# Easy to monitor and ready for IoT

IO-Link

UL CERTIFIED

TÜV SÜD

CE

STi SAFETY, TECHNOLOGY & INNOVATION

# This series redefines safety at manufacturing sites

Manufacturers now need to manage
globalization and flexible production.
That's why we have
developed our F3SG-SR/PG Series.
This series offers a complete lineup
of light curtains that comply
with global safety standards
and a wide range of functionality
that covers all aspects
from design through to maintenance.
The F3SG-SR/PG Series
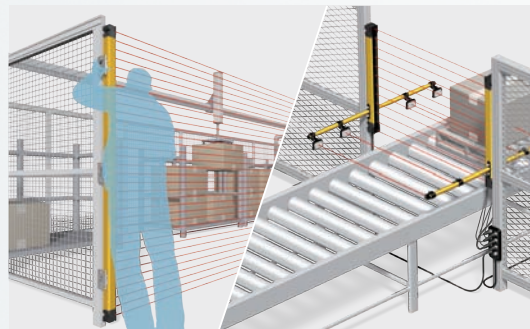helps manufacturers build safety systems.
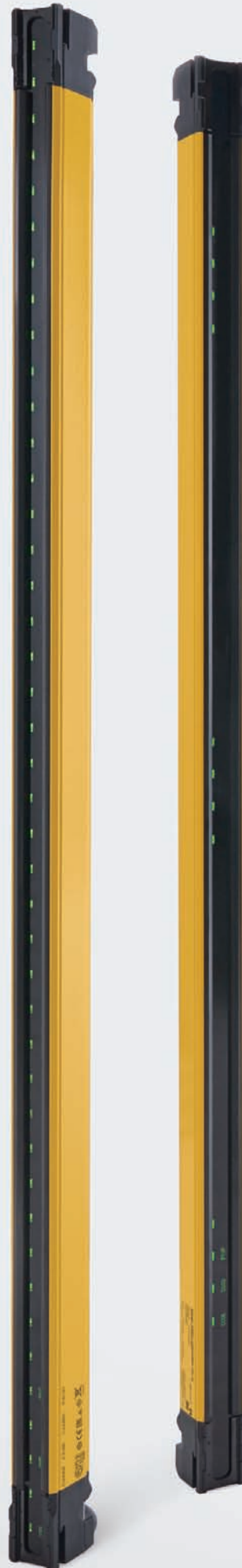
# Build flexible safety systems
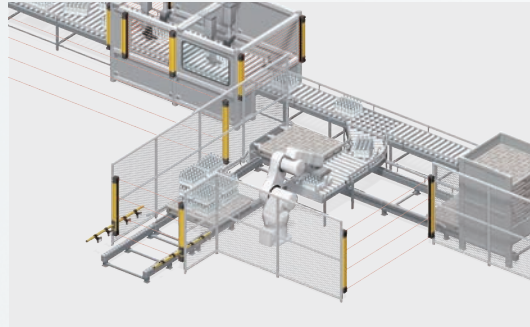
## Design

## Set-up

## Operation

IP69K model

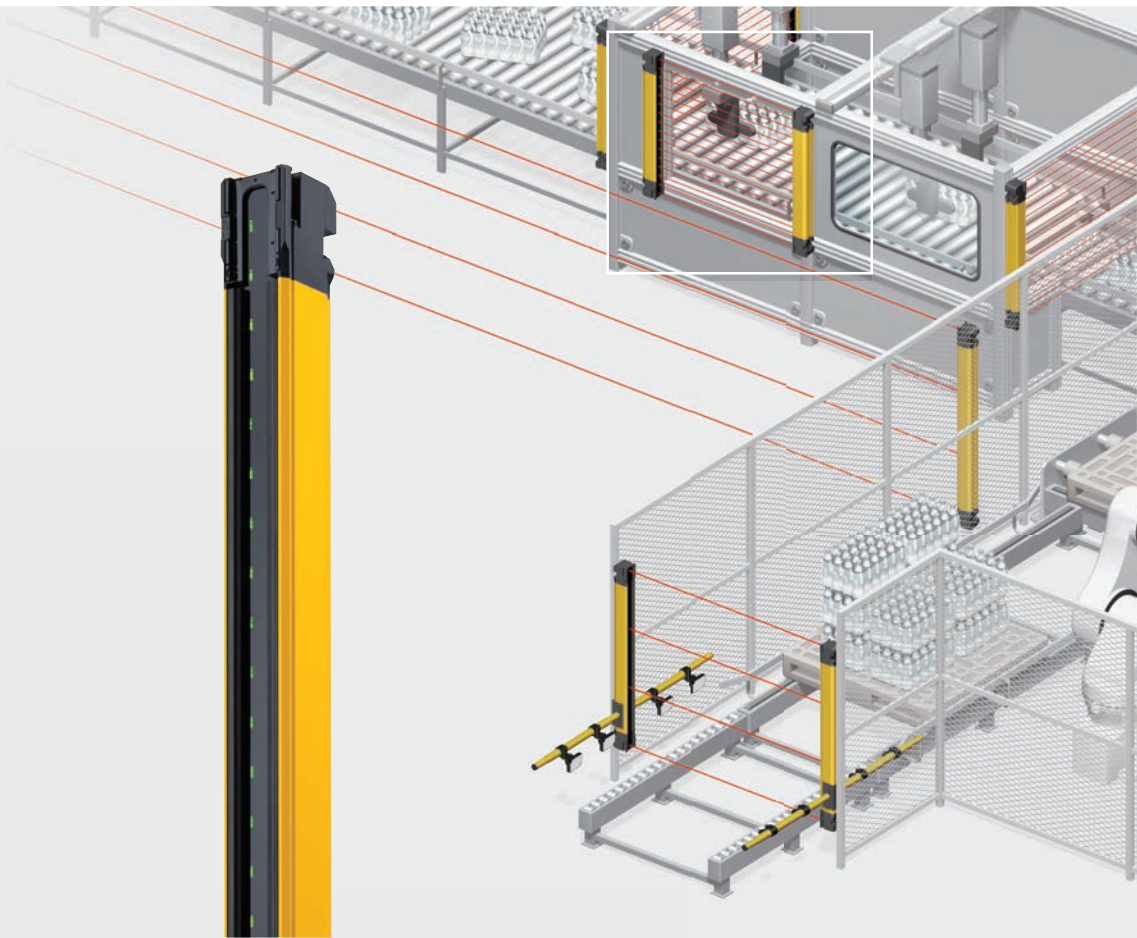## Maintenance

# One series covers all protection applications—from machine

Standardize mechanical design across production lines and eliminate complexity of selection and design.

## Protection at machine openings

Safety Light Curtain
# F3SG-SR

### 👆 Finger Protection

| | | |
|---|---|---|
| Beam gap | **10** mm | Detection capability 14-mm dia. |
| Protective height | **160** to **2,000** mm | |
| Max. operating range | **10** m | |

**IP69K model available**

### 🖐 Hand Protection

| | | |
|---|---|---|
| Beam gap | **20** mm | Detection capability 25-mm dia. |
| Protective height | **160** to **2,480** mm | |
| Max. operating range | **20** m | |

**IP69K model available**

### 🦵 Arm/Leg Protection

| | | |
|---|---|---|
| Beam gap | **40** mm | Detection capability 45-mm dia. |
| Protective height | **240** to **1,520** mm | |
| Max. operating range | **20** m | |

### 🚶 Body Protection

| | | |
|---|---|---|
| Beam gap | **80** mm | Detection capability 85-mm dia. |
| Protective height | **280** to **920** mm | |
| Max. operating range | **20** m | |

## Common optional accessories including cables and brackets*

The light curtains share common optional accessories for ease of design and retrofitting of production lines.

Intelligent Tap
F39-SGIT-IL3

Bluetooth® Communication Unit
F39-SGBT

**IO**-Link
**Bluetooth®**
USB Type-C™
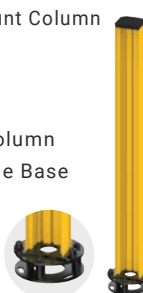
Lamp
F39-SGLP

Muting Sensor Arm Mounter
F39-FMA

Muting Sensor Connection Box
F39-GCN5

Floor Mount Column
F39-ST
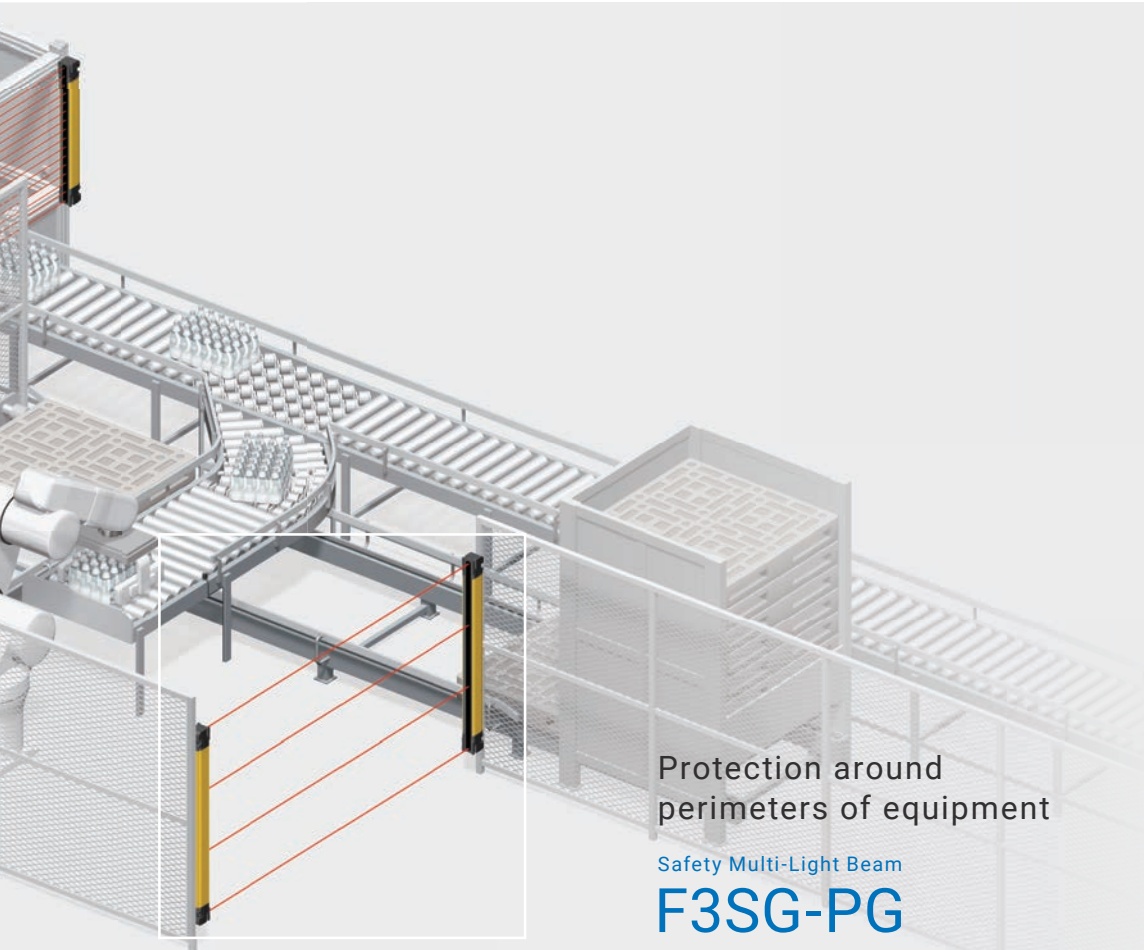
Mount-Column Adjustable Base
F39-STB

Mirror Column (for F3SG-SR Safety Light Curtain)
F39-SML

* Except for some optional accessories. See the F3SG-SR/PG Datasheet for details.

(The mount-column adjustable base is sold separately.)

# openings to perimeters of equipment

Protection around
perimeters of equipment

Safety Multi-Light Beam
## F3SG-PG

### Perimeter Access Guarding

| | |
|---|---|
| Beam gap | 300/400/500 mm |
| Product length | 670 to 1,370 mm |
| Max. operating range | 20 m |

### Perimeter Guarding Long Range

| | |
|---|---|
| Beam gap | 300/400/500 mm |
| Product length | 630 to 1,370 mm |
| Max. operating range | 70 m |

### Perimeter Guarding Passive Mirror

| | |
|---|---|
| Beam gap | 300/400/500 mm |
| Product length | 670 to 1,370 mm |
| Max. operating range | 5 m |

## Helps build safety systems for machines all over the world

Mirror Column
(for F3SG-PG
Safety
Multi-Light Beam)
F39-PML

Laser
Alignment
Pointer
F39-PTS

This series conforms
to worldwide safety
standards.

