

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/T 4584

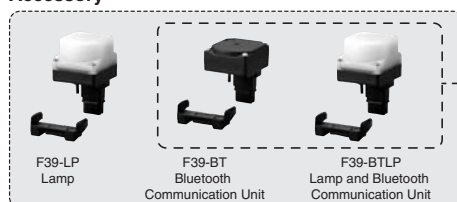


System Configuration

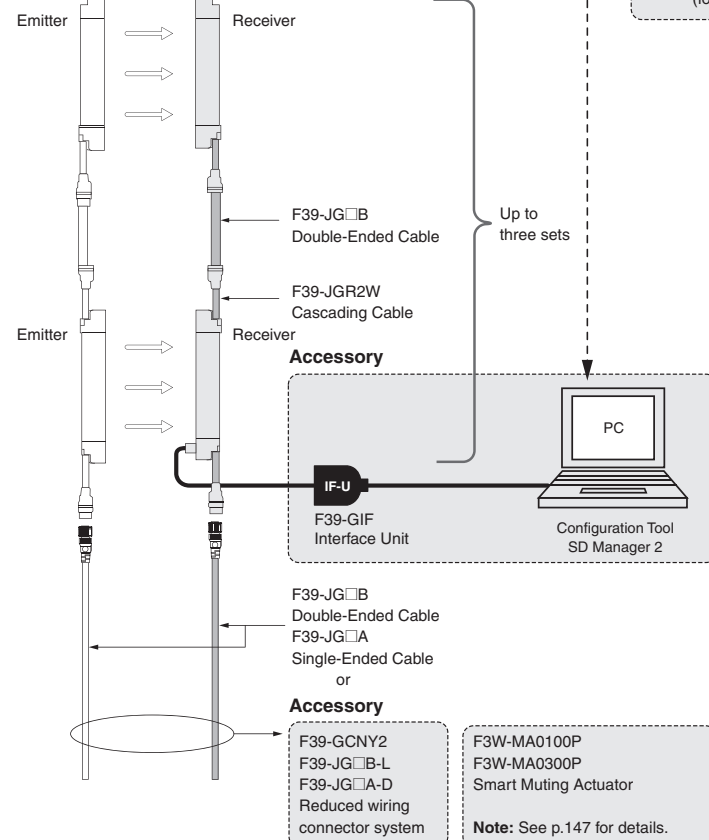
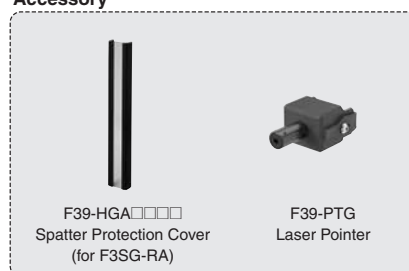
Mounting bracket



Accessory



Accessory



Recommended safety controller *

NX/NE1A-series
Safety Network Controller

G9SP-series
Safety Controller

G9SE/G9SA-series
Safety Relay Unit

G9SX-series
Flexible Safety Unit

G7SA/G7S-E
Relays with Forcibly
Guided Contacts

* 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	Connected to Power Cable or Double-Ended Cable  Female <table><tr><td>1</td><td>+24 VDC</td><td>Brown</td></tr><tr><td>2</td><td>TEST</td><td>Black</td></tr><tr><td>3</td><td>0 VDC</td><td>Blue</td></tr><tr><td>4</td><td>Not used</td><td>White</td></tr><tr><td>5</td><td>Not used</td><td>Yellow</td></tr></table>	1	+24 VDC	Brown	2	TEST	Black	3	0 VDC	Blue	4	Not used	White	5	Not used	Yellow	F39-JG3A-L								
		1		+24 VDC	Brown																						
		2		TEST	Black																						
		3		0 VDC	Blue																						
		4		Not used	White																						
	5	Not used	Yellow																								
	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	Connected to Power Cable or Double-Ended Cable  Female <table><tr><td>1</td><td>RESET</td><td>Yellow</td></tr><tr><td>2</td><td>+24 VDC</td><td>Brown</td></tr><tr><td>3</td><td>MUTE A</td><td>Gray</td></tr><tr><td>4</td><td>MUTE B</td><td>Pink</td></tr><tr><td>5</td><td>OSSD 1</td><td>Black</td></tr><tr><td>6</td><td>OSSD 2</td><td>White</td></tr><tr><td>7</td><td>0 VDC</td><td>Blue</td></tr><tr><td>8</td><td>AUX</td><td>Red</td></tr></table>	1	RESET	Yellow	2	+24 VDC	Brown	3	MUTE A	Gray	4	MUTE B	Pink	5	OSSD 1	Black	6	OSSD 2	White	7	0 VDC	Blue	8	AUX	Red	F39-JG3A-D
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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.

