

F3SJ-A

Safety Light Curtains

- Resolution: 14 mm (0.55 in.), 20 mm (0.79 in.), 25 mm (1.01 in.), 30 mm (1.18 in.), or 55 mm (2.17 in.)
- Range: 7 m (23 ft.) or 9 m (29.5 ft.) dependent on minimum object resolution and protected height
- Protected heights: 14 mm protected heights from 245 to 1631 mm (9.6 to 64 in.), 20 mm, 25 mm and 30 mm protected heights from 245 to 2495 mm (9.6 to 98 in.), 55 mm from 270 to 2470 mm (10.6 to 97 in.)
- Very compact size – 30 x 24 mm (1.18 x 0.94 in.)
- Cascaded designs possible – 4 segments, up to 400 beams
- Partial muting and position detection muting
- Cross-talk prevention



Description

Position Detection Muting Function

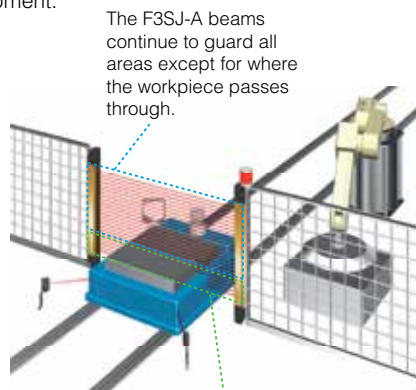
Position Detection Muting Function is used in applications where the workpiece is set in position each time by an operator, and a turntable or positioning robot then moves the workpiece to the area where the work is performed. A limit switch or other means is used to detect when the robot is in a safe position and muting is then applied.



Partial Muting Function

Muting temporarily disables the F3SJ-A when an object must pass through the detection zone, such as when supplying a workpiece to your equipment.

Partial muting increases the level of safety by only muting the beams of the safety light curtain where the workpiece passes through, while preventing muting in all other areas.



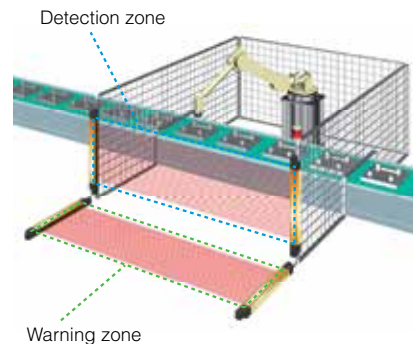
Only the beams of the safety light curtain interrupted by the workpiece are muted.

Warning Zone Function

With the F3SJ-A, part of the detection zone can be used as warning zone to generate an alarm when someone approaches the danger zone. If the person then enters the danger zone the F3SJ-A will send a stop signal to the guarded machine. In addition, the auxiliary output can be used to activate a flashing lamp to alert the person in the warning zone.

The detection zone for a single F3SJ-A can be divided into two zones or set a single warning zone for multiple, cascaded F3SJ-A units.

Dividing the zone between series-connected sensors



SD Manager Software

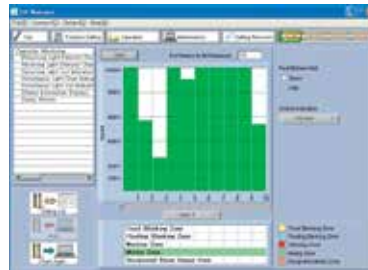
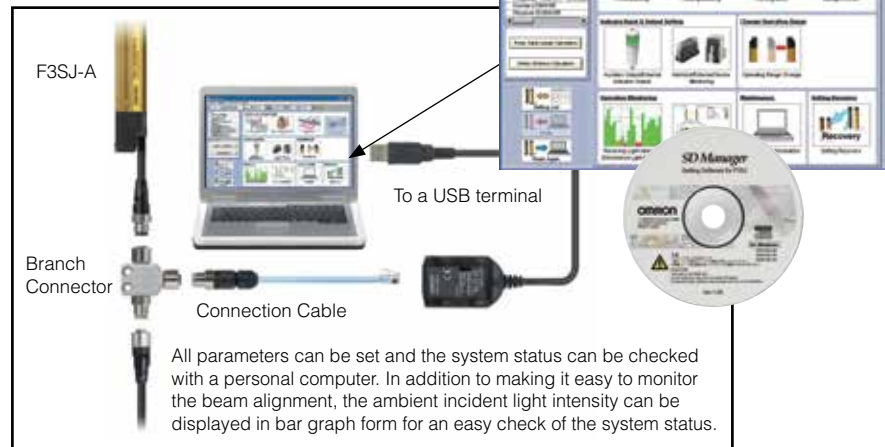
Using the SD Manager software, all features of the F3SJ-A can be set and checked. Features include:

- Display of system specifications:
 - Model
 - Number of beams
 - Minimum object resolution
 - Response time
- Settings for:
 - Fixed blanking
 - Floating blanking
 - Warning zone configuration
 - Muting – Both partial and position detection
 - External indicator function
 - Auxiliary outputs
 - EDM parameters
 - Operating range
- Monitoring of received and ambient light intensity
- Maintenance information:
 - Power on time
 - OSSD switching frequency
- Recovery of settings
- Safety distance calculations based on parameters for connected system

Setting Console

When you don't want to take a computer into the field with you the F39-MC21 setting console is a convenient way to set parameters and check the system status.

