Inductive proximity sensor with stainless steel body
E2A-S

Inductive proximity sensor E2A-S was created and tested for applications in the harsh environment and at though vibration conditions with stainless body.

- M8, M12, M18, and M30 housings with connector or pre-wired connection
- PNP or NPN output
- NO, NC, or NO+NC operation mode

Ordering Information

DC 3-wire Models (NO, NC) / DC 4-wire Models (NO+NC)

Size		Sensing distance	Connection	Body material	Thread length (overall length)	Output configuration	Operation mode NO	Operation mode NC	Operation mode NO + NC
M8	Shielded	2.0 mm	Pre-wired	Stainless steel	27 (40)	PNP	E2A-S08KS02-WP-B1 2M	E2A-S08KS02-WP-B2 2M	n.a.
						NPN	E2A-S08KS02-WP-C1 2M	E2A-S08KS02-WP-C2 2M	n.a.
					49 (62)	PNP	E2A-S08LS02-WP-B1 2M	E2A-S08LS02-WP-B2 2M	E2A-S08LS02-WP-B3 2M
						NPN	E2A-S08LS02-WP-C1 2M	E2A-S08LS02-WP-C2 2M	n.a.
			M12 connector		27 (43)	PNP	E2A-S08KS02-M1-B1	E2A-S08KS02-M1-B2	n.a.
						NPN	E2A-S08KS02-M1-C1	E2A-S08KS02-M1-C2	n.a.
					49 (65)	PNP	E2A-S08LS02-M1-B1	E2A-S08LS02-M1-B2	n.a.
						NPN	E2A-S08LS02-M1-C1	E2A-S08LS02-M1-C2	n.a.
			M8 connector (3-pin)		27 (39)	PNP	E2A-S08KS02-M5-B1	E2A-S08KS02-M5-B2	n.a.
						NPN	E2A-S08KS02-M5-C1	E2A-S08KS02-M5-C2	n.a.
					49 (61)	PNP	E2A-S08LS02-M5-B1	E2A-S08LS02-M5-B2	n.a.
						NPN	E2A-S08LS02-M5-C1	E2A-S08LS02-M5-C2	n.a.
			M8 connector (4-pin)		27 (39)	PNP	E2A-S08KS02-M3-B1	E2A-S08KS02-M3-B2	E2A-S08KS02-M3-B3
						NPN	E2A-S08KS02-M3-C1	E2A-S08KS02-M3-C2	n.a.
					49 (61)	PNP	E2A-S08LS02-M3-B1	E2A-S08LS02-M3-B2	E2A-S08LS02-M3-B3
						NPN	E2A-S08LS02-M3-C1	E2A-S08LS02-M3-C2	n.a.
	Non-shielded	4.0 mm	Pre-wired		27 (40)	PNP	E2A-S08KN04-WP-B1 2M	E2A-S08KN04-WP-B2 2M	n.a.
						NPN	E2A-S08KN04-WP-C1 2M	E2A-S08KN04-WP-C2 2M	n.a.
					49 (62)	PNP	E2A-S08LN04-WP-B1 2M	E2A-S08LN04-WP-B2 2M	E2A-S08LN04-WP-B3 2M
						NPN	E2A-S08LN04-WP-C1 2M	E2A-S08LN04-WP-C2 2M	n.a.
			M12 connector		27 (43)	PNP	E2A-S08KN04-M1-B1	E2A-S08KN04-M1-B2	n.a.
						NPN	E2A-S08KN04-M1-C1	E2A-S08KN04-M1-C2	n.a.
					49 (65)	PNP	E2A-S08LN04-M1-B1	E2A-S08LN04-M1-B2	n.a.
						NPN	E2A-S08LN04-M1-C1	E2A-S08LN04-M1-C2	n.a.
			M8 connector (3-pin)		27 (39)	PNP	E2A-S08KN04-M5-B1	E2A-S08KN04-M5-B2	n.a.
						NPN	E2A-S08KN04-M5-C1	E2A-S08KN04-M5-C2	n.a.
					49 (61)	PNP	E2A-S08LN04-M5-B1	E2A-S08LN04-M5-B2	n.a.
						NPN	E2A-S08LN04-M5-C1	E2A-S08LN04-M5-C2	n.a.
			M8 connector (4 pin)		27 (39)	PNP	E2A-S08KN04-M3-B1	E2A-S08KN04-M3-B2	E2A-S08KN04-M3-B3
						NPN	E2A-S08KN04-M3-C1	E2A-S08KN04-M3-C2	n.a.
					49 (61)	PNP	E2A-S08LN04-M3-B1	E2A-S08LN04-M3-B2	n.a.
						NPN	E2A-S08LN04-M3-C1	E2A-S08LN04-M3-C2	n.a.

