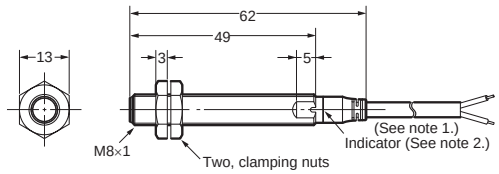
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M30KN20-WP-□□



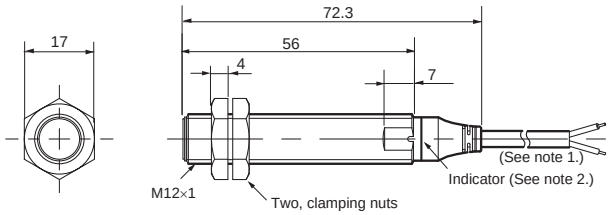
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S08LS02-WP-□□



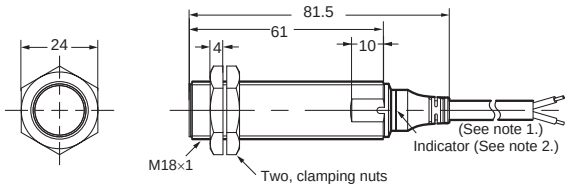
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M12LS04-WP-□□



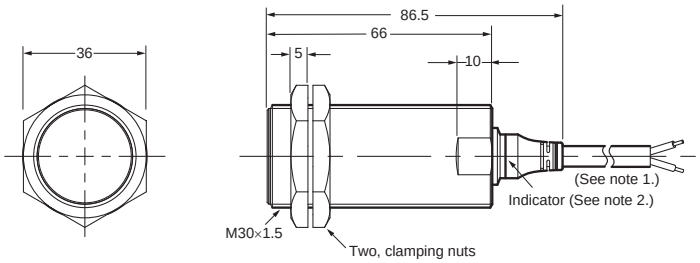
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M18LS08-WP-□□



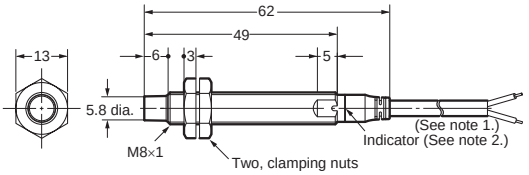
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M30LS15-WP-□□



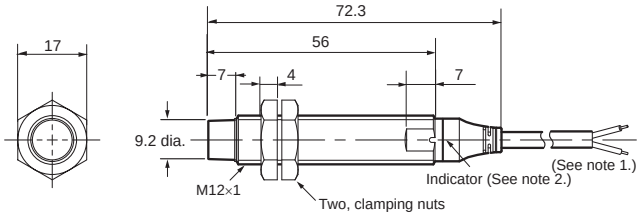
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S08LN04-WP-□□



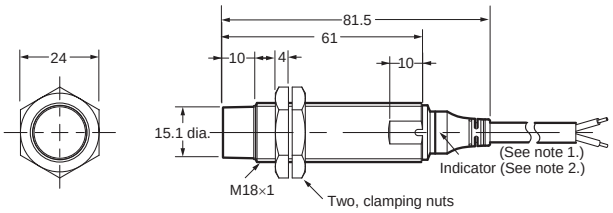
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M12LN08-WP-□□



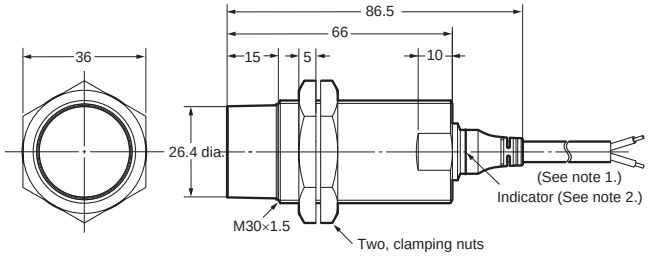
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M18LN16-WP-□□



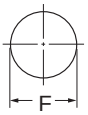
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-M30LN30-WP-□□



