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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



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

1/2 mounting time

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.

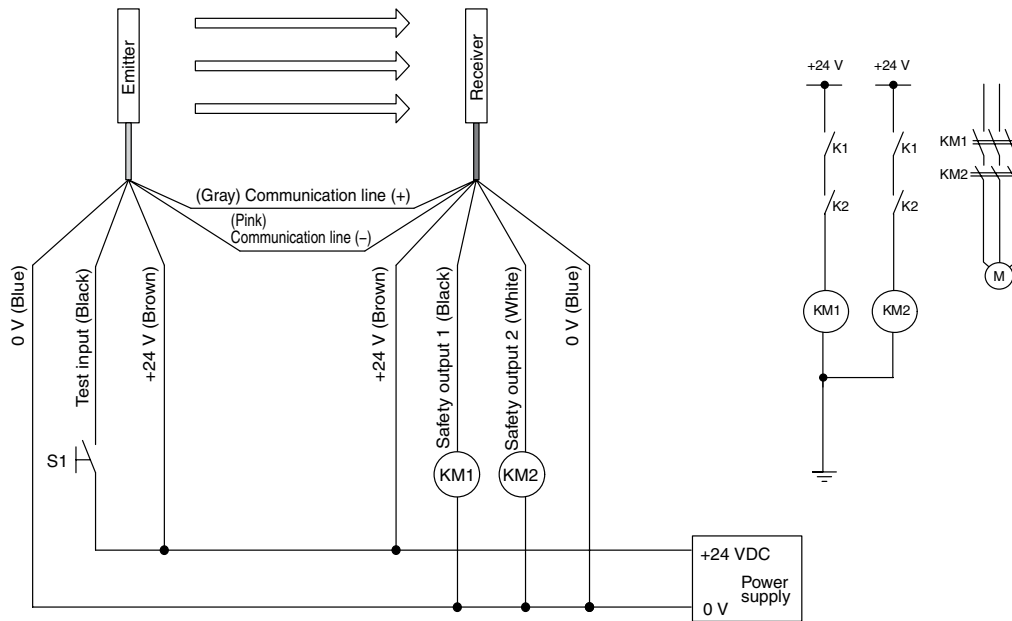
*6. To extend a cable of the F3SJ-E, refer to "Chapter 3 Wiring (Extension Cable)" in the User's Manual.

*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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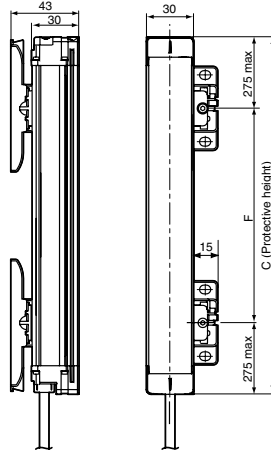
Dimensions (continued)

(mm)

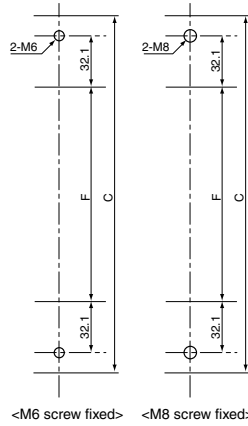
Main Units

When Using Quick Mount Brackets

Backside mounting

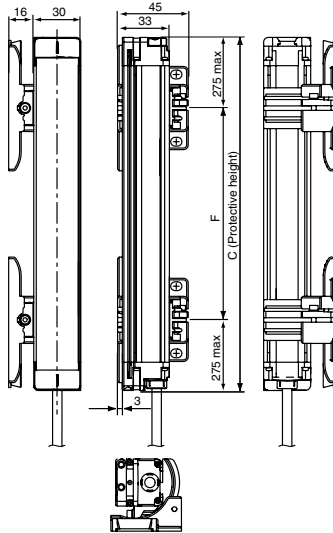
Quick Mount Bracket
(F39-LJB3-M6 or
F39-LJB3-M8)Quick Mount Bracket
(F39-LJB3-M6 or
F39-LJB3-M8)

Mounting screw holes

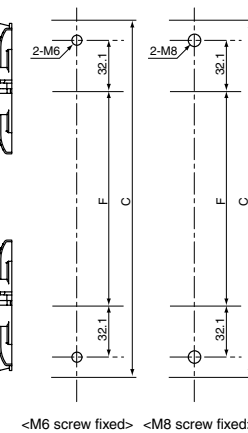
C (protective height): 4-digit number in the table
F = See the table below.

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)

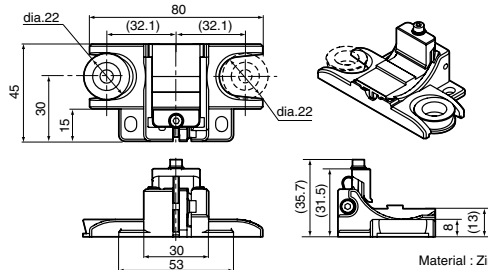
Mounting screw holes

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

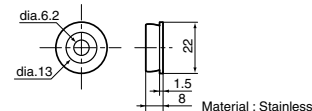
Protective height	Number of intermediate brackets	F
185 to 1,105	2	555 mm max.
1,185 to 1,585	3	555 mm max.
1,665 to 2,065	4	555 mm max.

Dimensions of quick mount bracket for F39-LJB3

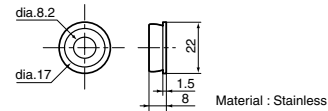
Backside mounting



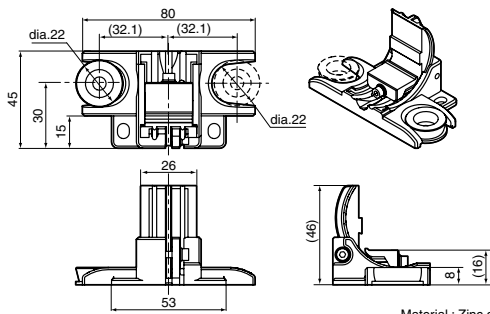
Quick mount M6 bracket



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


D

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 I3 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 I8 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)


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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 D60.



For information on safety light
curtain accessories, see page D75.



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