

Photoelectric sensor in compact M18 housing

E3F1





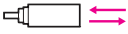


- M18 size Photoelectric sensor with best value at competitive price
- Bright visible red LED enabling easy alignment
- Compact and robust housing for easy integration into machines
- Reliable operation in all industrial environments



Ordering Information

Sensors [Refer to Dimensions on page 5.]

 Red light


| Sensor type | Sensing distance | Connection method | Model | |
|---|--|-------------------|----------------------------|----------------------------|
| | | | NPN output | PNP output |
| Through-beam  |  15 m | pre-wired | E3F1-TN11 2M ^{*1} | E3F1-TP11 2M ^{*1} |
| | | M12 connector | E3F1-TN21 ^{*1} | E3F1-TP21 ^{*1} |
| Retro-reflective ^{*2}  |  0.1 to 3 m with E39-R1S | pre-wired | E3F1-RN11 2M | E3F1-RP11 2M |
| | | M12 connector | E3F1-RN21 | E3F1-RP21 |
| Diffuse-reflective  |  100 mm | pre-wired | E3F1-DN11 2M | E3F1-DP11 2M |
| | | M12 connector | E3F1-DN21 | E3F1-DP21 |
| |  300 mm | pre-wired | E3F1-DN12 2M | E3F1-DP12 2M |
| | | M12 connector | E3F1-DN22 | E3F1-DP22 |

^{*1} Includes the emitter and receiver.

^{*2} The Reflector is sold separately.

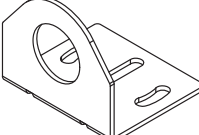

Reflectors [Refer to Dimensions on page 6.]

Reflectors required for Retro-reflective Sensors: A Reflector is not provided with the Sensor. Be sure to order a Reflector separately.

| Sensor | Sensing distance | Appearance | Model | Quantity | Remarks |
|---------|------------------|---|---------|----------|-------------|
| E3F1-R□ | 0.1 to 3 m |  | E39-R1S | 1 | for E3F1-R□ |



Mounting brackets [Refer to Dimensions on page 6.]

A Mounting Bracket is not enclosed with the Sensor. Order a Mounting Bracket separately if required.

| Sensor | Appearance | Model (Material) | Quantity | Remarks |
|-----------|---|-------------------|----------|------------------------|
| all types |  | E39-L183 (SUS304) | 1 | Mounting bracket |
| |  | E39-L182 (POM) | 1 | Flush mounting bracket |

Sensor I/O connectors

Models for Connectors: A Connector is not provided with the Sensor. Be sure to order a Connector separately.

| Sensor | Size | Cable | Appearance | Cable type | Model | |
|---------------------|------|----------|---|------------|--------|--------------------|
| M12 connector types | M12 | Standard | Straight  | 2 m | 4-wire | XS2F-M12PVC4S2M-EU |
| | | | | 5 m | | XS2F-M12PVC4S5M-EU |
| | | | Angle  | 2 m | | XS2F-M12PVC4A2M-EU |
| | | | | 5 m | | XS2F-M12PVC4A5M-EU |

Specifications

| Model | Sensing method | | Through-beam | Retro-reflective | Diffuse-reflective | |
|--------------------------------------|----------------------|----------------------------|--|---------------------------------------|---|---|
| | Item | NPN output | Pre-wired M12 Connector | E3F1-TN11 2M E3F1-TN21 | E3F1-RN11 2M E3F1-RN21 | E3F1-DN11 2M E3F1-DN21 |
| PNP output | | Pre-wired M12 Connector | E3F1-TP11 2M E3F1-TP21 | E3F1-RP11 2M E3F1-RP21 | E3F1-DP11 2M E3F1-DP21 | E3F1-DP12 2M E3F1-DP22 |
| Sensing distance | | | 15 m | 0.1 to 3 m (with E39-R1S) | 100 mm (white paper: 300 × 300 mm) | 300 mm (white paper: 300 × 300 mm) |
| Spot diameter (typical) | | | — | — | 40 × 45 mm Sensing distance of 100 mm | 40 × 50 mm Sensing distance of 300 mm |
| Directional angle | | | 2° min. | 2° min. | — | — |
| Light source (wavelength) | | | Red LED (624 nm) | | | |
| Power supply voltage | | | 10 to 30 VDC (include voltage ripple of 10%(p-p) max.) | | | |
| Current consumption | | | 40 mA max. (Emitter 25 mA max. Receiver 15 mA max.) | 25 mA max. | | |
| Control output | | | NPN/PNP (open collector) Load current: 100 mA max. (Residual voltage: 3 V max.), Load power supply voltage: 30 VDC max. | | | |
| Operation mode | | | Light-ON/Dark-ON selectable by wiring | | | |
| Indicator | | | Operation indicator (orange) Stability indicator (green) Power indicator (green): only Emitter of Through-beam | | | |
| Protection circuits | | | Reversed power supply polarity protection, Output short-circuit protection and Reversed output polarity protection | | | |
| Response time | | | 0.5 ms | | | |
| Sensitivity adjustment | | | One-turn adjuster | | | |
| Ambient temperature range | | | Operating: -25 to 55°C/ Storage: -30 to 70°C (with no icing or condensation) | | | |
| Ambient humidity range | | | Operating: 35 to 85%RH/ Storage: 35 to 95%RH (with no condensation) | | | |
| Degree of protection | | | IEC: IP66 | | | |
| Weight (packed state/only sensor) | Pre-wired cable (2M) | | Approx. 110 g/ Approx. 50 g, respectively | Approx. 60 g/ Approx. 50 g | | |
| | Connector | | Approx. 30 g/ Approx. 10 g, respectively | Approx. 20 g/ Approx. 10 g | | |
| Material | Case | | ABS | | | |
| | Lens and Display | | PMMA | | | |
| | Adjuster | | POM | | | |
| | Nut | | ABS | | | |
| Accessories | | | Instruction sheet M18 nuts (4 pcs) | Instruction sheet M18 nuts (2 pcs) | | |