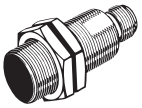
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm2; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

Mounting Hole Cutout Dimensions

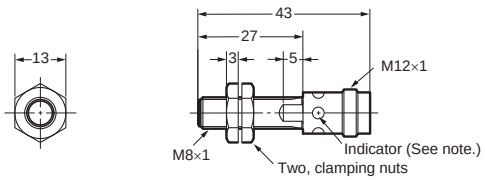


External diameter of Proximity Sensor	Dimension F (mm)
M8	8.5 dia.$^{+0.5}_{0}$
M12	12.5 dia.$^{+0.5}_{0}$
M18	18.5 dia.$^{+0.5}_{0}$
M30	30.5 dia.$^{+0.5}_{0}$

M12 Connector Models (Shielded)

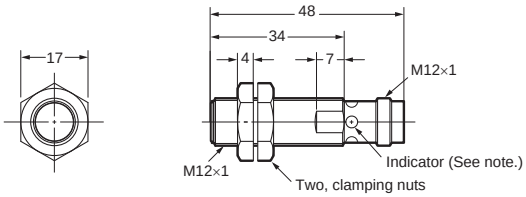


E2A-S08KS02-M1-□□



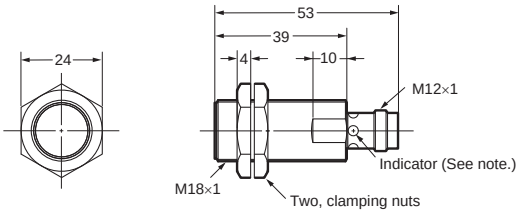
Note: Operation indicator (yellow LED, 4×90°)

E2A-M12KS04-M1-□□



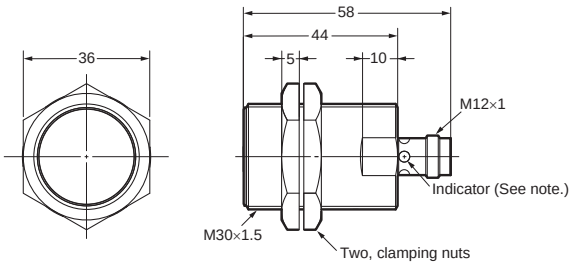
Note 1: Operation indicator (yellow LED, 4×90°)
Note 2: for NO+NC (-B3 / -C3) models the total length is 4 mm longer

E2A-M18KS08-M1-□□



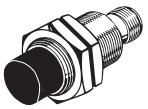
Note: Operation indicator (yellow LED, 4×90°)

E2A-M30KS15-M1-□□

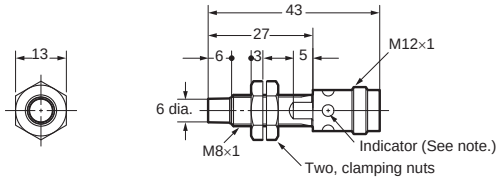


Note: Operation indicator (yellow LED, 4×90°)

M12 Connector Models (Non-shielded)

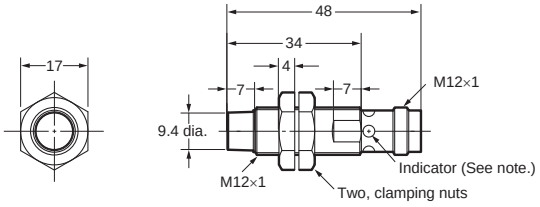


E2A-S08KN04-M1-□□



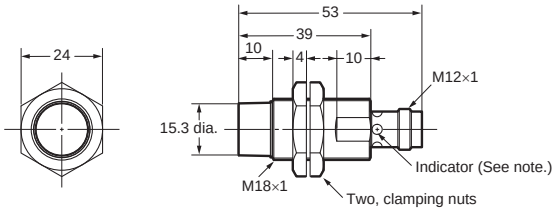
Note: Operation indicator (yellow LED, 4×90°)