Size		Sensing distance	Connection	Body material	Thread length (overall length)	Output configuration	Operation mode NO	Operation mode NC	Operation mode NO + NC
M12	Shielded	4.0 mm	Pre-wired	Stainless steel	34 (50)	PNP	E2A-S12KS04-WP-B1 2M	E2A-S12KS04-WP-B2 2M	n.a.
						NPN	E2A-S12KS04-WP-C1 2M	n.a.	n.a.
					56 (72)	PNP	E2A-S12LS04-WP-B1 2M	E2A-S12LS04-WP-B2 2M	n.a.
						NPN	E2A-S12LS04-WP-C1 2M	n.a.	n.a.
			M12 connector		34 (48)	PNP	E2A-S12KS04-M1-B1	E2A-S12KS04-M1-B2	n.a.
						NPN	E2A-S12KS04-M1-C1	E2A-S12KS04-M1-C2	n.a.
					56 (70)	PNP	E2A-S12LS04-M1-B1	n.a.	n.a.
						NPN	E2A-S12LS04-M1-C1	n.a.	E2A-S12LS04-M1-C3
			M8 connector (3-pin)		34 (48)	PNP	E2A-S12KS04-M5-B1	E2A-S12KS04-M5-B2	n.a.
						NPN	E2A-S12KS04-M5-C1	n.a.	n.a.
	Non-shielded	8.0 mm	Pre-wired		34 (50)	PNP	E2A-S12KN08-WP-B1 2M	n.a.	n.a.
						NPN	E2A-S12KN08-WP-C1 2M	n.a.	n.a.
			M12 connector		34 (48)	PNP	E2A-S12KN08-M1-B1	n.a.	n.a.
						NPN	n.a.	n.a.	n.a.
					56 (70)	PNP	E2A-S12LN08-M1-B1	n.a.	E2A-S12LN08-M1-B3
						NPN	n.a.	n.a.	E2A-S12LN08-M1-C3
M18	Shielded	8.0 mm	Pre-wired		39 (59)	PNP	E2A-S18KS08-WP-B1 2M	E2A-S18KS08-WP-B2 5M	n.a.
						NPN	E2A-S18KS08-WP-C1 2M	n.a.	n.a.
					61 (81)	PNP	E2A-S18LS08-WP-B1 2M	n.a.	n.a.
						NPN	E2A-S18LS08-WP-C1 2M	E2A-S18LS08-WP-C2 2M	n.a.
			M12 connector		39 (53)	PNP	E2A-S18KS08-M1-B1	E2A-S18KS08-M1-B2	n.a.
						NPN	E2A-S18KS08-M1-C1	n.a.	n.a.
					61 (75)	PNP	E2A-S18LS08-M1-B1	n.a.	E2A-S18LS08-M1-B3
						NPN	E2A-S18LS08-M1-C1	n.a.	n.a.
			M8 connector (3-pin)		39 (53)	PNP	E2A-S18KS08-M5-B1	E2A-S18KS08-M5-B2	n.a.
						NPN	n.a.	n.a.	n.a.
	Non-shielded	16.0 mm	Pre-wired		39 (59)	PNP	E2A-S18KN16-WP-B1 2M	E2A-S18KN16-WP-B2 5M	n.a.
						NPN	n.a.	n.a.	n.a.
					61 (81)	PNP	E2A-S18LN16-WP-B1 2M	n.a.	n.a.
						NPN	n.a.	n.a.	n.a.
			M12 connector		39 (53)	PNP	E2A-S18KN16-M1-B1	n.a.	n.a.
						NPN	n.a.	n.a.	n.a.
					61 (75)	PNP	n.a.	n.a.	E2A-S18LN16-M1-B3
						NPN	n.a.	n.a.	n.a.
M30	Shielded	15.0 mm	Pre-wired		44 (64)	PNP	E2A-S30KS15-WP-B1 2M	n.a.	n.a.
						NPN	E2A-S30KS15-WP-C1 5M	n.a.	n.a.
					66 (86)	PNP	E2A-S30LS15-WP-B1 2M	n.a.	n.a.
						NPN	n.a.	n.a.	n.a.
			M12 connector		44 (58)	PNP	E2A-S30KS15-M1-B1	n.a.	n.a.
						NPN	n.a.	n.a.	n.a.
			M8 connector (3-pin)		44 (58)	PNP	E2A-S30KS15-M5-B1	n.a.	n.a.
						NPN	n.a.	n.a.	n.a.
	Non-shielded	20.0 mm	M12 connector		44 (58) (See note.)	PNP	E2A-S30KN20-M1-B1	n.a.	n.a.
						NPN	n.a.	n.a.	n.a.

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.

Specifications

Size		M8	
Type		Shielded	Non-shielded
Item / Model		E2A-S08□S02-□□-B1 E2A-S08□S02-□□-C1	E2A-S08□N04-□□-B1 E2A-S08□N04-□□-C1
Sensing distance		2 mm ± 10%	4 mm ± 10%
Setting distance		0 to 1.6 mm	0 to 3.2 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
Response frequency (See note 1.)		1,500 Hz	1,000 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 -B3/ -C3 models: NO+NC For details, refer to the timing charts. (See note 4.)	
Protection circuit		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	
Standard and listings (See note 3.)		IP67 after IEC 60529 IP69k after DIN 40050 EMC after EN60947-5-2	
Connection method		Pre-wired models (standard is dia 4mm PVC cable with length = 2m). Please see chapter 'Connectivity' for details on different cable materials and lenghts and M8 or M12 connectors.	
Weight (packaged)	Pre-wired model	Approx. 65 g	
	Connector model	M12 connector models: Approx. 20 g M8 connector models: Approx. 15 g	
Material	Case	Stainless steel (SUS 303 EN1.4305)	
	Sensing surface	PBT	
	Cable	Standard cable is PVC dia 4mm. For other cable materials or diameters please refer to chapter 'Connectivity'	
	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.

4. -B3/ -C3 NO+NC models are available in M12, M18 and M30 housings with M12 connectors, pre-wired and with cable end connectors.