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Functional Safety

CE

PNP/NPN selection
by changing the wiring
allows you to easily
bring and install the light
curtain across the world.

NPN PNP

The unique tightly sealed
structure meets IP67G
water and oil
resistance and IP69K*.

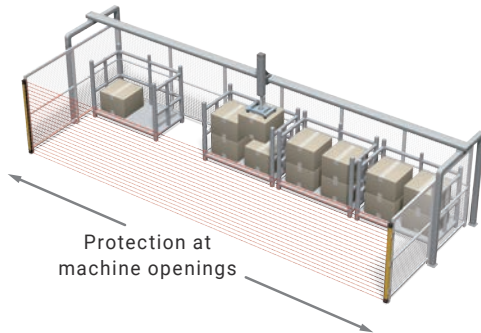* (Safety Light Curtain
IP69K model
F3SG-SR-K)

# A broad lineup for flexible production line design

Create flexible design plans to suit your equipment requirements.

## Long operating range thanks to unique optical design

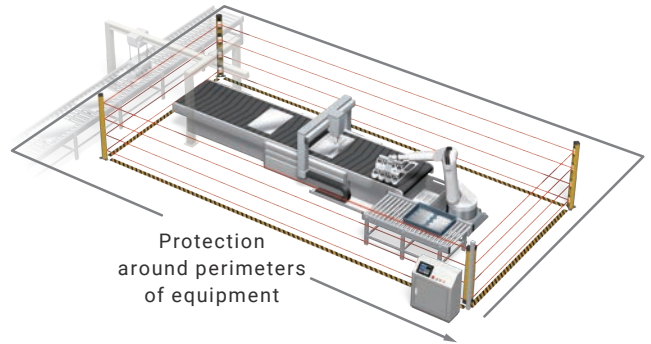The long-distance sensing capability enables reliable detection even in harsh environments.

Protection at machine openings

Protection around perimeters of equipment

Safety Light Curtain

### F3SG-SR
Series

## 20 m

The high-power optical system provides stable operation up to 20 m even in harsh environment

Safety Multi-Light Beam

### F3SG-PG
Series

## 70 m

When mirror columns are installed in three corners:50m Min.

## Omron's unique compact design

The F3SG-PG Safety Multi-Light Beam has the same compact housing as the F3SG-SR Safety Light Curtain. This makes mechanical design more flexible.
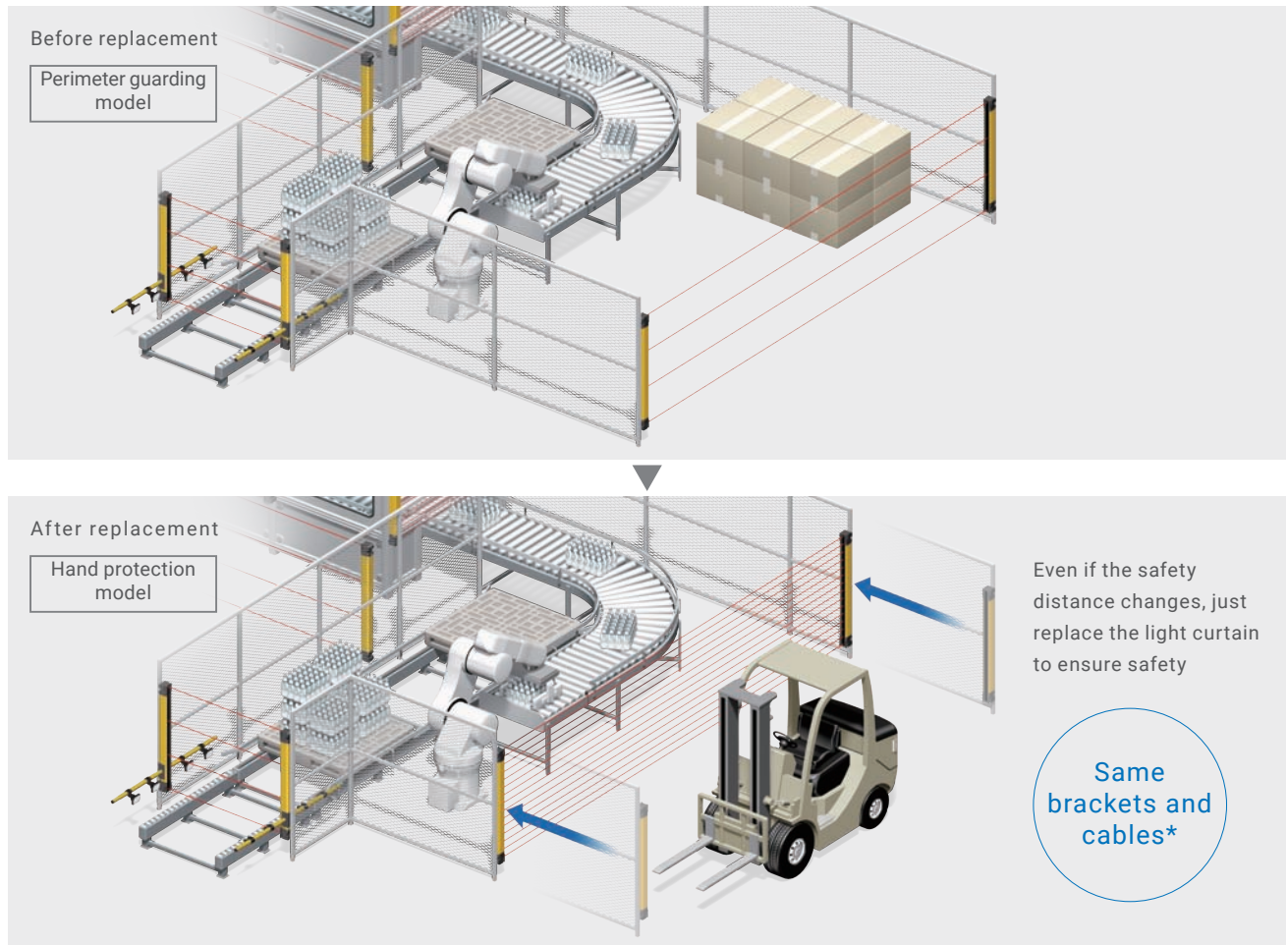
SLIM
50%*

46mm
32mm
55mm
38mm
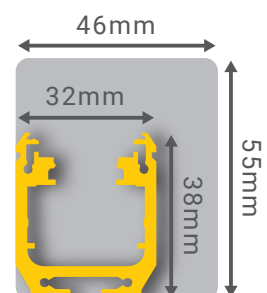
* Compared with OMRON Robotics and Safety Technologies, Inc's PA46 Perimeter Access Guarding Device. (Based on Omron investigation in June 2018)

# Easy line layout changes

Simply replace a light curtain using the same accessories because the F3SG-SR Series and F3SG-PG Series share the same housing. There is no need to select and install optional accessories for a new light curtain.

Example : In order to install the light curtain closer to the machine, the perimeter guarding model is replaced with the hand protection model.



Before replacement

Perimeter guarding model

After replacement

Hand protection model

Even if the safety distance changes, just replace the light curtain to ensure safety

Same brackets and cables*

# Just replace the light curtain with the same protective height*

### F3SG-SR Series lineup

● Standard model  ○ Flexible height model (Increments of 40 mm)

| Protective height (mm) | 160 | 200 | 240 | 280 | 320 | 360 | 400 | 440 | 480 | 520 | 560 | 600 | 640 | 670 | 680 | 720 | 760 | 800 | 840 | 880 | 920 | 960 | 970 | 1000 | 1040 | 1070 | 1120 | 1200 | 1280 | 1360 | 1370 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Finger Protection | ● | ○ | ● | ○ | ● | ○ | ● | ○ | ● | ○ | ● | ○ | ● |  | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ |  | ● |  |  |  | ● |  |  |  |
| Hand Protection | ● | ○ | ● | ○ | ● | ○ | ● | ○ | ● | ○ | ● | ○ | ● |  | ○ | ● | ○ | ● | ○ | ● | ○ | ● |  | ○ | ● |  |  | ● | ● | ● |  |
| Arm/Leg Protection |  |  | ● |  |  |  | ● |  |  |  | ● |  |  |  | ● |  |  |  |  | ● |  |  |  |  |  |  |  | ● |  |  |  |
| Body Protection |  |  |  | ● |  |  |  | ● |  |  |  | ● |  |  |  |  |  | ● |  |  |  | ● |  |  |  |  |  |  |  |  |  |

| Protective height (mm) | 1400 | 1440 | 1520 | 1600 | 1680 | 1760 | 1800 | 1840 | 1920 | 2000 | 2080 | 2280 | 2480 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Finger Protection | ● |  |  | ● |  |  | ● |  |  | ● |  |  |  |
| Hand Protection |  | ● | ● | ● | ● | ● |  | ● | ● | ● |  | ● | ● |
| Arm/Leg Protection |  | ● |  |  |  |  |  |  |  |  |  |  |  |
| Body Protection |  |  |  |  |  |  |  |  |  |  |  |  |  |

### F3SG-PG Series lineup

| Product length (mm) | 160 | 200 | 240 | 280 | 320 | 360 | 400 | 440 | 480 | 520 | 560 | 600 | 640 | 670 | 680 | 720 | 760 | 800 | 840 | 880 | 920 | 960 | 970 | 1000 | 1040 | 1070 | 1120 | 1200 | 1280 | 1360 | 1370 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perimeter Access Guarding |  |  |  |  |  |  |  |  |  |  |  |  |  | ● |  |  |  |  |  |  |  |  | ● |  |  |  | ● |  |  |  | ● |
| Perimeter Guarding Long Range |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ● |  |  | ● |  | ● |
| Perimeter Guarding Passive Mirror |  |  |  |  |  |  |  |  |  |  |  |  |  | ● |  |  |  |  |  |  |  |  |  |  |  |  |  | ● |  |  | ● |

* Except for some models and optional accessories.See the F3SG-SR/PG Datasheet for details.
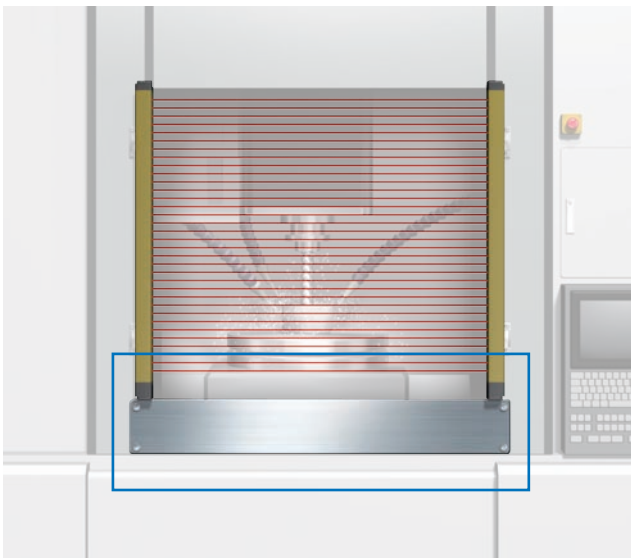
# Flexible installation

## Perfect fit

Protective heights are available in increments of 40 mm up to 1,000 mm*. The perfect protective height for any protected area ensures safety without the need for additional measures.
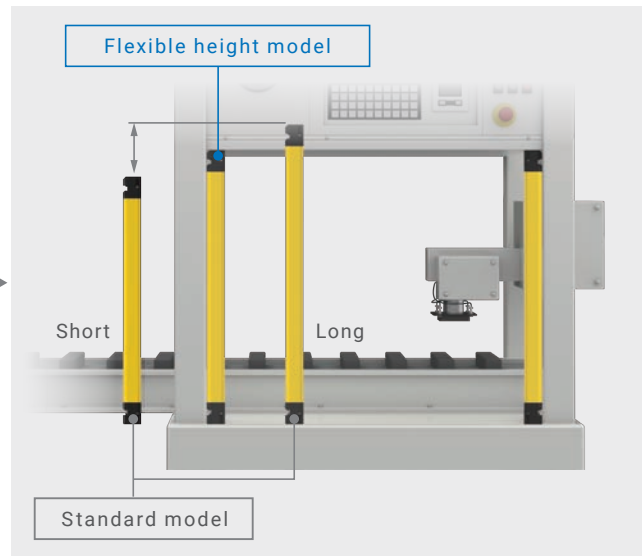
**Problem**

The light curtain that does not completely fit the protected area requires additional measures (e.g., adding a protection cover).

