

For full product information, visit www.sti.com. Use the SpeedSPEC Code for quick access to the specific web page.

Safety Light Curtains

- Fast and easy installation
- Resolution: 25 mm (1.01 in.)
- Range: 7 m (23 ft.)
- Protected heights: 185 to 1105 mm (7.28 to 43.50 in.)
- Very compact size: 30 x 30 mm (1.18 x 1.18 in.)
- Cross-talk prevention
- 3 m integrated cables
- A Rapid Delivery Product: Select models are available for shipment today or within 3 to 5 days

D



Description

The EASY type safety light curtain is well suited for straight-forward on/off detection applications.

By carefully selecting the available functions, we have reduced man hours necessary for installation by approximately 1/2 when compared with existing STI models.

Reduced installation time means added savings to your project's budget, start with the EASY type.

Machine safety first, narrowed down to the simplest functions:

Upon detection of personnel, the machine stops. Simple yet very optimal.

I only need simple functions

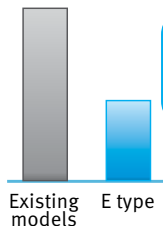


1/2 the mounting time. Fixed response time makes calculation of the safety distance easier.

Reduced wiring, quick mount brackets and easy-to-view alignment beams all add up to cost savings. Additionally, with one fixed response time, it is now easier to calculate the safety distance.



1/2 Mounting Time



Existing models E type

Global Support

Omron will support you through our global network.



Global Support

Easy-to-view Diagnostics

These indicators enable you to intuitively know the status and cause of any error. This allows faster installation while reducing machine down time.



Easy-to-View Diagnostics

Select models are available for Rapid Delivery.

Visit this product on www.sti.com for details.

Specifications

Main Units

F3SJ-E□□□□P25

| | | |
|---|---|--|
| Sensor type | Type 4 safety light curtain | |
| Setting tool connection *1 | Parameter settings: Not available | |
| Safety category | Safety purpose of category 4, 3, 2, 1, or B | |
| Detection capability | Opaque objects 25 mm in diameter | |
| Beam gap (P) | 20 mm | |
| Number of beams (n) | 8 to 54 | |
| Protective height (PH) | 185 to 1,105 mm | |
| Lens diameter | Diameter 5 mm | |
| Operating range *2 | 0.2 to 7 m | |
| Response time (under stable light incident condition) | ON to OFF | 15 ms max. |
| | OFF to ON | 70 ms max. |
| Startup waiting time | 2 s max. | |
| Power supply voltage (Vs) | SELV/PELV 24 VDC±20% (ripple p-p 10% max.) | |
| Consumption current (no load) | Emitter | Up to 22 beams: 41 mA max., 26 to 42 beams: 57 mA max., 46 to 54 beams: 63 mA max. |
| | Receiver | Up to 22 beams: 42 mA max., 26 to 42 beams: 47 mA max., 46 to 54 beams: 51 mA max. |
| Light source (emitted wavelength) | Infrared LED (870 nm) | |
| Effective aperture angle (EAA) | Based on IEC 61496-2. Within ±2.5° for both emitter and receiver when the detection distance is 3 m or over | |
| Safety outputs (OSSD) | Two PNP transistor outputs, load current 200 mA max., residual voltage 2 V max. (except for voltage drop due to cable extension), Leakage current 1 mA max., load inductance 2.2 H max. *3 Maximum capacity load 1 µF *4 | |
| Output operation mode | Safety output: On when receiving light | |
| Input voltage | ON voltage: Vs-3 V to Vs *5 OFF voltage: 0 V to 1/2 Vs or open | |
| Mutual interference prevention function | Mutual interference prevention algorithm prevents interference in up to 3 sets. | |
| Test function | Self test (at power-ON and at power distribution) External test (emission stop function by test input) | |
| Protection circuit | Output short-circuit protection, and power supply reverse polarity protection | |
| Ambient temperature | Operating: -10 to 55°C (non-freezing), Storage: -25 to 70°C | |
| Ambient humidity | Operating: 35% to 85% (no condensation), Storage: 35% to 95% RH | |
| Operating ambient light intensity | Incandescent lamp: 3,000 lx max., Sunlight: 10,000 lx max. | |
| Insulation resistance | 20 MΩ min. (at 500 VDC) | |
| Dielectric strength | 1,000 VAC 50/60 Hz, 1 min | |
| Degree of protection | IP65 (IEC 60529) | |
| Vibration resistance | Malfunction: 10 to 55 Hz, Multiple amplitude of 0.7 mm, 20 sweeps in X, Y, and Z directions | |
| Shock resistance | Malfunction: 100 m/s ² , 1,000 times each in X, Y, and Z directions | |
| Pollution degree | Pollution degree 3 (IEC 60664-1) | |
| Power cable | Connection method: Pull-out type, cable length 3 m Number of wires: Emitter: 5 wires, receiver: 6 wires Cable diameter: Dia. 6 mm Allowable bending radius: R5 mm | |
| Extension cable | 30 m max. *6 | |
| Material | Case: Aluminum Cap: ABS resin, PBT Optical cover: PMMA resin (acrylic) Cable: Oil resistant PVC | |
| Weight (packed state) | Weight (g) = (protective height) x 2.6 + 800 | |
| Accessories | Test rod, User's Manual (CD-ROM) *7 | |
| Applicable standards | IEC 61496-1, EN 61496-1 UL 61496-1, Type 4 ESPE (Electro-Sensitive Protective Equipment) IEC 61496-2, CLC/TS 61496-2, UL 61496-2, Type 4 AOPD (Active Opto-electronic Protective Devices) IEC 61508-1 to -3, EN 61508-1 to -3 SIL3 IEC 13849-1: 2006, EN ISO 13849-1: 2008 (PL _e , Cat.4) UL 508, UL 1998, CAN/CSA C22.2 No.14, CAN/CSA C22.2 No.0.8 | |