Size		M12	
Type		Shielded	Non-shielded
Item / Model		E2A-S12□S04-□□-B□ E2A-S12□S04-□□-C□	E2A-S12□N08-□□-B□ E2A-S12□N08-□□-C□
Sensing distance		4 mm ± 10%	8 mm ± 10%
Setting distance		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)		12×12×1 mm	24×24×1 mm
Response frequency (See note 1.)		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 -B3/ -C3 models: NO+NC For details, refer to the timing charts. (See note 4.)	
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		500 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	
Connection method		Pre-wired models (standard is dia 4mm PVC cable with length = 2m). Please see chapter 'Connectivity' for details on different cable materials and lenghts and M8 or M12 connectors.	
Weight (packaged)	Pre-wired model	Approx. 85 g	
	Connector model	Approx. 35 g	
Material	Case	Stainless steel (SUS 303 EN1.4305)	
	Sensing surface	PBT	
	Cable	Standard cable is PVC dia 4mm. For other cable materials or diameters please refer to chapter 'Connectivity'	
	Clamping nut	Stainless steel (SUS 303 EN1.4305)	

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.
4. -B3/ -C3 NO+NC models are available in M12, M18 and M30 housings with M12 connectors, pre-wired and with cable end connectors.

Size		M18		M30	
Type		Shielded	Non-shielded	Shielded	Non-shielded
Item / Model		E2A-S18□S08-□□-B□ E2A-S18□S08-□□-C□	E2A-S18□N16-□□-B□ E2A-S18□N16-□□-C□	E2A-S30□S15-□□-B□ E2A-S30□S15-□□-C□	E2A-S30KN20-□□-B□ E2A-S30KN20-□□-C□
Sensing distance		8 mm±10%	16 mm±10%	15 mm±10%	20 mm±10%
Setting distance		0 to 6.4 mm	0 to 12.8 mm	0 to 12 mm	0 to 16 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
Response frequency (See note 1.)		500 Hz	400 Hz	250 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 -B3/ -C3 models: NO+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			
Connection method		Pre-wired models (standard is dia 4mm PVC cable with length = 2m). Please see chapter 'Connectivity' for details on different cable materials and lenghts and M8 or M12 connectors.			
Weight (packaged)	**Pre-wired model**	Approx. 160 g		Approx. 280 g	Approx. 280 g
	Connector model	Approx. 70 g		Approx. 200 g	Approx. 200 g
Material	**Case**	Stainless steel (SUS 303 EN1.4305)			
	Sensing surface	PBT			
	Cable	Standard cable is PVC dia 4mm. For other cable materials or diameters please refer to chapter 'Connectivity'			
	Clamping nut	Stainless steel (SUS 303 EN1.4305)			

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.

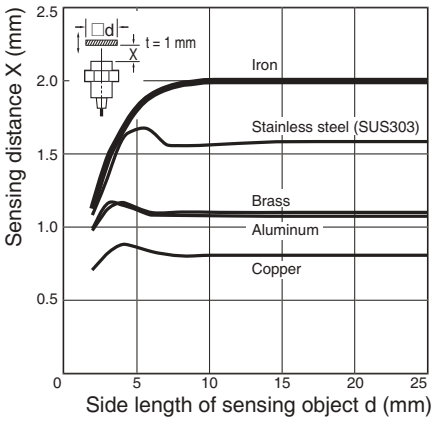
3. For USA and Canada: use class 2 circuit only.

Engineering Data

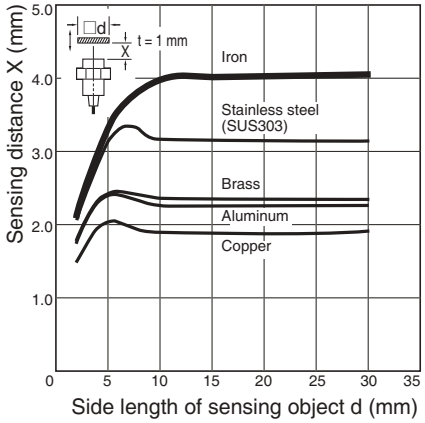
Influence of Sensing Object Size and Materials

