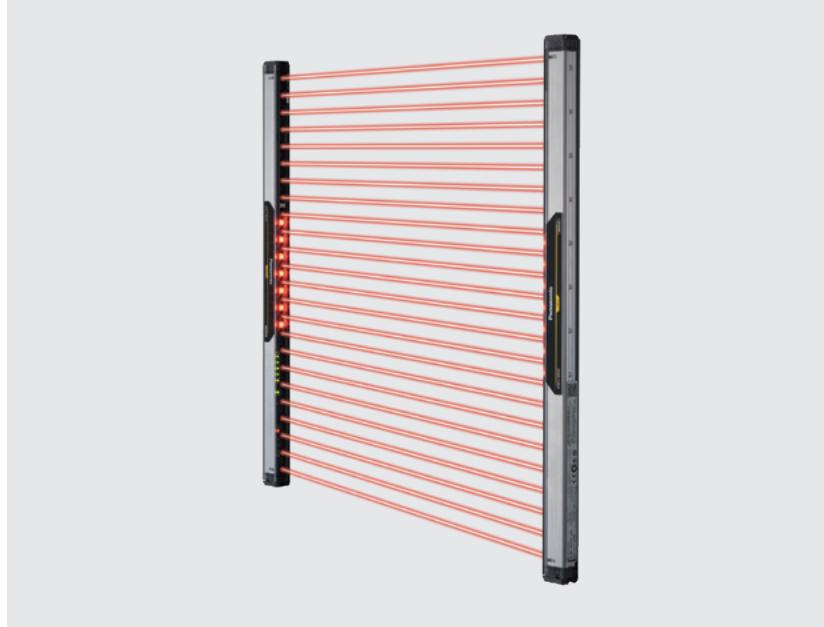


Type 4 PLe SIL3

## Compact Safety Light Curtain

SF4B-C SERIES



# SF4B-C SERIES



Category 4 PLe SIL3

The control category differs depending on the configuration and wiring of the external circuit.

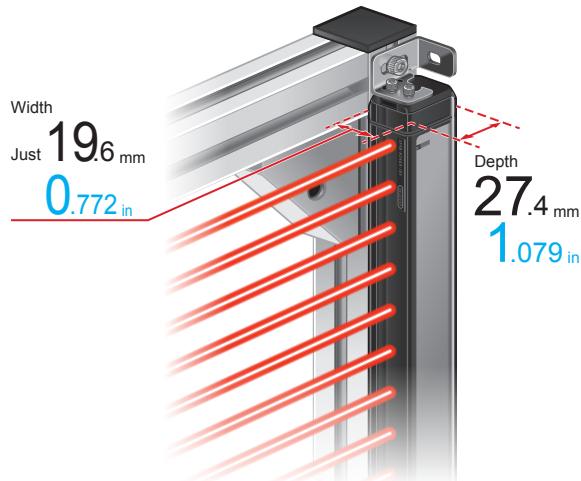


Conforming to  
OSHA / ANSI

## Compact, light weight design, and advanced functionality in one package

### Compact profile design, maximize the machinery opening area

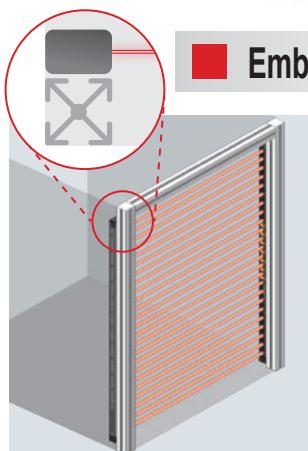
The SF4B-C series is designed to fit onto an aluminum frame, maximizing the machinery opening area. It can even allow zero dead zone.



### ■ Side mounting

- The presence of safety light curtain does not narrow the opening area.
- The safety light curtain is thin, so its bulge from frame can be minimized.

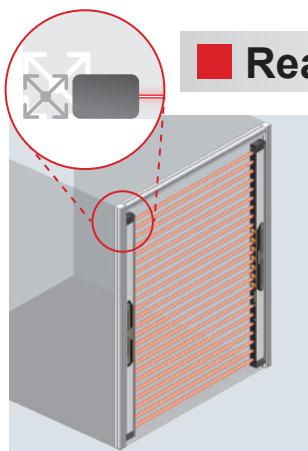
\* When using standard mounting brackets **MS-SF4BC-1** (optional)



### ■ Embedded mounting (side)

- The safety light curtain fits onto frame perfectly, even in embedded installations.
- The safety light curtain protrudes neither into the machinery opening nor outside the frame.
- The safety light curtain will not be damaged due to collision with workpiece.

\* When using standard mounting brackets **MS-SF4BC-1** (optional)



### ■ Rear mounting

- The safety light curtain fits onto a  $20 \times 20$  mm  $0.787 \times 0.787$  in aluminum frame perfectly.
- The safety light curtain does not protrude from the frame.

\* When using standard mounting brackets **MS-SF4BC-1** (optional)

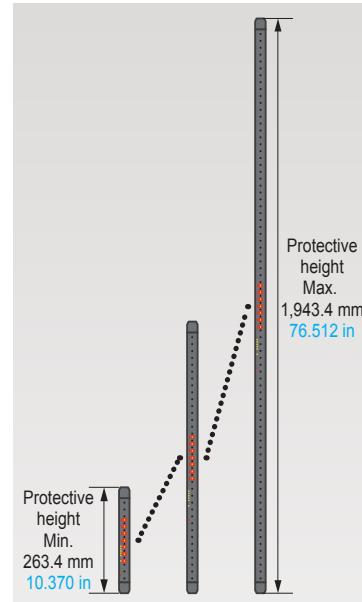
## Plastic × metal

The **SF4B-C** series features a proprietary double structure of a “plastic body” with a “metal inner frame” which lightens the weight while maintaining the durability.



## Maximum protective height of 1,943.4 mm 76.512 in

Despite its compact, plastic body, the **SF4B-C** series features a metal inner frame that increases toughness and also keeps its enclosure not to curve. Protective heights range from 263.4 mm to 1,943.4 mm 10.370 in to 76.512 in.



## 45% lighter\* for easy installation in high places and when mounting long models

Thanks to its plastic body, the **SF4B-C** series is 45 % lighter\* than previous models with aluminum enclosures. This helps to reduce the overall weight of the equipment during transport and when shipping it overseas.

\* Comparing SF4B-H80<V2> with SF4B-H80CA-J05



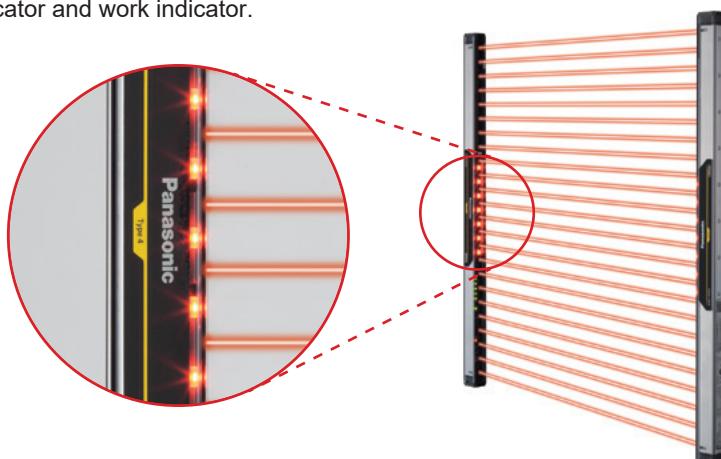
## Large multi-purpose indicator

**SF4B-□CA-J05**

The **SF4B-C** series is equipped with the large multi-purpose indicator at the center of the unit. The indicator shows the presence of the safety light curtain, helping to prevent unintentional beam interruption. The indicator can be used in a variety of applications such as a muting indicator and work indicator.

### Exceptional visibility with wide angle

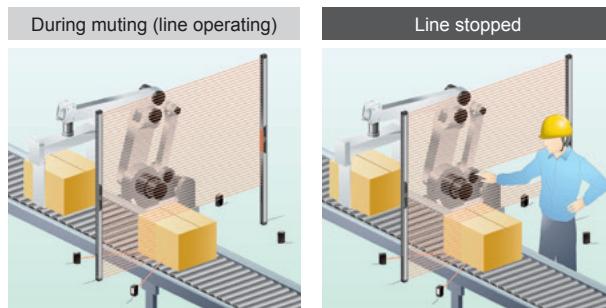
The large multi-purpose indicator shines brightly through the plastic body to ensure exceptional visibility.



## Handy-controller SFB-HC (optional) offers easy access to settings for a range of functionality

### Muting control function for individual beams: Limit the muting area **SF4B-□CA-J05**

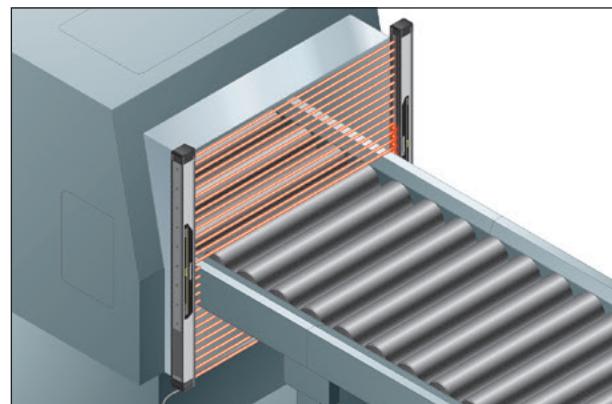
The **SFB-HC** handy-controller (optional) allows to perform muting control for certain beams. Since beam channels can be specified, so there is no need to install a guard to prevent intrusions. For example, according to the height of a sensing object, when muting control from the lowermost beam channel to the 10th beam channel is activated, the safety light curtain will detect any beam interruption at the 11th or higher beam channel as a human entry and stop the machinery.



### Fixed blanking function: Choose active beam channels

The **SFB-HC** handy-controller (optional) provides a fixed blanking function that prevents control output (OSSD) from turning off even if certain beam channels are interrupted. This function is convenient for applications where an obstacle always interrupts certain beam channels.

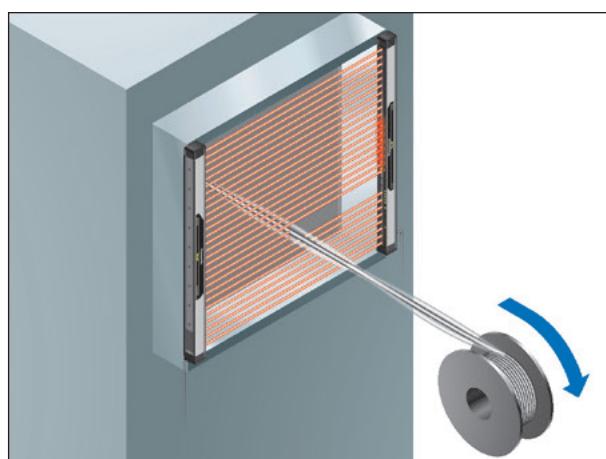
Additionally, it is safe since control output (OSSD) is forcibly turned off in the event the obstruction moves outside the detection area.



### Floating blanking function: Disable unspecified beams

The floating blanking function allows to disable up to three unspecified beam channels. Control output (OSSD) will not turn off as long as the number of interrupted beam channels is less than the set number of beam channels. This function is convenient when an obstruction moves inside the detection area during setup changes or when loading materials within the detection area of safety light curtain.

\* The min. sensing object will change when the floating blanking function is used.



### Use output and indicators to achieve preventive maintenance when the incident light intensity gets unstable

By setting the auxiliary output switching function to off or on when light reception becomes unstable, the safety light curtain provides notification in the event of a reduction in the incident light intensity due to beam misalignment or dirt via auxiliary output (non-safety output) in addition to the incident light intensity indicator.

Incident light intensity indicator		Auxiliary output	
		Set to off for unstable incident light (Note 3)	Set to on for unstable incident light (Note 3)
Incident light intensity (Note 1)	130 %	Under stable light received condition: Green (Incident light intensity: 130 % or greater)	ON OFF
	100 %	Under unstable light received condition: Orange (Incident light intensity: 100 % to less than 130 %)	OFF ON
		When light is interrupted (Note 2): Off	— —

Notes:1) An incident light intensity value of 100 % refers to the threshold value at which control outputs (OSSD1, OSSD2) change from off to on.

2) Interruption of the light refers to the presence of an object interrupts beam in the detection area.

3) This setting is not available when using muting control for individual beams, fixed blanking, or floating blanking.

## Extensive array of other functions

### PNP/NPN polarity support

Since a single model number can be switched between PNP and NPN input, fewer model numbers need to be registered.

### External device monitor function

External devices (such as safety relays, etc.) can be directly connected to the handy-controller without any dedicated unit, simplifying installation, reducing costs, and helping to avoid various problems.

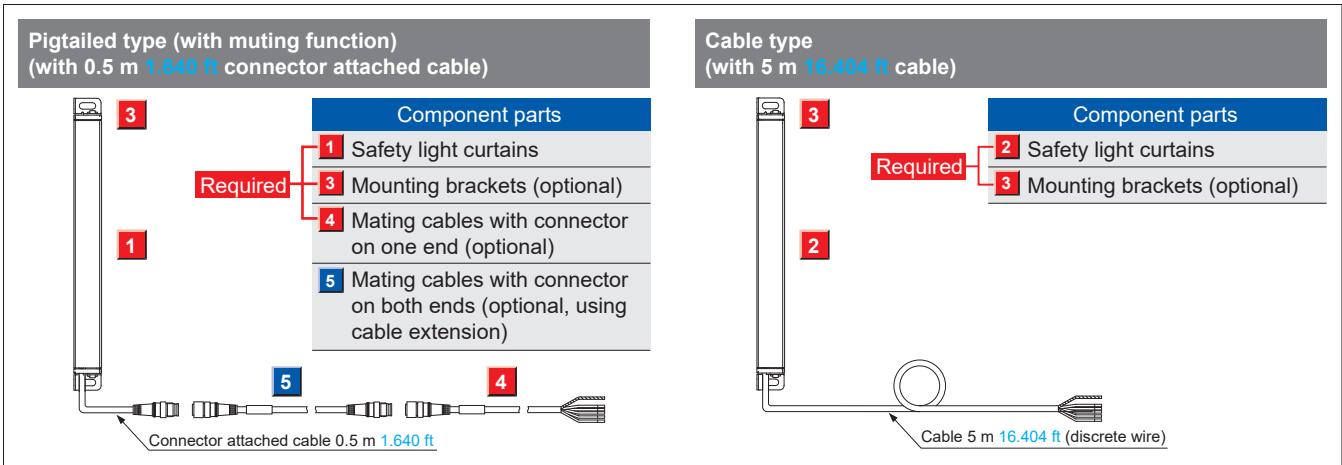
### Extraneous light check & avoid (ELCA) function

The ELCA function reduces interference without an interference prevention line.

### Beam-axis alignment indicator

Beam-axis alignment indicators are indicated in 4 blocks, allowing to see at a glance where light is being received.

## ■ PRODUCT CONFIGURATION

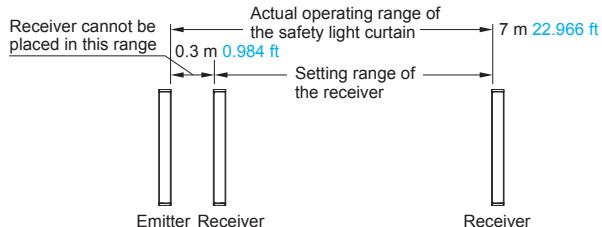


## ■ ORDER GUIDE

### 1 2 Safety light curtains

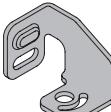
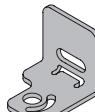
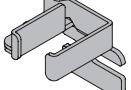
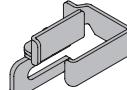
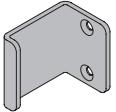
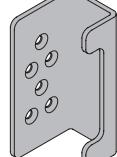
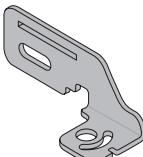
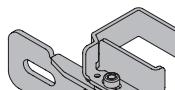
Type	Appearance	Operating range (Note 1)	Model No. (Note 2)		Number of beam channels	Protective height
			1 Pigtailed type (with muting function)	2 Cable type		
Hand protection type  Min. sensing object Ø25 mm Ø0.984 in (20 mm 0.787 in beam pitch)	<p>Diagram showing a vertical safety light curtain with three beam channels. The protective height is indicated by a dashed line. Beam channel No. 1 is at the bottom, Beam channel No. 2 is in the middle, and Beam channel No. 3 is at the top. The beam pitch is 20 mm (0.787 in). The protective height is 21.7 mm (0.854 in). The total height of the curtain is 41.7 mm (1.642 in).</p>	<p>0.3 to 7 m 0.984 to 22.966 ft</p>	SF4B-H12CA-J05	SF4B-H12C	12	263.4 mm 10.370 in
			SF4B-H16CA-J05	SF4B-H16C	16	343.4 mm 13.520 in
			SF4B-H20CA-J05	SF4B-H20C	20	423.4 mm 16.669 in
			SF4B-H24CA-J05	SF4B-H24C	24	503.4 mm 19.819 in
			SF4B-H28CA-J05	SF4B-H28C	28	583.4 mm 22.969 in
			SF4B-H32CA-J05	SF4B-H32C	32	663.4 mm 26.118 in
			SF4B-H36CA-J05	SF4B-H36C	36	743.4 mm 29.268 in
			SF4B-H40CA-J05	SF4B-H40C	40	823.4 mm 32.417 in
			SF4B-H48CA-J05	SF4B-H48C	48	983.4 mm 38.717 in
			SF4B-H56CA-J05	SF4B-H56C	56	1,143.4 mm 45.016 in
			SF4B-H64CA-J05	SF4B-H64C	64	1,303.4 mm 51.315 in
			SF4B-H72CA-J05	SF4B-H72C	72	1,463.4 mm 57.614 in
			SF4B-H80CA-J05	SF4B-H80C	80	1,623.4 mm 63.913 in
			SF4B-H88CA-J05	SF4B-H88C	88	1,783.4 mm 70.212 in
			SF4B-H96CA-J05	SF4B-H96C	96	1,943.4 mm 76.512 in
Arm / Foot protection type  Min. sensing object Ø45 mm Ø1.772 in (40 mm 1.575 in beam pitch)	<p>Diagram showing a vertical safety light curtain with three beam channels. The protective height is indicated by a dashed line. Beam channel No. 1 is at the bottom, Beam channel No. 2 is in the middle, and Beam channel No. 3 is at the top. The beam pitch is 40 mm (1.575 in). The protective height is 21.7 mm (0.854 in). The total height of the curtain is 41.7 mm (1.642 in).</p>	<p>0.3 to 7 m 0.984 to 22.966 ft</p>	SF4B-A8CA-J05	SF4B-A8C	8	343.4 mm 13.520 in
			SF4B-A12CA-J05	SF4B-A12C	12	503.4 mm 19.819 in
			SF4B-A16CA-J05	SF4B-A16C	16	663.4 mm 26.118 in
			SF4B-A20CA-J05	SF4B-A20C	20	823.4 mm 32.417 in
			SF4B-A24CA-J05	SF4B-A24C	24	983.4 mm 38.717 in
			SF4B-A28CA-J05	SF4B-A28C	28	1,143.4 mm 45.016 in
			SF4B-A32CA-J05	SF4B-A32C	32	1,303.4 mm 51.315 in
			SF4B-A36CA-J05	SF4B-A36C	36	1,463.4 mm 57.614 in
			SF4B-A40CA-J05	SF4B-A40C	40	1,623.4 mm 63.913 in
			SF4B-A44CA-J05	SF4B-A44C	44	1,783.4 mm 70.212 in
			SF4B-A48CA-J05	SF4B-A48C	48	1,943.4 mm 76.512 in

Notes: 1) The operating range is the distance possible to set between the emitter and the receiver.



2) The model No. with "E" shown on the label affixed to the product is the emitter, "D" shown on the label is the receiver.

**ORDER GUIDE****3 Mounting brackets** Mounting bracket is not supplied with the safety light curtain. Be sure to order it separately.