**F3SG-SR***

The flexible height model requires no additional measures.





Flexible height model

Short          Long

Standard model

* F3SG-SR Finger and Hand Protection models only.

## Protection without dead space

The F3SG-SR Series eliminates dead space that previously existed even when light curtains are series-connected or U-shape connected. Safer systems can be designed.

**Problem**

Dead space exists at the joint.
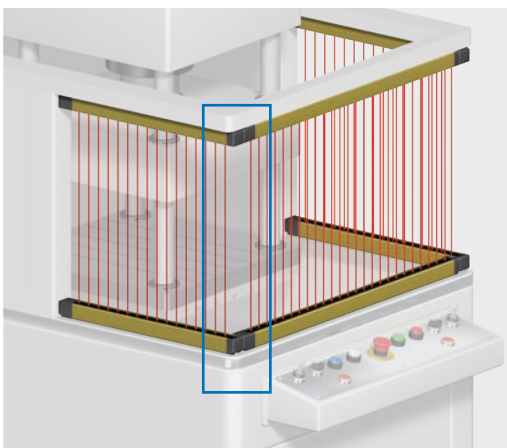
**F3SG-SR***

Eliminates dead space and ensures safety.





F3SG-SR
Hand Protection
model (25-mm dia.)

Detects a hand anywhere
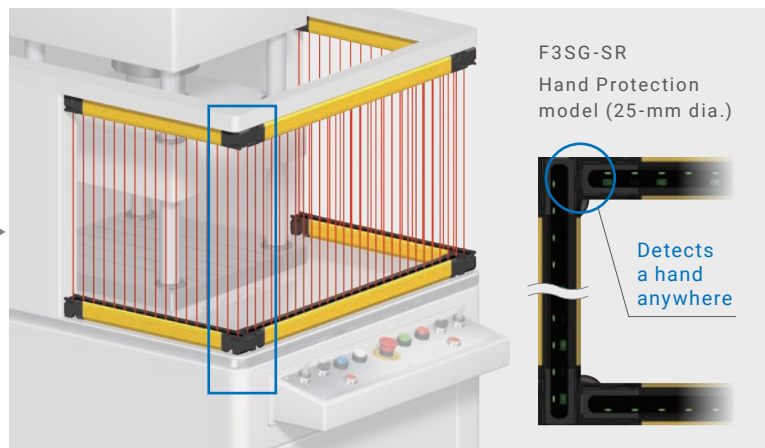
* Except for F3SG-SR Finger Protection models.

# Simple wiring for flexible design

The F3SG-PG-C Perimeter Guarding Passive Mirror requires wiring of only the emitter/receiver. The use of an optional mirror column allows wiring at one location for protection around perimeters of equipment. They reduce wiring duct design and wiring time.

### Wiring only the emitter/receiver (F3SG-PG-C)

Emitter/receiver

Passive mirror

No wiring required

Mirror structure of passive mirror

**PATENT PENDING**

Passive mirror → Emitter/receiver
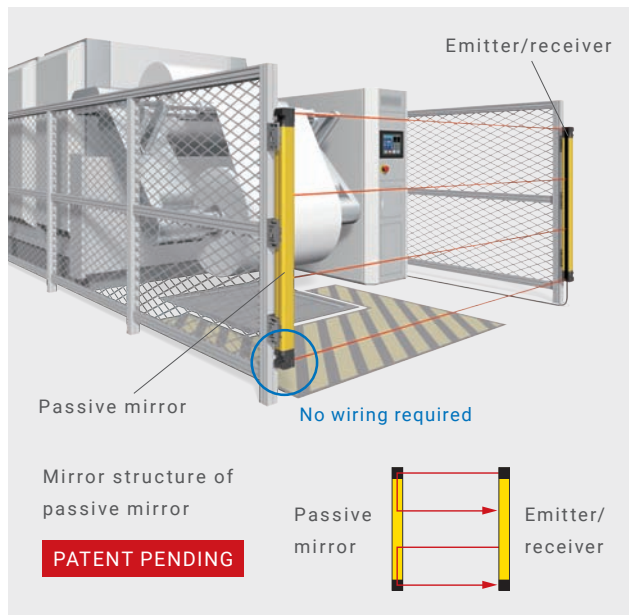
### Wiring at one location for protection around perimeters of equipment (Other than F3SG-PG-C)

Mirror column

Mirror column

Mirror column

Emitter

Receiver

Wiring at one location

Mirror column
F39-SML   F39-PML
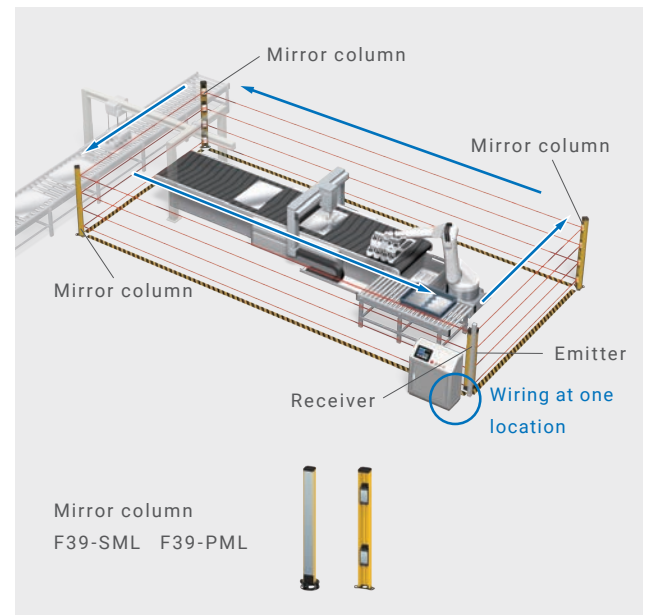
# Two different synchronization methods

Choose from two different methods of synchronization between the emitter and receiver to suit your equipment.
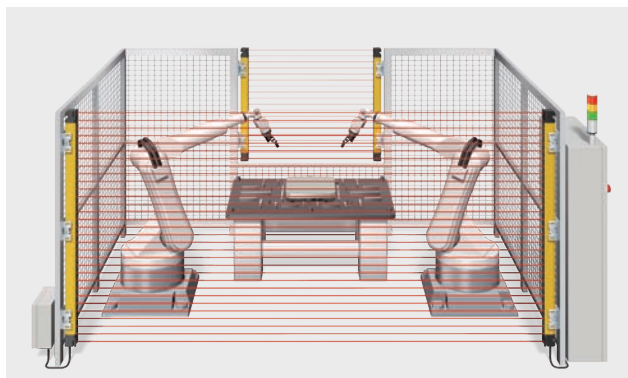
### Optical synchronization

No sync lines are required. Connect emitter only to power supply.

Mutual interference prevention : Up to 2 sets

No wiring of emitter to control panel required

Power supply
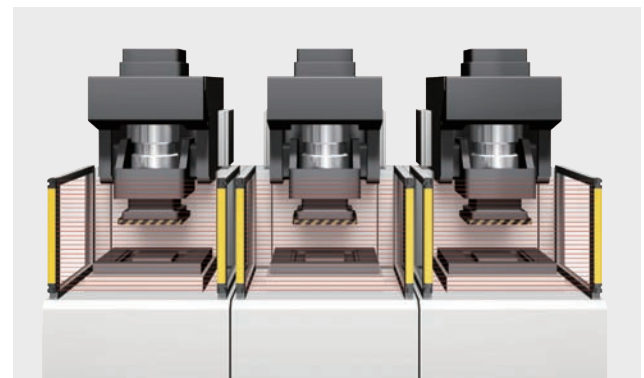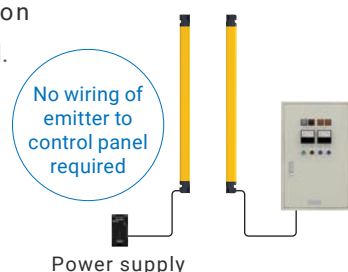
### Wired synchronization

Mutual interference prevention : Up to 3 sets

Mutual interference prevention up to 3 sets

# Color indication of beam status for quick and easy beam adjustment

Reduce beam adjustment time.

## Area Beam Indicator (ABI) for an at-a-glance check of beam status  <span>PATENTED</span>

The ON or OFF state of the light curtain and low light intensity can be checked.
The ABI also facilitates fine adjustment of beams for long-distance sensing.

Easy to see

### Stable state
Green :
Safety outputs ON

The beams
are unblocked.

### Low light intensity
Orange :
Safety outputs ON

Adjust beams or check
if the light curtain is dirty.

### Beams blocked
Red :
Safety outputs OFF*

The beams
in the area are blocked.

* The indicator of an unblocked area is OFF.
Note : Factory default setting.
The images of indicator illumination may vary somewhat from the actual products.
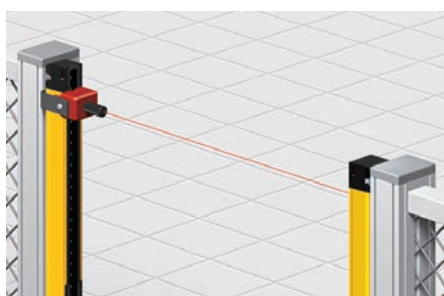
### Laser Alignment Pointer
F39-PTS          F39-PTG

Assists with beam adjustment.
Easy-to-see laser beam shows the
sensor orientation. It can be attached
on the spatter protection cover.

# A variety of optional accessories for easy installation and angle adjustment

Reduce installation time and easily adjust beams after installation without relying on the expertise of experienced engineers.

## Easy beam adjustment after installation

**Problem**

It is difficult to adjust beams after the light curtain and protective components are installed.

**F3SG-SR/PG**

The rugged metal housing does not need protective components. Beams can be adjusted using brackets.

±22.5°

**Adjustable Top / Bottom Bracket**
F3SJ, F3SN Adapter
**F39-LSGTB-SJ**

This bracket used at the top and bottom of the light curtain provides horizontal adjustment of ±22.5°.

±15°
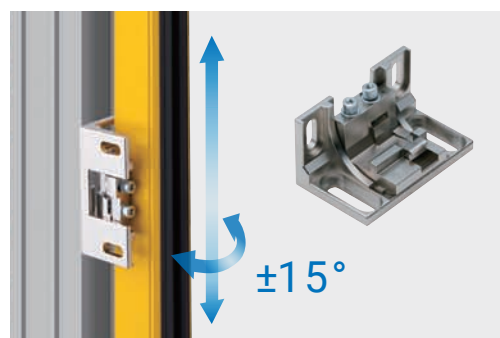
**Adjustable Side-Mount Bracket**
(Intermediate Bracket)
**F39-LSGA**

This bracket provides horizontal adjustment of ±15° as well as vertical position adjustment.
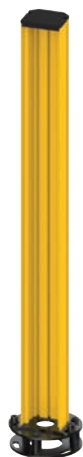
**Floor Mount Column**
**F39-ST**

This column can be installed independently of equipment or fences, almost anywhere.

Flexible protection
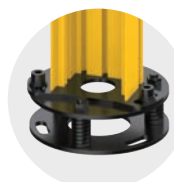
**Mount-Column Adjustable Base**
**F39-STB**

(The mount-column adjustable base is sold separately.)

**Intelligent Tap**
**F39-SGIT-IL3**

Settings can be copied and pasted between the same models of light curtains without using a PC, reducing time and effort to install many light curtains in mass production facilities. Settings can be backed up and automatically restored at power on.
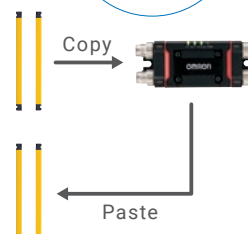
Setting without PC

Copy

Paste

# Reduced wiring system for various equipment

Wiring work during line installation and maintenance can be greatly reduced.