Shielded Models

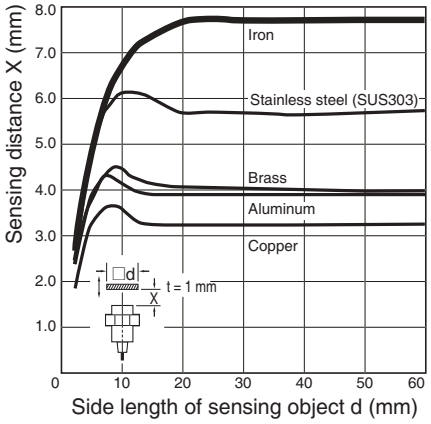
E2A-S08□S02



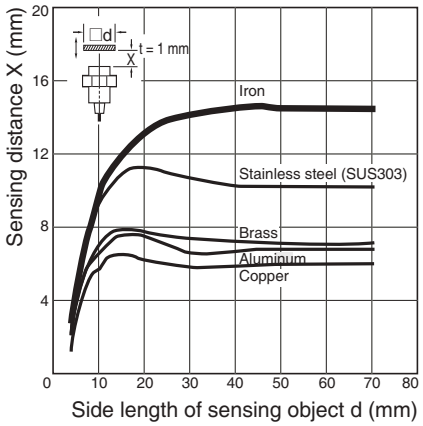
E2A-S12□S04



E2A-S18□S08

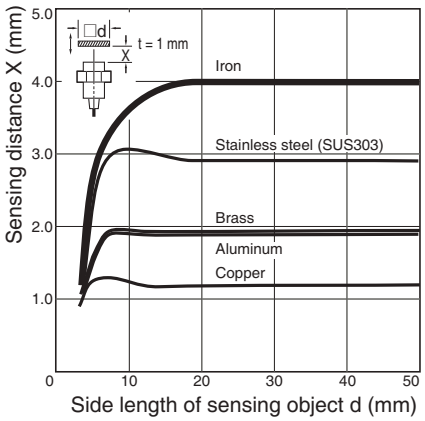


E2A-S30□S15

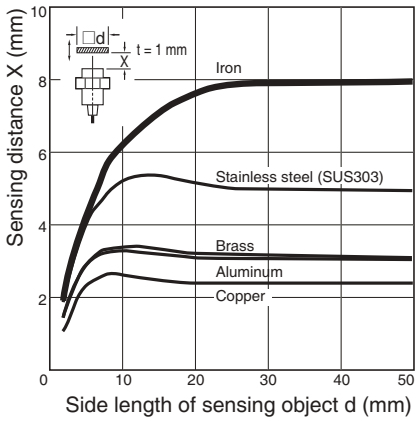


Non-shielded Models

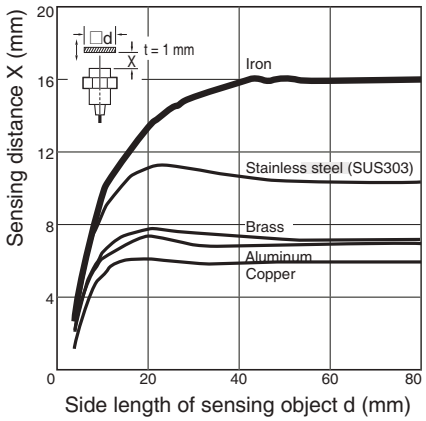
E2A-S08□N04



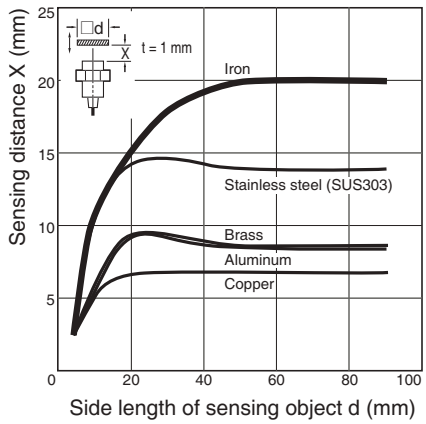
E2A-S12□N08



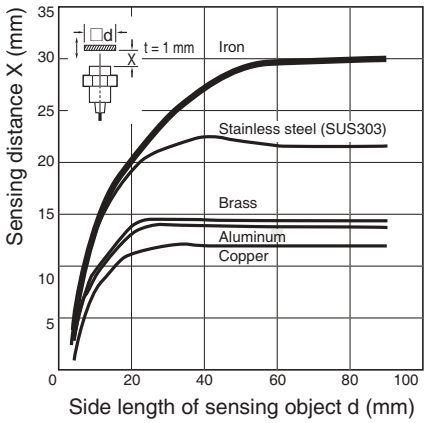
E2A-S18□N16



E2A-S30KN20

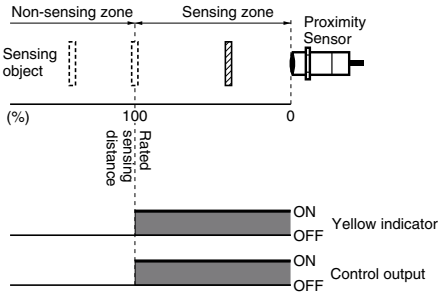
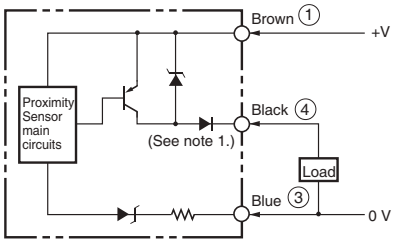
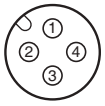
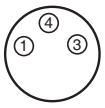
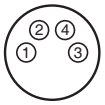
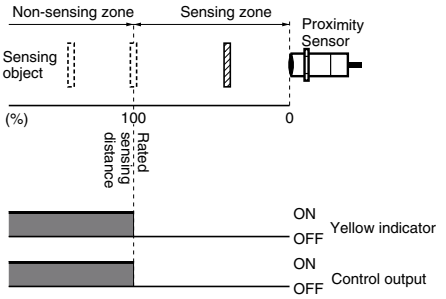
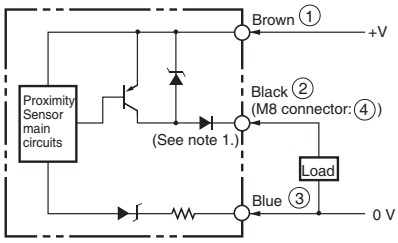
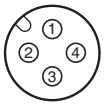
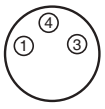
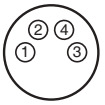
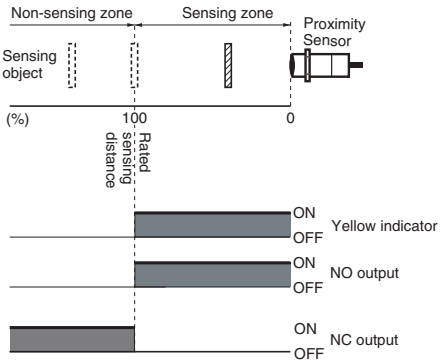
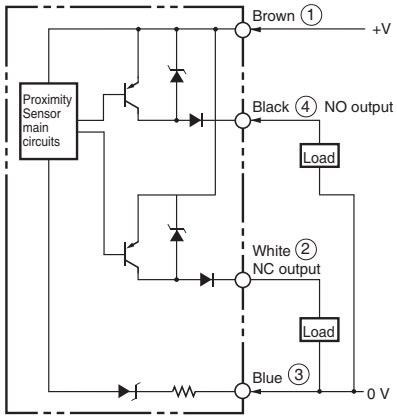
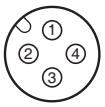
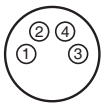