E2A-M12KN08-M1-□□



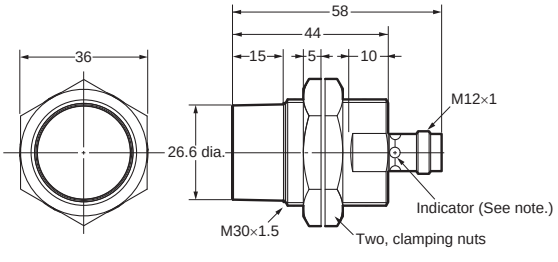
Note 1: Operation indicator (yellow LED, 4×90°)
Note 2: for NO+NC (-B3 / -C3) models the total length is 4 mm longer

E2A-M18KN16-M1-□□



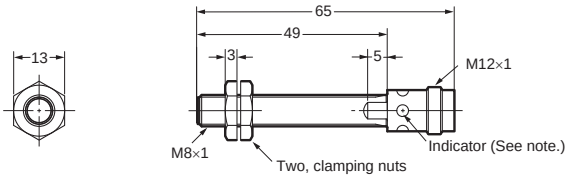
Note: Operation indicator (yellow LED, 4×90°)

E2A-M30KN20-M1-□□



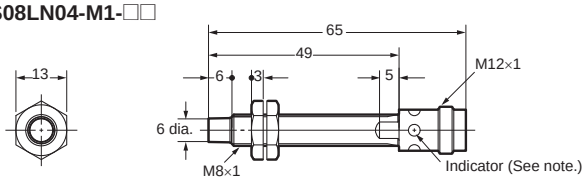
Note: Operation indicator (yellow LED, 4×90°)

E2A-S08LS02-M1-□□



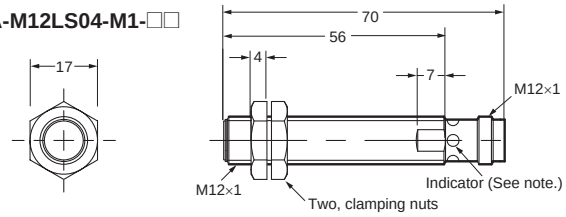
Note: Operation indicator (yellow LED, 4×90°)

E2A-S08LN04-M1-□□



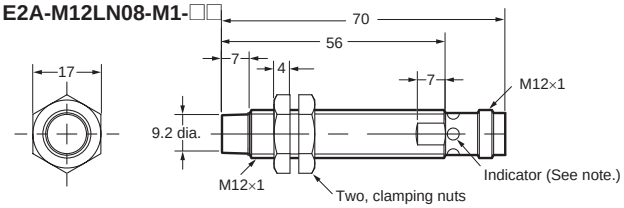
Note: Operation indicator (yellow LED, 4×90°)

E2A-M12LS04-M1-□□



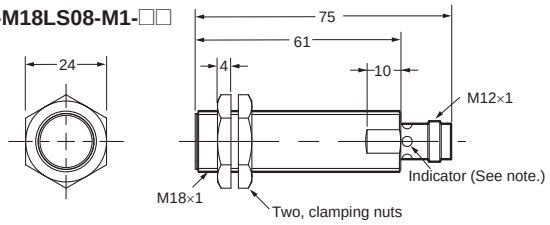
Note: Operation indicator (yellow LED, 4×90°)

E2A-M12LN08-M1-□□



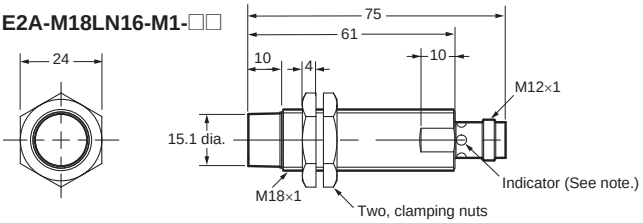
Note: Operation indicator (yellow LED, 4×90°)

