

## Ratings and Specifications

| Model                                            |                  | E2FQ-X2E1<br>E2FQ-X2D1                                                                                                                                                                                                                                                               | E2FQ-X5E1<br>E2FQ-X5D1, E2FQ-X5Y1                                           | E2FQ-X10E1<br>E2FQ-X10D1, E2FQ-X10Y1   |
|--------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------|
| Item                                             |                  |                                                                                                                                                                                                                                                                                      |                                                                             |                                        |
| Sensing distance                                 |                  | 2 mm ±10%                                                                                                                                                                                                                                                                            | 5 mm ±10%                                                                   | 10 mm ±10%                             |
| Set distance                                     |                  | 0 to 1.6 mm                                                                                                                                                                                                                                                                          | 0 to 4 mm                                                                   | 0 to 8 mm                              |
| Differential travel                              |                  | E1/Y1 Models: 10% max. of sensing distance, D1 Models: 20% max. of sensing distance                                                                                                                                                                                                  |                                                                             |                                        |
| Detectable object                                |                  | Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on page 3.)                                                                                                                                                                   |                                                                             |                                        |
| Standard sensing object                          |                  | Iron, 12 × 12 × 1 mm                                                                                                                                                                                                                                                                 | Iron, 18 × 18 × 1 mm                                                        | Iron, 30 × 30 × 1 mm                   |
| Response frequency *                             |                  | E1 Models: 1.5 kHz<br>D1 Models: 800 Hz                                                                                                                                                                                                                                              | E1 Models: 600 Hz<br>D1 Models: 500 Hz                                      | E1 Models: 400 Hz<br>D1 Models: 300 Hz |
|                                                  |                  |                                                                                                                                                                                                                                                                                      | Y1 Models: 25 Hz                                                            |                                        |
| Power supply voltage (operating voltage range)   |                  | E1 Models: 12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.<br>Y1 Models: 24 to 240 VAC (20 to 264 VAC), 50/60 Hz<br>D1 Models: 12 to 24 VDC (10 to 36 VDC), ripple (p-p): 20% max.                                                                                               |                                                                             |                                        |
| Current consumption                              |                  | E1 Models: 17 mA max.                                                                                                                                                                                                                                                                |                                                                             |                                        |
| Leakage current                                  |                  | D1 Models: 0.8 mA max., Y1 Models: 1.7 mA max. (at 200 VAC)                                                                                                                                                                                                                          |                                                                             |                                        |
| Control output                                   | Load current     | E1 Models: 200 mA max., D1 Models: 5 to 100 mA, Y1 Models: 5 to 300 mA                                                                                                                                                                                                               |                                                                             |                                        |
|                                                  | Residual voltage | E1 Models: 2 V max. (Load current: 200 mA, Cable length: 2 m)<br>Y1 Models: Refer to <i>Engineering Data</i> on page 3.<br>D1 Models: 3 V max. (Load current: 100 mA, Cable length: 2 m)                                                                                             |                                                                             |                                        |
| Indicators                                       |                  | E Models: Detection indicator (red), Y Models: Operation indicator (red),<br>D Models: Operation indicator (red), Setting indicator (green) (NO only)                                                                                                                                |                                                                             |                                        |
| Operation mode (with sensing object approaching) |                  | E1/D1/Y1 Models: NO (Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 5 for details.)                                                                                                                                                                            |                                                                             |                                        |
| Protection circuits                              |                  | E1 Models: Load short-circuit protection, Reverse polarity protection, Surge suppressor, D1/Y1 Models: Surge suppressor                                                                                                                                                              |                                                                             |                                        |
| Ambient temperature range                        |                  | Operating/Storage: −25 to 70°C (with no icing or condensation)                                                                                                                                                                                                                       |                                                                             |                                        |
| Ambient humidity range                           |                  | Operating/Storage: 35% to 95% (with no condensation)                                                                                                                                                                                                                                 |                                                                             |                                        |
| Temperature influence                            |                  | ±10% max. of sensing distance at 23°C in the temperature range of −25 to 70°C                                                                                                                                                                                                        |                                                                             |                                        |
| Voltage influence                                |                  | E1 Models: ±2.5% max. of sensing distance at rated voltage in the rated voltage ±15% range<br>D1 Models: ±2.5% max. of sensing distance at rated voltage in the rated voltage ±20% range<br>Y1 Models: ±1% max. of sensing distance at rated voltage in the rated voltage ±10% range |                                                                             |                                        |
| Insulation resistance                            |                  | 50 MΩ min. (at 500 VDC) between current-carrying parts and case                                                                                                                                                                                                                      |                                                                             |                                        |
| Dielectric strength                              |                  | E1/D1 Models: 1,000 VAC, 50/60 Hz for 1 min between current-carrying parts and case<br>Y Models: 4,000 VAC, 50/60 Hz for 1 min between current-carrying parts and case                                                                                                               |                                                                             |                                        |
| Vibration resistance                             |                  | Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions                                                                                                                                                                                         |                                                                             |                                        |
| Shock resistance                                 |                  | Destruction: 500 m/s <sup>2</sup> 10 times each in X, Y, and Z directions                                                                                                                                                                                                            | Destruction: 1,000 m/s <sup>2</sup> 10 times each in X, Y, and Z directions |                                        |
| Degree of protection                             |                  | IEC 60529 IP67, in-house standards: oil-resistant                                                                                                                                                                                                                                    |                                                                             |                                        |
| Connection method                                |                  | Pre-wired Models (Cable length: 2 m)                                                                                                                                                                                                                                                 |                                                                             |                                        |
| Weight (packed state)                            |                  | Approx. 70 g                                                                                                                                                                                                                                                                         | Approx. 130 g                                                               | Approx. 170 g                          |
| Materials                                        | Case             | Fluororesin                                                                                                                                                                                                                                                                          |                                                                             |                                        |
|                                                  | Sensing surface  |                                                                                                                                                                                                                                                                                      |                                                                             |                                        |
|                                                  | Clamping nuts    | Zinc-plated iron                                                                                                                                                                                                                                                                     |                                                                             |                                        |
|                                                  | Toothed washer   |                                                                                                                                                                                                                                                                                      |                                                                             |                                        |
|                                                  | Cable            | Vinyl chloride                                                                                                                                                                                                                                                                       |                                                                             |                                        |
| Accessories                                      |                  | Instruction manual                                                                                                                                                                                                                                                                   |                                                                             |                                        |

\* The response frequency is an average value.

Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.