E2A-S30LN30

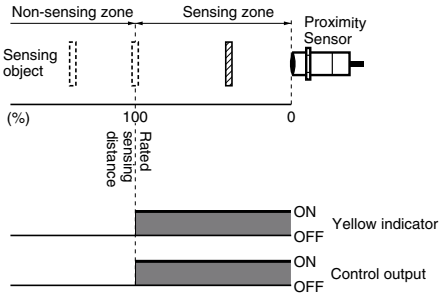
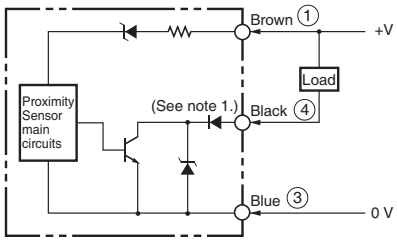
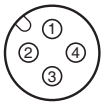
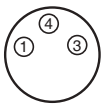
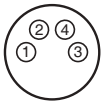
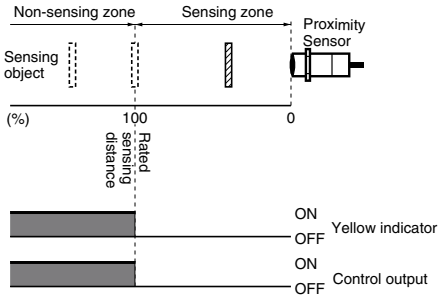
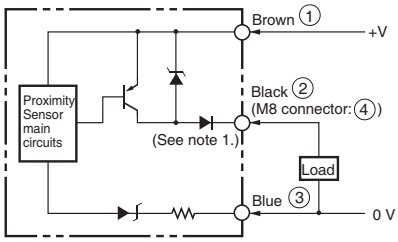
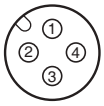
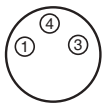
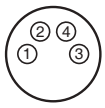
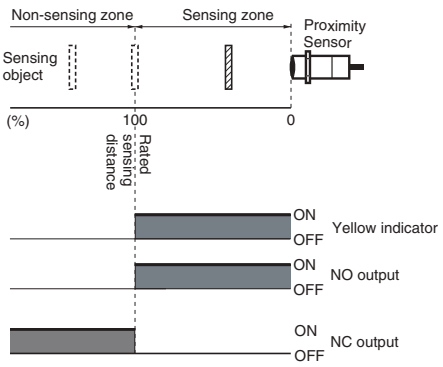
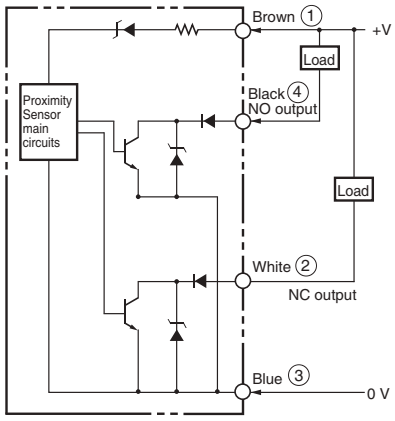
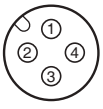


Operation

PNP Output

Operation mode	Model	Timing chart	Output circuit
NO	E2A-S□-□-B1		 **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.
NC	E2A-S□-□-B2		 **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.
NO + NC	E2A-S□-□-B3		 M12 Connector Pin Arrangement  M8 Connector (4 pin) Pin Arrangement 

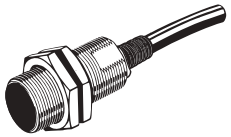
NPN Output

Operation mode	Model	Timing chart	Output circuit
NO	E2A-S□-□-C1		 **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.
NC	E2A-S□-□-C2		 **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.
NO + NC	E2A-S□-□-C3		 M12 Connector Pin Arrangement 

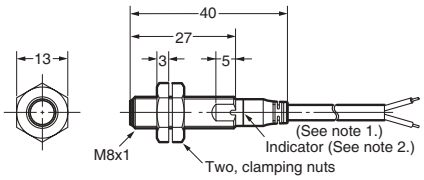
Dimensions

(Unit: mm)

Pre-wired Models (Shielded)

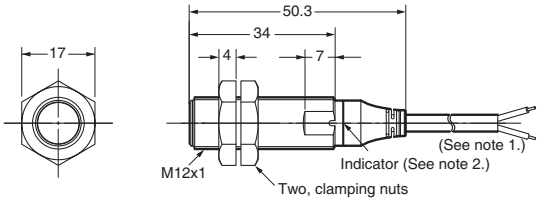


E2A-S08KS02-WP-□□



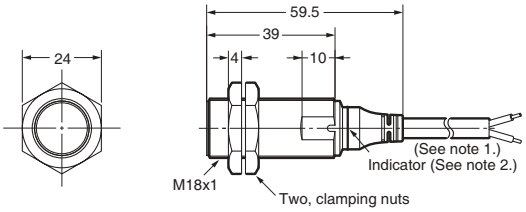
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S12KS04-WP-□



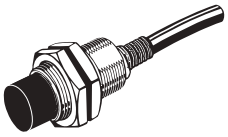
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)
3. for NO+NC (-B3 / -C3) models the total length is 4 m longer