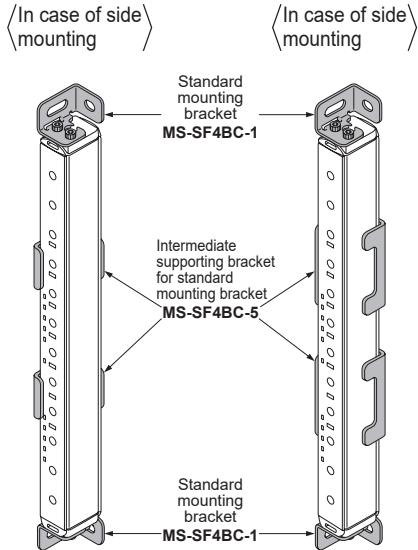
Designation	Appearance	Model No.	Description
Standard mounting bracket	 	<b>MS-SF4BC-1</b>	Allows the safety light curtain to be mounted on the rear or side of the target equipment. Designed for use with one M5 hexagon-socket head bolt. (4 pcs. per set for the emitter and receiver)
Rear utility mounting bracket	 	<b>MS-SF4BC-2</b>	Allows the safety light curtain to be mounted on the rear of the target equipment. Allows beam adjustment. Designed for use with one M5 hexagon-socket head bolt. For space-saving mounting, use one M5 hexagon head bolt. (4 pcs. per set for the emitter and receiver)
Side utility mounting bracket	 	<b>MS-SF4BC-3</b>	Allows the safety light curtain to be mounted on the side of the target equipment. Allows beam adjustment. Designed for use with one M5 hexagon-socket head bolt. For space-saving mounting, use one M5 hexagon head bolt. (4 pcs. per set for the emitter and receiver)
Intermediate supporting bracket for utility mounting bracket (Note)	 	<b>MS-SF4BC-4</b>	Supports the middle of the safety light curtain when installing it with utility mounting brackets. Allows the safety light curtain to be mounted on the rear or side of the target equipment. Allows beam adjustment. Designed for use with one M5 hexagon head bolt. (2 pcs. each per set for rear mounting and side mounting)
Intermediate supporting bracket for standard mounting bracket (Note)	 	<b>MS-SF4BC-5</b>	Supports the middle of the safety light curtain when installing it with standard mounting brackets. Allows the safety light curtain to be mounted on the rear or side of the target equipment. Designed for use with two M3 countersunk screws. (2 pcs. each per set for rear mounting and side mounting)
Side mounting bracket	 	<b>MS-SF4BC-6</b>	Allows beam axis alignment and the safety light curtain to be mounted on the device in confined spaces. Designed for use with one M5 hexagon-socket head bolt. (4 pcs. per set for the emitter and receiver)
Intermediate supporting bracket for use with side mounting bracket (Note)		<b>MS-SF4BC-7</b>	Supports the middle of the safety light curtain when installing it with side mounting brackets. Allows beam axis alignment and the safety light curtain to be mounted on the device in confined spaces. Designed for use with one M5 hexagon-socket head bolt. (2 pcs. per set)

Note: The numbers of sets required by **SF4B-H□C(A-J05)**(40 or more beam axes) and **SF4B-A□C(A-J05)** (20 or more beam axes) are as follows:

**SF4B-H40C(A-J05), SF4B-H48C(A-J05), SF4B-H56C(A-J05), SF4B-A20C(A-J05), SF4B-A24C(A-J05), SF4B-A28C(A-J05): 1 set**  
**SF4B-H64C(A-J05), SF4B-H72C(A-J05), SF4B-H80C(A-J05), SF4B-H88C(A-J05), SF4B-H96C(A-J05), SF4B-A32C(A-J05), SF4B-A36C(A-J05), SF4B-A40C(A-J05), SF4B-A44C(A-J05), SF4B-A48C(A-J05): 2 sets**

## ■ ORDER GUIDE

### Standard mounting bracket and intermediate supporting bracket for standard mounting bracket



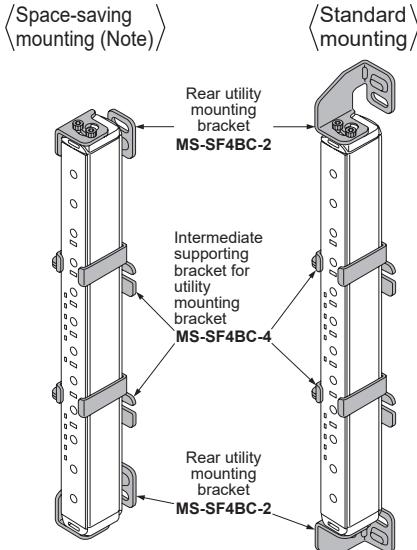
#### • MS-SF4BC-1

Four brackets (two each R and L type) per set  
[Eight M3 (length: 5 mm 0.197 in) hexagon-socket head bolts and four M5 flat washers are attached.]

#### • MS-SF4BC-5

Two pcs. for rear mounting, two pcs. for side mounting

### Rear utility mounting bracket and intermediate supporting bracket for utility mounting bracket



#### • MS-SF4BC-2

Four brackets (two each R and L type) per set  
[Eight M3 (length: 6 mm 0.236 in) hexagon-socket head bolts and four M5 flat washers are attached.]

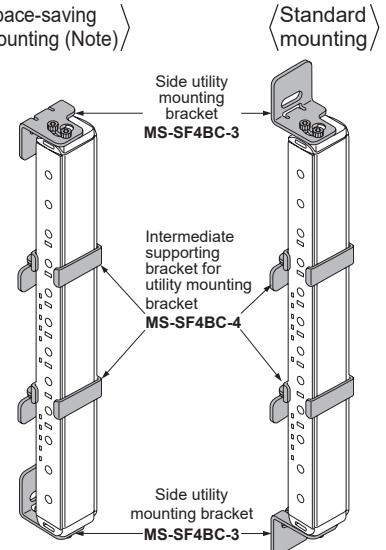
#### • MS-SF4BC-4

Two brackets per set

[M5 flat washers, two pcs. assembled M3 (length: 6 mm 0.236 in) hexagon-socket head bolts for rear mounting, two pcs. attachments for side mounting]

Note: For space-saving mounting, use an M5 hexagon head bolt.

### Side utility mounting bracket and intermediate supporting bracket for utility mounting bracket



#### • MS-SF4BC-3

Four brackets (two each R and L type) per set  
[Eight M3 (length: 6 mm 0.236 in) hexagon-socket head bolts and four M5 flat washers are attached.]

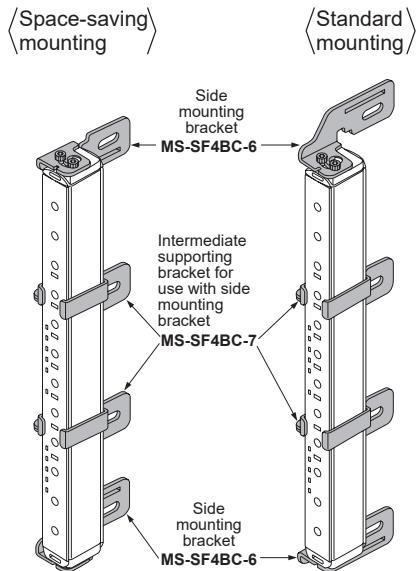
#### • MS-SF4BC-4

Two brackets per set

[M5 flat washers, two pcs. assembled M3 (length: 6 mm 0.236 in) hexagon-socket head bolts for rear mounting, two pcs. attachments for side mounting]

Note: For space-saving mounting, use an M5 hexagon head bolt.

### Side mounting bracket and intermediate supporting bracket for use with side mounting bracket



#### • MS-SF4BC-6

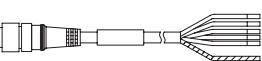
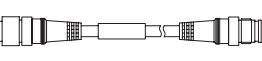
Four brackets (two each R and L type) per set  
[Eight M3 (length: 6 mm 0.236 in) hexagon-socket head bolts and four M5 flat washers are attached.]

#### • MS-SF4BC-7

Two brackets per set  
[Two pcs. M5 flat washers, two pcs. assembled M3 (length: 6 mm 0.236 in) hexagon-socket head bolts for side mounting]

## ■ ORDER GUIDE

### 4 5 Mating cables

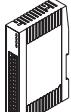
Type	Appearance	Model No.	Description
Mating cables	4 With connector on one end		<b>SFB-CC3-MU</b> Length: 3 m <b>9.843 ft</b> Net weight: 430 g approx. (2 cables)  <b>SFB-CC7-MU</b> Length: 7 m <b>22.966 ft</b> Net weight: 1,000 g approx. (2 cables)  <b>SFB-CC10-MU</b> Length: 10 m <b>32.808 ft</b> Net weight: 1,300 g approx. (2 cables)
			<b>SFB-CCJ3E-MU</b> Length: 3 m <b>9.843 ft</b> Net weight: 190 g approx. (1 cable)  <b>SFB-CCJ10E-MU</b> Length: 10 m <b>32.808 ft</b> Net weight: 660 g approx. (1 cable)  <b>SFB-CCJ3D-MU</b> Length: 3 m <b>9.843 ft</b> Net weight: 210 g approx. (1 cable)  <b>SFB-CCJ10D-MU</b> Length: 10 m <b>32.808 ft</b> Net weight: 680 g approx. (1 cable)
			Cable with connectors on both ends for pigtailed type (with muting function) Cable color: Gray for emitter, Gray with black line for receiver Connector color: Gray for emitter, Black for receiver Min. bending radius: R6 mm <b>R0.236 in</b>
	5 With connectors on both ends For emitter		Cable with connectors on both ends for pigtailed type (with muting function) Cable color: Gray for emitter, Gray with black line for receiver Connector color: Gray for emitter, Black for receiver Min. bending radius: R6 mm <b>R0.236 in</b>
			

### Spare parts (Accessories for safety light curtain)

Designation	Model No.	Description
Test rod ø25	<b>SF4B-TR25</b>	Min. sensing object for regular checking (ø25 mm <b>0.984 in</b> ), for hand protection type (min. sensing object ø25 mm <b>0.984 in</b> )

## ■ OPTIONS

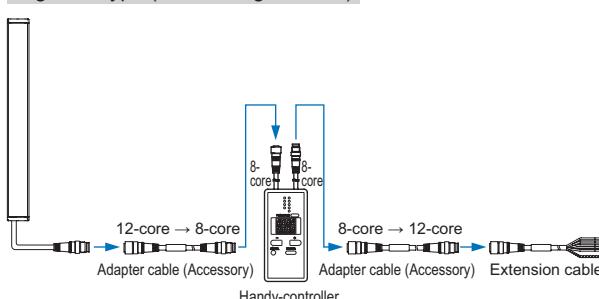
### Control unit

Designation	Appearance	Model No.	Description
Slim type control unit		<b>SF-C13</b>	Use a discrete wire cable to connect to the safety light curtain. Muting function can be used. Compatible with up to Control Category 4. When connecting pigtailed type (with muting function) <b>SF4B-□CA-J05</b> , be sure to order a mating cable separately. • Mating cable: <b>SFB-CC□-MU</b> • Extension cable: <b>SFB-CCJ□-MU</b>

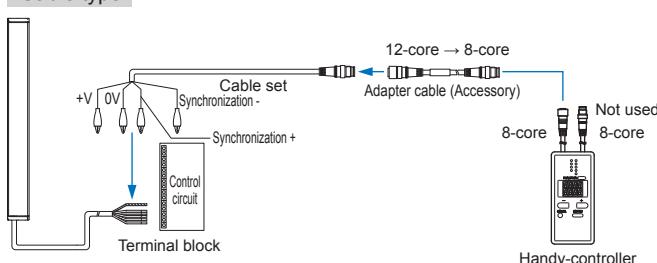
### Handy-controller

Designation	Appearance	Model No.
Handy-controller	 * 2 adapter cables included	<b>SFB-HC</b>
Cable set for cable type connection		<b>SFC-WNC1</b>

Pigtailed type (with muting function)



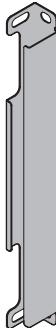
Cable type



## ■ OPTIONS

### Metal protection cases

Designation		Appearance	Metal protection case (2 pcs. per set) (Note)
Applicable beam channels	Hand protection type		Model No.
12	—		<b>MS-SF4BCH-12</b>
16	8		<b>MS-SF4BCH-16</b>
20	—		<b>MS-SF4BCH-20</b>
24	12		<b>MS-SF4BCH-24</b>
28	—		<b>MS-SF4BCH-28</b>
32	16		<b>MS-SF4BCH-32</b>
36	—		<b>MS-SF4BCH-36</b>
40	20		<b>MS-SF4BCH-40</b>
48	24		<b>MS-SF4BCH-48</b>
56	28		<b>MS-SF4BCH-56</b>
64	32		<b>MS-SF4BCH-64</b>
72	36		<b>MS-SF4BCH-72</b>
80	40		<b>MS-SF4BCH-80</b>
88	44		<b>MS-SF4BCH-88</b>
96	48		<b>MS-SF4BCH-96</b>



Note: In the case of using a metal protection case **MS-SF4BCH-□** (optional), make sure to assemble it with a standard mounting bracket **MS-SF4BC-1** (optional).

### Others

Designation	Model No.	Description
Test rod ø45	<b>SF4B-TR45</b>	Min. sensing object for regular checking (ø45 mm <b>ø1.772 in</b> ), for arm / foot protection type (min. sensing object ø45 mm <b>ø1.772 in</b> )

### • Recommended safety relay

SF relay, slim type



Item	Type	With LED indicator	
	Model No.	SFS3-L-DC24V	SFS4-L-DC24V
Part No.	AG1S132	AG1S142	
Contact arrangement	3a1b	4a2b	
Rated nominal switching capacity	6 A / 250 V AC, 6 A / 30 V DC		
Min. switching capacity	1 mA / 5 V DC		
Coil rating	15 mA / 24 V DC	20.8 mA / 24 V DC	
Rated power consumption	360 mW	500 mW	
Operation time	20 ms or less		
Release time	20 ms or less		
Ambient temperature	-40 to +85 °C -40 to +185 °F (Humidity: 5 to 85 % RH)		
Applicable certifications	UL/c-UL, TÜV, Korea S-mark		

Note: Please contact our sales office for details on the recommended products.

### Safety control unit

Creating safety circuits is easier than ever.

### SF-C21



## SPECIFICATIONS

### Safety light curtain individual specifications

#### SF4B-H□C(A-J05)

Type		Min. sensing object ø25 mm <b>ø0.984 in</b> (20 mm <b>0.787 in</b> beam pitch)							
Item	Model No.	Pigtailed type	<b>SF4B-H12CA-J05</b>	<b>SF4B-H16CA-J05</b>	<b>SF4B-H20CA-J05</b>	<b>SF4B-H24CA-J05</b>	<b>SF4B-H28CA-J05</b>	<b>SF4B-H32CA-J05</b>	<b>SF4B-H36CA-J05</b>
		Cable type	<b>SF4B-H12C</b>	<b>SF4B-H16C</b>	<b>SF4B-H20C</b>	<b>SF4B-H24C</b>	<b>SF4B-H28C</b>	<b>SF4B-H32C</b>	<b>SF4B-H36C</b>
Number of beam channels		12	16	20	24	28	32	36	
Protective height		263.4 mm <b>10.37 in</b>	343.4 mm <b>13.52 in</b>	423.4 mm <b>16.669 in</b>	503.4 mm <b>19.819 in</b>	583.4 mm <b>22.969 in</b>	663.4 mm <b>26.118 in</b>	743.4 mm <b>29.268 in</b>	
Current consumption	Pigtailed type	Emitter: 65 mA or less, Receiver: 75 mA or less			Emitter: 70 mA or less Receiver: 85 mA or less		Emitter: 75 mA or less Receiver: 95 mA or less		
		When large multi-purpose indicator turns OFF			When large multi-purpose indicator lights up		Emitter: 80 mA or less Receiver: 95 mA or less		
PFH <sub>D</sub>		$1.9 \times 10^{-9}$	$2.1 \times 10^{-9}$	$2.4 \times 10^{-9}$	$2.6 \times 10^{-9}$	$2.8 \times 10^{-9}$	$3.0 \times 10^{-9}$	$3.3 \times 10^{-9}$	
MTTF <sub>D</sub>		100 years or more							
Net weight (Total of emitter and receiver)	Pigtailed type	360 g approx.	430 g approx.	520 g approx.	590 g approx.	680 g approx.	750 g approx.	840 g approx.	
	Cable type	700 g approx.	770 g approx.	860 g approx.	930 g approx.	1,000 g approx.	1,100 g approx.	1,200 g approx.	

Type		Min. sensing object ø25 mm <b>ø0.984 in</b> (20 mm <b>0.787 in</b> beam pitch)							
Item	Model No.	Pigtailed type	<b>SF4B-H40CA-J05</b>	<b>SF4B-H48CA-J05</b>	<b>SF4B-H56CA-J05</b>	<b>SF4B-H64CA-J05</b>	<b>SF4B-H72CA-J05</b>	<b>SF4B-H80CA-J05</b>	<b>SF4B-H88CA-J05</b>
		Cable type	<b>SF4B-H40C</b>	<b>SF4B-H48C</b>	<b>SF4B-H56C</b>	<b>SF4B-H64C</b>	<b>SF4B-H72C</b>	<b>SF4B-H80C</b>	<b>SF4B-H88C</b>
Number of beam channels		40	48	56	64	72	80	88	
Protective height		823.4 mm <b>32.417 in</b>	983.4 mm <b>38.717 in</b>	1,143.4 mm <b>45.016 in</b>	1,303.4 mm <b>51.315 in</b>	1,463.4 mm <b>57.614 in</b>	1,623.4 mm <b>63.913 in</b>	1,783.4 mm <b>70.212 in</b>	
Current consumption	Pigtailed type	Emitter: 80 mA or less Receiver: 100 mA or less			Emitter: 85 mA or less Receiver: 120 mA or less		Emitter: 95 mA or less Receiver: 130 mA or less		Emitter: 100 mA or less Receiver: 140 mA or less
		When large multi-purpose indicator turns OFF			When large multi-purpose indicator lights up		Emitter: 90 mA or less Receiver: 110 mA or less		Emitter: 110 mA or less Receiver: 155 mA or less
PFH <sub>D</sub>		$3.5 \times 10^{-9}$	$3.9 \times 10^{-9}$	$4.4 \times 10^{-9}$	$4.8 \times 10^{-9}$	$5.3 \times 10^{-9}$	$5.7 \times 10^{-9}$	$6.2 \times 10^{-9}$	
MTTF <sub>D</sub>		100 years or more							
Net weight (Total of emitter and receiver)	Pigtailed type	910 g approx.	1,100 g approx.	1,300 g approx.	1,400 g approx.	1,600 g approx.	1,700 g approx.	1,800 g approx.	
	Cable type	1,300 g approx.	1,400 g approx.	1,600 g approx.	1,700 g approx.	2,000 g approx.	2,000 g approx.	2,100 g approx.	

#### SF4B-A□C(A-J05)

Type		Min. sensing object ø25 mm <b>ø0.984 in</b> (20 mm <b>0.787 in</b> beam pitch)	Min. sensing object ø45 mm <b>ø1.772 in</b> (40 mm <b>1.575 in</b> beam pitch)						
Item	Model No.	Pigtailed type	<b>SF4B-H96CA-J05</b>	<b>SF4B-A8CA-J05</b>	<b>SF4B-A12CA-J05</b>	<b>SF4B-A16CA-J05</b>	<b>SF4B-A20CA-J05</b>		
		Cable type	<b>SF4B-H96C</b>	<b>SF4B-A8C</b>	<b>SF4B-A12C</b>	<b>SF4B-A16C</b>	<b>SF4B-A20C</b>		
Number of beam channels		96	8	12	16	20			
Protective height		1,943.4 mm <b>76.512 in</b>	343.4 mm <b>13.52 in</b>	503.4 mm <b>19.819 in</b>	663.4 mm <b>26.118 in</b>	823.4 mm <b>32.417 in</b>			
Current consumption	Pigtailed type	Emitter: 105 mA or less Receiver: 145 mA or less			Emitter: 60 mA or less Receiver: 70 mA or less		Emitter: 65 mA or less Receiver: 75 mA or less		
		When large multi-purpose indicator turns OFF			When large multi-purpose indicator lights up		Emitter: 115 mA or less Receiver: 155 mA or less		
PFH <sub>D</sub>		$6.6 \times 10^{-9}$	$1.7 \times 10^{-9}$	$1.9 \times 10^{-9}$	$2.2 \times 10^{-9}$	$2.4 \times 10^{-9}$			
MTTF <sub>D</sub>		100 years or more							
Net weight (Total of emitter and receiver)	Pigtailed type	1,900 g approx.	430 g approx.	590 g approx.	750 g approx.	910 g approx.			
	Cable type	2,200 g approx.	770 g approx.	930 g approx.	1,100 g approx.	1,300 g approx.			

Type		Min. sensing object ø45 mm <b>ø1.772 in</b> (40 mm <b>1.575 in</b> beam pitch)							
Item	Model No.	Pigtailed type	<b>SF4B-A24CA-J05</b>	<b>SF4B-A28CA-J05</b>	<b>SF4B-A32CA-J05</b>	<b>SF4B-A36CA-J05</b>	<b>SF4B-A40CA-J05</b>	<b>SF4B-A44CA-J05</b>	<b>SF4B-A48CA-J05</b>
		Cable type	<b>SF4B-A24C</b>	<b>SF4B-A28C</b>	<b>SF4B-A32C</b>	<b>SF4B-A36C</b>	<b>SF4B-A40C</b>	<b>SF4B-A44C</b>	<b>SF4B-A48C</b>
Number of beam channels		24	28	32	36	40	44	48	
Protective height		983.4 mm <b>38.717 in</b>	1,143.4 mm <b>45.016 in</b>	1,303.4 mm <b>51.315 in</b>	1,463.4 mm <b>57.614 in</b>	1,623.4 mm <b>63.913 in</b>	1,783.4 mm <b>70.212 in</b>	1,943.4 mm <b>76.512 in</b>	
Current consumption	Pigtailed type	Emitter: 70 mA or less Receiver: 85 mA or less			Emitter: 75 mA or less Receiver: 95 mA or less		Emitter: 80 mA or less Receiver: 100 mA or less		
		When large multi-purpose indicator turns OFF			When large multi-purpose indicator lights up		Emitter: 80 mA or less Receiver: 95 mA or less		
PFH <sub>D</sub>		$2.7 \times 10^{-9}$	$2.9 \times 10^{-9}$	$3.2 \times 10^{-9}$	$3.4 \times 10^{-9}$	$3.7 \times 10^{-9}$	$3.9 \times 10^{-9}$	$4.2 \times 10^{-9}$	
MTTF <sub>D</sub>		100 years or more							
Net weight (Total of emitter and receiver)	Pigtailed type	1,100 g approx.	1,300 g approx.	1,400 g approx.	1,600 g approx.	1,700 g approx.	1,800 g approx.	1,900 g approx.	
	Cable type	1,400 g approx.	1,600 g approx.	1,700 g approx.	2,000 g approx.	2,000 g approx.	2,100 g approx.	2,200 g approx.	