## Simple wiring around large equipment

**Problem**

The distance of wiring around large facilities to the control panel generally becomes long.
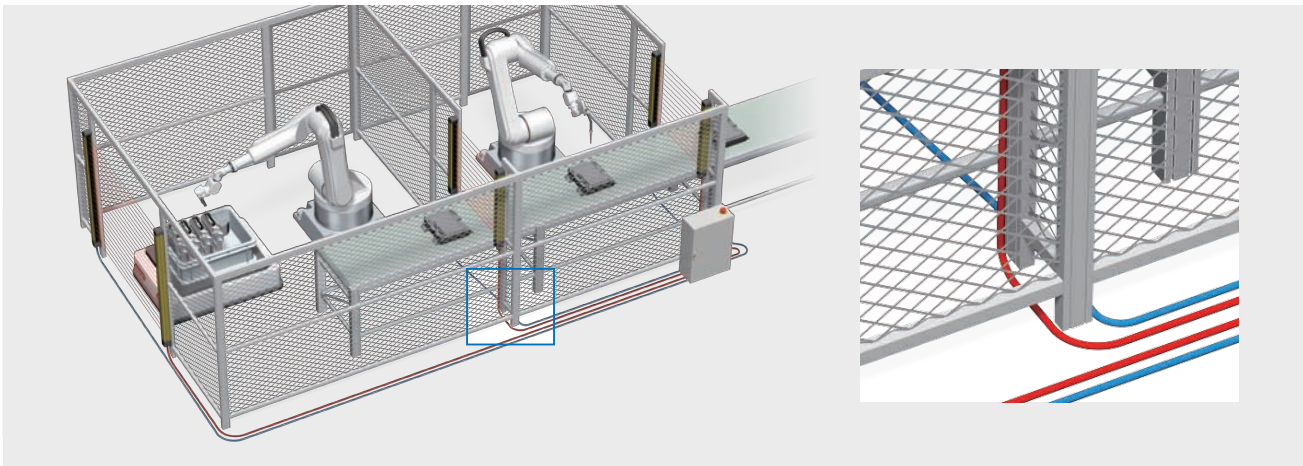


**F3SG-SR/PG**

The reduced wiring system reduces the number of cables and terminal blocks and wiring time.



Reduced wiring connector



Y-Joint Plug /
Socket Connector
F39-GCNY2

Emitter    Receiver              Emitter    Receiver

Reduced
wiring work

Reduced wiring
connector

Up to
100 m

Saving wiring
and space

13-pair terminals          8-pair terminals
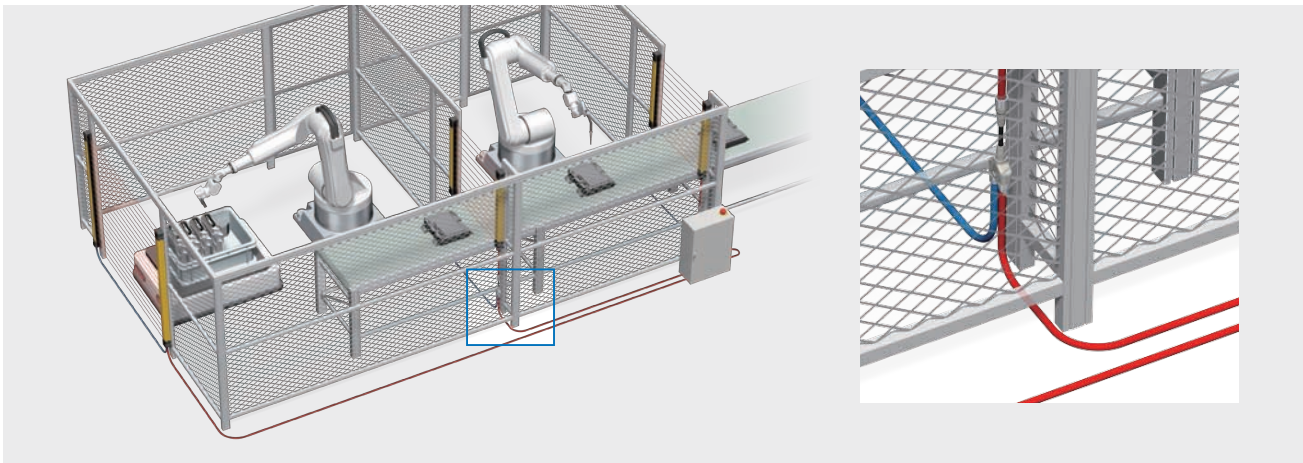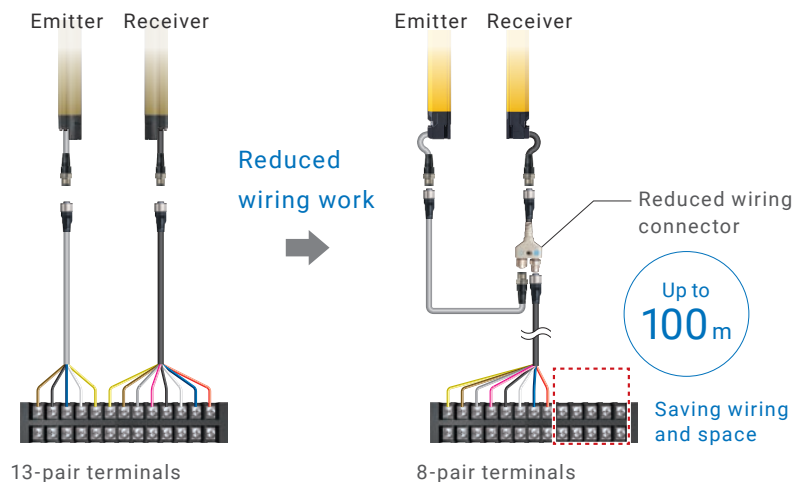
Note: Refer to the User's Manual (Cat. No. Z405) for more information on cable extension.

# One cable connection to control panel

Options provide simple wiring for muting.

In order to maintain productivity, the light curtains are often used with muting sensors, which makes wiring in the control panel more complicated.
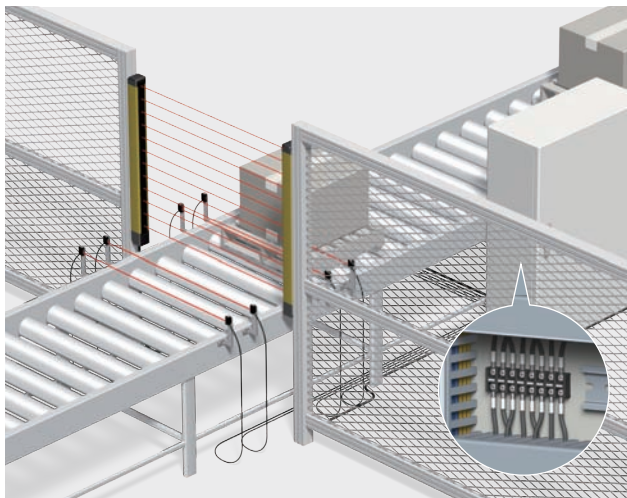
F3SG-SR/PG

Options to reduce wiring simplify wiring and installation of muting sensors.
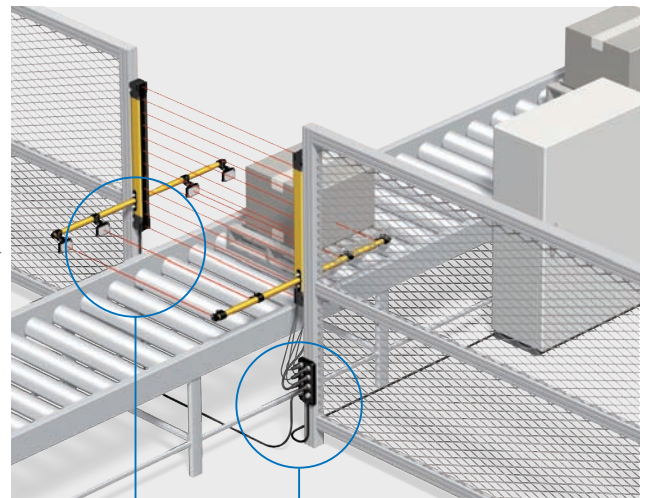
### Muting Sensor Arm Mounter
### F39-FMA

The muting sensor arm mounter facilitates installation of a muting sensor.

Reduced installation work

Cable can be stored

Muting sensor cable

Cable cover

Note : The E3Z Muting Sensor is sold separately.
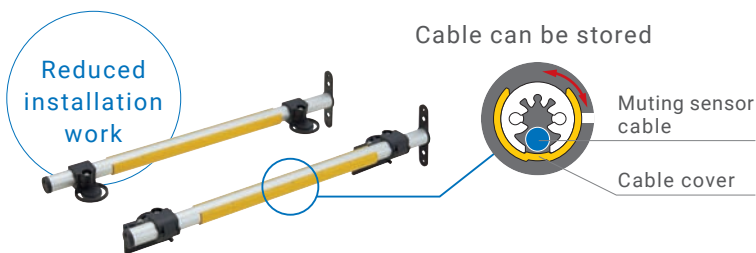
### Muting Sensor Connection Box
### F39-GCN5

The connection box simplifies wiring required for muting, and only one cable is used to connect to the control panel.

Reduced wiring time and costs

---

### Smartclick connectors to quickly connect cables

Smartclick

Insert fully

Click!

Easy and secure connection

Just a 1/8th turn to connect

Smartclick is a registered trademark of OMRON Corporation.

# Robustness for operation in harsh environments

Specifications suitable for use in any environment contribute to stable operation.

## Designed for reliable use in harsh environments where light curtains are prone to malfunction



### Cold storage warehouse
Safety measures cannot be implemented because there is no light curtain that can be used in cold environments.
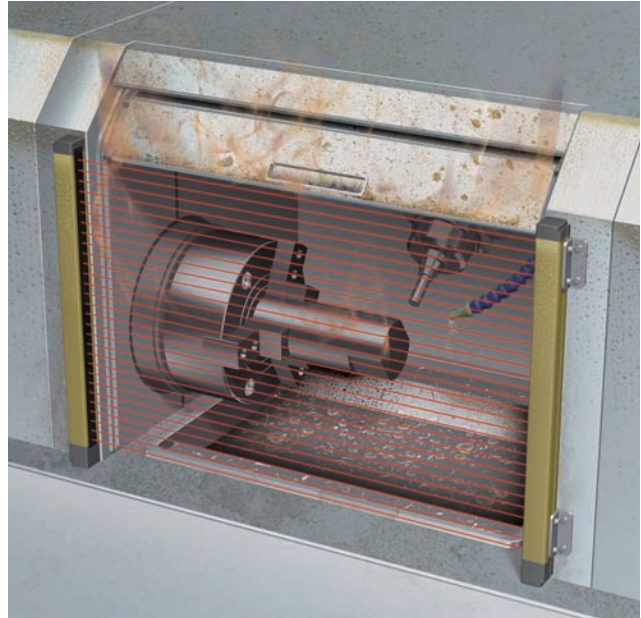


### Metal working process
Oil that gets inside the light curtain causes failure at locations where oil mist is present.
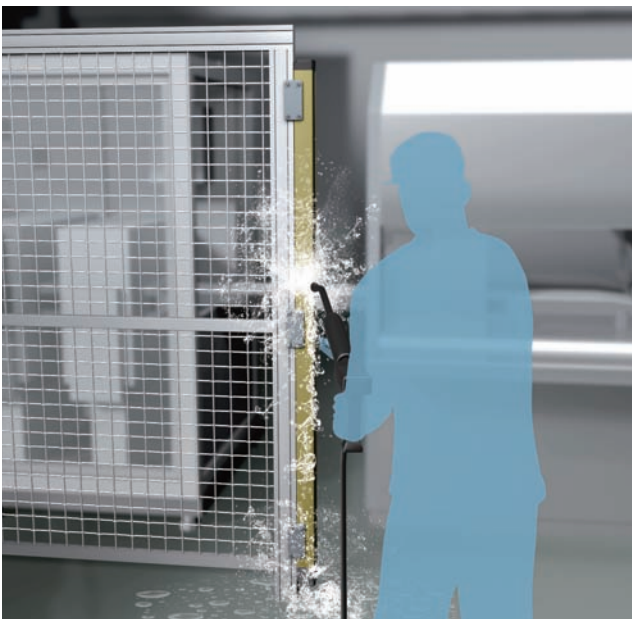


### Food processing line
Cleaning solution that gets inside the light curtain during machine wash-down causes failure.
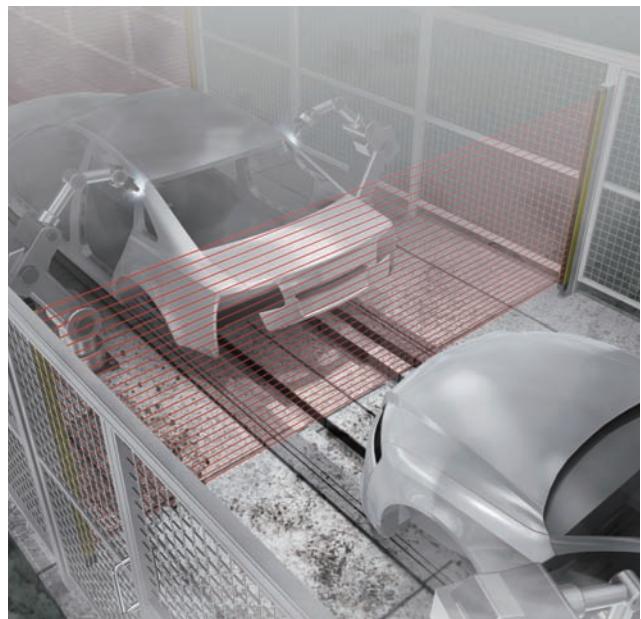


### Use in harsh environments
The spattered or dusty optical surface of the light curtain causes a malfunction or an unplanned machine stop.