"SD Manager" PC Setting Software



Beam Alignment is Easier

The incident light level can be displayed in a bar graph for each beam.

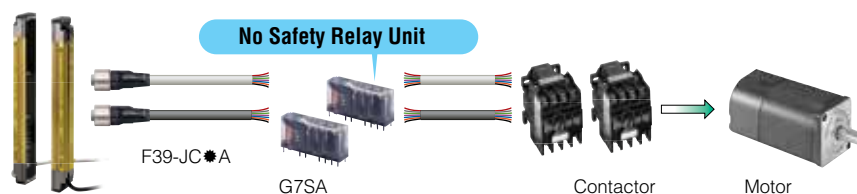
Applications

With built-in muting and blanking functions, the F3SJ-A can be employed in a wide variety of applications from robotic work cells to small machines. The potential for cascaded design and a broad selection of minimum object resolutions adds to this versatility.

Selecting the Best Configuration

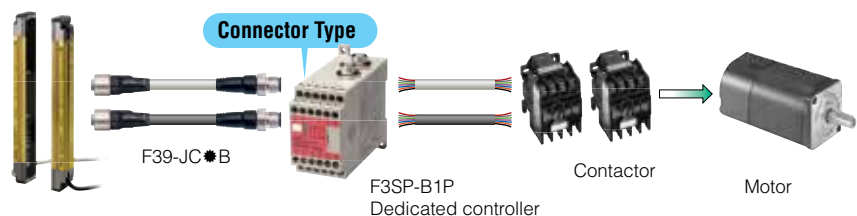
Space Efficient and Low Cost

The built-in external device monitoring function eliminates the need for a safety relay unit.



Reduced Wiring and Easy Maintenance

Cables with connectors on both ends simplify connections and prevent wiring errors.



Specifications

Performance	
Resolution:	14 mm, 20 mm, 25 mm, 30 mm, 55 mm
Protected Height:	14 mm – 245 to 1631 mm (9.6 to 64.2 in.) 20 mm, 25 mm and 30 mm – 245 to 2495 mm (9.6 to 98.2 in.) 55 mm – 270 to 2470 mm (10.6 to 97.2 in.)
Operating Range:	0.2 to 9 m for all protective heights up to 1640 mm (64.6 in.) 0.2 to 7 m for all protective heights longer than 1640 mm (64.6 in.):
Effective Aperture Angle:	±2.5° maximum, transmitter and receiver at operating range greater than 3 m (9.8 ft.)
Response Time:	For 14 mm resolution systems up to 983 mm (38.7 in.) protected height ≤17.5 ms For 14 mm resolution systems above 983 mm (38.7 in.) protected height ≤25 ms For 20 mm resolution systems up to 1205 mm (47.4 in.) protected height ≤15 ms For 20 mm resolution systems above 1205 mm (47.4 in.) protected height ≤22.5 ms For 25 mm resolution systems up to 1600 mm (63.0 in.) protected height ≤15 ms For 25 mm resolution systems above 1600 mm (63.0 in.) protected height ≤20.0 ms For 30 mm resolution systems, all protected heights ≤17.5 ms For 55 mm resolution systems, all protected heights ≤13 ms
Safety Output Rating:	Two 24 VDC PNP outputs sourcing 300 mA max.
Auxiliary (Non-Safety) Output Ratings:	One 24 VDC PNP output sourcing 300 mA max.
Light Source:	Infrared LED, 870 nm
Indicators:	Transmitter: 5 LED Light Level Indicators, 3 LED Error Indicators, Power, Interlock, EDM, Blanking/Test Receiver: 5 LED Light Level Indicators, 3 LED Error Indicators, Machine Run, Machine Stop
Mechanical	
Enclosure:	Anodized aluminum housing
Cable Length:	Optional cables are available up to 20 m (65.6 ft.) in length
Transmitter and Receiver Cable Connections:	M12, 8-pin
Electrical	
Power Supply:	24 VDC ± 20%
Environmental	
Protection Rating:	IP65
Operating Temperature:	-10 to 55°C (14 to 131°F)
Storage Temperature:	-30 to 70°C (-22 to 158°F)
Relative Humidity:	35 to 85% non-condensing
Vibration:	10 to 55 Hz, double amplitude of 0.7 mm, 20 sweeps in X, Y, and Z directions
Shock:	100 m/s ² , 1000 times each in X, Y and Z directions
Approvals	ESPE Type 4 (IEC 61496-1/-2) Category 4 / PL e (EN ISO 13849-1) SIL3 / SIL3 CL3 (IEC 61508)UL508, UL1998, CAN/CSA-C22.2 No. 14, CAN/CSA-C22.2 No. 0.8

Specifications are subject to change without notice.

F3SP-B1P Control Unit

Power Supply Voltage:	24 VDC ±10%
Power Consumption:	DC1.7 W max (not including sensor's current consumption)
Operation Time:	100 ms max. (not including the sensor's response time)
Response Time:	10 ms max. (not including the sensor's response time)
Relay Output	
Number of Contacts:	3 N.O., 1 N.C.
Rated Load:	250 VAC 5 A (cos = 1); 30 VDC 5 A L/R = 0 ms
Rated Current:	5 A
Connection Type	
Between Sensors:	M12 connector (8-pin)
Others:	Terminal block
Weight:	Approx. 280 g (9.9 oz.)

Specifications are subject to change without notice.