Note: Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C +68 °F.

PFH<sub>D</sub>: Probability of dangerous failure per hour, MTTF<sub>D</sub>: Mean time to dangerous failure (in years)

## SPECIFICATIONS

### Safety light curtain common specifications

Applicable standards	Type	Pigtailed type (with muting function)		Cable type			
		Min. sensing object ø25 mm <b>ø0.984 in</b> (20 mm <b>0.787 in</b> beam pitch)	Min. sensing object ø45 mm <b>ø1.772 in</b> (40 mm <b>1.575 in</b> beam pitch)	Min. sensing object ø25 mm <b>ø0.984 in</b> (20 mm <b>0.787 in</b> beam pitch)	Min. sensing object ø45 mm <b>ø1.772 in</b> (40 mm <b>1.575 in</b> beam pitch)		
Item	Model No.	<b>SF4B-H□CA-J05</b>	<b>SF4B-A□CA-J05</b>	<b>SF4B-H□C</b>	<b>SF4B-A□C</b>		
IEC	International standard	IEC 61496-1/2 (Type 4), ISO 13849-1: 2015 (Category 4, PLe), IEC 61508-1 to 3 (SIL3)					
Japan		JIS B 9704-1/2 (Type 4), JIS B 9705-1 (Category 4), JIS C 0508 (SIL3)					
Europe (Note 2)		EN 61496-1 (Type 4), EN ISO 13849-1: 2015 (Category 4, PLe), EN 61508-1 to 3 (SIL3), EN 55011, EN 50178, EN 61000-6-2					
North America (Note 3)		ANSI/UL 61496-1/2 (Type 4), ANSI/UL 508, CAN/CSA 61496-1/2 (Type 4), CAN/CSA C22.2 No.14, OSHA 1910.212, OSHA 1910.217(C), ANSI B11.1 to B11.19, ANSI/RIA 15.06					
Applicable regulations and certifications		CE Marking (Machinery Directive, EMC Directive, RoHS Directive), UKCA Marking [Supply of Machinery (Safety) Regulations, EMC Regulations, RoHS Regulations], TÜV SÜD certification, TÜV SÜD certification (U.S.A., Canada)					
Operating range (Note 4)		0.3 to 7 m <b>0.984 to 22.966 ft</b>					
Beam pitch		20 mm <b>0.787 in</b>	40 mm <b>1.575 in</b>	20 mm <b>0.787 in</b>	40 mm <b>1.575 in</b>		
Min. sensing object (Note 5)		ø25 mm <b>ø0.984 in</b> opaque object	ø45 mm <b>ø1.772 in</b> opaque object	ø25 mm <b>ø0.984 in</b> opaque object	ø45 mm <b>ø1.772 in</b> opaque object		
Effective aperture angle		±2.5° or less [for an operating range exceeding 3 m <b>9.843 ft</b> (conforming to IEC 61496-2 / ANSI/UL 61496-2)]					
Supply voltage		24 V DC ±10 % Ripple P-P 10 % or less					
Control outputs (OSSD 1, OSSD 2)		PNP open-collector transistor / NPN open-collector transistor (switching method) <For PNP output> <ul style="list-style-type: none"><li>• Maximum source current: 200 mA</li><li>• Applied voltage: Same as supply voltage (between the control output and +V)</li><li>• Residual voltage: 2.5 V or less (source current 200 mA, when using 20 m <b>65.617 ft</b> length cable)</li><li>• Leakage current: 0.1 mA or less (Including power supply OFF condition)</li><li>• Maximum load capacity: 0.22 µF (No load to maximum output current)</li><li>• Load wiring resistance: 3 Ω or less</li></ul> <For NPN output> <ul style="list-style-type: none"><li>• Maximum sink current: 200 mA</li><li>• Applied voltage: Same as supply voltage (between the control output and 0 V)</li><li>• Residual voltage: 2.5 V or less (sink current 200 mA, when using 20 m <b>65.617 ft</b> length cable)</li><li>• Leakage current: 0.1 mA or less (Including power supply OFF condition)</li><li>• Maximum load capacity: 0.22 µF (No load to maximum output current)</li><li>• Load wiring resistance: 3 Ω or less</li></ul>					
Operation mode		ON when all beam channels are received, OFF when one or more beam channels are interrupted (OFF also in case of any malfunction in the safety light curtain or the synchronization signal) (Note 6, 7)					
Protection circuit		Incorporated					
Response time		OFF response: 14 ms or less, ON response: 80 to 90 ms					
Auxiliary output (Non-safety output)		PNP open-collector transistor / NPN open-collector transistor (switching method) <For PNP output> <ul style="list-style-type: none"><li>• Maximum source current: 60 mA</li><li>• Applied voltage: Same as supply voltage (between the auxiliary output and +V)</li><li>• Residual voltage: 2.5 V or less (source current 60 mA, when using 20 m <b>65.617 ft</b> length cable)</li></ul> <For NPN output> <ul style="list-style-type: none"><li>• Maximum sink current: 60 mA</li><li>• Applied voltage: Same as supply voltage (between the auxiliary output and 0 V)</li><li>• Residual voltage: 2.5 V or less (sink current 60 mA, when using 20 m <b>65.617 ft</b> length cable)</li></ul>					
Operation mode		OFF when control outputs are ON, ON when control outputs are OFF [Factory setting, operating mode can be changed using the <b>SFB-HC</b> (optional) handy-controller.]					
Protection circuit		Incorporated					
Muting auxiliary output		NPN open-collector transistor <ul style="list-style-type: none"><li>• Maximum sink current: 100 mA</li><li>• Applied voltage: Same as supply voltage (between the muting auxiliary output and 0 V)</li><li>• Residual voltage: 2.5 V or less (sink current 100 mA, when using 20 m <b>65.617 ft</b> length cable)</li></ul>					
Operation mode		When muting auxiliary output: ON					
Protection circuit		Incorporated					
ELCA function		Incorporated (reducing mutual interference automatically)					
Emission halt function		Incorporated					
Interlock function		Incorporated [Manual reset / Auto reset (Note 8)]					
External device monitoring function		Incorporated					
Override function		Incorporated					
Muting function		Incorporated					
Large multi-purpose indicator function		Incorporated					
Optional functions (Note 9)		Muting setting changing, override setting changing, fixed blanking, floating blanking, light emitting amount control, auxiliary output switching, protecting, interlock setting changing, external relay monitor setting changing		Fixed blanking, floating blanking, light emitting amount control, auxiliary output switching, protecting, interlock setting changing, external relay monitor setting changing			
Pollution degree		3					
Operating altitude		2,000 m <b>6,561.68 ft</b> or less (Note 10)					
Environmental resistance	Degree of protection	IP65 (IEC)					
Ambient temperature		-10 to +55 °C <b>+14 to +131 °F</b> (No dew condensation or icing allowed), Storage: -25 to +60 °C <b>-3 to +140 °F</b>					
Ambient humidity		30 to 85 % RH, Storage: 30 to 85 % RH					
Ambient illuminance		Incandescent light: 3,500 lx or less at the light-receiving face					
Dielectric strength voltage / Insulation resistance		1,000 V AC for one min. between all supply terminals connected together and enclosure / 20 MΩ or more, with 500 V DC megger between all supply terminals connected together and enclosure					
Vibration resistance / Shock resistance		10 to 55 Hz frequency, 0.75 mm <b>0.030 in</b> amplitude in X, Y and Z directions for two hours each / 300 m/s² acceleration (30 G approx.) in X, Y and Z directions for three times each					

- Notes:
- 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C **+68 °F**.
  - 2) Regarding EU Machinery Directive, a Notified Body, TÜV SÜD, has certified with the type examination certificate.
  - 3) With regards to the standards in the US / Canada, a Notified Body, TÜV SÜD, has certified the CTÜVUS mark.
  - 4) The operating range is the possible setting distance between the emitter and the receiver.
  - 5) In case the blanking function is valid, the operation mode is changed.
  - 6) During muting, control output will not turn off even if the beams are interrupted.
  - 7) When the blanking function is enabled, the operating mode will change.
  - 8) The manual reset and automatic reset are possible to be switched depending on the wiring status.
  - 9) In case of using optional function, the handy-controller **SFB-HC** (optional) is required.
  - 10) Do not use or store in an environment pressurized to atmospheric pressure or higher at an altitude of 0 m.

## SPECIFICATIONS

### Safety light curtain common specifications

Item	Model No.	Type	Pigtailed type (with muting function)	Cable type
		Min. sensing object ø25 mm <b>ø0.984 in</b> (20 mm <b>0.787 in</b> beam pitch)	Min. sensing object ø45 mm <b>ø1.772 in</b> (40 mm <b>1.575 in</b> beam pitch)	Min. sensing object ø25 mm <b>ø0.984 in</b> (20 mm <b>0.787 in</b> beam pitch)
	<b>SF4B-H□CA-J05</b>	<b>SF4B-A□CA-J05</b>	<b>SF4B-H□C</b>	<b>SF4B-A□C</b>
Emitting element	Infrared LED (Peak emission wavelength: 850 nm <b>0.033 mil</b> )			
Material	Enclosure: Polycarbonate			
Cable	0.15 mm <sup>2</sup> (power line: 0.2 mm <sup>2</sup> ) 12-core heat-resistant PVC cable with connector, 0.5 m <b>1.640 ft</b> long		0.15 mm <sup>2</sup> (power line: 0.2 mm <sup>2</sup> ) 8-core heat-resistant PVC cable, 5 m <b>16.404 ft</b> long	
Cable extension	Extension up to total 50 m <b>164.042 ft</b> is possible for both emitter and receiver optional mating cables		Extension up to total 50 m <b>164.042 ft</b> is possible for 0.2 mm <sup>2</sup> or more, cable (Note)	
Accessories	<b>SF4B-TR25</b> (Test rod): 1 pc.	—	<b>SF4B-TR25</b> (Test rod): 1 pc.	—

Note: When the synchronization + wire (orange) and synchronization - wire (orange / black) is extended with a cable other than exclusive cable, use a 0.2 mm<sup>2</sup> or more shielded twisted pair cable.

### Handy-controller

Item	Model No.	<b>SFB-HC</b>
Supply voltage		24 V DC ±10 % Ripple P-P10 % or less (common to safety light curtain power supply)
Current consumption		65 mA or less
Communication method		RS-485 two-way communications (Specific procedure)
Digital display		4-digit red LED display × 2 (Selected beam channels, setting contents etc. are displayed.)
Function indicator		Green LED × 9 (set function is displayed.)
Functions		Fixed blanking (Factory setting: Disabled) / Floating blanking (Factory setting: Disabled) / Auxiliary output changing (Factory setting: Negative Logic of OSSD) / Light emitting amount control (Factory setting: Disabled) / Muting setting changing [Factory setting: All beam channels enabled, A = B, Setting of the muting lamp diagnosis function enabled (Ver. 2 or later), Muting sensor output operation setting N.O. / N.C. (Ver. 2.1 or later)] / Interlock setting changing (Factory setting: start / restart) / External device monitoring setting change (Factory setting: Enabled, 300 ms) / Override setting changing 60 sec. (Ver. 2.1 or later) / Setting detail monitoring / Protecting (Factory setting: Disabled) (Factory password setting: 0000) / Initialization / Copy
Ambient temperature		-10 to +55 °C <b>+14 to +131 °F</b> (No dew condensation or icing allowed), Storage: -25 to +70 °C <b>-13 to +158 °F</b>
Ambient humidity		30 to 85 % RH, Storage: 30 to 85 % RH
Voltage withstandability		1,000 V AC for one min. between all supply terminals connected together and enclosure
Insulation resistance		20 MΩ , or more, with 500 V DC megger between all supply terminals connected together and enclosure
Cable		8-core shielded cable, 0.5 m <b>1.640 ft</b> long, with a connector at the end (2 cables)
Weight		Net weight: 200 g approx.
Accessory		Adapter cable: 2 cables

Note: Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C **+68 °F**.

## SPECIFICATIONS

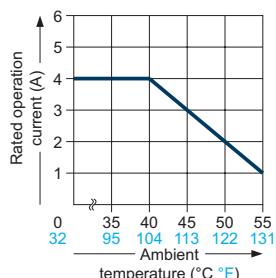
### Control unit

Model No.	SF-C13
Item	
Connectable safety light curtains	Safety light curtains manufactured by Panasonic Industry
Applicable standards	EN 61496-1 (Type 4), EN 55011, EN ISO 13849-1: 2015 (Category 4, PLe), IEC 61496-1 (Type 4), ISO 13849-1: 2015 (Category 4, PLe), JIS B 9704-1 (Type 4), JIS B 9705-1 (Category 4), ANSI/UL 61496-1 (Type 4), UL 1998 (Class 2)
Applicable regulations and certifications	CE Marking (Machinery Directive, EMC Directive, RoHS Directive), UKCA Marking [Supply of Machinery (Safety) Regulations, EMC Regulations, RoHS Regulations], UL/c-UL Listing certification, TÜV SÜD certification
Supply voltage	24 V DC ±10 % Ripple P-P 10 % or less
Current consumption	100 mA or less (without safety light curtain)
Fuse (rating)	Built-in electronic fuse, Triggering current: 0.5 A or more, Reset after power down
Safety output	NO contact × 3 (13-14, 23-24, 33-34)
Utilization category	AC-15, DC-13 (IEC 60947-5-1)
Rated operation voltage (Ue) / Rated operation current (Ie)	30 V DC / 4 A, 230 V AC / 4 A, resistive load (For inductive load, during contact protection) Min. applicable load: 10 mA (at 24 V DC) (Note 2)
Contact material / contacts	AgSnO <sub>x</sub> , self cleaning, positively driven
Contact resistance	100 mΩ or less (initial value)
Contact protection fuse rating	4 A (slow blow)
Mechanical lifetime	10,000,000 times or more (open/close frequency of 180 times/min) (Note 3)
Electrical lifetime	100,000 times or more (open/close frequency of 20 times/min, 230 V AC, 3 A, using resistance load) (Note 3)
Pick-up delay (Auto reset / Manual reset)	80 ms or less / 90 ms or less
Response time (Drop-out delay)	10 ms or less
Auxiliary output	Safety relay contact (NC contact) × 1 (41-42) (Related to safety output)
Rated operation voltage / current	24 V DC / 2 A, Min. applicable load: 10 mA (at 24 V DC)
Contact protection fuse rating	2 A (slow blow)
Semiconductor auxiliary output (AUX)	PNP open-collector transistor • Maximum source current: 60 mA • Applied voltage: Same as supply voltage (between the semiconductor auxiliary output and +V) • Residual voltage: 2.3 V or less (at source current 60 mA) • Leakage current: 2 mA or less
Output operation	ON when the safety light curtain is interrupted
Indicators	
Power supply (Ui)	Green LED (lights up when the power is ON)
Safety output [OUT]	Green LED (lights up when enabling contacts are closed)
Interlock (INTER_LOCK)	Yellow LED (lights up when enabling contacts are opened)
Fault (FAULT)	Yellow LED (blinks when fault occurs)
External relay monitor function	Incorporated
Trailing edge function	Incorporated
Polarity selection function (Note 4)	Incorporated (Cable connection allows selection of plus/minus ground) Minus ground: Correspond to PNP output safety light curtain Plus ground: Correspond to NPN output safety light curtain
Excess voltage category / Pollution degree	II / 2
B10D (Note 5)	Minimum load: 20,000,000, Maximum load: 400,000
Mission time	20 years
Environmental resistance	
Protection	Enclosure: IP40, Terminal: IP20
Ambient temperature	-10 to +55 °C +14 to +131 °F (No dew condensation or icing allowed), Storage: -25 to +70 °C -13 to +158 °F
Ambient humidity	30 to 85 % RH, Storage: 30 to 95 % RH
Vibration resistance	Resistance/malfunction 10 to 55 Hz frequency, 0.35 mm 0.014 in amplitude in X, Y, and Z directions for twenty times each
Connection terminal	Spring-cage terminal
Enclosure material	ABS
Weight	Net weight: 200 g approx.

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C +68 °F.

- 2) If several SF-C13 units are being used in line together, leave a space of 5 mm 0.197 in or more between each unit.  
If the units are touching each other, reduce the rated operating current for safety output in accordance with the ambient operating temperature as shown in the graphs at right.
- 3) Relay switching lifetime will vary depending on factors such as the type of load, the switching frequency, and ambient conditions.
- 4) Please switch the sliding switch to the PNP side for minus ground and to the NPN side for plus ground.
- 5) Mean cycle time that 10% of parts reach dangerous failure.

⟨ Dilating when SF-C13 units are mounted close together ⟩



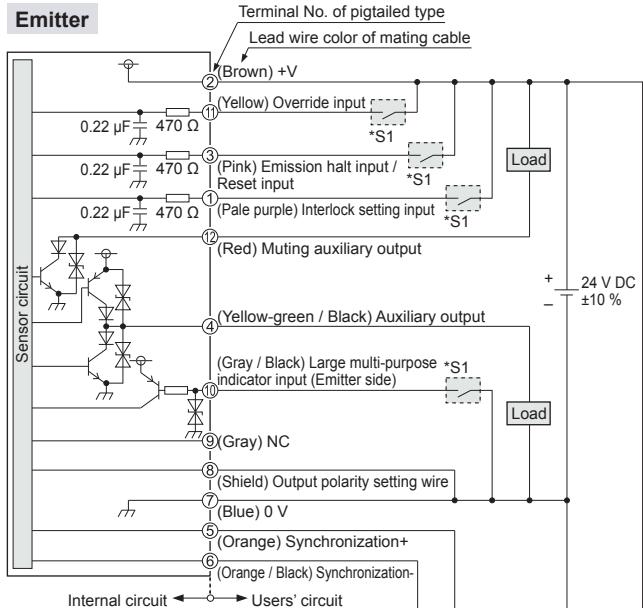
## I/O CIRCUIT AND WIRING DIAGRAMS

### SF4B-□CA-J05

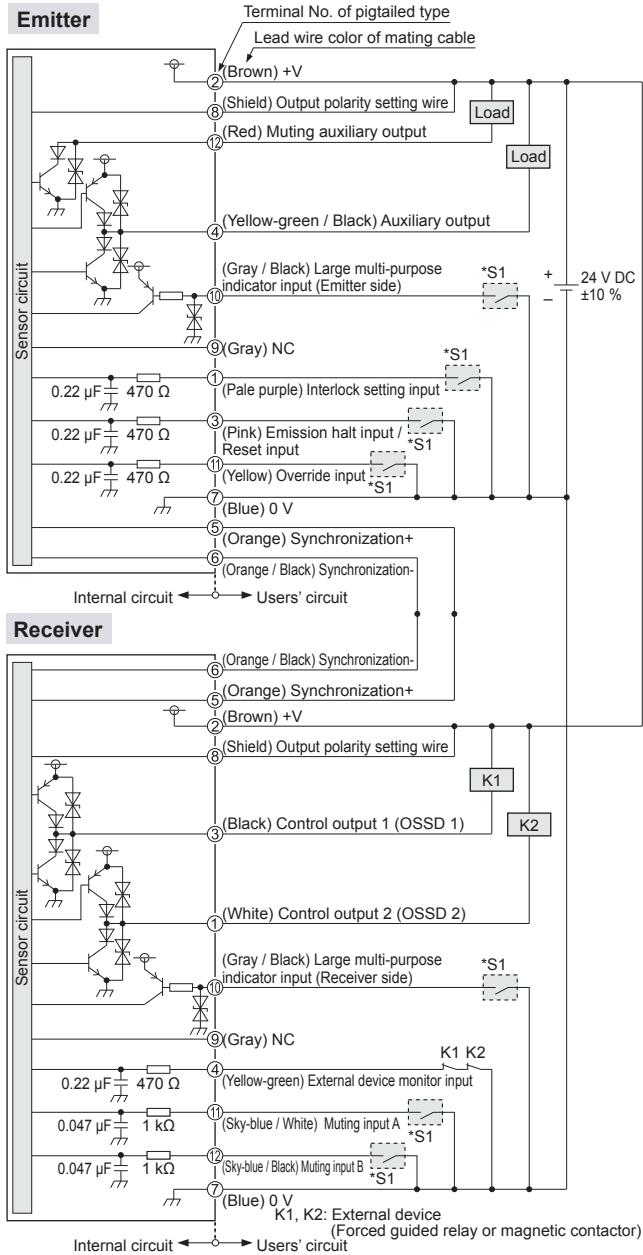
Pigtalled type (with muting function)

#### I/O circuit diagrams

<In case of using I/O circuit for PNP output>



<In case of using I/O circuit for NPN output>



\*S1

#### Switch S1

- Emission halt input / Reset input  
For manual reset  
Vs to Vs – 2.5 V (sink current 5 mA or less): Emission halt (Note)  
Open: Emission  
For automatic reset  
Vs to Vs – 2.5 V (sink current 5 mA or less): Emission (Note)  
Open: Emission halt
- Interlock setting input, Override input, Muting input A / B, External device monitor input  
Vs to Vs – 2.5 V (sink current 5 mA or less): Valid (Note)  
Open: Invalid
- Large multi-purpose indicator input  
0 to +1.5 V (source current 5 mA or less): Lights up, Open: Turns OFF

Note: Vs is the applying supply voltage.