Use in cold environments
**-30°C**

Water and oil resistance
**IP65/IP67 IP67G**
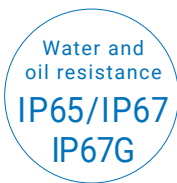
IEC 60529
JIS C 0920 Annex 1

## Tightly sealed structure improved environmental resistance

The unique structure firmly presses the optical surface. Stable sealing performance resists penetration of liquid inside the light curtain, which improves environmental resistance.

**PATENTED**



Metal cover   Elastic material
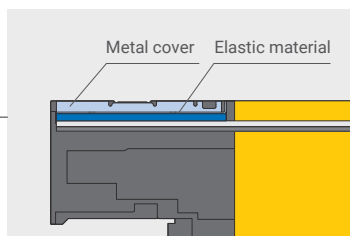
Technology 1 to tightly seal the cap



Pressing parts
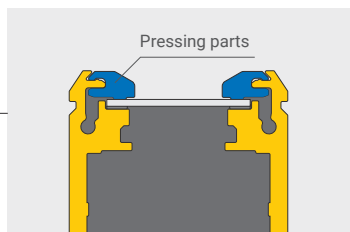
Technology 2 to tightly seal the housing

## IP69K model for high-pressure wash-down applications

**F3SG-SR-K**



Waterproof
**IP69K**

ISO 20653

## High-power optical system provides stable detection
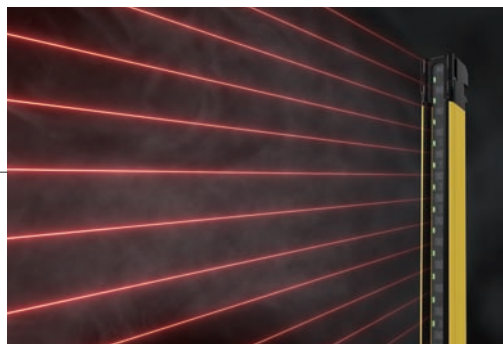


The maximum operating range of the F3SG-SR Safety Light Curtain is 20 m and of the F3SG-PG Safety Multi-Light Beam 70 m. The high-power beam is robust in harsh environments.

## Metal housing increases ruggedness

## Laser marked product information withstands harsh environments

15

# Easy maintenance

Even inexperienced operators can easily check status and replace light curtains.

## Easy error diagnosis with clear color indicators

The light curtain status can be checked at a glance.

### Status indicator

Clear LED indicators with labels provide information about dirt detection for predictive maintenance and about LOCKOUT state for recommending replacement.

### Colors and patterns indicate the status

| Status indicator* | Color | Status |
|---|---|---|
| MAINT | Red/Illuminated | LOCKOUT state due to a recoverable error |
| | Red/Blinking | LOCKOUT state due to a replacement-recommended error |
| MAINT | Orange/Illuminated | Safety outputs are instantaneously turned OFF due to ambient light, vibration, or noise |
| | Orange/Blinking | The Intelligent Tap is in LOCKOUT state |

\* The [M] status indicator is used for the 14-mm detection capablity model.

### Lamp

Output status can be checked at a glance.
F39-SGLP

Output information can be assigned to the lamp as well as ABI.
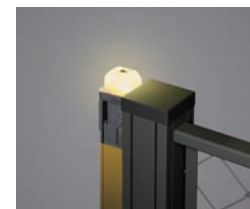
Status, such as light intensity drop, can be checked from a distance.

For information on other indicators, refer to the F3SG-SR/PG Datasheet (Cat. No. F117) *Indicator* or *Troubleshooting*.

## Back up and restore settings with intelligent tap

Replacement and setting time during maintenance can be reduced to 1/10 or less*.

### Plug & Work for quick replacement

Install the intelligent tap to automatically copy the settings of the replaced light curtain to a new one. Virtually anyone can easily replace light curtains and immediately restart the machine.

Replacement and setting time reduced to 1/10 or less*

Intelligent Tap
F39-SGIT-IL3

Quick replacement

Replace light curtain

Restores
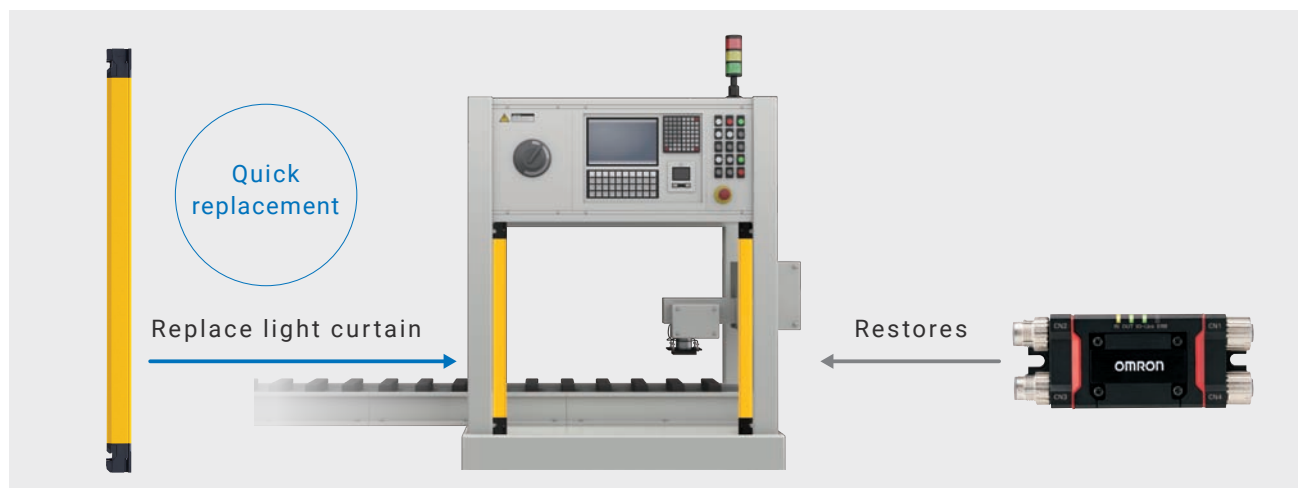
\* Based on Omron investigation in June 2018.

# Preventive maintenance

The status of the light curtain is monitored, and the abnormal state is displayed.
This helps minimize machine downtime.

## Visualization of status

Various devices can be connected via IO-Link.[1]
Low light intensity due to dirt on the light curtain
can be displayed on the monitor, which is useful for
preventive maintenance prior to erroneous detection.

**IO-Link**

**No PC required on site**

Note 1. Screen images for illustration purposes only.
 2. You need to create screens.

## Easy on-site monitoring

The Bluetooth® communication unit allows
you to monitor information about device
stoppages on mobile devices.
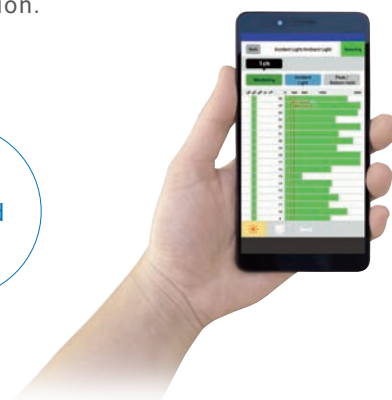
**Bluetooth®**

SD Manager 3
Mobile APP

## Process data

- Auxiliary output status [2]
- Muting input status
- Sequence error information
- Unstable state information (each ch)
- Power voltage information
- OSSD output status

- Reset/EDM/override input status
- Instantaneous block information (each ch)
- Light curtain/Intelligent Tap lockout information

## Service data

- Light curtain information
- Light intensity information (1 byte : 0-255)
- Light curtain settings
- Light curtain internal status information

- Intelligent Tap power-on time information
- Intelligent Tap information
- Error log (4 errors)

## Requirements

Android™ 7.0 or higher

Startup screen        Error log screen        Light level monitoring
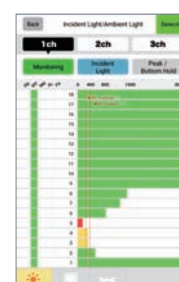
---

## System configuration example

SD Manager 3
Mobile APP

**Bluetooth®**

Safety output

F39-SGIT-IL3  Intelligent Tap
F39-SGBT   Bluetooth® Communication Unit

USB Type-C™

SD Manager 3

**IO-Link**

Note 1. Screen images for illustration purposes only.
 2. You need to create screens.

*1. Refer to the IO-Link Series Catalog (Cat. No. Y229) for details.  *2. Auxiliary output can be set using the SD Manager 3.

# Easy setting via PC software SD Manager 3

The configuration tool allows you to easily monitor status and make settings without using a safety controller.
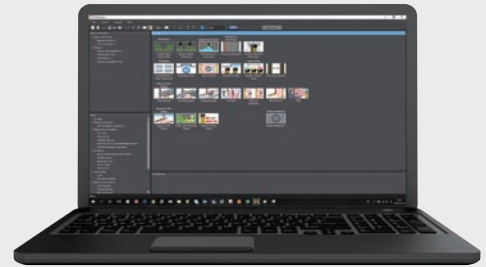
## Manually loaded machining : PSDI

PSDI*, provided as standard,
reduces operator effort and increases productivity

There is no need for the operator to press a two-hand control switch, saving operating time and increasing operating efficiency.

### Single break

The machine restarts when the light curtain is interrupted and reset once.

Example : Manual loading and automatic unloading press

### Double break

The machine restarts when the interruption and reset are repeated twice.

Example : Manual loading and manual unloading press

* PSDI : Presence Sensing Device Initiation
Read the *User's Manual* (Cat. No. Z405) before using.
Note: Comply with laws and regulations in the countries where the machine operates.
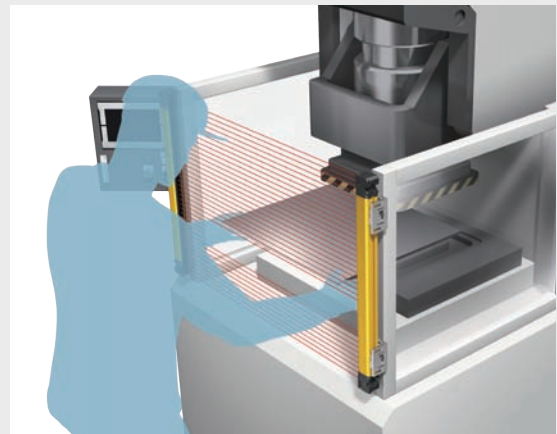
## Dangerous restart prevention : Pre-Reset

The Pre-Reset function
prevents possible accidents

This function prevents the restart of equipment while an unseen worker remains near the robot, ensuring operators' safety.

1 Press the pre-reset switch inside the hazardous zone.

2 Get out of the hazardous zone.

3 Press the reset switch outside the hazardous zone to restart the light curtain.

The equipment cannot be restarted until the pre-reset conditions are met and the light curtain is reset.
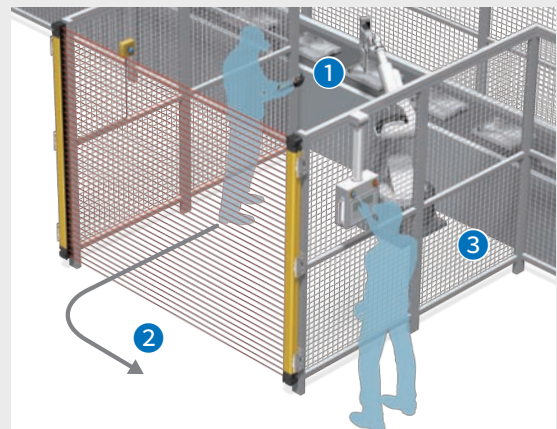
## Change of detection capability: Reduced Resolution
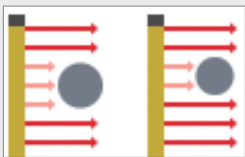


**Reduced Resolution changes the detection capability according to the specified number of interrupted beams**

Even when objects (with a size of 1 to 3 beams) are present discontinuously, this function ignores them and keeps the safety outputs ON. This allows objects to move within the detection area or workers to interrupt some beams, helping maintain productivity.