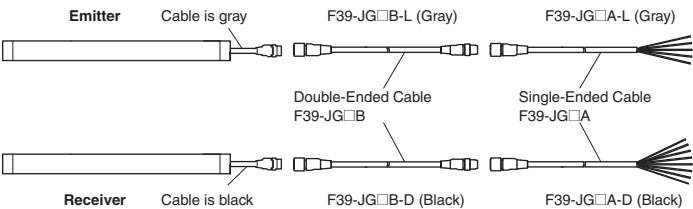
Double-Ended Cable *

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	Connected to Power Cable or Double-Ended Cable Female <table><tr><td>1</td><td>Brown</td></tr><tr><td>3</td><td>Blue</td></tr><tr><td>2</td><td>Black</td></tr><tr><td>4</td><td>White</td></tr><tr><td>5</td><td>Yellow</td></tr></table> Connected to Single-Ended Cable, or Double-Ended Cable <table><tr><td>1</td><td>Brown</td></tr><tr><td>3</td><td>Blue</td></tr><tr><td>2</td><td>Black</td></tr><tr><td>4</td><td>White</td></tr><tr><td>5</td><td>Yellow</td></tr></table> Male	1	Brown	3	Blue	2	Black	4	White	5	Yellow	1	Brown	3	Blue	2	Black	4	White	5	Yellow	F39-JGR5B-L											
		1		Brown																															
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	5 m	F39-JG5B-L																																	
	7 m	F39-JG7B-L																																	
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	2		Brown																																
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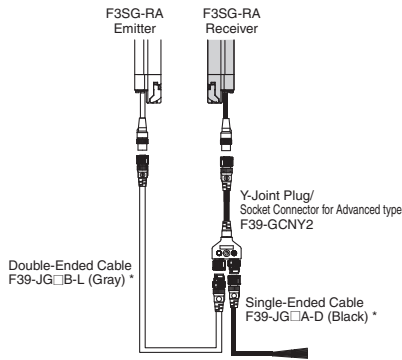
* A set of two Double-Ended Cables (one for emitter and one for receiver) is also available.
Model: Model number without the -L/-D at the end (F39-JG□B)
Note: To extend the cable length to more than 20 m, add the F39-JG□B Double-Ended Cable to the F39-JG□A Single-Ended Cable.
To extend the cable length 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>



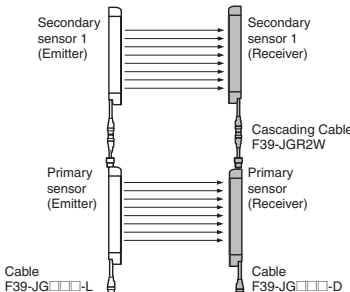
Y-Joint Plug/Socket Connector for F3SG-4RA□□□□-14/-4RA□□□□-30