E2A-S18KS08-WP-□

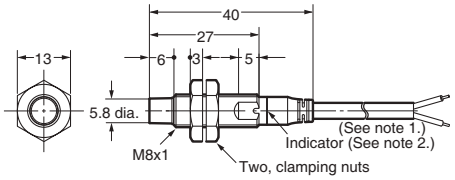


Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

Pre-wired Models (Non-shielded)

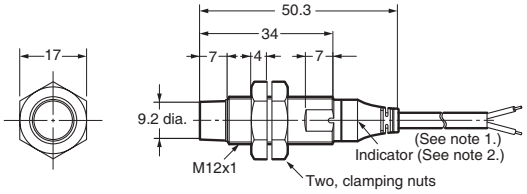


E2A-S08KN04-WP-□□



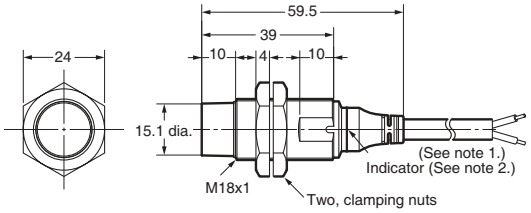
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S12KN08-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 m longer

E2A-S18KN16-WP-□



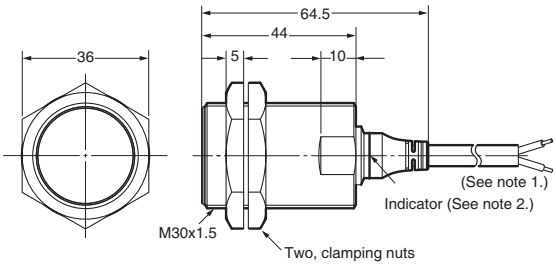
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

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. $^{+0.5}_{0}$

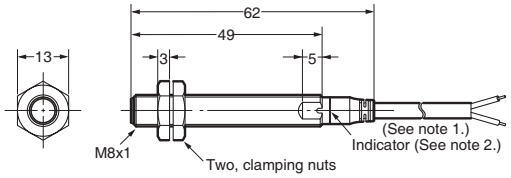
Pre-wired Models (Shielded)

E2A-S30KS15-WP-□



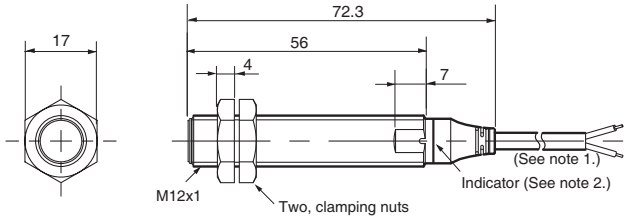
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S08LS02-WP-□□



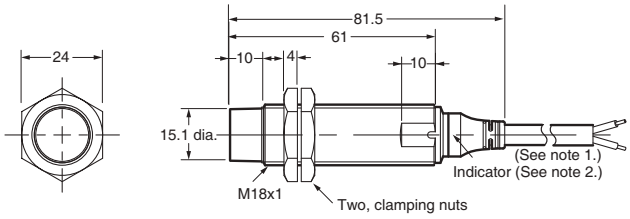
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S12LS04-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)

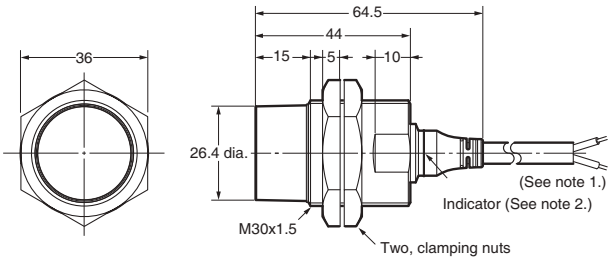
E2A-S18LN16-WP-□



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)

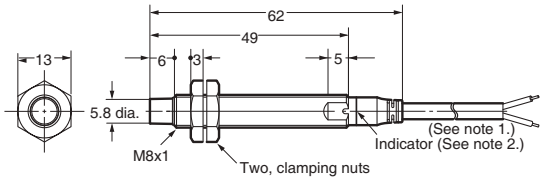
Pre-wired Models (Non-shielded)

E2A-S30KN20-WP-□



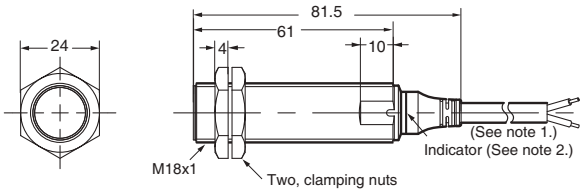
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S08LN04-WP-□□



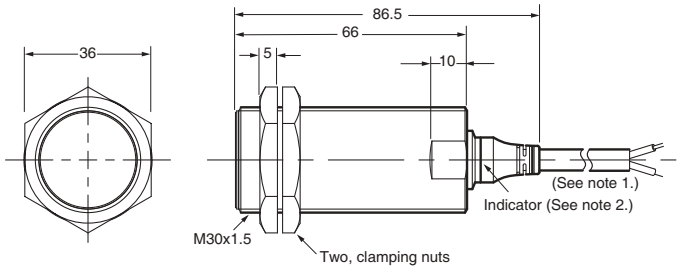
Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

E2A-S18LS08-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-S30LS15-WP-□

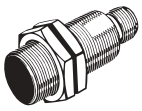


Note 1. 4-dia. vinyl-insulated round cable with 3 conductors (conductor cross section: 0.3 mm²; insulator diameter: 1.3 mm); standard length: 2 m
2. Operation indicator (yellow)