\*S1

#### Switch S1

- Emission halt input / Reset input  
For manual reset  
0 to +1.5 V (source current 5 mA or less): Emission halt  
Open: Emission  
For automatic reset  
0 to +1.5 V (source current 5 mA or less): Emission  
Open: Emission halt
- Interlock setting input, Override input, Muting input A / B, External device monitor input  
0 to +1.5 V (source current: 5 mA or less): Valid, Open: Invalid
- Large multi-purpose indicator input  
0 to +1.5 V (source current 5 mA or less): Lights up, Open: Turns OFF

## I/O CIRCUIT AND WIRING DIAGRAMS

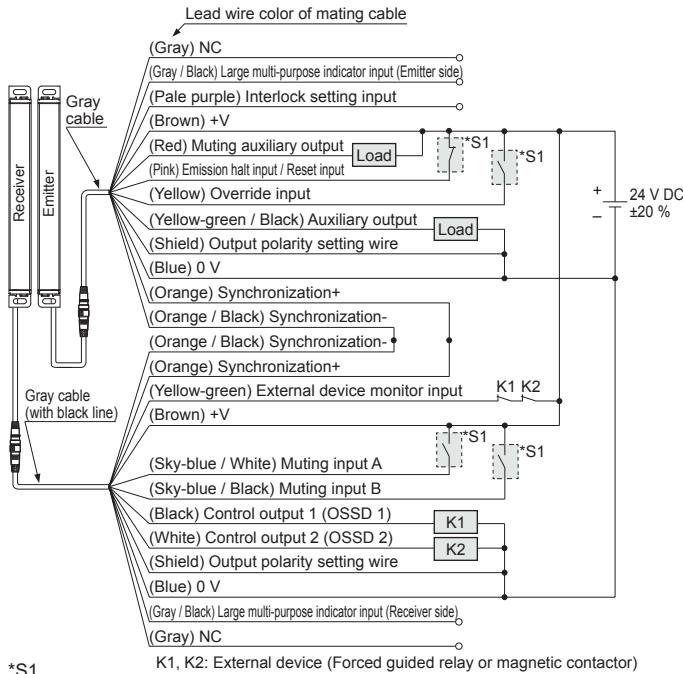
SF4B-□CA-J05

Pigtained type (with muting function)

### Connection examples

**Muting control components: Interlock function “disabled (automatic reset)”, external device monitoring function “enabled”**

#### <In case of using I/O circuit for PNP output>



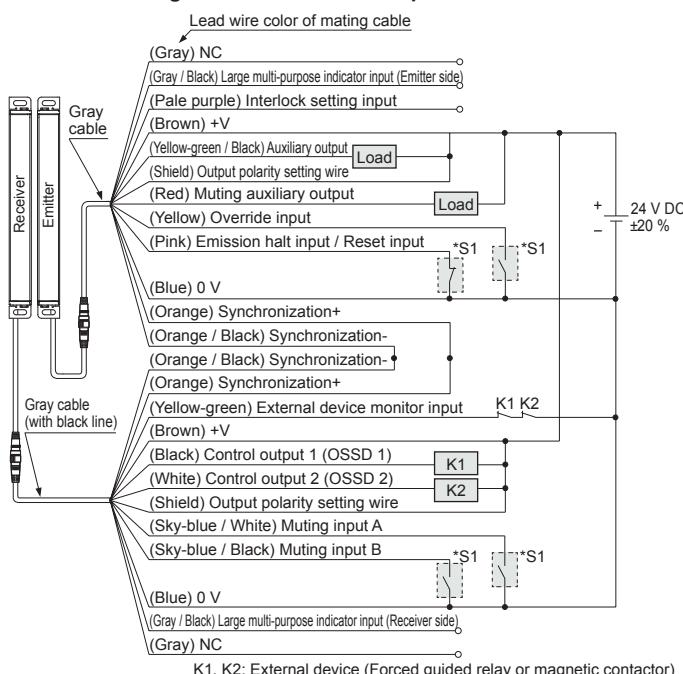
\*S1

#### Switch S1

- Emission halt input / Reset input
  - For automatic reset Vs to Vs - 2.5 V (sink current 5 mA or less): Emission (Note)  
Open: Emission halt
  - For manual reset Vs to Vs - 2.5 V (sink current 5 mA or less): Emission halt (Note)  
Open: Emission
- Muting input A / B, Override input  
Vs to Vs - 2.5 V (sink current 5 mA or less): Valid (Note), Open: Invalid

Note: Vs is the applying supply voltage.

#### <In case of using I/O circuit for NPN output>



\*S1

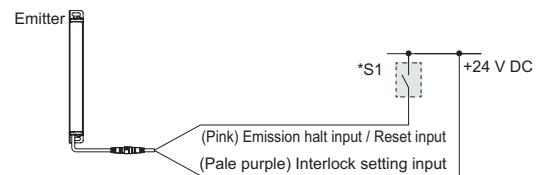
#### Switch S1

- Emission halt input / Reset input
  - For automatic reset 0 to +1.5 V (source current 5 mA or less): Emission, Open: Emission halt
  - For manual reset 0 to +1.5 V (source current 5 mA or less): Emission halt, Open: Emission
- Muting input A / B, Override input  
0 to + 1.5 V (source current 5 mA or less): Valid, Open: Invalid

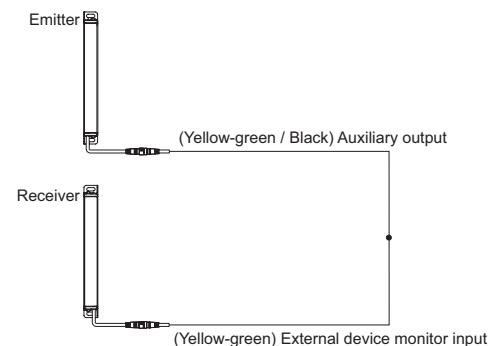
The diagram at left shows the configuration when using PNP output, interlock function “disabled (automatic reset)” and external device monitoring function “enabled”.

#### In case of setting the interlock function to “enabled (manual reset)”

- When the interlock function is set to “Enable (manual reset),” the override function cannot be used.



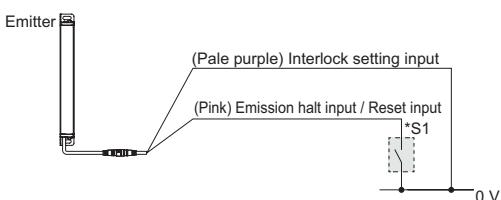
#### In case of setting the external device monitoring function to “disabled”



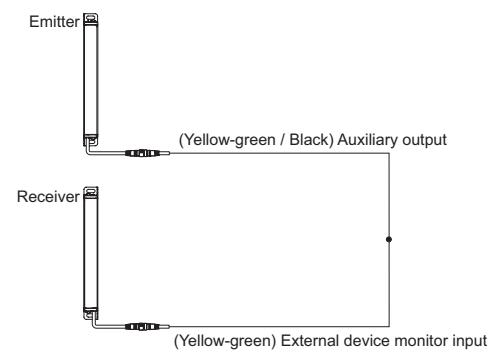
The diagram at left shows the configuration when using NPN output, interlock function “disabled (automatic reset)” and external device monitoring function “enabled”.

#### In case of setting the interlock function to “enabled (manual reset)”

- When the interlock function is set to “Enable (manual reset),” the override function cannot be used.



#### In case of setting the external device monitoring function to “disabled”



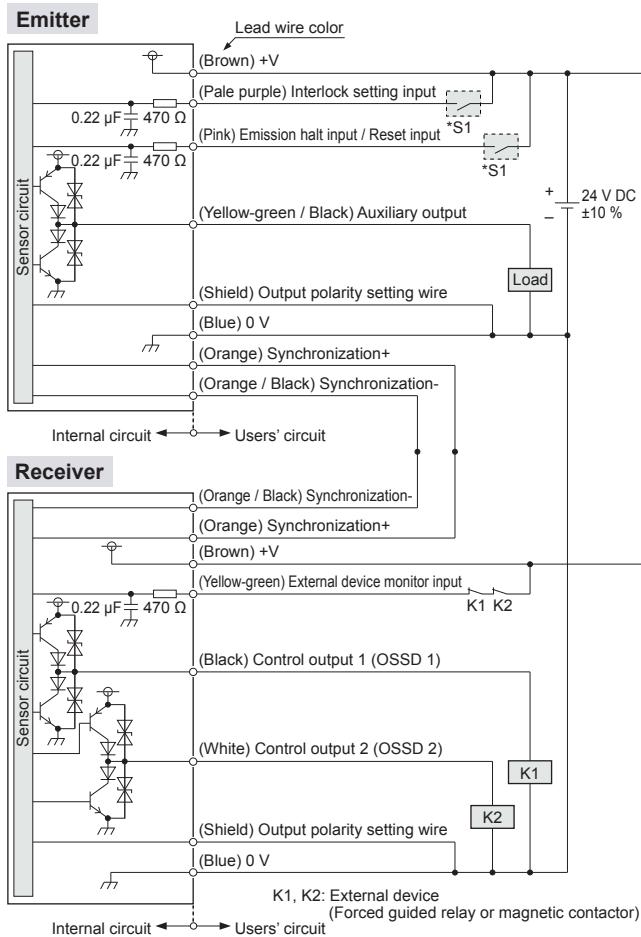
## I/O CIRCUIT AND WIRING DIAGRAMS

### SF4B-□C

Cable type

#### I/O circuit diagrams

&lt;In case of using I/O circuit for PNP output&gt;



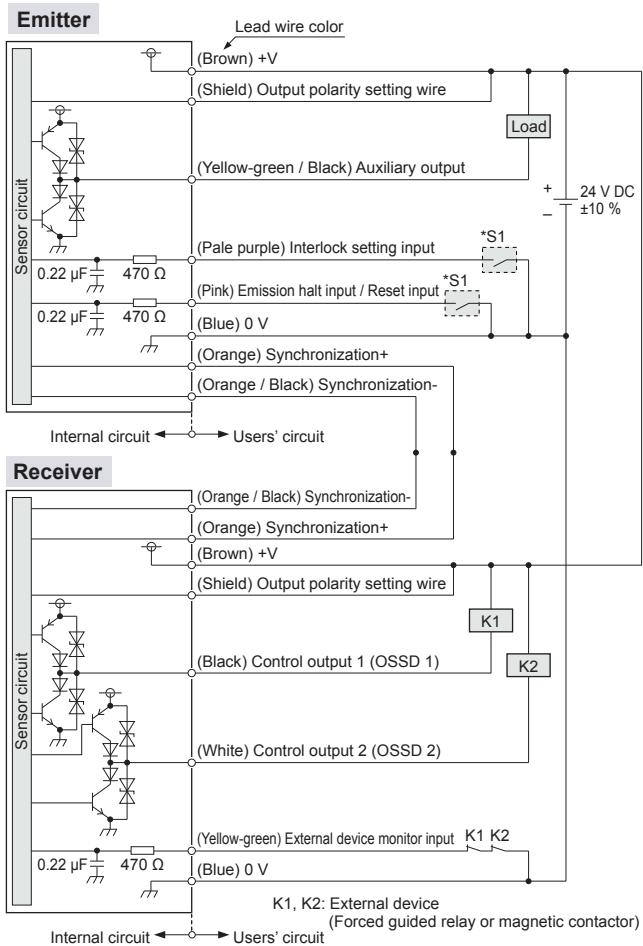
\*S1

**Switch S1**

- Emission halt input / Reset input
  - For manual reset  
Vs to Vs – 2.5 V (sink current 5 mA or less): Emission halt (Note)
  - Open: Emission
  - For automatic reset  
Vs to Vs – 2.5 V (sink current 5 mA or less): Emission (Note)
  - Open: Emission halt
- Interlock setting input  
Vs to Vs – 2.5 V (sink current 5 mA or less): Valid (Note)
- Open: Invalid

Note: Vs is the applying supply voltage.

&lt;In case of using I/O circuit for NPN output&gt;



\*S1

**Switch S1**

- Emission halt input / Reset input
  - For manual reset  
0 to +1.5 V (source current 5 mA or less): Emission halt
  - Open: Emission
  - For automatic reset  
0 to +1.5 V (source current 5 mA or less): Emission
  - Open: Emission halt
- Interlock setting input  
0 to +1.5 V (source current 5 mA or less): Valid, Open: Invalid

## I/O CIRCUIT AND WIRING DIAGRAMS

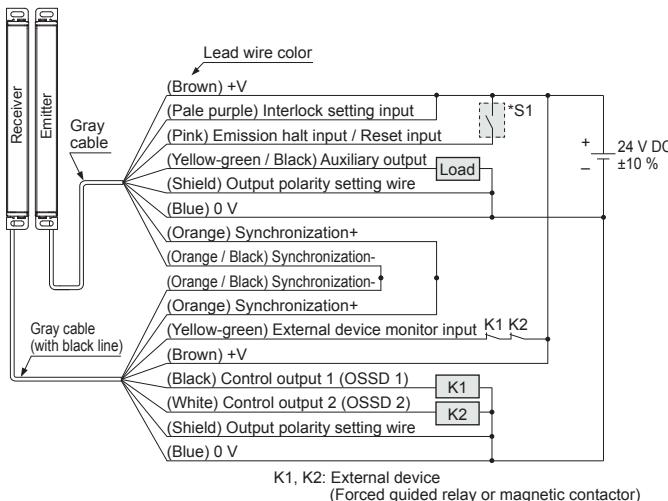
### SF4B-□C

Cable type

#### Connection examples

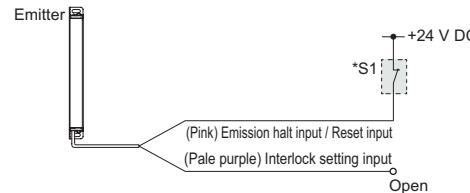
**Interlock function “enabled (manual reset)”, external device monitoring function “enabled”**

<In case of using I/O circuit for PNP output>

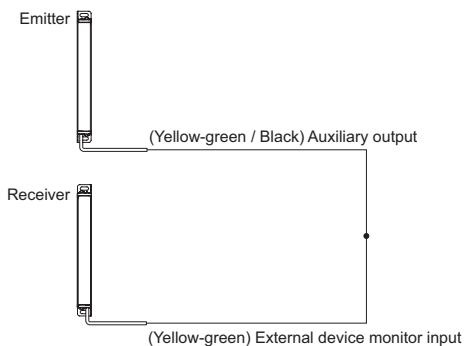


The diagram at left shows the configuration when using PNP output, interlock function “enabled (manual reset)” and external device monitoring function “enabled”.

**In case of setting the interlock function to “disabled (automatic reset)”**



**In case of setting the external device monitoring function to “disabled”**



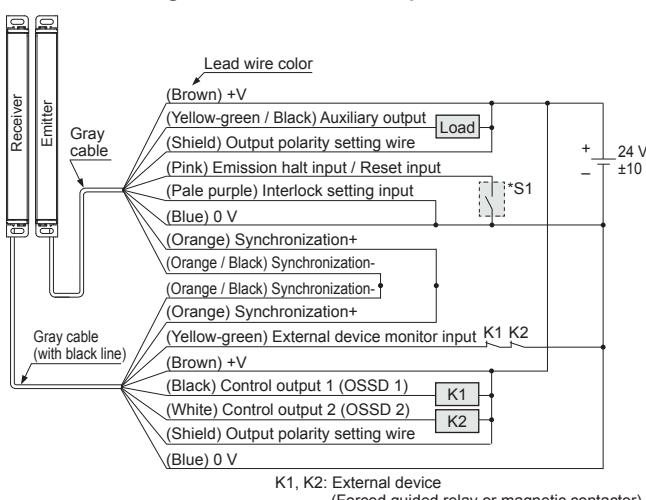
\*S1

#### Switch S1

- Emission halt input / Reset input
  - For manual reset  
Vs to Vs – 2.5 V (sink current 5 mA or less): Emission halt (Note)  
Open: Emission
  - For automatic reset  
Vs to Vs – 2.5 V (sink current 5 mA or less): Emission (Note)  
Open: Emission halt
- Interlock setting input  
Vs to Vs – 2.5 V (sink current 5 mA or less): Valid (Note)  
Open: Invalid

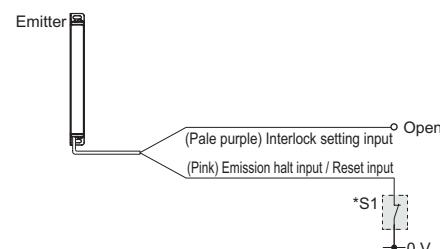
Note: Vs is the applying supply voltage.

<In case of using I/O circuit for NPN output>

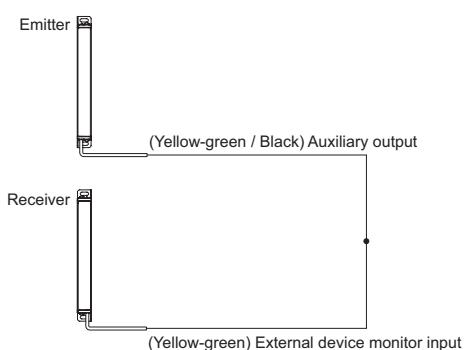


The diagram at left shows the configuration when using NPN output, interlock function “enabled (manual reset)” and external device monitoring function “enabled”.

**In case of setting the interlock function to “disabled (automatic reset)”**



**In case of setting the external device monitoring function to “disabled”**



\*S1

#### Switch S1

- Emission halt input / Reset input
  - For manual reset  
0 to +1.5 V (source current 5 mA or less): Emission halt  
Open: Emission
  - For automatic reset  
0 to +1.5 V (source current 5 mA or less): Emission  
Open: Emission halt
- Interlock setting input  
0 to +1.5 V (source current 5 mA or less): Valid, Open: Invalid

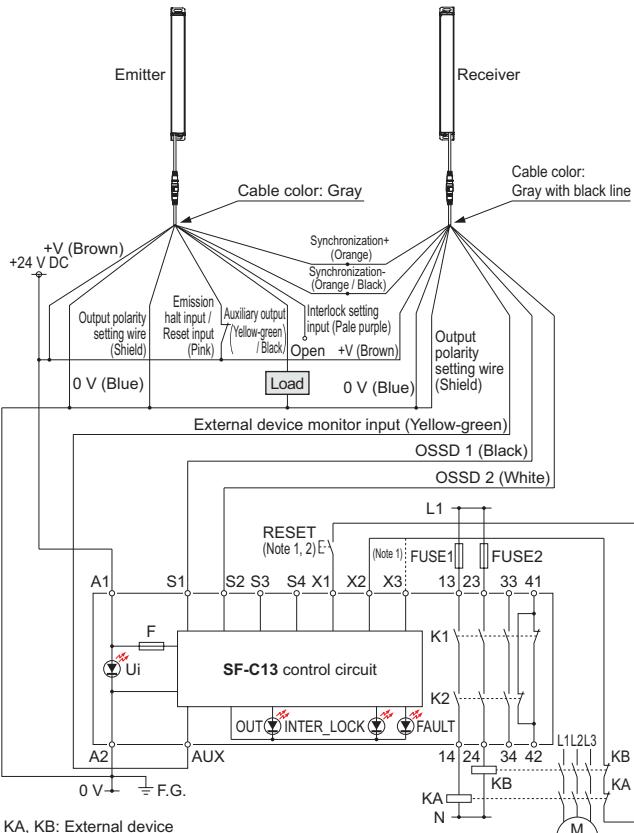
## I/O CIRCUIT AND WIRING DIAGRAMS

### SF-C13

#### SF4B-C wiring diagrams (Control Category 4)

##### For PNP output (minus ground)

- Connect the safety light curtain control outputs OSSD 1 and OSSD 2 to S1 and S2 respectively.

