

Single beam safety sensor for long distance detection

F3SS

60-m long-distance detection. Single beam safety sensor for personnel detection (type 4) is ideal for perimeter protection or multi-sided detection of intrusion into large machines.






Features

- Mutual interference protection function for up to four sets.
- Complies with IEC standards and North American standards (received IEC61496-1, -2, and UL/CSA certification). Can be used as a safety guard for satisfaction of OSHA requirements for on-site labor safety in North America.
- Special controller not needed. Detection of human body intrusion is possible using just the sensor unit.
- Includes "Start/restart interlock function" to prevent automatic reset of output.
- The emitter lens and receiver lens are equipped with heaters for worry-free operation even in environments where condensation is an issue.
- Optional glass and stainless steel mirrors are available.

Ordering Information

Sensors

 Infrared ray

| Sensor type | Shape | Sensing distance | Minimum detectable object (mm) | Operating mode | Model |
|--------------|---|---|--------------------------------|----------------|------------|
| Through-beam |  |  0.3 to 60m | 31-mm dia. | Light ON | F3SS-AT60P |

Note: Emitter: F3SS-AT60P-L, receiver F3SS-AT60P-D Can also be ordered as single units.

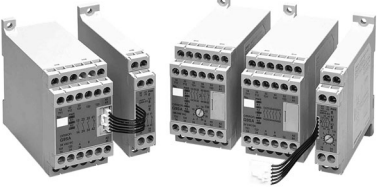


Accessories (Order Separately)

| Item | Model |
|---|----------|
| Laser alignment kit (for optical axis adjustment) | F39-LLK |
| Glass mirror | F39-MSG |
| Stainless steel mirror | F39-MSS |
| 45Ω mirror clamp | F39-LM45 |
| Mirror clamp for wall mounting | F39-LA |
| Sensor clamp for 42-mm dia. column stand | F39-LSP |

Note: Wiring is based on a built-in terminal block. Please purchase a 4-mm to 7-mm (dia.) cable separately.

Safety Relay Unit

For controlling the outputs we recommend to use safety relay units G9SA or G9SB

| Appearance | Output | Model |
|---|--|-------------|
|  | Expandable relay unit series with up to 8 safety relay outputs. Time delay for stop category 1 can be realized. (Please refer to page G-119) | G9SA series |
|  | Small size safety relay unit with 17.5 mm and 22.5 mm size. Up to 3 safety relay outputs are available. (Please refer to page G-133) | G9SB series |
|  | Flexible and expandable safety unit with solid state outputs | G9ST series |

Rating/performance

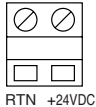
| Item | Model | F3SS-AT60P |
|---------------------------------------|-------|--|
| Sensing distance | | 0.3 to 60 m |
| Number of optical axes | | 1 (single beam) |
| Beam diameter | | 31 mm |
| Min. sensing object | | Opaque object, 31-mm dia. or greater |
| Orientation angle | | emitter/receiver: ±2.5° or less each (based on IEC61496-2 at detection distance of 3 m or greater) |
| Light source (wave length) | | Infrared LED (880 nm) |
| Power supply voltage | | 24 V DC ±10%, ripple (p-p) 5% or less |
| After power is turned on Startup time | | 4 s or less |
| Current consumption | | Emitter: 170 mA or less, receiver: 800 mA or less (including load output current) |
| Operating mode | | Auto start mode, start interlock mode, and start/restart interlock mode can all be selected using a switch in the receiver. |
| Control output | | PNP transistor outputs x 2 outputs, load current 250 mA or less (residual voltage 1 V or less) (excluding voltage drop due to cable extension), Light ON |
| Protective circuits | | Output load short circuit and power supply reverse connection protection |
| Response time (ON-OFF) | | 35 ms max. |
| Ambient temperature | | Operating/Storage: 0°C to 55°C (with no icing or condensation) |
| Ambient humidity | | Operating/Storage: 35% to 95% RH (no condensation) |
| Vibration resistance | | Malfunction/durability: 10 to 50 Hz, amplitude 0.7 mm, 20 sweeps each in X, Y, and Z directions |
| Shock resistance | | Malfunction/durability: 100 m/s ² , 1,000 times each in X, Y, and Z directions |
| Protective structure | | IEC60529 Standard IP65 |
| Connection method | | Connect to terminal block on internal board |
| Weight (Packed state) | | 2.5 kg |
| Material | Case | Aluminum |
| | Cap | Aluminum |
| Accessories | | Set of mounting brackets, operation manual, caps for unused conduits |
| Applicable standards | | IEC (EN) 61496-1 TYPE4 ESPE *1 IEC61496-2 TYPE4 AOPD *2 |

*1) ESPE (Electro-Sensitive Protective Equipment)
 *2) AOPD (Active Opto-electronic Protective Devices)

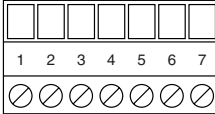
Wiring

Wire the F3SS only after all power has been turned off.

Emitter

| Terminal block number | Terminal name | Functions | Terminal block assignments |
|-----------------------|---------------|-----------|---|
| J3 | +24 VDC | +DC24V |  |
| | RTN | 0V (GND) | |

Receiver

| Terminal block number | Terminal name | Functions | Terminal block assignments |
|-----------------------|---------------|--------------------------------|---|
| J5 | 1 | Control output 1 (+) |  |
| | 2 | For control output 1/2 COM (-) | |
| | 3 | Control output 2 (+) | |
| | 4 | START(-) | |
| | 5 | START(+) | |
| | 6 | +DC24V | |
| | 7 | 0V (GND) | |

Note: Ground the emitter and receiver to the ground terminal inside the case.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.