### Example : Arm and body protection

Safety output is kept ON even if worker's finger and an object interrupt 2 beams because they are allowed to enter.
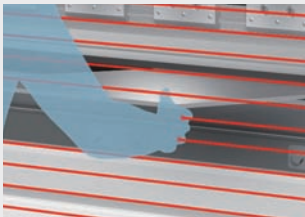
When worker's arm or body, which interrupts 3 beams is detected, safety output is turned OFF.



Note : Ensure that the desired safety distance is maintained.
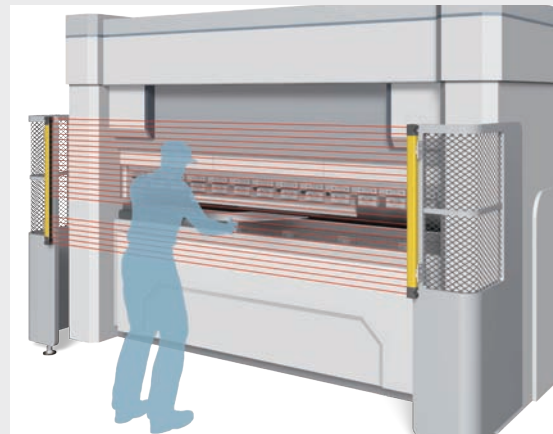
## Built-in standard safety functions

### Monitoring
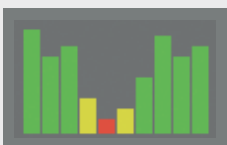


Incident / Ambient
Light Level Information

### Safety function setting
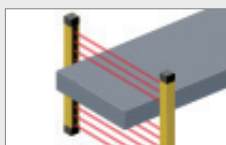


Fixed Blanking
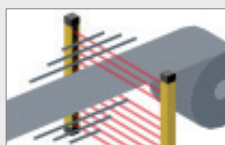


Floating Blanking
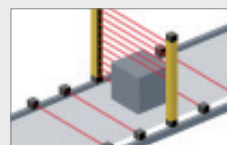


Muting/Override
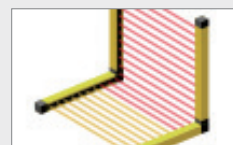


Warning Zone

### I/O setting
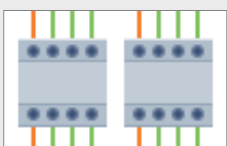


Interlock / External
Device Monitoring



Teach-in Input
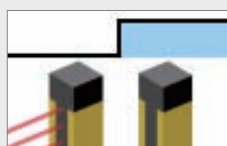


External Test Input

### Operation state change
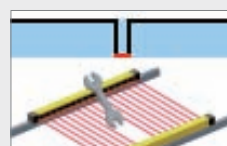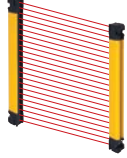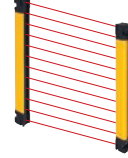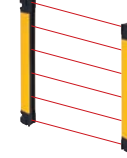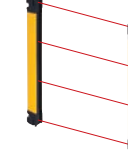


Response Time
Adjustment
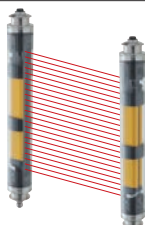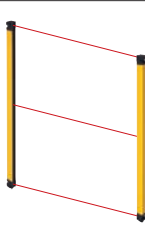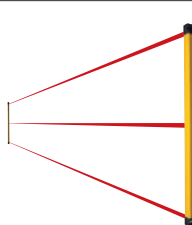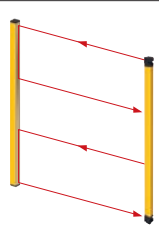


Operating Range
Selection

# F3SG-SR/PG Series  Features and specifications

| | | Protection at machine openings : | | | | |
|---|---|---|---|---|---|---|
| **Series** | | Advanced/Standard | | | | |
| | | (finger light curtain) | (hand light curtain) | (arm/leg light curtain) | (body light curtain) | |
| **Application** | Finger Protection | Finger Protection | | | | |
| | Hand Protection | | Hand Protection | | | |
| | Arm/Leg Protection | | | Arm/Leg Protection | | |
| | Body Protection | | | | Body Protection | |
| **Specification** | Detection capability | 14-mm dia. | 25-mm dia. | 45-mm dia. | 85-mm dia. | |
| | Beam gap | 10 mm | 20 mm | 40 mm | 80 mm | |
| | Max. operating range | 10 m | 20 m | 20 m | 20 m | |
| | Protective height (Product length) | 160 to 2,000 mm | 160 to 2,480 mm | 240 to 1,520 mm | 280 to 920 mm | |
| | Number of beams | 15 to 199 | 8 to 124 | 6 to 38 | 4 to 12 | |
| | Degree of protection | IP65, IP67, and IP67G | | | | |
| **Feature** | Mutual interference prevention | (No settings required for wired synchronization) | | | | |
| | PNP/NPN Selection | Setting by wiring | | | | |
| | External Test | Setting by wiring | | | | |
| | Interlock | DIP switch / SD Manager 3 | | | | |
| | Lockout Reset | Setting by wiring | | | | |
| | Pre-Reset | DIP switch / SD Manager 3 | | | | |
| | PSDI | SD Manager 3 | | | | |
| | External Device Monitoring (EDM) | DIP switch / SD Manager 3 | | | | |
| | Auxiliary Output | SD Manager 3 | | | | |
| | Muting | SD Manager 3 | | | | |
| | Blanking | DIP switch / SD Manager 3 | | | | |
| | Reduced Resolution | SD Manager 3 | | | | |
| | Warning Zone | SD Manager 3 | | | | |
| | Operating Range Selection | Setting by wiring / DIP switch / SD Manager 3 | | | | |
| | Response Time Adjustment | SD Manager 3 | | | | |
| | Area Beam Indicator (ABI) | SD Manager 3 * Advanced models only | | | | |
| | Designated Beam Output | SD Manager 3 | | | | |
| **Connection/ wiring** | Cascade connection | Available | Available | Available | Available | |
| | Reduced wiring system*[1] | Available | Available | Available | Available | |
| **Optional accessory** | Laser Alignment Pointer | Available | Available | Available | Available | |
| | Lamp | Available | Available | Available | Available | |
| | Mirror Column Muting Sensor Arm Mounter/Connection Box | Available | Available | Available | Available | |

▓ Setting by DIP switch on Intelligent Tap    ⬜ Setting by configuration tool SD Manager 3    ◼ Setting by wiring

▯ Setting by end cap

| Safety Light Curtain F3SG-SR | | Protection around perimeters of equipment :<br>Safety Multi-Light Beam F3SG-PG | | |
|---|---|---|---|---|
| IP69K model, Standard | | Perimeter Access Guarding | Perimeter Guarding Long Range | Perimeter Guarding Passive Mirror |
| 14-mm dia. | 25-mm dia. | 30-mm dia. + beam gap | | |
| 10 mm | 20 mm | 300 mm/400 mm/500 mm | | |
| 8 m | 16 m | 20 m | 70 m | 5 m |
| 320 to 1,800 mm | 320 to 1,840 mm | 670 to 1,370 mm | | |
| 31 to 179 | 16 to 92 | 2, 3 and 4 | | 2 and 4 |
| IP65, IP67, and IP69K | | IP65 and IP67 | | |
| No settings required for wired synchronization | | ∏ (No settings required for wired synchronization) | | |
| | | | | |
| | | | | Not supported |
| / *2 | | / | | |
| | | | | |
| / *2 | | / | | |
| *2 | | Not supported | | |
| / *2 | | / | | |
| *2 | | | | |
| *2 | | | | |
| / *2 | | Not supported | | |
| *2 | | Not supported | | |
| *2 | | Not supported | | |
| / / *2 | | Not supported | / / | Not supported |
| *2 | | | | |
| Not supported | | | | |
| *2 | | | | |
| Not available | | Not available | Not available | Not available |
| Not available | | Available | Available | Available |
| Not available | | Available | Available | Available |
| Not available | | Available | Available | Available *3 |
| Not available | | Available | Available | Available *4 |

*1. The reduced wiring system includes the Y-joint plug/socket connector, reset switch connector, muting sensor connection box, and muting sensor arm mounter.  *2. When connecting F3SG-SR-K with open-ended cable to the intelligent tap, use a relay terminal block.
*3. The lamp can be attached to the emitter/receiver.  *4. The perimeter guarding passive mirror cannot be used with the mirror column.

Safety Light Curtain/Safety Multi-Light Beam

# F3SG-SR/PG Series  Product selection

Choose your safety light curtain and optional accessories
from our F3SG-SR/PG Series through a 4-step process.

## STEP 1

Choose a safety
light curtain
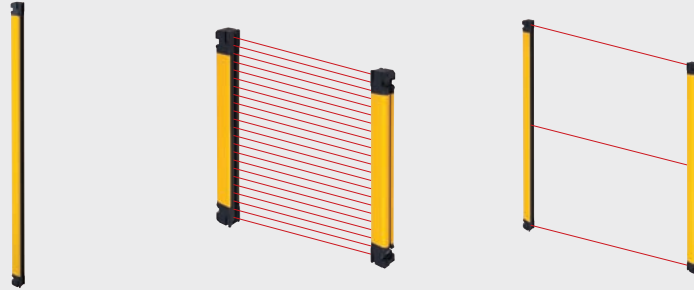
## STEP 2

Choose
a mounting
bracket
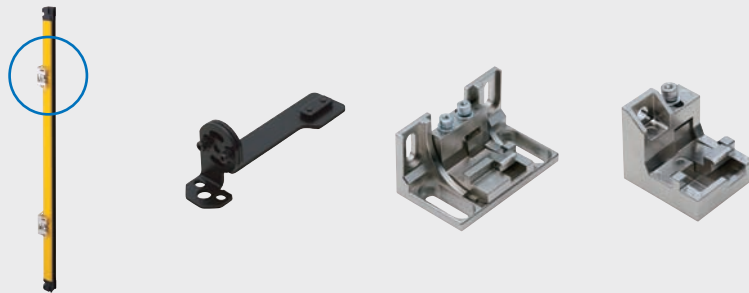
## STEP 3*

Choose a wiring
method

## STEP 4*

Choose the
optional
accessories
you need

* There is no need to follow STEP 3 and STEP 4 when the IP69K model is selected.

| STEP 1    Choose a safety light curtain | Select a light curtain to suit your application. |
| --- | --- |

## Protection at machine openings

**SR**

Safety Light Curtain
F3SG-SR  Page 24

IP69K model  Page 32

## Protection around perimeters of equipment

**PG**

Safety Multi-Light Beam
F3SG-PG  Page 26
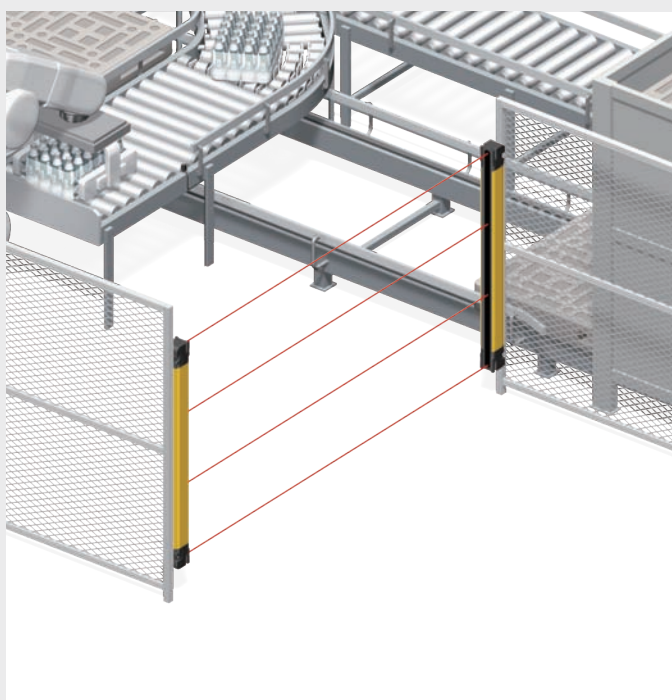
## Protection at machine openings