E2A-M18LS08-M1-□□



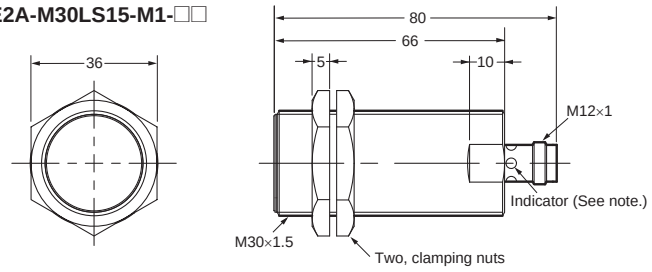
Note: Operation indicator (yellow LED, 4×90°)

E2A-M18LN16-M1-□□



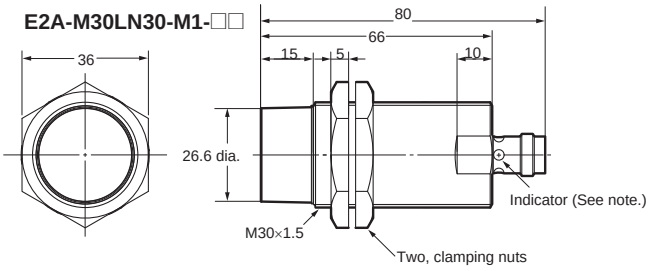
Note: Operation indicator (yellow LED, 4×90°)

E2A-M30LS15-M1-□□



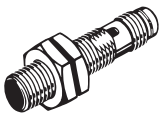
Note: Operation indicator (yellow LED, 4×90°)

E2A-M30LN30-M1-□□

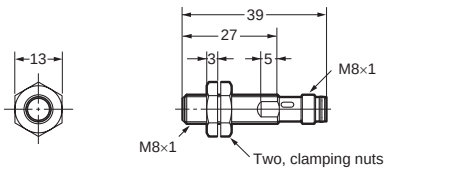


Note: Operation indicator (yellow LED, 4×90°)

M8 Connector Models (Shielded)

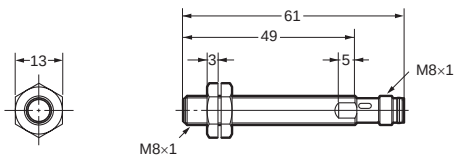


E2A-S08KS02-M5-□□



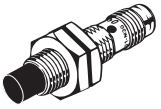
Note: Operation indicator (yellow LED, 4×90°)

E2A-S08LS02-M5-□□

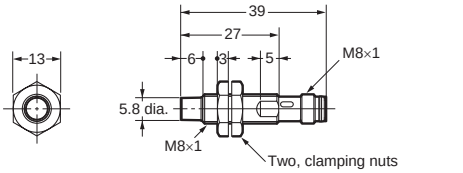


Note: Operation indicator (yellow LED, 4×90°)

M8 Connector Models (Non-shielded)

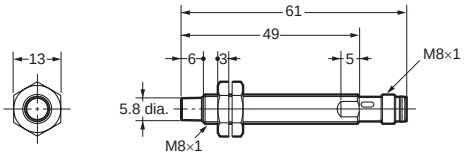


E2A-S08KN04-M5-□□



Note: Operation indicator (yellow LED, 4×90°)

E2A-S08LN04-M5-□□



Note: Operation indicator (yellow LED, 4×90°)

Note: Please contact your OMRON sales representative for dimension drawings not listed here.

Precautions

Safety Precautions

Power Supply

Do not impose an excessive voltage on the E2A, otherwise it may be damaged. Do not impose AC current (100 to 240 VAC) on any DC model, otherwise it may be damaged.

Load Short-circuit

Do not short-circuit the load, or the E2A may be damaged.

The E2A's short-circuit protection function will be valid if the polarity of the supply voltage imposed is correct and within the rated voltage range.

Wiring

Be sure to wire the E2A and load correctly, otherwise it may be damaged.

Connection with No Load

Be sure to insert loads when wiring. Make sure to connect a proper load to the E2A in operation, otherwise it may damage internal elements.

Do not expose the product to flammable or explosive gases.

Do not disassemble, repair, or modify the product.

