Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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OMRON

Safety Light Curtain

F3SG-R Series

SAFETY, TECHNOLOGY & INNOVATION

Increase both durability and productivity

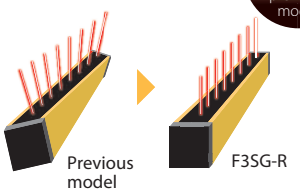
The new cutting oil resistant Robust type is added

Safety Light Curtain
F3SG-R Series

Fast set-up and high resistance to environmental changes

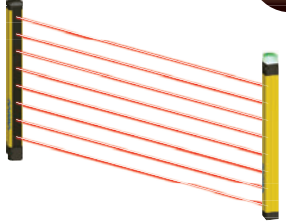
Tough 1 Resistant to vibration

Torsion resistance 5 times* greater than previous model



Tough 2 Robust against environmental changes

High power Operating range Up to 20 m



Tough 3 Reliable in dusty wash-down environments

* Compared to the previous model (Omron survey as of March 2017)

A choice of products to suit your need Multiple versions available: finger, hand and arm protection

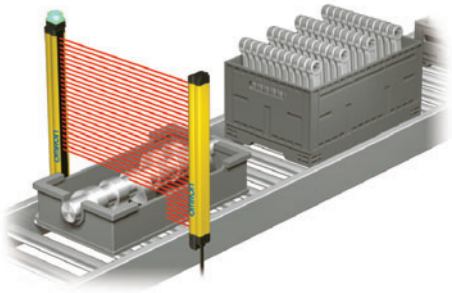
Ideal for flexible manufacturing

Multifunctional **Advanced** type

F3SG-RA

>>p.4

- Quick and easy installation
- Stable operation and predictive maintenance
- For global use
- Easy adjustment
- Easy configuration and maintenance



Even for environments where cutting oil is present

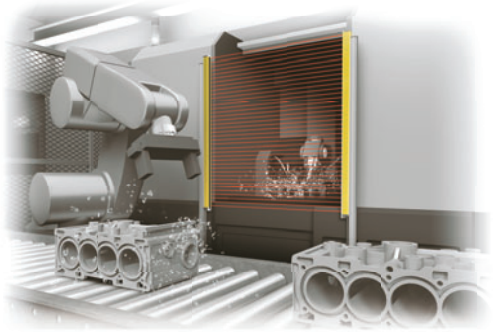
Cutting oil resistant **Robust** type

F3SG-RR NEW

>>p.10

- Four times longer* cutting oil resistance
- No dead space
- IP67G

* Compared to the previous model (Omron survey as of March 2017)



Ideal for simple applications

Simple **Easy** type

F3SG-RE

>>p.11

- Simple functions
- Reduced wiring
- Fast response time: 5 ms

Multifunctional
Advanced
type
F3SG-RA

Quick and easy installation

Intuitive and smart designs for fast set-up

Simple beam adjustment

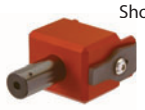
Simply watch for the top and bottom indicators to illuminate when adjustment is completed.
The optional laser pointer and lamp can be used to reduce the time required to set up the light curtain.

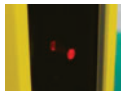
1 The TOP indicator turns ON when the top beam is unblocked

2 The BTM indicator turns ON when the bottom beam is unblocked

F39-PTG Laser Pointer

Shows the sensor direction

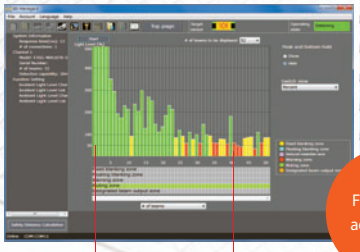




F39-LP Lamp

Turns ON when safety output turns ON, making adjustment easier

Also The incident light levels of each beam can be checked with the Configuration Tool SD Manager2



* Image for illustration purpose only.

Mounting brackets

Four types of mounting brackets provide vertical or vertical and horizontal adjustment even after mounting, making beam adjustment easier.

Standard fixed bracket

You can slide the F3SG-R up and down to make vertical adjustments after mounting on a safety fence.

Standard adjustable bracket
(sold separately)

This bracket provides vertical as well as horizontal adjustment of ±15°.

Top/bottom adjustable bracket
(sold separately)

Use this bracket at the top and bottom of the F3SG-R to make horizontal adjustment of ±22.5°.

Top/bottom adjustable bracket
(for user-made mounting part)
(sold separately)

The wall mounting bracket is not provided so that you can design your own wall mounting part.

Optical synchronization – No sync lines required

Optical synchronization eliminates the need of wiring for synchronization between the emitter and receiver.
The resulting flexible wiring reduces disconnection risk and avoids noise sources.

Optical synchronization

Start-up

The top or bottom beam of the emitter starts synchronizing with the corresponding beam of the receiver.

After sync

Once synchronization is done, the emitter is kept synchronized with the receiver while at least one beam is unblocked.

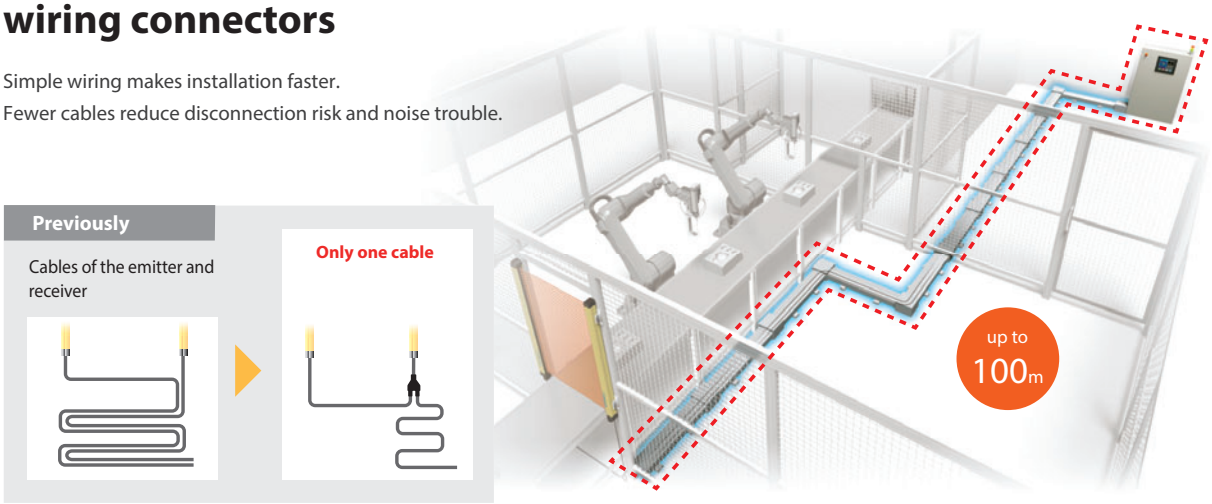
Smartclick cable connection for fast set-up

No torque-control required:
the Smartclick connectors connect cables with just a 1/8th turn of the M12 waterproof connector.

* Smartclick is a registered trademark of OMRON Corporation.

Simple wiring thanks to reduced wiring connectors

Simple wiring makes installation faster.
Fewer cables reduce disconnection risk and noise trouble.



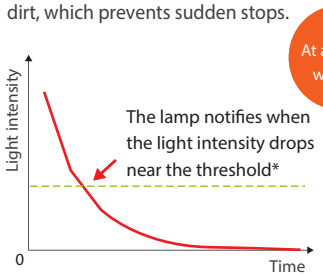
Multifunctional
Advanced
type
F3SG-RA

Stable operation and predictive maintenance

Visualization eliminates machine downtime

The lamp notifies low light intensity

The lamp notifies when the incident light level drops due to dirt, which prevents sudden stops.

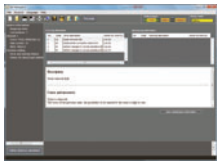


* The incident light level at which the light curtain turns OFF

F39-LP Lamp

Data logging for quick troubleshooting

The error logs stored in the F3SG-RA can be downloaded to a PC that is connected with the F3SG-RA using the dedicated interface unit. The Configuration Tool SD Manager2 can be used to analyze errors to identify causes and solutions. The data on light intensity, power-ON time, and switching frequency can also be collected regularly for predictive maintenance.



