

# Specifications

## ■ DC 3-WIRE MODELS

|                                                             |                |                                         |                                                                                                                                                                                                          |                                                           |                                                           |                                                           |
|-------------------------------------------------------------|----------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|
| Part number                                                 |                |                                         | E2F-X1R5□□                                                                                                                                                                                               | E2F-X2□□                                                  | E2F-X5□□                                                  | E2F-X10□□                                                 |
| Sensor Type                                                 |                |                                         | Inductive                                                                                                                                                                                                |                                                           |                                                           |                                                           |
| Body                                                        |                | Size                                    | M8                                                                                                                                                                                                       | M12                                                       | M18                                                       | M30                                                       |
|                                                             |                | Type                                    | Shielded                                                                                                                                                                                                 |                                                           |                                                           |                                                           |
| Supply voltage                                              |                |                                         | 10 to 30 VDC                                                                                                                                                                                             |                                                           |                                                           |                                                           |
| Current consumption                                         |                |                                         | 17 mA max.                                                                                                                                                                                               |                                                           |                                                           |                                                           |
| Detectable object type                                      |                |                                         | Metallic objects                                                                                                                                                                                         |                                                           |                                                           |                                                           |
| Effective maximum detecting distance (with standard target) |                |                                         | 1.5 mm (0.06 in) ±15%                                                                                                                                                                                    | 2 mm (0.08 in) ±10%                                       | 5 mm (0.20 in) ±10%                                       | 10 mm (0.39 in) ±10%                                      |
| Usable detecting range (with standard target)               |                |                                         | 0 to 1.2 mm (0 to 0.05 in)                                                                                                                                                                               | 0 to 1.6 mm (0 to 0.06 in)                                | 0 to 4 mm (0 to 0.16 in)                                  | 0 to 8 mm (0 to 0.31 in)                                  |
| Standard target size (mild steel, L x W x H)                |                |                                         | 8 x 8 x 1 mm (0.31 x 0.31 x 0.04 in)                                                                                                                                                                     | 12 x 12 x 1 mm (0.47 x 0.47 x 0.04 in)                    | 18 x 18 x 1 mm (0.71 x 0.71 x 0.04 in)                    | 30 x 30 x 1 mm (1.18 x 1.18 x 0.04 in)                    |
| Differential travel                                         |                |                                         | 10% max. of effective max. detecting distance                                                                                                                                                            |                                                           |                                                           |                                                           |
| Control output                                              | DC solid-state | Type                                    | NPN-NO open collector with pull-up (E2F-X□□E1)<br>NPN-NC open collector with pull-up (E2F-X□□E2)<br>PNP-NO open collector with pull-down (E2F-X□□F1)<br>PNP-NC open collector with pull-down (E2F-X□□F2) |                                                           |                                                           |                                                           |
|                                                             |                | Max. load                               | 200 mA                                                                                                                                                                                                   |                                                           |                                                           |                                                           |
|                                                             |                | Max. on-state voltage drop              | 2 VDC                                                                                                                                                                                                    |                                                           |                                                           |                                                           |
| Response frequency                                          |                |                                         | 2 Hz                                                                                                                                                                                                     | 1.5 kHz                                                   | 600 Hz                                                    | 400 Hz                                                    |
| Circuit protection                                          |                | Output short-circuit                    | Provided; automatic resetting type                                                                                                                                                                       |                                                           |                                                           |                                                           |
|                                                             |                | DC power supply reverse polarity        | Provided                                                                                                                                                                                                 |                                                           |                                                           |                                                           |
|                                                             |                | Weld field immunity                     | Not provided                                                                                                                                                                                             |                                                           |                                                           |                                                           |
|                                                             |                | RFI immunity                            | Not provided                                                                                                                                                                                             |                                                           |                                                           |                                                           |
| Indicators                                                  |                |                                         | Target Present (red LED)                                                                                                                                                                                 |                                                           |                                                           |                                                           |
| Materials                                                   |                | Housing                                 | Plastic                                                                                                                                                                                                  |                                                           |                                                           |                                                           |
|                                                             |                | Sensing face                            | Plastic                                                                                                                                                                                                  |                                                           |                                                           |                                                           |
|                                                             |                | Cable sheath                            | Plastic                                                                                                                                                                                                  |                                                           |                                                           |                                                           |
| Mounting                                                    |                |                                         | Two plastic M8 nuts included. Bracket Y92E-B8 optional.                                                                                                                                                  | Two plastic M12 nuts included. Bracket Y92E-B12 optional. | Two plastic M18 nuts included. Bracket Y92E-B18 optional. | Two plastic M30 nuts included. Bracket Y92E-B30 optional. |
| Connections                                                 | Prewired       | 3-conductor cable, 2 m (6.56 ft) length |                                                                                                                                                                                                          |                                                           |                                                           |                                                           |
| Weight with cable                                           |                |                                         | Approx. 40 g (1.4 oz)                                                                                                                                                                                    | Approx. 50 g (1.8 oz)                                     | Approx. 130 g (4.6 oz)                                    | Approx. 170 g (6.0 oz)                                    |
| Enclosure ratings                                           |                | UL                                      | —                                                                                                                                                                                                        |                                                           |                                                           |                                                           |
|                                                             |                | NEMA                                    | 1, 3, 4, 6, 12, 13                                                                                                                                                                                       |                                                           |                                                           |                                                           |
|                                                             |                | IEC 144                                 | IP68                                                                                                                                                                                                     |                                                           |                                                           |                                                           |
| Approvals                                                   |                | UL                                      | —                                                                                                                                                                                                        |                                                           |                                                           |                                                           |
|                                                             |                | CSA                                     | —                                                                                                                                                                                                        |                                                           |                                                           |                                                           |
| Ambient operating temperature                               |                |                                         | -25°C to 70°C (-13° to 158°F)                                                                                                                                                                            |                                                           |                                                           |                                                           |
| Vibration                                                   |                |                                         | 10 to 55 Hz, 1.5 mm (0.06 in) double amplitude                                                                                                                                                           |                                                           |                                                           |                                                           |
| Shock                                                       |                |                                         | Approx. 100 G                                                                                                                                                                                            |                                                           |                                                           |                                                           |