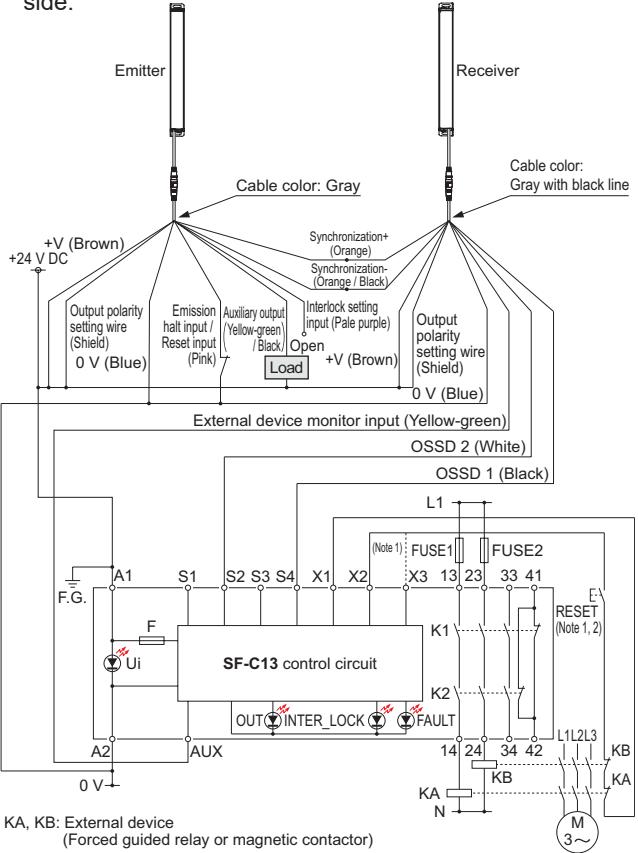


KA, KB: External device  
(Forced guided relay or magnetic contactor)

- Notes: 1) The above diagram is when using manual reset. If automatic reset is used, disconnect the lead from X2 and connect it to X3. In this case, a reset (RESET) button is not needed.  
2) Use a momentary-type switch as the reset (RESET) button.

##### For NPN output (plus ground)

- Connect the safety light curtain control outputs OSSD 1 and OSSD 2 to S4 and S2 respectively and ground the + side.



- Notes: 1) The above diagram is when using manual reset. If automatic reset is used, disconnect the lead from X2 and connect it to X3. In this case, a reset (RESET) button is not needed.  
2) Use a momentary-type switch as the reset (RESET) button.

#### Terminal arrangement diagram

Terminal	Description
A1	+24 V DC
A2	0 V
S1	
S2	
S3	
S4	
AUX	Semiconductor auxiliary output
X1	Reset output terminal
X2	Reset input terminal (Manual)
X3	Reset input terminal (Automatic)
14	
23	
24	
33	
34	
41	
42	
13-14, 23-24, 33-34	Safety output (NO contact × 3)
41-42	Auxiliary output (NC contact × 1)

A terminal block is required for wiring of safety light curtain side.

## ■ PRECAUTIONS FOR PROPER USE

### Wiring



Refer to the applicable regulations for the region where this device is to be used when setting up the device. In addition, make sure that all necessary measures are taken to prevent possible dangerous operating errors resulting from earth faults.

- Make sure to carry out the wiring in the power supply off condition.
- Verify that the supply voltage variation is within the rating.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.
- In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of this sensor, connect the frame ground (F.G.) terminal of the equipment to an actual ground.
- Do not run the wires together with high-voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction.

### Others

- This device has been developed / produced for industrial use only.
- Do not use this device with mobile equipment such as an automated guided vehicle (AGV).
- Do not use during the initial transient time (2 sec.) after the power supply is switched on.
- This product is suitable for indoor use only.
- Avoid dust, dirt and steam.
- Take care that the safety light curtain does not come in direct contact with water, oil, grease, or organic solvents, such as, thinner, etc.
- Take care that the safety light curtain is not directly exposed to fluorescent light from a rapid-starter lamp or a high frequency lighting device, as it may affect the sensing performance.



- When this device is used in the "PSDI mode", an appropriate control circuit must be configured between this device and the machinery. For details, be sure to refer to the standards or regulations applicable in each region or country.

- This catalog is a guide to select a suitable product. Be sure to read instruction manual prior to its use.
- Both emitter and receiver are adjusted before shipment, please apply both emitter and receiver with the same serial No. The serial No. is indicated on the plates of both emitter and receiver. (Indicated under model No.)

- Make sure to carry out the test run before regular operation.
- Do not use this product with machinery that cannot be stopped immediately during the operating cycle by means of an emergency stop system.

Refer to the instruction manual for details.  
The instruction manual can be downloaded from our website.

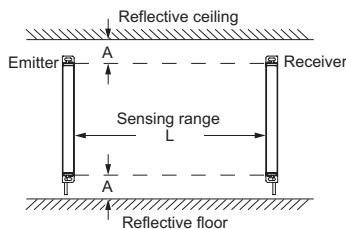
### Influence of reflective surfaces



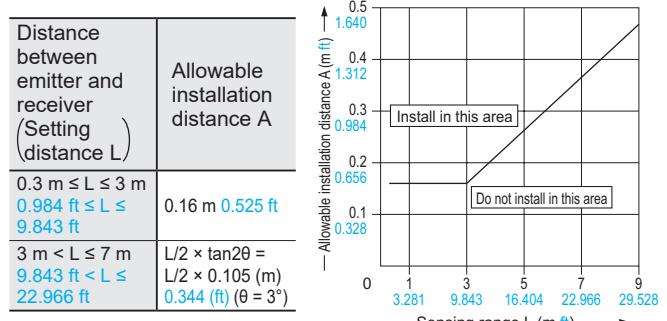
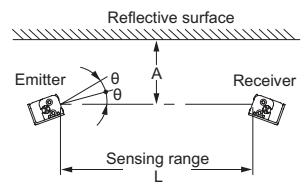
Install the safety light curtain by considering the effect of nearby reflective surfaces, and take countermeasures such as painting, masking, or changing the material of the reflective surface, etc. Failure to do so may cause the safety light curtain not to detect, resulting in serious body injury or death.

- Install this device at a distance of at least A (m) (given below) away from reflective surfaces such as metal walls, floors, ceilings, workpiece, covers, panels or glass surfaces.

**Side view**



**Top view**



Note: The effective aperture angle for this device is ±2.5° or less (when  $L > 3 \text{ m } 9.843 \text{ ft}$ ) as required by IEC 61496-2, ANSI/UL 61496-2. However, install this device away from reflective surfaces considering an effective aperture angle of ±3° to take care of beam misalignment, etc. during installation.

### Handy-controller



This device enables to set each function using the handy-controller **SFB-HC** (optional). Among the functions, the contents related to the safety distance such as the size of the minimum sensing object and response time are varied depending on the setting condition. When setting each function, re-calculate the safety distance, and make enough space larger than the calculated safety distance. Failure to do so might cause the accident that the device cannot stop quickly before reaching the dangerous area of the machinery, resulting in the serious injury or death.

- Refer to the instruction manual of the handy-controller for details of the function settings for using handy-controller **SFB-HC** (optional).

**DIMENSIONS (Unit: mm in)**

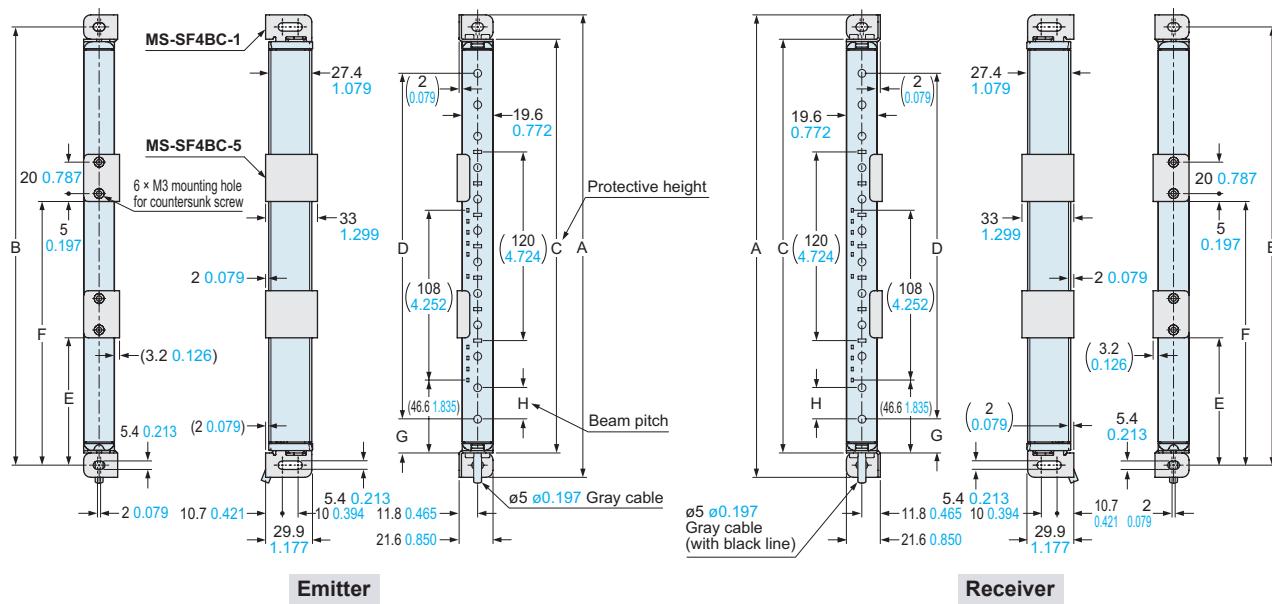
The CAD data can be downloaded from our website.

**SF4B-□CA-J05 SF4B-□C**

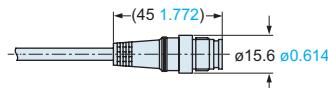
Safety light curtain

**Assembly dimensions**

The figure depicts rear mounting using the standard mounting bracket **MS-SF4BC-1** (optional) and the intermediate supporting bracket for standard mounting bracket **MS-SF4BC-5** (optional).



&lt;Connector of the pigtailed type (with muting function) SF4B-□CA-J05&gt;



Model No.	A	B	C	D		E	F
				SF4B-H□C(A-J05)	SF4B-A□C(A-J05)		
SF4B-H12C(A-J05)	294.4 11.591	279 10.984	263.4 10.370	220	8.661	—	—
SF4B-H16C(A-J05)	SF4B-A8C(A-J05) 374.4 14.740	359 14.134	343.4 13.520	300	11.811	280	11.024
SF4B-H20C(A-J05)	— 454.4 17.890	439 17.283	423.4 16.669	380	14.961	—	—
SF4B-H24C(A-J05)	SF4B-A12C(A-J05) 534.4 21.039	519 20.433	503.4 19.819	460	18.110	440	17.323
SF4B-H28C(A-J05)	— 614.4 24.189	599 23.583	583.4 22.969	540	21.260	—	—
SF4B-H32C(A-J05)	SF4B-A16C(A-J05) 694.4 27.339	679 26.732	663.4 26.118	620	24.409	600	23.622
SF4B-H36C(A-J05)	— 774.4 30.488	759 29.882	743.4 29.268	700	27.559	—	—
SF4B-H40C(A-J05)	SF4B-A20C(A-J05) 854.4 33.638	839 33.031	823.4 32.417	780	30.709	760	29.921 395 15.551
SF4B-H48C(A-J05)	SF4B-A24C(A-J05) 1,014.4 39.937	999 39.331	983.4 38.717	940	37.008	920	36.220 475 18.701
SF4B-H56C(A-J05)	SF4B-A28C(A-J05) 1,174.4 46.236	1,159 45.630	1,143.4 45.016	1,100	43.307	1,080	42.520 555 21.850
SF4B-H64C(A-J05)	SF4B-A32C(A-J05) 1,334.4 52.535	1,319 51.929	1,303.4 51.315	1,260	49.606	1,240	48.819 415 16.339
SF4B-H72C(A-J05)	SF4B-A36C(A-J05) 1,494.4 58.835	1,479 58.228	1,463.4 57.614	1,420	55.906	1,400	55.118 468 18.425
SF4B-H80C(A-J05)	SF4B-A40C(A-J05) 1,654.4 65.134	1,639 64.528	1,623.4 63.913	1,580	62.205	1,560	61.417 521 20.512
SF4B-H88C(A-J05)	SF4B-A44C(A-J05) 1,814.4 71.433	1,799 70.827	1,783.4 70.212	1,740	68.504	1,720	67.716 574 22.598
SF4B-H96C(A-J05)	SF4B-A48C(A-J05) 1,974.4 77.732	1,959 77.126	1,943.4 76.512	1,900	74.803	1,880	74.016 627 24.685

Model No.	G	H
SF4B-H□C(A-J05)	21.7 0.854	20 0.787
SF4B-A□C(A-J05)	41.7 1.642	40 1.575

## DIMENSIONS (Unit: mm in)

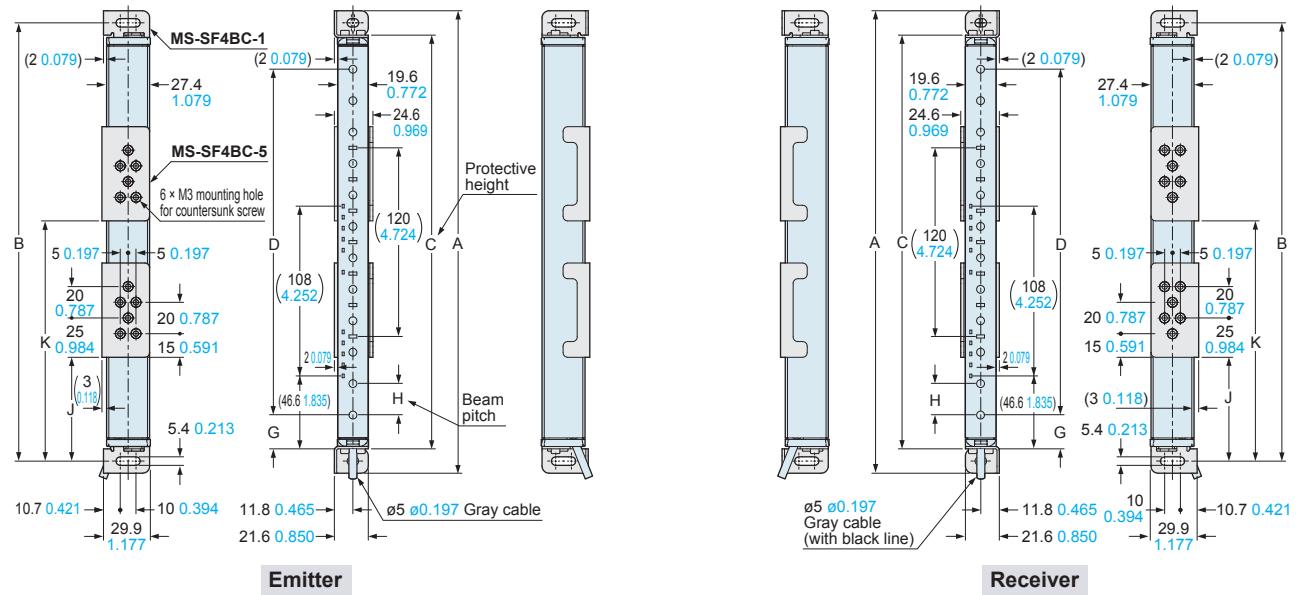
The CAD data can be downloaded from our website.

### SF4B-□CA-J05 SF4B-□C

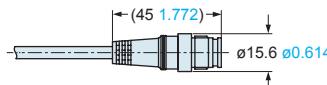
Safety light curtain

#### Assembly dimensions

The figure depicts side mounting using the standard mounting bracket **MS-SF4BC-1** (optional) and the intermediate supporting bracket for standard mounting bracket **MS-SF4BC-5** (optional).



<Connector of the pigtailed type (with muting function) SF4B-□CA-J05>



Model No.	A	B	C	D		J	K
				SF4B-H□C(A-J05)	SF4B-A□C(A-J05)		
SF4B-H12C(A-J05)	294.4 11.591	279 10.984	263.4 10.370	220 8.661	—	—	—
SF4B-H16C(A-J05)	374.4 14.740	359 14.134	343.4 13.520	300 11.811	280 11.024	—	—
SF4B-H20C(A-J05)	454.4 17.890	439 17.283	423.4 16.669	380 14.961	—	—	—
SF4B-H24C(A-J05)	534.4 21.039	519 20.433	503.4 19.819	460 18.110	440 17.323	—	—
SF4B-H28C(A-J05)	614.4 24.189	599 23.583	583.4 22.969	540 21.260	—	—	—
SF4B-H32C(A-J05)	694.4 27.339	679 26.732	663.4 26.118	620 24.409	600 23.622	—	—
SF4B-H36C(A-J05)	774.4 30.488	759 29.882	743.4 29.268	700 27.559	—	—	—
SF4B-H40C(A-J05)	854.4 33.638	839 33.031	823.4 32.417	780 30.709	760 29.921	390 15.354	—
SF4B-H48C(A-J05)	1,014.4 39.937	999 39.331	983.4 38.717	940 37.008	920 36.220	470 18.504	—
SF4B-H56C(A-J05)	1,174.4 46.236	1,159 45.630	1,143.4 45.016	1,100 43.307	1,080 42.520	550 21.654	—
SF4B-H64C(A-J05)	1,334.4 52.535	1,319 51.929	1,303.4 51.315	1,260 49.606	1,240 48.819	410 16.142	849 33.425
SF4B-H72C(A-J05)	1,494.4 58.835	1,479 58.228	1,463.4 57.614	1,420 55.906	1,400 55.118	463 18.228	956 37.638
SF4B-H80C(A-J05)	1,654.4 65.134	1,639 64.528	1,623.4 63.913	1,580 62.205	1,560 61.417	516 20.315	1,063 41.850
SF4B-H88C(A-J05)	1,814.4 71.433	1,799 70.827	1,783.4 70.212	1,740 68.504	1,720 67.716	569 22.402	1,170 46.063
SF4B-H96C(A-J05)	1,974.4 77.732	1,959 77.126	1,943.4 76.512	1,900 74.803	1,880 74.016	622 24.488	1,277 50.275

Model No.	G	H
SF4B-H□C(A-J05)	21.7 0.854	20 0.787
SF4B-A□C(A-J05)	41.7 1.642	40 1.575

**DIMENSIONS (Unit: mm in)**

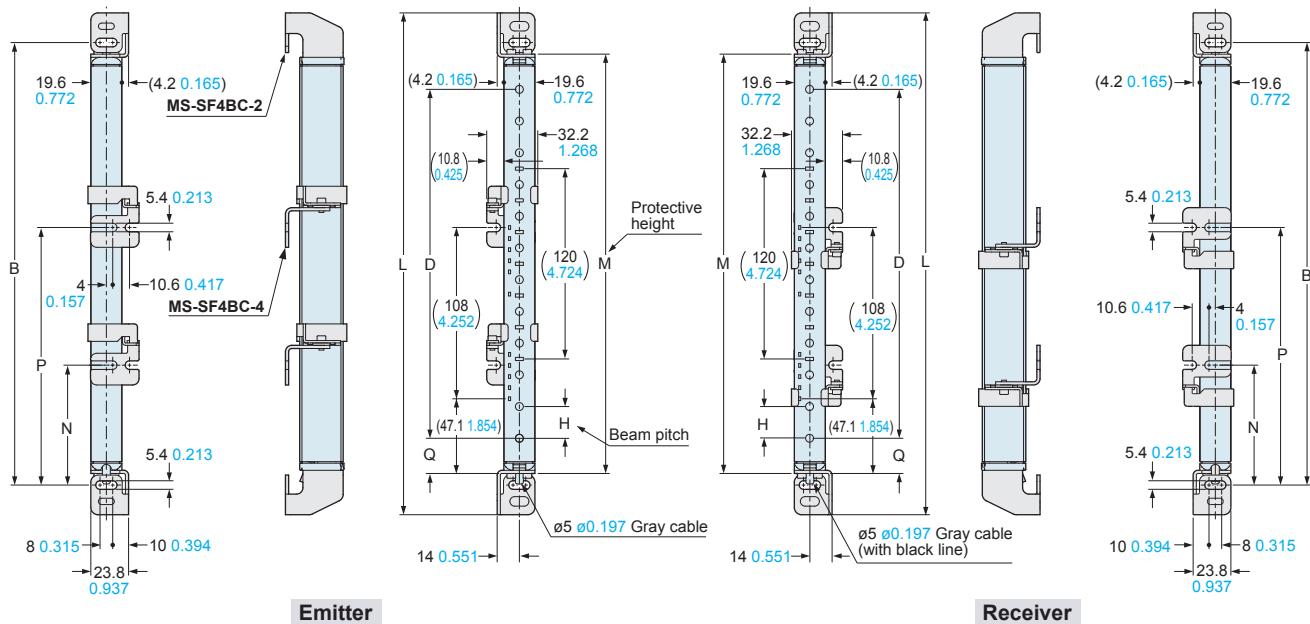
The CAD data can be downloaded from our website.

**SF4B-□CA-J05 SF4B-□C**

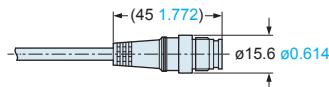
Safety light curtain

**Assembly dimensions**

The figure depicts rear mounting using the rear utility mounting bracket **MS-SF4BC-2** (optional) and the intermediate supporting bracket for utility mounting **MS-SF4BC-4** (optional).



