

■ 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-M08KN04-WP-B1 5M Standard, M8, 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: Standard double distance
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. Shield  
S: Shielded  
N: Non-shielded
7. Sensing distance  
Numeral: Sensing distance: e.g. 02=2 mm, 16=16 mm

8. Kind of connection  
WP: Pre-wired, PVC  
M1: M12 connector (4-pole)  
M3: M8 connector (4-pole)  
M5: M8 connector (3-pole)
9. Power source and output  
B: DC, 3-wire, PNP open collector  
C: DC, 3-wire, NPN open collector  
D: DC, 2-wire  
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 (e.g., cable material, oscillating frequency)
- 12.Cable length  
Blank: Connector type  
Numeral: Cable type

# Specifications

## ■ DC 3-wire Models

| Size<br>Type                                     |                            | M8                                                                                                                                                                           |                                                                                                                                                                              | M12                                                                                  |                                                                                      |                                                                                                                                  |  |             |  |
|--------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--|-------------|--|
|                                                  |                            | Shielded                                                                                                                                                                     | Non-shielded                                                                                                                                                                 | Shielded                                                                             | Non-shielded                                                                         |                                                                                                                                  |  |             |  |
|                                                  |                            | E2A-M08□□S02-M1-B1<br>E2A-M08□□S02-M1-B2<br>E2A-M08□□S02-M1-C1<br>E2A-M08□□S02-M1-C2<br>E2A-S08□□S02-□□-B1<br>E2A-S08□□S02-□□-B2<br>E2A-S08□□S02-□□-C1<br>E2A-S08□□S02-□□-C2 | E2A-M08□□N04-M1-B1<br>E2A-M08□□N04-M1-B2<br>E2A-M08□□N04-M1-C1<br>E2A-M08□□N04-M1-C2<br>E2A-S08□□N04-□□-B1<br>E2A-S08□□N04-□□-B2<br>E2A-S08□□N04-□□-C1<br>E2A-S08□□N04-□□-C2 | E2A-M12□□S04-□□-B1<br>E2A-M12□□S04-□□-B2<br>E2A-M12□□S04-□□-C1<br>E2A-M12□□S04-□□-C2 | E2A-M12□□N08-□□-B1<br>E2A-M12□□N08-□□-B2<br>E2A-M12□□N08-□□-C1<br>E2A-M12□□N08-□□-C2 |                                                                                                                                  |  |             |  |
| Item                                             |                            |                                                                                                                                                                              |                                                                                                                                                                              |                                                                                      |                                                                                      |                                                                                                                                  |  |             |  |
| 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<br>-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<br>-B2/-C2 models: NC<br>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<br>±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 <sup>2</sup> , 10 times each in X, Y and Z directions                                                                                                                |                                                                                                                                                                              |                                                                                      |                                                                                      | 1,000 m/s <sup>2</sup> , 10 times each in X, Y and Z directions                                                                  |  |             |  |
| Standard and listings (See note 3.)              |                            | IEC60529: IP67, Degree of protection<br>EN60947-5-2: EMC                                                                                                                     |                                                                                                                                                                              |                                                                                      |                                                                                      |                                                                                                                                  |  |             |  |
| Connection method                                |                            | -WP models: Pre-wired models (Standard length: 2 m)<br>-M1 models: M12 4-pin connector models<br>-M5 models: M8 3-pin connector models                                       |                                                                                                                                                                              |                                                                                      |                                                                                      |                                                                                                                                  |  |             |  |
| Weight (packaged)                                | Pre-wired model            | Approx. 65 g                                                                                                                                                                 |                                                                                                                                                                              |                                                                                      |                                                                                      | Approx. 85 g                                                                                                                     |  |             |  |
|                                                  | M12 connector model        | M12 connector models: Approx. 20 g<br>M8 connector models: Approx. 15 g                                                                                                      |                                                                                                                                                                              |                                                                                      |                                                                                      | Approx. 35 g                                                                                                                     |  |             |  |
| Material                                         | Case                       | Stainless steel or brass-nickel plated                                                                                                                                       |                                                                                                                                                                              |                                                                                      |                                                                                      | Brass-nickel plated                                                                                                              |  |             |  |
|                                                  | Sensing surface            | PBT                                                                                                                                                                          |                                                                                                                                                                              |                                                                                      |                                                                                      |                                                                                                                                  |  |             |  |
|                                                  | Cable                      | PVC                                                                                                                                                                          |                                                                                                                                                                              |                                                                                      |                                                                                      |                                                                                                                                  |  |             |  |
|                                                  | 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.