Correct Use

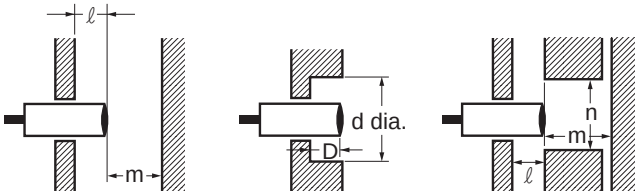
Designing

Power Reset Time

The Proximity Sensor is ready to operate within 100 ms after power is supplied. If power supplies are connected to the Proximity Sensor and load respectively, be sure to supply power to the Proximity Sensor before supplying power to the load.

Effects of Surrounding Metal

When mounting the E2A within a metal panel, ensure that the clearances given in the following table are maintained.



(Unit: mm)

Type	Dimension	M8	M12	M18	M30	
					Short barrel	Long barrel
Shielded	l	0	0	0 (See note 1.)	0 (See note 2.)	
	m	4.5	12	24	45	
	d	---	---	27	45	
	D	0	0	1.5	4	
	n	12	18	27	45	
Non-shielded	l	12	15	22	30	40
	m	8	20	48	70	90
	d	24	40	70	90	120
	D	12	15	22	30	40
	n	24	40	70	90	120

Note **1.** In the case of using the supplied nuts.
If true flash mounting is necessary, apply a free zone of 1.5 mm.

2. In the case of using the supplied nuts.
If true flush mounting is necessary, apply a free zone of 4 mm.

Power OFF

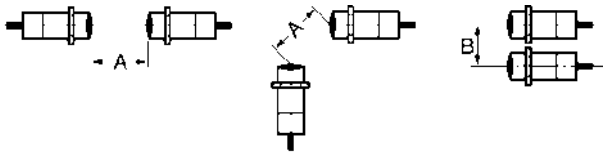
The Proximity Sensor may output a pulse signal when it is turned OFF. Therefore, it is recommended that the load be turned OFF before turning OFF the Proximity Sensor.

Power Supply Transformer

When using a DC power supply, make sure that the DC power supply has an insulated transformer. Do not use a DC power supply with an auto-transformer.

Mutual Interference

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



(Unit: mm)

Type	Dimension	M8	M12	M18	M30	
					Short barrel	Long barrel
Shielded	A	20	30	60	110	
	B	15	20	35	70	
Non-shielded	A	80	120	200	300	300
	B	60	100	120	200	300

Wiring

High-tension Lines

Wiring through Metal Conduit**:**
If there is a power or high-tension line near the cable of the Proximity Sensor, wire the cable through an independent metal conduit to prevent against Proximity Sensor damage or malfunctioning.

Cable Extension

Standard cable length is less than 200 m.

The tractive force is 50 N.

Mounting

The Proximity Sensor must not be subjected to excessive shock with a hammer when it is installed, otherwise the Proximity Sensor may be damaged or lose its water-resistivity.

Do not tighten the nut with excessive force. A washer must be used with the nut.

Type		Torque
M8	Stainless steel type	9 Nm
	Brass type	4 Nm
M12		30 Nm
M18		70 Nm
M30		180 Nm

Maintenance and Inspection

Periodically perform the following checks to ensure stable operation of the Proximity Sensor over a long period of time.

1. Check for mounting position, dislocation, looseness, or distortion of the Proximity Sensor and sensing objects.
2. Check for loose wiring and connections, improper contacts, and line breakage.
3. Check for attachment or accumulation of metal powder or dust.
4. Check for abnormal temperature conditions and other environmental conditions.
5. Check for proper lighting of indicators (for models with a set indicator.)

Never disassemble or repair the Sensor.

Environment

Water Resistivity

The Proximity Sensors are tested intensively on water resistance, but in order to ensure maximum performance and life expectancy avoid immersion in water and provide protection from rain or snow.

Operating Environment

Ensure storage and operation of the Proximity Sensor within the given specifications.

Inrush Current

A load that has a large inrush current (e.g., a lamp or motor) will damage the Proximity Sensor, in which case connect the load to the Proximity Sensor through a relay.

<SUITABILITY FOR USE>

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the products.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

<CHANGE IN SPECIFICATIONS>

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. E81E-EN-01

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