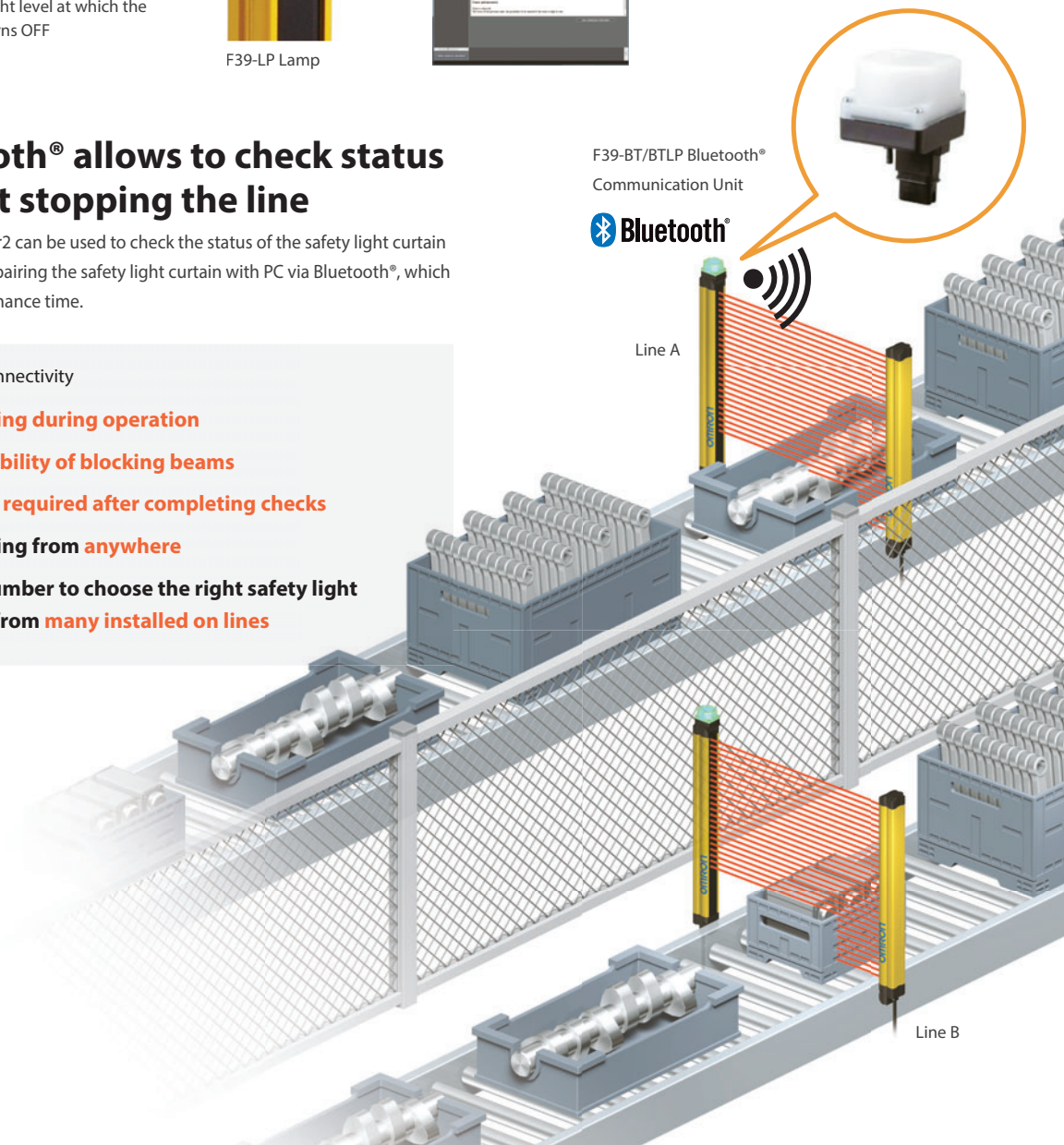
Configuration Tool SD Manager2

Bluetooth® allows to check status without stopping the line

The SD Manager2 can be used to check the status of the safety light curtain wirelessly after pairing the safety light curtain with PC via Bluetooth®, which reduces maintenance time.

Wireless connectivity

- **Monitoring during operation**
- **No possibility of blocking beams**
- **No work required after completing checks**
- **Monitoring from anywhere**
- **Serial number to choose the right safety light curtain from many installed on lines**



For global use

Easy to deploy around the world

PNP/NPN selection

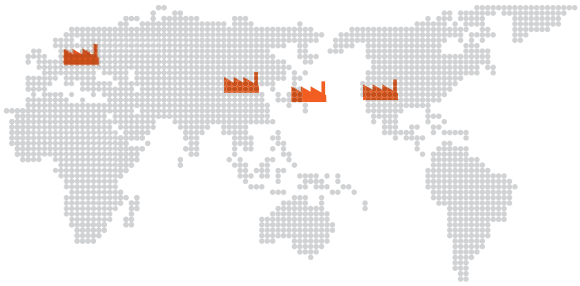
The F3SG-RA is designed to be used in a variety of environments around the world, conforming to international standards.

PNP or NPN can be selected with the DIP switch. The same cables are used

The F3SG-R conforms to major international standards including Chinese GB standards

Global production and delivery

Omron enhanced the global production bases and local services in Japan, China, United States, and Europe to deliver Omron products quickly and reliably. Our sales network of approximately 150 offices in 40 countries and regions supports our customers.



Troubleshooting in eight languages*

You can find causes and solutions of errors that occur during operation on the troubleshooting webpage in eight languages. Operators across the world can check the error details in their local languages, which will help them minimize time to troubleshoot.

* English, Chinese, Italian, Korean, French, German, Spanish, and Japanese

Scan the QR code and go directly to the troubleshooting webpage

Multifunctional
Advanced
type
F3SG-RA

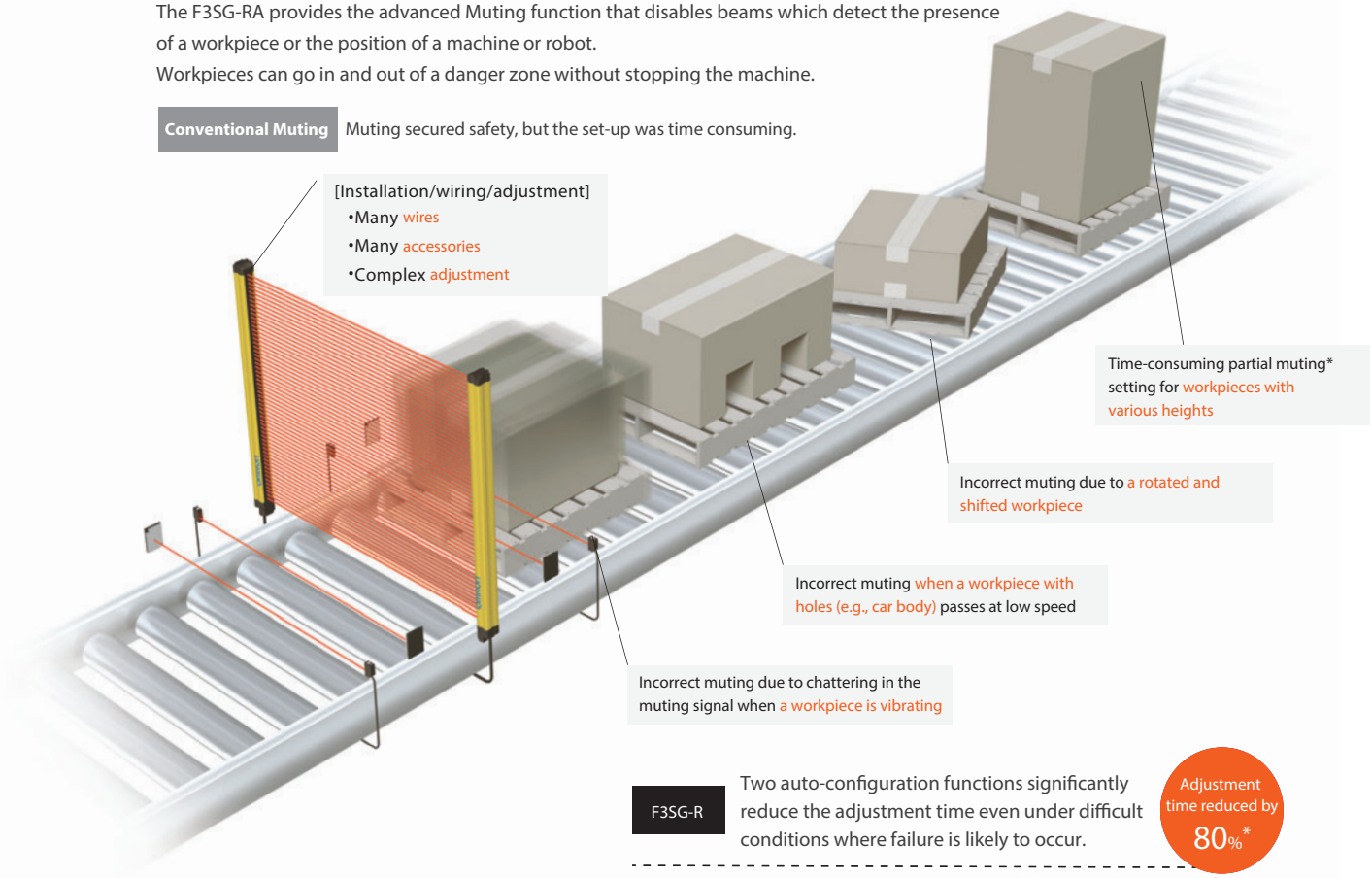
Easy adjustment

Increase productivity by detecting workpieces correctly

Muting

The F3SG-RA provides the advanced Muting function that disables beams which detect the presence of a workpiece or the position of a machine or robot.
Workpieces can go in and out of a danger zone without stopping the machine.

Conventional Muting Muting secured safety, but the set-up was time consuming.



F3SG-R Two auto-configuration functions significantly reduce the adjustment time even under difficult conditions where failure is likely to occur.

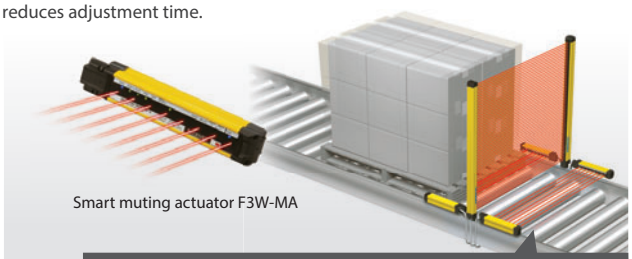
Adjustment time reduced by 80%*

* Compared to the previous model (Omron survey as of March 2017)

Multiple-beam sensor technology for vibrating workpieces

Smart muting actuator F3W-MA

The smart muting actuator extends the functions of the F3SG-R in applications where a workpiece is vibrating forward and backward This prevents unexpected machine downtime and significantly reduces adjustment time.

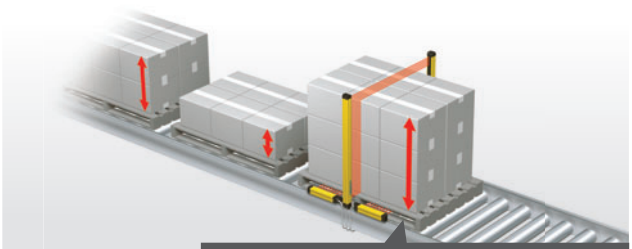


Automatic and flexible detection even under unstable conveying conditions

Automatic partial muting for workpieces with various heights

Dynamic Muting

When workpieces with various heights are conveyed on the same line, the dynamic muting function automatically sets the appropriate beams, based on the height of the object.



