

Safety Light Curtains

- Fast and easy installation
- Resolution: 25 mm (1.01 in.)
- Range: 7 m (23 ft.)
- Protected heights: 185 to 2065 mm (7.28 to 81.26 in.)
- Very compact size: 30 x 30 mm (1.18 x 1.18 in.)
- Cascaded designs possible – 3 segments
- Simple muting
- Cross-talk prevention

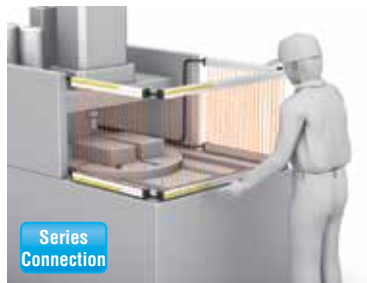


Description

In addition to the simple functions inherited from the EASY type, such as global support, easy-to-view indicators, the BASIC type includes series connection and simple muting functions. This enables the BASIC type to satisfy installations that require multiple safety light curtains.

Up to three sets connected in a series

It is possible to connect up to three sets of safety light curtains in series. These sensors can be placed in a U-shaped or L-shaped pattern with a single power line, thus requiring less wiring.



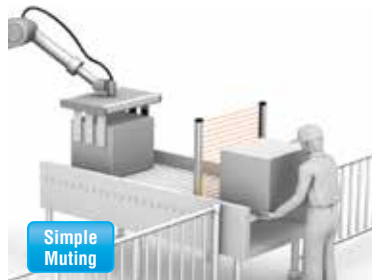
Functions inherited from the EASY type

Simple functions such as universal power voltage specification, easy-to-view diagnostics, a fixed response time have been inherited from the EASY type. As a result, expect reduced work-hours at each stage of use, from design and installation to operation.



Instant visibility of process trouble during muting

The BASIC type includes a muting function which temporarily disables the safety light curtain when a workpiece passes through. In the event of any trouble occurring, the error can be instantly recognized from the pattern of the LED indicators, allowing for a fast solution.



Specifications

Main Units

F3SJ-B□□□□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 102	
Protective height (PH)	185 to 2,065 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. (response time at 1 set connection, series connection of 2 sets or 3 sets)
	OFF to ON	70 ms max. (response time at 1 set connection, series connection of 2 sets or 3 sets)
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: 52 mA max., 26 to 42 beams: 68 mA max., 46 to 62 beams: 75 mA max., 66 to 82 beams: 88 mA max., 86 to 102 beams: 101 mA max.
	Receiver	Up to 22 beams: 45 mA max., 26 to 42 beams: 50 mA max., 46 to 62 beams: 46 mA max., 66 to 82 beams: 61 mA max., 86 to 102 beams: 67 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	
Auxiliary output 1	Two PNP transistor outputs, load current 100 mA max., residual voltage 2 V max. (except for voltage drop due to cable extension), leak current 1 mA max.	
Output operation mode	Safety output: On when receiving light Auxiliary output: – Reverse output of safety output for a basic system – ON when muting/override for a muting system	
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.	
Series connection	Time division emission by series connection • Number of connections: up to 3 sets (between F3SJ-Bs only) Other models cannot be connected. • Total number of beams: up to 192 beams • Maximum cable length for 2 sets: no longer than 7 m	
Test function	• Self test (at power-ON and at power distribution) • External test (emission stop function by test input)	
Safety-related functions	• Interlock (basic system) • External device monitoring (basic system) • Muting (muting system) • Override (muting system)	
Connection type	Connector method (M12, 8-pin)	
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)	

(Continued on next page)

*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.

*7. Mounting brackets are sold separately.