&lt;Connector of the pigtailed type (with muting function) SF4B-□CA-J05&gt;



Model No.	B	D		L	M	N	P
		SF4B-H□C(A-J05)	SF4B-A□C(A-J05)				
SF4B-H12C(A-J05)	279 10.984	220 8.661	—	316.4 12.457	264.4 10.409	—	—
SF4B-H16C(A-J05)	359 14.134	300 11.811	280 11.024	396.4 15.606	344.4 13.559	—	—
SF4B-H20C(A-J05)	439 17.283	380 14.961	—	476.4 18.756	424.4 16.709	—	—
SF4B-H24C(A-J05)	519 20.433	460 18.110	440 17.323	556.4 21.906	504.4 19.858	—	—
SF4B-H28C(A-J05)	599 23.583	540 21.260	—	636.4 25.055	584.4 23.008	—	—
SF4B-H32C(A-J05)	679 26.732	620 24.409	600 23.622	716.4 28.205	664.4 26.157	—	—
SF4B-H36C(A-J05)	759 29.882	700 27.559	—	796.4 31.354	744.4 29.307	—	—
SF4B-H40C(A-J05)	839 33.031	780 30.709	760 29.921	876.4 34.504	824.4 32.457	399.5 15.728	—
SF4B-H48C(A-J05)	999 39.331	940 37.008	920 36.220	1,036.4 40.803	984.4 38.756	479.5 18.878	—
SF4B-H56C(A-J05)	1,159 45.630	1,100 43.307	1,080 42.520	1,196.4 47.102	1,144.4 45.055	559.5 22.028	—
SF4B-H64C(A-J05)	1,319 51.929	1,260 49.606	1,240 48.819	1,356.4 53.402	1,304.4 51.354	419.5 16.516	858.5 33.799
SF4B-H72C(A-J05)	1,479 58.228	1,420 55.906	1,400 55.118	1,516.4 59.701	1,464.4 57.654	472.5 18.602	965.5 38.012
SF4B-H80C(A-J05)	1,639 64.528	1,580 62.205	1,560 61.417	1,676.4 66.000	1,624.4 63.953	525.5 20.689	1,072.5 42.224
SF4B-H88C(A-J05)	1,799 70.827	1,740 68.504	1,720 67.716	1,836.4 72.299	1,784.4 70.252	578.5 22.776	1,179.5 46.437
SF4B-H96C(A-J05)	1,959 77.126	1,900 74.803	1,880 74.016	1,996.4 78.598	1,944.4 76.551	631.5 24.862	1,286.5 50.650

Model No.	H	Q
SF4B-H□C(A-J05)	20 0.787	22.2 0.874
SF4B-A□C(A-J05)	40 1.575	42.2 1.661

## DIMENSIONS (Unit: mm in)

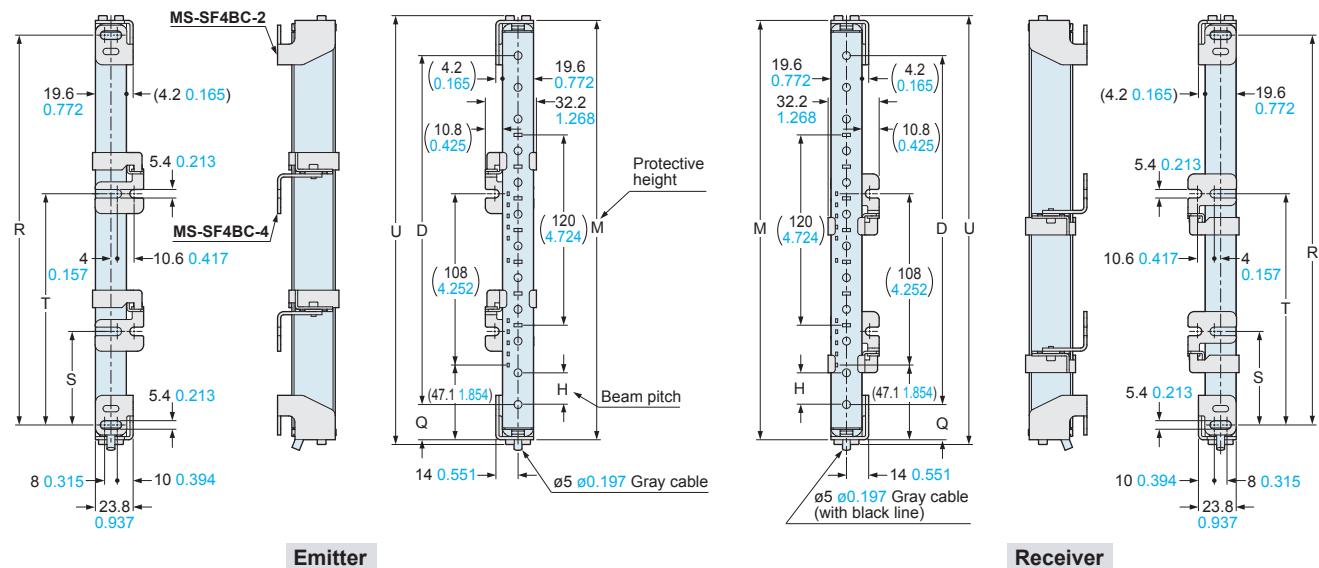
The CAD data can be downloaded from our website.

### SF4B-□CA-J05 SF4B-□C

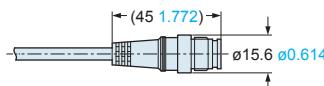
Safety light curtain

#### Assembly dimensions

The figure depicts space-saving mounting using the rear utility mounting bracket MS-SF4BC-2 (optional) and the intermediate supporting bracket for utility mounting bracket MS-SF4BC-4 (optional).



<Connector of the pigtailed type (with muting function) SF4B-□CA-J05>



Model No.	D		M	R	S	T	U
	SF4B-H□C(A-J05)	SF4B-A□C(A-J05)					
SF4B-H12C(A-J05)	220 8.661	—	264.4 10.409	245.8 9.677	—	—	270.4 10.646
SF4B-H16C(A-J05)	SF4B-A8C(A-J05)	300 11.811	344.4 13.559	325.8 12.827	—	—	350.4 13.795
SF4B-H20C(A-J05)	—	380 14.961	424.4 16.709	405.8 17.748	—	—	430.4 16.945
SF4B-H24C(A-J05)	SF4B-A12C(A-J05)	460 18.110	504.4 19.858	485.8 19.126	—	—	510.4 20.094
SF4B-H28C(A-J05)	—	540 21.260	584.4 23.008	565.8 22.276	—	—	590.4 23.244
SF4B-H32C(A-J05)	SF4B-A16C(A-J05)	620 24.409	664.4 26.157	645.8 25.425	—	—	670.4 26.394
SF4B-H36C(A-J05)	—	700 27.559	744.4 29.307	725.8 28.575	—	—	750.4 29.543
SF4B-H40C(A-J05)	SF4B-A20C(A-J05)	780 30.709	824.4 32.457	805.8 31.724	382.9 15.075	—	830.4 32.693
SF4B-H48C(A-J05)	SF4B-A24C(A-J05)	940 37.008	984.4 38.756	965.8 38.024	462.9 18.224	—	990.4 38.992
SF4B-H56C(A-J05)	SF4B-A28C(A-J05)	1,100 43.307	1,144.4 45.055	1,125.8 44.323	542.9 21.374	—	1,150.4 45.291
SF4B-H64C(A-J05)	SF4B-A32C(A-J05)	1,260 49.606	1,304.4 51.354	1,285.8 50.622	402.9 15.862	841.9 33.146	1,310.4 51.590
SF4B-H72C(A-J05)	SF4B-A36C(A-J05)	1,420 55.906	1,464.4 57.654	1,445.8 56.921	455.9 17.949	948.9 37.358	1,470.4 57.890
SF4B-H80C(A-J05)	SF4B-A40C(A-J05)	1,580 62.205	1,624.4 63.953	1,605.8 63.220	508.9 20.035	1,055.9 41.571	1,630.4 64.189
SF4B-H88C(A-J05)	SF4B-A44C(A-J05)	1,740 68.504	1,784.4 70.252	1,765.8 69.520	561.9 22.122	1,162.9 45.783	1,790.4 70.488
SF4B-H96C(A-J05)	SF4B-A48C(A-J05)	1,900 74.803	1,944.4 76.551	1,925.8 75.819	614.9 24.209	1,269.9 49.996	1,950.4 76.787

Model No.	H	Q
SF4B-H□C(A-J05)	20 0.787	22.2 0.874
SF4B-A□C(A-J05)	40 1.575	42.2 1.661

**DIMENSIONS (Unit: mm in)**

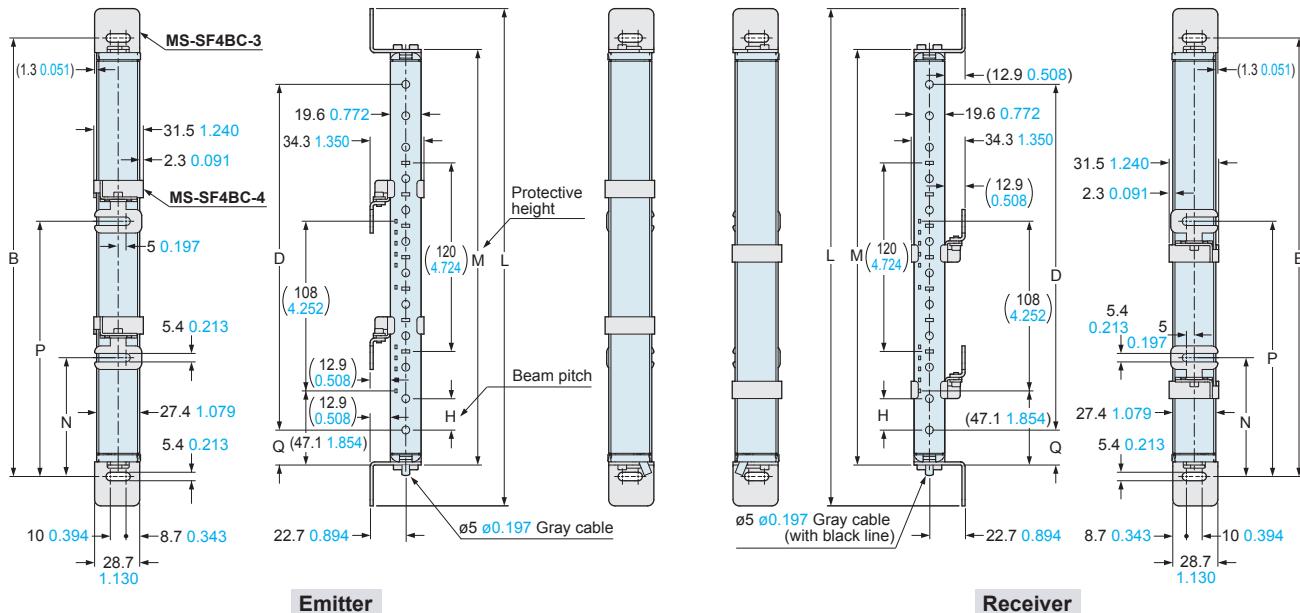
The CAD data can be downloaded from our website.

**SF4B-□CA-J05 SF4B-□C**

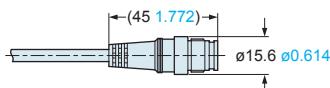
Safety light curtain

**Assembly dimensions**

The figure depicts side mounting using the side utility mounting bracket **MS-SF4BC-3** (optional) and the intermediate supporting bracket for utility mounting **MS-SF4BC-4** (optional).



&lt;Connector of the pigtailed type (with muting function) SF4B-□CA-J05&gt;



Model No.	B	D		L	M	N	P
		SF4B-H□C(A-J05)	SF4B-A□C(A-J05)				
SF4B-H12C(A-J05)	279 10.984	220 8.661	—	316.4 12.457	264.4 10.409	—	—
SF4B-H16C(A-J05)	359 14.134	300 11.811	280 11.024	396.4 15.606	344.4 13.559	—	—
SF4B-H20C(A-J05)	439 17.283	380 14.961	—	476.4 18.756	424.4 16.709	—	—
SF4B-H24C(A-J05)	519 20.433	460 18.110	440 17.323	556.4 21.906	504.4 19.858	—	—
SF4B-H28C(A-J05)	599 23.583	540 21.260	—	636.4 25.055	584.4 23.008	—	—
SF4B-H32C(A-J05)	679 26.732	620 24.409	600 23.622	716.4 28.205	664.4 26.157	—	—
SF4B-H36C(A-J05)	759 29.882	700 27.559	—	796.4 31.354	744.4 29.307	—	—
SF4B-H40C(A-J05)	839 33.031	780 30.709	760 29.921	876.4 34.504	824.4 32.457	399.5 15.728	—
SF4B-H48C(A-J05)	999 39.331	940 37.008	920 36.220	1,036.4 40.803	984.4 38.756	479.5 18.878	—
SF4B-H56C(A-J05)	1,159 45.630	1,100 43.307	1,080 42.520	1,196.4 47.102	1,144.4 45.055	559.5 22.028	—
SF4B-H64C(A-J05)	1,319 51.929	1,260 49.606	1,240 48.819	1,356.4 53.402	1,304.4 51.354	419.5 16.516	858.5 33.799
SF4B-H72C(A-J05)	1,479 58.228	1,420 55.906	1,400 55.118	1,516.4 59.701	1,464.4 57.654	472.5 18.602	965.5 38.012
SF4B-H80C(A-J05)	1,639 64.528	1,580 62.205	1,560 61.417	1,676.4 66.000	1,624.4 63.953	525.5 20.689	1,072.5 42.224
SF4B-H88C(A-J05)	1,799 70.827	1,740 68.504	1,720 67.716	1,836.4 72.299	1,784.4 70.252	578.5 22.776	1,179.5 46.437
SF4B-H96C(A-J05)	1,959 77.126	1,900 74.803	1,880 74.016	1,996.4 78.598	1,944.4 76.551	631.5 24.862	1,286.5 50.650

Model No.	H	Q
SF4B-H□C(A-J05)	20 0.787	22.2 0.874
SF4B-A□C(A-J05)	40 1.575	42.2 1.661

## DIMENSIONS (Unit: mm in)

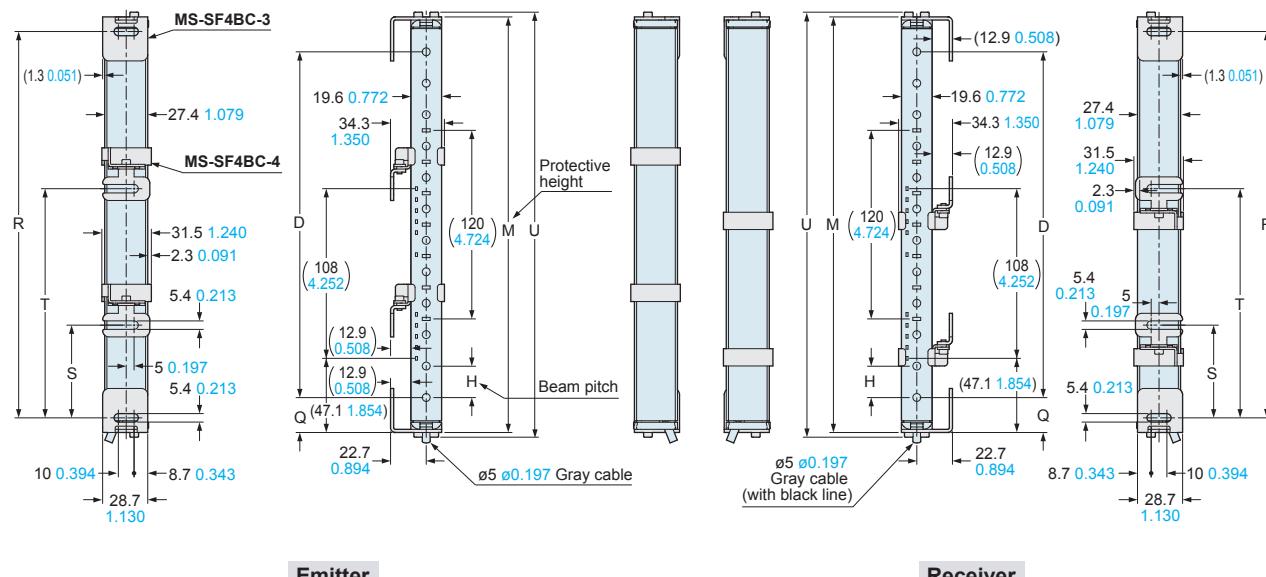
The CAD data can be downloaded from our website.

### SF4B-□CA-J05 SF4B-□C

Safety light curtain

#### Assembly dimensions

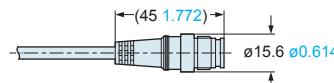
The figure depicts space-saving mounting using the side utility mounting bracket MS-SF4BC-3 (optional) and the intermediate supporting bracket for utility mounting bracket MS-SF4BC-4 (optional).



Emitter

Receiver

<Connector of the pigtailed type (with muting function) SF4B-□CA-J05>



Model No.	D		M	R	S	T	U
	SF4B-H□C(A-J05)	SF4B-A□C(A-J05)					
SF4B-H12C(A-J05)	220 8.661	—	264.4 10.409	245.8 9.677	—	—	270.4 10.646
SF4B-H16C(A-J05)	SF4B-A8C(A-J05)	300 11.811	280 11.024	344.4 13.559	325.8 12.827	—	350.4 13.795
SF4B-H20C(A-J05)	—	380 14.961	—	424.4 16.709	405.8 17.748	—	430.4 16.945
SF4B-H24C(A-J05)	SF4B-A12C(A-J05)	460 18.110	440 17.323	504.4 19.858	485.8 19.126	—	510.4 20.094
SF4B-H28C(A-J05)	—	540 21.260	—	584.4 23.008	565.8 22.276	—	590.4 23.244
SF4B-H32C(A-J05)	SF4B-A16C(A-J05)	620 24.409	600 23.622	664.4 26.157	645.8 25.425	—	670.4 26.394
SF4B-H36C(A-J05)	—	700 27.559	—	744.4 29.307	725.8 28.575	—	750.4 29.543
SF4B-H40C(A-J05)	SF4B-A20C(A-J05)	780 30.709	760 29.921	824.4 32.457	805.8 31.724	382.9 15.075	830.4 32.693
SF4B-H48C(A-J05)	SF4B-A24C(A-J05)	940 37.008	920 36.220	984.4 38.756	965.8 38.024	462.9 18.224	990.4 38.992
SF4B-H56C(A-J05)	SF4B-A28C(A-J05)	1,100 43.307	1,080 42.520	1,144.4 45.055	1,125.8 44.323	542.9 21.374	1,150.4 45.291
SF4B-H64C(A-J05)	SF4B-A32C(A-J05)	1,260 49.606	1,240 48.819	1,304.4 51.354	1,285.8 50.622	402.9 15.862	1,310.4 51.590
SF4B-H72C(A-J05)	SF4B-A36C(A-J05)	1,420 55.906	1,400 55.118	1,464.4 57.654	1,445.8 56.921	455.9 17.949	1,470.4 57.890
SF4B-H80C(A-J05)	SF4B-A40C(A-J05)	1,580 62.205	1,560 61.417	1,624.4 63.953	1,605.8 63.220	508.9 20.035	1,630.4 64.189
SF4B-H88C(A-J05)	SF4B-A44C(A-J05)	1,740 68.504	1,720 67.716	1,784.4 70.252	1,765.8 69.520	561.9 22.122	1,790.4 70.488
SF4B-H96C(A-J05)	SF4B-A48C(A-J05)	1,900 74.803	1,880 74.016	1,944.4 76.551	1,925.8 75.819	614.9 24.209	1,269.9 49.996

Model No.	H	Q
SF4B-H□C(A-J05)	20 0.787	22.2 0.874
SF4B-A□C(A-J05)	40 1.575	42.2 1.661

**DIMENSIONS (Unit: mm in)**

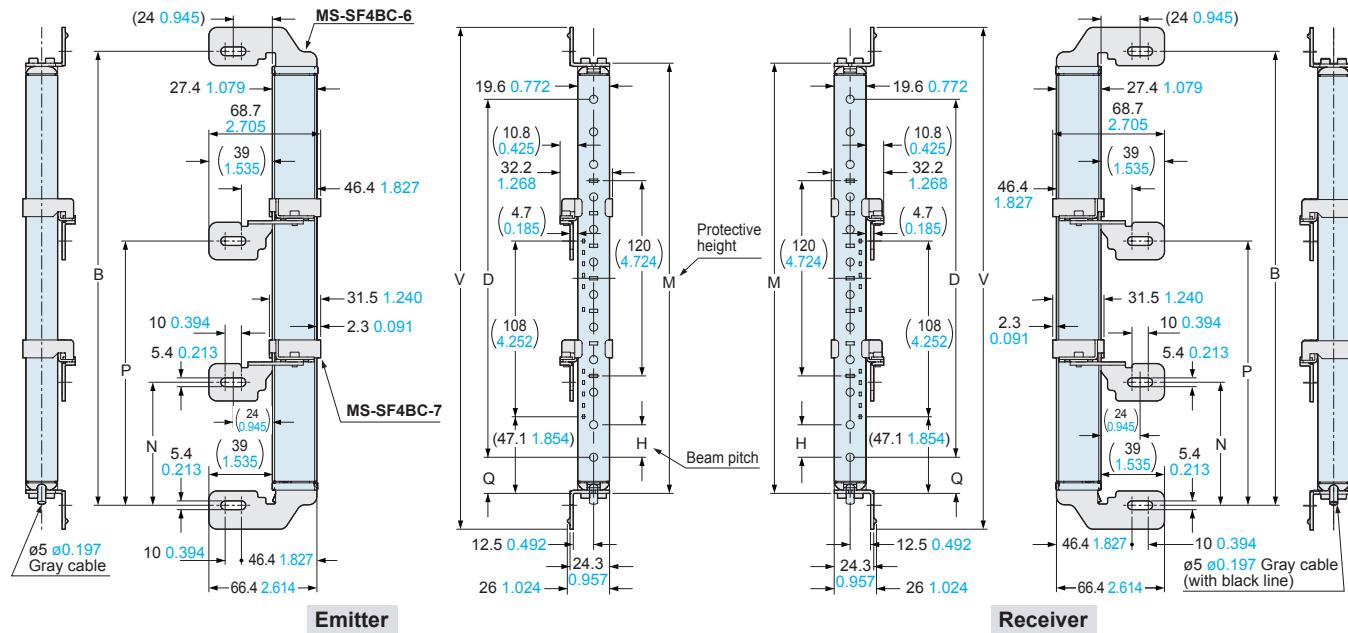
The CAD data can be downloaded from our website.