Partial muting based on the detected workpiece height

* Partial muting: A function that allows specified beams (e.g., beams blocked by a workpiece) to be disabled, keeping others active, even during muting.

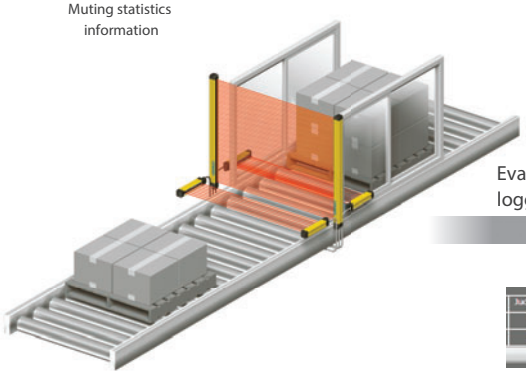
Easy configuration and maintenance

Easy to use | Configuration Tool SD Manager2

Minimizing setting and detection errors

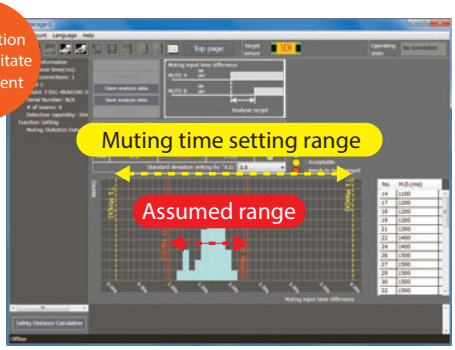
Muting statistics information

The Configuration Tool SD Manager2 visualizes the installation positions and settings by logging the muting sensor operating conditions of the F3SG-R. It helps ensure reliable, first-time-right configuration.



Evaluates settings using logged results

Visualization helps facilitate adjustment

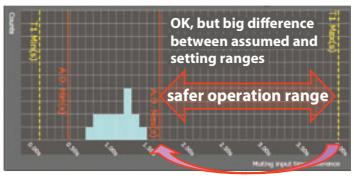


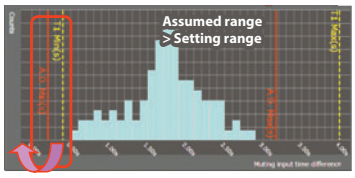
Examples of logging

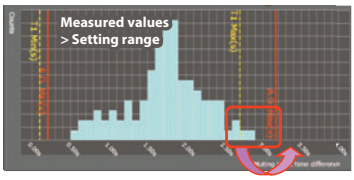
Low risk of intermittent stop, but not safe

OK in a test run, but intermittent stop may occur during long-term operations

Test run result is out of setting range. Muting sequence error occurred







From configuration and adjustment to maintenance

The SD Manager2 helps you to make and change settings.

Easy- to-understand icons

Examples

Monitoring

Incident/ambient light level monitoring

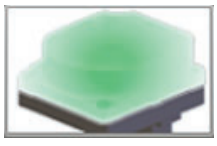
Monitor incident light levels of each beam for fine tuning

Maintenance information

Check error log and other data required for maintenance

I/O Setting

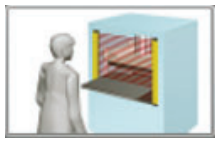
Auxiliary output/ lamp



Change the settings assigned to each output including lamp color and pattern

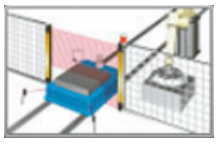
Function Setting

Fixed blanking



Set disabled beams manually or by teach-in

Muting/override



Set disabled beams and time. Setting can be evaluated

The Configuration Tool SD Manager2 is available to download from Omron website:
http://www.ia.omron.com/f3sg-r_tool

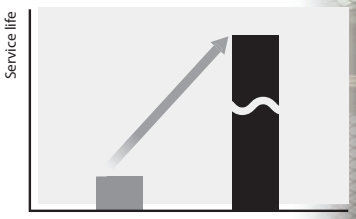
NEW
Cutting oil resistant
Robust
type
F3SG-RR

IP67G

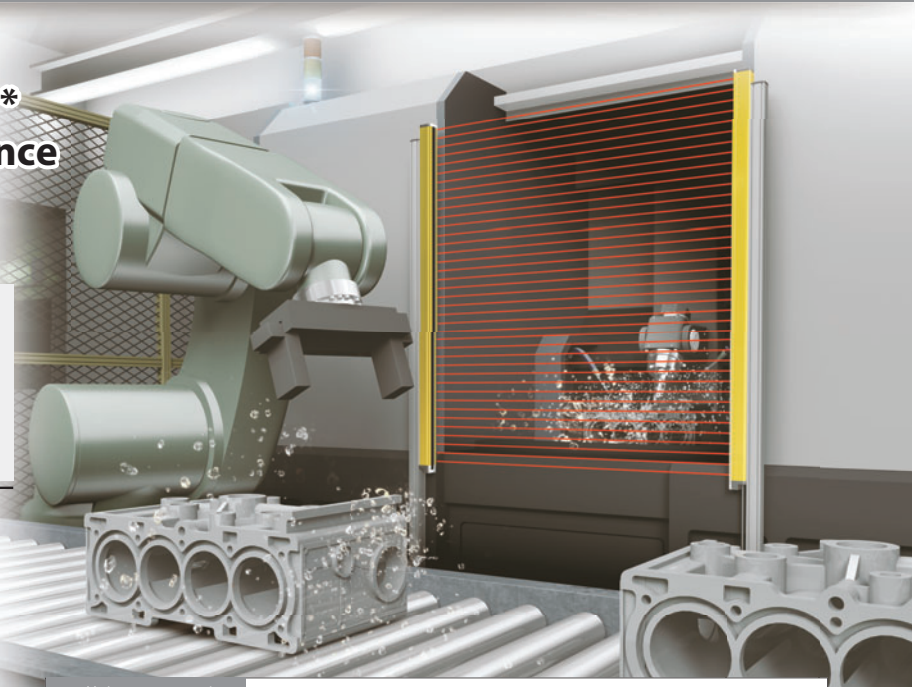
Robust design for reliable use even in cutting oil environments

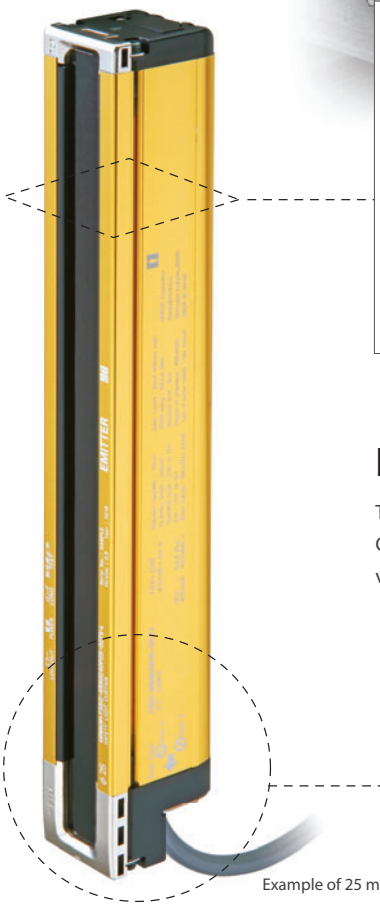
Four times longer* cutting oil resistance

The F3SG-RR has the ability to protect from cutting oil (IP67G) for four times longer than the previous model.



* Compared to the previous model (Omron survey as of March 2017)



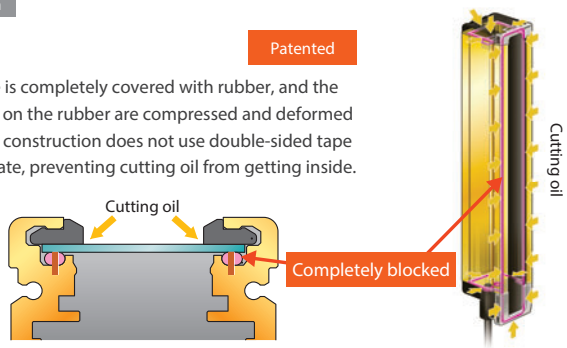


Unique construction

No gaps

Patented

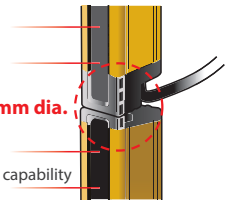
The optical surface is completely covered with rubber, and the metal parts placed on the rubber are compressed and deformed to seal tightly. This construction does not use double-sided tape that oil can penetrate, preventing cutting oil from getting inside.



No dead space

The F3SG-R perfectly fits to machines without wasting space. Thanks to the Cascade Connection function and perfect fit installation, you can series-connect light curtains to fit various protective heights, reducing inventories.

The detection zone completely covers the joint



Example of 25 mm detection capability

*1. Up to three sets of F3SG-R (up to 255 beams in total) can be series-connected.
*2. Protect cascading cables from cutting oil.

Simple
Easy
type

F3SG-RE

Reduced wiring and fast response

Simple ON/OFF detection

Easy version for cost-efficiency

The Easy type inherits the robust but slim housing and basic safety features of the Advanced type. Simple ON/OFF detection reduces errors, preventing productivity from dropping.

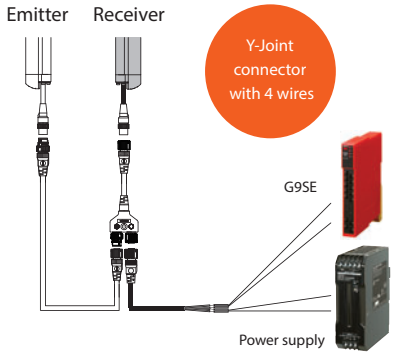
Simple safety functions to reduce errors and save costs

Reduced to just 4 wires

Fastest response time of 5 ms

Easier to build safety circuits

Only four wires are required for the minimum configuration, which is as simple as wiring a photoelectric sensor. Simple connection with a safety controller makes it easy to build a safety circuit.



