

■ 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

| Item                                                |                               | 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 |
| 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<br>(operating voltage range)   |                               | 12 to 24 VDC. Ripple (p-p): 10% max.<br>(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<br>output                                   | Load current<br>(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<br>(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,<br>Surge suppressor, Short-circuit protection                                                                    |                                                                                                                                                                      | Output reverse polarity protection, Power source<br>circuit reverse polarity protection, Surge suppressor,<br>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<br>(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.