For reduced wiring

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

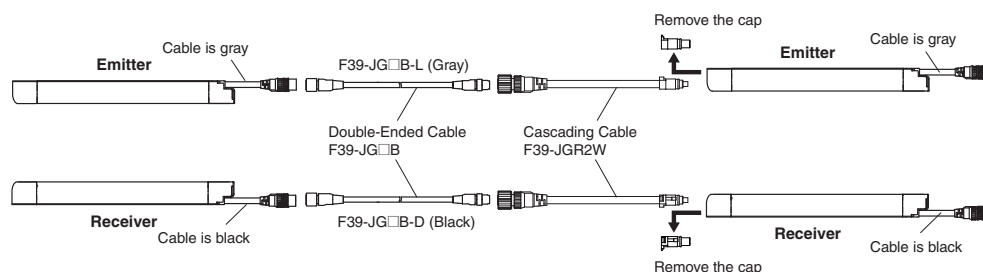
* Order the cable for emitter (end of model: -L) and the cable for receiver (end of model: -D).

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 $\pm 15^\circ$. 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 $\pm 22.5^\circ$. 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.	F39-LP
	Lamp and Bluetooth Communication Unit	The lamp can indicate red, orange, and green colors, to which three different states can be assigned. IP67 rated when mated.	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.	
	Beam Gap	10 mm	
	Number of Beams	15 to 207	
	Lens Size	5.2 × 3.4 (W × H) mm	
	Protective Height	160 to 2080 mm (6.3 to 81.9 inch)	
	Operating Range	Long	30-mm dia.
		Short	20 mm
	Response Time	ON to OFF	8 to 124
		OFF to ON	7-mm dia.
		Normal mode: 8 to 18 ms max. *1 Slow mode: 16 to 36 ms max. *1 *2	190 to 2510 mm (7.3 to 98.7 inch)
	Effective Aperture Angle (EAA) (IEC 61496-2)	Type 4	0.3 to 10.0 m (1 to 32 ft.)
		Type 2	0.3 to 3.0 m (1 to 10 ft.)
Electrical	Light Source	Infrared LEDs, Wavelength: 870 nm	
	Startup Waiting Time	2 s max.	
	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) (Configurable by Configuration Tool)
	Input Voltage	RESET (EDM)	PNP ON voltage: Vs-3 V to Vs (short circuit current: approx. 6.5 mA) * OFF voltage: 0 V to 1/2 Vs, or open (short circuit current: approx. 8.0 mA) * NPN ON voltage: 0 to 3 V (short circuit current: approx. 8.0 mA) OFF voltage: 1/2 Vs to Vs, or open (short circuit current: approx. 6.5 mA) *
		MUTE A/B	PNP ON voltage: Vs-3 V to Vs (short circuit current: approx. 3.0 mA) * OFF voltage: 0 V to 1/2 Vs, or open (short circuit current: approx. 5.0 mA) * NPN ON voltage: 0 to 3 V (short circuit current: approx. 5.0 mA) OFF voltage: 1/2 Vs to Vs, or open (short circuit current: approx. 3.0 mA) *
		TEST	24 V Active ON voltage: 9 V to Vs (short circuit current: approx. 2.5mA) * OFF voltage: 0 to 3 V, or open (short circuit current: approx. 2.0 mA) 0 V Active ON voltage: 0 to 3 V (short circuit current: approx. 2.0 mA) OFF voltage: 9 V to Vs, or open (short circuit current: approx. 2.5 mA) *
	* 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
Environ- mental	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)		Class 3M4 (IEC TR 60721-4-3) Operation limit: 5 to 150 Hz, Multiple amplitude of 7 mm, Acceleration of 1 G, 10 sweeps each in X, Y, and Z directions (no delay at resonant frequencies)	
	Shock Resistance (IEC 61496-1)		Class 3M4 (IEC TR 60721-4-3) Operation limit: Acceleration of 15 G, Pulse duration of 6 ms, 100 shocks for each in X, Y, and Z directions (600 shocks in total)	
Pollution Degree (IEC 60664-1)		Pollution Degree 3		
Conne- ctions	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 ₀		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)		

Bluetooth Communication Unit

Communication System	Bluetooth Version 3.0
Communication Profile	SPP (Serial Port Profile)
Transmission Distance	Approx. 10 m max. (Output power: Class 2) *

* It depends on use environment conditions.

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.