Industry's fastest class*

Fastest response time of 5 ms

The Easy type that allows the distance between the light curtain and hazard source to be reduced is ideal for the use in a small machine.

* Omron survey as of March 2017

Also

Use easy-to-obtain cables

Commercially available M12 connector cables can be used as extension cables to build a safety circuit.

List of specifications and features

		Advanced type		Robust type	
		F3SG-RA		F3SG-RR	
					
Application	Finger protection	●		●	
	Hand and arm protection		●		●
	Body protection				
Specification	Detection capability	14-mm dia.	30-mm dia.	14-mm dia.	25-mm dia.
	Beam gap	10 mm	20 mm	10 mm	20 mm
	Operating range	0.3 to 10 m	0.3 to 20 m	0.3 to 10 m	0.3 to 17 m
	Protective height	160 to 2,080 mm	190 to 2,510 mm	240 to 1,920 mm	
	Number of beams	15 to 207	8 to 124	23 to 191	12 to 96
Feature	PNP/NPN Selection	●		●	
	External Test	*1		*1	
	Interlock	● ●		●	
	Pre-Reset	● ●		●	
	External Device Monitoring (EDM)	● ●		●	
	Auxiliary Output	● ●		●	
	Muting	● ●		●	
	Blanking	● ●		●	
	Reduced Resolution	●		●	
	Warning Zone	●		●	
	Scan Code Selection	●		●	
	Operating Range Selection	●		–	
	Response Time Adjustment	●		●	
	Designated Beam Output	●		●	
Connection/ wiring	Cascade Connection	■		■	
	Reduced wiring	■		■	
Environmental resistance	Degree of protection	IP67		IP67,IP67G	
Accessory	Lamp	●		●	
	Bluetooth communication unit	●		●	
	SD Manager2	●		●	
	Laser pointer	●		●	
More information		Page 16 (F3SG-RA-01TS : Page 93, F3SG-RA-02TS : Page 120*2)		Page 44	

*1. Supports PNP/NPN by switching between 0 V and 24 V active.
*2. The F3SG-RA-☐TS has different specifications. See the pages listed above for details.

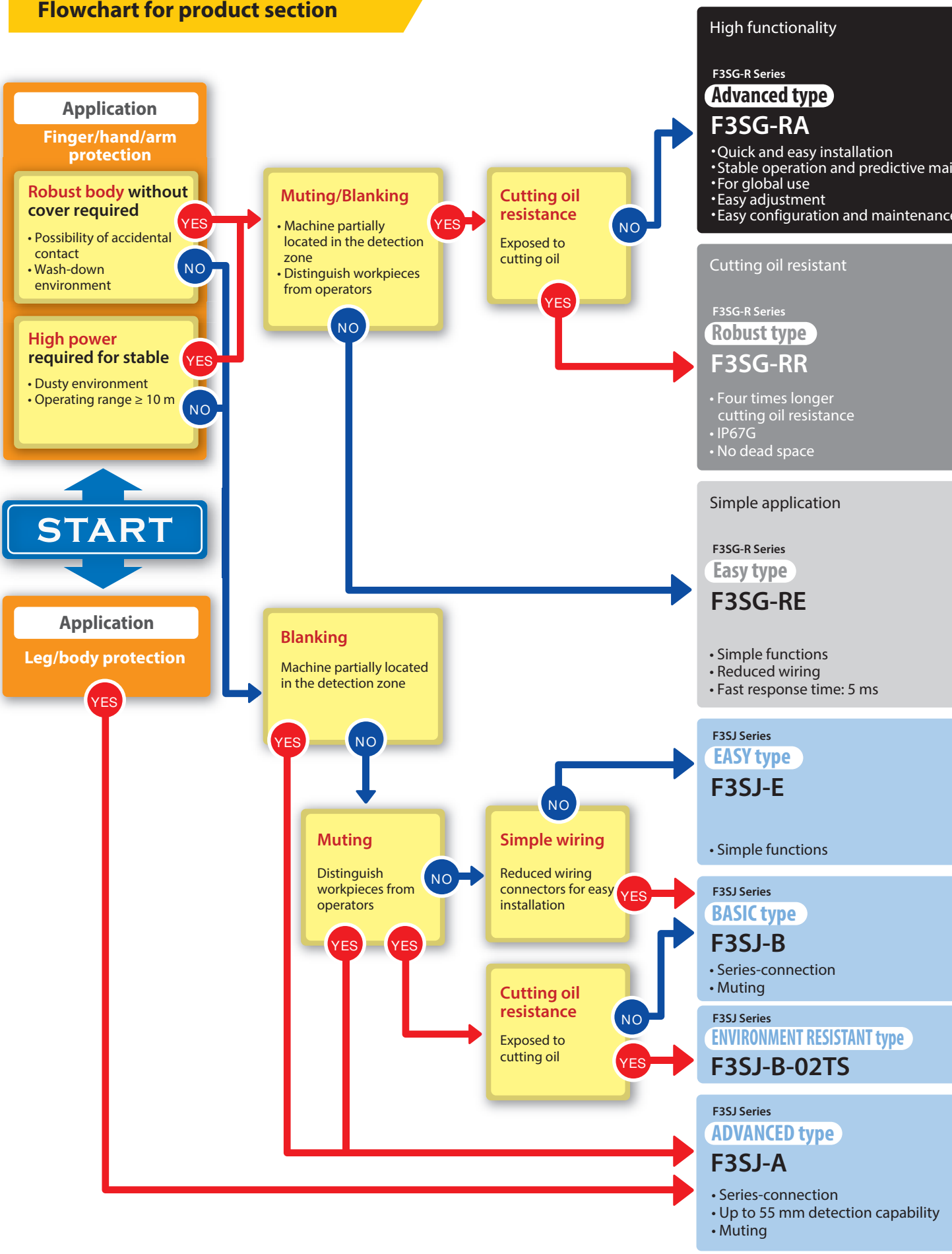
● Setting by DIP Switch ● Setting by Configuration Tool ■ Setting by Wiring ■ Setting by End Cap/Key Cap

	Easy type		More slim – F3SJ Series				
	F3SG-RE		F3SJ-E	F3SJ-B	F3SJ-A		
	Ideal for simple applications 						
	●				●	Finger protection	Application
		●	●	●	●	Hand and arm protection	
					●	Body protection	
	14-mm dia.	30-mm dia.	25-mm dia.	25-mm dia.	14/20/30/55-mm dia.	Detection capability	Specification
	10 mm	20 mm	20 mm	20 mm	9/15/25/50 mm	Beam gap	
	0.3 to 10 m	0.3 to 20 m	0.2 to 7 m	0.2 to 7 m	0.2 to 9 m *3	Operating range	
	160 to 2,080 mm	190 to 2,510 mm	185 to 1,105 mm	185 to 2,065 mm	245 to 2,495 mm *3	Protective height	
	15 to 207	8 to 124	8 to 54	8 to 102	Varies depending on the beam gap *3	Number of beams	
	–		–	–	–	PNP/NPN Selection	Feature
	–		●	●	●	External Test	
	–		–	●	●	Interlock	
	–		–	–	–	Pre-Reset	
	–		–	●	●	External Device Monitoring (EDM)	
	–		–	–	●	Auxiliary Output	
	–		–	⊓	⊓ / ⊓+●	Muting	
	–		–	–	●	Blanking	
	–		–	–	–	Reduced Resolution	
	–		–	–	●	Warning Zone	
	–		(Not required for wired synchronization)			Scan Code Selection	
	●		–	–	●	Operating Range Selection	
	–		–	–	–	Response Time Adjustment	
	–		–	–	●	Designated Beam Output	
	–		–	●	●	Cascade Connection	Connection/ wiring
	●		–	●	●	Reduced wiring	
	IP67		IP65	IP65	IP65	Degree of protection	Environmental resistance
	–		–	–	●	Lamp	Accessory
	–		–	–	–	Bluetooth communication unit	
	–		–	–	SD Manager	SD Manager2	
	●		●	●	●	Laser pointer	
	Page 73		Refer to the F3SJ Series Catalog (Cat. No. F074).			More information	

*3. Varies depending on the model.

Refer to the F3SJ Series Catalog (Cat. No. F074) or visit the Omron website for details of the F3SJ Series. **For details** F3SJ Search **www.ia.omron.com/**

Flowchart for product section



Protective height	Specifications	Brackets	Cable	Accessories (sold separately)

ntenance

e

14-mm dia.
160 to 2,080 mm
(15 to 207 beams)
30-mm dia.
190 to 2,510 mm
(8 to 124 beams)

Detection capability
14-mm dia./30-mm dia.

Beam gap
10 mm/20 mm

Operating range
0.3 to 10 m/
0.3 to 20 m

Accessory
・Standard fixed bracket

Sold separately
・Standard adjustable bracket
・Top/bottom adjustable bracket
・Top/bottom adjustable bracket
(for user-made mounting part)

Connector

- Single/double-ended connector cable
- Cascading cable
- Reduced wiring connector
- Laser pointer
- Spatter protection cover
- Lamp
- Bluetoothcommunication unit
- SD Manager2

* The F3SG-RA-□TS has different specifications.
See the following pages:F3SG-4RA-01TS: p. 93 F3SG-RA-02TS: p. 120

See **p.16** for details.

14-mm dia.
240 to 1,920 mm
(23 to 191 beams)
25-mm dia.
240 to 1,920 mm
(12 to 96 beams)

Detection capability
14-mm dia./25-mm dia.