**SF4B-□CA-J05 SF4B-□C**

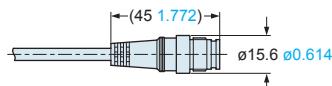
Safety light curtain

**Assembly dimensions**

The figure depicts side mounting using the side mounting bracket **MS-SF4BC-6** (optional) and the intermediate supporting bracket for side mounting bracket **MS-SF4BC-7** (optional).



&lt;Connector of the pigtailed type (with muting function) SF4B-□CA-J05&gt;



Model No.	B	D		M	N	P	V
		SF4B-H□C(A-J05)	SF4B-A□C(A-J05)				
SF4B-H12C(A-J05)	279 10.984	220 8.661	—	264.4 10.409	—	—	308.4 12.142
SF4B-H16C(A-J05)	359 14.134	300 11.811	280 11.024	344.4 13.559	—	—	388.4 15.291
SF4B-H20C(A-J05)	439 17.283	380 14.961	—	424.4 16.709	—	—	468.4 18.441
SF4B-H24C(A-J05)	519 20.433	460 18.110	440 17.323	504.4 19.858	—	—	548.4 21.591
SF4B-H28C(A-J05)	599 23.583	540 21.260	—	584.4 23.008	—	—	628.4 24.740
SF4B-H32C(A-J05)	679 26.732	620 24.409	600 23.622	664.4 26.157	—	—	708.4 27.890
SF4B-H36C(A-J05)	759 29.882	700 27.559	—	744.4 29.307	—	—	788.4 31.039
SF4B-H40C(A-J05)	839 33.031	780 30.709	760 29.921	824.4 32.457	399.5 15.728	—	868.4 34.189
SF4B-H48C(A-J05)	999 39.331	940 37.008	920 36.220	984.4 38.756	479.5 18.878	—	1,028.4 40.488
SF4B-H56C(A-J05)	1,159 45.630	1,100 43.307	1,080 42.520	1,144.4 45.055	559.5 22.028	—	1,188.4 46.787
SF4B-H64C(A-J05)	1,319 51.929	1,260 49.606	1,240 48.819	1,304.4 51.354	419.5 16.516	858.5 33.799	1,348.4 53.087
SF4B-H72C(A-J05)	1,479 58.228	1,420 55.906	1,400 55.118	1,464.4 57.654	472.5 18.602	965.5 38.012	1,508.4 59.386
SF4B-H80C(A-J05)	1,639 64.528	1,580 62.205	1,560 61.417	1,624.4 63.953	525.5 20.689	1,072.5 42.224	1,668.4 65.685
SF4B-H88C(A-J05)	1,799 70.827	1,740 68.504	1,720 67.716	1,784.4 70.252	578.5 22.776	1,179.5 46.437	1,828.4 71.984
SF4B-H96C(A-J05)	1,959 77.126	1,900 74.803	1,880 74.016	1,944.4 76.551	631.5 24.862	1,286.5 50.650	1,988.4 78.283

Model No.	H	Q
SF4B-H□C(A-J05)	20 0.787	22.2 0.874
SF4B-A□C(A-J05)	40 1.575	42.2 1.661

## DIMENSIONS (Unit: mm in)

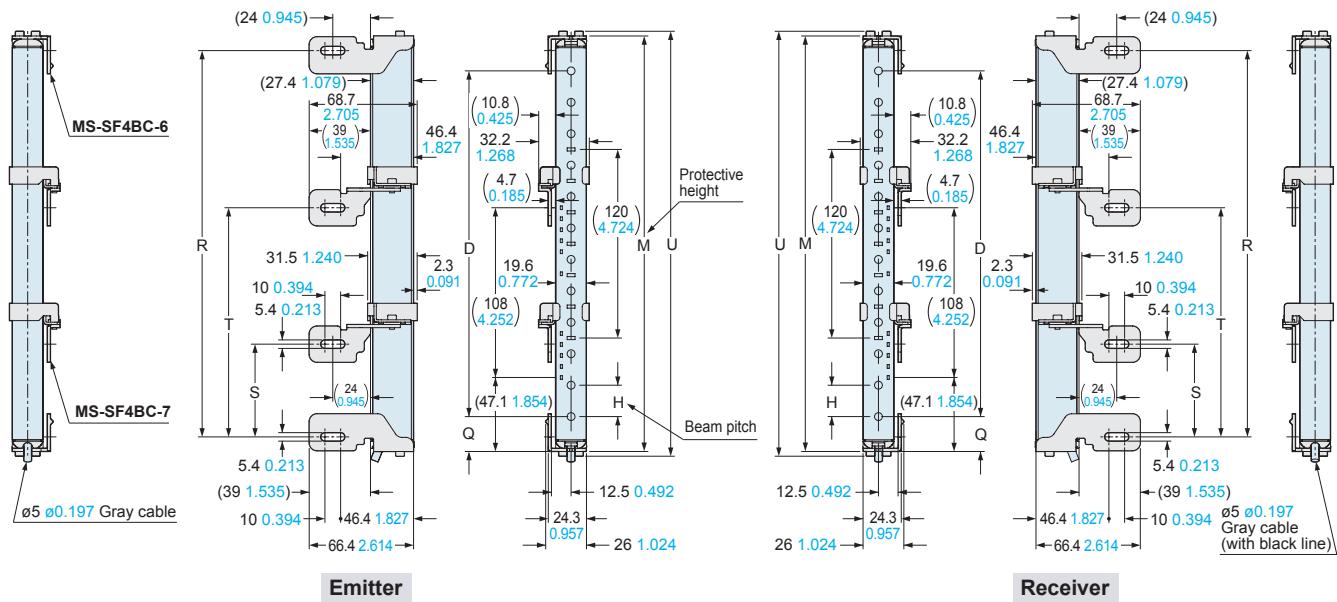
The CAD data can be downloaded from our website.

### SF4B-□CA-J05 SF4B-□C

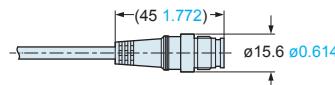
Safety light curtain

#### Assembly dimensions

The figure depicts space-saving mounting using the side mounting bracket **MS-SF4BC-6** (optional) and the intermediate supporting bracket for side mounting bracket **MS-SF4BC-7** (optional).



<Connector of the pigtailed type (with muting function) SF4B-□CA-J05>



Model No.	D		M	R	S	T	U
	SF4B-H□C(A-J05)	SF4B-A□C(A-J05)					
SF4B-H12C(A-J05)	220 8.661	—	264.4 10.409	245.8 9.677	—	—	270.4 10.646
SF4B-H16C(A-J05)	SF4B-A8C(A-J05)	300 11.811	280 11.024	344.4 13.559	325.8 12.827	—	—
SF4B-H20C(A-J05)	—	380 14.961	—	424.4 16.709	405.8 17.748	—	430.4 16.945
SF4B-H24C(A-J05)	SF4B-A12C(A-J05)	460 18.110	440 17.323	504.4 19.858	485.8 19.126	—	510.4 20.094
SF4B-H28C(A-J05)	—	540 21.260	—	584.4 23.008	565.8 22.276	—	590.4 23.244
SF4B-H32C(A-J05)	SF4B-A16C(A-J05)	620 24.409	600 23.622	664.4 26.157	645.8 25.425	—	670.4 26.394
SF4B-H36C(A-J05)	—	700 27.559	—	744.4 29.307	725.8 28.575	—	750.4 29.543
SF4B-H40C(A-J05)	SF4B-A20C(A-J05)	780 30.709	760 29.921	824.4 32.457	805.8 31.724	382.9 15.075	830.4 32.693
SF4B-H48C(A-J05)	SF4B-A24C(A-J05)	940 37.008	920 36.220	984.4 38.756	965.8 38.024	462.9 18.224	990.4 38.992
SF4B-H56C(A-J05)	SF4B-A28C(A-J05)	1,100 43.307	1,080 42.520	1,144.4 45.055	1,125.8 44.323	542.9 21.374	1,150.4 45.291
SF4B-H64C(A-J05)	SF4B-A32C(A-J05)	1,260 49.606	1,240 48.819	1,304.4 51.354	1,285.8 50.622	402.9 15.862	1,310.4 51.590
SF4B-H72C(A-J05)	SF4B-A36C(A-J05)	1,420 55.906	1,400 55.118	1,464.4 57.654	1,445.8 56.921	455.9 17.949	1,470.4 57.890
SF4B-H80C(A-J05)	SF4B-A40C(A-J05)	1,580 62.205	1,560 61.417	1,624.4 63.953	1,605.8 63.220	508.9 20.035	1,630.4 64.189
SF4B-H88C(A-J05)	SF4B-A44C(A-J05)	1,740 68.504	1,720 67.716	1,784.4 70.252	1,765.8 69.520	561.9 22.122	1,790.4 70.488
SF4B-H96C(A-J05)	SF4B-A48C(A-J05)	1,900 74.803	1,880 74.016	1,944.4 76.551	1,925.8 75.819	614.9 24.209	1,950.4 76.787

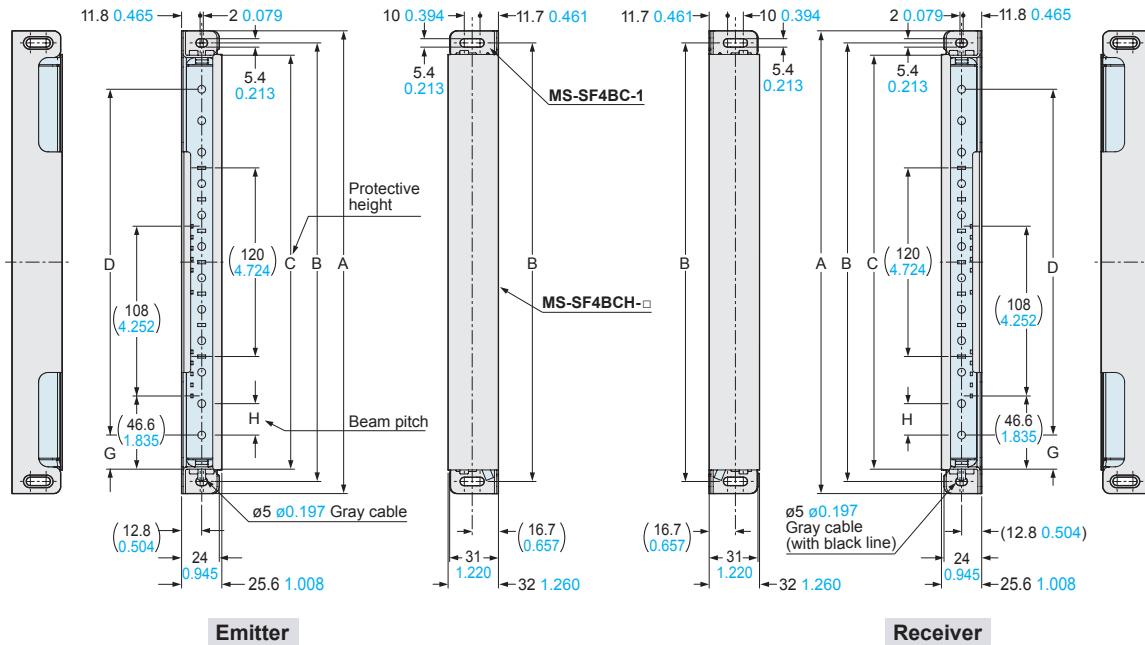
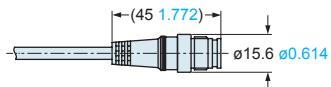
Model No.	H	Q
SF4B-H□C(A-J05)	20 0.787	22.2 0.874
SF4B-A□C(A-J05)	40 1.575	42.2 1.661

**DIMENSIONS (Unit: mm in)**

The CAD data can be downloaded from our website.

**SF4B-□CA-J05 SF4B-□C**

Safety light curtain

**Assembly dimensions**The figure depicts mounting using the metal protection case **MS-SF4BCH-□** (optional) and the standard mounting bracket **MS-SF4BC-1** (optional).Note: In the case of using a metal protection case **MS-SF4BCH-□** (optional), make sure to assemble it with a standard mounting bracket **MS-SF4BC-1** (optional).<Connector of the pigtailed type (with muting function) **SF4B-□CA-J05**>

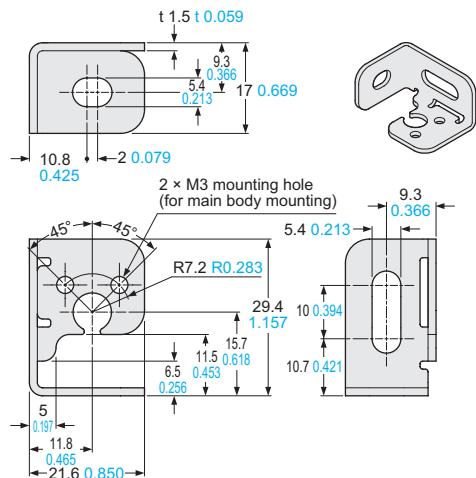
Model No.	A	B	C	D	
				<b>SF4B-H□C (A-J05)</b>	<b>SF4B-A□C (A-J05)</b>
<b>SF4B-H12C (A-J05)</b>	294.4 <b>11.591</b>	279 <b>10.984</b>	263.4 <b>10.370</b>	220 <b>8.661</b>	—
<b>SF4B-H16C (A-J05)</b>	<b>SF4B-A8C (A-J05)</b>	374.4 <b>14.740</b>	359 <b>14.134</b>	343.4 <b>13.520</b>	300 <b>11.811</b>
<b>SF4B-H20C (A-J05)</b>	—	454.4 <b>17.890</b>	439 <b>17.283</b>	423.4 <b>16.669</b>	380 <b>14.961</b>
<b>SF4B-H24C (A-J05)</b>	<b>SF4B-A12C (A-J05)</b>	534.4 <b>21.039</b>	519 <b>20.433</b>	503.4 <b>19.819</b>	460 <b>18.110</b>
<b>SF4B-H28C (A-J05)</b>	—	614.4 <b>24.189</b>	599 <b>23.583</b>	583.4 <b>22.969</b>	540 <b>21.260</b>
<b>SF4B-H32C (A-J05)</b>	<b>SF4B-A16C (A-J05)</b>	694.4 <b>27.339</b>	679 <b>26.732</b>	663.4 <b>26.118</b>	620 <b>24.409</b>
<b>SF4B-H36C (A-J05)</b>	—	774.4 <b>30.488</b>	759 <b>29.882</b>	743.4 <b>29.268</b>	700 <b>27.559</b>
<b>SF4B-H40C (A-J05)</b>	<b>SF4B-A20C (A-J05)</b>	854.4 <b>33.638</b>	839 <b>33.031</b>	823.4 <b>32.417</b>	780 <b>30.709</b>
<b>SF4B-H48C (A-J05)</b>	<b>SF4B-A24C (A-J05)</b>	1,014.4 <b>39.937</b>	999 <b>39.331</b>	983.4 <b>38.717</b>	940 <b>37.008</b>
<b>SF4B-H56C (A-J05)</b>	<b>SF4B-A28C (A-J05)</b>	1,174.4 <b>46.236</b>	1,159 <b>45.630</b>	1,143.4 <b>45.016</b>	1,100 <b>43.307</b>
<b>SF4B-H64C (A-J05)</b>	<b>SF4B-A32C (A-J05)</b>	1,334.4 <b>52.534</b>	1,319 <b>51.929</b>	1,303.4 <b>51.315</b>	1,260 <b>49.606</b>
<b>SF4B-H72C (A-J05)</b>	<b>SF4B-A36C (A-J05)</b>	1,494.4 <b>58.835</b>	1,479 <b>58.228</b>	1,463.4 <b>57.614</b>	1,420 <b>55.906</b>
<b>SF4B-H80C (A-J05)</b>	<b>SF4B-A40C (A-J05)</b>	1,654.4 <b>65.134</b>	1,639 <b>64.528</b>	1,623.4 <b>63.913</b>	1,580 <b>62.205</b>
<b>SF4B-H88C (A-J05)</b>	<b>SF4B-A44C (A-J05)</b>	1,814.4 <b>71.433</b>	1,799 <b>70.827</b>	1,783.4 <b>70.213</b>	1,740 <b>68.504</b>
<b>SF4B-H96C (A-J05)</b>	<b>SF4B-A48C (A-J05)</b>	1,974.4 <b>77.732</b>	1,959 <b>77.126</b>	1,943.4 <b>76.512</b>	1,900 <b>74.803</b>

Model No.	G	H
<b>SF4B-H□C (A-J05)</b>	21.7 <b>0.854</b>	20 <b>0.787</b>
<b>SF4B-A□C (A-J05)</b>	41.7 <b>1.642</b>	40 <b>1.575</b>

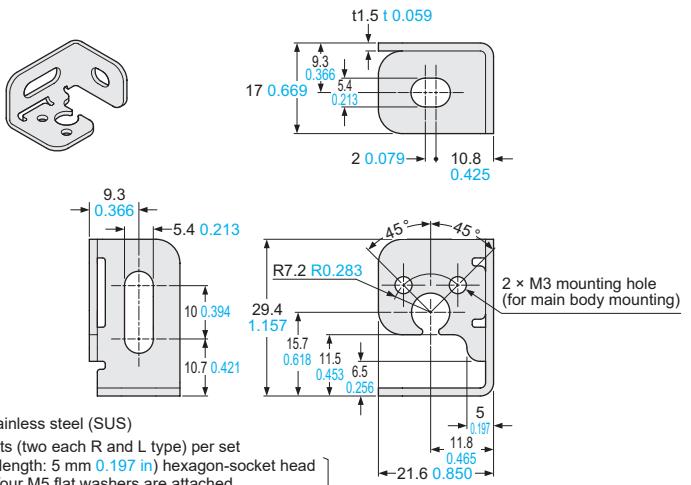
## DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

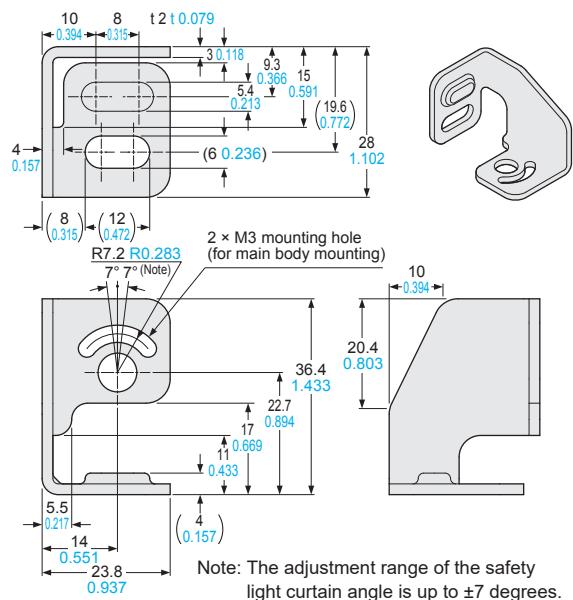
**MS-SF4BC-1**



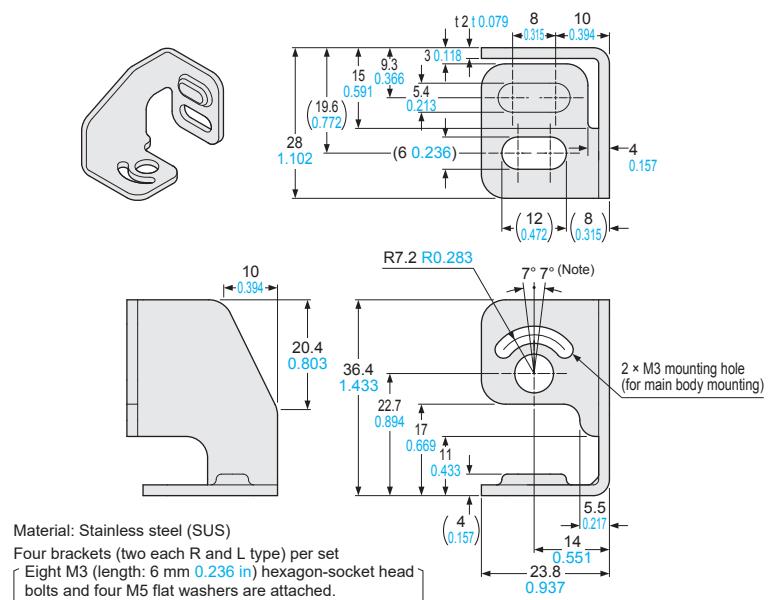
Standard mounting bracket (optional)



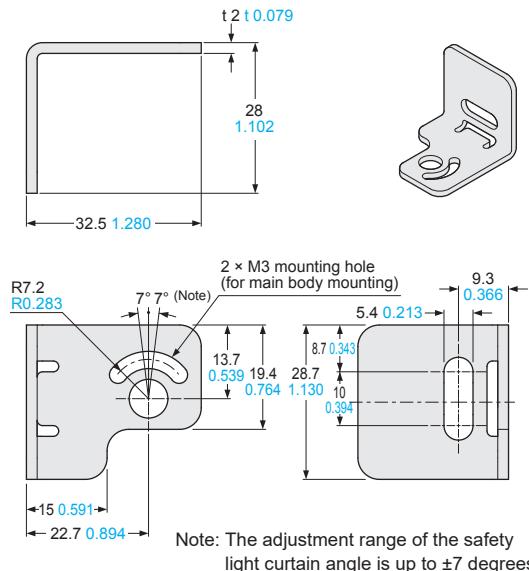
**MS-SF4BC-2**



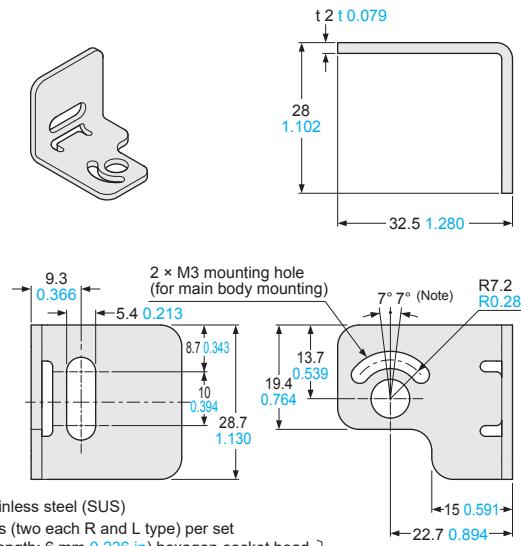
Rear utility mounting bracket (optional)



**MS-SF4BC-3**



Side utility mounting bracket (optional)

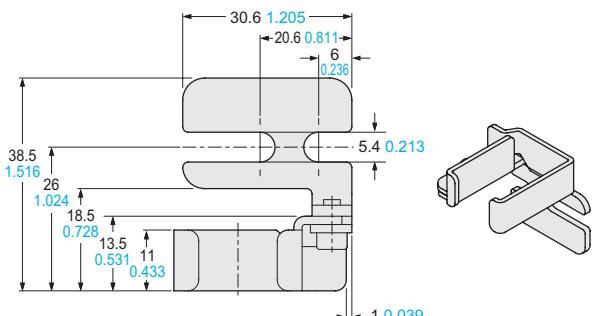


**DIMENSIONS (Unit: mm in)**

The CAD data can be downloaded from our website.