*1. Do not use the Support Software and Setting Console for F3SJ-A.
Operation cannot be guaranteed.

*2. Use of the Spatter Protection Cover causes a 10% maximum sensing distance attenuation.

*3. The load inductance is the maximum value when the safety output frequently repeats ON and OFF. When you use the safety output at 4 Hz or less, the usable load inductance becomes larger.

*4. These values must be taken into consideration when connecting elements including a capacitive load such as capacitor.

*5. The Vs indicates a voltage value in your environment.

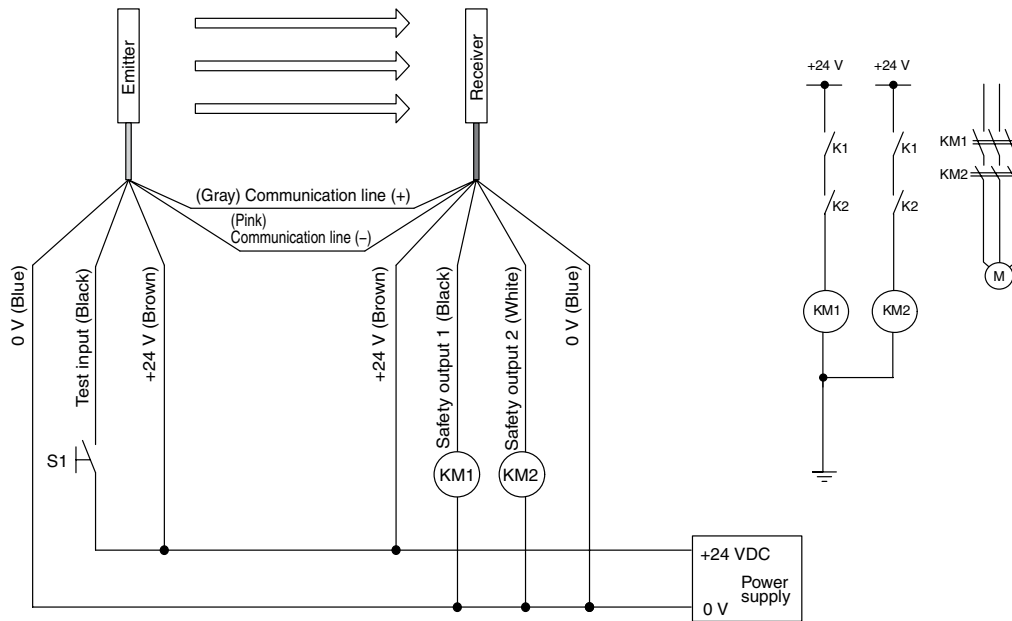
*6. To extend a cable of the F3SJ-E, refer to "Chapter 3 Wiring (Extension Cable)" in the User's Manual.

*7. Mounting brackets are sold separately.

Wiring

Basic Wiring Diagram

Wiring when using a test input line



- S1 : External test/lockout reset switch (connect to 0 V if a switch is not required)
 KM1, KM2 : Safety relay with force-guided contact (G7SA) or magnetic contactor

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Visit this product on www.sti.com for details.