Beam gap
10 mm/20 mm

Operating range
0.3 to 10 m/
0.3 to 17 m

Sold separately
・Free-Location Bracket (Intermediate Bracket)
・Top/bottom Bracket (3types)

Connector

- Single/double-ended connector cable
- Cascading cable
- Reduced wiring connector
- Laser pointer
- Lamp
- Bluetooth communication unit
- SD Manager2

See **p.44** for details.

14-mm dia.
160 to 2,080 mm
(15 to 207 beams)
30-mm dia.
190 to 2,510 mm
(8 to 124 beams)

Detection capability
14-mm dia./30-mm dia.

Beam gap
10 mm/20 mm

Operating range
0.3 to 10 m/
0.3 to 20 m

Accessory
・Standard fixed Bracket

Sold separately
・Standard adjustable bracket
・Top/bottom adjustable bracket
・Top/bottom adjustable bracket
(for user-made mounting part)

Connector

- Single/double-ended connector cable
- Reduced wiring connector
- Laser pointer
- Spatter protection cover

See **p.73** for details.

25-mm dia.
185 to 1,105 mm
(8 to 54 beams)

Detection capability
25-mm dia.

Beam gap
20 mm

Operating range
0.2 to 7 m

25-mm dia.
185 to 2,065 mm
(8 to 102 beams)

Detection capability
25-mm dia.

Beam gap
20 mm

Operating range
0.2 to 7 m

* ENVIRONMENT RESISTANT type
Protective height: 225 to 1,985 mm Operating range: 0.2 to 6 m

14-mm dia.
245 to 1,271 mm
(26 to 140 beams)

Detection capability
14-mm dia. -

Beam gap
9 mm -

Operating range
0.2 to 9 m

* When the minimum object resolution is 14 mm and the beam gap is 9 mm.

Refer to the F3SJ Series Catalog (Cat. No. F074) or visit the Omron website for details of the F3SJ Series.

www.ia.omron.com/

F3SJ Search

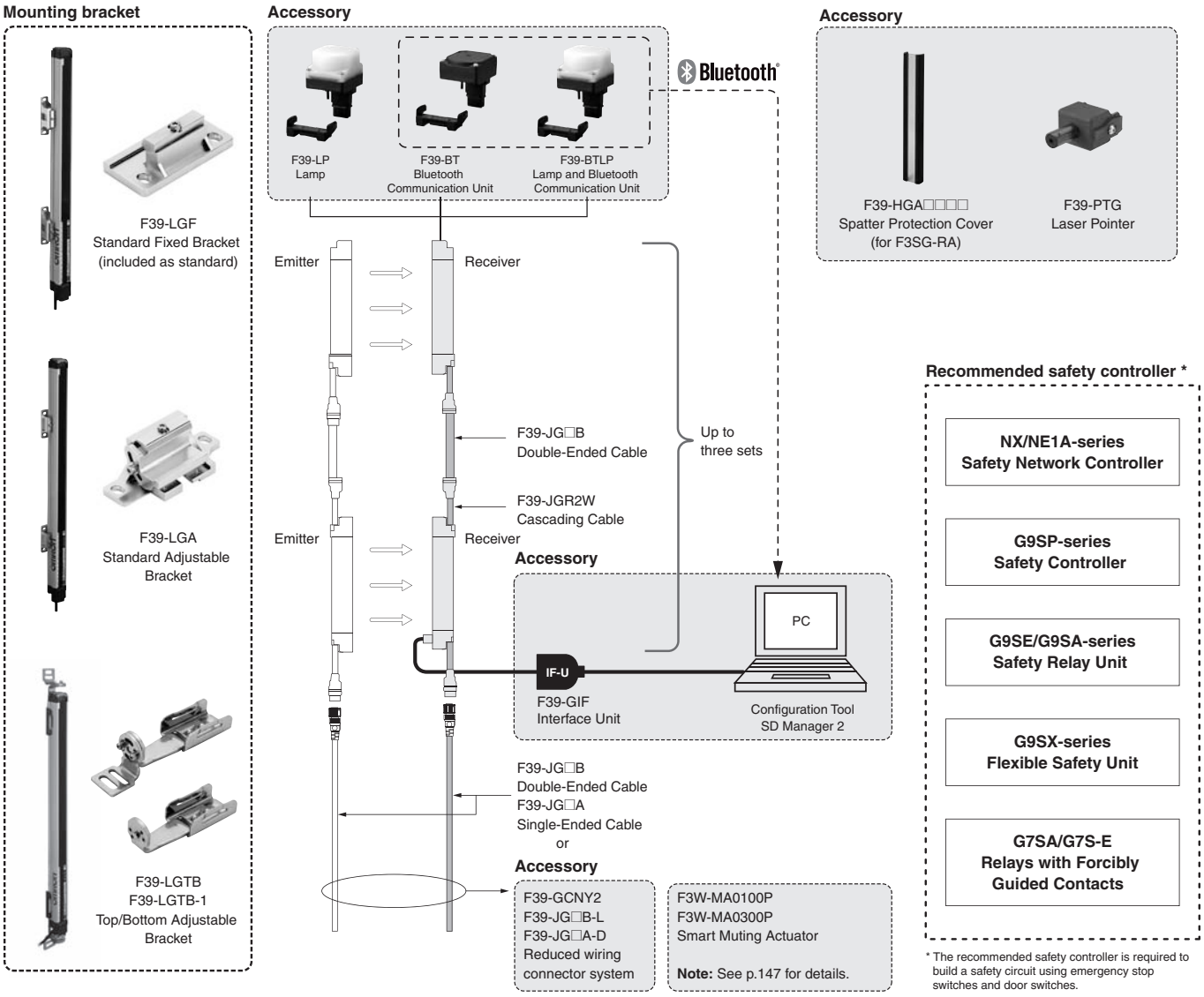
Safety Light Curtain Advanced type

F3SG-RA

Offers Both Durability and Reliability

- Rugged and compact
- New muting function to increase both productivity and safety
- All models designed for global use. PNP/NPN selection by DIP switch
- Conforming to major international standards including Chinese standard GB 4584

System Configuration



* The recommended safety controller is required to build a safety circuit using emergency stop switches and door switches.

Ordering Information

Main Units

Safety Light Curtain

Finger protection

Number of beams	Protective height (mm)	Model
15	160	**F3SG-4RA0160-14**
23	240	**F3SG-4RA0240-14**
31	320	**F3SG-4RA0320-14**
39	400	**F3SG-4RA0400-14**
47	480	**F3SG-4RA0480-14**
55	560	**F3SG-4RA0560-14**
63	640	**F3SG-4RA0640-14**
71	720	**F3SG-4RA0720-14**
79	800	**F3SG-4RA0800-14**
87	880	**F3SG-4RA0880-14**
95	960	**F3SG-4RA0960-14**
103	1040	**F3SG-4RA1040-14**
111	1120	**F3SG-4RA1120-14**
119	1200	**F3SG-4RA1200-14**
127	1280	**F3SG-4RA1280-14**
135	1360	**F3SG-4RA1360-14**
143	1440	**F3SG-4RA1440-14**
151	1520	**F3SG-4RA1520-14**
159	1600	**F3SG-4RA1600-14**
167	1680	**F3SG-4RA1680-14**
175	1760	**F3SG-4RA1760-14**
183	1840	**F3SG-4RA1840-14**
191	1920	**F3SG-4RA1920-14**
199	2000	**F3SG-4RA2000-14**
207	2080	**F3SG-4RA2080-14**

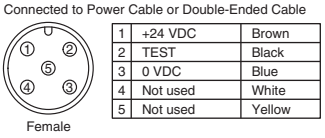
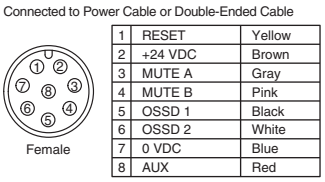
Hand and arm protection

Number of beams	Protective height (mm)	Model
8	190	**F3SG-4RA0190-30**
12	270	**F3SG-4RA0270-30**
16	350	**F3SG-4RA0350-30**
20	430	**F3SG-4RA0430-30**
24	510	**F3SG-4RA0510-30**
28	590	**F3SG-4RA0590-30**
32	670	**F3SG-4RA0670-30**
36	750	**F3SG-4RA0750-30**
40	830	**F3SG-4RA0830-30**
44	910	**F3SG-4RA0910-30**
48	990	**F3SG-4RA0990-30**
52	1070	**F3SG-4RA1070-30**
56	1150	**F3SG-4RA1150-30**
60	1230	**F3SG-4RA1230-30**
64	1310	**F3SG-4RA1310-30**
68	1390	**F3SG-4RA1390-30**
72	1470	**F3SG-4RA1470-30**
76	1550	**F3SG-4RA1550-30**
80	1630	**F3SG-4RA1630-30**
84	1710	**F3SG-4RA1710-30**
88	1790	**F3SG-4RA1790-30**
92	1870	**F3SG-4RA1870-30**
96	1950	**F3SG-4RA1950-30**
100	2030	**F3SG-4RA2030-30**
104	2110	**F3SG-4RA2110-30**
108	2190	**F3SG-4RA2190-30**
112	2270	**F3SG-4RA2270-30**
116	2350	**F3SG-4RA2350-30**
120	2430	**F3SG-4RA2430-30**
124	2510	**F3SG-4RA2510-30**

Accessories (Sold separately)

Safety light curtain connecting cable

Single-Ended Cable *

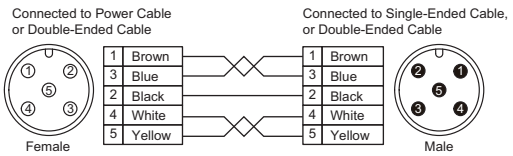
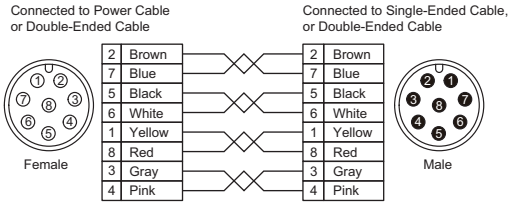
Appearance	Type	Cable length	Specifications	Model
	For emitter M12 connector (5-pin), 5 wires Color: Gray	3 m		**F39-JG3A-L**
		7 m		**F39-JG7A-L**
		10 m		**F39-JG10A-L**
		15 m		**F39-JG15A-L**
		20 m		**F39-JG20A-L**
	For receiver M12 connector (8-pin), 8 wires Color: Black	3 m		**F39-JG3A-D**
		7 m		**F39-JG7A-D**
		10 m		**F39-JG10A-D**
		15 m		**F39-JG15A-D**
		20 m		**F39-JG20A-D**

* A set of two Single-Ended Cables (one for emitter and one for receiver) is also available.
Model: Model number without the -L/-D at the end (F39-JG□A)

Note: To extend the cable length to more than 20 m, add the F39-JG□B Double-Ended Cable.