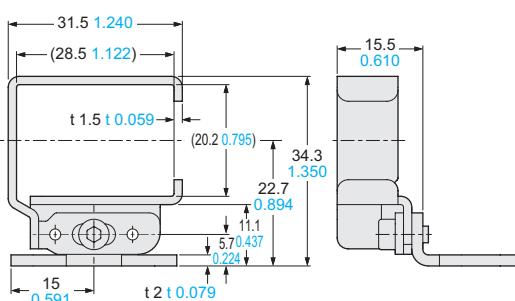
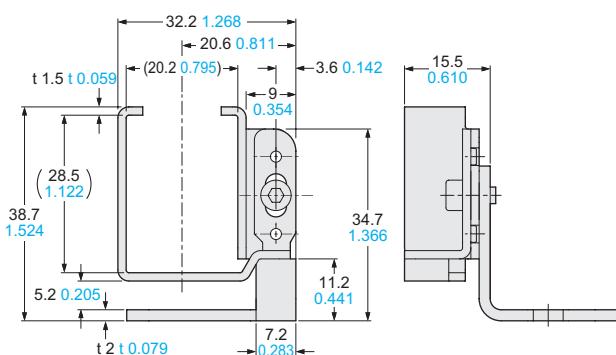
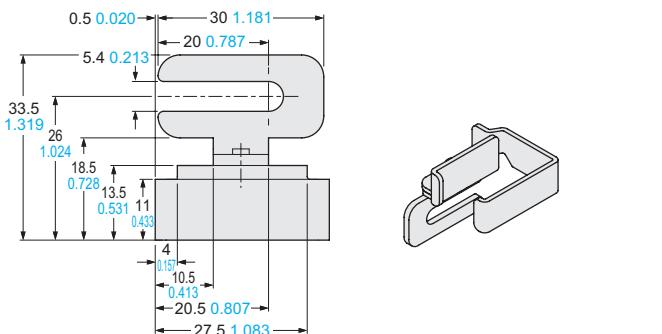
**MS-SF4BC-4**

## &lt;For rear mounting&gt;



Intermediate supporting bracket for utility mounting bracket (optional)

## &lt;For side mounting&gt;



Material: Stainless steel (SUS)

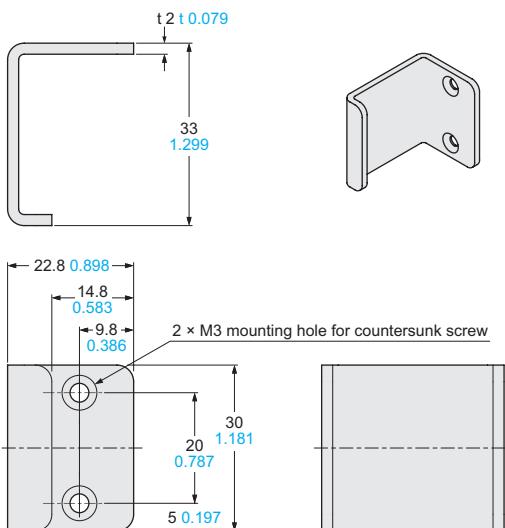
Two pcs. M5 flat washers, two pcs. assembled M3 (length: 6 mm 0.236 in) hexagon-socket head bolts for rear mounting, two pcs. attachments for side mounting

Note: The numbers of sets required by SF4B-H□C(A-J05)(40 or more beam axes) and SF4B-A□C(A-J05) (20 or more beam axes) are as follows:

SF4B-H40C(A-J05), SF4B-H48C(A-J05), SF4B-H56C(A-J05), SF4B-A20C(A-J05), SF4B-A24C(A-J05), SF4B-A28C(A-J05): 1 set  
 SF4B-H64C(A-J05), SF4B-H72C(A-J05), SF4B-H80C(A-J05), SF4B-H88C(A-J05), SF4B-H96C(A-J05), SF4B-A32C(A-J05), SF4B-A36C(A-J05),  
 SF4B-A40C(A-J05), SF4B-A44C(A-J05), SF4B-A48C(A-J05): 2 sets

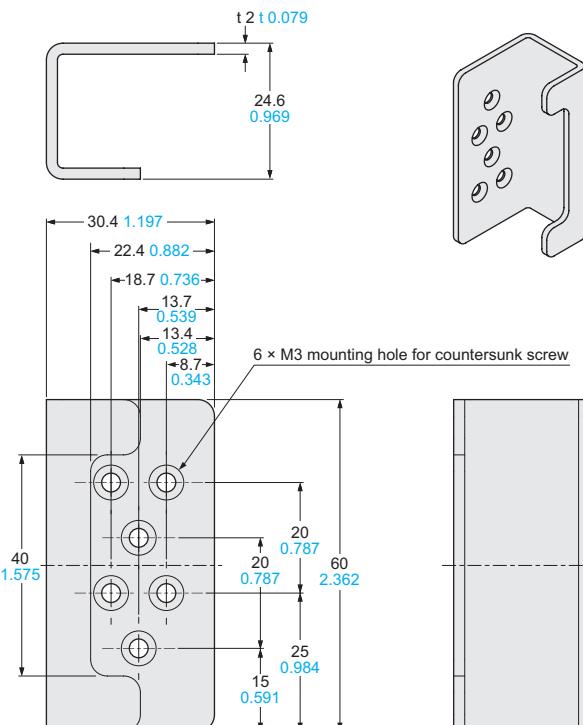
**MS-SF4BC-5**

## &lt;For rear mounting&gt;



Intermediate supporting bracket for standard mounting bracket (optional)

## &lt;For side mounting&gt;



Material: Stainless steel (SUS)

Two pcs. for rear mounting, two pcs. for side mounting

Note: The numbers of sets required by SF4B-H□C(A-J05)(40 or more beam axes) and SF4B-A□C(A-J05) (20 or more beam axes) are as follows:

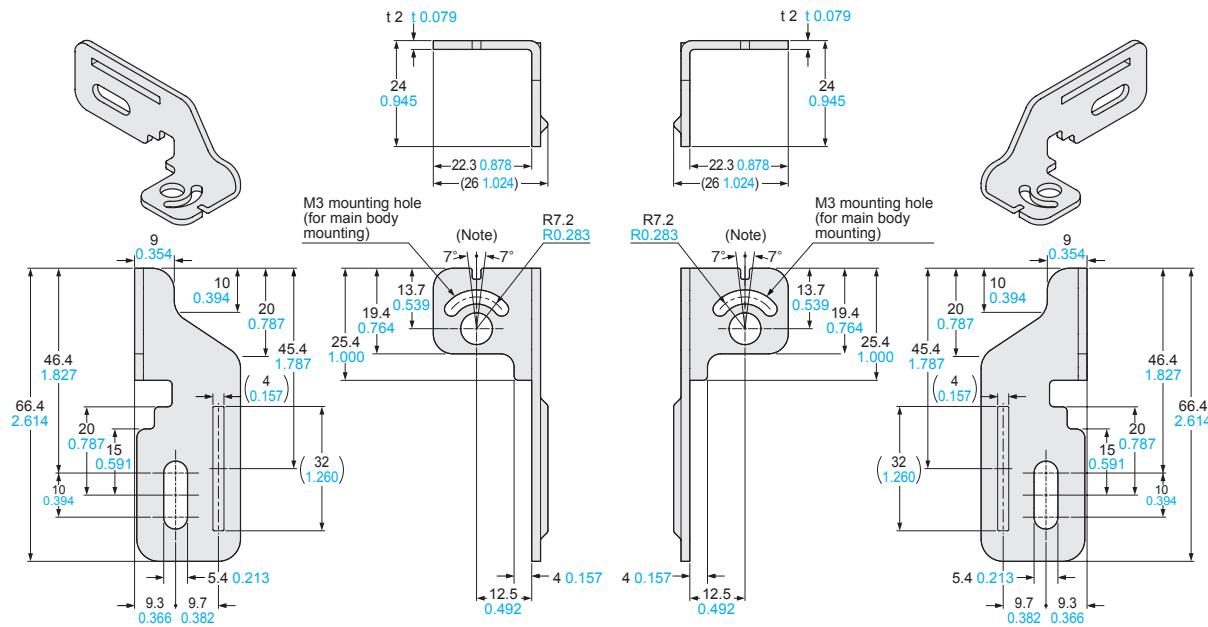
SF4B-H40C(A-J05), SF4B-H48C(A-J05), SF4B-H56C(A-J05), SF4B-A20C(A-J05), SF4B-A24C(A-J05), SF4B-A28C(A-J05): 1 set  
 SF4B-H64C(A-J05), SF4B-H72C(A-J05), SF4B-H80C(A-J05), SF4B-H88C(A-J05), SF4B-H96C(A-J05), SF4B-A32C(A-J05), SF4B-A36C(A-J05),  
 SF4B-A40C(A-J05), SF4B-A44C(A-J05), SF4B-A48C(A-J05): 2 sets

## DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

**MS-SF4BC-6**

Side mounting bracket (optional)



Material: Stainless steel (SUS)

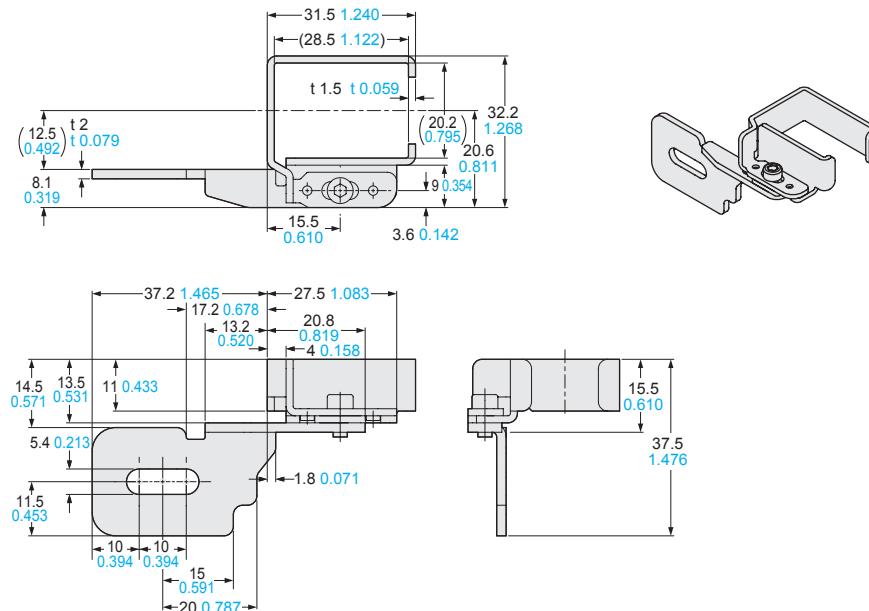
Four brackets (two each L and R type) per set

[ Eight M3 (length: 6 mm 0.236 in) hexagon-socket head bolts and four M5 flat washers are attached. ]

Note: The adjustment range of the safety light curtain angle is up to  $\pm 7$  degrees.

**MS-SF4BC-7**

Intermediate supporting bracket for side mounting bracket (optional)



Material: Stainless steel (SUS)

Two brackets per set

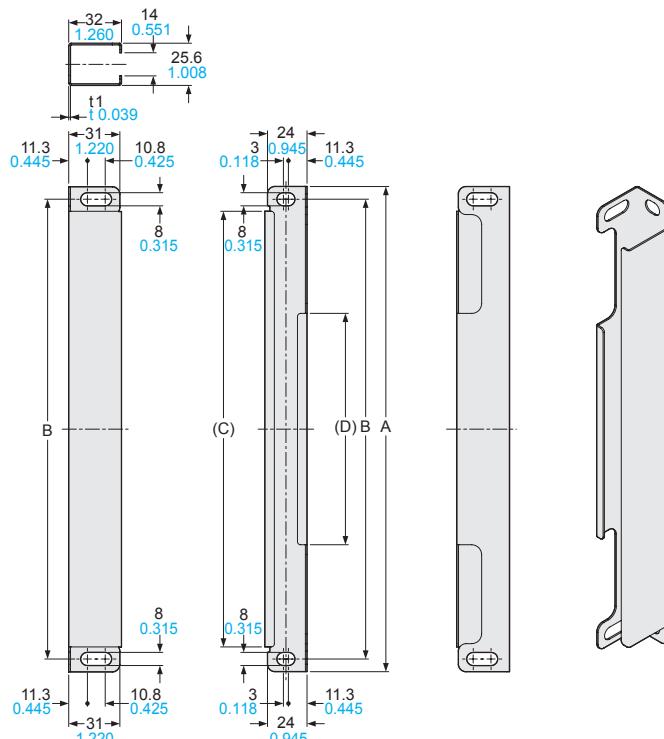
[ Two M5 flat washers and M3 (length: 6 mm 0.236 in) hexagon-socket head bolts in assembled state are attached. ]

**DIMENSIONS (Unit: mm in)**

The CAD data can be downloaded from our website.

**MS-SF4BCH-**

Metal protection case (optional)



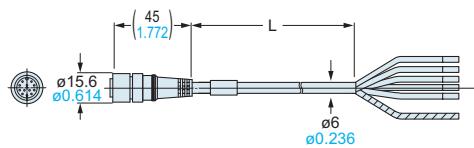
Material: Stainless steel (SUS304)

Model No.	A	B	C	D
<b>MS-SF4BCH-12</b>	294.4 <b>11.591</b>	279 <b>10.984</b>	264.4 <b>10.409</b>	140.4 <b>5.528</b>
<b>MS-SF4BCH-16</b>	374.4 <b>14.740</b>	359 <b>14.134</b>	344.4 <b>13.559</b>	220.4 <b>8.677</b>
<b>MS-SF4BCH-20</b>	454.4 <b>17.890</b>	439 <b>17.283</b>	424.4 <b>16.709</b>	300.4 <b>11.827</b>
<b>MS-SF4BCH-24</b>	534.4 <b>21.039</b>	519 <b>20.433</b>	504.4 <b>19.858</b>	380.4 <b>14.976</b>
<b>MS-SF4BCH-28</b>	614.4 <b>24.189</b>	599 <b>23.583</b>	584.4 <b>23.008</b>	460.4 <b>18.126</b>
<b>MS-SF4BCH-32</b>	694.4 <b>27.339</b>	679 <b>26.732</b>	664.4 <b>26.157</b>	540.4 <b>21.276</b>
<b>MS-SF4BCH-36</b>	774.4 <b>30.488</b>	759 <b>29.882</b>	744.4 <b>29.307</b>	620.4 <b>24.425</b>
<b>MS-SF4BCH-40</b>	854.4 <b>33.638</b>	839 <b>33.031</b>	824.4 <b>32.457</b>	700.4 <b>27.575</b>
<b>MS-SF4BCH-48</b>	1,014.4 <b>39.937</b>	999 <b>39.331</b>	984.4 <b>38.756</b>	860.4 <b>33.874</b>
<b>MS-SF4BCH-56</b>	1,174.4 <b>46.236</b>	1,159 <b>45.630</b>	1,144.4 <b>45.055</b>	1,020.4 <b>40.173</b>
<b>MS-SF4BCH-64</b>	1,334.4 <b>52.535</b>	1,319 <b>51.929</b>	1,304.4 <b>51.354</b>	1,180.4 <b>46.472</b>
<b>MS-SF4BCH-72</b>	1,494.4 <b>58.835</b>	1,479 <b>58.228</b>	1,464.4 <b>57.654</b>	1,340.4 <b>52.772</b>
<b>MS-SF4BCH-80</b>	1,654.4 <b>65.134</b>	1,639 <b>64.528</b>	1,624.4 <b>63.953</b>	1,500.4 <b>59.071</b>
<b>MS-SF4BCH-88</b>	1,814.4 <b>71.433</b>	1,799 <b>70.827</b>	1,784.4 <b>70.252</b>	1,660.4 <b>65.370</b>
<b>MS-SF4BCH-96</b>	1,974.4 <b>77.732</b>	1,959 <b>77.126</b>	1,944.4 <b>76.551</b>	1,820.4 <b>71.669</b>

## DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

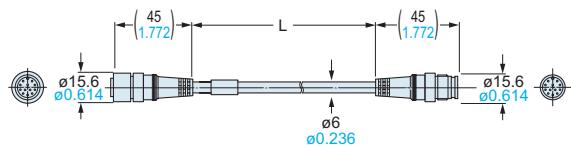
**SFB-CC□-MU** Mating cable with connector on one end (optional)



• Length: L

Model No.	Length: L
<b>SFB-CC3-MU</b>	3,000 118.110
<b>SFB-CC7-MU</b>	7,000 275.591
<b>SFB-CC10-MU</b>	10,000 393.701

**SFB-CCJ□-MU** Mating cable with connectors on both ends (optional)

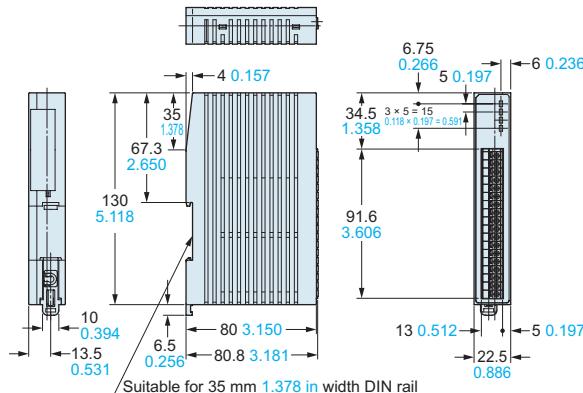


• Length: L

Model No.	Length: L
<b>SFB-CCJ3D-MU</b>	3,000 118.110
<b>SFB-CCJ3E-MU</b>	
<b>SFB-CCJ10D-MU</b>	10,000 393.701
<b>SFB-CCJ10E-MU</b>	

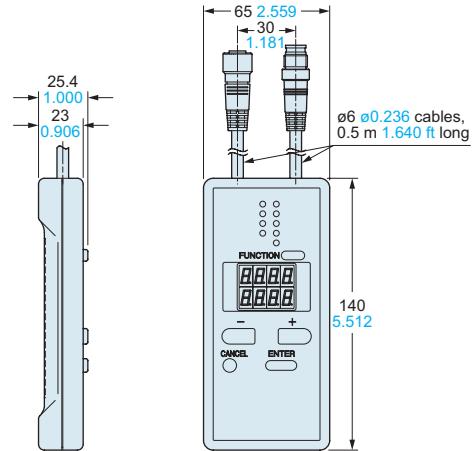
**SF-C13**

Control unit (optional)



**SFB-HC**

Handy-controller (optional)



## Disclaimer

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