**SR** Safety Light Curtain
**F3SG-SR**

### Complete the model number.

F3SG-4SR ☐ ☐☐☐☐-☐☐-☐
       ❶    ❸    ❷  ❹

---

### ❶ Select an application.

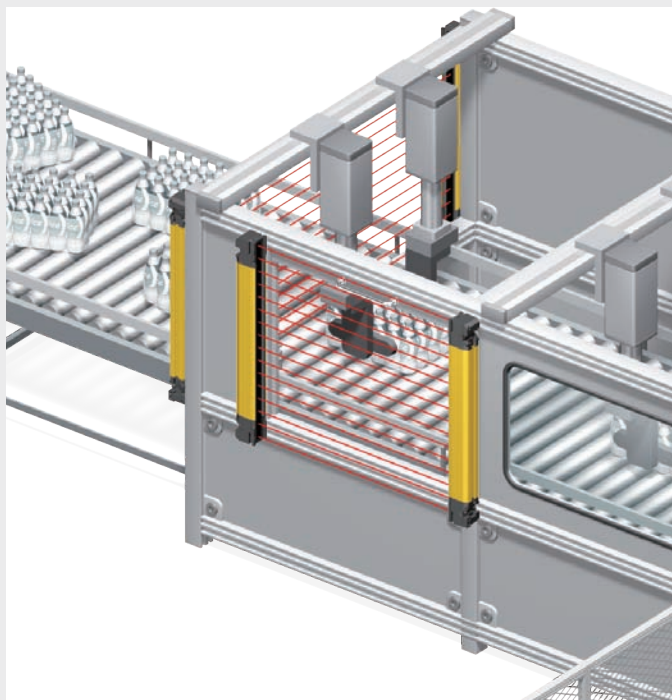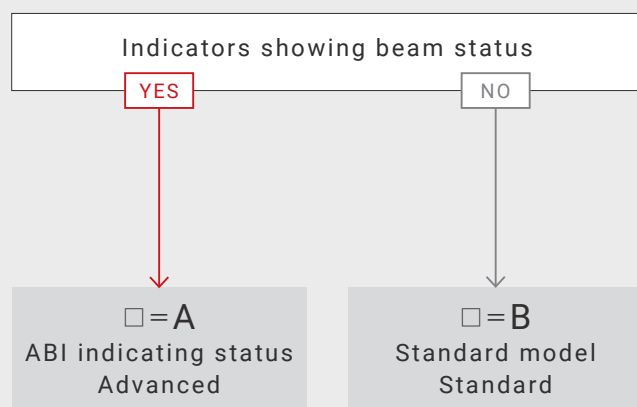| Indicators showing beam status | |
|---|---|
| YES | NO |

| ☐=A | ☐=B |
|---|---|
| ABI indicating status Advanced | Standard model Standard |

### ❷ Select detection capability.

| Type | ❷ |
|---|---|
| 🖐 **Finger Protection** — Detection capability 14-mm dia. | ☐☐=14 |
| 🖐 **Hand Protection** — Detection capability 25-mm dia. | ☐☐=25 |
| 🦵 **Arm/Leg Protection** — Detection capability 45-mm dia. | ☐☐=45 |
| 🚶 **Body Protection** — Detection capability 85-mm dia. | ☐☐=85 |

### ❸ Select protective height.

**Finger Protection**

| Protective height (mm) | Number of beams | ❸ | ❹* |
|---|---|---|---|
| 160 | 15 | ☐☐☐☐=0160 | |
| 200 | 19 | ☐☐☐☐=0200 | F |
| 240 | 23 | ☐☐☐☐=0240 | |
| 280 | 27 | ☐☐☐☐=0280 | F |
| 320 | 31 | ☐☐☐☐=0320 | |
| 360 | 35 | ☐☐☐☐=0360 | F |
| 400 | 39 | ☐☐☐☐=0400 | |
| 440 | 43 | ☐☐☐☐=0440 | F |
| 480 | 47 | ☐☐☐☐=0480 | |
| 520 | 51 | ☐☐☐☐=0520 | F |
| 560 | 55 | ☐☐☐☐=0560 | |
| 600 | 59 | ☐☐☐☐=0600 | F |
| 640 | 63 | ☐☐☐☐=0640 | |
| 680 | 67 | ☐☐☐☐=0680 | F |
| 720 | 71 | ☐☐☐☐=0720 | F |
| 760 | 75 | ☐☐☐☐=0760 | F |
| 800 | 79 | ☐☐☐☐=0800 | |
| 840 | 83 | ☐☐☐☐=0840 | F |
| 880 | 87 | ☐☐☐☐=0880 | F |
| 920 | 91 | ☐☐☐☐=0920 | F |
| 960 | 95 | ☐☐☐☐=0960 | F |
| 1000 | 99 | ☐☐☐☐=1000 | |
| 1200 | 119 | ☐☐☐☐=1200 | |
| 1400 | 139 | ☐☐☐☐=1400 | |
| 1600 | 159 | ☐☐☐☐=1600 | |
| 1800 | 179 | ☐☐☐☐=1800 | |
| 2000 | 199 | ☐☐☐☐=2000 | |

* Flexible height model (Increments of 40 mm)

## Hand Protection

| Protective height (mm) | Number of beams | ❸ | ❹ * |
|---|---|---|---|
| 160 | 8 | ☐☐☐☐=0160 | |
| 200 | 10 | ☐☐☐☐=0200 | F |
| 240 | 12 | ☐☐☐☐=0240 | |
| 280 | 14 | ☐☐☐☐=0280 | F |
| 320 | 16 | ☐☐☐☐=0320 | |
| 360 | 18 | ☐☐☐☐=0360 | F |
| 400 | 20 | ☐☐☐☐=0400 | |
| 440 | 22 | ☐☐☐☐=0440 | F |
| 480 | 24 | ☐☐☐☐=0480 | |
| 520 | 26 | ☐☐☐☐=0520 | F |
| 560 | 28 | ☐☐☐☐=0560 | |
| 600 | 30 | ☐☐☐☐=0600 | F |
| 640 | 32 | ☐☐☐☐=0640 | |
| 680 | 34 | ☐☐☐☐=0680 | F |
| 720 | 36 | ☐☐☐☐=0720 | |
| 760 | 38 | ☐☐☐☐=0760 | F |
| 800 | 40 | ☐☐☐☐=0800 | |
| 840 | 42 | ☐☐☐☐=0840 | F |
| 880 | 44 | ☐☐☐☐=0880 | |
| 920 | 46 | ☐☐☐☐=0920 | F |
| 960 | 48 | ☐☐☐☐=0960 | |
| 1000 | 50 | ☐☐☐☐=1000 | F |
| 1040 | 52 | ☐☐☐☐=1040 | |
| 1120 | 56 | ☐☐☐☐=1120 | |
| 1200 | 60 | ☐☐☐☐=1200 | |
| 1280 | 64 | ☐☐☐☐=1280 | |
| 1360 | 68 | ☐☐☐☐=1360 | |
| 1440 | 72 | ☐☐☐☐=1440 | |
| 1520 | 76 | ☐☐☐☐=1520 | |
| 1600 | 80 | ☐☐☐☐=1600 | |
| 1680 | 84 | ☐☐☐☐=1680 | |
| 1760 | 88 | ☐☐☐☐=1760 | |
| 1840 | 92 | ☐☐☐☐=1840 | |
| 1920 | 96 | ☐☐☐☐=1920 | |
| 2080 | 104 | ☐☐☐☐=2080 | |
| 2280 | 114 | ☐☐☐☐=2280 | |
| 2480 | 124 | ☐☐☐☐=2480 | |

* Flexible height model (Increments of 40 mm)

## Arm/Leg Protection

| Protective height (mm) | Number of beams | ❸ |
|---|---|---|
| 240 | 6 | ☐☐☐☐=0240 |
| 400 | 10 | ☐☐☐☐=0400 |
| 560 | 14 | ☐☐☐☐=0560 |
| 720 | 18 | ☐☐☐☐=0720 |
| 880 | 22 | ☐☐☐☐=0880 |
| 1200 | 30 | ☐☐☐☐=1200 |
| 1520 | 38 | ☐☐☐☐=1520 |

## Body Protection

| Protective height (mm) | Number of beams | ❸ |
|---|---|---|
| 280 | 4 | ☐☐☐☐=0280 |
| 440 | 6 | ☐☐☐☐=0440 |
| 600 | 8 | ☐☐☐☐=0600 |
| 760 | 10 | ☐☐☐☐=0760 |
| 920 | 12 | ☐☐☐☐=0920 |

Protection around perimeters of equipment

**PG** Safety Multi-Light Beam
**F3SG-PG**

Complete the model number.
**F3SG-4PGA** ☐☐☐☐-☐☐
                    ② ①

**①** Select an application and then
   select a beam gap and number of beams.

**Select an application.**

Protection around large equipment (operating range > 20 m)
NO          YES

Protection around small equipment (operating range < 5 m)
NO          YES

| Standard model Perimeter Access Guarding | Simple wiring Perimeter Guarding Passive Mirror | Protection up to 70 m long Perimeter Guarding Long Range |
|---|---|---|

F3SG-PGA-☐A          F3SG-PGA-☐C          F3SG-PGA-☐L

**Select a beam gap and number of beams.**

| Beam gap/ number of beams | ① | Beam gap/ number of beams | ① | Beam gap/ number of beams | ① |
|---|---|---|---|---|---|
| 500 mm/2 beams | ☐☐=2A | 500 mm/2 beams | ☐☐=2C | 500 mm/2 beams | ☐☐=2L |
| 400 mm/3 beams | ☐☐=3A | - | - | 400 mm/3 beams | ☐☐=3L |
| 300 or 400 mm/ 4 beams | ☐☐=4A | 300 or 400 mm/ 4 beams | ☐☐=4C | 300 or 400 mm/ 4 beams | ☐☐=4L |

## ❷ Select Product length.

| Product length (mm) | Number of beams | ❷ |
|---|---|---|
| 670 | 2 | □□□□=0670 |
| 970 | 3 | □□□□=0970 |
| 1070 | 4 | □□□□=1070 |
| 1370 | 4 | □□□□=1370 |

## STEP 2　Choose an optional mounting bracket (sold separately)

## Brackets used when beam adjustment is not required after the light curtain is installed

Side-Mount Bracket
(Intermediate Bracket)
F39-LSGF
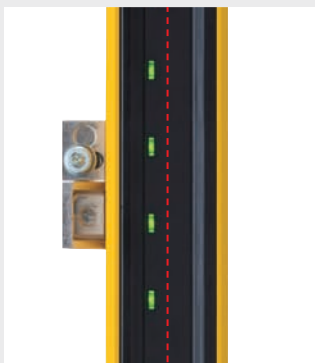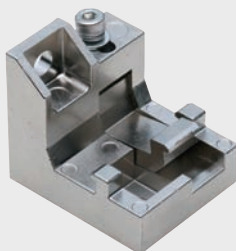
- Side mounting and backside mounting
- Beams not adjustable after installation
- Two brackets per set

Suitable for mounting on an aluminum profile so that its center is aligned with the center of beams.

## Brackets that allow beam adjustment after the light curtain is installed

Adjustable Side-Mount Bracket
(Intermediate Bracket)
F39-LSGA

±15°

- Vertical adjustment
  Angle adjustment range : ±15°
- Side mounting and backside mounting
- Two brackets per set

Adjustable Top/
Bottom Bracket
F3SJ, F3SN Adapter
F39-LSGTB-SJ

±22.5°

- Used at the top and bottom of the light curtain
- Angle adjustment range : ±22.5°
- For replacement of F3SJ or F3SN Series
- Side mounting and backside mounting
- Two brackets per set

Mounting brackets to easily replace your existing Omron light curtains are also available.