Double-Ended Cable *

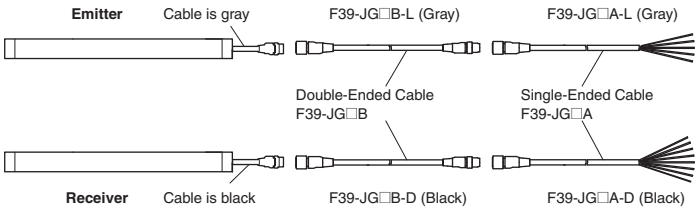
For cable extension and simple wiring

Appearance	Type	Cable length	Specifications	Model
	For emitter M12 connector (5-pin) on both ends Color: Gray	0.5 m		**F39-JGR5B-L**
		1 m		**F39-JG1B-L**
		3 m		**F39-JG3B-L**
		5 m		**F39-JG5B-L**
		7 m		**F39-JG7B-L**
		10 m		**F39-JG10B-L**
		15 m		**F39-JG15B-L**
		20 m		**F39-JG20B-L**
	For receiver M12 connector (8-pin) on both ends Color: Black	0.5 m		**F39-JGR5B-D**
		1 m		**F39-JG1B-D**
		3 m		**F39-JG3B-D**
		5 m		**F39-JG5B-D**
		7 m		**F39-JG7B-D**
		10 m		**F39-JG10B-D**
		15 m		**F39-JG15B-D**
		20 m		**F39-JG20B-D**

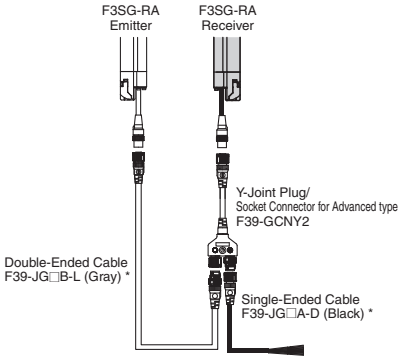
* A set of two Double-Ended Cables (one for emitter and one for receiver) is also available.
Model: Model number without the -L/-D at the end (F39-JG□B)

Note: To extend the cable length to more than 20 m, add the F39-JG□B Double-Ended Cable to the F39-JG□A Single-Ended Cable.
To extend the cable length to more than 40 m, add several Double-Ended Cables to the Single-Ended Cable.
Example: To extend the cable length to 50 m, connect two F39-JG20B (20 m) cables and one F39-JG10A (10 m) cable.

<Connection example>

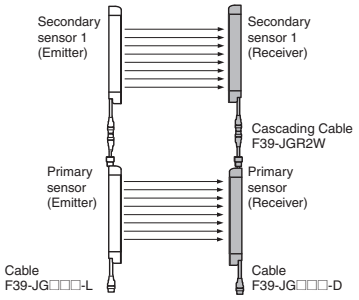


Y-Joint Plug/Socket Connector for F3SG-4RA□□□□-14/-4RA□□□□-30
For reduced wiring

Appearance	Type	Cable length	Specifications	Model
	M12 connectors. Used for reduced wiring.	0.5 m		**F39-GCNY2**

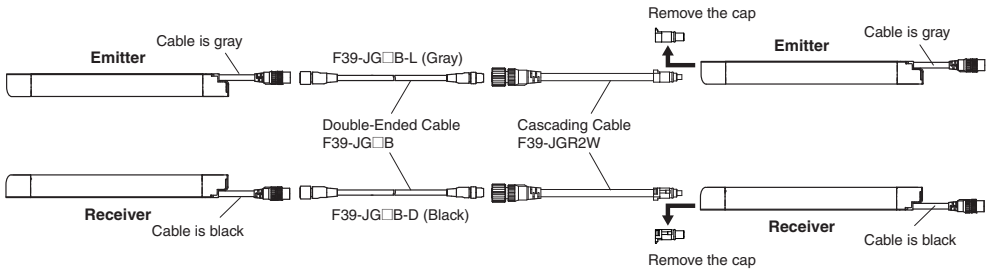
* Order the cable for emitter (end of model: -L) and the cable for receiver (end of model: -D).

Cascading Cable (2 cables per set, for emitter and receiver)

Appearance	Type	Cable length	Specifications	Model
	Emitter cable: Cap (5-pin), M12 connector (5-pin) Receiver cable: Cap (8-pin), M12 connector (8-pin)	0.2 m		**F39-JGR2W**

Note: The Double-Ended Cable (up to 10 m: F39-JG10B) can be added to extend the cable length between the series-connected sensors. Cable length between sensors: 10 m max. (not including cascading cable (F39-JGR2W) and power cable)

<Connection example>



Sensor Mounting Brackets

Appearance	Specification	Application	Model
	Standard Fixed Bracket	Bracket to mount the F3SG-R. Side mounting and backside mounting possible. (This is included as a standard accessory with the product. It comes as a set of two Brackets. Refer to note *1 for the number of sets provided with each model.)	**F39-LGF**
	Standard Adjustable Bracket	Bracket to mount the F3SG-R. Beam alignment after mounting possible. The angle adjustment range is ±15°. Side mounting and backside mounting possible. (Sold separately as a set of two Brackets. Refer to note *1 for the number of sets required for each model.)	**F39-LGA**
	Top/Bottom Adjustable Bracket *2	Bracket to mount the F3SG-R. Use this bracket at the top and bottom positions of the F3SG-R. Beam alignment after mounting possible. The angle adjustment range is ±22.5°. Side mounting and backside mounting possible. (Sold separately. 4 brackets per set.)	**F39-LGTB**
	Top/Bottom Adjustable Bracket *2 (For user-made mounting part)	Top/Bottom Adjustable Bracket without a bracket to mount to the wall. Use the user's own wall mounting part to suit the machine. (Sold separately. 4 brackets per set.)	**F39-LGTB-1**

*1. [for F3SG-4RA□□□□-14]
- Protective height of 0160 to 1200: 2 sets, Protective height of 1280 to 2080: 3 sets
[for F3SG-4RA□□□□-30]
- Protective height of 0190 to 1230: 2 sets, Protective height of 1310 to 2270: 3 sets, Protective height of 2350 to 2510: 4 sets

*2. Top/Bottom Adjustable Bracket cannot be used with the Standard Fixed Bracket. Use with the Standard Adjustable Bracket.

Using Top/Bottom Adjustable Brackets with Standard Adjustable Brackets

F3SG-4RA□□□□-14:	Protective height of 1040 or less:	The Standard Adjustable Bracket is not required. Please purchase 1 set of Top/Bottom Adjustable Brackets (F39-LGTB(-1)).
	Protective height of 1120 to 1920:	Please purchase 1 set of Top/Bottom Adjustable Brackets (F39-LGTB(-1)) and 1 set of Standard Adjustable Brackets (F39-LGA).
	Protective height of 2000 to 2080:	Please purchase 1 set of Top/Bottom Adjustable Brackets (F39-LGTB(-1)) and 2 sets of Standard Adjustable Brackets (F39-LGA).
F3SG-4RA□□□□-30:	Protective height of 1070 or less:	The Standard Adjustable Bracket is not required. Please purchase 1 set of Top/Bottom Adjustable Brackets (F39-LGTB(-1)).
	Protective height of 1150 to 1950:	Please purchase 1 set of Top/Bottom Adjustable Brackets (F39-LGTB(-1)) and 1 set of Standard Adjustable Brackets (F39-LGA).
	Protective height of 2030 to 2510:	Please purchase 1 set of Top/Bottom Adjustable Brackets (F39-LGTB(-1)) and 2 sets of Standard Adjustable Brackets (F39-LGA).

Interface units and configuration tool SD Manager 2

Appearance	Type	Specifications	Model
	SD Manager 2	The Configuration Tool SD Manager 2 is available to download from our website at http://www.ia.omron.com/f3sg-r_tool. To change the settings of the F3SG-RA using SD Manager 2, it is necessary to set the receiver's two DIP switches No. 8 to ON.	–
	Interface Unit	F39-GIF interface unit to connect the F3SG-RA receiver to a USB port of the PC Accessories: 0.3-m Dedicated Cable 1 (1), 2-m Dedicated Cable 2 (1), Instruction Manual	**F39-GIF**
	Bluetooth Communication Unit	F39-BT bluetooth unit to enable bluetooth on the F3SG-RA IP67 rated when mated.	**F39-BT**

Lamp

Appearance	Type	Specifications	Model
	Lamp	The lamp can be connected to a receiver and turned ON based on the operation of F3SG-RA/RR. The lamp can indicate red, orange, and green colors, to which three different states can be assigned. IP67 rated when mated.	**F39-LP**
	Lamp and Bluetooth Communication Unit		**F39-BTLP**

End Cap

Appearance	Specifications	Model
	Housing color: Black For both emitter and receiver (Attached to the F3SG-RA. The End Cap can be purchased if lost.) IP67 rated when mated.	**F39-CNM**

Laser Pointer for F3SG-R

Appearance	Specifications	Model
	The laser pointer is attached on the optical surface of the F3SG-R to help coarse adjustment of beams.	**F39-PTG**

Spatter Protection Cover (2 covers per set, one for emitter and one for receiver)

Spatter Protection Covers include mounting brackets.
For Safety Light Curtain models of the protective height of 2,000 mm or longer, use two Spatter Protection Covers of different lengths.