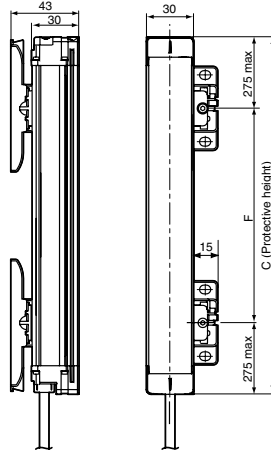
Dimensions (continued)

(mm)

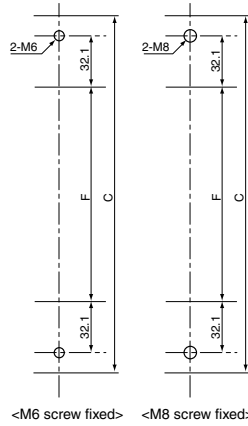
Main Units

When Using Quick Mount Brackets

Backside mounting

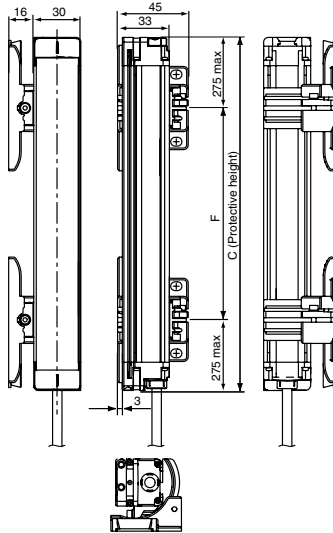
Quick Mount Bracket
(F39-LJB3-M6 or
F39-LJB3-M8)Quick Mount Bracket
(F39-LJB3-M6 or
F39-LJB3-M8)

Mounting screw holes

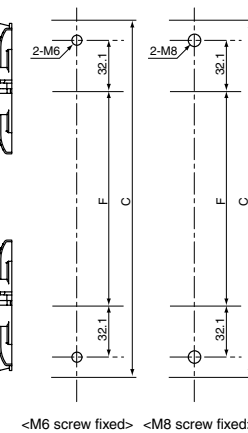
C (protective height): 4-digit number in the table
F = See the table below.

| Protective height | Number of intermediate brackets | F |
|-------------------|---------------------------------|-------------|
| 185 to 1,105 | 2 | 555 mm max. |
| 1,185 to 1,585 | 3 | 555 mm max. |
| 1,665 to 2,065 | 4 | 555 mm max. |

Side mounting

Quick Mount Bracket
(F39-LJB3-M6 or
F39-LJB3-M8)Quick Mount Bracket
(F39-LJB3-M6 or
F39-LJB3-M8)

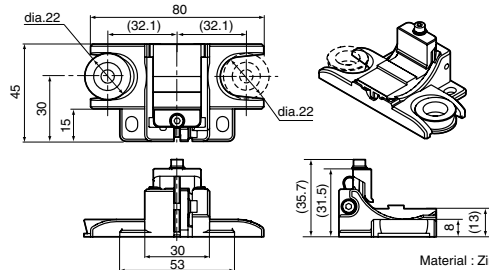
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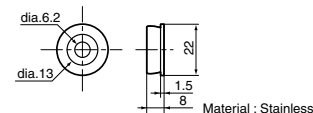
Dimensions of quick mount bracket for F39-LJB3

Backside mounting

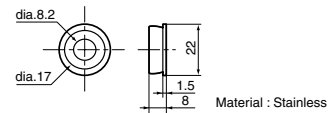


Material : Zinc die-cast

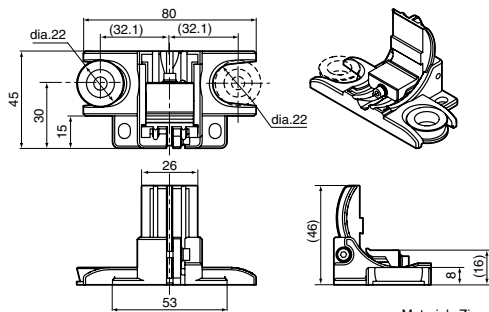
Quick mount M6 bracket



Quick mount M8 bracket



Side mounting



Material : Zinc die-cast

Ordering

Main Units

Safety Light Curtains

| Application | Detection capability | Beam gap | Operating range | Protective height (mm) | Model |
|-----------------|----------------------|----------|-----------------|------------------------|---------------|
| | | | | | PNP output |
| Hand protection | Dia. 25 mm | 20 mm | 0.2 to 7 m | 185 to 1,105 | F3SJ-E□□□□P25 |

Safety Light Curtain Model List

Please contact our sales representatives.