## ■ AC 2-WIRE MODELS

|                                                             |                |                                         |                                                                                |                                                           |                                                                                                                                                     |                                                           |
|-------------------------------------------------------------|----------------|-----------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Part number                                                 |                |                                         | E2E2F-X1R5Y□                                                                   | E2F-X2Y□                                                  | E2F-X5Y□-US<br>E2F-X5Y□-53-US                                                                                                                       | E2F-X10Y□-US<br>E2F-X10Y□-53-US                           |
| Sensor Type                                                 |                |                                         | Inductive                                                                      |                                                           |                                                                                                                                                     |                                                           |
| Body                                                        |                | Size                                    | M8                                                                             | M12                                                       | M18                                                                                                                                                 | M30                                                       |
|                                                             |                | Type                                    | Shielded                                                                       |                                                           |                                                                                                                                                     |                                                           |
| Supply voltage                                              |                |                                         | 20 to 264 VDC, 50/60 Hz                                                        |                                                           | 20 to 264 VAC, 50/60 Hz (E2F-X□□Y□-US)<br>90 to 140 VAC, 50/60 Hz (E2F-X□□Y□-53-US)                                                                 |                                                           |
| Current consumption                                         |                |                                         | 5 mA max.                                                                      |                                                           |                                                                                                                                                     |                                                           |
| Detectable object type                                      |                |                                         | Metallic objects                                                               |                                                           |                                                                                                                                                     |                                                           |
| Effective maximum detecting distance (with standard target) |                |                                         | 1.5 mm (0.06 in)<br>±15%                                                       | 2 mm (0.08 in)<br>±10%                                    | 5 mm (0.20 in)<br>±10%                                                                                                                              | 10 mm (0.39 in)<br>±10%                                   |
| Usable detecting range (with standard target)               |                |                                         | 0 to 1.2 mm<br>(0 to 0.05 in)                                                  | 0 to 1.6 mm<br>(0 to 0.06 in)                             | 0 to 4 mm<br>(0 to 0.16 in)                                                                                                                         | 0 to 8 mm<br>(0 to 0.31 in)                               |
| Standard target size (mild steel, L x W x H)                |                |                                         | 8 x 8 x 1 mm<br>(0.31 x 0.31 x 0.04 in)                                        | 12 x 12 x 1 mm<br>(0.47 x 0.47 x 0.04 in)                 | 18 x 18 x 1 mm<br>(0.71 x 0.71 x 0.04 in)                                                                                                           | 30 x 30 x 1 mm<br>(1.18 x 1.18 x 0.04 in)                 |
| Differential travel                                         |                |                                         | 10% max. of effective max. detecting distance                                  |                                                           |                                                                                                                                                     |                                                           |
| Control output                                              | AC solid-state | Type                                    | SCR-NO (E2F-X□□Y1-□□-□□)<br>SCR-NC (E2F-X□□Y2-□□-□□)                           |                                                           |                                                                                                                                                     |                                                           |
|                                                             |                | Max. load                               | 100 mA                                                                         |                                                           | 300 mA for E2F-X□□Y□-US and<br>E2F-X□□Y□-53-US at -25°C to 70°C<br>(-13°F to 158°F)<br>500 mA for E2F-X□□Y□-US at -25°C to 55°C<br>(-13°F to 131°F) |                                                           |
|                                                             |                | Min. load                               | 5 mA                                                                           |                                                           |                                                                                                                                                     |                                                           |
|                                                             |                | Max. off-state leakage current          | 1.7 mA at 200 VAC                                                              |                                                           | 1.7 mA at 200 VAC (E2F-X□□Y□-US)<br>1.5 mA at 200 VAC (E2F-X□□Y□-53-US)                                                                             |                                                           |
|                                                             |                | Max. on-state voltage drop              | See "Residual Load Voltage Characteristics" graph in <i>Engineering Data</i> . |                                                           |                                                                                                                                                     |                                                           |
|                                                             |                | Response frequency                      |                                                                                |                                                           |                                                                                                                                                     |                                                           |