Appearance	Safety Light Curtain Model		Model
	Finger protection	Hand and arm protection	
	F3SG-4RA0160-14	F3SG-4RA0190-30	F39-HGA0200
	F3SG-4RA0240-14	F3SG-4RA0270-30	F39-HGA0280
	F3SG-4RA0320-14	F3SG-4RA0350-30	F39-HGA0360
	F3SG-4RA0400-14	F3SG-4RA0430-30	F39-HGA0440
	F3SG-4RA0480-14	F3SG-4RA0510-30	F39-HGA0520
	F3SG-4RA0560-14	F3SG-4RA0590-30	F39-HGA0600
	F3SG-4RA0640-14	F3SG-4RA0670-30	F39-HGA0680
	F3SG-4RA0720-14	F3SG-4RA0750-30	F39-HGA0760
	F3SG-4RA0800-14	F3SG-4RA0830-30	F39-HGA0840
	F3SG-4RA0880-14	F3SG-4RA0910-30	F39-HGA0920
	F3SG-4RA0960-14	F3SG-4RA0990-30	F39-HGA1000
	F3SG-4RA1040-14	F3SG-4RA1070-30	F39-HGA1080
	F3SG-4RA1120-14	F3SG-4RA1150-30	F39-HGA1160
	F3SG-4RA1200-14	F3SG-4RA1230-30	F39-HGA1240
	F3SG-4RA1280-14	F3SG-4RA1310-30	F39-HGA1320
	F3SG-4RA1360-14	F3SG-4RA1390-30	F39-HGA1400
	F3SG-4RA1440-14	F3SG-4RA1470-30	F39-HGA1480
	F3SG-4RA1520-14	F3SG-4RA1550-30	F39-HGA1560
	F3SG-4RA1600-14	F3SG-4RA1630-30	F39-HGA1640
	F3SG-4RA1680-14	F3SG-4RA1710-30	F39-HGA1720
	F3SG-4RA1760-14	F3SG-4RA1790-30	F39-HGA1800
	F3SG-4RA1840-14	F3SG-4RA1870-30	F39-HGA1880
	F3SG-4RA1920-14	F3SG-4RA1950-30	F39-HGA1960
	F3SG-4RA2000-14	F3SG-4RA2030-30	F39-HGA1480
			F39-HGA0550
	F3SG-4RA2080-14	F3SG-4RA2110-30	F39-HGA1560
			F39-HGA0550
	–	F3SG-4RA2190-30	F39-HGA1640
			F39-HGA0550
	–	F3SG-4RA2270-30	F39-HGA1720
			F39-HGA0550
	–	F3SG-4RA2350-30	F39-HGA1800
			F39-HGA0550
	–	F3SG-4RA2430-30	F39-HGA1880
			F39-HGA0550
	–	F3SG-4RA2510-30	F39-HGA1960
			F39-HGA0550

Note: 1. The operating range of the Safety Light Curtain attached with the product is 10% shorter than the rating.
2. The product extends over the DIP Switch cover of the Safety Light Curtain. Be sure to use the product only after all required settings are made to the DIP Switch.

Test Rod

Diameter	Model
14 mm dia.	**F39-TRD14**
30 mm dia.	**F39-TRD30**

Ratings and Specifications

Main unit

The □□□□ in the model names indicate the protective heights in millimeters.

			F3SG-4RA□□□□-14 F3SG-2RA□□□□-14	F3SG-4RA□□□□-30 F3SG-2RA□□□□-30
Type of ESPE (IEC 61496-1)		Type 4	F3SG-4RA□□□□-14/-30	
		Type 2	F3SG-2RA□□□□-14/-30	
Performance	Object Resolution (Detection Capability)		Opaque objects	
			14-mm dia.	30-mm dia.
	Beam Gap		10 mm	20 mm
	Number of Beams		15 to 207	8 to 124
	Lens Size		5.2 × 3.4 (W × H) mm	7-mm dia.
	Protective Height		160 to 2080 mm (6.3 to 81.9 inch)	190 to 2510 mm (7.3 to 98.7 inch)
	Operating Range	Long	0.3 to 10.0 m (1 to 32 ft.)	0.3 to 20.0 m (1 to 65 ft.)
		Short	0.3 to 3.0 m (1 to 10 ft.)	0.3 to 7.0 m (1 to 23 ft.)
	Response Time	ON to OFF	Normal mode: 8 to 18 ms max. *1 Slow mode: 16 to 36 ms max. *1 *2	
		OFF to ON	40 to 90 ms max. *1	
		*1. Response time when used in one segment system or in cascaded connection. Refer to page 25 for the one segment system. Refer to *Safety Light Curtain F3SG-R Series User's Manual (ManNo.: Z352)* for cascaded connection. *2. Selectable by Configuration Tool.		
	Effective Aperture Angle (EAA) (IEC 61496-2)	Type 4	±2.5° max., emitter and receiver at operating range of 3 m or greater	
		Type 2	±5.0° max., emitter and receiver at operating range of 3 m or greater	
	Light Source		Infrared LEDs, Wavelength: 870 nm	
	Startup Waiting Time		2 s max.	
Electrical	Power Supply Voltage (Vs)		SELV/PELV 24 VDC±20% (ripple p-p 10% max.)	
	Current Consumption		Refer to page 25 .	
	Safety Outputs (OSSD)		Two PNP or NPN transistor outputs (PNP or NPN is selectable by DIP Switch.) Load current of 300 mA max., Residual voltage of 2 V max. (except for voltage drop due to cable extension), Capacitive load of 1 μF max., Inductive load of 2.2 H max. *1 Leakage current of 1 mA max. (PNP), 2 mA max. (NPN) *2 *1. 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. *2. These values must be taken into consideration when connecting elements including a capacitive load such as a capacitor.	
	Auxiliary Output		One PNP or NPN transistor output (PNP or NPN is selectable by DIP Switch.) Load current of 100 mA max., Residual voltage of 2 V max .	
	Output Operation Mode	Safety Output	Light-ON (Safety output is enabled when the receiver receives an emitting signal.)	
		Auxiliary Output	Safety output (Inverted signal output:Enable) (default) (Cofigurable by Configuration Tool)	
	Input Voltage	ON Voltage	TEST: 24 V Active: 9 V to Vs (sink current 3 mA max.) * 0 V Active: 0 to 3 V (source current 3 mA max.) MUTE A/B: PNP: Vs to Vs-3 V (sink current 3 mA max.) * NPN: 0 to 3 V (source current 3 mA max.) RESET: PNP: Vs to Vs-3 V (sink current 5 mA max.) * NPN: 0 to 3 V (source current 5 mA max.)	
		OFF Voltage	TEST: 24 V Active : 0 to 1.5 V or open 0 V Active : 9 V to Vs or open MUTE A/B, RESET: PNP: 0 to 1/2 Vs, or open * NPN: 1/2 Vs to Vs, or open *	
		* The Vs indicates a supply voltage value in your environment.		
	Overvoltage Category (IEC 60664-1)		II	
	Indicators		Refer to page 27.	
	Protective Circuit		Output short protection, Power supply reverse polarity protection	
	Insulation Resistance		20 MΩ or higher (500 VDC megger)	
	Dielectric Strength		1,000 VAC, 50/60 Hz (1 min)	
Functional	Mutual Interference Prevention (Scan Code)		This function prevents mutual interference in up to two F3SG-RA systems.	
	Cascade Connection		Number of cascaded segments: 3 max. Total number of beams: 255 max. Cable length between sensors: 10 m max. (not including cascading cable (F39-JGR2W) and power cable)	
	Test Function		Self-test (at power-on, and during operation) External test (light emission stop function by test input)	
	Safety-Related Functions		Interlock External device monitoring (EDM) Pre-reset Fixed blanking/Floating blanking Reduced resolution Muting/Override Scan code selection PNP/NPN selection Response time adjustment	