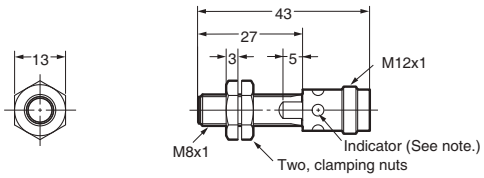
Mounting Hole Cutout Dimensions

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)

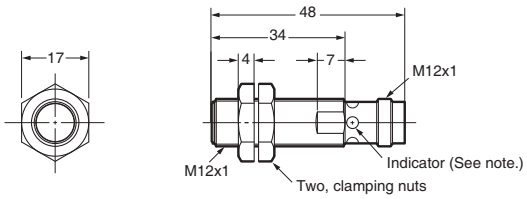


E2A-S08KS02-M1-□□



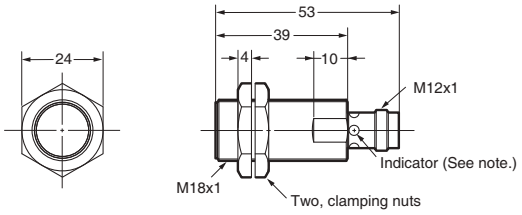
Note: Operation indicator (yellow LED, 4x90°)

E2A-S12KS04-M1-□



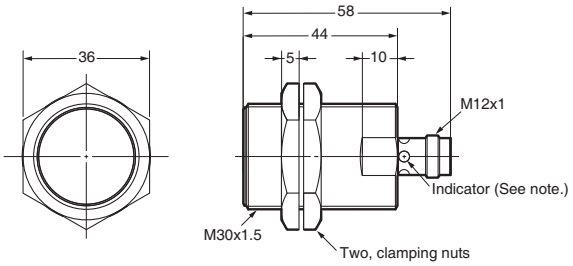
Note 1: Operation indicator (yellow LED, 4x90°)
Note 2: for NO+NC (-B3 / -C3) models the total length is 4 mm longer

E2A-S18KS08-M1-□



Note: Operation indicator (yellow LED, 4x90°)

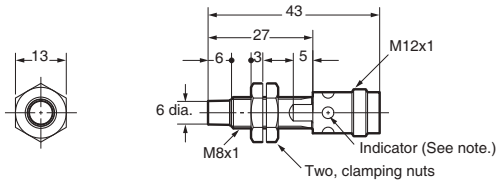
E2A-S30KS15-M1-□



Note: Operation indicator (yellow LED, 4x90°)

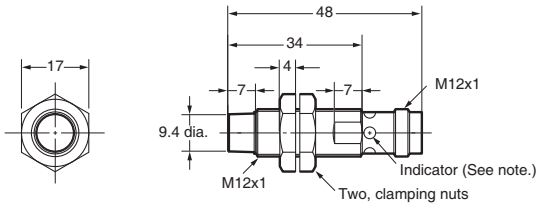
M12 Connector Models (Non-shielded)

E2A-S08KN04-M1-□□



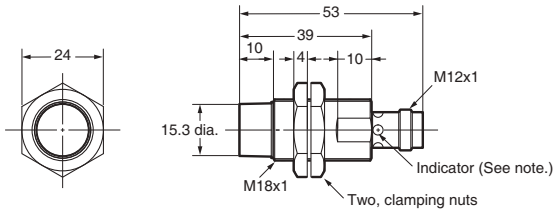
Note: Operation indicator (yellow LED, 4x90°)

E2A-S12KN08-M1-□



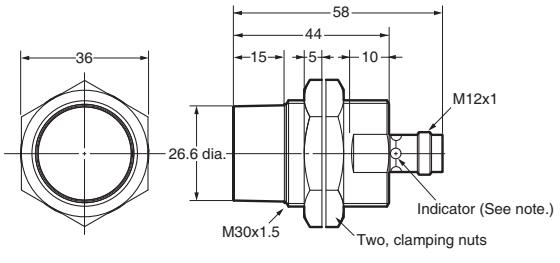
Note 1: Operation indicator (yellow LED, 4x90°)
Note 2: for NO+NC (-B3 / -C3) models the total length is 4 mm longer

E2A-S18KN16-M1-□



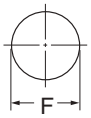
Note: Operation indicator (yellow LED, 4x90°)

E2A-S30KN20-M1-□



Note: Operation indicator (yellow LED, 4x90°)

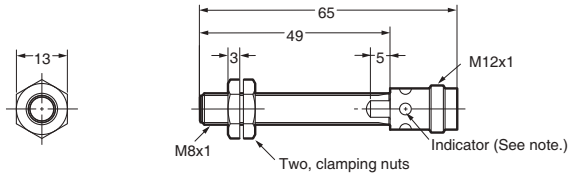
Mounting Hole Cutout Dimensions



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. $^{+0.5}_{0}$

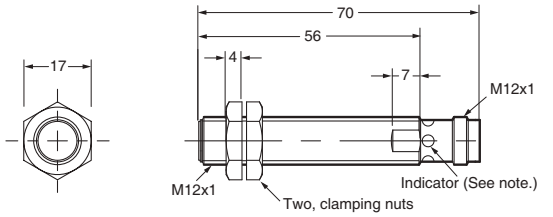
M12 Connector Models (Shielded)

E2A-S08LS02-M1-□□



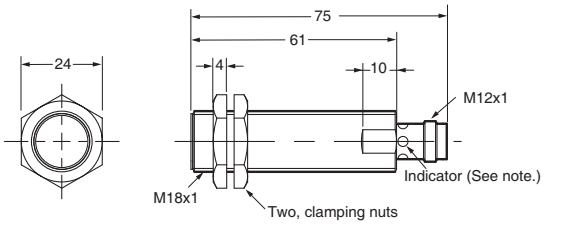
Note: Operation indicator (yellow LED, 4x90°)