F3SJ-E Series (20 mm pitch)

| Model | Number of beams | Protective height [mm] * | Model | Number of beams | Protective height [mm] * |
|---------------|-----------------|--------------------------|---------------|-----------------|--------------------------|
| F3SJ-E0185P25 | 8 | 185 | F3SJ-E0705P25 | 34 | 705 |
| F3SJ-E0225P25 | 10 | 225 | F3SJ-E0785P25 | 38 | 785 |
| F3SJ-E0305P25 | 14 | 305 | F3SJ-E0865P25 | 42 | 865 |
| F3SJ-E0385P25 | 18 | 385 | F3SJ-E0945P25 | 46 | 945 |
| F3SJ-E0465P25 | 22 | 465 | F3SJ-E1025P25 | 50 | 1,025 |
| F3SJ-E0545P25 | 26 | 545 | F3SJ-E1105P25 | 54 | 1,105 |
| F3SJ-E0625P25 | 30 | 625 | | | |


*Protective height (mm) = Total sensor length

Accessories (sold separately)

Relays with Forcibly Guided Contacts

| Type | Appearance | Specifications | Model | Remarks |
|--|---|---|------------|---|
| G7SA Relays with Forcibly Guided Contacts |  | <ul style="list-style-type: none"> Nodes: 4 Contact type: 2A2B Rated switch load: 250 VAC 6A, 30 VDC 6A | G7SA-2A2B |  For information on the G7SA see page I-3 or visit www.sti.com . |
| | | <ul style="list-style-type: none"> Nodes: 4 Contact type: 3NO+1NC Rated switch load: 250 VAC 6A, 30 VDC 6A | G7SA-3A1B | |
| G7S-□-E Relays with Forcibly Guided Contacts |  | <ul style="list-style-type: none"> Nodes: 6 Contact type: 4NO+2NC Rated switch load: 250 VAC 10 A, 30 VDC 10 A | G7S-4A2B-E |  For information on the G7S-□-E see page I-9 or visit www.sti.com . |
| | | <ul style="list-style-type: none"> Nodes: 6 Contact type: 3NO+3NC Rated switch load: 250 VAC 10 A, 30 VDC 10 A | G7S-3A3B-E | |

Laser Pointer

| Appearance | Output | Model |
|---|------------------------|---------|
|  | Laser Pointer for F3SJ | F39-PTJ |

(Continued on next page)






 Select models are available for Rapid Delivery.

Visit this product on www.sti.com for details.

Ordering (continued)

Accessories (sold separately) (continued)

Sensor Mounting Bracket (sold separately)

| Appearance | Specifications | Model | Application | Remarks |
|---|-----------------------------|-----------------|---|---|
|  | Top/bottom bracket | F39-LJB1 | Top/bottom bracket for F3SJ-E/B | 2 for the emitter, 2 for the receiver, total of 4 per set |
|  | Intermediate bracket | F39-LJB2 *1 *2 | In combination use with top/bottom bracket for F3SJ-E/B Can be used as free-location bracket. | 1 set with 2 pieces |
|  | Quick mount bracket | F39-LJB3-M6 *1 | Quick mount bracket for F3SJ-E/B Supports M6 slide nut for aluminum frame. | 1 set with 2 pieces |
| | | F39-LJB3-M8 *2 | Quick mount bracket for F3SJ-E/B Supports M8 slide nut for aluminum frame. | |
|  | M6 slide nut | F39-LJB3-M6K *1 | Spare slide nut for use with Quick mount bracket. | Hexagon socket head cap screws (M6 x 10) are included. |
| | M8 slide nut | F39-LJB3-M8K *2 | | Hexagon socket head cap screws (M8 x 14) are included. |
|  | Compatible mounting bracket | F39-LJB4 | Mounting bracket used when replacing existing area sensors (F3SJ-A or F3SN) with the F3SJ-E/B. | 2 for the emitter, 2 for the receiver, total of 4 per set |

Note: All the sensor mounting brackets for the F3SJ-E are sold separately.

*1. Combining F39-LJB2 and F39-LJB3-M6K makes F39-LJB3-M6.

*2. Combining F39-LJB2 and F39-LJB3-M8K makes F39-LJB3-M8.



For information on Resource
Modules, see page D-63.



For information on safety light
curtain accessories, see page D-78.



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