			F3SG-4RA□□□□-14 F3SG-2RA□□□□-14	F3SG-4RA□□□□-30 F3SG-2RA□□□□-30
Environmental	Ambient Temperature	Operating	-10 to 55°C (14 to 131°F) (non-icing)	
		Storage	-25 to 70°C (-13 to 158°F)	
	Ambient Humidity	Operating	35% to 85% (non-condensing)	
		Storage	35% to 95%	
	Ambient Illuminance		Incandescent lamp: 3,000 lx max. on receiver surface Sunlight: 10,000 lx max. on receiver surface	
	Degree of Protection (IEC 60529)		IP65 and IP67	
	Vibration Resistance (IEC 61496-1)		10 to 55 Hz, Multiple amplitude of 0.7 mm, 20 sweeps for all 3 axes	
	Shock Resistance (IEC 61496-1)		100 m/s^2, 1000 shocks for all 3 axes	
	Pollution Degree (IEC 60664-1)		Pollution Degree 3	
Connections	Power cable	Type of Connection	M12 connectors: 5-pin emitter and 8-pin receiver, IP67 rated when mated, Cables prewired to the sensors	
		Number of Wires	Emitter: 5, Receiver: 8	
		Cable Length	0.3 m	
		Cable Diameter	6 mm	
		Minimum Bending Radius	R5 mm	
	Cascading cable	Type of Connection	M12 connectors: 5-pin emitter and 8-pin receiver, IP67 rated when mated	
		Number of Wires	Emitter: 5, Receiver: 8	
		Cable Length	0.2 m	
		Cable Diameter	6 mm	
		Minimum Bending Radius	R5 mm	
	Extension cable - Single-Ended Cable - Double-Ended Cable	Type of Connection	M12 connectors: 5-pin emitter and 8-pin receiver, IP67 rated when mated	
		Number of Wires	Emitter: 5, Receiver: 8	
		Cable Length	Refer to page 18.	
		Cable Diameter	6.6 mm	
		Minimum Bending Radius	R36 mm	
	Extension of Power Cable		100 m max.	
Material	Material		Housing: Aluminum alloy Cap: PBT resin Front window: Acrylic resin Cable: Oil-resistant PVC resin Standard Fixed Bracket (F39-LGF): Zinc alloy FE plate: Stainless steel	
	Weight		Refer to page 25.	
	Included Accessories		Safety Precautions, Quick Installation Manual, Standard Fixed Bracket *, Troubleshooting Guide Sticker, Warning Zone Label * The quantity of Standard Fixed Brackets included varies depending on the protective height. [F3SG-□RA□□□□-14] - Protective height of 0160 to 1200: 2 sets - Protective height of 1280 to 2080: 3 sets [F3SG-□RA□□□□-30] - Protective height of 0190 to 1230: 2 sets - Protective height of 1310 to 2270: 3 sets - Protective height of 2350 to 2510: 4 sets	
Conformity	Conforming standards		Refer to page 26.	
	Type of ESPE (IEC 61496-1)		Type 4	
	Performance Level (PL)/Safety category	Type 4	PL e/Category 4 (EN ISO 13849-1:2015)	
		Type 2	PL c/Category 2 (EN ISO 13849-1:2015)	
	PFH_D		1.1×10^{-8} (IEC 61508)	
	Proof test interval T_M		Every 20 years (IEC 61508)	
	SFF		99% (IEC 61508)	
	HFT		1 (IEC 61508)	
	Classification		Type B (IEC 61508-2)	

List of Models/Response Time/Current Consumption/Weight

F3SG-4RA□□□□-14/F3SG-2RA□□□□-14

Model		Number of Beams	Protective Height [mm]	Response Time [ms] *1			Current Consumption [mA]		Weight [kg]	
				ON → OFF *2	OFF (Synchronized) → ON	OFF (Not synchronized) → ON	Emitter	Receiver	Net *3	Gross *4
F3SG-4RA0160-14	F3SG-2RA0160-14	15	160	8	40	140	40	75	0.7	2.0
F3SG-4RA0240-14	F3SG-2RA0240-14	23	240	8	40	140	45	75	0.9	2.3
F3SG-4RA0320-14	F3SG-2RA0320-14	31	320	8	40	140	55	75	1.1	2.6
F3SG-4RA0400-14	F3SG-2RA0400-14	39	400	8	40	140	60	80	1.3	2.9
F3SG-4RA0480-14	F3SG-2RA0480-14	47	480	13	65	165	50	80	1.5	3.2
F3SG-4RA0560-14	F3SG-2RA0560-14	55	560	13	65	165	55	80	1.7	3.5
F3SG-4RA0640-14	F3SG-2RA0640-14	63	640	13	65	165	60	85	1.9	3.9
F3SG-4RA0720-14	F3SG-2RA0720-14	71	720	13	65	165	65	85	2.1	4.2
F3SG-4RA0800-14	F3SG-2RA0800-14	79	800	13	65	165	65	90	2.3	4.5
F3SG-4RA0880-14	F3SG-2RA0880-14	87	880	13	65	165	70	90	2.6	4.8
F3SG-4RA0960-14	F3SG-2RA0960-14	95	960	13	65	165	75	90	2.8	5.1
F3SG-4RA1040-14	F3SG-2RA1040-14	103	1040	13	65	165	80	95	3.0	5.4
F3SG-4RA1120-14	F3SG-2RA1120-14	111	1120	13	65	165	85	95	3.2	5.7
F3SG-4RA1200-14	F3SG-2RA1200-14	119	1200	13	65	165	90	100	3.4	6.0
F3SG-4RA1280-14	F3SG-2RA1280-14	127	1280	13	65	165	95	100	3.6	6.4
F3SG-4RA1360-14	F3SG-2RA1360-14	135	1360	13	65	165	95	105	3.8	6.7
F3SG-4RA1440-14	F3SG-2RA1440-14	143	1440	18	90	190	85	105	4.0	7.0
F3SG-4RA1520-14	F3SG-2RA1520-14	151	1520	18	90	190	90	105	4.2	7.3
F3SG-4RA1600-14	F3SG-2RA1600-14	159	1600	18	90	190	90	110	4.4	7.6
F3SG-4RA1680-14	F3SG-2RA1680-14	167	1680	18	90	190	95	110	4.7	7.9
F3SG-4RA1760-14	F3SG-2RA1760-14	175	1760	18	90	190	100	115	4.9	8.2
F3SG-4RA1840-14	F3SG-2RA1840-14	183	1840	18	90	190	100	115	5.1	8.5
F3SG-4RA1920-14	F3SG-2RA1920-14	191	1920	18	90	190	105	120	5.3	8.8
F3SG-4RA2000-14	F3SG-2RA2000-14	199	2000	18	90	190	105	120	5.5	9.2
F3SG-4RA2080-14	F3SG-2RA2080-14	207	2080	18	90	190	110	125	5.7	9.5

*1. The maximum speed of movement of a test rod up to which the detection capability is maintained is 2.0 m/s.
*2. The response times are values when Scan Code is set at Code B. The response times for Code A are 1 ms shorter than these values.
*3. The net weight is the weight of an emitter and a receiver.
*4. The gross weight is the weight of an emitter, a receiver, included accessories and a package.

F3SG-4RA□□□□-30/F3SG-2RA□□□□-30

Model		Number of Beams	Protective Height [mm]	Response Time [ms] *1			Current Consumption [mA]		Weight [kg]	
				ON → OFF *2	OFF (Synchronized) → ON	OFF (Not synchronized) → ON	Emitter	Receiver	Net *3	Gross *4
F3SG-4RA0190-30	F3SG-2RA0190-30	8	190	8	40	140	35	75	0.6	2.1
F3SG-4RA0270-30	F3SG-2RA0270-30	12	270	8	40	140	35	75	0.9	2.4
F3SG-4RA0350-30	F3SG-2RA0350-30	16	350	8	40	140	40	75	1.1	2.7
F3SG-4RA0430-30	F3SG-2RA0430-30	20	430	8	40	140	45	75	1.3	3.0
F3SG-4RA0510-30	F3SG-2RA0510-30	24	510	8	40	140	50	75	1.5	3.3
F3SG-4RA0590-30	F3SG-2RA0590-30	28	590	8	40	140	50	75	1.7	3.6
F3SG-4RA0670-30	F3SG-2RA0670-30	32	670	8	40	140	55	75	1.9	3.9
F3SG-4RA0750-30	F3SG-2RA0750-30	36	750	8	40	140	60	80	2.1	4.2
F3SG-4RA0830-30	F3SG-2RA0830-30	40	830	8	40	140	65	80	2.3	4.5
F3SG-4RA0910-30	F3SG-2RA0910-30	44	910	13	65	165	50	80	2.5	4.8
F3SG-4RA0990-30	F3SG-2RA0990-30	48	990	13	65	165	50	80	2.7	5.1
F3SG-4RA1070-30	F3SG-2RA1070-30	52	1070	13	65	165	55	80	2.9	5.4
F3SG-4RA1150-30	F3SG-2RA1150-30	56	1150	13	65	165	55	85	3.1	5.7
F3SG-4RA1230-30	F3SG-2RA1230-30	60	1230	13	65	165	55	85	3.3	6.0
F3SG-4RA1310-30	F3SG-2RA1310-30	64	1310	13	65	165	60	85	3.5	6.3
F3SG-4RA1390-30	F3SG-2RA1390-30	68	1390	13	65	165	60	85	3.8	6.6
F3SG-4RA1470-30	F3SG-2RA1470-30	72	1470	13	65	165	65	85	4.0	6.9
F3SG-4RA1550-30	F3SG-2RA1550-30	76	1550	13	65	165	65	90	4.2	7.2
F3SG-4RA1630-30	F3SG-2RA1630-30	80	1630	13	65	165	70	90	4.4	7.5
F3SG-4RA1710-30	F3SG-2RA1710-30	84	1710	13	65	165	70	90	4.6	7.8
F3SG-4RA1790-30	F3SG-2RA1790-30	88	1790	13	65	165	70	90	4.8	8.1
F3SG-4RA1870-30	F3SG-2RA1870-30	92	1870	13	65	165	75	90	5.0	8.4
F3SG-4RA1950-30	F3SG-2RA1950-30	96	1950	13	65	165	75	95	5.2	8.7
F3SG-4RA2030-30	F3SG-2RA2030-30	100	2030	13	65	165	80	95	5.4	9.0
F3SG-4RA2110-30	F3SG-2RA2110-30	104	2110	13	65	165	80	95	5.6	9.3
F3SG-4RA2190-30	F3SG-2RA2190-30	108	2190	13	65	165	85	95	5.8	9.6
F3SG-4RA2270-30	F3SG-2RA2270-30	112	2270	13	65	165	85	100	6.0	9.9
F3SG-4RA2350-30	F3SG-2RA2350-30	116	2350	13	65	165	85	100	6.2	10.2
F3SG-4RA2430-30	F3SG-2RA2430-30	120	2430	13	65	165	90	100	6.4	10.5
F3SG-4RA2510-30	F3SG-2RA2510-30	124	2510	13	65	165	90	100	6.7	10.8

*1. The maximum speed of movement of a test rod up to which the detection capability is maintained is 2.0 m/s.
*2. The response times are values when Scan Code is set at Code B. The response times for Code A are 1 ms shorter than these values.
*3. The net weight is the weight of an emitter and a receiver.
*4. The gross weight is the weight of an emitter, a receiver, included accessories and a package.