| Circuit protection                                          |                | Ouput short-circuit                     | Not provided                                                                   |                                                           | Provided on E2F-X□□Y□-53-US types only; manual resetting type                                                                                       |                                                           |
|                                                             |                | Weld field immunity                     | Not provided                                                                   |                                                           |                                                                                                                                                     |                                                           |
|                                                             |                | RFI immunity                            | Not provided                                                                   |                                                           |                                                                                                                                                     |                                                           |
| Indicators                                                  |                |                                         | Output Operation (red LED)                                                     |                                                           |                                                                                                                                                     |                                                           |
| Materials                                                   |                | Housing                                 | Polyarylate                                                                    |                                                           |                                                                                                                                                     |                                                           |
|                                                             |                | Sensing face                            | Polyarylate                                                                    |                                                           |                                                                                                                                                     |                                                           |
|                                                             |                | Cable sheath                            | Polyvinyl Chloride                                                             |                                                           |                                                                                                                                                     |                                                           |
| Mounting                                                    |                |                                         | Two plastic M8 nuts included. Bracket Y92E-B8 optional.                        | Two plastic M12 nuts included. Bracket Y92E-B12 optional. | Two plastic M18 nuts included. Bracket Y92E-B18 optional.                                                                                           | Two plastic M30 nuts included. Bracket Y92E-B30 optional. |
| Connections                                                 | Prewired       | 2-conductor cable, 2 m (6.56 ft) length |                                                                                |                                                           |                                                                                                                                                     |                                                           |
| Weight with cable                                           |                |                                         | Approx. 40 g<br>(1.4 oz)                                                       | Approx. 50 g<br>(1.8 oz)                                  | Approx. 130 g<br>(4.6 oz)                                                                                                                           | Approx. 170 g<br>(6.0 oz)                                 |
| Enclosure ratings                                           |                | UL                                      | —                                                                              |                                                           | 1                                                                                                                                                   |                                                           |
|                                                             |                | NEMA                                    | 1, 3, 4, 6, 12, 13                                                             |                                                           |                                                                                                                                                     |                                                           |
|                                                             |                | IEC 144                                 | IP68                                                                           |                                                           |                                                                                                                                                     |                                                           |
| Approvals                                                   |                | UL                                      | —                                                                              |                                                           | Recognized, File number E76675                                                                                                                      |                                                           |
|                                                             |                | CSA                                     | —                                                                              |                                                           | Certified, File number LR45951                                                                                                                      |                                                           |
| Ambient operating temperature                               |                |                                         | -25°C to 70°C (-13° to 158°F)                                                  |                                                           |                                                                                                                                                     |                                                           |
| Vibration                                                   |                |                                         | 10 to 55 Hz, 1.5 mm (0.06 in) double amplitude                                 |                                                           |                                                                                                                                                     |                                                           |
| Shock                                                       |                |                                         | Approx. 100 G                                                                  |                                                           |                                                                                                                                                     |                                                           |