For replacement of F3SG-RA/RE Series

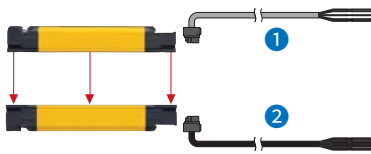Adjustable Top/Bottom Bracket
F3SG-RA/RE Adapter
F39-LSGTB-RE

For replacement of MS4800 Series and F3SR-B Series

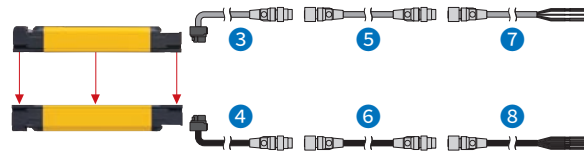Adjustable Top/Bottom Bracket
MS4800/F3SR Adapter
F39-LSGTB-MS

## STEP 3　Choose a wiring method

### One light curtain

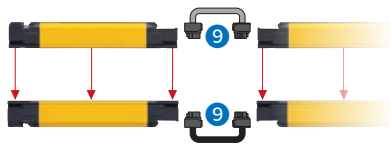\* Emitter-side cables (1, 3, 5, 7) are not necessary with the F3SG-PG-C (passive mirror).
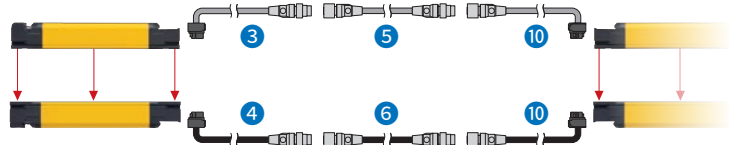
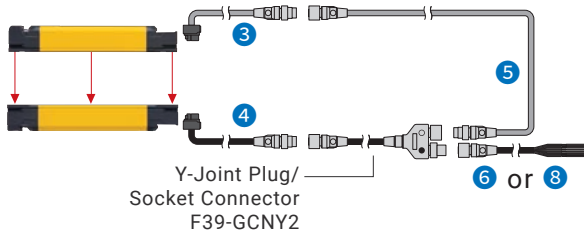・Cable extension (up to 100 m)

### Series-connected

・Side-by-side cascading (12 cm)

・Cascading cable extension (up to 10 m)

### Use of reduced wiring connector
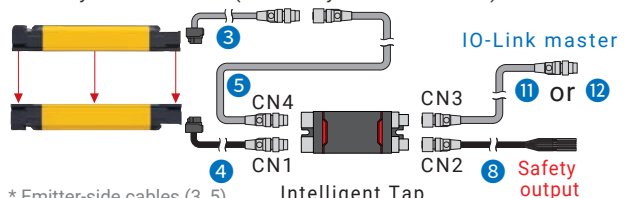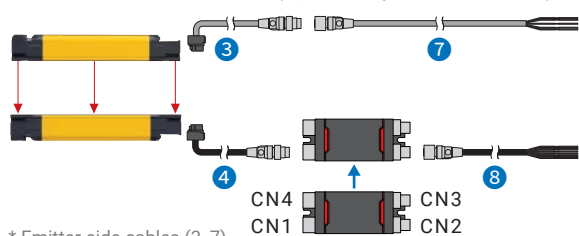
Y-Joint Plug/
Socket Connector
F39-GCNY2

### Use of Intelligent Tap

・Always connected (Wired synchronization)

IO-Link master

CN4　CN3

CN1　CN2

Intelligent Tap
F39-SGIT-IL3

Safety
output

\* Emitter-side cables (3, 5)
are not necessary with the
F3SG-PG-C (passive mirror).

・Connected for setting (optical synchronization)

CN4　CN3
CN1　CN2

Intelligent Tap
F39-SGIT-IL3

\* Emitter-side cables (3, 7)
are not necessary with the
F3SG-PG-C (passive mirror).

### Replacement of Omron light curtain

Connecting
cables of
existing
light curtain
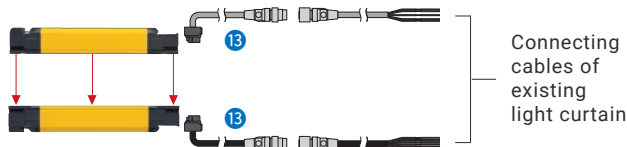
### Optional cables (sold separately)

| No. | Product name | Appearance | Model | Cable length | Remarks |
|---|---|---|---|---|---|
| 1 | Root-Straight Cable | | F39-JG□C-L | 3, 7, 10 m | For emitter, gray |
| 2 | | | F39-JG□C-D | 3, 7, 10 m | For receiver, black |
| 3 | Root-Plug Cable for Extended | | F39-JGR3K-L | 0.3 m | For emitter, gray |
| 4 | | | F39-JGR3K-D | 0.3 m | For receiver, black |
| 5 | Extended Plug-Socket Cable | | F39-JG□B-L | 3, 10, 20 m | For emitter, gray |
| 6 | | | F39-JG□B-D | 3, 10, 20 m | For receiver, black |
| 7 | Extended Socket-Straight Cable | | F39-JG□A-L | 3, 10 m | For emitter, gray |
| 8 | | | F39-JG□A-D | 3, 10 m | For receiver, black |
| 9 | Side-by-side Cascading Cable | | F39-JGR12L | 12 cm | For emitter and receiver, two cables per set |
| 10 | Cascading Cable for Extended | | F39-JGR3W | 0.3 m | For emitter and receiver, two cables per set |
| 11 | Plug-Socket Cable for IO-Link | | F39-JG□B-L | 3, 10, 20 m | For connection to GX-ILM08C |
| 12 | Socket-Straight Cable for IO-Link | | XS5F-D521-DJ0-IL | 2 m | For connection to NX-ILM400 |
| 13 | Conversion Cable | | F39-JGR3K-SJ | 0.3 m | For use of wiring for F3SN, F3SJ-A/-B, or F3SR |
| | | | F39-JGR3K-RE | 0.3 m | For use of wiring for F3SG-RE |
| | | | F39-JGR3K-MS | 0.3 m | For use of wiring for MS4800 |

STEP 4    Choose the optional accessories (sold separately) you need

## Intelligent Tap and configuration tool SD Manager 3
Easy monitoring, setting, and IO-Link connection with external devices

Intelligent Tap
F39-SGIT-IL3

Configuration tool for PC

SD Manager 3

Note : Use the SD
Manager 3 with
the F39-SGIT-IL3
Intelligent Tap.

Bluetooth®
Communication Unit
F39-SGBT

Monitoring tool for
smartphones

SD Manager 3 Mobile APP

Requirements
Android 7.0 or higher

For details, refer to your local
Omron website.

## Reduced wiring system
Simple wiring of light curtains and reset switches

Y-Joint Plug/Socket Connector
F39-GCNY2

Reset Switch Connector
F39-GCNY3

Note : Please prepare a reset switch
(NC contact).

## Muting system
Easy installation and wiring of muting sensors

Muting Sensor Arm Mounter
F39-FMA□□□T
(Through-beam)

F39-FMA□□□R
(Retro-reflective)

Muting Sensor Connection Box
F39-GCN5

Muting Sensor Arm Mounter Bracket for SLC
F39-LMAF1
(The E3Z Muting Sensor is sold separately.)
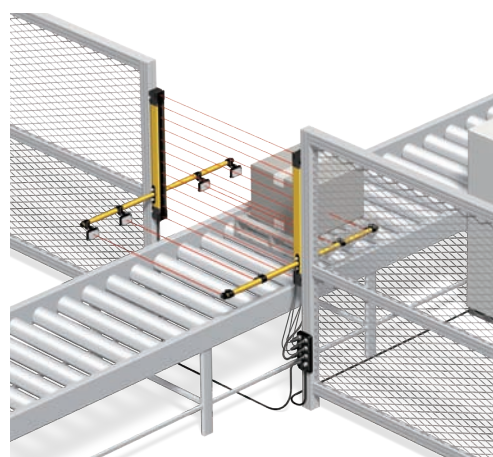
# Floor mount system

Easy installation of light curtains and mirrors on floors

Floor Mount Column
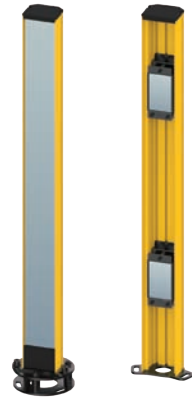F39-ST

Mount-Column
Adjustable Base
F39-STB
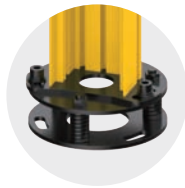
(The Safety light curtain is sold separately.)
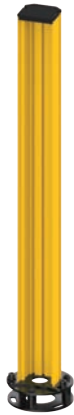
Mirror Column
(For F3SG-SR/PG
Safety Light Curtain/
Safety Multi-Light Beam)
F39-SML

Mirror Column
(for F3SG-PG
Safety Multi-Light Beam)
F39-PML

(The mount-column adjustable base is sold separately.)

# Laser Alignment Pointer

Easy beam adjustment with laser beam

F39-PTS

F39-PTG

# Lamp

At-a-glance check of light curtain status

F39-SGLP

Note: The Lamp does not support Bluetooth® communication.

# Spatter Protection Cover

Protection of optical surfaces against spatter

F39-HSG

Protection in high-pressure wash-down environments

**SR** Safety Light Curtain
F3SG-SR-K  IP69K model

Complete the model number.

F3SG-4SRB □□□□-□□-K
        ❷     ❶

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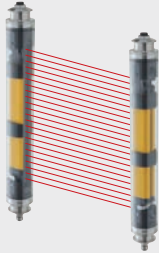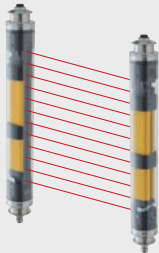
## STEP 1   Choose a safety light curtain
Select detection capability and protective height.

### ❶ Select detection capability.

| Type | ❶ |
|---|---|
| **Finger Protection** Detection capability **14-mm dia.** | □□=14 |
| **Hand Protection** Detection capability **25-mm dia.** | □□=25 |

### ❷ Select protective height.

**Finger Protection**

| Protective height (mm) | Number of beams | ❷ |
|---|---|---|
| 320 | 31 | □□□□=0320 |
| 400 | 39 | □□□□=0400 |
| 480 | 47 | □□□□=0480 |
| 560 | 55 | □□□□=0560 |
| 640 | 63 | □□□□=0640 |
| 720 | 71 | □□□□=0720 |
| 800 | 79 | □□□□=0800 |
| 880 | 87 | □□□□=0880 |
| 960 | 95 | □□□□=0960 |
| 1000 | 99 | □□□□=1000 |
| 1200 | 119 | □□□□=1200 |
| 1400 | 139 | □□□□=1400 |
| 1600 | 159 | □□□□=1600 |
| 1800 | 179 | □□□□=1800 |

**Hand Protection**

| Protective height (mm) | Number of beams | ❸ |
|---|---|---|
| 320 | 16 | □□□□=0320 |
| 400 | 20 | □□□□=0400 |
| 480 | 24 | □□□□=0480 |
| 560 | 28 | □□□□=0560 |
| 640 | 32 | □□□□=0640 |
| 720 | 36 | □□□□=0720 |
| 800 | 40 | □□□□=0800 |
| 880 | 44 | □□□□=0880 |
| 960 | 48 | □□□□=0960 |
| 1000 | 50 | □□□□=1000 |
| 1040 | 52 | □□□□=1040 |
| 1120 | 56 | □□□□=1120 |
| 1200 | 60 | □□□□=1200 |
| 1280 | 64 | □□□□=1280 |
| 1360 | 68 | □□□□=1360 |
| 1440 | 72 | □□□□=1440 |
| 1520 | 76 | □□□□=1520 |
| 1600 | 80 | □□□□=1600 |
| 1680 | 84 | □□□□=1680 |
| 1760 | 88 | □□□□=1760 |
| 1840 | 92 | □□□□=1840 |

## STEP 2 — Choose an optional mounting bracket (sold separately)

### IP69K Model Mounting Bracket

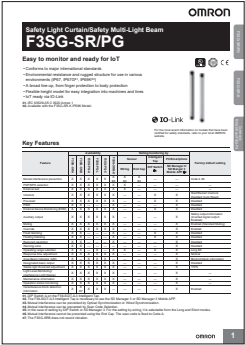F39-LSGTB-K
Two brackets per set

For details of mounting brackets, refer to the F3SG-SR/PG Datasheet.

Note: When connecting F3SG-SR-K with open-ended cable to the intelligent tap, use a relay terminal block. Read the User's Manual (Cat .No. Z405) before using the intelligent tap for setting and monitoring.

# Datasheet | Introduction of safety component catalogs



Safety Light Curtain/
Safety Multi-Light Beam
F3SG-SR/PG

Cat. No. F117



IO-Link Products
IO-Link Series

Cat. No. Y229



Safety Controller
G9SP

Cat. No. F090



NX-series Safety Controller
CIP Safety System

Cat. No. F104

**Note: Do not use this document to operate the Unit.**

## OMRON Corporation  Industrial Automation Company

**Kyoto, JAPAN**                    **Contact : www.ia.omron.com**

**Authorized Distributor:**

**CSM_1_6**
**Cat. No. F118-E1-06**    0424 (0622)