E2A-S12LS04-M1-□



Note: Operation indicator (yellow LED, 4x90°)

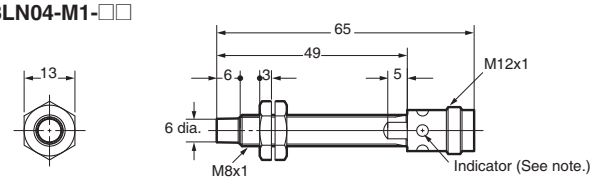
E2A-S18LS08-M1-□



Note: Operation indicator (yellow LED, 4x90°)

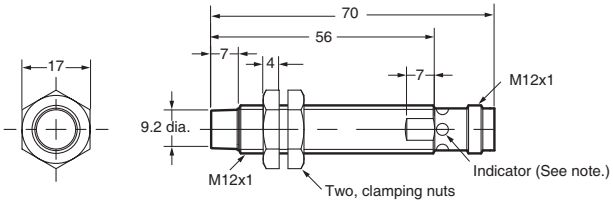
M12 Connector Models (Non-shielded)

E2A-S08LN04-M1-□□



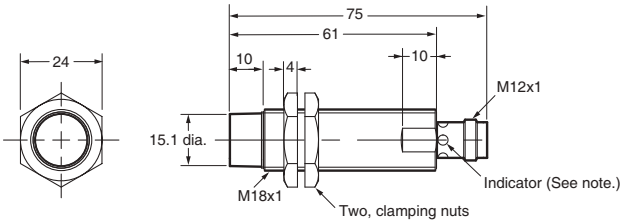
Note: Operation indicator (yellow LED, 4x90°)

E2A-S12LN08-M1-□



Note: Operation indicator (yellow LED, 4x90°)

E2A-S18LN16-M1-□

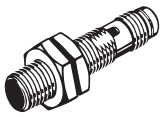


Note: Operation indicator (yellow LED, 4x90°)

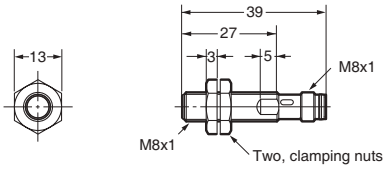
Mounting Hole Cutout Dimensions

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. $^{+0.5}_{0}$

M8 Connector Models (Shielded)

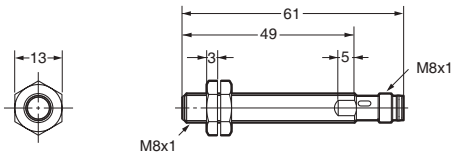


E2A-S08KS02-M5-□□/E2A-S08KS02-M3-□



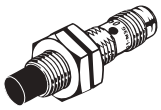
Note: Operation indicator (yellow LED, 4x90°)

E2A-S08LS02-M5-□□/E2A-S08LS02-M3-□

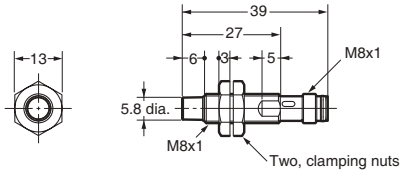


Note: Operation indicator (yellow LED, 4x90°)

M8 Connector Models (Non-shielded)

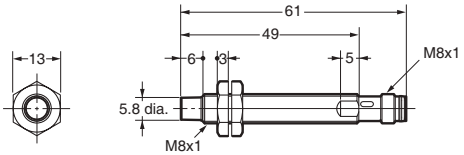


E2A-S08KN04-M5-□□/E2A-S08KN04-M3-□



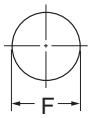
Note: Operation indicator (yellow LED, 4x90°)

E2A-S08LN04-M5-□□/E2A-S08LN04-M3-□



Note: Operation indicator (yellow LED, 4x90°)

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. $^{+0.5}_{0}$

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

Safety Precautions

Precautions for Safe Use

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.

Precautions for Correct Use

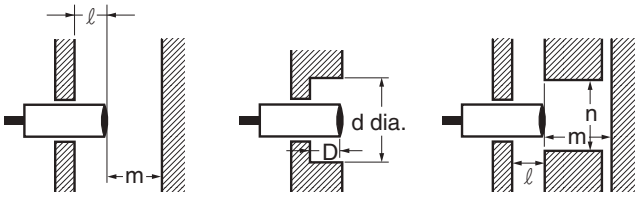
Designing

Power Reset Time

The Proximity Sensor is ready to operate within 100 ms (160ms for NO+NC -B3 / -C3 types) 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

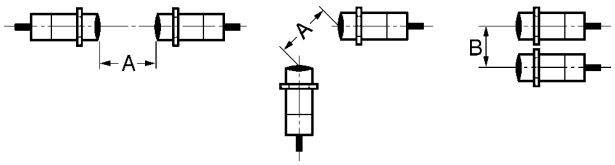
The Proximity Sensor may output a pulse signal when it is turned OFF. Therefore, it is recommended that the load be turned OFF before turning OFF the Proximity Sensor.

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	9 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.

Terms and Conditions Agreement

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.

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See http://www.omron.com/global/ or contact your Omron representative for published information.

Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials 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 user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

OMRON Corporation **Industrial Automation Company**
Kyoto, JAPAN
Contact: www.ia.omron.com

Regional Headquarters
OMRON EUROPE B.V.
Wegalaan 67-69, 2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON ELECTRONICS LLC
2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.
No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

Authorized Distributor:

CSM_2_1
Cat. No. D123-E1-02 0321(1120)